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### Economic Currents: The State of the State Economy

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ILLUSTRATION: NAOMI SHEA

# Economic currents

ALAN CLAYTON-MATTHEWS

**T**he Commonwealth's economy appears to have bottomed out and may already have started to expand. The Massachusetts Leading Economic Index for February forecasts that real gross state product will grow at an annualized rate of 1.8 percent through August. This is the fourth consecutive positive reading. Furthermore, the current economic index has remained steady for three months in a row.

Now that the economy appears ready to begin a recovery phase, we can assess this last cycle to understand how the peak and subsequent recession unfolded in the state and nationally, who and what sectors were affected, and

how this informs us as to the short- and long-term prospects for the future.

Perhaps the most significant aspect of this recession has been its brevity. It was not until after the terrorist attacks last September that economy-watchers were in near-unanimous agreement that a recession had begun. The NBER (National Bureau of Economic Research), for example, did not officially announce that the country was in recession until November. A mere four months later, the consensus among economists is that the national economy is growing, and moreover—at least while inventories are restocked—that it is growing robustly.

# The Current and Leading Economic Indices for Massachusetts

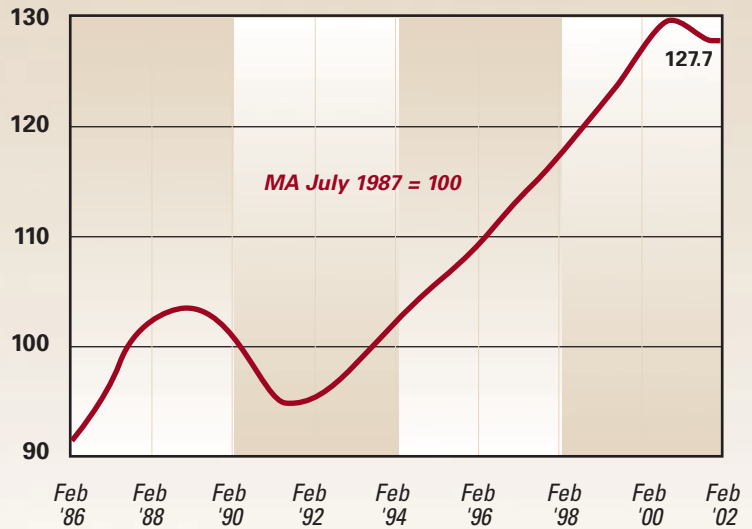
The Massachusetts Current Economic Index for February was 127.7, up 0.4 percent from January (at annual rates) and down 1.4 percent from February of last year. The current index is normalized to 100 in July 1987 and is calibrated to grow at the same rate as the Massachusetts real gross state product over the 1978–1997 period.

The Massachusetts Leading Economic Index for February was 1.8 percent, and the three-month average for December through February was 1.6 percent. The leading index is a forecast of the growth in the current index over the next six months, expressed at an annual rate. Thus, it indicates that the economy is expected to grow at an annual rate of 1.8 percent over the next six months (through August). Because of monthly fluctuations in the data on which the index is based, the three-month average of 1.6 percent may be a more reliable indicator of near-term growth.

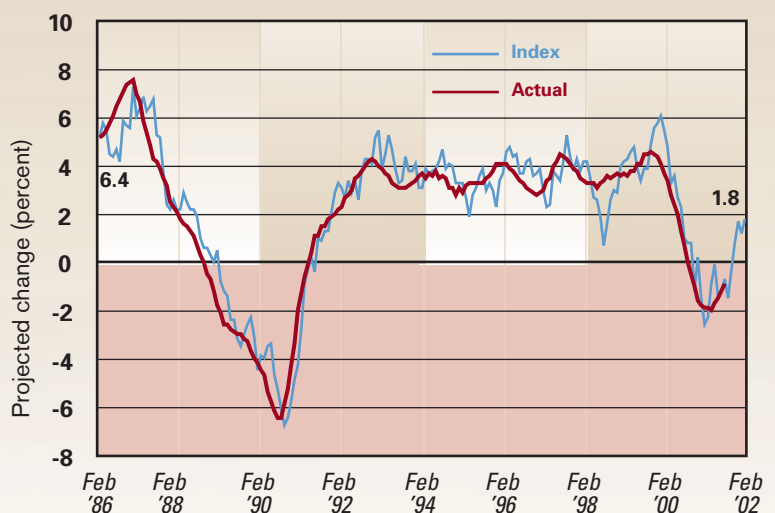
It appears that the state economy is beginning to turn around. The leading index has been positive for four months, and the current index registered its first positive growth in over a year. For the first time in 13 months, state payroll employment did not decline. The unemployment rate has remained steady for several months. These signals are consistent with other indicators, including rising shipments and orders in the (national) computers and electronics industry, positive reports from industry associations and companies producing semiconductors and related equipment, a mildly upbeat view from the Federal Reserve Bank of Boston's latest Beige Book report, and a nascent turnaround in Massachusetts merchandise exports. However, the rate of expansion predicted by the leading index for this spring and summer is slow. For growth to pick up beyond this tepid pace, businesses will have to resume capital spending on technology products.

