Massachusetts Competitiveness
State and Cluster Performance

Professor Michael E. Porter
Institute for Strategy and Competitiveness
Harvard Business School

Version: March 17, 2010

Information from the Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director. Additional material collected by Stacie Rabinowitz, Research Associate.
State Comparisons
## Overall Economic Performance Indicators
### Massachusetts

### Economic Performance

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Massachusetts (2008)</th>
<th>US</th>
<th>% above US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross State Product per capita</strong></td>
<td>$56,169 (rank 7)</td>
<td>$46,588</td>
<td>20.6%</td>
</tr>
<tr>
<td><strong>Growth in Gross State Product per capita, annual rate, 1998-2008</strong></td>
<td>2.28% (rank 7)</td>
<td>1.50%</td>
<td></td>
</tr>
<tr>
<td><strong>Average wage, 2007</strong></td>
<td>$51,151 (rank 4)</td>
<td>$41,680</td>
<td>22.7%</td>
</tr>
<tr>
<td><strong>Wage growth, annual rate, 1998 to 2007</strong></td>
<td>3.92% (rank 6)</td>
<td>3.49%</td>
<td></td>
</tr>
<tr>
<td><strong>Employment, 2007</strong></td>
<td>3,073,941 (rank 13)</td>
<td>2.55%</td>
<td></td>
</tr>
<tr>
<td><strong>Employment growth, annual rate, 1998 to 2007</strong></td>
<td>0.55% (rank 44)</td>
<td>1.22%</td>
<td></td>
</tr>
<tr>
<td><strong>Share of Employment in Traded Clusters, 2007</strong></td>
<td>31.3% (rank 6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Change in Share of Employment in Traded Clusters, 1998 to 2007</strong></td>
<td>-3.16% (rank 40)</td>
<td>-2.14%</td>
<td></td>
</tr>
</tbody>
</table>

### Innovation Output

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Massachusetts (2008)</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patents per 10,000 employees</strong></td>
<td>11.44 (rank 6)</td>
<td>6.43</td>
</tr>
<tr>
<td><strong>Growth in total patents, annual rate, 1998 to 2008</strong></td>
<td>0.30% (rank 13)</td>
<td>-0.39%</td>
</tr>
<tr>
<td><strong>Traded establishment formation, annual rate, 1998 to 2007</strong></td>
<td>0.63% (rank 49)</td>
<td>2.11%</td>
</tr>
<tr>
<td><strong>Total establishment formation, annual rate, 1998 to 2007</strong></td>
<td>0.57% (rank 38)</td>
<td>1.17%</td>
</tr>
</tbody>
</table>

### Demographic Profile

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Massachusetts (2008)</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population, 2008</strong></td>
<td>6,498,004 (rank 15)</td>
<td>2.14%</td>
</tr>
<tr>
<td><strong>Population growth, annual rate, 1998 to 2008</strong></td>
<td>0.35% (rank 42)</td>
<td>0.98%</td>
</tr>
<tr>
<td><strong>Labor Force Participation, 2007</strong></td>
<td>66.9% (rank 27)</td>
<td>66.0%</td>
</tr>
</tbody>
</table>

State Prosperity
U.S. States, 1998 to 2008

Notes: District of Columbia: $126,407, 2.63%. Growth rate calculated as compound annual growth rate (CAGR).
State Prosperity
U.S. States, 2006 to 2008


Notes: District of Columbia: $126,407, 1.79%. Growth rate calculated as compound annual growth rate (CAGR).
Average Private Sector Wage

U.S. Average Wage: $41,680
U.S. Average Wage Growth: 3.49%

High and rising wages relative to U.S.

Massachusetts

Michigan (2.48%, $40,935)

Job Growth
U.S. States, 1999 to 2009

U.S. average Job Growth Rate: 0.38%

Source: Bureau of Labor Statistics
Note: Growth rate calculated as compound annual growth rate (CAGAR).

Fall 2010 – MA Governor
Copyright © 2010 Professor Michael E. Porter
Job Growth
U.S. States, 2006 to 2009

U.S. average Job Growth Rate: -1.38%

Note: Growth rate calculated as compound annual growth rate (CAGR).

Jobs 2009

Job Growth Rate, 2006-2009

Note: Growth rate calculated as compound annual growth rate (CAGR).
Employment in Sole Proprietorships
Massachusetts, 1998-2007


Source: U.S. Census Bureau, Nonemployer Statistics
Unemployment Rate
U.S. States, 1999 to 2009

Change in Employment Rate: -5.1%

Unemployment rising

Source: Bureau of Labor Statistics
Unemployment Rate
U.S. States, 2006 to 2009

Source: Bureau of Labor Statistics

Unemployment rising

Change in US average Employment Rate: -4.7%

Lower unemployment

Unemployment Rate, 2009

Higher unemployment

Change in US average Employment Rate: -4.7%
## Labor Productivity

**U.S. States, 1998-2007**

### Labor Productivity Map

- **U.S. average GDP per labor force participant Growth:** 4.2%

- **Highly productive and productivity rising versus U.S.:**
  - Delaware
  - Massachusetts
  - California
  - Texas
  - Nevada
  - Hawaii
  - Washington
  - Maryland
  - Virginia
  - Nebraska
  - South Dakota
  - North Dakota
  - Vermont
  - Wisconsin
  - Tennessee
  - Alabama
  - Oklahoma
  - Wyoming

- **Low productivity and productivity falling versus U.S.:**
  - Connecticut
  - New Jersey
  - New York
  - Louisiana
  - New Mexico
  - Mississippi
  - South Carolina
  - Michigan
  - Kentucky
  - Kansas
  - Louisiana
  - Idaho
  - Montana

### Source:

### Notes:
- District of Columbia: $288,176, %5.6. Growth rate calculated as compound annual growth rate (CAGR).
Labor Productivity
U.S. States, 2006-2007

U.S. average GSP per labor force participant Growth: 3.7%

Highly productive and productivity rising versus U.S.


