

# Regional Competitiveness in the Cape & Islands

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Institute for Strategy and Competitiveness  
Harvard Business School

*Cape & Islands Regional Competitiveness Council  
Upper Cape Regional Technical School, Bourne  
September 30, 2003*

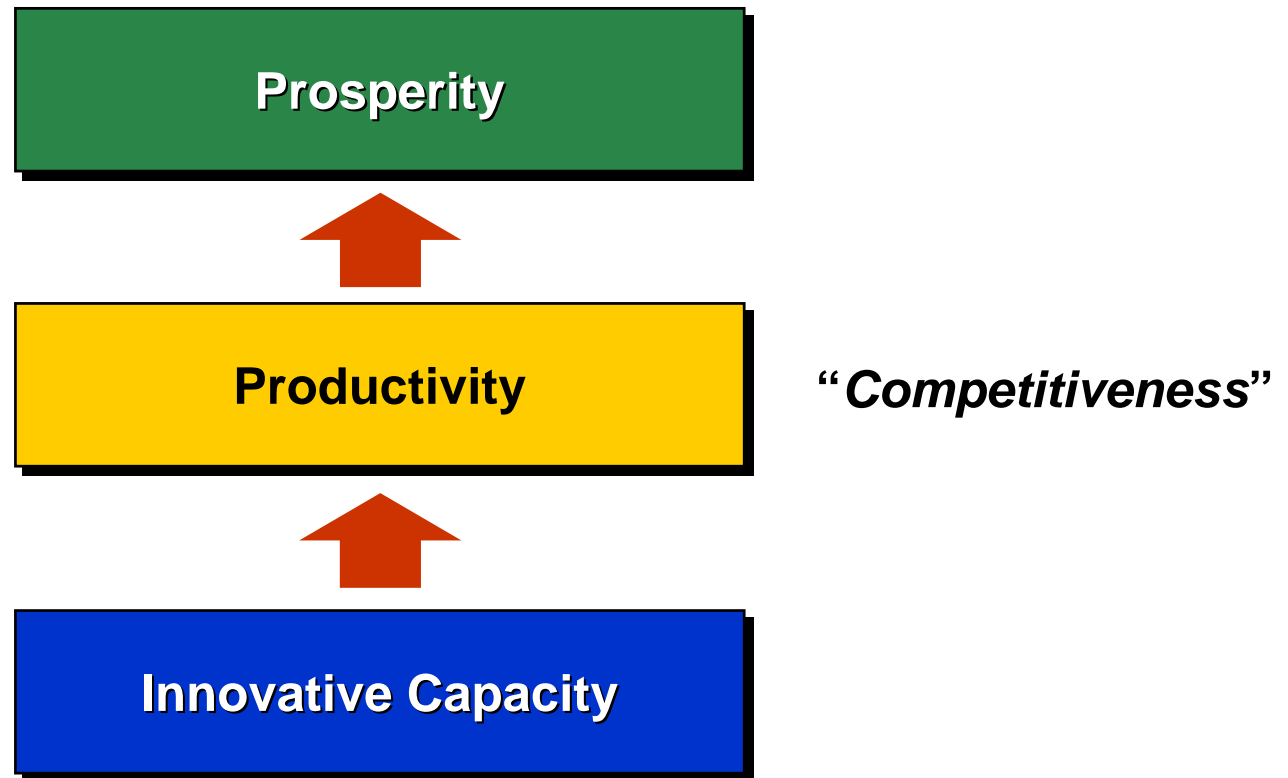
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This presentation draws on ideas from Professor Porter's articles and books, in particular, The Competitive Advantage of Nations (The Free Press, 1990), "Building the Microeconomic Foundations of Competitiveness," in The Global Competitiveness Report 2002, (World Economic Forum, 2002), "Clusters and the New Competitive Agenda for Companies and Governments" in On Competition (Harvard Business School Press, 1998), and ongoing research on clusters and competitiveness. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means - electronic, mechanical, photocopying, recording, or otherwise - without the permission of Michael E. Porter.

Further information on Professor Porter's work and the Institute for Strategy and Competitiveness is available at [www.isc.hbs.edu](http://www.isc.hbs.edu)

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# Sources of Prosperity

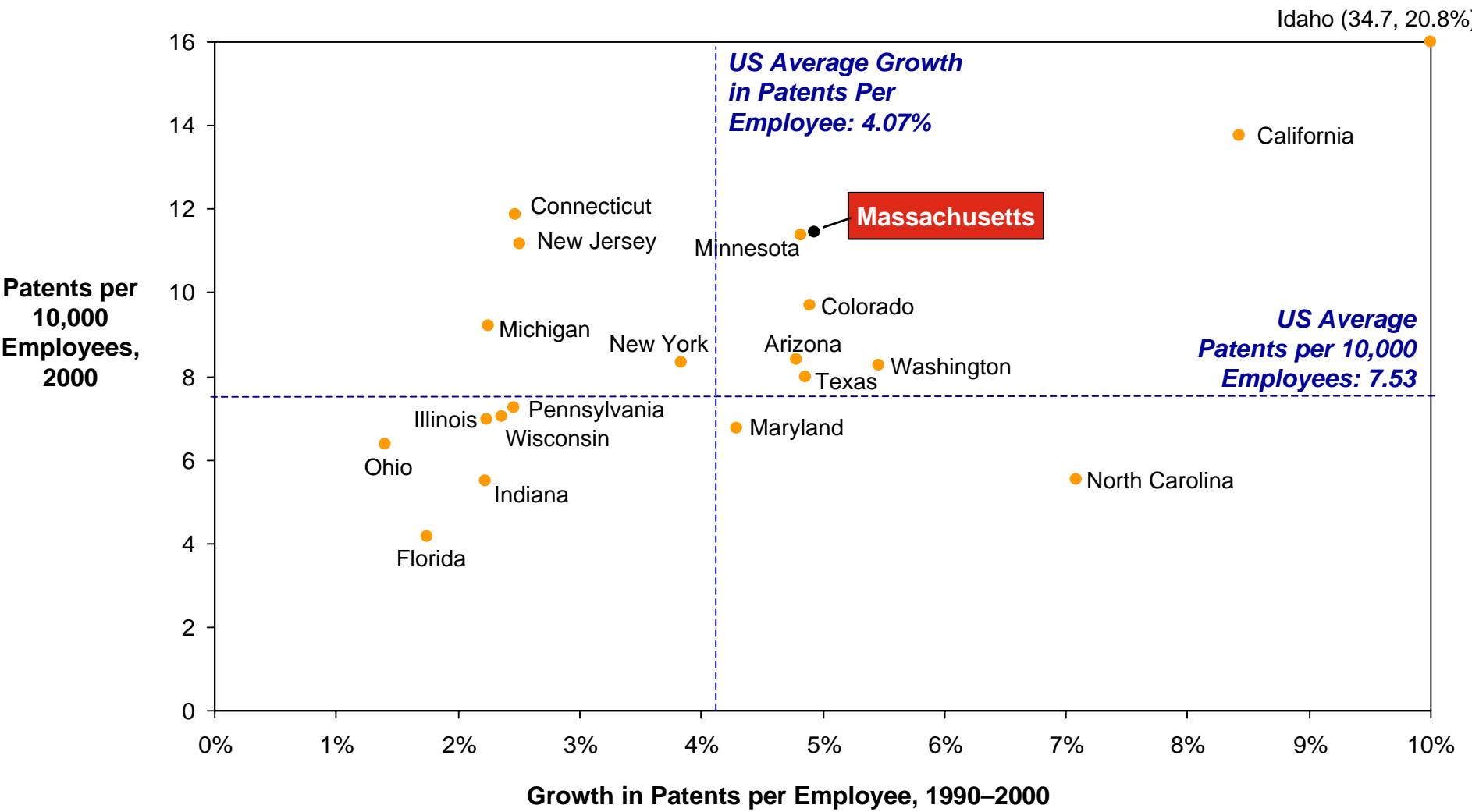


- The most important sources of prosperity are **created** not inherited
- Productivity does not depend on **what** industries a region competes in, but on **how** it competes
- The prosperity of a region depends on the productivity of **all** its industries
- Innovation is vital for long-term increases in productivity