*Submitted March 25, 2002*

### Massachusetts Current Economic Index



### Massachusetts Leading Economic Index



Sources: The Conference Board; University of Massachusetts; Federal Reserve Bank of Boston

## Recessions in Massachusetts Are Historically Worse Than the Nation's

In the long run, the state's population and labor force grow at a substantially slower pace than those of the nation. In expansions, however, the state's employment grows at nearly the same rate; in recessions, it declines more quickly. Furthermore, recessions tend to be longer in Massachusetts, as well as deeper.<sup>1</sup> This cycle we are now emerging from fits this pattern.

In the last expansion, employment grew at an annual rate of 2.1 percent in Massachusetts versus 2.0 percent nationally. In the recession to date (with employment data through January), employment declined at an annual rate of 1.8 percent in Massachusetts versus 1.3 percent in the United States.<sup>2</sup>

The recession also appears to have begun earlier in Massachusetts. The starting date of the U.S. downturn was set by the NBER to be March 2001, which coincided with peak U.S. payroll employment. Massachusetts payroll employment peaked in January 2001, and the Massachusetts Current Economic Index peaked the month before.

Estimates of output growth also indicate a longer and deeper recession in the state. In the fourth quarter of 2001, U.S. real gross domestic product (GDP) expanded at a 1.4 percent annual rate. The estimated Massachusetts real gross state product (GSP) reflects a decline at a 1.5 percent annual rate. Furthermore, U.S. GDP only declined in the third quarter of 2001, while Massachusetts GSP is estimated to have declined in all four quarters of that year.<sup>3</sup>

Business confidence also appears to be lower in Massachusetts than in the nation, according to the Associated Industries of Massachusetts (AIM) Business Confidence Index versus the National Association of Purchasing Managers (NAPM) Index. The statewide AIM index in February stood at 46.4, while the NAPM index for the United States stood at 54.7. For both of these indices, 50 is the dividing line between expansion (above 50) and contraction (below 50). Though the two indices are not strictly comparable, because the NAPM index is for manufacturing while the AIM index includes some nonmanufacturers, the AIM manufacturing subindex, at 45.5, also stood below 50.

### The Bubble Economy

One way to characterize the last phase of the expansion and the recession is that it was a speculative bubble that burst. Greenspan's term "irrational exuberance" describes well the psychology that drove a self-reinforcing boom in key sectors of the economy, especially information technology and stock markets. In hindsight, the predictions of endless double-digit growth in the output of IT-related products and services were totally unrealistic.

Even during the boom, many economists knew that the economy was in the midst of a speculative bubble. It is the very nature of a speculative bubble, however, that one cannot predict how large it will get or when it will burst. Furthermore, assuming the bubble will burst tomorrow—and therefore not investing in the stock market or increasing production to maintain market share—is not an opti-

mal strategy. "You can't win if you don't play the game" applies in bubble situations.

It may turn out that the recession was short because the dislocations that resulted from the bubble were not too severe. Excess inventories, for example, were composed of items with a short shelf life (e.g., electronic components) rather than a long shelf life (e.g., real estate). Low inflation made aggressive monetary policy feasible. Worker compensation was more flexible downward than in past recessions, which allowed firms to make more rapid cost adjustments with fewer layoffs. The information revolution itself probably played a role by enabling decision-makers to receive and act on signs of maladjustments more quickly. Ironically, the information technology feeding the bubble mentality may have also helped prick the bubble sooner, making the required adjustments smaller in magnitude.

