Regional Competitiveness in Central Massachusetts

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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>Share of Employment</td>
<td>31.6%</td>
<td>67.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Employment Growth, 1990</td>
<td>1.7%</td>
<td>2.8%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>to 2001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Wage</td>
<td>$46,596</td>
<td>$28,288</td>
<td>$33,245</td>
</tr>
<tr>
<td>Relative Wage</td>
<td>133.8</td>
<td>84.2</td>
<td>99.0</td>
</tr>
<tr>
<td>Wage Growth</td>
<td>5.0%</td>
<td>3.6%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Relative Productivity</td>
<td>144.1</td>
<td>79.3</td>
<td>140.1</td>
</tr>
<tr>
<td>Patents per 10,000</td>
<td>21.3</td>
<td>1.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Employees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of SIC Industries</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

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

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

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

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

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

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

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

**Houston**
- Heavy Construction Services
- Oil and Gas
- Aerospace Vehicles and Defense

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

Health Services Provider

- Health and Beauty Products
- Surgical Instruments and Suppliers
- Medical Equipment
- Dental Instruments and Suppliers
- Ophthalmic Goods
- Diagnostic Substances
- Containers

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

Key Industries:
- Aerospace Vehicles and Defense
- Power Generation
- Transportation and Logistics
- Communications Equipment
- Information Technology
- Medical Devices
- Biotech / Pharmaceuticals
- Bioscience Research Centers

Timeline:
- 1910
- 1930
- 1950
- 1970
- 1990
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
Massachusetts Regional Competitiveness Council Regions
Regional Competitiveness
Central Massachusetts

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

- Wages in Central Massachusetts are at the state’s average and have been growing at 5% annually over the last five years, higher than the U.S. average

- Employment growth has over the last five years reached 1.7% annually, far below the US and Massachusetts average
  - Employment in traded cluster has even decreased, making Central Massachusetts the only region in the state with jobs losses in any broad group of clusters

- Establishment growth has outpaced the U.S. average and put the region among the leading Massachusetts regions

- Patenting rates of 13 patents per 10,000 employees in 2001 put the region far ahead of the national average and in the leading group of Massachusetts regions
Comparative Performance of Regions

Wage Growth and Wages

CAGR of Average Wage, 1997–2001

US Average Wage: $34,669

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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Comparative Performance of Regions
Wage Growth and Employment Growth

CAGR of Employment, 1997–2001
CAGR of Average Wage, 1997–2001

Greater Boston
Northeast
Cape and Islands
Central
Southeast
Pioneer Valley
Berkshire

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

Represents employment of 250,000 in 2001
Job Creation
Massachusetts Regions

Net job creation in traded clusters, 1997-2001: -1,758
Net job creation in local clusters, 1997-2001: +15,423

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
Comparative Performance of Regions
Establishment Formation in Traded Clusters

US Average Rate of Traded Establishment Formation: 2.79%

US Average Employees per Traded Establishment: 23.8

Greater Boston

Northeast

Central

Southeast

Berkshire

Cape and Islands

Pioneer Valley

CAGR of Traded Establishments, 1997–2001

Represents 4,000 traded establishments in 2001

Employees per Traded Establishment, 2001
Comparative Performance of Regions
Wages and Patenting Rates