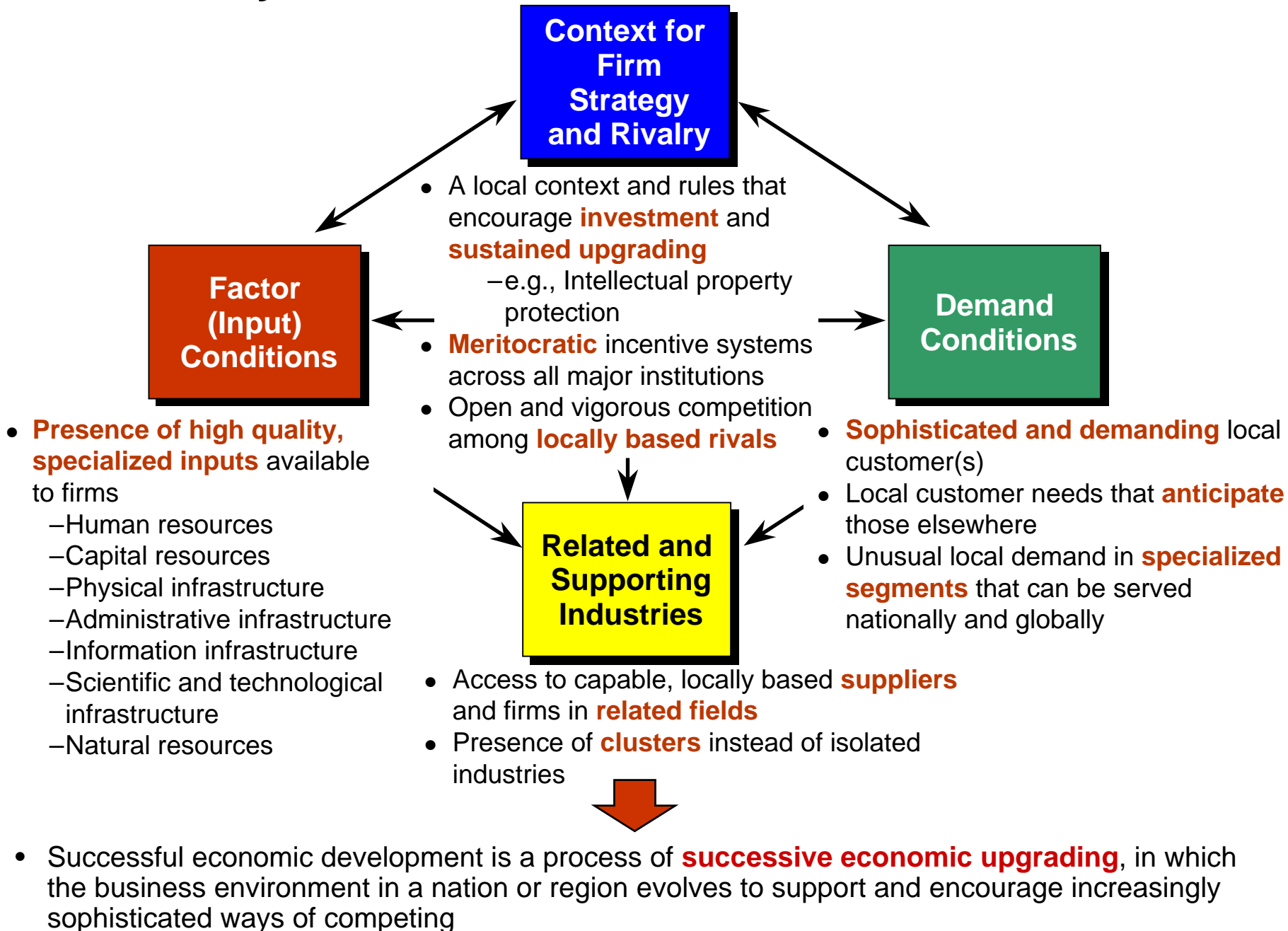
# Innovation Performance of Leading States

## Patents per Employee and Growth in Patents per Employee



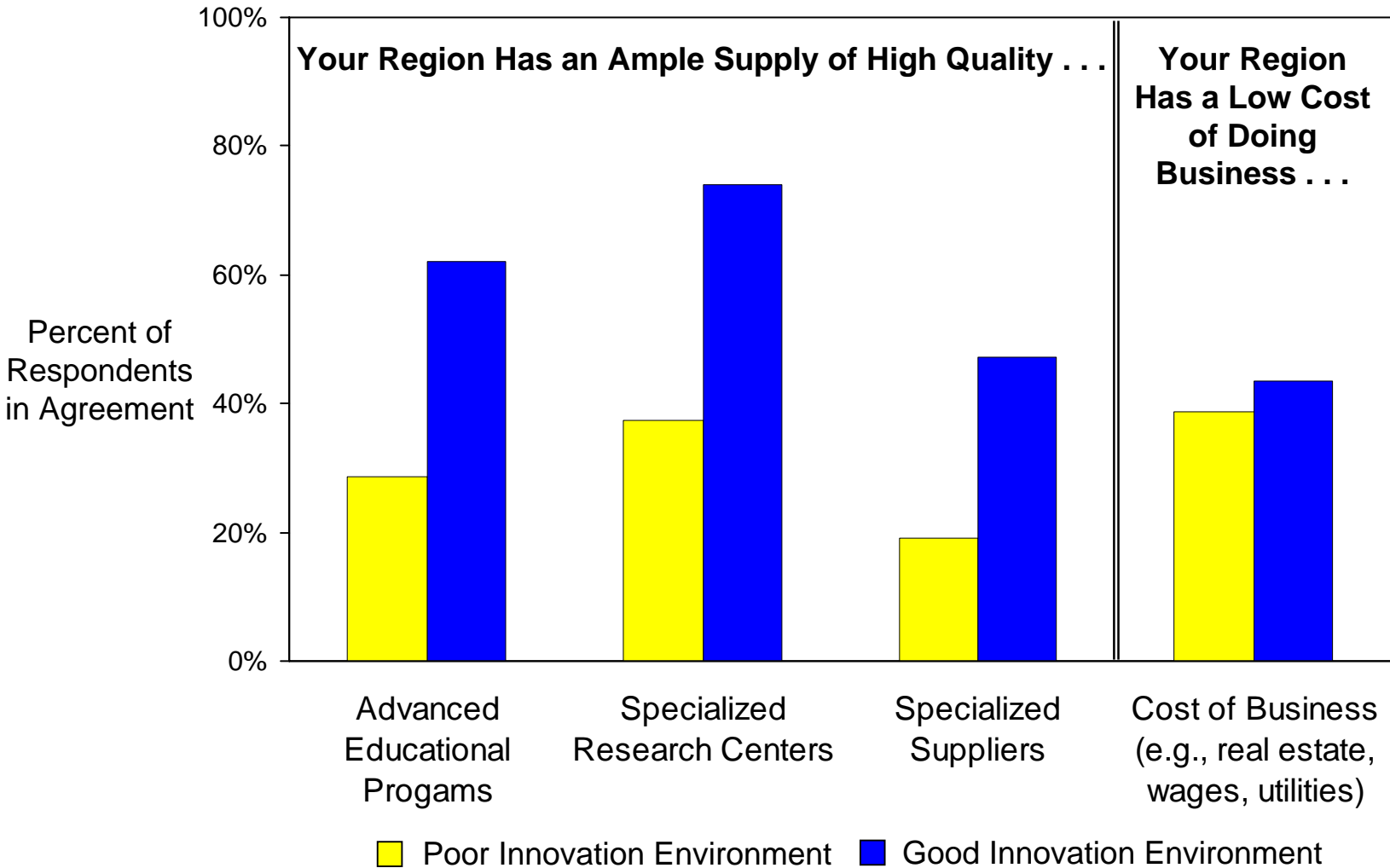
Leading states are the top 20 states by total patent output in 2000. Note: (patents, growth)  
 Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School  
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# Productivity, Innovation, and the Business Environment



# Sources of Innovation

## Good vs. Poor Innovation Environments



# Composition of Regional Economies

## United States

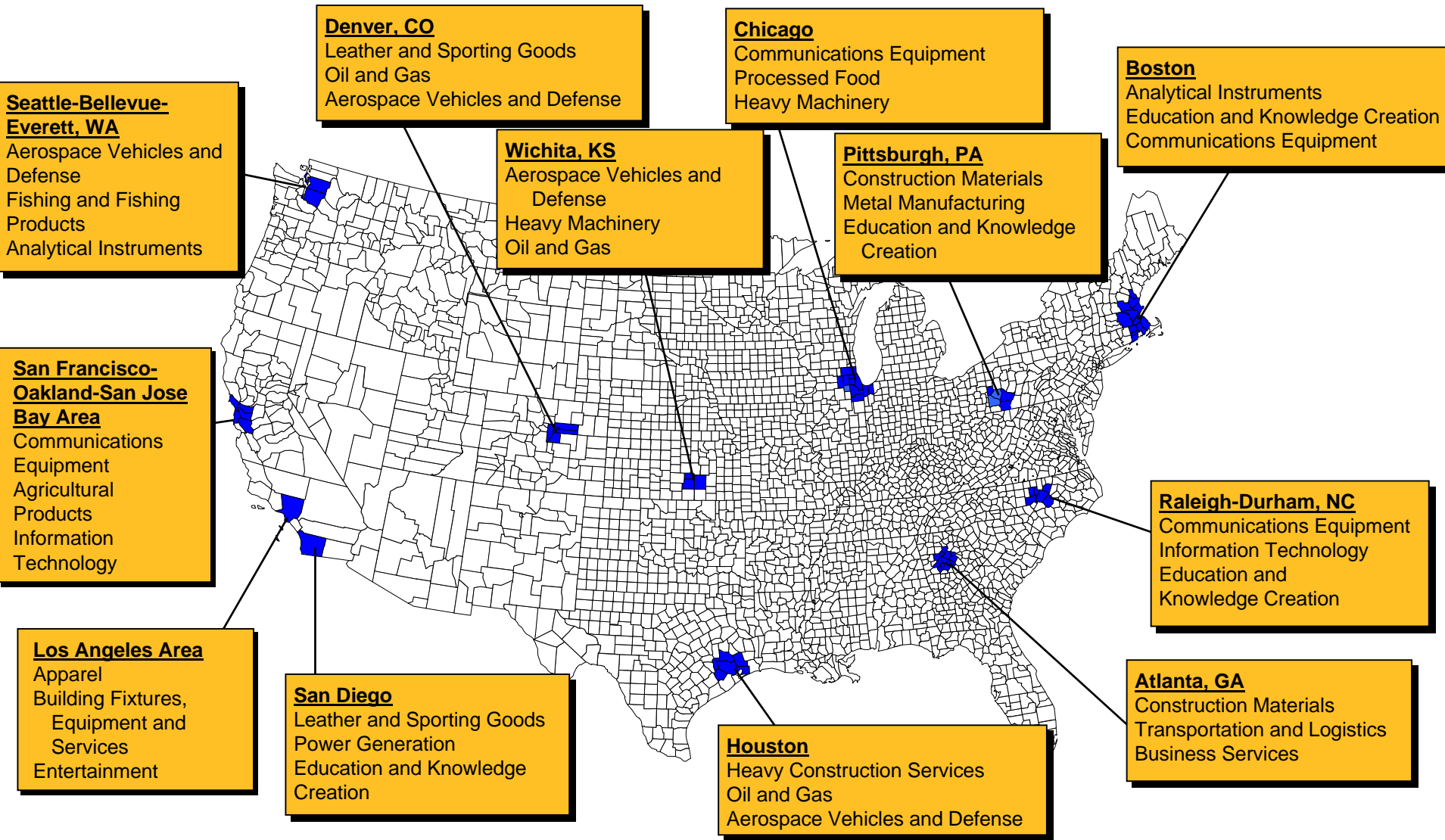
	Traded Clusters	Local Clusters	Natural Resource-Driven Industries
<b>Share of Employment</b>	<b>31.6%</b>	<b>67.6%</b>	<b>0.8%</b>
<b>Employment Growth, 1990 to 2001</b>	<b>1.7%</b>	<b>2.8%</b>	<b>-1.0%</b>
<b>Average Wage</b>	<b>\$46,596</b>	<b>\$28,288</b>	<b>\$33,245</b>
<b>Relative Wage</b>	<b>133.8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

