Economic Currents

Economic Indexes for Massachusetts

Now That We Do: Same-sex couples and marriage in Massachusetts

The Massachusetts Plastics Industry: A regional perspective

The Massachusetts Innovation Economy

A PUBLICATION OF THE UNIVERSITY OF MASSACHUSETTS

IN COOPERATION WITH THE FEDERAL RESERVE BANK OF BOSTON
Massachusetts Benchmarks
Editorial Policy

*Massachusetts Benchmarks* is a quarterly journal published by the University of Massachusetts in cooperation with the Federal Reserve Bank of Boston. It presents timely information concerning the performance of the Massachusetts economy, including periodic economic analyses of major geographic regions within the Commonwealth and an array of key industries that make up the economic base of the state. The journal provides commentary and interpretation of economic data aimed at business leaders, public policy makers, educational organizations, and the general public.

The editors of *Massachusetts Benchmarks* invite articles on topics of current interest from researchers on various aspects of the state economy, regional economic development, and key growth industries. The editors also welcome queries from academic or professional economists for future issues of the journal. Please send queries to Michael Goodman at mgoodman@donahue.umassp.edu with a brief biography and topical outline. Authors considered for *Massachusetts Benchmarks* will be furnished with writers’ guidelines.

All submissions are subject to rigorous review by the Editorial Board or other referees. Manuscripts of accepted articles are expected to adhere to the guidelines. Final publication decision rests exclusively with the editors.
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A regional perspective

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Massachusetts continues to be a hotbed of innovation. But a serious and growing disconnect exists between creating concepts in our laboratories and producing the actual products from such innovation.
S low but steady. That sums up the latest *Massachusetts Benchmarks* analysis of the economic recovery now under way in the Commonwealth. “The recovery seems to be on solid footing,” writes co-editor and UMass Boston Professor Alan Clayton-Matthews. But, he adds, “It will just take some patience to wait for the economy’s engine to get into full gear.”

In Massachusetts, we have always prided ourselves on our economic resiliency, and with good reason. Major industries mature and are replaced by new sectors and engines of growth. The articles in this issue of *Benchmarks* show just how important it is to be innovative in both our economy and our analysis of policy. Indeed, we need to rely on our innovative strengths now more than ever.

In this issue, UMass Lowell Professor Robert Forrant describes how the plastics industry has managed to remain a viable, productive employer and economic contributor to central Massachusetts and other regions of the state. He discusses what it takes for such traditional industries to reinvent themselves in the face of tough competitive pressures.

Just as we need to look at ways to reinvent old industries and enhance new ones, it is also important to examine the potential economic impact and other ramifications of broader policy developments in Massachusetts. Last May’s Supreme Judicial Court ruling that legalized same-sex marriage generated a lot of intense heat and social debate, but relatively little hard analysis. This issue of *Benchmarks* looks at the demographics of same-sex couples and considers some potential consequences of the SJC’s decision on the state economy.

In “Endnotes,” the Massachusetts Technology Collaborative offers an index showing that our technology companies continue to do well in the face of mounting competition, as measured by research grants, SBIR awards and other inputs. At the same time, the MTC index signals an important caution: despite this strong base in innovation, the end product of job creation continues to lag. The index also cites an issue raised regularly in these pages: high housing and other costs of living undermine the Commonwealth’s ability to attract and retain the skilled workers upon which the innovation economy depends.

We hope that the timely analysis of key issues facing the Commonwealth highlighted in this issue will help provide our elected officials, business leaders and public policymakers with critical information they will need to help Massachusetts continue to meet the challenges and capture the opportunities facing the Bay State.

Jack M. Wilson  
President  
University of Massachusetts
Growth in the Massachusetts economy continues to be positive but modest. While the latest national jobs report suggests that better times may be ahead, the expectation is that the state’s economic expansion will continue at a modest pace. The fact that the national recession was relatively shallow may explain why the jobs recovery is now tepid. Since the first of the calendar year, roughly 7,000 jobs have been created in the state. The state’s expansion has proceeded at a slower pace than the national expansion, and there is reason to expect that pattern to continue.

An important factor in the state’s economic prospects is national demand for information technology (IT) products. Measured in a variety of ways, it appears that demand for these products has been slowing recently. While the value of shipments of computers, semiconductors, and electronic products continues to rise nationally, as it has for nearly a year, other measures suggest a slowdown of demand. Recently, unfilled orders of these products have been falling, and new orders have stagnated. In Massachusetts, industry representatives have observed a modest but noticeable slowdown in the IT sector, though they suggest that this may be a pause rather than an end to the expansion of demand for IT products.

Other factors that may retard the state’s growth include the high price of oil and increasing health care costs. While the high cost of oil has not had a serious impact on the national or state economies in recent months, this may change for Massachusetts as we move through the home heating season. Rising home heating costs act as a tax on household disposable income, reducing other expenditures. Rising health care costs also tax household incomes, leaving less latitude for consumer spending. They also push up the cost of fringe benefits, making it more expensive for employers to add permanent, benefited employment.

Migration, both domestic and international, continues to be a critical issue for the Massachusetts labor market. Domestic migration has been persistently net negative for the state, a decade-long pattern, though it has also exhibited considerable cyclical sensitivity. During the expansion of the 1990s, domestic net out-migration became less and less negative, so that by the end of the decade, in-migration nearly balanced out-migration. During the ensuing recession, net out-migration grew once again. What has helped to neutralize this movement of our labor force out of state has been a consistent pattern of international immigration into Massachusetts through the 1990s, and throughout the current recession. In fact, in recent years the magnitude of this flow of international immigrants has increased, despite the state’s recession. This international replenishment of our labor force will continue to be a vital factor in the state’s economy.

In sum, the prospects for the near-term future seem to be slow but steady. Though certain factors may retard its pace, the recovery is no doubt under way. While there is no reason to believe that Massachusetts will return to the growth rates of the late 1990s, continued economic growth is expected.

Submitted November 5, 2004
Patience! The economic recovery in Massachusetts, which entered its eighteenth month in September, is proceeding at a slow, measured pace. The recession here began three months before that of the nation and ended 16 months after that of the nation. This recovery is proceeding at about the same pace as the state’s recovery from the prior recession of the late 1980s and early 1990s. As was the case then, improvements in the labor market have lagged growth in output, and many workers are still facing the pain of long-term unemployment. Also like the last time, net migration is negative and the state is experiencing a
Economic Indexes for Massachusetts

The Massachusetts Benchmarks Current Economic Index for October was 129.7, up 4.6 percent from September (at annual rates), and up 2.9 percent over October of last year. The Massachusetts Leading Economic Index for October was 3.7 percent, and the three-month average for August through October was 3.4 percent.

Because the leading index is a forecast of the growth in the current index over the next six months, expressed at an annual rate, it indicates that the Massachusetts economy is expected to grow at an annualized rate of 3.7 percent over the next six months. Because of monthly fluctuations in the data on which the index is based, the three-month average of 3.4 percent may be a more reliable indicator of near-term growth.

The state’s recovery is gathering momentum and is continuing to accelerate. According to the Current Economic Index, October marked the nineteenth month of the recovery in Massachusetts, which began in March 2003. The rate of growth in the state’s real gross state product, as measured by the Current Economic Index, has steadily accelerated from an annual rate of 0.3 percent in the second quarter of 2003 to 3.3 percent in the third quarter of this year.

While the Massachusetts labor market has been slow to recover, its pace of recovery is very similar to that which followed the previous recession in the early 1990s. It was at about this same time into the recovery — about a year and a half — that the job market began to improve significantly. This pattern appears to be playing itself out again. Payroll employment rose substantially in October, and the sharp unemployment rate drop from August to September was maintained in October.

The 10 indicators that comprise the leading index usually do not all move together. Typically, some may indicate an expectation of faster than average growth, while others may indicate an expectation of slower than average growth. In October, four indicators contributed to a forecast of above-trend growth: total nonagricultural employment, sales taxes, the unemployment rate and the Bloomberg stock index for Massachusetts. Two indicators contributed to below-trend growth: consumer confidence for New England and motor vehicle sales taxes. Four indicators contributed to average-trend growth: withholding taxes, the interest rate spread between 10 year and 3 month U.S. Treasury securities, initial unemployment claims and construction employment.
modest brain drain. Moreover, the tech boom that finally pulled Massachusetts out of the recession shows signs of fading, which may restrain the pace of growth going forward. Nevertheless, the recovery seems to be on solid footing, with rising earnings and consumer spending, and vitality in education, technology and science. It will just take some patience to wait for the economy’s engine to get into full gear.

