

SPECIAL REPORT

TD Economics



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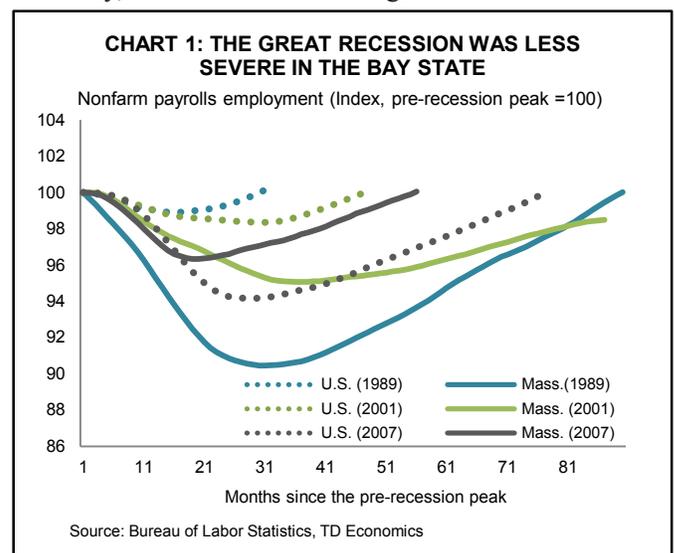
THE MASSACHUSETTS ECONOMY: POWERED BY KNOWLEDGE

Highlights

- Massachusetts' economic recovery bucked the trend, outperforming the nation in the aftermath of the Great Recession, with state output and employment declining less and recovering more quickly.
- The shallower state recession was a result of lesser exposure to the hardest-hit construction and manufacturing sectors, and a larger share of less-cyclical education & healthcare sectors.
- The recovery's strength has been primarily related to robust gains across the state's knowledge-based industries, which are attracting substantial venture capital and highly educated migrants. A robust housing recovery as well as state and local government hiring provided further support.
- Knowledge-based industries, such as education, healthcare, and professional & business services, will continue to drive economic growth. Coupled with a strengthening national economy and a continuing rebound in housing, these will help mitigate potential headwinds related to a public sector slowdown, a higher U.S. dollar, and significant exposure to the Eurozone.
- Despite the winter related slowdown, the Massachusetts economy will accelerate this quarter with growth averaging 2.2% this year and next, led by Boston's 2.5% expansion. These figures will fall shy of the national gain, but will outpace growth in the rest of New England.

An unimpressive recovery from the Great Recession nationally was not mirrored in Massachusetts. The recession in the Bay State was not only less pronounced, but the rebound was more apparent, with Boston's economy performing particularly well. It wasn't always this way, with the state no stranger to severe and prolonged economic downturns. In the late-1980s, the regional real estate market crashed, crippling the state economy in subsequent years. Then in 2001, the state found itself at the center of the dotcom bust. The recovery was so sluggish that when the Great Recession hit, the state's job market still had not recovered all of the jobs lost in the aftermath of the tech bust. In both of these recessions, the Massachusetts economy was hit harder than the national one, and took longer to recover.

However, this pattern was broken with the 2008/09 recession. The state labor market was less scarred than the national one, in part due to lesser exposure to the hardest-hit construction and manufacturing sectors. It lost fewer jobs and returned to its pre-recession level of employment nearly two years ahead of the national economy (see Chart 1). Since then, the state economy has been adding jobs at a healthy pace of about 55 thousand per



year, with state payrolls now 3.7% above their 2007 levels and 1.7% above their previous highs achieved in early-2001.