Notes: District of Columbia: $288,176, 4.5%.
Patenting Rate
U.S. States, 1998 to 2008

Growth Rate of Patenting, 1998 to 2008

Patents per 10,000 Employees, 2008


2,500 patents issued in 2008 =
Patenting Rate
U.S. States, 2006 to 2008

**U.S. Growth Rate of Patenting:** -7.11%

**U.S. Patents per 10,000 Employees:** 6.43

- **High and improving innovation rate versus U.S.**
- **Low and declining**
- **Low but improving**

Labor Force Growth and Job Growth
U.S. States, 1999 to 2009

The chart shows the relationship between labor force growth and job growth across U.S. states from 1999 to 2009. The growth rates are calculated as compound annual growth rate (CAGR).

- **U.S. average Labor Force Growth Rate:** 1.06%
- **U.S. average Job Growth Rate:** 0.38%

Note: Growth rates calculated as compound annual growth rate (CAGR).
Source: Census; Bureau of Labor Statistics. * Data available through November 2008
Labor Force Growth and Job Growth
U.S. States, 2006 to 2009

Note: Growth rates calculated as compound annual growth rate (CAGR).
Massachusetts Economic and Cluster Performance
Composition of Regional Economies, United States

Local Cluster
- Serve almost exclusively the local market
- Not exposed to cross-regional competition for employment

- 72.3% of employment
- 62.3% of income
- 3.2% of patents

Traded Cluster
- Serve markets in other regions and countries
- Free to choose location
- Exposed to competition from other regions

- 27.7% of employment
- 36.8% of income
- 96.6% of patents

Resource-based Clusters
- Location determined by resource availability
- <1% of income, employment, and patents in the U.S.

Composition of the Massachusetts Economy

Employment by Traded Cluster, 2007

Massachusetts overall employment rank = 13, population rank = 15

Note: Ranks are among the 50 US states plus the District of Columbia.
**Massachusetts Job Creation by Traded Cluster**

1998 to 2007

**Net traded job creation, 1998 to 2007:**
- 46,081

---

* Indicates expected job creation given national cluster growth.*

---

* Percent change in national benchmark times starting regional employment. Overall traded job creation in Massachusetts, if it matched national benchmarks, would be +76,959

Massachusetts Wages by Traded Cluster vs. National Benchmarks


Wages, 2007

\[ \text{Massachusetts average traded wage: } \$71,951 \]
\[ \text{U.S. average traded wage: } \$56,247 \]

 Indicates average national wage in the traded cluster.

Massachusetts Employment by Local Cluster

2007

Employment, 2007

Note: Ranks are among the 50 US states plus the District of Columbia.

Massachusetts overall employment rank = 13, population rank = 15
Massachusetts Job Creation by Local Cluster
1998 to 2007

Net local job creation, 1998 to 2007: + 217,985

*Percent change in national benchmark times starting regional employment. Overall local job creation in Massachusetts, if it matched national benchmarks, would be +286,462
Massachusetts Wages by Local Cluster vs. National Benchmarks

Average
Local Utilities
Local Financial Services
Local Real Estate, Construction, and Development
Local Industrial Products and Services
Local Commercial Services
Local Health Services
Local Household Goods and Services
Local Logistical Services
Local Entertainment and Media
Local Motor Vehicle Products and Services
Local Education and Training
Local Food and Beverage Processing and Distribution
Local Community and Civic Organizations
Local Personal Services (Non-Medical)
Local Retail Clothing and Accessories
Local Hospitality Establishments

Wages, 2007

Indicates average national wage in the local cluster.

Massachusetts average local wage: $41,973
U.S. average local wage: $36,469

**Composition of the Massachusetts Economy**

**Specialization by Traded Cluster, 1998 to 2007**

**Overall change in the Massachusetts Share of US Traded Employment:** -0.16%

- Education and Knowledge Creation
- Analytical Instruments
- Aerospace Engines
- Medical Devices
- Financial Services
- Information Technology
- Communications Equipment
- Distribution Services
- Publishing and Printing
- Lighting and Electrical Equipment
- Forest Products
- Plastics
- Textiles
- Metal Manufacturing
- Transportation and Logistics
- Power and Power Generation Equipment
- Heavy Construction Services
- Prefabricated Enclosures
- Automotive
- Oil and Gas
- Jewelry, Precious Metals and Collectibles (-3.57%)
- Entertainment
- Construction Materials
- Apparel
- Chemicals
- Hospitality and Tourism
- Processed Foods
- Food and Beverage
- Building Fixtures and Equipment
- Motor Driven Products

**Massachusetts Overall Share of US Traded Employment:** 2.55%

**Change in Massachusetts share of National Employment, 1998 to 2007**

- **Employees 36,000 =**

**Source:** Prof. Michael E. Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director.

Copyright © 2010 Professor Michael E. Porter
Massachusetts Education and Knowledge Creation Cluster, 1998-2007

Employment by Subcluster

Change in Subcluster’s share of National Employment, 1998 – 2007

Overall change in the Education and Knowledge Creation Subcluster Share of US Traded Employment: -0.74%

Education and Knowledge Creation Subcluster Overall Share of US Traded Employment: 6.73%

Note: Education facilities includes Libraries and Archives, Museums, Historical Sites, Zoos and Botanical Gardens, Nature Parks and Other Similar Institutions.


