Regional Competitiveness in Northeast Massachusetts

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Northeast Regional Competitiveness Council
North Shore Community College, Danvers
September 30, 2003


Further information on Professor Porter’s work and the Institute for Strategy and Competitiveness is available at www.isc.hbs.edu
The most important sources of prosperity are created not inherited.

Productivity does not depend on what industries a region competes in, but on how it competes.

The prosperity of a region depends on the productivity of all its industries.

Innovation is vital for long-term increases in productivity.
Productivity, Innovation, and the Business Environment

Context for Firm Strategy and Rivalry

- A local context and rules that encourage investment and sustained upgrading
  - e.g., Intellectual property protection
- Meritocratic incentive systems across all major institutions
- Open and vigorous competition among locally based rivals

Factor (Input) Conditions

- Presence of high quality, specialized inputs available to firms
  - Human resources
  - Capital resources
  - Physical infrastructure
  - Administrative infrastructure
  - Information infrastructure
  - Scientific and technological infrastructure
  - Natural resources

Demand Conditions

- Sophisticated and demanding local customer(s)
- Local customer needs that anticipate those elsewhere
- Unusual local demand in specialized segments that can be served nationally and globally

Related and Supporting Industries

- Access to capable, locally based suppliers and firms in related fields
- Presence of clusters instead of isolated industries

- Successful economic development is a process of successive economic upgrading, in which the business environment in a nation or region evolves to support and encourage increasingly sophisticated ways of competing
### Composition of Regional Economies

**United States**

<table>
<thead>
<tr>
<th></th>
<th>Traded Clusters</th>
<th>Local Clusters</th>
<th>Natural Resource-Driven Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share of Employment</strong></td>
<td>31.6%</td>
<td>67.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Employment Growth, 1990 to 2001</strong></td>
<td>1.7%</td>
<td>2.8%</td>
<td>-1.0%</td>
</tr>
<tr>
<td><strong>Average Wage</strong></td>
<td>$46,596</td>
<td>$28,288</td>
<td>$33,245</td>
</tr>
<tr>
<td><strong>Relative Wage</strong></td>
<td>133.8</td>
<td>84.2</td>
<td>99.0</td>
</tr>
<tr>
<td><strong>Wage Growth</strong></td>
<td>5.0%</td>
<td>3.6%</td>
<td>1.9%</td>
</tr>
<tr>
<td><strong>Relative Productivity</strong></td>
<td>144.1</td>
<td>79.3</td>
<td>140.1</td>
</tr>
<tr>
<td><strong>Patents per 10,000 Employees</strong></td>
<td>21.3</td>
<td>1.3</td>
<td>7.0</td>
</tr>
<tr>
<td><strong>Number of SIC Industries</strong></td>
<td>590</td>
<td>241</td>
<td>48</td>
</tr>
</tbody>
</table>

Note: 2001 data, except relative productivity which is 1997 data.
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Specialization of Regional Economies
Select U.S. Geographic Areas

- **Seattle-Bellevue-Everett, WA**
  - Aerospace Vehicles and Defense
  - Fishing and Fishing Products
  - Analytical Instruments

- **San Francisco-Oakland-San Jose Bay Area**
  - Communications Equipment
  - Agricultural Products
  - Information Technology

- **Los Angeles Area**
  - Apparel
  - Building Fixtures, Equipment and Services
  - Entertainment

- **San Diego**
  - Leather and Sporting Goods
  - Power Generation
  - Education and Knowledge Creation

- **Denver, CO**
  - Aerospace Vehicles and Defense
  - Heavy Machinery
  - Oil and Gas

- **Chicago**
  - Communications Equipment
  - Processed Food
  - Heavy Machinery

- **Pittsburgh, PA**
  - Construction Materials
  - Metal Manufacturing
  - Education and Knowledge Creation

- **Wichita, KS**
  - Aerospace Vehicles and Defense
  - Heavy Machinery
  - Oil and Gas

- **Raleigh-Durham, NC**
  - Communications Equipment
  - Information Technology
  - Education and Knowledge Creation

- **Boston**
  - Analytical Instruments
  - Education and Knowledge Creation
  - Communications Equipment

- **Atlanta, GA**
  - Construction Materials
  - Transportation and Logistics
  - Business Services

- **Houston**
  - Heavy Construction Services
  - Power Generation
  - Oil and Gas
  - Education and Knowledge Creation

- **San Francisco-Oakland-San Jose Bay Area**
  - Communications Equipment
  - Agricultural Products
  - Information Technology

Note: Clusters listed are the three highest ranking clusters in terms of share of national employment.