**Like the last recession, a slow start**

According to the Massachusetts Current Economic Index, the recession lasted 27 months in Massachusetts, beginning in December 2000 and ending in March 2003. This was much longer than the eight months of the national recession, which lasted from March through November 2003, and almost as long as the prior recession in Massachusetts that lasted 30 months, from December 1988 to June 1991. In the first 18 months of the state’s recovery, real output, as measured by the Current Economic Index, rose by 2.8 percent, a slightly slower rate than the 3.2 percent growth during the first 18 months of the state’s last recovery. (See Figure 1.). Like the last time, the pace of growth has slowly accelerated, from a 0.8 annual rate in the first quarter of the expansion to a 2.8 percent rate of growth in the third quarter of 2004. The state’s economy is still growing more slowly than the nation as a whole, while GDP growth in the third quarter of 2004 was at a 4.0 percent annual rate. (See Figure 2.).

In terms of employment, the progress so far is also about the same as last time, and also about the same as the

*Figure 1: Growth since trough, Massachusetts*

*Figure 2: Growth in real product, Massachusetts Current Economic Index vs. U.S. GDP*
nation as a whole 18 months into its recovery. (See Figure 3.). In September, payroll employment in Massachusetts was at 99.4 percent of the level at the economy’s turning point in March 2003. In other words, as of September, the state still had a jobless recovery. Eighteen months into the state’s recovery that began in June of 1991, the recovery was also still jobless, with payroll employment at 99.1 percent of the turning point level; and 18 months into the national recovery that began in November 2001, U.S. payroll employment was 99.2 percent of its turning point level. So while the job market is still weak, it is not any worse than expected, given the early stage of this recovery.

Payroll employment does appear to be finally growing, although at a tepid rate. In the first nine months of 2004, the payroll job count expanded by only 7,100 jobs, less than one thousand per month, for an annual rate of growth of only 0.3 percent.

Unemployment still a problem
Unemployment, especially long-term unemployment, remains a problem both here and in the nation. Labor markets remain weaker in Massachusetts than in most of the country. One may wonder how that can be if the unemployment rate is lower here than in the nation as a whole, as it has been for virtually the entire recession. The unemployment rate is lower in Massachusetts because of the demographic composition of the labor force. Unemployment rates vary substantially by age, educational attainment, sex, race and ethnicity. In particular, rates are inversely related to educational attainment. For the first nine months of this year, for example, the Massachusetts unemployment rate averaged 13.5 percent for those with less than a high school education, 5.5 percent for those with a high school education, 5.3 percent for those with less than a four-year college education, and 3.5 percent for those with a BA/BS or higher degree. This pattern is similar to that of the rest of the nation. (See Figure 4.). In fact, after controlling for differences in education, age and...
sex between Massachusetts and the rest of the nation, the odds of being unemployed in Massachusetts are about seven percent higher than in the rest of the nation. This makes sense given the state’s weaker employment growth.

As typically occurs in recessions, the average duration of unemployment among those who are looking for work or on layoff has risen. Long-term unemployment is, by convention, defined as exceeding six months. In 2000, at the peak of the last expansion, only about five percent of unemployed persons in Massachusetts were long-term unemployed (versus about ten percent in the rest of the nation). By 2003, this had risen to 27 percent in Massachusetts (versus 23 percent in the rest of the nation). For the first nine months of 2004, the proportion fell only very slightly, to 25 percent in the state (versus 22 percent in the rest of the nation). In terms of absolute numbers, this translates into an average of 53,800 long-term unemployed in 2003, and an average of 45,700 for the first nine months of 2004. By contrast, there were only 4,400 long-term unemployed in March of 2000. Long term unemployment continues to remain a problem for 1.3 percent of the state’s labor force.

Migration and brain drain
Since the recession began, Massachusetts has experienced a net out-migration of persons, and what is likely a “brain drain” — a net outflow of those with college education. This is not surprising with a labor market that is weaker than in most of the nation. The net out-migration appears to be cyclically related and should reverse itself as the recovery continues. However, there is no evidence that this reversal has yet begun.

This analysis of recent migration flows is based on two sources: the U.S. Census Bureau’s Population Estimates Branch and the Census Bureau’s Current Population Survey’s March Annual Social and Economic Supplements. The former comprises the most reliable annual estimates of net migration flows available, but the latter, although less reliable because of the small sample size on which they are based, include information on the demographic characteristics of migrants.

According to the more reliable Population Estimates figures, migration has turned from a net positive of 15,400 persons in the year ending July 1, 2001, to a net negative of 11,700 persons in the year ending July 1, 2003. For the three-year period ending July 1, 2003 — which roughly corresponds to the state’s recession — there was a miniscule net positive inflow of 1,500 persons. However, this masks contrasting patterns between foreign and domestic migrants. Over this same time period, there was a net domestic out-migration of 98,800, which was just offset by a net positive international in-migration of 100,400. Moreover, the net out-migration appears to be cyclically related and should reverse itself as the recovery continues. However, there is no evidence that this reversal has yet begun.

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However, there is no evidence that this reversal has yet begun.
outflow of domestic migrants increased in each of these three years. (See Figure 5.).

The Current Population Survey (CPS) estimates show higher levels of net in-migration in 2001 and 2002, and a lower level of net out-migration in 2003 than do the Population Estimates. Except for 2001, the CPS estimates — given their sampling error — are consistent with those from the Population Estimates Branch. CPS estimates are also available for the year ending March 2004. Considering the most recent three March CPS’s, which cover annual migration flows from March 2001 to March 2004, the CPS exhibits qualitatively the same trends as the Population Estimates. There was net domestic out-migration in each year, offset by foreign in-migration each year of roughly the same magnitude. (See Table 1.).

According to the CPS, there has been a net “brain drain.” During the last three years (March 2001 to March 2004), 167,100 persons entered Massachusetts with a BA/BS degree or higher or to go college, while 174,900 left with a BA/BS or to go to college in another state, resulting in a net loss of 7,800 college-educated people. This loss is not welcome, but neither is it alarming. Losses of a greater magnitude probably occurred in the last recession of the early 1990s, yet Massachusetts increased its stock of college-educated residents for the decade as a whole. According to the decennial censuses of 1990 and 2000, the proportion of the state’s population 25 or older with a BA/BS or higher degree rose from 27.2 percent in 1990 to 33.1 percent in 2000. Massachusetts started the decade as the second most highly-educated state by this measure, and ended the decade as the most highly-educated state. (The District of Columbia ranked higher than all states in both years.). Any net out-flows associated with the recession in the beginning of the decade were more than made up over the course of the expansion that followed. In the last five years of the decade, the net inflow of college-educated (BA/BS or higher degree) and college students was 94,200, according to the census.

Is the Tech Boom already over?

There is conflicting information over recent developments in demand and production of information processing and related equipment. The Semiconductor Industry Association reports that excess inventories of chips developed in the second quarter of 2004, quickly followed by declining capacity utilization rates as producers responded to inventories. Despite the falling production rate of semiconductors, sales of chips continued to rise briskly through August, presumably drawing down inventories somewhat.

There is conflicting information over recent developments in demand and production of information processing and related equipment.

But another industry association, Semiconductor Equipment and Materials International, reported that semiconductor equipment makers are feeling the inventory adjustment in slower orders for new equipment in recent months. Orders at North American semiconductor equip-

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**Table 1: Massachusetts migration estimates**

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic</th>
<th>Foreign</th>
<th>Total</th>
<th>Domestic</th>
<th>Net Domestic Migration</th>
<th>Net Total Migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>110,259</td>
<td>41,012</td>
<td>151,271</td>
<td>151,968</td>
<td>-41,709</td>
<td>-697</td>
</tr>
<tr>
<td>1999</td>
<td>132,483</td>
<td>38,708</td>
<td>171,191</td>
<td>142,408</td>
<td>-9,925</td>
<td>28,783</td>
</tr>
<tr>
<td>2000</td>
<td>179,381</td>
<td>48,787</td>
<td>228,168</td>
<td>129,634</td>
<td>49,747</td>
<td>98,534</td>
</tr>
<tr>
<td>2001</td>
<td>194,200</td>
<td>121,604</td>
<td>315,804</td>
<td>83,955</td>
<td>110,245</td>
<td>231,849</td>
</tr>
<tr>
<td>2002</td>
<td>142,448</td>
<td>44,974</td>
<td>187,422</td>
<td>154,684</td>
<td>-12,236</td>
<td>32,738</td>
</tr>
<tr>
<td>2003</td>
<td>153,325</td>
<td>16,656</td>
<td>169,981</td>
<td>178,710</td>
<td>-25,385</td>
<td>-8,729</td>
</tr>
<tr>
<td>2004</td>
<td>113,334</td>
<td>33,518</td>
<td>146,852</td>
<td>152,314</td>
<td>-38,980</td>
<td>-5,462</td>
</tr>
</tbody>
</table>

ment makers fell by 16 percent from June to September, and sales fell seven percent since July. (See Figure 6.) The book-to-bill ratio has fallen below one, indicative of future declines in production.