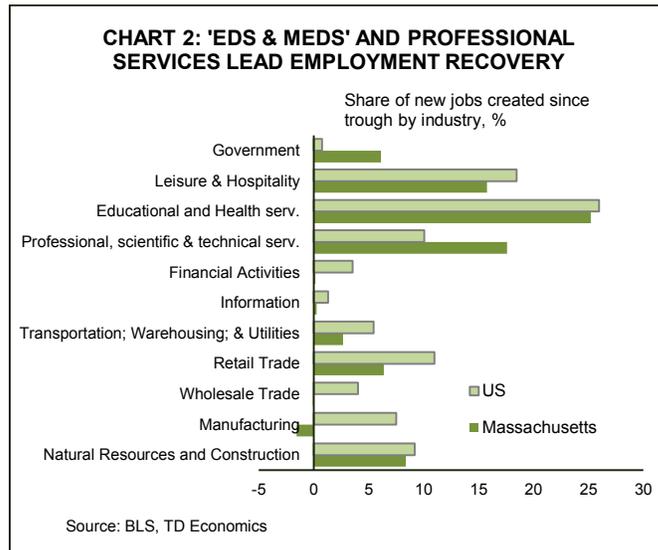
This outperformance is largely related to the Bay State's favorable industrial make-up. In particular, the state has a large concentration of knowledge-based industries such as education, healthcare, and professional & technical services, which have done particularly well through the recession and subsequent recovery. Boston's top-notch colleges and vibrant start-up culture have also attracted venture capital and many young professionals to the area. The thriving economy boosted the housing recovery, which further supported the labor market's healing. Additionally, Massachusetts' economy has benefitted from fiscal stimulus at the state & local level.

There's no doubt that the economy is on the right track, and Massachusetts will remain the top-dog in New England. However, as the national economy picks up steam, the outperformance of the Bay State economy relative to the national one will gradually diminish. As the state economy returns to full employment this year, the cyclical boost to growth will begin to dissipate, while demographic factors will increasingly weigh on growth. Moreover, the state economy faces risks related to fiscal issues, an elevated dollar, and Eurozone exposure, presenting near-term challenges. That being said, resilient knowledge-based industries, which increasingly form the core of the Massachusetts economy, a buoyant housing market and positive national trends, will all help to mitigate the incoming headwinds. As a result, despite the temporary setback from inclement winter weather at the start of the year, growth should proceed at a healthy pace, averaging 2.2% this year and next.

Knowledge is the key to success

The Bay State is well-known for its extensive network of top universities and research hospitals. and abundant supply of highly educated workers. College and university employment is two-and-a-half times more concentrated in Massachusetts and four times more concentrated in the Boston area than nationally. Meanwhile, 40% of the state's population and 45% of Boston area residents have college-level education or higher, compared with 30% nation wide.

These features have long been the Bay State's key comparative advantage, helping fuel activity in its knowledge-intensive industries, such as health, education, and professional, scientific, & technical services. They attract research-oriented companies and encourage start-ups to set up shop. At the same time, these elements have served the

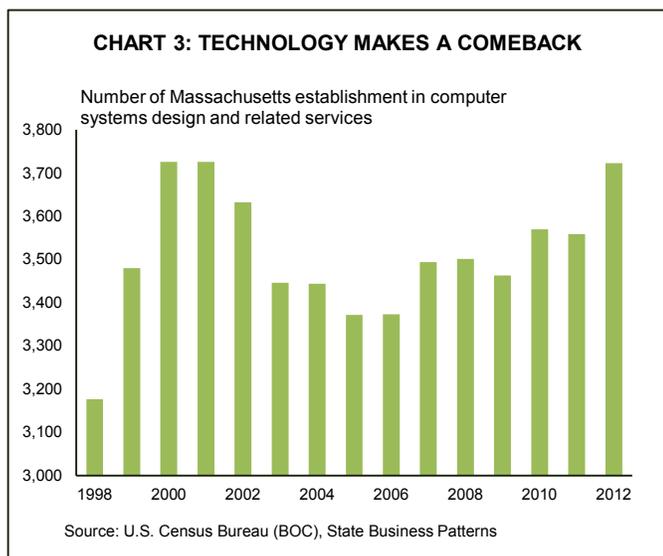


state well during the latest downturn. Education and healthcare are less prone to business cycle fluctuations, making them the pillars of stability at a time of economic distress. Indeed, while Massachusetts' overall employment declined 3.3% during the recession, education payrolls contracted only by 1.5%, while healthcare & social assistance added jobs during the downturn.