Employees 45,000 =
Regions with high cluster specialization (LQ>2.0)
Regions moderately high cluster specialization (LQ >1.3)

Counties with less than 200 employment in the cluster are excluded.
Massachusetts Financial Services Cluster, 1998-2007
Employment by Subcluster

Change in Subcluster’s share of National Employment, 1998 – 2007

Overall change in the Financial Services Subcluster Share of US Traded Employment: -0.74%

Financial Services Subcluster Overall Share of US Traded Employment: 4.98%

Employees 19,600 =

Financial Services Cluster
Employment Specialization in New England Counties, 2007

Regions with high cluster specialization (LQ>2.0)
Regions moderately high cluster specialization (LQ >1.3)

Counties with less than 200 employment in the cluster are excluded.
Massachusetts Business Services Cluster, 1998-2007
Employment by Subcluster

Overall change in the Business Services Subcluster Share of US Traded Employment: -0.25%

Business Services Cluster

Employment Specialization in New England Counties, 2007

Regions with high cluster specialization (LQ > 2.0)
Regions moderately high cluster specialization (LQ > 1.3)

Counties with less than 200 employment in the cluster are excluded.
Massachusetts Information Technology Cluster, 1998-2007
Employment by Subcluster

Overall change in the Information Technology Subcluster Share of US Traded Employment: -1.01%

Subcluster's National employment share, 2007

- Information Technology Subcluster Overall Share of US Traded Employment: 4.57%
- Overall change in the Information Technology Subcluster Share of US Traded Employment: -1.01%

Change in Subcluster’s share of National Employment, 1998 – 2007

- Software
- Communications Services
- Computers
- Electronic Components and Assemblies
- Peripherals
- Fiber Optic Cables
- Overall Share of US Traded Employment: 4.57%


Employees 7,000 =
Information Technology Cluster
Employment Specialization in New England Counties, 2007

Regions with high cluster specialization (LQ>2.0)
Regions moderately high cluster specialization (LQ >1.3)

Counties with less than 200 employment in the cluster are excluded.

Employment by Subcluster


Overall change in the Analytical Instruments Subcluster Share of US Traded Employment: -0.94%

Analytical Instruments Subcluster
Overall Share of US Traded Employment: 6.75%

Laboratory Instruments
Search and Navigation Equipment
Electronic Components
Process Instruments
Optical Instruments

Analytical Instruments Cluster
Employment Specialization in New England Counties, 2007

Counties with less than 200 employment in the cluster are excluded.
Massachusetts Medical Devices Cluster, 1998-2007
Employment by Subcluster

Change in Subcluster’s share of National Employment, 1998 – 2007

Overall change in the Medical Devices Subcluster Share of US Traded Employment: -0.40%

Medical Equipment
Diagnostic Substances
Ophthalmic Goods
Biological Products
Surgical Instruments and Supplies
Dental Equipment and Supplies

Employees 1,800 =

Medical Devices Cluster
Employment Specialization in New England Counties, 2007

Counties with less than 200 employment in the cluster are excluded.
Massachusetts Distribution Services Cluster, 1998-2007
Employment by Subcluster


Distribution Services Subcluster
Overall Share of US Traded Employment: 3.10%

Overall change in the Distribution Services Subcluster Share of US Traded Employment: -0.23%

Biopharmaceuticals Cluster
Employment Specialization in New England Counties, 2007

Regions with high cluster specialization (LQ>2.0)
Regions moderately high cluster specialization (LQ >1.3)

Counties with less than 200 employment in the cluster are excluded.
Massachusetts Regional Comparisons
<table>
<thead>
<tr>
<th>Region</th>
<th>Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berkshire</td>
<td>Berkshire</td>
</tr>
<tr>
<td>Pioneer Valley</td>
<td>Franklin, Hampshire, Hampden</td>
</tr>
<tr>
<td>Central</td>
<td>Worcester</td>
</tr>
<tr>
<td>Northeast</td>
<td>Essex</td>
</tr>
<tr>
<td>Greater Boston</td>
<td>Middlesex, Suffolk, Norfolk</td>
</tr>
<tr>
<td>Southeast</td>
<td>Plymouth, Suffolk</td>
</tr>
<tr>
<td>Cape and Islands</td>
<td>Barnstable, Dukes, Nantucket</td>
</tr>
</tbody>
</table>
Comparative Performance of Regions

Wages vs. Wage Growth

Note: Covers private, non-agricultural employment. Note: Growth is calculated using compound annual growth rates (CAGR)
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

US average wage growth: 3.49%
US average wage: $41,680

Massachusetts average wage: $51,151
Massachusetts average wage growth: 3.92%

Comparative Performance of Regions

Wages vs. Wage Growth

This is mostly local growth in food and bev, household goods and services, clothing and retail
Comparative Performance of Regions

Average Wage vs. Employment Growth

Average Wage, 2007

-0.5% 0.0% 0.5% 1.0% 1.5%

Employment Growth, 1998-2007

Note: Covers private, non-agricultural employment. Note: Growth is calculated using compound annual growth rates (CAGR).