Most disturbing is the sharp drop in the growth of U.S. investment in information and processing equipment and software. According to the BEA’s latest GDP report, investment growth (in current dollars) in the third quarter of 2004 fell to an annualized rate of only 1.6 percent after growing at a rate of more than 10 percent in each of the six prior quarters. This is especially worrisome because the generous depreciation allowances that help spur business investment will be cut back when the temporary provisions expire in 2005, which may further weaken demand for this equipment.

Conditions in the national computer and electronic products industry, which according to the North American Industry Classification System (NAICS) is the largest NAICS manufacturing industry in the state, are difficult to interpret. Sales fell slightly in September, but have been generally strong. Inventories are rising, but the inventory-to-sales ratio is still near recent historical lows, and unfilled orders are higher than ever. Orders have been volatile, growing rapidly during most of 2003 until October, then declining through July of 2004, only to grow rapidly once again through September. (See Figure 7.)

Industrial production of information and processing equipment has continued to grow quite strongly. According to the index released by the Board of Governors of the Federal Reserve, production levels in September 2004 were 12.5 percent above the prior year. Perhaps production will slow if inventories are indeed high. The growth rate in the index did slow to an annual rate of 3.7 percent in September over the prior month, but a single month is not a reliable indicator of a trend.
What has this meant for Massachusetts? Unfortunately, there is very little data at the state level on information processing equipment production, though anecdotes suggest a slowdown in the semiconductor and semiconductor equipment industries. After several months of gains, the number of jobs in the computers and electronic products industry fell by a modest 600 in September. Employment in the industry is up 2.2 percent over the prior year.

**Unfortunately, there is very little data at the state level on information processing equipment production, though anecdotes suggest a slowdown in the semiconductor and semiconductor equipment industries.**

One of the best indicators of production in the state’s broad technology sector, which includes not only computers and related equipment but also medical equipment, biotechnology and pharmaceuticals, is merchandise exports. After peaking at a very high level in May, exports have declined through August. While merchandise exports nationally have also been weak over the past several months, the export decline is worse in Massachusetts because of the state’s more intense concentration in technology production, which has slowed with the overall slump in the technology sector.

**Despite the slow start, a solid footing**

Several developments suggest that the recovery has a solid footing and will continue. Employment is growing in export sectors in manufacturing and key knowledge industries. Massachusetts is a technology-based economy, and technology is where the most significant employment growth has been. The leading NAICS industries in terms of growth in the last six months (ending in September 2004) include many in manufacturing, among them computers, semiconductors, machinery, medical equipment, plastics and chemicals; professional services tied to technology or business including scientific research and development, software, accounting and legal services. In addition, employment growth has continued in the large and important health services and educational service sectors. These gains have more than offset job losses in sectors that have been strong in the past, such as construction, money management, and retail trade.

Earnings are rising, both in the aggregate and per worker. In the year ending in October, total wages and salaries in Massachusetts, estimated from withholding taxes, grew by 5.3 percent. Wage rate growth was stagnant during the recession, but began to grow again once the recovery began. (See Figure 8.). Wage rate growth in Massachusetts has finally caught up and again surpassed that of the nation. In the third quarter of 2004, wages and salaries per worker were 3.8 percent above the year-earlier third quarter, while rising by 3.4 percent over the same period nationally.

Consumer spending also appears to be on an upward trend in Massachusetts. State sales taxes (excluding automobiles and meals) declined from the summer of 2000 until

![Figure 8: Growth in nominal wages per worker, Massachusetts vs. Nation](source: U.S. Bureau of Economic Analysis; Massachusetts Department of Revenue; author’s calculations)
February 2004, but have since grown quickly. This tax series is highly volatile, but the trend over the last 12 months has been very strong, exceeding a 10 percent annual rate.

**Continued slow growth in the near future**

Eighteen months after the turning point during the last recovery, the economy continued to accelerate, as did both the rate of output and employment growth. This time around, the rate of acceleration will probably be more subdued. In fact, the leading index for October is predicting a moderate rate of growth for an expansion period through the first quarter of 2005; it is predicting a continuation of growth in real gross state product of 2.7 percent, about the pace of growth in the third quarter of 2004.

Several factors may account for this prolonged spell of slow growth. One is the leveling off of the tech-driven boom in information processing equipment. This is likely to be a short-run phenomenon, lasting between several months to a year. The cycle in semiconductors is driven more by the timing of technological advances and inventories than by general business conditions. The inventory adjustment in this industry already appears to be well under way and should be short-lived.

High energy prices are shaving growth almost everywhere except in oil-producing countries. Although the United States is much less energy dependent than it was during the last oil crisis, some emerging economies that buy Massachusetts exports, such as China, are not, which will dampen demand for Massachusetts exports. China’s attempt to slow down its economy, to the extent it is successful, will be felt here as well.

This is an expensive heating season for households in the Northeast, which will cut into consumer spending on other items.

The large current and future budget deficits, which are diverting money from funding private, productivity-enhancing investments and research and development, will be an increasing problem down the road. The deficit may have already contributed to a falling dollar and will lead to a diminution of the willingness of foreigners to fund the national debt or invest in American businesses. This threatens the vitality of the Massachusetts economy, which is tied to developing new products and technologies, which rely in large part on privately funded research and development spending.

Unlike the last recovery, the United States is at war. War spending, which diverts resources from the rest of the economy, is inherently non-productive. While some Massachusetts firms may benefit from developing technologies and products for the war effort or for homeland security, this is a high cost to pay for a few spin-offs that may ultimately benefit consumers or business productivity.

This time around, the rate of acceleration will probably be more subdued. In fact, the leading index for October is predicting a moderate rate of growth for an expansion period through the first quarter of 2005.

The war may also be a factor in declining foreign student enrollment in the nation and state. According to the Institute of International Education’s annual Open Doors survey, the number of international students enrolled in U.S. higher education institutions declined for the first time in 32 years. Massachusetts saw a five percent decline in enrollment of international students. The survey reported that increased difficulties in obtaining student visas, as well as the perceptions that foreign students are not welcome in the United States, were factors in this decline.

**References:**

1. These recessions are dated for Massachusetts by the Massachusetts Current Economic Index, and for the U.S. by the National Bureau of Economic Research’s Business Cycle Dating Committee.

2. According to the official payroll job count, jobs expanded 7,000 between December 2003 and September 2004, but by a sizeable 22,600 since February 2004. This figure cannot be trusted, however, due to the problems with the seasonal adjustment problems in the official data. The payroll numbers reported here are the official non-seasonally adjusted counts seasonally adjusted by the University of Massachusetts.

3. These unemployment rates are from the monthly Basic CPS’s for January 2004 through December 2004. The unemployment rates are taken directly from the CPS, that is, they are neither seasonally adjusted nor smoothed.

4. This is based on a logit regression of whether or not one is unemployed on age, educational attainment, and sex, with dummy variables for year (2004 vs. 2003) and residence in Massachusetts (vs. the rest of the U.S.). The regression is on the sample of persons in the labor force, from the monthly Basic CPS’s for January 2003 through September 2004.

5. These data are from the March CPS’s for 1998-2002, and from the monthly Basic CPS’s for January 2003 through September 2004.
6 The Population Estimates Branch presents mid-year estimates of the population as of July 1 each year. The net migration flows are part of the components of population change. The other components are births, deaths, and a (small) residual.

7 Domestic migration is composed of flows across state borders by within the U.S., while foreign, or international, migration is composed of flows into or out of the U.S. One should be careful not to equate domestic migration with migration of American citizens, and foreign migration as migration of the foreign born. A person is counted as a foreign migrant if they enter the U.S. from another country in the year in question, regardless of whether or not they are a U.S. citizen. Roughly 5 percent of foreign migrants are U.S. citizens. If a foreign-born immigrant who comes to the U.S. as a foreign migrant in one year subsequently moves to a different state in another year, they are counted as a domestic migrant in that year. In 2003, for example, about 45 percent of migrants who were foreign born were domestic migrants. (U.S. Census Bureau, Current Population Reports, P20-549, issued March 2004.)

8 The annual period is defined differently in the CPS. The figure for each year refers to approximately March 15 of the prior year to March 15 of the current year.

9 The approximate standard errors are as follows. For a one year gross flow, e.g., domestic plus foreign in migration or domestic out migration, 30,000. For a three-year gross flow, 52,000. For a one year net migration flow, e.g., domestic plus foreign in migration less domestic out migration, 42,000. For a three-year net migration flow, 73,000. (Calculated by the author.)

10 Unlike the Population Estimates Branch, the CPS measures only international in migration, not net international migration.

11 In accounting for net changes in the stock of college educated due to migration, college students should be counted in both inflows and outflows. Otherwise, a state with a large net inflow of college students could appear to have a net outflow of college educated among recent college graduates even if the opposite was actually the case.