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Massachusetts Life Sciences Cluster

- Health and Beauty Products
- Surgical Instruments and Suppliers
- Medical Equipment
- Dental Instruments and Suppliers
- Ophthalmic Goods
- Diagnostic Substances
- Containers
- Analytical Instruments
- Health Services Provider
- Biological Products
- Biopharmaceutical Products
- Research Organizations
- Cluster Organizations: MassMedic, MassBio, others
- Specialized Business Services: Banking, Accounting, Legal
- Specialized Risk Capital: VC Firms, Angel Networks
- Specialized Research Service Providers: Laboratory, Clinical Testing
- Educational Institutions: Harvard University, MIT, Tufts University, Boston University, UMass, others
Note: Clusters with overlapping borders or identical shading have at least 20% overlap (by number of industries) in both directions.
The Evolution of Regional Economies
San Diego

Climate and Geography

U.S. Military

Hospitality and Tourism

Transportation and Logistics

Power Generation

Aerospace Vehicles and Defense

Communications Equipment

Analytical Instruments

Information Technology

Education and Knowledge Creation

Medical Devices

Biotechnology / Pharmaceuticals

Bioscience Research Centers

Institutions for Collaboration
Selected Massachusetts Organizations. Life Sciences

Life Sciences Industry Associations
- Massachusetts Biotechnology Council
- Massachusetts Medical Device Industry Council
- Massachusetts Hospital Association

University Initiatives
- Harvard Biomedical Community
- MIT Enterprise Forum
- Biotech Club at Harvard Medical School
- Technology Transfer offices

General Industry Associations
- Associated Industries of Massachusetts
- Greater Boston Chamber of Commerce
- High Tech Council of Massachusetts

Informal networks
- Company alumni
- Venture Capital community
- University alumni

Economic Development Initiatives
- Massachusetts Technology Collaborative
- Mass Biomedical Initiatives
- Mass Development
- Massachusetts Alliance for Economic Development

Joint Research Initiatives
- New England Healthcare Institute
- Whitehead Institute For Biomedical Research
- Center for Integration of Medicine and Innovative Technology (CIMIT)
Influences on Competitiveness

Multiple Geographic Levels

- World Economy
- Groups of Neighboring Nations
- Nations
- States, Provinces
- Metropolitan Areas
- Smaller Cities and Counties
Regional Competitiveness
Northeastern Massachusetts

- Foundations of Regional Competitiveness
- Assessing the Competitiveness of Northeastern Massachusetts
- Action Agenda
Economic Performance
Northeastern Massachusetts

- Wages are high and have been growing at 6.3% annually over the last five years, above the US and Massachusetts average
  - Local wages, however, are somewhat lower than expected given the region’s overall wage level

- Employment has growing at 2.6% annually over the last five years, above the US and Massachusetts average
  - The Northeast was the only Massachusetts region outside of Boston that added jobs in traded clusters

- The Northeast registered the strongest growth of establishments of all Massachusetts regions

- Patenting rates of 14.7 patents per 10,000 employees in 2001 close to Boston
Comparative Performance of Regions
Wage Growth and Wages

CAGR of Average Wage, 1997–2001

Represents employment of 250,000 in 2001

US Average Wage: $34,669

Greater Boston

Northeast

Cape and Islands

Southeast

Central

Pioneer Valley

Berkshire

US Average Wage Growth: 4.56%

Data: private, non-agricultural employment
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

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Wages in Traded and Local Industries
Massachusetts Regions

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
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US Average Traded Wage: $44,956

US Average Local Wage: $28,288
Comparative Performance of Regions
Wage Growth and Employment Growth