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

- Massachusetts average wage: $51,151
- US average wage: $41,680
- Greater Boston employment growth: 1.22%
- Cape and Islands employment growth: 0.55%
- Pioneer Valley
- Berkshire
- Central
- Southeast

Employment of 300,000 =
Comparative Performance of Regions
Wage Growth vs. Employment Growth

Employment Growth, 1998-2007

Wage Growth, 1998-2007

US average employment growth: 1.22%

US average wage growth: 3.49%

Massachusetts average wage growth: 3.92%
Massachusetts average employment growth: 0.55%

Employment of 300,000 =

Note: Covers private, non-agricultural employment. Note: Growth is calculated using compound annual growth rates (CAGR)
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
### Percentage of Traded Employment in Strong Clusters, 2007

<table>
<thead>
<tr>
<th>Region’s share of US traded cluster employment</th>
<th>Massachusetts</th>
<th>Berkshire Region</th>
<th>Pioneer Valley</th>
<th>Central</th>
<th>Northeast</th>
<th>Greater Boston</th>
<th>Southeast</th>
<th>Cape and Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.0%</td>
<td>0.05%</td>
<td>0.22%</td>
<td>0.25%</td>
<td>0.25%</td>
<td>1.88%</td>
<td>0.28%</td>
<td>0.05%</td>
</tr>
</tbody>
</table>

| Average wage in Traded Cluster                | $37,192       | $41,569         | $38,426       | $49,719 | $65,833   | $83,819       | $48,156   | $52,962          |

| Number of strong traded clusters              | 11            | 6               | 13            | 9       | 11        | 7             | 12        | 2                |

| Total number of traded clusters               | 41            | 39              | 39            | 40      | 40        | 40            | 35        | 35               |

| Employment in strong traded clusters          | 447,952       | 9,733           | 38,437        | 21,918  | 33,835    | 451,598       | 29,409    | 3,817            |

| Total Employment in traded clusters           | 961,070       | 18,193          | 72,094        | 84,101  | 81,530    | 623,617       | 92,914    | 16,505           |

| Share of employment in strong cluster         | 46.6%         | 53.5%           | 53.3%         | 26.1%   | 41.5%     | 72.4%         | 31.7%     | 23.1%            |

Note: Clusters that are strong in any single region may not be strong statewide, hence MA totals may differ from the average of individual regions. “Strong” clusters have employment levels that are at least 1.5x above what is proportionate to the region’s overall employment.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
## Top Cluster Overlap In Massachusetts Regions

### Importance of Cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Berkshire</th>
<th>Pioneer Valley</th>
<th>Central</th>
<th>Northeast</th>
<th>Greater Boston</th>
<th>Southeast</th>
<th>Cape and Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Financial Services</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Med</td>
<td>High</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Distribution Services</td>
<td>Med</td>
<td>Med</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Med</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>High</td>
<td>High</td>
<td>Med</td>
<td>Low</td>
<td>Med</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Analytical Instruments</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Med</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Med</td>
<td>High</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Med</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Entertainment</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Metal Manufacturing</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>Plastics</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Heavy Construction Services</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Processed Food</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Sporting, Recreational and Children's Goods</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Forest Products</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Aerospace Engines</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Textiles</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
</tr>
</tbody>
</table>

Note: “High” importance of cluster indicates top five in region; “Med” indicates numbers 6-10 in region, “Low” indicates not in top 10 in region. Cluster with only “Low” rankings excluded.

Comparative Performance of Regions
Establishment Formation in Traded Clusters

Employees per Traded Establishment, 2007

Growth Rate in Traded Establishments, 2007

- Greater Boston
- Pioneer Valley
- Northeast
- Berkshire
- Central
- Southeast
- Cape and Islands
- Massachusetts Average Employees per Traded Establishment: 25.8
- US Average Employees per Traded Establishment: 21.2
- Massachusetts Average Rate of Traded Establishment Formation: 0.63%
- US Average Rate of Traded Establishment Formation: 2.11%

Data: private, non-agricultural employment; Growth is calculated using compound annual growth rates (CAGR)
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
3500 Traded Establishments =
Comparative Performance of Regions
Growth of Local vs. Traded Clusters

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Comparative Performance of Regions
Traded Clusters Concentration and Growth

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Note: Clusters that are strong in any single region may not be strong statewide, hence MA totals may differ from the average of individual regions. “Strong” clusters have employment levels that are at least 1.5x above what is proportionate to the region’s overall employment.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Massachusetts Education and Knowledge Creation Cluster, 1998-2007
Regional Trends


Copyright © 2010 Professor Michael E. Porter
Regional Employment Indexed to 1998

Massachusetts Financial Services Cluster, 1998-2007
Regional Trends

Massachusetts Business Services Cluster, 1998-2007
Regional Trends


Copyright © 2010 Professor Michael E. Porter
Massachusetts Distribution Services Cluster, 1998-2007
Regional Trends

Regional Employment Indexed to 1998

Massachusetts Information Technology Cluster, 1998-2007
Regional Trends

Regional Employment Indexed to 1998

Regional Trends

Greater Boston Region
Composition of the Greater Boston Region Economy
Specialization by Traded Cluster, 1998-2007

Greater Boston Region’s national employment share, 2007

CAGR (98-07)

- Added Jobs
- Lost Jobs

Overall change in the Greater Boston’s Region’s Share of US Traded Employment: -0.10%

Greater Boston’s Region’s Overall Share of US Traded Employment: 1.89%

Analytical Instruments (-2.79%, 3.29%)

Information Technology

Financial Services

Analytical Instruments (-2.79%, 3.29%)

Biopharmaceuticals (1.38%, 2.29%)