12 Merchandise exports, from WISER, were seasonally adjusted by the University of Massachusetts.

Alan Clayton-Matthews is an assistant professor and the director of quantitative methods in the Public Policy Programs at the University of Massachusetts Boston, and is the co-editor of this journal.
## Unemployment Rates

![Unemployment Rates Graph]

### State Labor Force and Employment

<table>
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<th>Employment (establishment-based)</th>
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<td></td>
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### State Income and Prices

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<table>
<thead>
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<th>Period</th>
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<tr>
<td>11/04</td>
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<table>
<thead>
<tr>
<th>Period</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2 '04</td>
<td>263,279</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>Boston Consumer Price Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/04</td>
<td>211.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>MA House Price Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>'04 Q3</td>
<td>239.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period</th>
<th>MA New House Permits (monthly avg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/03</td>
<td>1,699</td>
</tr>
</tbody>
</table>

## Regional Employment

### Central
- Fitchburg-Leominster LMA: 67,584, 2.64%
- Worcester, MA-CT LMA: 255,562, 2.04%

### Cape and Islands
- Barnstable-Yarmouth LMA: 78,102, -0.98%
- Cape Cod, Vineyard, Nantucket WIA: 123,372, -1.03%

### Boston Metro
- Boston, MA-NH LMA: 1,782,941, 0.94%

### Northeast
- Lowell, MA-NH LMA: 169,834, 0.83%
- Lawrence, MA-NH LMA: 195,965, 0.30%

### Southeast
- Brockton LMA: 135,117, 0.38%
- New Bedford LMA: 77,402, 0.09%
- Providence-Fall River-Warwick, RI-MA LMA (MA only): 117,880, 1.19%

### Pioneer Valley
- Greenfield LMA: 33,553, -0.69%
- Springfield LMA: 284,295, 1.85%

### Berkshire
- North Adams LMA: 12,334, -0.66%
- Pittsfield LMA: 39,709, 1.23%

### Period Value Change from Year Earlier (%)

- U.S.: 5.4%
- MA: 4.6%

<table>
<thead>
<tr>
<th>Region</th>
<th>Employment</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11/04</td>
<td>11/03</td>
</tr>
<tr>
<td></td>
<td>Change from Year Earlier (%)</td>
<td>Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.0</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>4.4</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>4.0</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>4.5</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td>3.6</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>4.7</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>6.0</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>4.6</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>6.0</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>5.1</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>3.0</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>4.4</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>3.9</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td>4.0</td>
<td>5.1</td>
</tr>
</tbody>
</table>
The Massachusetts Current Economic Index for October was 129.7, up 4.6 percent from September (at annual rates), and up 2.9 percent from October 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 October was 3.7 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 annualized rate of 3.7 percent over the next six months (through April).

The state’s recovery is gathering momentum and is continuing to accelerate. According to the Current Economic Index, October marked the nineteenth month of the recovery in Massachusetts, which began in March 2003. The rate of growth in the state’s real gross state product, as measured by the Current Economic Index, has steadily accelerated from an annual rate of 0.3 percent in the second quarter of 2003 to 3.3 percent in the third quarter of this year.

Massachusetts exports increased by more than 18 percent during the first ten months of 2004 over the same period in 2003. But because this rate of growth was less than the growth of exports at the national level, the Massachusetts Export Index — which measures the difference between the state’s actual exports and what the state would have exported had its shipments of all its commodities grown at the same rate as national exports over the same time period — dipped slightly to -19.5 million in October 2004.

Four of Massachusetts’ six leading export sectors saw strong gains in 2003-2004. Medical/optical/photographic instruments, up 29 percent through October, have nearly surpassed electrical equipment as the state’s leading export industry. A 16 percent increase in industrial machinery and computer exports marks the first increase in that category since 2000. Pharmaceuticals exports (including blood fractions) show gains of more than 50 percent for the third year in a row. Organic chemicals (including hormones) have skyrocketed 243 percent. The largest export declines were in plastics (down 19 percent) and electrical equipment (down 3 percent).

Sources: Associated Industries of Massachusetts; The Conference Board; Mass Insight/MassDevelopment; Fannie Mae and Freddie Mac; Massachusetts Division of Employment and Training; U.S. Department of Commerce; U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics; University of Massachusetts
Gay and lesbian couples can now legally marry in Massachusetts. This article examines the demographics of same-sex couples and concludes that gay marriage will have a relatively small but positive long-term aggregate economic impact on the Commonwealth.

In the wake of the Massachusetts Supreme Judicial Court ruling that the Commonwealth must give the right to marry to same-sex couples, cities and towns began issuing marriage licenses to same-sex couples last May. The court decision and the ensuing legislative deliberations on marriage for same-sex couples have brought new attention to gays and lesbians in the Commonwealth. While much of the focus has centered on the social, political and moral implications of the SJC ruling on the institution of marriage, little direct light has been shed on whom the debate is about and the economic implications of marriage by gay and lesbian couples in the Commonwealth. Using Census 2000 data on same-sex couples in Massachusetts, this article describes the characteristics of same-sex couples and discusses some potential economic implications of gay marriage in Massachusetts.

The data for this paper were recorded in the year 2000, prior to the legalization of same-sex marriages in Massachusetts. Therefore, references in this article to “married couples” always refer to heterosexual couples.
Same-sex couple live in all parts of Massachusetts
The Census Bureau reports that 17,099 same-sex couples and 1.2 million married couples live in the Commonwealth of Massachusetts. Just over half (54 percent) of same-sex couples consist of two women; 46 percent are male couples.  

As Table 1 shows, the 1990s gay and lesbian movement slogan “We Are Everywhere” rings true in Massachusetts. Same-sex couples do in fact live in counties all over the Commonwealth, though they are somewhat concentrated

![Figure 1: Concentration of same-sex couples by town, MA 2000](as measured by location quotients)

Table 1: Number of same-sex couples by MA county, 2000

<table>
<thead>
<tr>
<th>Number of same-sex couples</th>
<th>% of all couples in county</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnstable County</td>
<td>895</td>
</tr>
<tr>
<td>Berkshire County</td>
<td>250</td>
</tr>
<tr>
<td>Bristol County</td>
<td>1,011</td>
</tr>
<tr>
<td>Dukes County</td>
<td>41</td>
</tr>
<tr>
<td>Essex County</td>
<td>1,664</td>
</tr>
<tr>
<td>Franklin County</td>
<td>341</td>
</tr>
<tr>
<td>Hampden County</td>
<td>900</td>
</tr>
<tr>
<td>Hampshire County</td>
<td>855</td>
</tr>
<tr>
<td>Middlesex County</td>
<td>3,931</td>
</tr>
<tr>
<td>Nantucket County</td>
<td>39</td>
</tr>
<tr>
<td>Norfolk County</td>
<td>1,287</td>
</tr>
<tr>
<td>Plymouth County</td>
<td>911</td>
</tr>
<tr>
<td>Suffolk County</td>
<td>3,505</td>
</tr>
<tr>
<td>Worcester County</td>
<td>1,469</td>
</tr>
<tr>
<td>Massachusetts Total</td>
<td>17,099</td>
</tr>
</tbody>
</table>


in the Boston metropolitan area, which is home to about 41 percent of same-sex couples, compared to 26 percent of married couples.  

Figure 1 shows a map of the state and compares the relative concentration of same-sex couples. We measure concentration as a “location quotient,” dividing the proportion of same-sex couples to all couples in a town/city by their proportion in the state as a whole. For example, 3.094 percent of the couples in Northampton are same-sex couples. Dividing that percentage by the same ratio for the state — 0.777 percent — yields a quotient of 3.98. The interpretation of the quotient is that the percentage of same-sex couples in Northampton is 3.98 times the proportion in the state as a whole.  

The shading of the areas of the map represents the concentration. The darker the area, the more concentrated are same-sex couples relative to the state as a whole. The map shows that concentrations are highest in the Boston metropolitan area, the Northampton-Amherst area and the Cape Cod region.

Comparisons of demographic and residence characteristics
Are same-sex couples different in demographic and other terms from married couples? Table 2 depicts household characteristics of same-sex and married couples. Most couples of both types are homeowners, but differences also emerge. While four out of five married couples own a house, for example, only two-thirds of same-sex couples own their home, though the value of same-sex couples’ homes is slightly higher. Same-sex couples have moved into their homes more recently than married couples: 56 percent moved into them within the last five years, compared to
just under 38 percent for married couples. Same-sex couples who are renters pay more in rent per month than married couples.

Table 2 also shows that same-sex couples are more likely to be interracial and to speak Spanish in the household than married couples. Further, individuals in same-sex couples are more likely to be Hispanic and to be African-American. Individuals in same-sex couples are slightly more likely to report a disability. One in five reports some limitation, compared with 17 percent of married people.