CAGR of Average Wage, 1997–2001

Greater Boston

Cape and Islands

Southeast

Central

Pioneer Valley

Berkshire

Northeast

US Average Wage Growth: 4.56%

US Average Employment Growth: 2.21%

CAGR of Employment, 1997–2001

Data: private, non-agricultural employment
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

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Job Creation
Massachusetts Regions

Net job creation in traded clusters, 1997-2001:
+18,197

Net job creation in local clusters, 1997-2001:
+18,100

Greater Boston
Northeast
Cape and Islands
Southeast
Pioneer Valley
Berkshire
Central

Data: private, non-agricultural employment. Note: Regional data does not total precisely to statewide data due to omissions for confidentiality in the regions.
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

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Comparative Performance of Regions
Establishment Formation in Traded Clusters

- **US Average Rate of Traded Establishment Formation: 2.79%**
- **Employees per Traded Establishment, 2001: 23.8**

CAGR of Traded Establishments, 1997–2001

- **Northeast**
- **Central**
- **Greater Boston**
- **Pioneer Valley**
- **Berkshire**
- **Cape and Islands**
- **Southeast**

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Comparative Performance of Regions
Patenting Rates

US Average Patenting Rate:
7.71 per 10,000 Workers

Greater Boston
Northeast
Southeast
Central
Pioneer Valley

CAGR of Patenting, 1997-2001

Patents per 10,000 Workers, 2001

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Comparative Performance of Regions
Wages and Patenting Rates

US Average Patenting Rate:
7.71 per 10,000 Workers

US Average Wage: 34,669

Greater Boston

Northeast

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

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# Patents by Organization
## Northeast Region

<table>
<thead>
<tr>
<th>Organization</th>
<th>Patents Issued from 1997 to 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALOG DEVICES, INC.</td>
<td>62</td>
</tr>
<tr>
<td>GENERAL ELECTRIC COMPANY</td>
<td>59</td>
</tr>
<tr>
<td>OSRAM SYLVANIA INC.</td>
<td>43</td>
</tr>
<tr>
<td>HEWLETT-PACKARD COMPANY</td>
<td>42</td>
</tr>
<tr>
<td>ANALOGIC CORPORATION</td>
<td>37</td>
</tr>
<tr>
<td>POLAROID CORPORATION</td>
<td>35</td>
</tr>
<tr>
<td>SUN MICROSYSTEMS, INC.</td>
<td>34</td>
</tr>
<tr>
<td>EATON CORPORATION</td>
<td>27</td>
</tr>
<tr>
<td>AGFA CORPORATION</td>
<td>27</td>
</tr>
<tr>
<td>NEW ENGLAND BIOLABS, INC.</td>
<td>27</td>
</tr>
<tr>
<td>DIGITAL EQUIPMENT CORPORATION</td>
<td>25</td>
</tr>
<tr>
<td>WHITAKER CORPORATION</td>
<td>24</td>
</tr>
<tr>
<td>AGFA DIVISION, BAYER CORPORATION</td>
<td>22</td>
</tr>
<tr>
<td>RAYTHEON COMPANY</td>
<td>21</td>
</tr>
<tr>
<td>C. R. BARD, INC.</td>
<td>19</td>
</tr>
<tr>
<td>UNIVERSITY OF MASSACHUSETTS</td>
<td>19</td>
</tr>
<tr>
<td>SPEEDLINE TECHNOLOGIES, INC.</td>
<td>18</td>
</tr>
<tr>
<td>GENETICS INSTITUTE, INC.</td>
<td>18</td>
</tr>
<tr>
<td>GELTEX PHARMACEUTICALS, INC.</td>
<td>18</td>
</tr>
<tr>
<td>LUCENT TECHNOLOGIES INC.</td>
<td>18</td>
</tr>
<tr>
<td>AVID TECHNOLOGY, INC.</td>
<td>17</td>
</tr>
<tr>
<td>NORTEL NETWORKS CORPORATION</td>
<td>16</td>
</tr>
<tr>
<td>CABOT CORPORATION</td>
<td>16</td>
</tr>
<tr>
<td>BROOKS AUTOMATION INC.</td>
<td>15</td>
</tr>
<tr>
<td>MILLENNIUM PHARMACEUTICALS, INC.</td>
<td>15</td>
</tr>
<tr>
<td>MILLIPORE CORPORATION</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: The USPTO assigns location based on the inventor's address rather than that of the institutional owner.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
The Northeast has with 39.4% the highest share of traded employment of all Massachusetts regions.