One is tempted to conclude that perhaps the bubble was not a bad thing. It simply suggests that, for a period of time, the economy overproduced and over-consumed. In the recessionary adjustment period, it made up the difference by lower production and consumption. Now the economy is back on track and ready to resume "normal" levels.

Unfortunately, it is not that benign. The bubble resulted, as one always does, in what economists call a misallocation of resources, commonly known as a waste. Some equipment in inventories was simply useless, because it was customized for a deal that no longer exists. Telecommunications equipment put in the ground will never be used; investment schemes will never return money; personal efforts, sacrifices, and training now have to be made anew; homes purchased are too extravagant; and so on. The economy indeed may now be growing again, but on a slower path than the one that preceded the bubble.

Finally, a bubble produces both big winners and big losers, a result that is generally thought to be socially undesirable.

### Why Has Massachusetts Been So Hard Hit?

Though the recession was relatively short and mild, perhaps 13 months in Massachusetts and 10 months in the United States, it was worse here. Because the pattern has repeated itself many times, it is reasonable to assume that there is a fundamental cause. Is it because the region's slow-growing population, combined with its skilled and adaptive labor force, enables it to move to capacity quickly, overheat, and develop more severe imbalances that require a longer period of readjustment? Whatever the case, the proximate reason for this cycle was its relative concentration in those sectors—IT and finance—that were most directly involved in the speculative bubble.

According to a Department of Commerce study, Boston has more IT-related jobs than any other metropolitan area in the country. Massachusetts, with 7.6 percent of its workforce in IT-related jobs, compared to 4.8 for the nation, gives us the country's third-highest concentration, behind Colorado and New Hampshire.<sup>4</sup>

In the broad NAICS-defined computers and electronic products industry, Massachusetts has an employment con-

centration two and a half times that of the nation.<sup>5</sup> Boston has the largest mutual funds industry in the nation, and Massachusetts is among the top states in terms of household wealth in the stock market. As the speculative bubble took off in the late 1990s, Massachusetts received a disproportionate share of the growth; when the bubble burst in 2000, the state shared disproportionately in the crash.

The upside and downside growth rates were phenomenal. Though the size of the sectors was small relative to the entire economy, their movements were so large that they

Other technology-related indicators exhibit a similar pattern, peaking in the fall or winter of 2000 and dropping sharply until very recently. U.S. investment in information processing equipment and software grew at an annualized rate of 17.1 percent during the boom phase and has declined at an annualized rate of 16.8 percent in the bust phase. North American semiconductor equipment shipments grew at an annualized rate of 87.9 percent in the boom phase and declined at a rate of 61.4 percent in the bust phase. Worldwide semiconductor billings expanded at a rate of 33.8 percent in the boom phase, and declined at a rate of 39.2 percent in the bust phase.

The stock market, in keeping with its characteristic of being a leading indicator, peaked earlier and also reached its nadir earlier. Between its takeoff in mid-October 1999 and early March 2000, the Bloomberg stock index for Massachusetts grew at an annualized rate of over 180 percent and subsequently declined over 50 percent to its nadir in early April 2001, losing more than it gained in the takeoff phase.

The relatively greater impact of the bubble on Massachusetts is illustrated not only in employ-

ment and product data but also in exports and income. Massachusetts merchandise exports, being concentrated in technology products, grew much faster than those of the nation as a whole and also contracted much more quickly. Wage rate growth in Massachusetts peaked at an annualized rate of 11.6 percent in the fall of 1999, almost double the peak rate of the U.S. wage growth the following spring.