Finally, people in same-sex couples are, at an average age of 43, six years younger than married people. One out of every 10 gay, lesbian, or bisexual people in a same-sex couple is over 65, compared to 22.5 percent of married men and women. Same-sex couples have higher educational attainment than married people, with nearly half of those in same-sex couples having a college or graduate degree, compared to 37 percent of married people.

**Comparisons of economic characteristics**

Individuals with same-sex partners are more engaged in Massachusetts’ labor market than married people. As Table 3 indicates, over three-quarters (78 percent) of those in same-sex couples are employed, compared to 69 percent of married individuals. Both partners are employed in two-thirds of same-sex couples but only about 55 percent of married couples are. Employed people with same-sex partners are more likely to work in the private sector than married people, though roughly equal proportions are self-employed.

At first glance, male same-sex couples seem to be well-off compared to married couples. But a closer look reveals that this difference is in large part a product of gender differences. Women earn on average less than men, establishing a clear household income “order.” So the more men in a couple, the higher is the average household income.

Both the average and the median incomes of male couples are higher than the corresponding incomes of married couples. The median income for male couples (the income level at which half of couples are above and half below) is $76,000, while the median married couple has a household income of $70,900. Couples with two women have

### Table 2: Demographic household and individual characteristics, MA 2000

<table>
<thead>
<tr>
<th></th>
<th>Same-sex couples</th>
<th>Married couples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HOUSEHOLD CHARACTERISTICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent homeowners</td>
<td>65.5%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Property values (average)</td>
<td>$267,240</td>
<td>$252,510</td>
</tr>
<tr>
<td>Rent (average for renters)</td>
<td>$764/month</td>
<td>$720/month</td>
</tr>
<tr>
<td>Percent moving in since 1995</td>
<td>56.0%</td>
<td>37.6%</td>
</tr>
<tr>
<td>Interracial couples</td>
<td>11.9%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Percent speaking Spanish in the household</td>
<td>9.6%</td>
<td>5.2%</td>
</tr>
<tr>
<td><strong>INDIVIDUAL CHARACTERISTICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>7.0%</td>
<td>3.8%</td>
</tr>
<tr>
<td>White</td>
<td>88.8%</td>
<td>90.8%</td>
</tr>
<tr>
<td>Black</td>
<td>4.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>American Indian/Alaskan</td>
<td>1.0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Asian/Native Hawaiian/Pacific Islander</td>
<td>2.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Other</td>
<td>6.1%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Percent with a disability</td>
<td>20.2%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Percent with college or graduate degree</td>
<td>48.8%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Average age</td>
<td>43</td>
<td>49</td>
</tr>
<tr>
<td>Percent 65 or over</td>
<td>9.8%</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

Because individuals could check more than one racial category, the total will not add up to 100%.

### Table 3: Income and employment household and individual characteristics, MA 2000

<table>
<thead>
<tr>
<th></th>
<th>Same-sex couples</th>
<th>Married couples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HOUSEHOLD CHARACTERISTICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income: MEAN</td>
<td>$97,621</td>
<td>$89,182</td>
</tr>
<tr>
<td>Men: $97,621</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women: $81,902</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income: MEDIAN</td>
<td>$76,000</td>
<td>$70,900</td>
</tr>
<tr>
<td>Men: $76,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women: $67,404</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of couples with both employed</td>
<td>66.6%</td>
<td>54.7%</td>
</tr>
<tr>
<td><strong>INDIVIDUAL CHARACTERISTICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wage and salary income (MEAN)</td>
<td>$38,493</td>
<td>$45,538</td>
</tr>
<tr>
<td>Men: $38,493</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women: $33,057</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wage and salary income (MEDIAN)</td>
<td>$30,000</td>
<td>$35,000</td>
</tr>
<tr>
<td>Men: $30,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women: $27,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent employed</td>
<td>77.6%</td>
<td>68.8%</td>
</tr>
<tr>
<td><strong>Employment sector (if employed):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private sector</td>
<td>76.8%</td>
<td>73.7%</td>
</tr>
<tr>
<td>Public sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>2.2%</td>
<td>2.4%</td>
</tr>
<tr>
<td>State</td>
<td>4.5%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Local</td>
<td>5.9%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>10.4%</td>
<td>11.3%</td>
</tr>
</tbody>
</table>
lower incomes ($67,404) than either two men or a married man and women together.

An interesting picture emerges when we break down household incomes into the wage and salary earnings of the two individuals in the couple. Those figures, also in Table 3, show that men with same-sex partners earn substantially less than married men — a difference in average income of roughly $7,000. Regression analysis that takes into account differences in age, education and race reveals a 19 percent wage advantage for married men over men in same-sex couples.

The income difference is reversed for women. Women in same-sex couples earn substantially more than married women. Regression analysis indicates that this difference stems from the fact that women with same-sex partners on average work more weeks (41 weeks versus 32 for married women) and more hours per week than married women (35 hours per week versus 24). When we compare only women who work full time and take into account differences in age, education and race, the advantage for women with same-sex partners disappears.7

**Same-sex couples with children**

Despite common perceptions, one out of every four same-sex couples is raising children under 18 in their homes. Massachusetts has more than 4,200 same-sex couples with more than 8,000 children.8

Table 4 compares same-sex households with children to married couple households. Almost half (46 percent) of married couples have children, compared to one-third of lesbian couples and 15 percent of gay male couples. This table also reveals some similarity among parents — gay or straight. They are similar in age, and four out of five parents are employed.9

For all these similarities, same-sex parents have fewer economic resources than married couples. Despite the image of the affluent, urban, childless gay person, the picture of lesbian and gay parents (who have partners) presented here is quite different. Same-sex couples who have children are slightly less likely to own homes. Those homes are slightly more valuable, although the difference is not statistically significant. The average household incomes of same-sex couples with children are roughly $8,400 lower than for married couples, even though employment rates are roughly the same.10

**The potential economic effects of same-sex marriage in Massachusetts**

The Census provides little data with which to predict the number of marriages that might occur now that same-sex couple can legally say, “I do.” In the first week that same-sex couples could marry, almost 2,500 couples applied for marriage licenses in 265 of the Commonwealth’s 351 cities and towns.11 In Vermont, where a civil union law provides the rights and responsibilities of marriage, 44 percent of the state’s same-sex unmarried partner couples entered civil unions over the course of several years. Already, several large Massachusetts employers that offered domestic partnership benefits have announced that they will suspend them now that gays and lesbians can marry. Further compounding the situation is the possibility that gay marriage could be overturned if the state constitution is amended. Such a proposal is slated to be put in front of Massachusetts voters in November 2005. For these reasons, we think it is likely that the percentage who would marry in Massachusetts would be at least as high as in Vermont. Conservatively, therefore, we predict that roughly half of Massachusetts’s same-sex couples, or around 8,550 couples, might marry over the next few years.

---

**Table 4: Households with parents and children, MA 2000**

<table>
<thead>
<tr>
<th>Household characteristics</th>
<th>Same-sex couples</th>
<th>Married couples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion with own children under 18 in household</td>
<td>All: 24.6%</td>
<td>45.9%</td>
</tr>
<tr>
<td></td>
<td>Women: 31.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Men: 15.2%</td>
<td></td>
</tr>
<tr>
<td>Average age of parents</td>
<td>39.3</td>
<td>39.8</td>
</tr>
<tr>
<td>% of parents employed</td>
<td>77.7%</td>
<td>79.9%</td>
</tr>
<tr>
<td>Percent homeowners</td>
<td>73.3%</td>
<td>79.6%</td>
</tr>
<tr>
<td>Property values (average)</td>
<td>$271,646</td>
<td>$265,616</td>
</tr>
<tr>
<td>Household income (average)</td>
<td>$86,405</td>
<td>$94,838</td>
</tr>
<tr>
<td>Household income (median)</td>
<td>$67,400</td>
<td>$74,900</td>
</tr>
</tbody>
</table>
If we assume that 8,500 in-state couples will have weddings over the next 18 months and that these couples will conservatively spend only one-half of what the average couple spends on weddings, it would generate $85 million to $102 million of new spending in the state.

rate of 8.4 marriages per 1,000 residents. So even if all 8,550 same-sex couples married in one year, the state’s marriage rate would be 7.1, which is still lower than the national rate. 12

While no state has any residency requirement (including Massachusetts), a 1913 Massachusetts law (originally intended to prevent interracial marriages), which precludes anyone from out of state from marrying in Massachusetts if they cannot legally marry in their own state, is currently being enforced. As a result, the number of same-sex couples who do not reside in Massachusetts but might get married here is very hard to predict. Currently, Massachusetts is the only state where gays and lesbians can legally marry, so if the 1913 law is rescinded, the number of wedding bells ringing in the state could be much larger. Two legal challenges to this law have been filed 13 and the attorneys general of Connecticut, New York and Rhode Island have indicated that same-sex marriages performed in Massachusetts would be recognized in those states. If 20 percent of all same-sex couples in those three states, and one percent of couples from every other state got married in Massachusetts, town and city clerks would be issuing an additional 16,600 same-sex marriage licenses.