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



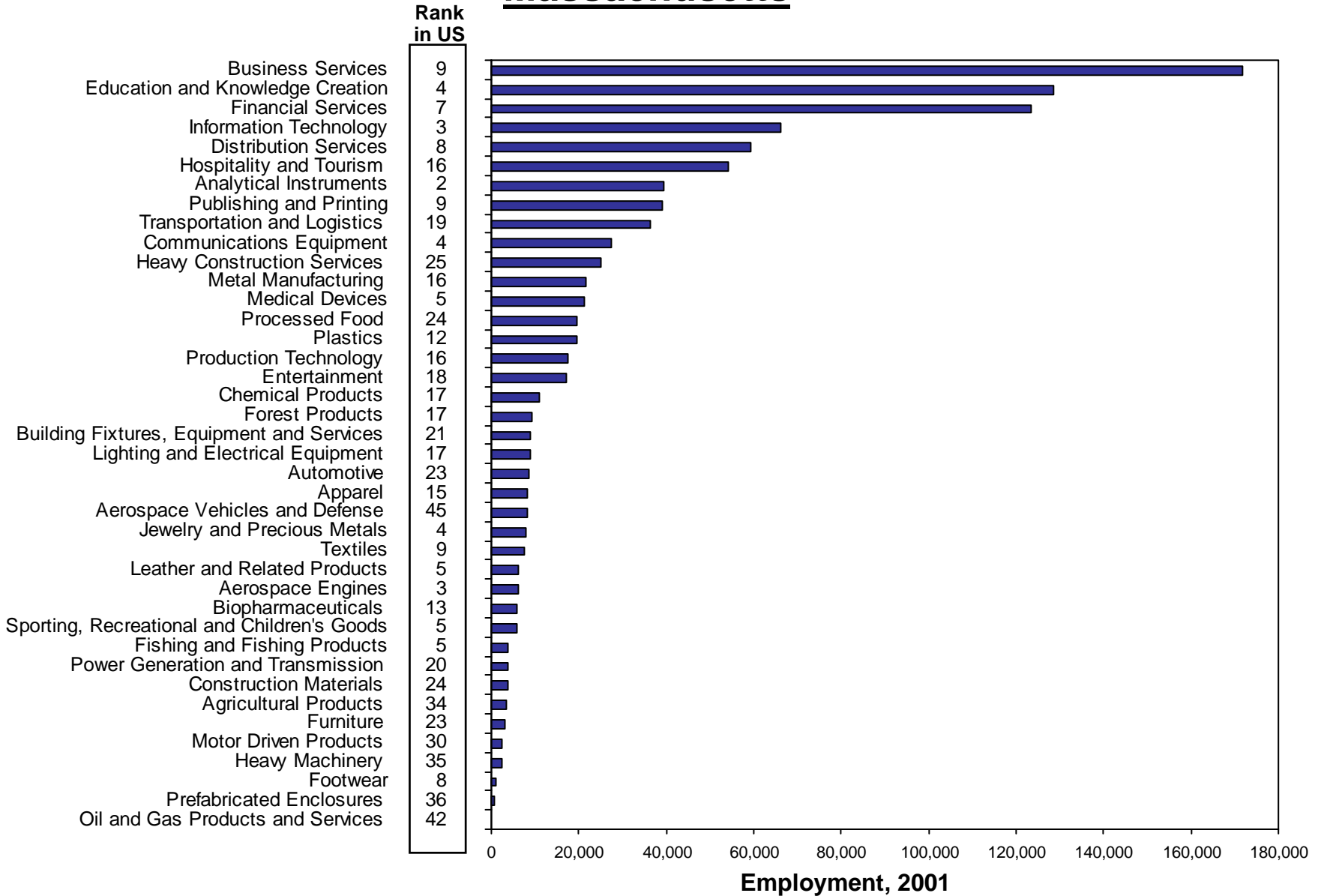
Note: Clusters listed are the three highest ranking clusters in terms of share of national employment

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

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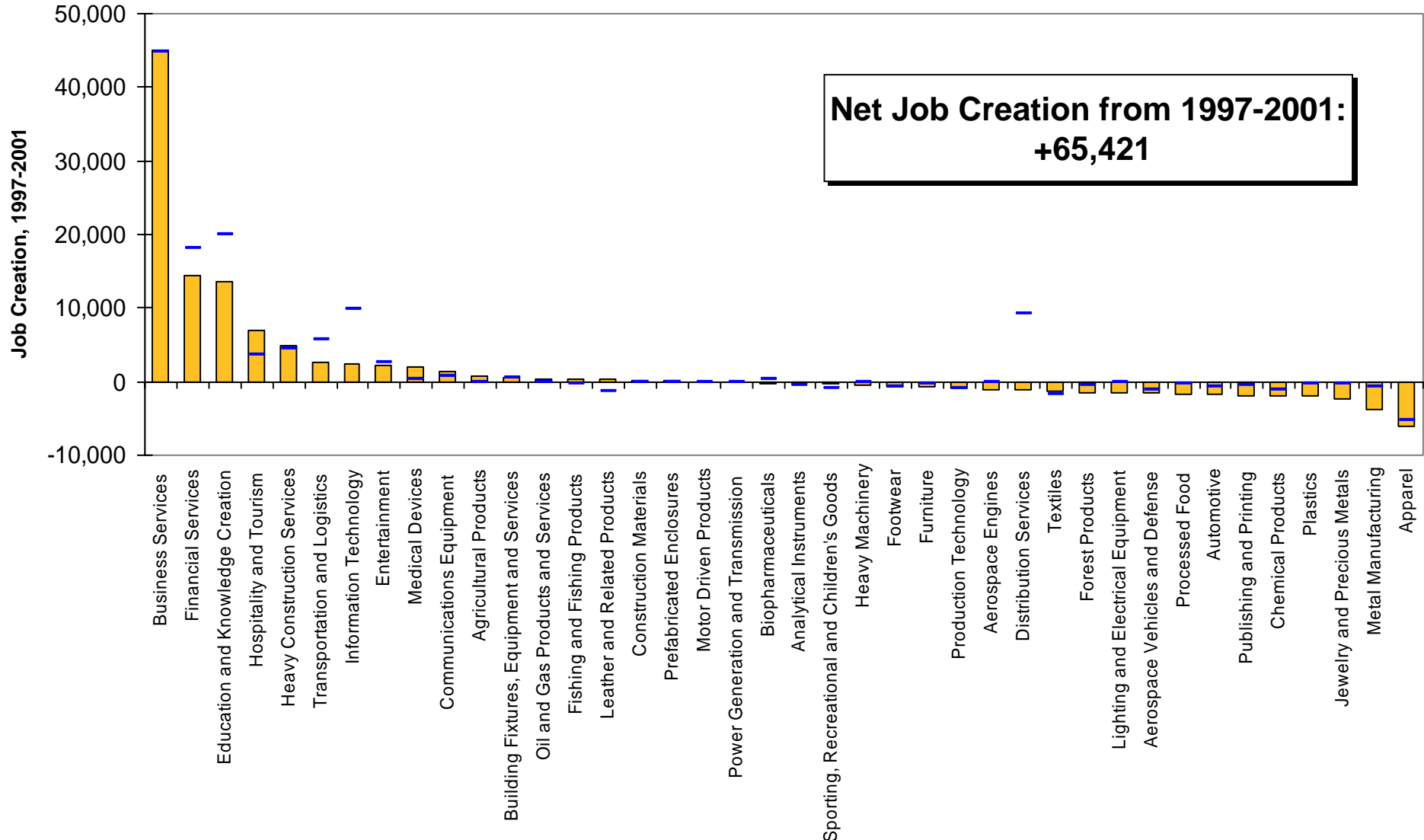
# Employment By Traded Cluster