## Bubble Boom-and-Bust Rates of Growth (Annualized)

	Boom	Bust	Takeoff	Peak	Trough
<b>MA Merchandise Exports</b>	20.0%	-30.6%	Sep '98	Nov '00	Nov '01
<b>US Merchandise Exports</b>	12.7	-13.2	Sep '98	Oct '00	Dec '01 (note)
<b>MA Wage Rate Growth</b>	11.6	-3.0	Dec '96	Oct '99	Feb '02
<b>US Wage Rate Growth</b>	6.5	2.8	Nov '98	May '00	Feb '02
<b>MA Payroll Employment</b>	2.7	-1.8	Jan '00	Jan '01	Jan '02
<b>US Payroll Employment</b>	0.3	-1.3	Jan '00	Mar '01	Jan '02

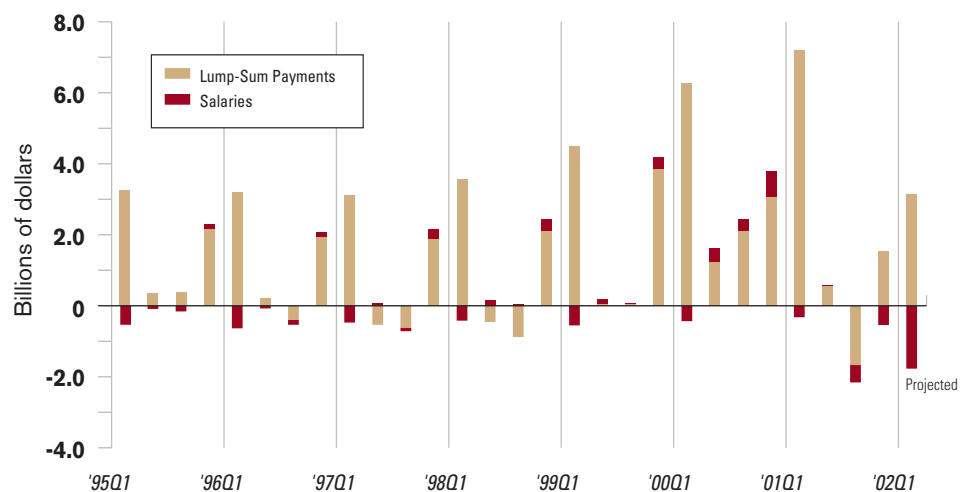
Note: The analysis presented here is more accurately portrayed by the level at this date rather than the lower level of September, which reflects the disruptions associated with the terrorist attack.

Sources available from the author on request.

were the figurative tail wagging the dog. The table above lists several indicators that illustrate the magnitude of the bubble. In each case, a profile of the indicator over time suggests three dates that define the boom and bust phases: a takeoff date, when the growth rate of the series accelerated sharply; a peak date at the highest level for the series; and a trough date (often the date of the most recent data available) when the series reached its nadir.

The boom-and-bust growth rates go from the takeoff date to the peak and from the peak to the trough, expressed at annualized rates for comparability.<sup>6</sup> For example, shipments of computers and electronics equipment in the United States started growing rapidly in August 1998, and shipments peaked 28 months later in December 2000. During that time, the average annual rate of growth in shipments was 12.6 percent, or nearly double the rate of growth of overall manufacturing during its takeoff phase. Subsequently, shipments plummeted for the next ten months, until October 2001, at a 35.1 percent annualized rate of decline. (Since October, they have again begun to grow rapidly, though their current level is as low as it was at the end of 1996, before the takeoff began.)

## Deviation of Total Wages and Salaries from Trend, by Source

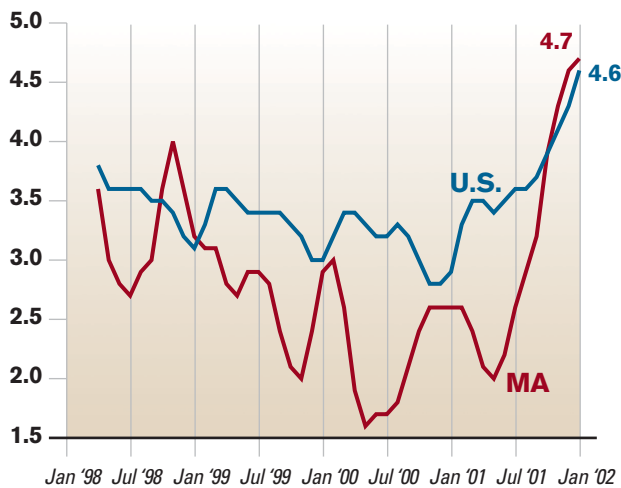


Source: MA Department of Revenue; MA Division of Employment and Training; author's calculations