While it is very hard to predict with much certainty exactly how much new money would be spent in the Commonwealth as a result of legalizing same-sex marriages, it is likely to be more than $150 million over the next year or so.

According to the Web site, Online Massachusetts Wedding Guide, the average cost of a wedding in Massachusetts is between $20,000 and $24,000. 14 This includes the reception, flowers, rings, invitations, photography, videography and clothes for the wedding. Because most, if not all, of these goods and services are provided locally, virtually all wedding spending stays in the state and is not money that would have been spent elsewhere. If we assume that 8,500 in-state couples will have weddings over the next 18 months and that these couples will conservatively spend only one-half of what the average couple spends on weddings, it would generate $85 million to $102 million of new spending in the state. If the 16,600 couples from out of state bring two friends, stay for four days (there is a three-day residency requirement to get married in Massachusetts) and spend what the average tourist does, an additional $76.7 million would be infused into the Massachusetts economy. 15

**Fiscal impact of marriages by same-sex couples**

Marriage affects a couple’s status in many ways, and at least some of the rights and responsibilities of marriage will have an effect on state-provided benefits and on taxes and therefore on the state budget. Census data allow us to predict the impact of marriages by same-sex couples on income tax revenues, public assistance expenditures and state employee benefits. While marriage might have also have a fiscal impact in other areas, the Census data provide relatively direct measures only for these budget items. As noted above, if same-sex marriages increase general spending, the state will receive higher sales tax revenues as well.

**Impact on income tax revenues:** Unlike the federal income tax code, the Massachusetts income tax code is largely marriage neutral because the state applies flat tax rates on income. However, small differences exist between the total taxes two people pay when filing as two single individuals and when filing as a legally married couple. To predict the differences in tax payments for same-sex couples who marry, we used Census 2000 data on income and household structure to simulate taxes for each couple twice: first as two single individuals and then as a married couple. 16

Overall, the effect on most couples is quite small. In the simulations, 43 percent of couples show no change at all. Taxes rise by an average of $118 for 44 percent of couples and fall by an average of $223 for 13 percent of couples.

**Marriage affects a couple’s status in many ways, and at least some of the rights and responsibilities of marriage will have an effect on state-provided benefits and on taxes and therefore on the state budget.**
The couples paying higher taxes when filing as married generally had one low earner whose income was not taxed at all as a single person but is when married. Also, the rental deduction is capped at $3,000 for married couples and $3,000 for each single person, so those who pay high rents effectively get a smaller deduction when married. Couples with children are also more likely to see their taxes rise when married, because a legally unmarried parent can file as head of household, which provides a larger standard deduction.

The couples with lower taxes when married were effectively shifting some deductions and exemptions from one low earner to a higher earner. (As a single person, the low earner could not use the full deduction or exemption.).

If all of these couples were to marry, the state would see a slight rise in income tax revenues of about a half million dollars per year. As noted earlier, however, we expect roughly half of same-sex couples to marry, so the likely effect on the state’s tax revenues will be quite small, or roughly $250,000.

Impact on public assistance benefits: Eligibility for certain public assistance benefits, such as Temporary Aid to Needy Families, Medicaid and SSI is calculated based on the applicant’s income and assets. If the applicant is legally married, the spouse’s income and assets are also included in the eligibility calculation. As a result, some individuals in same-sex couples who now receive public assistance may no longer qualify for such benefits if and when they marry. Therefore, state expenditures on these benefits are likely to decrease once more couples marry.

It is difficult to estimate precisely the likely drop in state expenditures. According to the Census data for Massachusetts, 2.2 percent of people in same-sex couples received SSI in 1999 (compared with 1.3 percent of married people), for a total of $5.4 million (2003 dollars) in SSI income to people in same-sex couples. If the same proportion of people in same-sex couples as in married couples remain eligible (1.3 percent) and half of those marry, then the spending on SSI would fall by $1.6 million. The Massachusetts-funded supplement to SSI benefits accounted for 20.5 percent of SSI payments in 2000, so savings to the state would be about $320,000 per year.

According to the Census data for Massachusetts, 1.1 percent of people in same-sex couples received public assistance in 1999, compared to 0.6 percent of married people, for a total of $1.3 million (2003 dollars). If all of these people receiving public assistance married, and roughly the same proportion of same-sex couples remained eligible for assistance as in married couples, then the total on public assistance would be cut approximately in half. If only half of couples on public assistance marry, then the savings to the state would be approximately $390,000 per year.

The Census does not collect information on enrollment in Medicaid. However, a California study found that one percent of Medicaid recipients were gay or lesbian people with partners, suggesting that Massachusetts could be spending as much as $27 million per year on people in same-sex couples, roughly half of which comes from the state budget. If half of these couples marry, the state would save more than $13 million per year. The extent of savings will depend on how many recipients of public assistance marry and on how many might retain eligibility for those benefits. Note that this estimate is roughly in line with a recent Congressional Budget Office report on the fiscal impact of same-sex marriage on the federal budget, which predicted $300 million in Medicaid savings for all 50 states in 2014.

These predictions are complicated by the fact that the Defense of Marriage Act might limit the state’s ability to count a couple as married for purposes of assessing SSI eligibility. However, federal law will likely require the state to count a spouse’s income and assets in assessing Medicaid eligibility.

Some individuals in same-sex couples who now receive public assistance may no longer qualify for such benefits if and when they marry. Therefore, state expenditures on these benefits are likely to decrease once more couples marry.

Overall, if the state counts a same-sex spouse’s income in SSI, TANF and Medicaid eligibility, the state is likely to save roughly $14 million per year.

State benefits for state employees who marry a same-sex partner: State employees receive health insurance and pension benefits as a part of their compensation packages. Because spouses of employees are also covered in the employee health insurance plans, more marriages are likely to result in additional enrollees, raising state employment costs. While spouses are eligible for survivor benefits in the state pension system, which is a defined benefit program, the survivor benefits are paid for by lower payments to the retiree while alive, so additional marriages are not likely to have an impact on state pension costs.

According to the Census, there are 1,309 households in Massachusetts in which one or more partners is a state employee. In 1,049 of those households, both partners are
While the SJC’s decision to allow same-sex couples to marry has set off an important and heated political debate, the long-term aggregate economic impact to the Commonwealth will be relatively small but positive.

employed. Since 68 percent of employed people receive health insurance through an employer, approximately 336 people from these two-earner households will likely need health insurance through the partner who is a state employee.\textsuperscript{23} Add to this number the 260 households that contain one state employee and a non-employed partner who could now become a spouse and a total of 596 households will have one state employee and one partner who will not have his or her own employer-provided health insurance.

If all 596 couples in that situation marry, the state will be covering almost 600 new health system enrollees. If half of those couples marry, as predicted earlier, there will be roughly 300 new enrollees. The additional cost per enrollee will be the state’s additional contribution to insure the new spouse. The state health insurance system has two coverage tiers, single coverage and family coverage. For employees with a new spouse who already have family coverage, the state’s contribution will not increase. In 23 percent of couples with one or more state workers, the household includes children who are likely to have pushed employees into family coverage already, leaving only 231 coverage level changes.\textsuperscript{24}

If these remaining 231 new spouses bump the state employee from single to family coverage, the additional cost per spouse per year ranges from around $4,800 for HMOs to $6,660 for the most expensive fee-for-service plan.\textsuperscript{25} Using the rough midpoint of $5,730, the additional cost per year to the state will be approximately $1.3 million, or 0.2 percent in additional spending on employee health insurance using FY2003 figures.

**Conclusion: Much ado about “I Do”**

Same-sex couples are not all that different from their opposite-sex counterparts. They are somewhat younger, somewhat less likely to have children, more likely to be employed, and on average have similar economic profiles. While the SJC’s decision to allow same-sex couples to marry has set off an important and heated political debate,the long-term aggregate economic impact to the Commonwealth will be relatively small but positive.** The Commonwealth’s status as the first state to legalize same-sex couples will likely have children, more likely to be employed, and on average have similar economic profiles. While the SJC’s decision to allow same-sex couples to marry has set off an important and heated political debate, the long-term aggregate economic impact to the Commonwealth will be relatively small but positive.**

The differences in age and employment rates between parents in same-sex couple. That higher figure would also include any foster children living in the household.

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2 County totals are from the American FactFinder at www.census.gov.