Among traded clusters, the Northeast has a strong position in a number of technology-intensive clusters:
- Information Technology
- Analytical Instruments
- Communication Equipment
- Aerospace Engines, Aerospace Vehicles and Defense

The Northeast is strengthening its position in some traditionally strong clusters but is losing out in others:
- Growing clusters include Analytical Instruments and Equipment but also Business Services, Financial Services, and Education and Knowledge Creation
- Shrinking clusters include Aerospace Engines and Information Technology
  - Clusters with currently higher than average wages and employment concentration that are losing position account for more than 40% of that group

Among local clusters, real estate development has added the most significant number of jobs between 1997 and 2001.
Employment by Cluster Type
Massachusetts Regions

<table>
<thead>
<tr>
<th>Cluster</th>
<th>NED</th>
<th>Traded</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>0.20%</td>
<td>39.40%</td>
<td>60.30%</td>
</tr>
<tr>
<td>Greater Boston</td>
<td>0.20%</td>
<td>38.80%</td>
<td>61.00%</td>
</tr>
<tr>
<td>Central</td>
<td>0.40%</td>
<td>30.60%</td>
<td>69.00%</td>
</tr>
<tr>
<td>Berkshire</td>
<td>1.10%</td>
<td>28.00%</td>
<td>70.90%</td>
</tr>
<tr>
<td>Southeast</td>
<td>0.20%</td>
<td>27.40%</td>
<td>72.40%</td>
</tr>
<tr>
<td>Pioneer Valley</td>
<td>0.40%</td>
<td>27.00%</td>
<td>72.70%</td>
</tr>
<tr>
<td>Cape and Islands</td>
<td>0.30%</td>
<td>18.30%</td>
<td>81.40%</td>
</tr>
</tbody>
</table>

Data: private, non-agricultural employment. Note: Regional data does not total precisely to statewide data due to omissions for confidentiality in the regions.

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

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Specialization By Traded Cluster
Northeast Region

Share of National Cluster Employment in 2001

Change in Share, 1997–2001

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

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Employment By Traded Cluster
Northeast Region

Employment, 2001

- 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

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Job Creation By Traded Cluster
Northeast Region

Net job creation in traded clusters from 1997-2001: +18,197

Indicates expected job creation at rates achieved in national benchmark clusters, i.e. % change in national benchmark times initial employment.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Relative Cluster Performance
Northeast Region

69.7% of traded employment
38.3% in clusters gaining share
31.4% in clusters losing share

Note: Data points that fall outside the graph are placed on the borders with their values given in parentheses (Employment, Wage)
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Job Creation By Local Cluster
Northeast Region

Net job creation in local clusters, 1997-2001:
+18,100

Indicates expected job creation at rates achieved in **national benchmark** clusters, i.e. % change in national benchmark times initial employment.

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

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Wages By Traded Cluster
Northeast Region with State Benchmarks

Region’s average traded wage: $64,196

- Indicates Massachusetts average wage in the cluster.

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

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
## Leading Sub-Clusters by Location Quotient
### Northeast Region, 2001