In the recession, wage growth abated across the country but especially in Massachusetts, where average per-worker wages actually fell. Wages as defined here include regular pay and lump-sum payments, essentially bonuses and realized stock options. It is these lump-sum amounts, received by a minority of high-paid workers, that have accounted for the dramatic swings in labor compensation and income. The figures for Massachusetts are based on withholding taxes and are consistent with official data released—with a considerable lag—by the U.S. Bureau of Economic

## Unemployment Rates for Those with Some College Education

*The data are not seasonally adjusted, but are smoothed.*



Sources: Current Population Surveys; author's calculations

Analysis. For example, in its release of annual per capita income, Massachusetts ranked first in the nation from 1999 to 2000, with growth of 9.4 percent. This was more than a full percentage point higher than the next states: California (8.1 percent) and New Hampshire (7.7 percent).

The effect of the bubble is also evident in the demographics of unemployment. For several years, the overall unemployment rate in Massachusetts has been below the national rate, reflecting tighter labor markets here. This relationship has held throughout the current recession. The unemployment rate in February, for example, was 4.4 percent in the state versus 5.5 percent nationally. This relationship has also held true across broad demographic characteristics. Unemployment rates by age, gender, or minority status group have been lower in Massachusetts than in the nation. Unemployment rates for all populations have risen in the recession and, following typical cyclical patterns, those for youth and minorities have risen the most.

What is unique about the current recession, particularly in Massachusetts, is how college-educated workers have been impacted. Their unemployment rates have risen to levels comparable to those of the nation. Massachusetts residents with some college education, but less than a bachelor's degree—typical for skilled manufacturing workers in technology industries—now have unemployment rates comparable to those of residents with a high school education. In

January, the estimated unemployment rates for Massachusetts residents were 4.1 percent for those with a high school education and 4.7 percent for those with some college but no bachelor's degree. For a bachelor's degree or higher, the estimated unemployment rate is 2.7 percent in Massachusetts and 2.8 percent nationwide.

## The Devastating Impact on State Tax Revenues

State tax revenues have been much more sensitive to the bubble's boom-and-bust cycle than overall employment or gross state product. Revenue growth accelerated at the end of the boom, growing at an annualized rate of 12.4 percent from May 1999 to its peak in March 2001, and declining at an annualized rate of 15.2 percent from its peak through December 2001.<sup>7</sup>

The bulk of the declines have occurred in personal income and corporate taxes, due to drops in realized capital gains, bonuses, realized stock options, employment, withholding tax rates, and corporate profits. The falloff in revenue since March 2001 far exceeds that associated with the prior recession, which for Massachusetts was the worst in terms of employment and output since the Great Depression.

The most dramatic impact of the bubble has been in capital gains taxes. The Department of Revenue estimates these tax collections to have been over a billion (\$1,046

## Total State Taxes for Budget

*The data are seasonally adjusted and smoothed.*



Sources: MA Department of Revenue; author's calculations

million) in fiscal year 2001. In fiscal year 1996, capital gains tax collections were \$389 million. For fiscal year 2002, ending in June, DOR estimates they will fall by roughly \$600 million, or 61 percent.

Bonuses have also followed the boom-and-bust pattern. The bonus season consists of the fourth and first calendar quarters (most bonuses are received in December and January). Bonuses (and other lump-sum payments, i.e., payments not received on a regular basis) for the peak bonus season of 2001 are estimated to have been \$10.3 billion (\$3.1 billion from the fourth quarter of 2000 and \$7.2 billion from

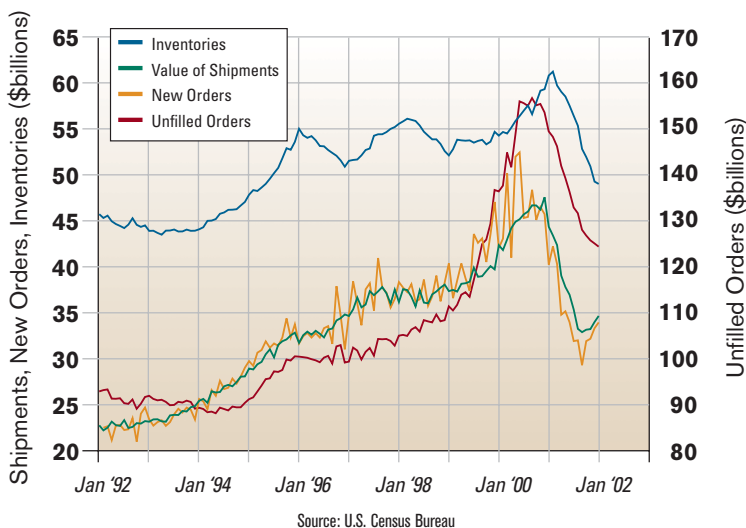
the first quarter of 2001).<sup>8</sup> In contrast, bonuses in the 1998 season are estimated to have been \$5.4 billion for the 2002 season. This season, they are estimated to be \$4.7 billion, a reduction of 55 percent from a year earlier. At a marginal tax rate of 5.3 percent, this amounts to a loss of about \$300 million in withholding tax revenues over the prior year.