3 We defined the Boston metropolitan area as being made up of the census “Super-PUMA” areas 25050, 25080, 25090, and 25100. This area includes all of Suffolk County and the parts of Norfolk and Middlesex Counties that are closest to Boston.

4 To get more finely detailed information on geographic areas, we used only the 5% PUMS for these calculations.

5 The differences in home ownership rates and recent movers might be partially related to the younger ages of people in same-sex couples.

6 In this case, a disability is defined by reporting a “long-lasting condition” such as blindness or deafness, or a condition that limits basic physical or life activities.

7 A small difference remains, but it is not statistically significant.

8 Simmons and O’Connell, as well as our calculations. This 8,003 figure is the number of “own children” reported for a householder who has a same-sex unmarried partner. This is undoubtedly a low estimate, since a partner’s children might be counted only in an alternative census variable, “persons under 18 living in the household.” Using that broader measure shows that 8,859 children are actually living in households that contain a same-sex couple. That higher figure would also include any foster children living in the household.

9 The differences in age and employment rates between parents in same-sex couples and married parents are not statistically significant.

10 Both the household incomes for male couples (average $77,958) and female couples (average $89,462) are lower than the household incomes of married couples.
11 Christine MacDonald and Bill Dedman, “About 2,500 gay couples sought licenses in first week,” Boston Globe, June 17, 2004. The Globe notes that at least 164 licenses were to out-of-state couples.


15 The Massachusetts Office of Travel and Tourism website claims that 27.2 million out-of-state visitors spent $11.2 billion in the state (http://www.massvacation.com/jsp/static_in/researchwelcome.jsp?org_id=empty&cat=95&geo=&region=empty), for an average of $408 per person trip.

16 We made several assumptions to simplify the tax simulations: (1) All take maximum MA interest credit; (2) All children are under 12 (to qualify for max deductions); (3) We inflated incomes and rents to 2003 dollars (10.4% increase in CPI-U from 1999-2003, http://www.bls.gov/cpi/home.htm, accessed 4/18/04); (4) We included the exemption for filers aged 65 or older; (5) If the householder had “own children” in the household, the householder files as head of household and the partner as single; (6) Each renter pays half of the household rent; (7) There were no additional deductions or income; (8) There was no change in the EITC when married since the Defense of Marriage Act states that only different-sex couples may be considered married for purposes of federal law.


21 Federal law requires states to “take all reasonable measures to ascertain the legal liability of third parties to pay for care and services available under” Medicaid and to seek reimbursement from third parties in cases “where such legal liability is found to exist.” 42 U.S.C. 1396a. For a longer discussion of the impact of DOMA on states’ ability to count a same-sex spouse’s income and assets, see M. V. Lee Badgett “Supporting Families, Saving Funds: A Fiscal Analysis of New Jersey’s Family Equality Act,” Williams Project, UCLA Law School, and Institute for Gay and Lesbian Strategic Studies, November 2003.

22 This joint-and-survivor option, known as Option C, is the only pension option limited to a spouse (or certain other legal family members). Option B allows for a lump sum to be paid a named beneficiary, who does not have to be a spouse.


24 The state’s contribution depends on the health care plan, when the employee was hired, and, for employees hired on or before June 30, 2003, their salary.

25 Most active employees are enrolled in HMOs, according to the Group Insurance Commission Fiscal Year 2003 Annual Report.

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Introduction
The Fall 2003 issue of *Benchmarks* introduced a series of articles on manufacturing clusters in the Commonwealth, focusing on how metalworking’s resiliency in Massachusetts grew out of a broad-based technical infrastructure, access to highly skilled workers and purposeful linkages between firms in the cluster. In the long run, the synergies between metalworking companies and their customers — medical equipment makers, telecommunications manufacturers, aerospace firms — are critical for the state to maintain some level of manufacturing vibrancy. Sustainable growth requires
a research agenda and continuous innovation, which builds upon a set of well-coordinated relationships between enterprises in the particular industry cluster.

This issue examines how the same view applies to the plastics cluster, which consists of firms that manufacture plastics products and those that provide inputs to such firms, including precision mold makers, machinery builders and raw materials suppliers. While figures on firms and employment vary from one data source to another, in 2004 the state’s plastics cluster contained approximately 735 firms and 26,000 employees, with total sales of roughly $4.4 billion. Those figures are significantly lower than those reported in 2002 by the Society of the Plastics Industry (SPI), which placed employment and shipments at 36,737 and $7.5 billion respectively (www.plasticsdatasource.org).

These discrepancies likely stem from variations in the definitions used for the sector (a hazard when doing this sort of work) and from a pronounced slump in manufacturing in the Commonwealth since 2001. But even with this decline, the plastics cluster still comprises an important manufacturing concentration in several parts of the state. For example, there are 62 plastics firms in the Leominster-Fitchburg-Gardner area, a figure that jumps to 90 when Clinton and Worcester are included. With related mold makers, machinery builders and materials makers included, the five communities contain 130 firms and almost 5,000 jobs.

**Industry trends: From combs to cell phones**

For years, Massachusetts plastics companies mainly stamped out sunglasses, combs, lawn chairs, buckets, dishware, ghastly pink flamingos and McDonald’s Happy Meal toys. Today, firms design and produce sophisticated products, such as cellular phones, laptop computer casings, medical devices and parts for Internet storage devices and other high tech products. Firms also use leading-edge new materials developed at the state’s world-class research centers at UMass Lowell and UMass Amherst. Statewide, employment rose slowly but steadily in the 1990s and shipments climbed over the decade from $4.5 billion to $8 billion before beginning to slide in 2001. Companies are in three distinct market segments: packaging, including plastic bags for food processors and foam packing materials; specialty products for the aircraft, computer, medical and telecommunications industries; and high-volume commodity products, such as cosmetics tubes, cutlery, dinnerware and disposable bowls and cups.

According to SPI, plastics is the nation’s fourth largest manufacturing industry in terms of shipments, behind motor vehicles and equipment, petroleum refining and electronic components and accessories.

It is difficult to get precise figures on plastics employment because trade associations and industry databases employ slightly different definitions of the industry. With that proviso, we can make some observations. According to the SPI, Massachusetts had the seventh largest concentration of plastics and plastics-related companies in the nation in the late 1990s, well behind California and Ohio, which ranked one and two. SPI reported that the Commonwealth had 41,779 jobs in 2001 and 36,737 jobs in 2002 in the expanded cluster. Using a narrower definition that calculates only jobs in companies that utilize raw materials and make things, Massachusetts ranked 12th in employment in the late 1990s and 14th in 2004, with close to 22,000 jobs, placing Massachusetts behind North Carolina (40,715 jobs), Tennessee (29,992), Wisconsin (29,973), and Georgia (25,468). Employing the most people are Ohio (88,555) and California (84,674). For 2002, plastics industry shipments in Massachusetts totaled $7.5 billion compared to Texas ($33.3 billion), California ($26.8 billion), and Ohio ($21.6 billion).

According to SPI, plastics is the nation’s fourth largest manufacturing industry in terms of shipments, behind motor vehicles and equipment, petroleum refining and electronic components and accessories. Though plastics companies and supplying industries shipped $393 billion in 2002, disturbing trends, due largely to global trade, are present. Generally speaking, original equipment manufacturers want their injection molded parts producers relatively close by to hold down shipping costs and to make...
design changes easier to facilitate. Thus, as automotive, appliance and high-tech manufacturers continue to invest in new plants overseas, negative trends in employment and shipments from the U.S. are likely to continue.

In 2003, the United States had a nearly $2 billion trade deficit in resins shipped and a $900 million trade deficit in plastics machinery. The trade deficit in plastic products was $20.2 billion in 2003, compared to $16.9 billion in 2002 and $5.8 billion in 1997. Canada was the biggest source for imports, followed by China and Japan (SPI). The fastest growth of resin (raw materials) exports was to China, indicating that its trade in finished products to the United States will increase in the coming years. Reflective of this, imports from China jumped almost 16 percent from 2002 to 2003. These global trends make it imperative that economic policy makers in Massachusetts vigorously support University of Massachusetts and industry-related research in nanoscience, biodegradable polymers for the links that can be formed between plastics firms and the medical devices, Internet-related devices, biotech and machinery building industries. Absent an aggressive effort, the state’s plastics industry will without doubt continue to suffer from the ongoing realignment of global manufacturing expertise.
Where are the firms?

While significant numbers of plastics firms remain in Greater Pittsfield and Greater Springfield, the greatest concentration of plastics employment is in central Massachusetts (especially the Fitchburg-Leominster area), which has 31 percent of the state’s plastics employment, followed by Greater Boston and the Pioneer Valley, each of which contains about 20 percent of total plastics employment.

In addition, there is an important group of metalworking firms producing molds, tooling and machinery for the industry. North-central Massachusetts has about 200 firms in the plastics cluster, including several firms that produce molds and machinery. While most of these firms are not totally dedicated to servicing the plastics industry, they will be hurt by any weakening in plastics.