## Massachusetts



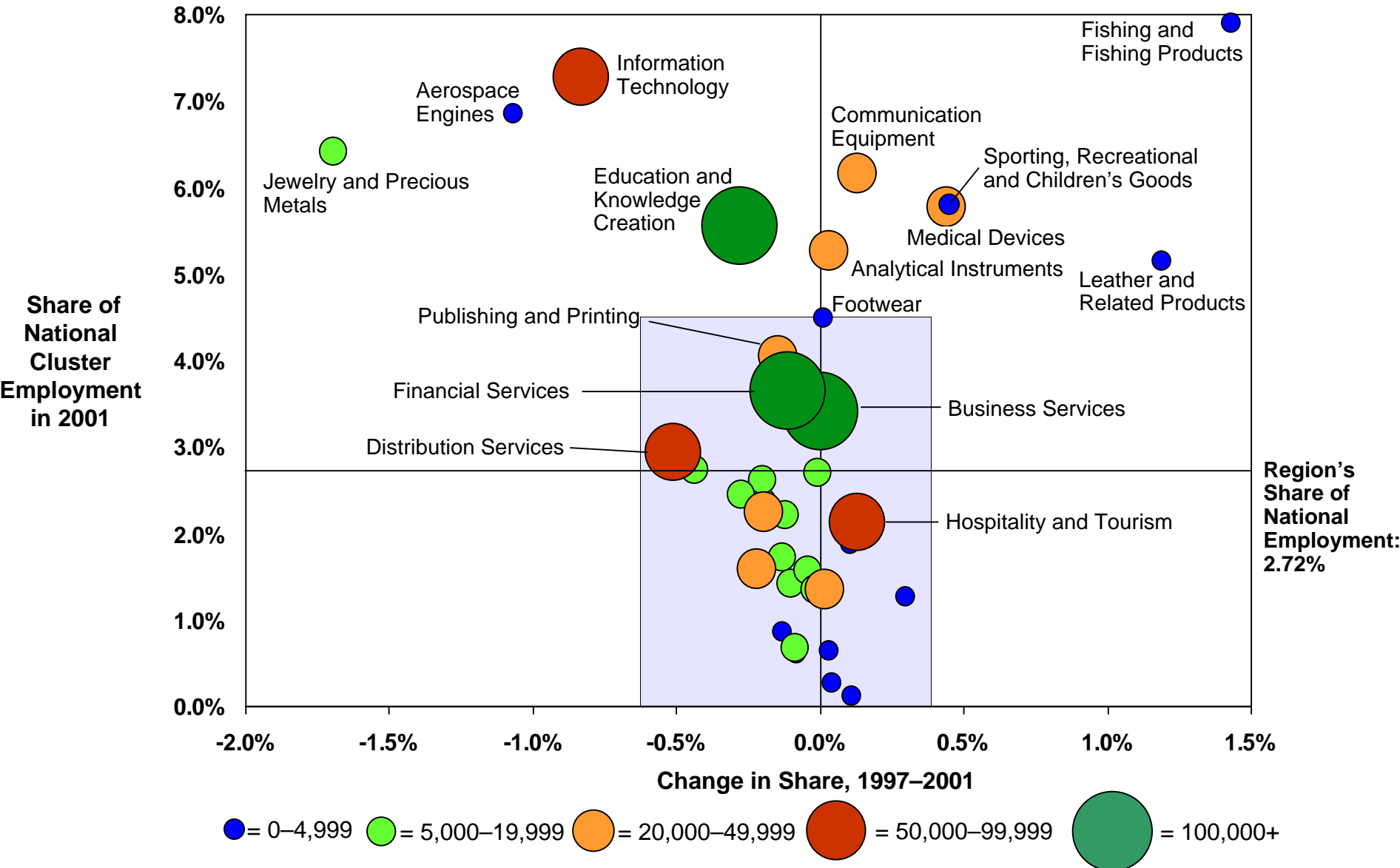
# Job Creation By Traded Cluster

## Massachusetts, 1997-2001



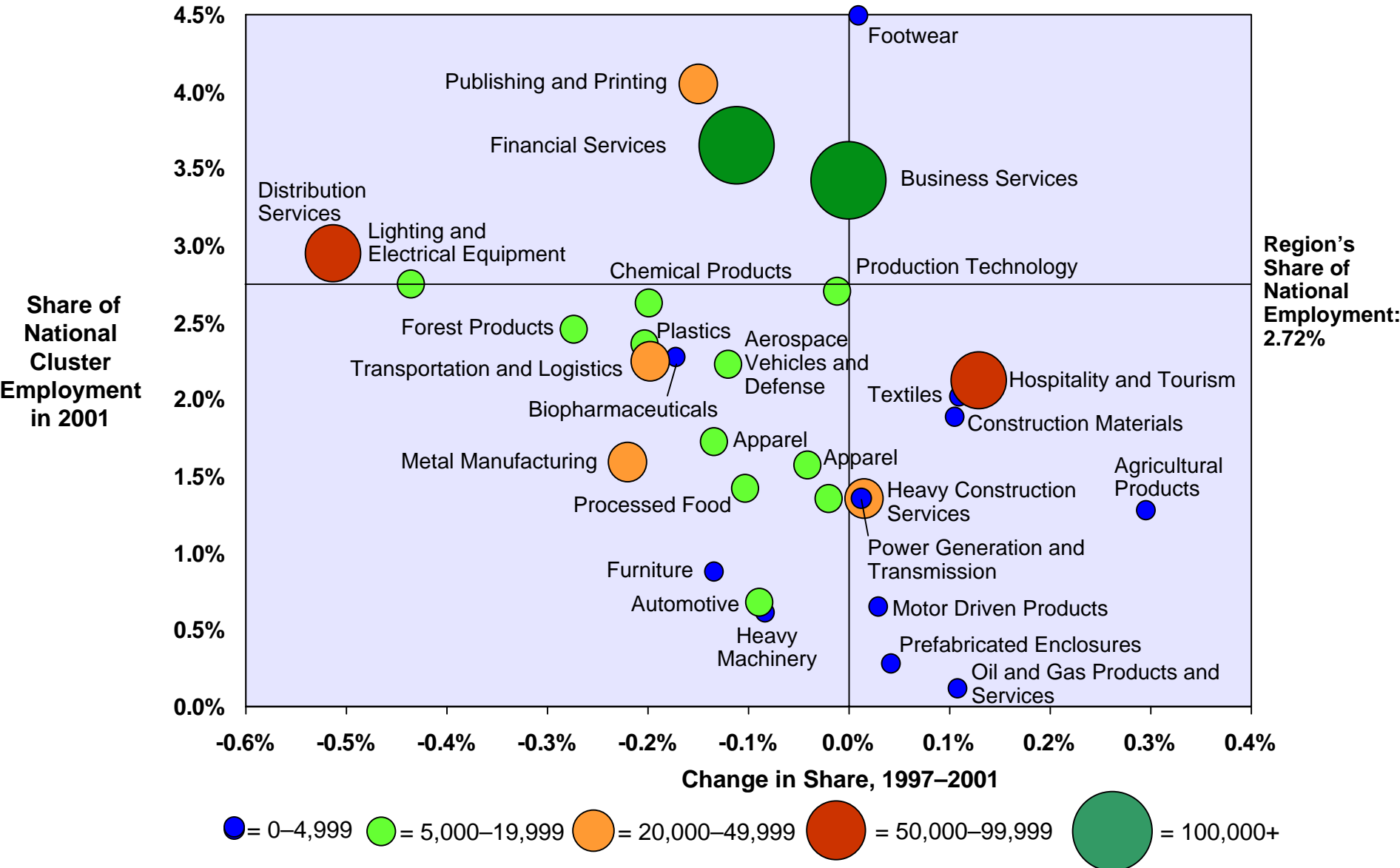
# Specialization By Traded Cluster

## Massachusetts



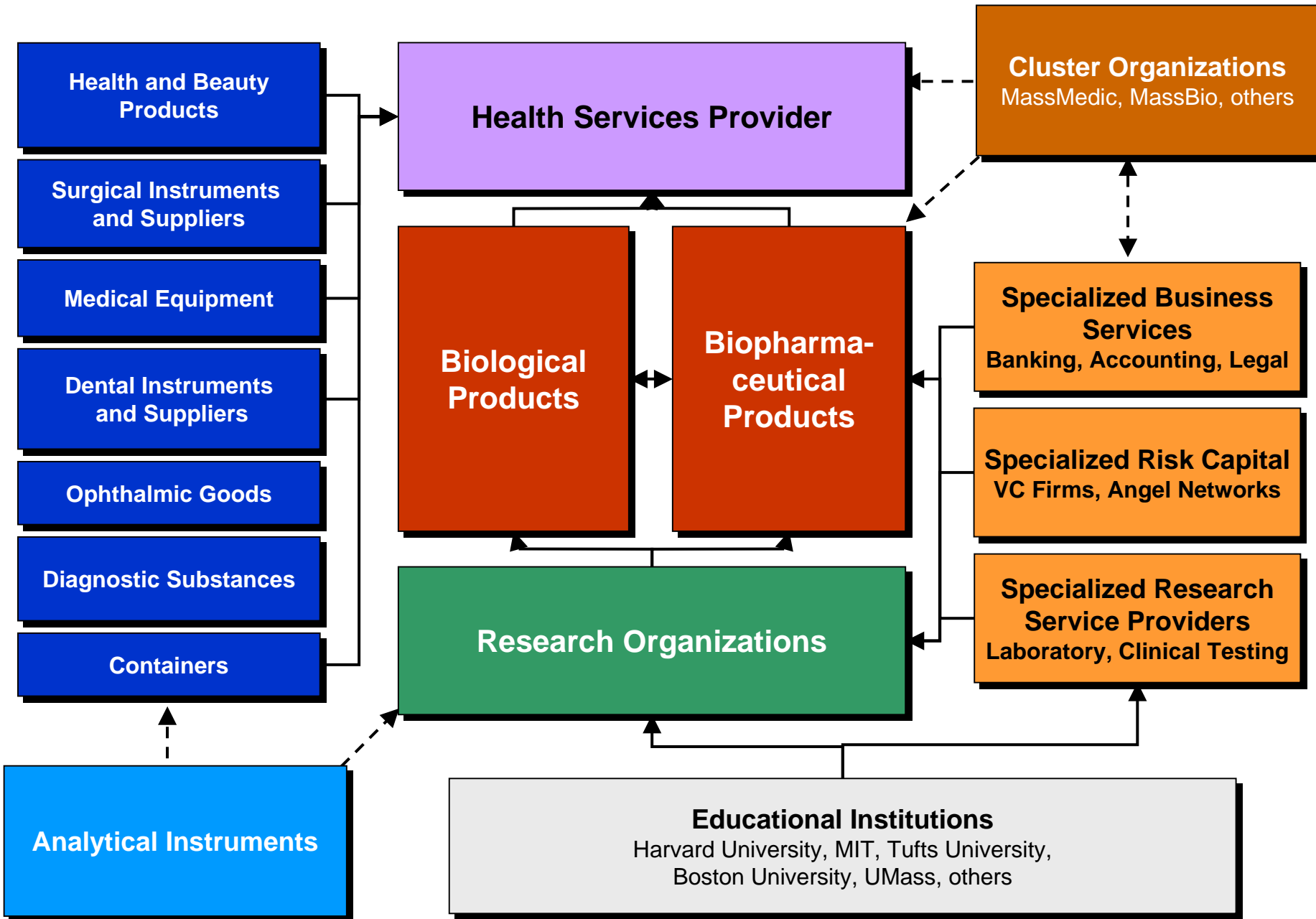
# Specialization By Traded Cluster

## Massachusetts



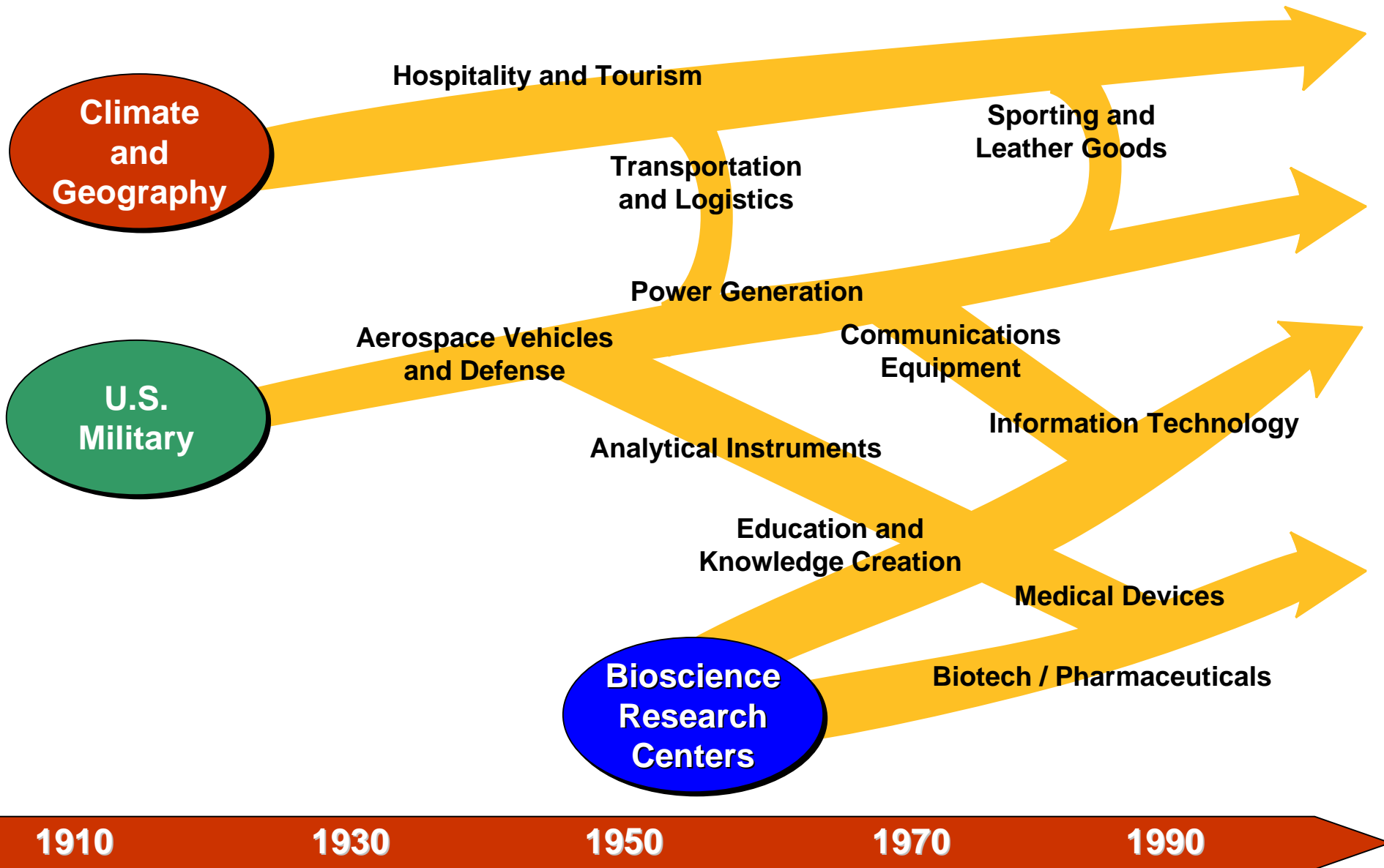
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School  
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# Massachusetts Life Sciences Cluster



# The Evolution of Regional Economies

## San Diego



# Institutions for Collaboration

## Selected Massachusetts Organizations. Life Sciences

### Life Sciences Industry Associations

- Massachusetts Biotechnology Council