Greater Boston’s Region’s Overall Share of US Traded Employment: 1.89%

Communications (-1.65%, 1.64%)

Publishing and Printing

Distribution Services

Communications (-1.65%, 1.64%)

Business Services

Distribution Services

Jewelry and Precious Metals

Biopharmaceuticals (1.38%, 2.29%)

Transportation and Logistics

Medical Devices

Heavy Construction Services

Hospitality and Tourism

Building Fixtures, Equipment and Services

Production Technology

Lighting and Electrical Equipment

Entertainment

Heavy Construction Services

Metal Manufacturing

Forest Products

Apparel

Processed Food

Automotive

Processed Food

Chemical Products

Metal Manufacturing

Chemical Products

Apparel

Forest Products

Automotive

Processing Technology

Electrical Equipment

Apparel

Automotive

Change in Greater Boston Region’s share of National Employment, 1998 – 2007

Employees 15,000 =
Composition of the Greater Boston Region Economy

Employment by Traded Cluster, 2007

Rank in MA

Education and Knowledge Creation
Business Services
Financial Services
Distribution Services
Information Technology
Hospitality and Tourism
Transportation and Logistics
Analytical Instruments
Publishing and Printing
Entertainment
Medical Devices
Processed Food
Heavy Construction Services
Metal Manufacturing
Biopharmaceuticals
Production Technology
Communications Equipment
Plastics
Chemical Products
Building Fixtures, Equip,&Services
Leather and Related Products
Lighting and Electrical Equipment
Automotive
Jewelry and Precious Metals
Forest Products
Apparel
Motor Driven Products
Textiles
Furniture
Heavy Machinery
Construction Materials
Sport, Rec, & Children's Goods
Fishing and Fishing Products
Power Gen & Transmission
Agricultural Products
Prefabricated Enclosures
Oil and Gas Products and Services
Aerospace Vehicles and Defense
Aerospace Engines
Footwear
Textiles
Motor Driven Products
Apparel
Forest Products

Employment, 2007

- Indicates expected employment at rates in the state benchmark for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

Copyright © 2010 Professor Michael E. Porter
Greater Boston Region Job Creation by Traded Cluster
1998-2007

Net traded job creation, 1998-2007: -10,747

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +90,718

* Indicates expected job creation given national cluster growth. *
Greater Boston Region Wages by Traded Cluster vs. National Benchmarks

Greater Boston Region average traded wage: $83,819
49.0% above U.S. average

U.S. average traded wage: $56,248

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.

Greater Boston Region Employment by Local Cluster 2007

Rank in MA

- Local Commercial Services: 1
- Local Health Services: 1
- Local Hospitality Establishments: 1
- Local Real Estate, Construction, and Development: 1
- Local Financial Services: 1
- Local Food and Beverage Processing and Distribution: 1
- Local Community and Civic Organizations: 1
- Local Retail Clothing and Accessories: 1
- Local Personal Services (Non-Medical): 1
- Local Motor Vehicle Products and Services: 1
- Local Entertainment and Media: 1
- Local Logistical Services: 1
- Local Utilities: 1
- Local Education and Training: 1
- Local Household Goods and Services: 1
- Local Industrial Products and Services: 1

Employment, 2007

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

I - Indicates expected employment at rates in the state benchmark for local clusters. Rank is across 7 state regions.
Greater Boston Region Job Creation by Local Cluster
1998-2007

Net local job creation, 1998-2007: + 91,214

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +161,330.
Greater Boston Region Wages by Local Cluster vs. National Benchmarks

Note: Berkshire Region = Berkshire County
Composition of the Berkshire Region Economy
Specialization by Traded Cluster, 1998-2007

Overall change in the Berkshire Region’s Share of US Traded Employment: -0.007%

Berkshire Region’s Overall Share of US Traded Employment: 0.055%

## Composition of the Berkshire Region Economy

### Employment by Traded Cluster, 2007

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Rank in MA</th>
<th>Employment, 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Education &amp; Knowledge Creation</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Forest Products</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Financial Services</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Publishing and Printing</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Plastics</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Analytical Instruments</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Distribution Services</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Heavy Construction Services</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Processed Food</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Automotive</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Chemical Products</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Aerospace Vehicles and Defense</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Textiles</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Metal Manufacturing</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Power Gen &amp; Transmission</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Agricultural Products</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Building Fixtures, Equip., &amp; Services</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Production Technology</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Construction Materials</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Jewelry and Precious Metals</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Heavy Machinery</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Motor Driven Products</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Medical Devices</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Sport, Rec., &amp; Children's Goods</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Oil &amp; Gas Products &amp; Services</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Leather and Related Products</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Fishing and Fishing Products</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Communications Equipment</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Prefabricated Enclosures</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Footwear</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Apparel</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Aerospace Engines</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

- Indicates expected employment at rates in the **state benchmark** for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Net traded job creation, 1998-2007: -1652

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +568.