These three industries traditionally had an oversized presence in the state and continued to expand their footprint over the past decade. Before the recession, "eds & meds" represented 10% of state GDP, however this share rose to 12.2% by 2014. The GDP share of professional, scientific & technical services also increased, rising from 14% in 2004 to 16.5% in 2014. Together, healthcare & education and professional & business services have generated 43% of all new jobs during the recovery (see Chart 2). Brisk job creation within higher-skilled occupations has been a defining feature of the latest economic recovery, both in the Bay State and nationwide. This helps to explain why states with highly educated workforces, such as Massachusetts', have fared better. In all likelihood, healthcare, education, research & development, and other knowledge-based industries will remain important engines of job creation and output growth in this evolving and increasingly knowledge-intensive economy. Dependence on these industries will be further accentuated by rising demand for healthcare from an ageing population, and an ever increasing educational requirement in the labor market.

Biotech blooming in Boston

The extensive presence of research universities and

CHART 3: TECHNOLOGY MAKES A COMEBACK


hospitals, as well as its highly educated workforce is also keeping the state’s entrepreneurial engine running. In 2014, venture capital (VC) investment in Massachusetts firms shot up 50% from the prior year to \$4.4bn.¹ This amounts to roughly 10% of the nation’s total VC investment and about a quarter of the country’s VC investment in biotech, medical devices and healthcare sector. Adjusting for the state’s GDP, Massachusetts deploys more VC as a share of output than any other state in America, with Boston ranking third among all metros, behind only the Silicon Valley duo of San Francisco and San Jose.

The plentiful anecdotal evidence of vibrant startup activity in high-tech and biotech sectors is further supported by statistical data, which points to a significant pick-up in entrepreneurial activity following the recessionary slump. Already by 2012, the number of Massachusetts’ establishments operating in the business of computer systems design has not only exceeded its pre-recession peak, but has reached levels last seen in 2000-2001 (see Chart 3). This is also true for scientific research and development services, where the number of companies was at the all-time high.

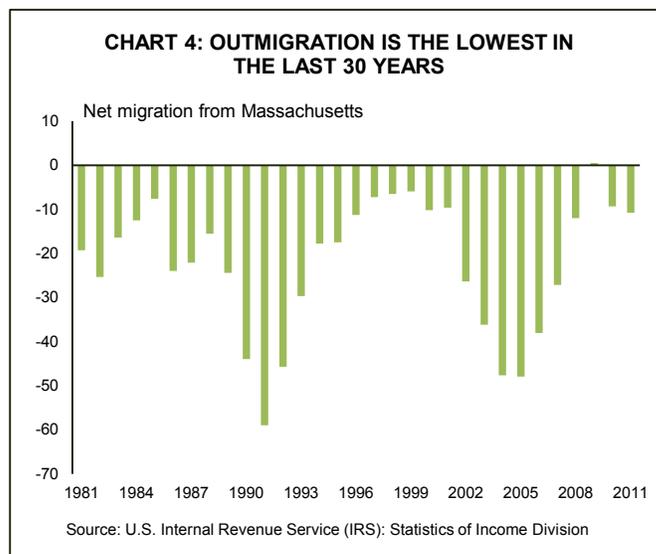
Boston’s well-established and vibrant biotech scene has proven attractive not just for new startups, but also for larger and well-established pharmaceutical companies, which have been increasingly moving their R&D operations and even occasionally the headquarters into the state. Partially in response to revenue declines as a result of “patent cliff” – expiration of the series of patents for blockbuster prescription drugs – large pharmaceutical firms have been seeking to acquire promising biotech startups.