- Massachusetts Medical Device Industry Council
- Massachusetts Hospital Association

### General Industry Associations

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

### Economic Development Initiatives

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

### University Initiatives

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

### Informal networks

- Company alumni
- Venture Capital community
- University alumni

### Joint Research Initiatives

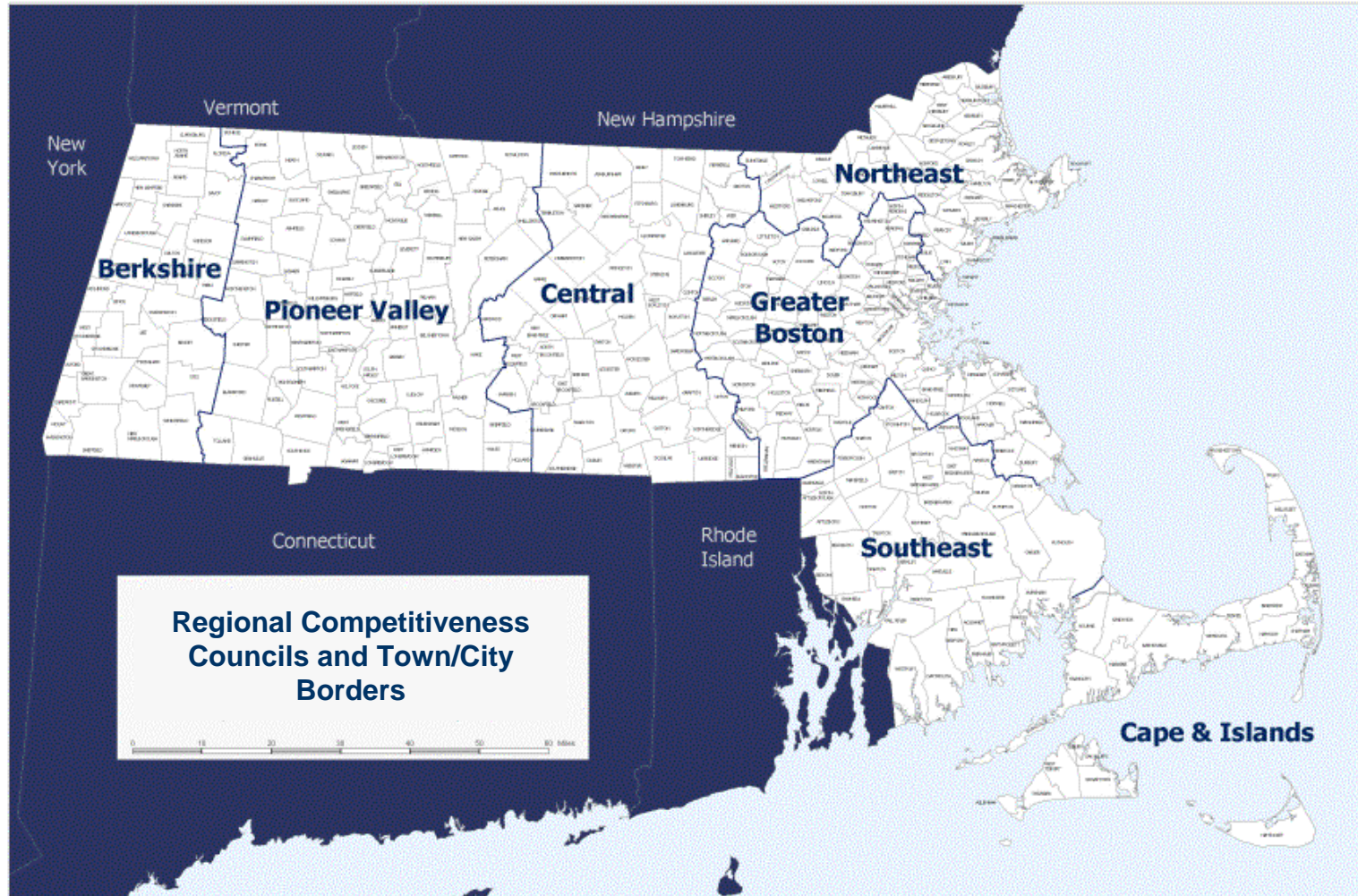
- New England Healthcare Institute
- Whitehead Institute For Biomedical Research
- Center for Integration of Medicine and Innovative Technology (CIMIT)