Berkshire Region Wages by Traded Cluster vs. National Benchmarks

Berkshire Region average traded wage: $41,569
26.1% below US average

U.S. average traded wage: $56,248

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.
Berkshire Region Employment by Local Cluster

2007

Rank in MA

Local Health Services 7
Local Hospitality Establishments 7
Local Real Estate, Construction, and Development 7
Local Commercial Services 7
Local Community and Civic Organizations 7
Local Food and Beverage Processing and Distribution 7
Local Retail Clothing and Accessories 7
Local Education and Training 6
Local Motor Vehicle Products and Services 7
Local Personal Services (Non-Medical) 7
Local Entertainment and Media 7
Local Household Goods and Services 7
Local Logistical Services 7
Local Financial Services 7
Local Utilities 7
Local Industrial Products and Services 6

Employment, 2007

<table>
<thead>
<tr>
<th>Category</th>
<th>Rank in MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Health Services</td>
<td>7</td>
</tr>
<tr>
<td>Local Hospitality Establishments</td>
<td>7</td>
</tr>
<tr>
<td>Local Real Estate, Construction, and Development</td>
<td>7</td>
</tr>
<tr>
<td>Local Commercial Services</td>
<td>7</td>
</tr>
<tr>
<td>Local Community and Civic Organizations</td>
<td>7</td>
</tr>
<tr>
<td>Local Food and Beverage Processing and Dist</td>
<td>7</td>
</tr>
<tr>
<td>Local Retail Clothing and Accessories</td>
<td>7</td>
</tr>
<tr>
<td>Local Education and Training</td>
<td>6</td>
</tr>
<tr>
<td>Local Motor Vehicle Products and Services</td>
<td>7</td>
</tr>
<tr>
<td>Local Personal Services (Non-Medical)</td>
<td>7</td>
</tr>
<tr>
<td>Local Entertainment and Media</td>
<td>7</td>
</tr>
<tr>
<td>Local Household Goods and Services</td>
<td>7</td>
</tr>
<tr>
<td>Local Logistical Services</td>
<td>7</td>
</tr>
<tr>
<td>Local Financial Services</td>
<td>7</td>
</tr>
<tr>
<td>Local Utilities</td>
<td>7</td>
</tr>
<tr>
<td>Local Industrial Products and Services</td>
<td>6</td>
</tr>
</tbody>
</table>

I - Indicates expected employment at rates in the state benchmark for local clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Berkshire Region Job Creation by Local Cluster
1998-2007

Net local job creation, 1998-2007: +2,706

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +5,881.
Berkshire Region Wages by Local Cluster vs. National Benchmarks

Composition of the Pioneer Valley MSA Region Economy

Employment by Traded Cluster, 2007

Rank in MA

Education and Knowledge Creation 2
Financial Services 2
Business Services 5
Hospitality and Tourism 2
Metal Manufacturing 3
Publishing and Printing 2
Processed Food 3
Plastics 3
Sporting, Recreational and Children’s Goods 2
Distribution Services 5
Building Fixtures, Equipment and Services 2
Production Technology 4
Forest Products 2
Analytical Instruments 5
Aerospace Engines 2
Heavy Construction Services 4
Transportation and Logistics 4
Entertainment 5
Medical Devices 5
Communications Equipment 5
Power Generation and Transmission 2
Leather and Related Products 3
Automotive 4
Chemical Products 5
Information Technology 5
Motor Driven Products 2
Textiles 5
Construction Materials 4
Biopharmaceuticals 5
Lighting and Electrical Equipment 5
Agricultural Products 3
Heavy Machinery 3
Tobacco 1
Apparel 4
Jewelry and Precious Metals 4
Furniture 5
Prefabracted Enclosures 3
Aerospace Vehicles and Defense 3
Oil and Gas Products and Services 5

- Indicates expected employment at rates in the state benchmark for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Pioneer Valley MSA Region Job Creation by Traded Cluster
1998 to 2007

Net traded job creation, 1998 to 2007:
- 20,280

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +2,465

Pioneer Valley MSA Region Wages by Traded Cluster vs. National Benchmarks

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.

Pioneer Valley MSA Region Employment by Local Cluster 2007

Rank in MA

- Local Health Services: 5
- Local Hospitality Establishments: 5
- Local Commercial Services: 5
- Local Community and Civic Organizations: 2
- Local Real Estate, Construction, and Development: 5
- Local Food and Beverage Processing and Distribution: 5
- Local Motor Vehicle Products and Services: 4
- Local Retail Clothing and Accessories: 4
- Local Education and Training: 3
- Local Personal Services (Non-Medical): 5
- Local Logistical Services: 4
- Local Financial Services: 5
- Local Entertainment and Media: 4
- Local Industrial Products and Services: 3
- Local Household Goods and Services: 4
- Local Utilities: 5

Employment, 2007

I - Indicates expected employment at rates in the state benchmark for local clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Pioneer Valley MSA Region Job Creation by Local Cluster
1998 to 2007

Job Creation, 1998-2007

Net local job creation, 1998 to 2007: + 14,116

* Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +25,312.

Pioneer Valley MSA Region Wages by Local Cluster vs. National Benchmarks

Wages, 2007

Pioneer Valley MSA Region average local wage: $32,617
14.0% below U.S. average

U.S. average local wage: $36,469

Composition of the Central Region Economy
Specialization by Traded Cluster, 1998-2007

Central Region’s Overall Share of US Traded Employment: 0.254%

Overall change in the Central Region’s Share of US Traded Employment: -0.055%


Copyright © 2010 Professor Michael E. Porter
Composition of the Central Region Economy

Employment by Traded Cluster, 2007

- Indicates expected employment at rates in the state benchmark for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Central Region Job Creation by Traded Cluster
1998-2007

Net traded job creation, 1998-2007:
-14,762

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be -3,021
Central Region Wages by Traded Cluster vs. National Benchmarks

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.