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Subcluster</th>
<th>Location Quotient</th>
<th>Share of National Employment</th>
<th>Rank among Massachusetts Regions</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services</td>
<td>Laundry Services</td>
<td>5.47</td>
<td>1.87%</td>
<td>2</td>
<td>264</td>
</tr>
<tr>
<td></td>
<td>Computer Programming</td>
<td>2.23</td>
<td>0.76%</td>
<td>2</td>
<td>9,045</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Computers</td>
<td>21.37</td>
<td>7.30%</td>
<td>1</td>
<td>5,294</td>
</tr>
<tr>
<td></td>
<td>Electronic Components and Assemblies</td>
<td>4.31</td>
<td>1.47%</td>
<td>2</td>
<td>4,849</td>
</tr>
<tr>
<td></td>
<td>Software</td>
<td>4.08</td>
<td>1.39%</td>
<td>2</td>
<td>4,924</td>
</tr>
<tr>
<td></td>
<td>Peripherals</td>
<td>3.65</td>
<td>1.25%</td>
<td>2</td>
<td>1,514</td>
</tr>
<tr>
<td>Communications Equipment</td>
<td>Specialty Office Machines</td>
<td>12.52</td>
<td>4.28%</td>
<td>2</td>
<td>879</td>
</tr>
<tr>
<td></td>
<td>Communications Equipment</td>
<td>10.75</td>
<td>3.67%</td>
<td>1</td>
<td>9,776</td>
</tr>
<tr>
<td></td>
<td>Electrical and Electronic Components</td>
<td>5.06</td>
<td>1.73%</td>
<td>2</td>
<td>2,785</td>
</tr>
<tr>
<td>Analytical Instruments</td>
<td>Optical Instruments</td>
<td>9.34</td>
<td>3.19%</td>
<td>2</td>
<td>727</td>
</tr>
<tr>
<td></td>
<td>Laboratory Instruments</td>
<td>8.23</td>
<td>2.81%</td>
<td>2</td>
<td>3,308</td>
</tr>
<tr>
<td></td>
<td>Process Instruments</td>
<td>7.50</td>
<td>2.56%</td>
<td>1</td>
<td>4,844</td>
</tr>
<tr>
<td>Financial Services</td>
<td>Passenger Car Leasing</td>
<td>4.05</td>
<td>1.38%</td>
<td>1</td>
<td>133</td>
</tr>
<tr>
<td>Aerospace Vehicles and Defense</td>
<td>Missiles and Space Vehicles</td>
<td>30.29</td>
<td>10.35%</td>
<td>1</td>
<td>7,074</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>Medical Equipment</td>
<td>14.83</td>
<td>5.07%</td>
<td>1</td>
<td>3,017</td>
</tr>
<tr>
<td></td>
<td>Biological Products</td>
<td>4.60</td>
<td>1.57%</td>
<td>1</td>
<td>402</td>
</tr>
<tr>
<td></td>
<td>Surgical Instruments and Supplies</td>
<td>2.39</td>
<td>0.82%</td>
<td>3</td>
<td>1,605</td>
</tr>
<tr>
<td>Aerospace Engines</td>
<td>Aircraft Engines</td>
<td>16.93</td>
<td>5.78%</td>
<td>1</td>
<td>4,640</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>Trucking Terminal</td>
<td>72.79</td>
<td>24.86%</td>
<td>1</td>
<td>146</td>
</tr>
<tr>
<td>Processed Food</td>
<td>Milk and Frozen Desserts</td>
<td>2.99</td>
<td>1.02%</td>
<td>2</td>
<td>781</td>
</tr>
<tr>
<td>Metal Manufacturing</td>
<td>General Industrial Machinery</td>
<td>6.07</td>
<td>2.07%</td>
<td>1</td>
<td>1,030</td>
</tr>
<tr>
<td>Production Technology</td>
<td>Process Machinery</td>
<td>3.36</td>
<td>1.15%</td>
<td>2</td>
<td>928</td>
</tr>
<tr>
<td>Entertainment</td>
<td>Entertainment Equipment</td>
<td>3.66</td>
<td>1.25%</td>
<td>2</td>
<td>556</td>
</tr>
<tr>
<td>Power Generation and Transmission</td>
<td>Transformers</td>
<td>17.12</td>
<td>5.85%</td>
<td>1</td>
<td>1,514</td>
</tr>
<tr>
<td></td>
<td>Porcelain, Carbon and Graphite Components</td>
<td>2.94</td>
<td>1.01%</td>
<td>1</td>
<td>194</td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>Electric Lamps</td>
<td>15.32</td>
<td>5.23%</td>
<td>1</td>
<td>692</td>
</tr>
<tr>
<td>Chemical Products</td>
<td>Leather Tanning and Finishing</td>
<td>3.82</td>
<td>1.30%</td>
<td>1</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>Special Packaging</td>
<td>2.75</td>
<td>0.94%</td>
<td>3</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>Packaged Chemical Products</td>
<td>2.70</td>
<td>0.92%</td>
<td>2</td>
<td>820</td>
</tr>
<tr>
<td>Fishing and Fishing Products</td>
<td>Fish Products</td>
<td>7.81</td>
<td>2.67%</td>
<td>1</td>
<td>937</td>
</tr>
<tr>
<td></td>
<td>Fishing and Hunting</td>
<td>7.71</td>
<td>2.63%</td>
<td>2</td>
<td>262</td>
</tr>
<tr>
<td>Leather Products</td>
<td>Coated Fabrics</td>
<td>13.13</td>
<td>4.49%</td>
<td>2</td>
<td>393</td>
</tr>
<tr>
<td></td>
<td>Specialty Footwear</td>
<td>31.56</td>
<td>10.78%</td>
<td>2</td>
<td>213</td>
</tr>
</tbody>
</table>