While many Northeastern states have top notch univer-

sities and hospitals, few can compete with Massachusetts’ status as a bio-tech hub, making it a natural choice. Additionally, the state’s 10-year \$1-billion Life Sciences Initiative has been attracting new and existing life sciences companies through grants, tax credits and other incentives. Competition for biotech companies is heating up, as many other states are looking to expand or jump-start biomedical clusters. California continues to be the biggest challenger, but others, including Connecticut, Georgia, Texas and Florida, have also been ramping up incentives. While Massachusetts has many advantages over other states, it will need to continue to work hard to stay in the lead.

Bucking the demographic trend

Massachusetts’ ability to maintain its high-quality workforce and to attract new talent remains one critical element in order for the state to keep distinguishing itself from the pack. Massachusetts’ improved economic appeal has significantly slowed the pace of outmigration that plagues many Northeastern states. During the previous two recessions, deteriorating economic conditions tended to exacerbate the outflow of people from the Bay State. However, the opposite happened during the Great Recession. In fact, in 2009, interstate migration into Massachusetts turned positive for the first time in more than twenty years. Although, the outflow resumed thereafter, the pace has slowed to half of its 20-year average (see Chart 4). At this point, most of those leaving the state are likely to be retirees. Meanwhile, enticed by the relatively more sanguine economic conditions, the working age population has been flocking to the state over the last two years, with the labor force growing

CHART 4: OUTMIGRATION IS THE LOWEST IN THE LAST 30 YEARS


at a rate that is more than double the national one. Still, demographics will continue to weigh on the state's workforce, with the need to attract working age migrants increasingly more important in the coming years.

Housing pipeline bursting at the seams

In turn, the rapidly improving labor market and a prevalence of high-paying job creation has spurred demand for housing, with the Boston market, in particular, seeing robust improvement. This strength in demand has been juxtaposed with a tight supply of existing homes for sale, leading to bidding wars and upward pressure on prices. Home prices in Boston have been rising by double-digit rates through much of the past two years, before slowing recently as valuations reached their pre-recession peaks. Still, at around 7% per year,² the gains remain vigorous with both single-family and condo segments exhibiting strength. This pace is unlikely to be sustained as affordability continues to erode and a slew of completions helps to alleviate the tight supply. While growth in home prices is expected to moderate, home values will continue to rise alongside a healthy economy and tight existing inventories, which recently declined to about 3 months' of sales.

The rapidly rising prices of Boston homes coupled with tight credit conditions following the Great Recession have increasingly pushed many would-be homeowners into apartments. Along with steady demand from the 360,000 or so students attending the metro area's 85 accredited institutions of higher learning,³ vacancy rates have plummeted from 6.6% in the depth of the downturn to nearly 2.3% by mid-2013. The rapidly improving demand for rentals has

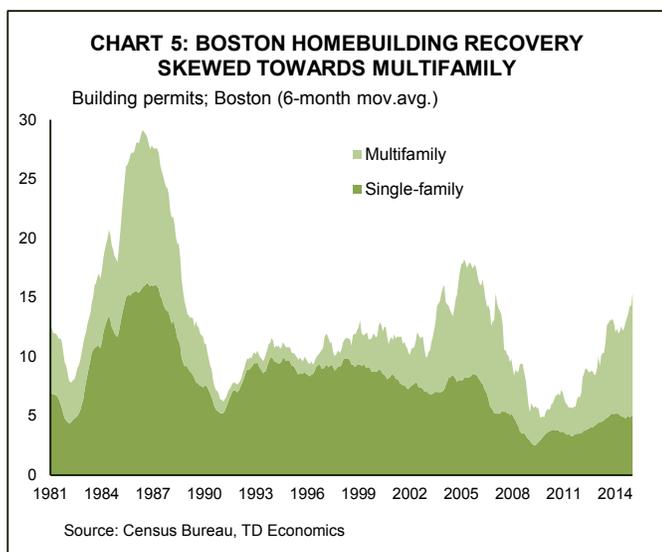
manifested in healthy gains in rents. Rental costs fell 4% during the recession, but recovered the losses early on in the recovery, rallying further to 11% above their pre-recession peaks.⁴ Rising rents and low interest rates have motivated a building boom in the city starting in 2012. However, the increased availability of newly completed units helped to moderate the rent rally, and rent increases are likely to remain muted in the coming quarters as more supply comes online.