Central Region Employment by Local Cluster
2007

<table>
<thead>
<tr>
<th>Rank in MA</th>
<th>Local Cluster</th>
<th>Employment, 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Local Health Services</td>
<td>50,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Hospitality Establishments</td>
<td>25,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Commercial Services</td>
<td>20,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Real Estate, Construction, and Devel</td>
<td>15,000</td>
</tr>
<tr>
<td>2</td>
<td>Local Financial Services</td>
<td>10,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Food and Beverage Processing and Dist</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Community and Civic Organizations</td>
<td>5,000</td>
</tr>
<tr>
<td>3</td>
<td>Local Motor Vehicle Products and Services</td>
<td>5,000</td>
</tr>
<tr>
<td>3</td>
<td>Local Retail Clothing and Accessories</td>
<td>5,000</td>
</tr>
<tr>
<td>2</td>
<td>Local Logistical Services</td>
<td>5,000</td>
</tr>
<tr>
<td>2</td>
<td>Local Education and Training</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Personal Services (Non-Medical)</td>
<td>5,000</td>
</tr>
<tr>
<td>3</td>
<td>Local Entertainment and Media</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Utilities</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Local Industrial Products and Services</td>
<td>5,000</td>
</tr>
<tr>
<td>5</td>
<td>Local Household Goods and Services</td>
<td>5,000</td>
</tr>
</tbody>
</table>

I - Indicates expected employment at rates in the state benchmark for local clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Central Region Job Creation by Local Cluster
1998-2007

Net local job creation, 1998-2007: + 22,262

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +27,984
Central Region Wages by Local Cluster vs. National Benchmarks

Wages, 2007

- Local Utilities
- Local Industrial Products and Services
- Local Real Estate, Construction, and Development
- Local Financial Services
- Local Health Services
- Local Commercial Services
- Local Household Goods and Services
- Local Logistical Services
- Local Motor Vehicle Products and Services
- Local Entertainment and Media
- Local Education and Training
- Local Food and Beverage Processing and Distribution
- Local Community and Civic Organizations
- Local Personal Services (Non-Medical)
- Local Hospitality Establishments
- Local Retail Clothing and Accessories

Central Region average local wage: $36,064
1.1% below U.S. average

U.S. average local wage: $36,469

Composition of the Northeast Region Economy
Specialization by Traded Cluster, 1998-2007

Overall change in the Northeast Region’s Share of US Traded Employment: -0.033%

Communications Equipment (-0.59%, 0.73%)

Added Jobs
Lost Jobs

Northeast Region’s national employment share, 2007

CAGR (98-07)

Overall change in the Northeast Region’s national employment share, 2007

-0.20% -0.15% -0.10% -0.05% 0.00% 0.05% 0.10% 0.15% 0.20%

-0.20% -0.15% -0.10% -0.05% 0.00% 0.05% 0.10% 0.15% 0.20%


Copyright © 2010 Professor Michael E. Porter
**Composition of the Northeast Region Economy**

**Employment by Traded Cluster, 2007**

- Indicates expected employment at rates in the **state benchmark** for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Northeast Region Job Creation by Traded Cluster
1998-2007

Indicates expected job creation given national cluster growth.*

Net traded job creation, 1998-2007: -7,750

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be -3,090
Northeast Region Wages by Traded Cluster vs. National Benchmarks

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.

Northeast Region average traded wage: $65,833
17.0% above U.S. average

U.S. average traded wage: $56,248

Indicates average national wage in the traded cluster.
Northeast Region Employment by Local Cluster 2007

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Northeast Region Job Creation by Local Cluster
1998-2007

Job Creation, 1998-2007

Net local job creation, 1998-2007: + 14,944

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +26,480

Northeast Region Wages by Local Cluster vs. National Benchmarks

Wages, 2007

- Local Industrial Products and Services
- Local Real Estate, Construction, and Development
- Local Utilities
- Local Financial Services
- Local Commercial Services
- Local Health Services
- Local Household Goods and Services
- Local Motor Vehicle Products and Services
- Local Logistical Services
- Local Education and Training
- Local Entertainment and Media
- Local Community and Civic Organizations
- Local Food and Beverage Processing and Distribution
- Local Personal Services (Non-Medical)
- Local Retail Clothing and Accessories
- Local Hospitality Establishments

Northeast Region average local wage: $35,618
2.3% below U.S. average

U.S. average local wage: $36,469

Indicates average national wage in the local cluster.

Southeast Region
Composition of the Southeast Region Economy
Specialization by Traded Cluster, 1998-2007

Overall change in the Southeast Region’s Share of US Traded Employment: -0.041%

Southeast Region’s Overall Share of US Traded Employment: 0.281%

Change in Southeast Region’s share of National Employment, 1998 – 2007

Southeast Region’s national employment share, 2007

Composition of the Southeast Region Economy

Composition of the Southeast Region Economy

Employment by Traded Cluster, 2007

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Rank in MA</th>
<th>Employment, 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Distribution Services</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Analytical Instruments</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Education &amp; Knowledge Creation</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Financial Services</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Sport, Rec., &amp; Children's Goods</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Textiles</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Metal Manufacturing</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Processed Food</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Heavy Construction Services</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Leather and Related Products</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Medical Devices</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Publishing and Printing</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Apparel</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Jewelry and Precious Metals</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fishing and Fishing Products</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Communications Equipment</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Production Technology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Plastics</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Forest Products</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Building Fixtures. Equip. &amp; Service</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Power Gen &amp; Transmission</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chemical Products</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Automotive</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Agricultural Products</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Construction Materials</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Motor Driven Products</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Footwear</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Heavy Machinery</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Prefabricated Enclosures</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Oil &amp; Gas Products &amp; Services</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Aerospace Vehicles and Defense</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Aerospace Engines</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

- Indicates expected employment at rates in the state benchmark for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Southeast Region Job Creation by Traded Cluster
1998-2007

Net traded job creation, 1998-2007: -9,932

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be -10,819

Southeast Region Wages by Traded Cluster vs. National Benchmarks

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.