Regional plastics employment in Massachusetts, 2000

Percent of state total plastics employment (includes plastics-related firms)

The long-run success of plastics firms is predicated on three factors: their ability to develop new products; their capacity to work with new materials; and their ability to train a new generation of workers to utilize advanced technologies.

With the exception of a handful of large firms, the region’s plastics companies export very little, and the smaller the firm, the less likely it is to do so. According to the Massachusetts Technology Collaborative, fewer than 10 percent of sales went to markets outside the United States in the late 1990s. For example, the customer base of Greater Leominster firms is concentrated in New England and along the East Coast, with a significant concentration in Massachusetts and Greater Leominster. Medical suppliers, electronics firms, and auto manufacturers are important group customers.
The long-run success of plastics firms is predicated on three factors: their ability to develop new products; their capacity to work with new materials; and their ability to train a new generation of workers to utilize advanced technologies. For commodities producers, the threat from low-cost imports is severe for those who turn out disposable forks and spoons. For specialty producers in the medical and telecommunications fields, the challenge is to be able to engage in rapid new product development, produce using state-of-the-art materials and to work to extremely high quality and delivery standards. Success is contingent upon the ability of these firms to tap into a network of service providers and a rich constellation of production partners.

Industry support structure
The ability to form relationships to access research and engineering expertise is crucial to plastics firms as materials and processes evolve and as environmental concerns pressure the industry to develop biodegradable materials. Across the state, some 150 companies build machines and produce molds, tools, dies, instruments and controls for plastics firms. But these plastics-related enterprises are usually not considered when local, state and federal policies are constructed to support the plastics industry, despite their vital role in the success of plastics firms. As plastics firms themselves grow, they cause growth within the support sectors; but if plastics firms stagnate, so too will other sectors within the cluster. For example, most plastics firms in the state engage in injection molding. Because access to high quality molds produced by precision machine shops is essential, interactions between plastics firms and mold makers are vital. Any weakening of the Commonwealth’s mechanical engineering and machining skill base will thus have negative implications for the plastics industry.

Within an approximately 60-mile radius of Leominster are more than a dozen education and training institutions that offer or have the potential to offer services to plastics firms in materials development, mold analysis, nondestructive material and product testing, product design and workforce education. The University of Massachusetts, with two campuses with plastics research and process engineering capabilities, plays an important role within the plastics industry support structure. The Amherst campus’ Center for Research on Polymers, which is one of the leading such centers in the world, conducts important basic research on new materials. At Lowell, the largest accredited plastics engineering department in the country hosts the Biodegradable Polymers Research Center.

Access to a rich technology transfer and education and training infrastructure is important to plastics firms. Firms in demanding markets faced with intense global competition are compelled to push ahead with product improvements and new products as fast as possible. They inevitably encounter organizational and technical problems that a well-coordinated infrastructure of firms and institutions can help to resolve.

Concluding thoughts
National and international competition in high-tech manufacturing and services is of major concern to the Commonwealth. Regional, sustainable growth in the plastics industry requires a consistent focus on knowledge creation, enterprise development and industrial innovation. At the start of the 21st century, Massachusetts ranked second to California in the production of optical instruments (116 firms to 48) and semiconductor machinery (121 firms to 23), and third in computer and peripheral equipment manufacturing (590 firms to 103) and it ranked in the top three states in the nation in the number of firms in these sectors per million
population. How has the Commonwealth done this? Michael Porter, who has focused his attention on answering the question of where competitive advantage comes from, answers that it is “created and sustained through a highly localized process” (1990, 9). In The New Competitive Advantage, UMass Lowell Professor Michael Best summarizes Porter: “For Porter, firms are not the source of competitiveness. Instead, firms derive their competitive advantage from their home base environment.” (2001, 8).

The development and diffusion of skills through movements of skilled workers within and across industries represents an example of how networks serve as vital learning systems in regional economies. This behavior helps us to understand the historical existence and persistence of certain types of firms and skills in a particular region. Such is the case with plastics. Similarly, the Connecticut River Valley’s nineteenth and early twentieth century success as an industrial center were two historical continuities: the region’s ability to design and build machine tools and related accessories in partnership with final goods producers, and the large numbers of skilled machinists in the Connecticut River Valley (Forrant, 2001). Goods producers enjoyed a competitive advantage over other regions that lacked access to these sources of innovation. A trip to the National Plastics Museum in Leominster reveals the historical continuities that can help us account for the persistence of a cluster of plastics firms there, despite the more general manufacturing malaise across the Commonwealth.

References:


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The Massachusetts Innovation Economy: Time to hit the accelerator

THOMAS HUBBARD AND JENNIFER BANKS ROCHA

Beginning during the high-growth years of the late 1990s, the Massachusetts Technology Collaborative has for eight years tracked innovation as an engine for growth in the Commonwealth. And while this year’s Index of the Massachusetts Innovation Economy indicates a current period of steady recovery, it also contains a clear warning: the disconnect between innovation in our laboratories and business and job creation in our economy is serious and growing. Massachusetts must do more to convert our strong front-end R&D into back-end economic growth.

By several measures, the Index shows the steady strength of the Massachusetts research pipeline. It reports more R&D investment, more patent activity, more focus on emerging areas in life sciences and nanotechnology. And a range of public and private initiatives — including the John Adams Innovation Institute, the Massachusetts Technology Transfer Center and MIT’s Deshpande Center — have been put in place to help grow this rich research into more jobs.

But for all these positive indicators, the Index reports continued employment declines in the innovation economy, led by continuing losses in information technology-related industries. Real household median income in Massachusetts continues to fall, an especially worrisome trend for a state with high costs, particularly for housing. From 2001 to 2003, Massachusetts suffered the largest decline in median household income among all Leading Technology States (LTS). And in 2003, the state’s median home price reached $295,000, which was the second highest among the LTS and well above the national average of $197,900.

The disconnect between innovation in our laboratories and business and job creation in our economy is serious and growing.

To be sure, research and development is itself a big business in Massachusetts: according to latest available data, federally-supported research in the state totaled $4.6 billion in 2002. But after the loss of more than 94,000 jobs since 2000, less than 25 percent of the Commonwealth’s work-
force is now employed in the innovation economy. To restore these jobs and grow new ones, Massachusetts must convert innovation into new products, new businesses and new jobs.

The life sciences sector is a promising exception. The 2004 Index again documents strength in the Massachusetts life sciences research community and in new investment in health care technology ventures, with the state positioned to be a global leader in the life sciences. A recent study from the Milken Institute in California suggests that employment in the biotechnology industry alone could increase by 65 percent over ten years. But to put that promise in proper context, life sciences accounts for less than two percent of overall employment in Massachusetts.

We will need growth in a much wider array of industries or in new industries in a wider spectrum of markets to offset job losses in far larger industry clusters such as software and communications services and computer and communications hardware. Fortunately, our world-class inventory of innovations among our research institutions and entrepreneurs creates hope for such growth. Unfortunately, in today’s global economy, innovations alone do not guarantee creation of local jobs — rather, they are pieces of intellectual property that are traded in an international market much like any other set of goods. We need to make the strongest possible connection between Massachusetts-bred innovations and new business development that diversifies our economy by serving a wide variety of international markets.

That requires Massachusetts to do all it can to continue to attract and retain a skilled workforce. As Benchmarks has noted, Massachusetts continues to suffer from chronic out-migration, in both good and bad economic times. Out-migration, which reached a ten-year high in Massachusetts in 2003, saps our ability to rapidly capitalize on new business development generated by our great innovation. As reported in MassMigration, published in 2004 by MassInc and the UMass Donahue Institute, the workers most apt to leave the state and the region over time are those with the greatest employment options: the highly-educated. Massachusetts must thus do even more to improve and expand educational opportunities for those Bay Staters most apt to remain.

The Commonwealth’s colleges and universities are talent magnets that continue to draw thousands of people every year. Massachusetts enjoys the single biggest “net surplus” of college freshmen of all the LTS; that is, more freshmen come into Massachusetts to attend colleges than leave the state to go to school elsewhere. According to a 2003 report for the Boston Foundation and the Greater Boston Chamber of Commerce, about half of Boston-area students remain in the state for some time after graduation, including a disproportionately high share of graduates who enter technical occupations. But this good fortune in attracting talented out-of-state residents should not blind us to the compelling need to raise educational attainment among our own, long-time residents.

We sense a new commitment to think hard about the mission of the Commonwealth’s public colleges and universities consistent with the new spirit of commitment to find collaborative initiatives to promote greater conversion of our home state innovations into new jobs. We must move even faster to bolster a well-trained, well-educated Massachusetts workforce. As former General Electric CEO Jack Welch recently advised, “Educate the hell out of your kids.”

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