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

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Sole Proprietorships

Share of Employment in Sole Proprietorships, 2001

Sectors sorted by U.S. employment share of sole proprietorships:
- All Sectors
- Forestry, fishing, hunting, agri. support
- Real estate and rental and leasing
- Other services (except public admin.)
- Arts, entertainment, and recreation
- Professional, scientific, and tech. services
- Construction
- Transportation & warehousing
- Mining
- Administrative, support and waste mgmt
- Retail trade
- Educational services
- Finance and insurance
- Health care and social assistance
- Information
- Wholesale trade
- Accommodation and foodservices
- Utilities
- Manufacturing

Regions* sorted by employment share of sole proprietorships

- Sole proprietorships are, as agriculture and government employees, not included in the dataset available for the cluster mapping project

*Note: Data available on county basis only; the allocation to Massachusetts regions is only approximate

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Sole Proprietorship Employment and Growth
Northeast Region

Source: U.S. Census Bureau, Nonemployer Statistics
RCC Northeast – 09-30-03d CK_RB

Compound Annual Growth Rate (CAGR) of Sole Proprietorship Employment, 1998–2001

Professional, scientific, and technical services

Finance and insurance

Transportation & warehousing

Manufacturing

Utilities

Forestry, fishing, hunting, agriculture support

Construction

Other services (except public admin.)

Real estate, rental and leasing

Health care and social assistance

Retail Trade

Arts, entertainment, and recreation

Information technology and publishing

Accommodation and foodservices

Administrative, support and waste mgmt

Wholesale Trade
Business Environment
Northeastern Massachusetts

• Overall, the Northeast region is seen as an attractive location to do business, number two in Massachusetts behind Boston
  – The region is perceived as providing very strong input conditions; only Boston can match the region within Massachusetts
    o Specific advantages are communication infrastructure, the quality of advanced education and specialized research facilities, and access to specialized researchers
    o Critical disadvantages are the cost of living and the cost of doing business
  – Educational institutions get comparatively strong ratings and are seen relatively well equipped to provide the skills needed in the future

• Poor responsiveness by government is seen as one of the main challenges to create more employment in the future
  – Lack of effective tax incentives is listed as a barrier to expansion
  – Priorities for government include securing basic education and streamlining administrative procedures
Regional Comparisons
Regional Strategy & Summary of the Regional Business Environment

Does your local region have a well articulated economic strategy and are you an active participant in it?

| My organization can contribute significant value to an economic development strategy | Strongly Disagree | Mean Agreement | Strongly Agree |
| My organization is an active participant in the execution of this strategy |
| Local business and government leaders have articulated a clear strategy for promoting the economic development of the local region |
| The state has articulated a clear strategy for the region |

Summary of the Regional Business Environment

| Overall, this region in Massachusetts is a good place for my company to do business |
| Overall, my region has strengths in my industry compared to other regions in Massachusetts |

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- Berkshire
- Cape and Islands
- Central
- Greater Boston
- Northeast
- Pioneer Valley
- Southeast
- Massachusetts
### Regional Comparisons
**Availability of Inputs**