Indicates average national wage in the traded cluster.

Southeast Region average traded wage: $48,156
14.4% below U.S. average

U.S. average traded wage: $56,248
Southeast Region Employment by Local Cluster
2007

<table>
<thead>
<tr>
<th>Local Cluster</th>
<th>Rank in MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Health Services</td>
<td>2</td>
</tr>
<tr>
<td>Local Hospitality Establishments</td>
<td>2</td>
</tr>
<tr>
<td>Local Real Estate, Construction, and Developments</td>
<td>2</td>
</tr>
<tr>
<td>Local Commercial Services</td>
<td>2</td>
</tr>
<tr>
<td>Local Food and Beverage Processing and Distribution</td>
<td>2</td>
</tr>
<tr>
<td>Local Retail Clothing and Accessories</td>
<td>2</td>
</tr>
<tr>
<td>Local Motor Vehicle Products and Services</td>
<td>2</td>
</tr>
<tr>
<td>Local Community and Civic Organizations</td>
<td>3</td>
</tr>
<tr>
<td>Local Personal Services (Non-Medical)</td>
<td>2</td>
</tr>
<tr>
<td>Local Financial Services</td>
<td>3</td>
</tr>
<tr>
<td>Local Logistical Services</td>
<td>3</td>
</tr>
<tr>
<td>Local Entertainment and Media</td>
<td>2</td>
</tr>
<tr>
<td>Local Household Goods and Services</td>
<td>2</td>
</tr>
<tr>
<td>Local Utilities</td>
<td>3</td>
</tr>
<tr>
<td>Local Education and Training</td>
<td>4</td>
</tr>
<tr>
<td>Local Industrial Products and Services</td>
<td>2</td>
</tr>
</tbody>
</table>

I - Indicates expected employment at rates in the state benchmark for local clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Southeast Region Job Creation by Local Cluster
1998-2007

Net local job creation, 1998-2007: + 44,907

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +24.066
Southeast Region Wages by Local Clusters vs. National Benchmarks

Southeast Region average local wage: $35,153
3.6% below U.S. average

U.S. average local wage: $36,469

Cape and Islands Region
Composition of the Cape and Islands Region Economy
Specialization by Traded Cluster, 1998-2007

Cape and Islands Region’s Overall Share of US Traded Employment: 0.050%

Overall change in the Cape and Islands Region’s Share of US Traded Employment: -0.006%

-0.04% -0.03% -0.02% -0.01% 0.00% 0.01% 0.02% 0.03% 0.04%

CAGR (98-07)

Added Jobs
Lost Jobs

Employees 400 =

Composition of the Cape and Islands Region Economy

Employment by Traded Cluster, 2007

Expected employment in the cluster if the Cape and Island Region penetration was equal to statewide average

- Indicates expected employment at rates in the state benchmark for traded clusters. Rank is across 7 state regions.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Cape and Islands Region Job Creation by Traded Cluster 1998-2007

Net traded job creation, 1998-2007: -1,342

* Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +2,103

Cape and Island Region Wages by Traded Cluster vs. National Benchmarks

Cape and Island Region average traded wage: $52,962
5.8% below U.S. average

U.S. average traded wage: $56,248

Note: Wages are not available in all clusters due to data suppression to protect confidentiality.

Cape and Islands Region Employment by Local Cluster 2007

Rank in MA

- Local Health Services: 6
- Local Real Estate, Construction, and Development: 6
- Local Hospitality Establishments: 6
- Local Food and Beverage Processing and Distribution: 6
- Local Commercial Services: 6
- Local Household Goods and Services: 3
- Local Retail Clothing and Accessories: 6
- Local Motor Vehicle Products and Services: 6
- Local Community and Civic Organizations: 6
- Local Personal Services (Non-Medical): 6
- Local Entertainment and Media: 6
- Local Financial Services: 6
- Local Logistical Services: 6
- Local Education and Training: 7
- Local Utilities: 6
- Local Industrial Products and Services: 7

Employment, 2007


I - Indicates expected employment at rates in the state benchmark for local clusters. Rank is across 7 state regions.
Cape and Islands Region Job Creation by Local Cluster

1998-2007

Net local job creation, 1998-2007: +12,365

*Percent change in national benchmark times starting regional employment. Overall traded job creation in this region, if it matched national benchmarks, would be +9,563

Cape and Island Region Wages by Local Cluster vs. National Benchmarks

- Local Industrial Products and Services
- Local Financial Services
- Local Real Estate, Construction, and Development
- Local Household Goods and Services
- Local Health Services
- Local Utilities
- Local Motor Vehicle Products and Services
- Local Logistical Services
- Local Commercial Services
- Local Community and Civic Organizations
- Local Entertainment and Media
- Local Personal Services (Non-Medical)
- Local Food and Beverage Processing and Distribution
- Local Hospitality Establishments
- Local Education and Training
- Local Retail Clothing and Accessories

Cape and Island Region average local wage: $36,021
1.2% below U.S. average

U.S. average local wage: $36,469

Indicates average national wage in the local cluster.

United States Benchmark
Specialization by Traded Cluster, 1998-2007

Change in United States share of National Employment, 1998 – 2007