**Average Wage, 2001**

US Average Wage: 34,669

**Patents per 10,000 Workers, 2001**

US Average Patenting Rate: 7.71 per 10,000 Workers

Greater Boston

Cape and Islands

Southeast

Pioneer Valley

Berkshire

Central

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

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## Patents by Organization

### Central Region

<table>
<thead>
<tr>
<th>Organization</th>
<th>Patents Issued from 1997 to 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPAQ/DIGITAL EQUIPMENT CORPORATION</td>
<td>101</td>
</tr>
<tr>
<td>EMC CORPORATION</td>
<td>46</td>
</tr>
<tr>
<td>SAINT GOBAIN/NORTON INDUSTRIAL CERAMICS CORP.</td>
<td>41</td>
</tr>
<tr>
<td>QUANTUM CORP. (CA)</td>
<td>39</td>
</tr>
<tr>
<td>HYBRIDON, INC.</td>
<td>32</td>
</tr>
<tr>
<td>MORGAN CONSTRUCTION COMPANY</td>
<td>28</td>
</tr>
<tr>
<td>NORTON COMPANY</td>
<td>27</td>
</tr>
<tr>
<td>UNIVERSITY OF MASSACHUSETTS</td>
<td>21</td>
</tr>
<tr>
<td>UNIVERSITY OF MASSACHUSETTS MEDICAL CENTER</td>
<td>21</td>
</tr>
<tr>
<td>MACNEILL ENGINEERING COMPANY, INC.</td>
<td>20</td>
</tr>
<tr>
<td>SEPRACOR INC.</td>
<td>19</td>
</tr>
<tr>
<td>3COM CORPORATION</td>
<td>18</td>
</tr>
<tr>
<td>SUN MICROSYSTEMS, INC.</td>
<td>16</td>
</tr>
<tr>
<td>AMERICAN SUPERCONDUCTOR CORPORATION</td>
<td>14</td>
</tr>
<tr>
<td>RAYTHEON COMPANY</td>
<td>14</td>
</tr>
<tr>
<td>SHIPLEY COMPANY INC.</td>
<td>13</td>
</tr>
<tr>
<td>AVERY DENNISON CORPORATION</td>
<td>13</td>
</tr>
<tr>
<td>SIMPLEX TIME RECORDER COMPANY</td>
<td>11</td>
</tr>
<tr>
<td>GILLETTE COMPANY</td>
<td>11</td>
</tr>
<tr>
<td>CABOT SAFETY INTERMEDIATE CORPORATION</td>
<td>10</td>
</tr>
<tr>
<td>PIONEER CONSOLIDATED CORP.</td>
<td>8</td>
</tr>
<tr>
<td>BASF AKTIENGESELLSCHAFT</td>
<td>8</td>
</tr>
<tr>
<td>DATA GENERAL CORP.</td>
<td>8</td>
</tr>
<tr>
<td>POLAROID CORPORATION</td>
<td>7</td>
</tr>
<tr>
<td>WORCESTER POLYTECHNIC INSTITUTE</td>
<td>7</td>
</tr>
<tr>
<td>ALPHA BETA TECHNOLOGY, INC.</td>
<td>7</td>
</tr>
<tr>
<td>GENZYME CORPORATION</td>
<td>7</td>
</tr>
<tr>
<td>WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, INC.</td>
<td>7</td>
</tr>
<tr>
<td>ANALOG DEVICES, INC.</td>
<td>7</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

RCC Central 10-10-03 CK RB3

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Composition

Central Massachusetts

- Central Massachusetts has as strong position with more than three times the employment expected given the region’s size in three traded clusters
  - Plastics
  - Communication equipment
  - Construction materials

- Central Massachusetts is losing employment and national position in a number of manufacturing-dominated clusters
  - Chemical Products, Metal Manufacturing, Analytical Instruments, and Plastics
  - Information technology is the only cluster with significant size that added jobs and gained national share

- Among local clusters, the only broad segment of the region’s economy to grow employment, local health services and local real estate accounted for more than 55% of all job creation

- Wages lag the Massachusetts average in all major clusters of the regional economy
Specialization By Traded Cluster
Central Region

Share of National Cluster Employment in 2000

Change in Share, 1997–2001

-0.30% -0.20% -0.10% 0.00% 0.10% 0.20% 0.30%

-0.30% -0.20% -0.10% 0.00% 0.10% 0.20% 0.30%

Plastics
Communication Equipment
Construction Materials
Publishing and Printing
Financial Services
Education and Knowledge Creation
Medical Devices
Leather and Related Products
Information Technology
Metal Manufacturing
Production Technology
Analytical Instruments
Power Generation and Transmission

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
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Specialization By Traded Cluster
Central Region

Share of National Cluster Employment in 2000

Change in Share, 1997–2001

-0.12%  -0.10%  -0.08%  -0.06%  -0.04%  -0.02%  0.00%  0.02%  0.04%  0.06%  0.08%  0.10%

0.35%  0.30%  0.25%  0.20%  0.15%  0.10%  0.05%  0.00%

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
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Employment By Traded Cluster
Central Region

- 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
Central Region

Net job creation in traded clusters from 1997-2001:
-1,758

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

0.192% of U.S. Employment

47.9% of traded employment
17.8% in clusters gaining share
30.1% in clusters losing share

Note: US wage and employment benchmarks
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

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Job Creation By Local Cluster
Central Region

Net job creation in local clusters, 1997-2001:
+15,423

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
Wages By Traded Cluster
Central Region with State Benchmarks

- Indicates Massachusetts average wage in the cluster.