# Influences on Competitiveness

## Multiple Geographic Levels



# Massachusetts Regional Competitiveness Council Regions



# Regional Competitiveness

## Cape & Islands

- Foundations of Regional Competitiveness

- **Assessing the Competitiveness of the Cape & Islands region**

- Action Agenda

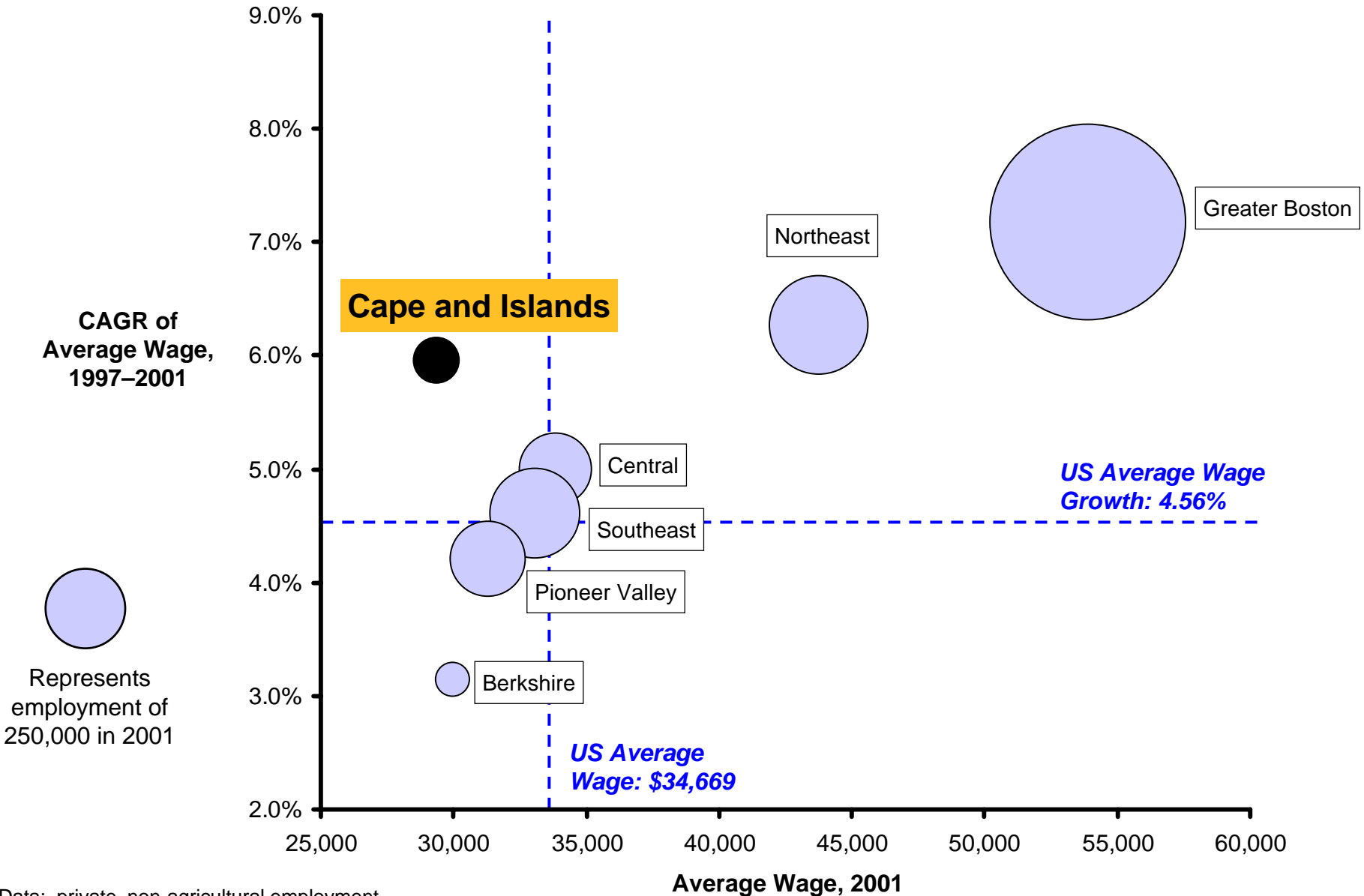
# Economic Performance

## Cape & Islands

- The region has traditionally low wages but registered wage growth at 5.95% annually over the last five years; among the leading regions in the state and significantly above the U.S. average
- The region led the state in employment growth at 3.1% annually over the last five years
  - 81% of the region's job growth occurred in local clusters, especially in real estate development
- The region's growth of establishments was among the lowest of all Massachusetts regions
- Patenting rate of 4.5 patents per 10,000 employees in 2001 significantly lags the U.S. average and the leading Massachusetts' regions

# Comparative Performance of Regions

## Wage Growth and Wages



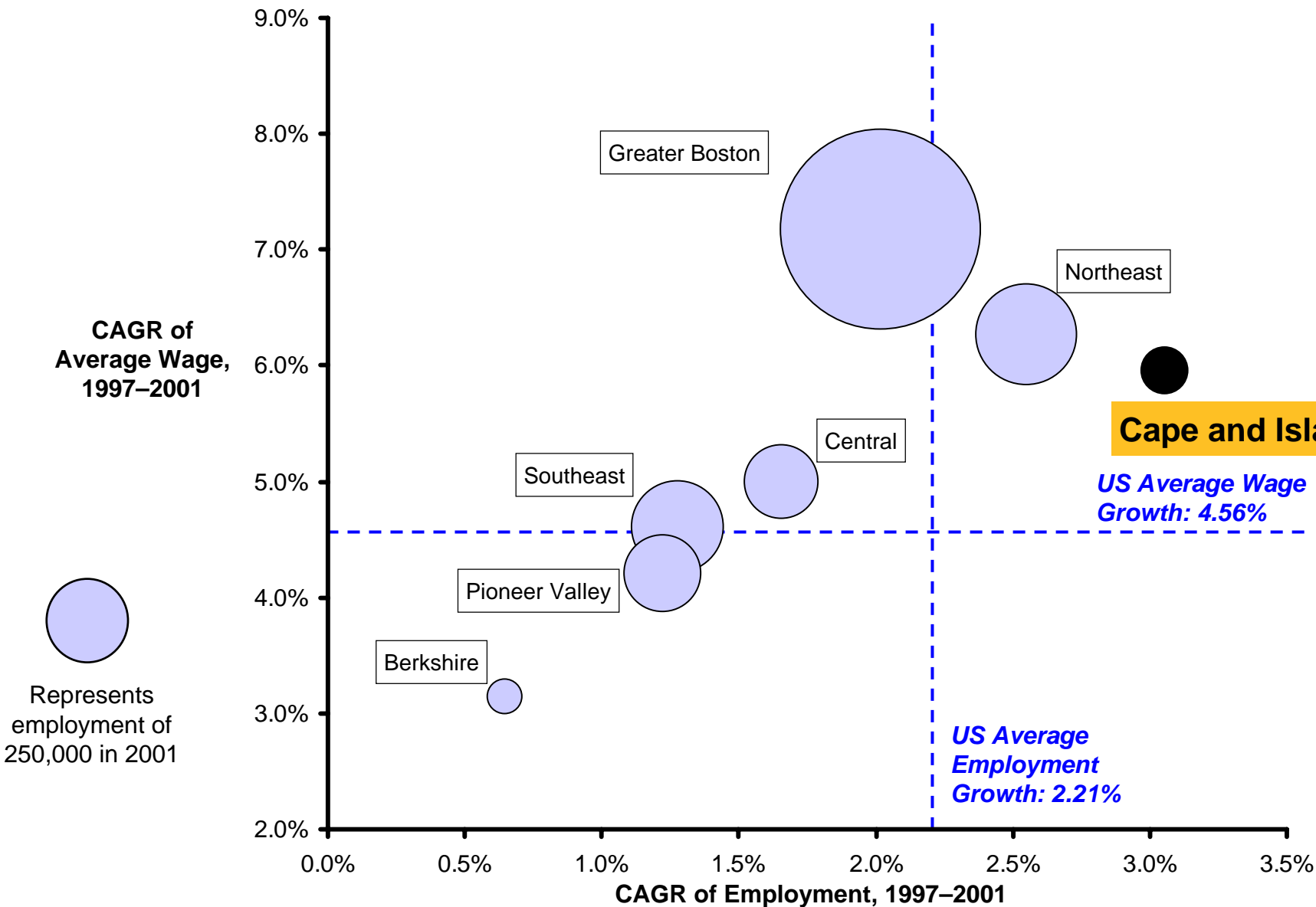
Data: private, non-agricultural employment

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

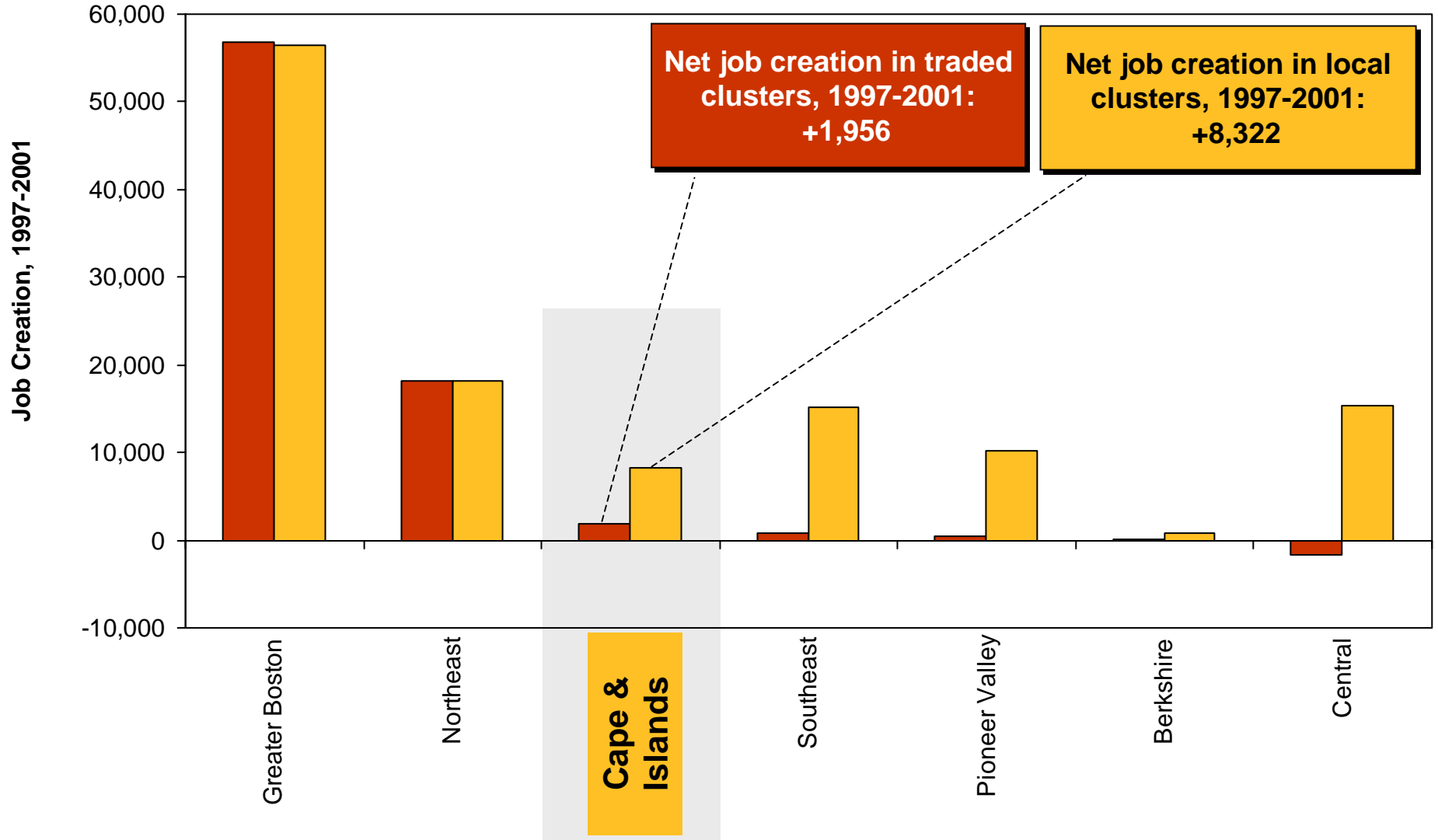


Data: private, non-agricultural employment

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

Reprinted from "Cluster Mapping Project"