And come it will. The number of units completed this year will be the highest since 2006, as homebuilding in the city has more than tripled from just 5,000 per year at the trough, nearly matching the mid-2000 peak. The recovery has been far more prevalent in the city than elsewhere in the state, where homebuilding has been little changed during the recovery. Boston's homebuilding recovery has also sharply outpaced the national one due to a better economic backdrop and a prevalence of the outperforming multifamily segment. The sector previously accounted for less than half of new construction in the city, but has been responsible for two out of three new homes being built now (see Chart 5).

The strong housing recovery has been both a consequence and a source of economic strength. It has been facilitated by healthy job and income growth stemming from an improving economy. In turn, it has helped shore up household balance sheets and confidence, helping spur a virtuous cycle of more job creation. Jobs in construction and real estate industries have bounced back more forcefully than nationally, with both sectors largely recovering the recessionary losses at the metro Boston and state levels. A robust housing market should continue to support the economy going forward, but the pace of gains is unlikely to be sustained into the longer term given eroding affordability, already elevated level of construction, and slowing population growth.

State & local hiring offsetting federal cuts

Rapidly recovering housing and robust job and income gains together shored up the Bay State's government finances during the recovery. Local revenues, which are primarily sourced from property taxes, have benefited from a robust rebound in home prices. At the same time, strong economic growth supported income, sales, and corporate taxes. Aggregate state revenues rebounded to their pre-recession peak by mid-2011, a year before the national average. Additionally, the state has been able to draw on the Commonwealth Stabilization Fund to support government spending despite a 13.5% decline in revenues at the recession's nadir.



The resilient state & local expenditures have lifted employment in the public sector, with hiring across state & local governments more than offsetting cuts at the federal level. In fact, the strength has been so pronounced that total government payrolls are now 6% higher than they were during their pre-recession peak (see Chart 6). By comparison, nationally they remain 3% below their peaks. Despite this strong showing, state & local government employment in the Bay State does not appear overextended and remains well below the national average relative to total payrolls or the size of the economy.

Some clouds on the horizon...

Still, there is a risk that the strong support from the government sector may not last. State expenditures grew by 7.8% this fiscal year, exceeding revenue growth by nearly two-to-one. But, this fiscal year, expenditures are earmarked to grow by only 3%, in spite of an expected acceleration in revenue growth. The new administration also enacted a hiring freeze across state agencies through the end of fiscal year 2015 and introduced an early-retirement option for state workers. Only one-fifth of the resulting savings will be allowed to hire additional resources. These measures should help narrow the \$1.8 billion gap in the state's budget, but will likely put a damper on further gains in public sector payrolls. At the same time, the state's rapidly increasing MassHealth expenditures alongside the significantly underfunded state pension pose further medium-term fiscal risks.

Another key risk to the state economy is related to the rallying U.S. dollar, which makes exports less competitive in global markets for domestic firms, as well as the overweight