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

Region’s average traded wage: $45,413
Leading Sub-Clusters by Location Quotient
Central 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>Financial Services</td>
<td>Insurance Products</td>
<td>2.57</td>
<td>0.49%</td>
<td>2</td>
<td>5,925</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>Educational Facilities</td>
<td>2.63</td>
<td>0.51%</td>
<td>2</td>
<td>746</td>
</tr>
<tr>
<td>Plastics</td>
<td>Synthetic Rubber</td>
<td>6.87</td>
<td>1.32%</td>
<td>2</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>Plastic Products</td>
<td>4.93</td>
<td>0.95%</td>
<td>1</td>
<td>5,791</td>
</tr>
<tr>
<td></td>
<td>Plastic Materials and Resins</td>
<td>3.42</td>
<td>0.66%</td>
<td>2</td>
<td>1,032</td>
</tr>
<tr>
<td>Distribution Services</td>
<td>Apparel and Accessories Wholesaling</td>
<td>2.91</td>
<td>0.56%</td>
<td>3</td>
<td>1,228</td>
</tr>
<tr>
<td>Communications Equipment</td>
<td>Specialty Office Machines</td>
<td>46.97</td>
<td>9.03%</td>
<td>1</td>
<td>1,857</td>
</tr>
<tr>
<td></td>
<td>Electrical and Electronic Components</td>
<td>5.71</td>
<td>1.10%</td>
<td>3</td>
<td>1,768</td>
</tr>
<tr>
<td>Heavy Construction Services</td>
<td>Fabricated Metal Structures and Piping</td>
<td>2.24</td>
<td>0.43%</td>
<td>1</td>
<td>869</td>
</tr>
<tr>
<td>Metal Manufacturing</td>
<td>Saw Blades and Handsaws</td>
<td>21.98</td>
<td>4.23%</td>
<td>2</td>
<td>356</td>
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<tr>
<td></td>
<td>Wire and Springs</td>
<td>3.71</td>
<td>0.71%</td>
<td>1</td>
<td>653</td>
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<tr>
<td></td>
<td>Precision Metal Products</td>
<td>3.16</td>
<td>0.61%</td>
<td>1</td>
<td>688</td>
</tr>
<tr>
<td></td>
<td>General Industrial Machinery</td>
<td>1.74</td>
<td>0.33%</td>
<td>3</td>
<td>166</td>
</tr>
<tr>
<td>Publishing and Printing</td>
<td>Paper Products</td>
<td>4.49</td>
<td>0.86%</td>
<td>3</td>
<td>754</td>
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<tr>
<td></td>
<td>Printing Services</td>
<td>3.64</td>
<td>0.70%</td>
<td>2</td>
<td>1,804</td>
</tr>
<tr>
<td>Automotive</td>
<td>Production Equipment</td>
<td>6.68</td>
<td>1.28%</td>
<td>1</td>
<td>1,748</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Peripherals</td>
<td>3.00</td>
<td>0.58%</td>
<td>3</td>
<td>701</td>
</tr>
<tr>
<td></td>
<td>Electronic Components and Assemblies</td>
<td>2.52</td>
<td>0.48%</td>
<td>3</td>
<td>1,477</td>
</tr>
<tr>
<td>Chemical Products</td>
<td>Other Processed Chemicals</td>
<td>8.16</td>
<td>1.57%</td>
<td>1</td>
<td>1,484</td>
</tr>
<tr>
<td>Production Technology</td>
<td>Fabricated Plate Work</td>
<td>3.21</td>
<td>0.62%</td>
<td>1</td>
<td>499</td>
</tr>
<tr>
<td></td>
<td>Process Machinery</td>
<td>2.19</td>
<td>0.42%</td>
<td>3</td>
<td>341</td>
</tr>
<tr>
<td></td>
<td>Ball and Roller Bearings</td>
<td>2.18</td>
<td>0.42%</td>
<td>1</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>Machine Tools and Accessories</td>
<td>2.09</td>
<td>0.40%</td>
<td>3</td>
<td>344</td>
</tr>
<tr>
<td>Construction Materials</td>
<td>Tile, Brick and Glass</td>
<td>9.09</td>
<td>1.75%</td>
<td>1</td>
<td>909</td>
</tr>
<tr>
<td></td>
<td>Rubber Products</td>
<td>2.95</td>
<td>0.57%</td>
<td>4</td>
<td>280</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>Ophthalmic Goods</td>
<td>20.20</td>
<td>3.88%</td>
<td>1</td>
<td>1,039</td>
</tr>
<tr>
<td>Analytical Instruments</td>
<td>Optical Instruments</td>
<td>10.34</td>
<td>1.99%</td>
<td>3</td>
<td>453</td>
</tr>
<tr>
<td>Forest Products</td>
<td>Paper Industries Machinery</td>
<td>3.88</td>
<td>1.13%</td>
<td>3</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Paper Mills</td>
<td>1.70</td>
<td>0.33%</td>
<td>2</td>
<td>770</td>
</tr>
<tr>
<td>Apparel</td>
<td>Knitting and Finishing Mills</td>
<td>4.31</td>
<td>0.83%</td>
<td>2</td>
<td>721</td>
</tr>
<tr>
<td>Leather Products</td>
<td>Coated Fabrics</td>
<td>5.76</td>
<td>1.11%</td>
<td>4</td>
<td>97</td>
</tr>
<tr>
<td>Textiles</td>
<td>Specialty Fabric Processing</td>
<td>2.71</td>
<td>0.52%</td>
<td>3</td>
<td>64</td>
</tr>
<tr>
<td>Power Generation and Transmission</td>
<td>Turbines and Turbine Generators</td>
<td>4.20</td>
<td>0.81%</td>
<td>1</td>
<td>143</td>
</tr>
</tbody>
</table>