### Even with a Recovery, Near-Term Growth Should Be Weak

Evidence is mounting that a turnaround has begun. Most significantly, the employment report for February was very good news. Nationally, employment rose, and the unemployment rate dipped slightly. Both payroll employment and the unemployment rate held steady in Massachusetts. This is the first time since January 2001 that state payroll employment has not declined.

Nationally (no state-level data are available), output and new orders of computers and electronic products have risen robustly since September 2001. For the three months ending in January, shipments in this industry rose at an annual rate of 10.8 percent over the prior three months; orders were up even more sharply, at an annual rate of 29.5 percent. Semiconductor chipmakers are now projecting slow growth in the first half of this year and solid growth in the second half. Chip prices are rising.

### Computers and Electronic Products, United States



At the state level, merchandise exports appear to have bottomed out and started rising. Initial unemployment claims have fallen steadily every month since October on a seasonally adjusted basis, from 53,400 in October to 41,700 in February. Both the withholding and the sales tax bases recorded small gains in February, which is a sign that the economy is turning the corner.

The Massachusetts Leading Economic Index suggests that growth will be slow through the spring and into the summer. This seems likely for several reasons. The state's economy is not likely to be back in full gear until national investment in technology-related goods picks up again, and

this investment demand is likely to lag the overall economy somewhat. First, business profits must recover, and then growth in capital expenditures will resume. Production in manufacturing—particularly in the IT sector—is well below peak levels. Further layoffs and cost cutting are possible even as output increases, though it appears that the worst is over.

The state's budget crisis will constrain state spending and result in layoffs of state workers. The mortgage-refinancing boom is over, as mortgage rates have begun to rise. Finally, consumer spending is expected to grow more slowly than in a typical recovery, because it never declined significantly in the recession.

Though Massachusetts should begin the recovery in low gear, relative to the nation, there is no reason that the normal pattern will not reassert itself as the recovery gets under way. From that point, growth should resume at a robust pace. ▮

Submitted March 23, 2002

1 See *Benchmarks*, Summer '99, Volume 2, Issue 3, pp. 8–9.

2 The dates of the last expansion are defined, for the United States, by the NBER, and for Massachusetts, by payroll employment turning points. The U.S. expansion began in March 1991 and ended in March 2001. The Massachusetts expansion began in December 1991 and ended in January 2001.

3 In the BLS/DET's annual re-benchmarking, released on March 1, payroll employment in the state was revised downward. This resulted in a revision of CEI-based GSP growth from a small positive growth (less than 0.1 percent) in the first quarter of 2001 to a small negative growth (0.4 percent) in that quarter.

4 The data cited here are for 1998 and were prepared for NEEP by Economy.com. Economy.com used the Department of Commerce's definition of IT given in *The Emerging Digital Economy*, except that they were limited to 3-digit SIC detail by data availability at the state and metropolitan regional levels.

5 From the 1997 Census of Manufactures.

6 The choice of dates, especially the takeoff dates, is somewhat subjective. Also, be careful when comparing a positive boom rate to its corresponding negative bust rate, as these rates become high. For example, if a series doubles in one year, and then returns to its original level in the second, the growth rate is a positive 100 percent in the first year, but "only" a negative 50 percent in the second.

7 These are calculated on seasonally adjusted and smoothed total "for budget" state tax revenues.

8 A quarterly wage and salary series is derived from withholding tax revenues adjusted for rate and base changes, and exemptions. Details available from author.

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