# Job Creation Massachusetts Regions



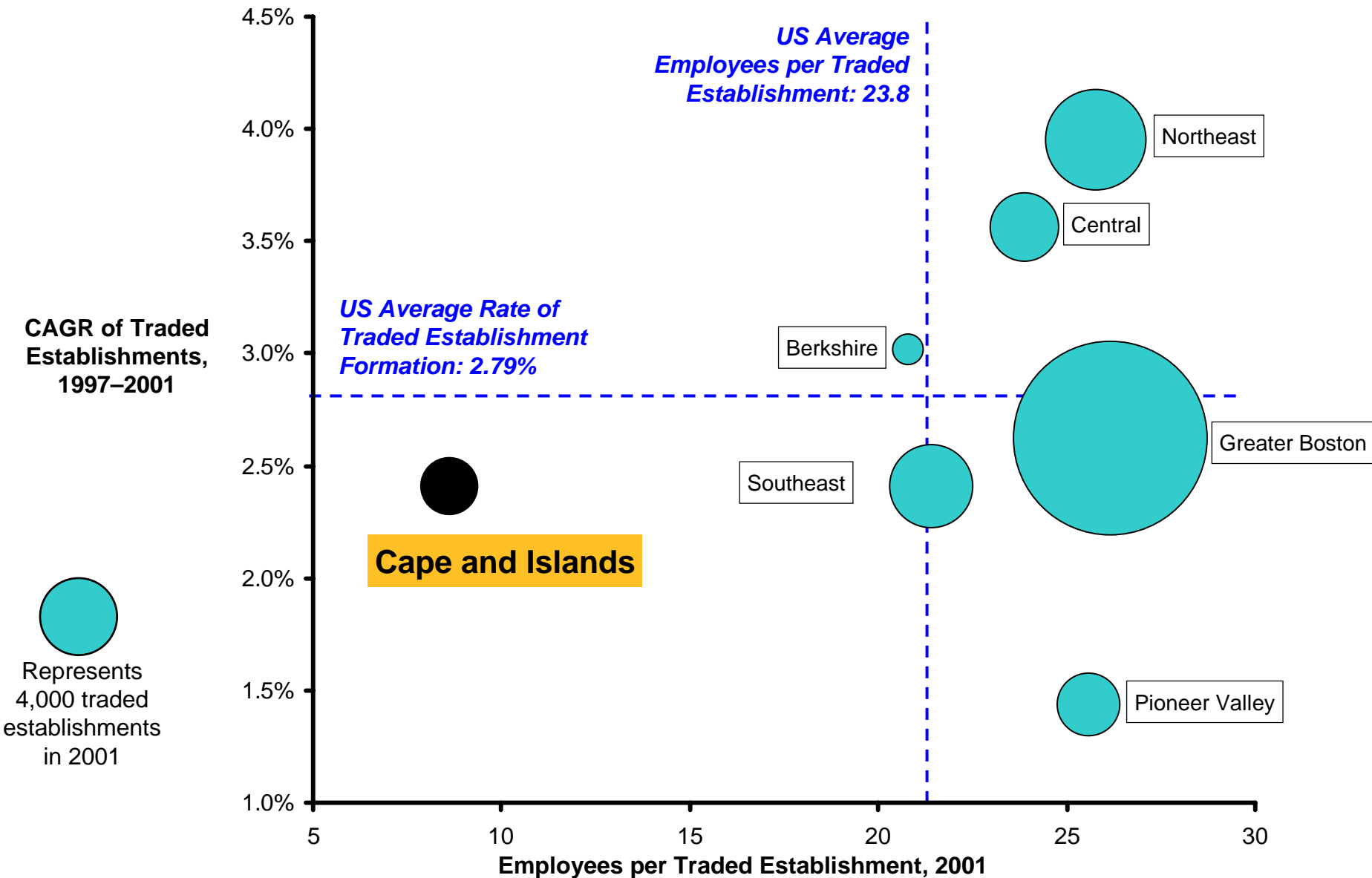
Data: private, non-agricultural employment. Note: Regional data does not total precisely to statewide data due to omissions for confidentiality in the regions.

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

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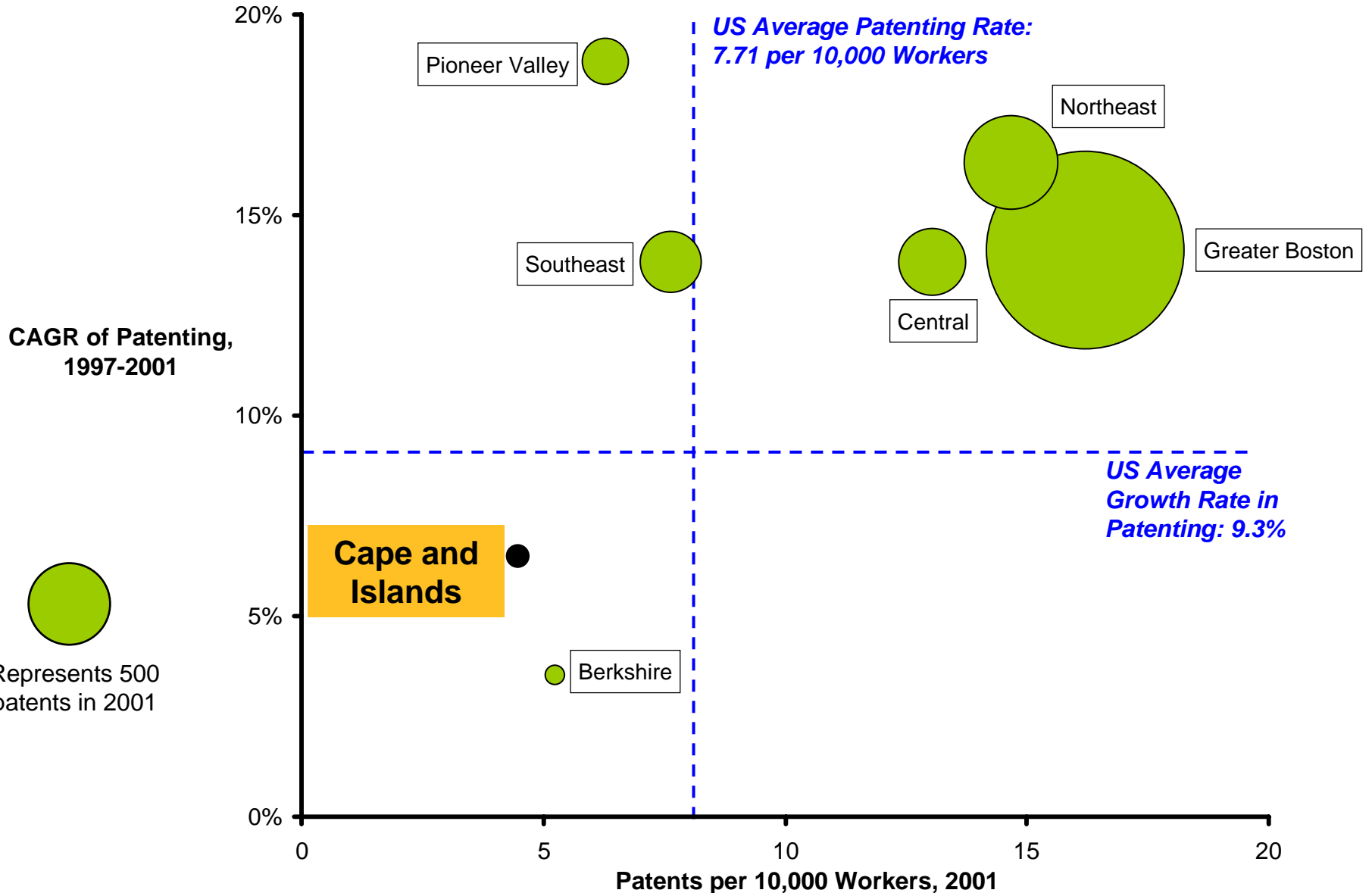
# Comparative Performance of Regions