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Sole Proprietorship Employment and Growth
Central Region

Sole Proprietorship Employment 2001

Sole proprietorships: 41,991
as % of total emp: 12.3%
CAGR 1998-2001: 1.38%

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

Note: Data available on county basis only; the allocation to Massachusetts regions is only approximate.
Source: U.S. Census Bureau, Nonemployer Statistics

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Business Environment
Central Massachusetts

- The Business environment in the Central region is seen in most dimensions to match or slightly exceed the Massachusetts average
  - Cost of living and cost of doing business are seen as the strongest advantages relative to the rest of the state; labor force skills also receive high grades
  - The level of local competition in Central Massachusetts, however, is perceived as lower than in the other regions of the state; cluster linkages are not seen to currently contribute to regional success

- While companies are overall satisfied with their location in Central Massachusetts, they rank the region low in attractiveness for the industry compared to other parts of the state

- Priorities for government in the Central region mirror the Massachusetts average on most dimensions
  - Relatively higher importance is seen in the attraction of suppliers and service providers to the region
Regional Comparisons
Availability of Inputs

The communications infrastructure in your local region fully satisfies your business needs.

Advanced educational programs provide your business with high quality employees.

Specialized facilities for research are readily available.

The overall quality of life in your region makes recruitment and retention of employees easy.

The available pool of skilled workers in your region is sufficient to meet your growth needs.

The overall quality of the K-12 education system is high.

The cost of living in your region makes recruitment and retention of employees easy.

Qualified scientists and engineers in your local region are in ample supply.

Basic education and English language instruction for immigrant workers meet the needs of my organization.

The overall quality of transportation is very good relative to other regions.

The cost of doing business is low relative to other regions.

The institutions in your local region that perform basic research frequently transfer knowledge to your industry.

Access to risk capital (e.g. venture capital, angel capital) is easy.

Source: Professor Michael E. Porter and Monitor Group
Regional Comparisons
Rules and Incentives Governing Investment and Competition

State environmental standards and safety regulations are strict.

Local environmental standards and safety regulations are strict.

Local competition in your industry is intense.

The number of local competitors for your business in your local region is high.

Local regulations affecting your business are appropriate and assist with your firm's ability to succeed.

Investment in R&D is encouraged by state and local taxes and incentives.

State regulations affecting your business are appropriate and assist with your firm's ability to succeed.

State government's overall responsiveness and ability to work with the needs of business is high.

Local government's overall responsiveness and ability to work with the needs of business is high.

State and local government support for investment in R&D (e.g., funding business incubators, creating consortia) is ample.

---

Source: Professor Michael E. Porter and Monitor Group

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## Regional Comparisons
### Positive Impact on 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>
</tr>
</thead>
<tbody>
<tr>
<td>Overall quality of life for employees</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available pool of skilled workforce</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cost of doing business (e.g. real estate, wages, utilities, etc)</td>
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<td></td>
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<tr>
<td>Specialized needs of local customers</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Quality of transportation (e.g. ease of access, traffic)</td>
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<tr>
<td>Availability of advanced educational programs</td>
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<td></td>
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<td></td>
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<tr>
<td>Quality of local K-12 schools</td>
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<td></td>
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<tr>
<td>Demanding local customers that provide feedback</td>
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<tr>
<td>Relationships between firms and organizations in your cluster</td>
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<td></td>
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<tr>
<td>Level of locally based competition in your industry</td>
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<td></td>
<td></td>
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<tr>
<td>Access to capital</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Quality and in-region location of your suppliers</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local government's overall responsiveness to the needs of business</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Percent of Respondents which Ranked Characteristic Among the Top Five Most Positive**