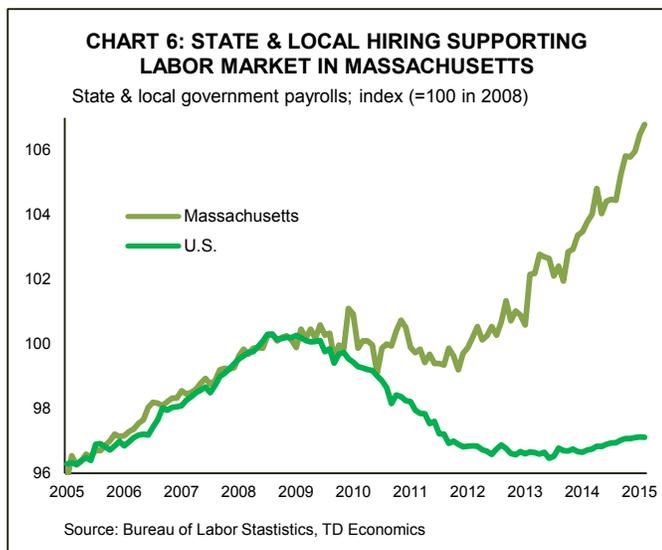
exposure to the slow European economy. Merchandise exports slowed sharply in the second half of 2014, and are currently down 4% from the previous year, with the Boston region firms accounting for four-fifths of the \$27 billion in state exports. Further dollar strength could be detrimental to the state's still declining manufacturing sector. Manufacturing is not a large sector in Massachusetts, accounting for just 7% of nonfarm payrolls, but it does account for a tenth of state output. This is because production is skewed towards the high value-added electronics & computers, medical devices and pharmaceuticals industries, and these generate positive spillovers to industries elsewhere in the economy.

Service exports could also be at risk from the higher dollar, with industries such as leisure & hospitality, transportation, and retail likely to bear the brunt of a slowdown in international tourism. This is especially so given that the majority of non-domestic tourism in the state stems from Europe, with the euro appearing to be inching closer to parity with the greenback. Massachusetts also exports more sophisticated services, such as finance & insurance as well as highly lucrative health care services – part of a fast growing medical tourism industry. These could be less sensitive to currency swings with the latter increasingly dependent on wealthy patients from Asia. In fact, despite a decline of European travelers during 2014, the number of international passengers at Logan International Airport continued to improve strongly.

... but outlook remains bright

The possible weakness in international tourism should be met with greater domestic business, as a strengthening U.S. economy, labor market and incomes lead to more visits from domestic travelers. This trend could be further accentuated by the decline in gasoline prices over the last several months, which should leave more money in the visitors' pockets.

But, potential travellers to the state certainly wouldn't have found Massachusetts an ideal vacation spot in recent months. The state has been battered by a harsh winter for the second consecutive year, with the snowfall breaking records in Boston. The city got pummeled by 110.6 inches of snow this season, or more than double the 43.6 inches that it receives on average, with nearly all accumulation taking place between late-January and early-March. As a result, state payroll gains have ground to a halt in the first two months of the year, and declined outright in the Boston metropolitan area. The slowdown in economic activity will likely manifest in a lower annual rate of growth, as some



activity will have been lost outright.

But, much of the economic output lost this winter should come back in spring and beyond, as consumers and businesses ramp up activity hindered during the first quarter. In the longer-term, the success of the Massachusetts expansion remains closely linked to knowledge-intensive sectors, increasingly forming the core of its industrial cluster. We expect these to remain healthy, helping mitigate the headwinds from the higher dollar, Eurozone exposure,

and potential public sector slowdown. The economy will also benefit from a buoyant housing market and a healthier national backdrop. All these trends should help the overall economic momentum remain quite resilient. The state economy should expand by a robust 2.2% this year – its highest pace in three years – and advance by 2.1% in 2016. The Boston metro will lead the way, with growth projected to average nearly 2.5% this year and next, but gains will be felt more broadly across the state.

Michael Dolega
Senior Economist
416-983-0500

Ksenia Bushmeneva
Economist
416-308-7392

References

1. PriceWaterhouseCoopers and National Venture Capital Association, MoneyTree Report. (<https://www.pwcmoneytree.com/>)
2. Greater Boston Association of Realtors, Housing Market Report, February 2015. (<http://www.gbreb.com/2015monthlyhousingreports/>)
3. McSweeney, D.M. and W.J. Marshall. “The prominence of Boston area colleges and universities.” BLS Monthly Labor Review. June 2009.
4. CoStar, Market Analytics, 2014Q4.

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