<table>
<thead>
<tr>
<th>Availability of Inputs</th>
<th>Berkshire</th>
<th>Cape and Islands</th>
<th>Central</th>
<th>Greater Boston</th>
<th>Northeast</th>
<th>Pioneer Valley</th>
<th>Southeast</th>
<th>Massachusetts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized facilities for research are readily available</td>
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<tr>
<td>The communications infrastructure in your local region fully satisfies your business needs</td>
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<td>Advanced educational programs provide your business with high quality employees</td>
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<tr>
<td>Qualified scientists and engineers in your local region are in ample supply</td>
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<tr>
<td>The overall quality of life in your region makes recruitment and retention of employees easy</td>
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<tr>
<td>The available pool of skilled workers in your region is sufficient to meet your growth needs</td>
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<tr>
<td>The overall quality of the K-12 education system is high</td>
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<tr>
<td>The overall quality of transportation is very good relative to other regions</td>
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<tr>
<td>The institutions in your local region that perform basic research frequently transfer knowledge to your industry</td>
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<tr>
<td>Basic education and English language instruction for immigrant workers meet the needs of my organization</td>
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<tr>
<td>Access to risk capital (e.g. venture capital, angel capital) is easy</td>
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<tr>
<td>The cost of living in your region makes recruitment and retention of employees easy</td>
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<tr>
<td>The cost of doing business is low relative to other regions</td>
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</tbody>
</table>

**Source:** Professor Michael E. Porter and Monitor Company Group

RCC Northeast – 09-30-03d CK_RB

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### Regional Comparisons

#### Rules and Incentives Governing Investment and Competition

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Mean Agreement</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local environmental standards and safety regulations are strict</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State environmental standards and safety regulations are strict</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>The number of local competitors for your business in your local region is high</td>
<td></td>
<td></td>
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<tr>
<td>Local competition in your industry is intense</td>
<td></td>
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<tr>
<td>Local regulations affecting your business are appropriate and assist with your firm's ability to succeed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State regulations affecting your business are appropriate and assist with your firm's ability to succeed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local government's overall responsiveness and ability to work with the needs of business is high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment in R&amp;D is encouraged by state and local taxes and incentives</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>State and local government support for investment in R&amp;D (e.g. funding business incubators, creating consortia) is ample</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State government's overall responsiveness and ability to work with the needs of business is high</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Professor Michael E. Porter and Monitor Company Group

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Regional Comparisons
Local Demand Conditions & Related and Supporting Industries

<table>
<thead>
<tr>
<th>Local Demand Conditions</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
<th>Mean Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local customers for your business's products/services are sophisticated and demanding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local customers for your business's products/services have special needs that often impact your product offering</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Feedback from local customers to improve your business's products/services is frequent and reveals the need for new features or enhanced performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer protection, product safety, environmental, and other regulations in your region are strict and more problematic than in other regions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Related and Supporting Industries</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
<th>Mean Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>The quality of local specialized suppliers of your businesses’ materials, machinery, and services is comparable with the best quality elsewhere</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialized suppliers of your business's materials, machinery, and services are mostly available inside your local region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local specialized suppliers assist your firm with new product and process development frequently</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialized training and research institutions for my industry are available in my region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Businesses in your industry, located in your region, share information openly with other businesses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Regional Comparisons
Institutions & Education

How satisfied are you with the impact of the following institutions, in your region, on your company?

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>Strongly Disagree</th>
<th>Mean Agreement</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public or Private Research Organizations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry or Cluster Trade Associations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Assistance Centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Incubators</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How would you best describe the quality of new workers from these sources?

<table>
<thead>
<tr>
<th>Source</th>
<th>Inadequate</th>
<th>Mean Rating</th>
<th>Superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational schools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other private or non-profit training providers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Regional Comparisons

#### Institutions & Education (Cont.)

Over the next five years, I expect the needs of my organization, with respect to the following levels of education and/or training, to:

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Decrease</th>
<th>Mean Expectation</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized skill training or industry-specific certification</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Master's Degree or higher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate's Degree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If your organization met or worked with any of these entities on workforce issues, to what extent did your contact meet your expectations?