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

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## 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?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Mean Agreement</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My organization can contribute significant value to an economic development strategy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My organization is an active participant in the execution of this strategy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local business and government leaders have articulated a clear strategy for promoting the economic development of the local region.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The state has articulated a clear strategy for the region.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Summary of the Regional Business Environment

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Mean Agreement</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, this region in Massachusetts is a good place for my company to do business.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall, my region has strengths in my industry compared to other regions in Massachusetts.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Professor Michael E. Porter and Monitor Group

Berkshire: ☀
Cape and Islands: ⬜
Central: ●
Greater Boston: ▲
Northeast: ×
Pioneer Valley: ×
Southeast: ●
Massachusetts: ■

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## Regional Comparisons

### Priorities for Government

<table>
<thead>
<tr>
<th>Priority</th>
<th>Mean Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote world-class primary and secondary education</td>
<td></td>
</tr>
<tr>
<td>Improve state government support for transportation and other physical infrastructure</td>
<td></td>
</tr>
<tr>
<td>Promote specialized education and training programs to upgrade worker skills</td>
<td></td>
</tr>
<tr>
<td>Improve local government support for transportation and other physical infrastructure</td>
<td></td>
</tr>
<tr>
<td>Implement tax reform to encourage investment in innovation (e.g. R&amp;D tax credits)</td>
<td></td>
</tr>
<tr>
<td>Simplify compliance procedures for government regulations (e.g. one-stop filing, websites, etc)</td>
<td></td>
</tr>
<tr>
<td>Promote universal computer literacy</td>
<td></td>
</tr>
<tr>
<td>Improve information and communications infrastructure</td>
<td></td>
</tr>
<tr>
<td>Support the particular needs of start-up companies (access to capital, incubators, management training)</td>
<td></td>
</tr>
<tr>
<td>Assist in attracting suppliers and service providers from other locations</td>
<td></td>
</tr>
<tr>
<td>Speed-up regulatory approval process in line with product life-cycles</td>
<td></td>
</tr>
<tr>
<td>Catalyze partnerships among government agencies, industry and universities</td>
<td></td>
</tr>
<tr>
<td>Provide services to assist and promote local exports</td>
<td></td>
</tr>
<tr>
<td>Increase government support for funding of specialized research institutes, labs, etc.</td>
<td></td>
</tr>
<tr>
<td>Increase funding for university-based research</td>
<td></td>
</tr>
</tbody>
</table>

### Source

Professor Michael E. Porter and Monitor Group

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**Berkshire**

**Cape and Islands**

**Central**

**Greater Boston**

**Northeast**

**Pioneer Valley**

**Southeast**

**Massachusetts**

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Regional Competitiveness
Central Massachusetts

- Foundations of Regional Competitiveness
- Assessing the Competitiveness of Central 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
Role of the Private Sector in Economic Development

• A company’s competitive advantage is partly the result of the local environment
• Company membership in a cluster offers collective benefits
• Private investment in “public goods” is justified

• Take an active role in upgrading the local infrastructure
• Nurture local suppliers and attract new supplier investments
• Work closely with local educational and research institutions to upgrade quality and create specialized programs addressing cluster needs
• Provide government with information and substantive input on regulatory issues and constraints bearing on cluster development
• Focus corporate philanthropy on enhancing the local business environment

• An important role for trade associations
  – Greater influence
  – Cost sharing
Public / Private Cooperation in Cluster Upgrading
Minnesota’s Medical Device Cluster

Context for Firm Strategy and Rivalry

- Aggressive trade associations (Medical Alley Association, High Tech Council)
- Effective global marketing of the cluster and of Minnesota as the “The Great State of Health”
- Full-time “Health Care Industry Specialist” in the department of Trade and Economic Development

Factor (Input) Conditions

- Joint development of vocational-technical college curricula with the medical device industry
- Minnesota Project Outreach exposes businesses to resources available at university and state government agencies
- Active medical technology licensing through University of Minnesota
- State-formed Greater Minnesota Corp. to finance applied research, invest in new products, and assist in technology transfer

Demand Conditions

- State sanctioned reimbursement policies to enable easier adoption and reimbursement for innovative products

Related and Supporting Industries

- Minnesota Project Outreach exposes businesses to resources available at university and state government agencies
- Active medical technology licensing through University of Minnesota
- State-formed Greater Minnesota Corp. to finance applied research, invest in new products, and assist in technology transfer

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Towards an Action Agenda for the Central Region

- Mount **cluster development** efforts for established and emerging traded clusters
  - Use targeted investment attraction efforts

- Develop a **distinct strategic profile** for the region, leveraging its geographical position in proximity to Greater Boston
  - Strengthen the business environment strategically in areas central to the region’s strategic profile