<table>
<thead>
<tr>
<th>Entity</th>
<th>Did not Meet my Expections</th>
<th>Mean Rating</th>
<th>Exceeded my Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private universities</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Public universities</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Community colleges</td>
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<tr>
<td>Vocational schools</td>
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<td></td>
</tr>
</tbody>
</table>

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### Regional Comparisons

#### Barriers to Expansion in the Next Five Years

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent of Respondents which Ranked Characteristic Among the Top Three Greatest Barriers to Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business-friendly political environment</td>
<td></td>
</tr>
<tr>
<td>Housing affordability</td>
<td></td>
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<tr>
<td>Tax incentives</td>
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<tr>
<td>Low cost of labor</td>
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<tr>
<td>Access to skilled labor</td>
<td></td>
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<tr>
<td>Proximity to competing firms in your industry</td>
<td></td>
</tr>
<tr>
<td>Quality of life for employees</td>
<td></td>
</tr>
<tr>
<td>Proximity to local client base</td>
<td></td>
</tr>
<tr>
<td>Air / water quality</td>
<td></td>
</tr>
<tr>
<td>Proximity of local suppliers to your industry</td>
<td></td>
</tr>
<tr>
<td>Access to raw materials</td>
<td></td>
</tr>
<tr>
<td>Proximity to local research and development centers</td>
<td></td>
</tr>
</tbody>
</table>

Source: Professor Michael E. Porter and Monitor Company Group

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### Source

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RCC Northeast – 09-30-03d CK_RB

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## Regional Comparisons
### Future Threats in the Local Business Environment

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Berkshire</th>
<th>Cape and Islands</th>
<th>Central</th>
<th>Greater Boston</th>
<th>Northeast</th>
<th>Pioneer Valley</th>
<th>Southeast</th>
<th>Massachusetts</th>
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</thead>
<tbody>
<tr>
<td>Cost of doing business (e.g., real estate, wages, utilities, etc)</td>
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<tr>
<td>State government's responsiveness to the needs of business</td>
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<tr>
<td>Available pool of skilled workforce</td>
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<tr>
<td>Access to capital</td>
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<tr>
<td>State regulations for production processes and products/services</td>
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<tr>
<td>Predictability of state government policies</td>
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<tr>
<td>Quality of transportation (e.g., ease of access, traffic)</td>
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<tr>
<td>Quality of local K-12 schools</td>
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<tr>
<td>Local government's responsiveness to the needs of business</td>
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<tr>
<td>Level of locally-based competition in your industry</td>
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<tr>
<td>State environmental/safety regulations</td>
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<tr>
<td>State and local tax and incentives for investment in R&amp;D</td>
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<tr>
<td>Overall quality of life for employees</td>
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</tbody>
</table>

*Source: Professor Michael E. Porter and Monitor Company Group*
Regional Comparisons
Priorities for Government

Simplify compliance procedures for government regulations (e.g. one-stop filing, websites, etc)

Promote world-class primary and secondary education

Implement tax reform to encourage investment in innovation (e.g. R&D tax credits)

Improve state government support for transportation and other physical infrastructure

Improve local government support for transportation and other physical infrastructure

Promote specialized education and training programs to upgrade worker skills

Support the particular needs of start-up companies (access to capital, incubators, management training)

Improve information and communications infrastructure

Speed-up regulatory approval process in line with product life-cycles

Promote universal computer literacy

Catalyze partnerships among government agencies, industry and universities

Provide services to assist and promote local exports

Assist in attracting suppliers and service providers from other locations

Increase government support for funding of specialized research institutes, labs, etc.

Increase funding for university-based research

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Regional Competitiveness
Northeastern Massachusetts

- Foundations of Regional Competitiveness

- Assessing the Competitiveness of Northeastern Massachusetts

- Action Agenda
Shifting Responsibilities for Economic Development

**Old Model**

- Government drives economic development through policy decisions and incentives

**New Model**

- Economic development is a collaborative process involving government at multiple levels, companies, teaching and research institutions, and institutions for collaboration
Visit the home page of the Institute, http://www.isc.hbs.edu/, for copies of all materials presented today plus further supporting data on the regions.

See the section for “Competitiveness of States and Region” or to go directly to today’s material at: www.isc.hbs.edu/MA_RCC.htm.