## Establishment Formation in Traded Clusters



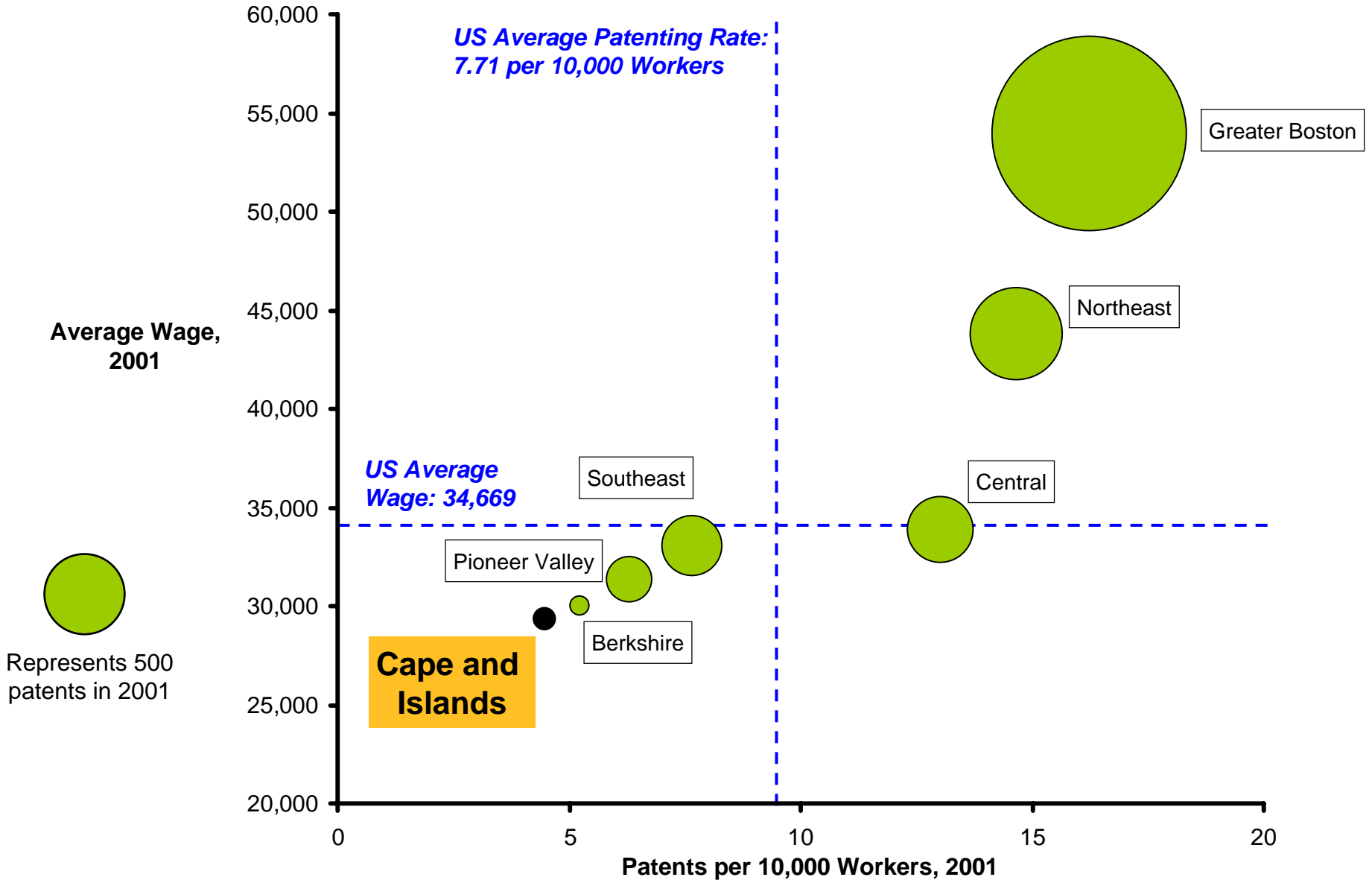
# Comparative Performance of Regions

## Patenting Rates



# Comparative Performance of Regions

## Wages and Patenting Rates



# Patents by Organization

## Cape and Islands Region

	Organization	Patents Issued from 1997 to 2001
1	SENTINEL PRODUCTS CORP.	14
2	JOHNSON & JOHNSON PROFESSIONAL INC.	8
3	EXCEL SWITCHING CORPORATION	8
4	RARE EARTH MEDICAL, INC.	7
5	ASSOCIATES OF CAPE COD, INC.	7
6	MARINE BIOLOGICAL LABORATORY	6
7	SENCORP SYSTEMS, INC.	6
8	CARDIOFOCUS, INC.	5
9	PACESETTER, INC.	4
10	WOODS HOLE OCEANOGRAPHIC INSTITUTION	4
11	EXCEL, INC.	4
12	EMERGING TECHNOLOGIES TRUST	4
13	CREATIVE PRODUCTS RESOURCE, INC.	4
14	CUSTOM CLEANER, INC.	4
15	BENTHOS, INC.	3
16	INFRA-TEMP, INC.	3
17	GENZYME CORPORATION	3
18	FLEX-REST, LLC	3
19	GOLDEN BRIDGE TECHNOLOGY, INC.	2
20	CREATIVE PRODUCTS RESOURCE, ASSOCIATES LTD.	2
21	ONSET COMPUTER CORP.	2
22	EARTH AND OCEAN SPORTS, INC.	2
23	GILLETTE COMPANY	2
24	STORMTREAT SYSTEMS, INC.	2
25	EXCEL SWITCHING CORPORATION	2
26	LINEX TECHNOLOGY, INC.	2

# Composition

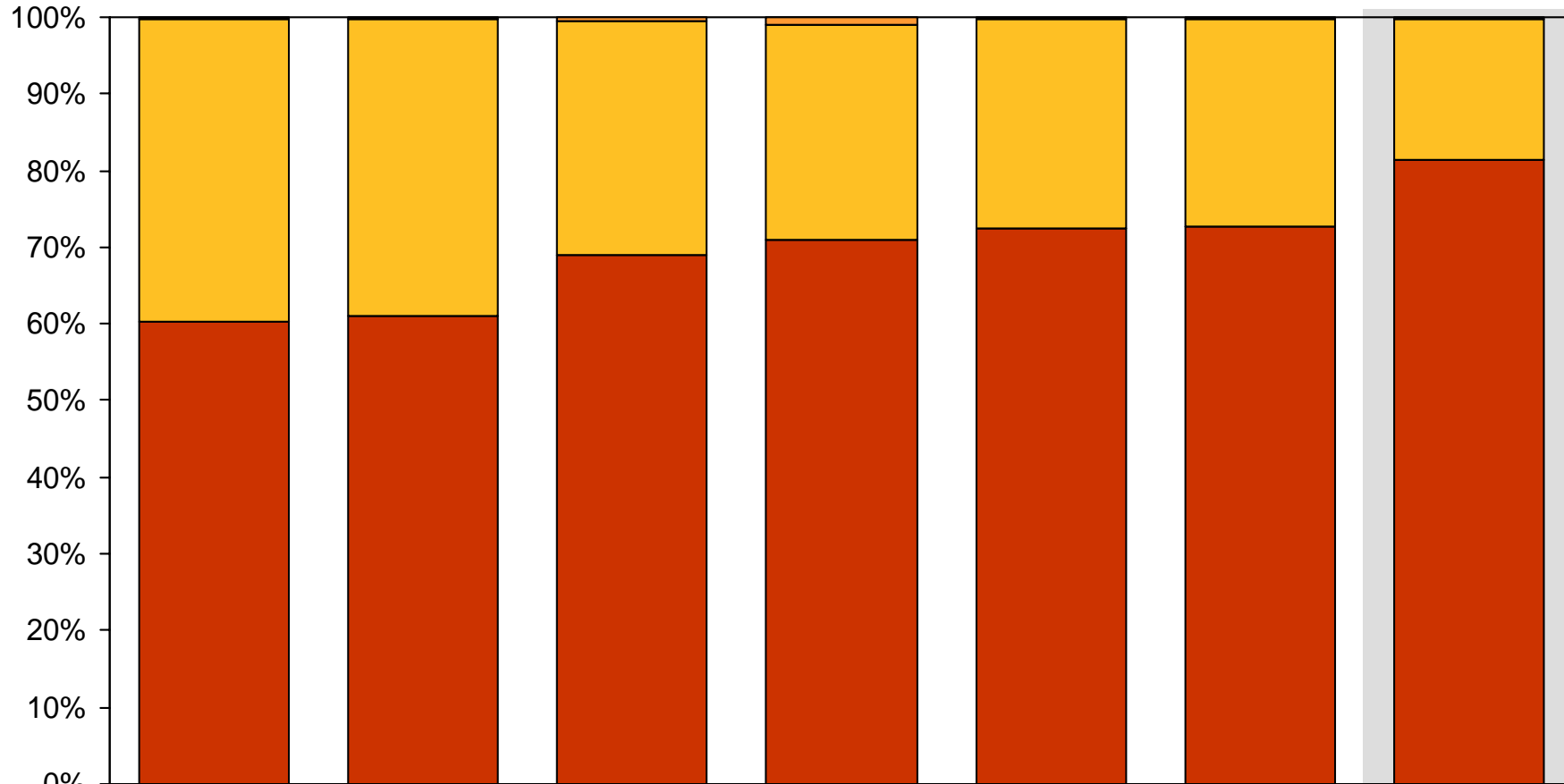
## Cape & Islands

- The region has with 18.3% the lowest share of traded employment of all Massachusetts regions
  - The strong employment in local hospitality suggest that part of that cluster also serves out-of-region customers
- The region is dominated by its strong position in hospitality and tourism
  - Other clusters with significant positions include Education and Knowledge Creation, Transportation and Logistics, and Furniture
  - In furniture, cluster wages are above the state and national average; this contrasts with cluster wages otherwise lower than in the Massachusetts average
- The region's position in most of its strong clusters is deteriorating, especially in furniture
  - Looking at clusters with wages and employment shares above the national level, 99% of the region's employment in such clusters is in clusters losing position
  - In contrast, the region is strengthening its position in some smaller clusters, such as Plastics and Distribution Services
- Within local clusters, real estate development has added the most significant amount of jobs between 1997 and 2001

# Employment by Cluster Type

## Massachusetts Regions

Employment, 2001



	Northeast	Greater Boston	Central	Berkshire	Southeast	Pioneer Valley	Cape and Islands
Local	60.30%	61.00%	69.00%	70.90%	72.40%	72.70%	81.40%
Traded	39.40%	38.80%	30.60%	28.00%	27.40%	27.00%	18.30%
NED	0.20%	0.20%	0.40%	1.10%	0.20%	0.40%	0.30%

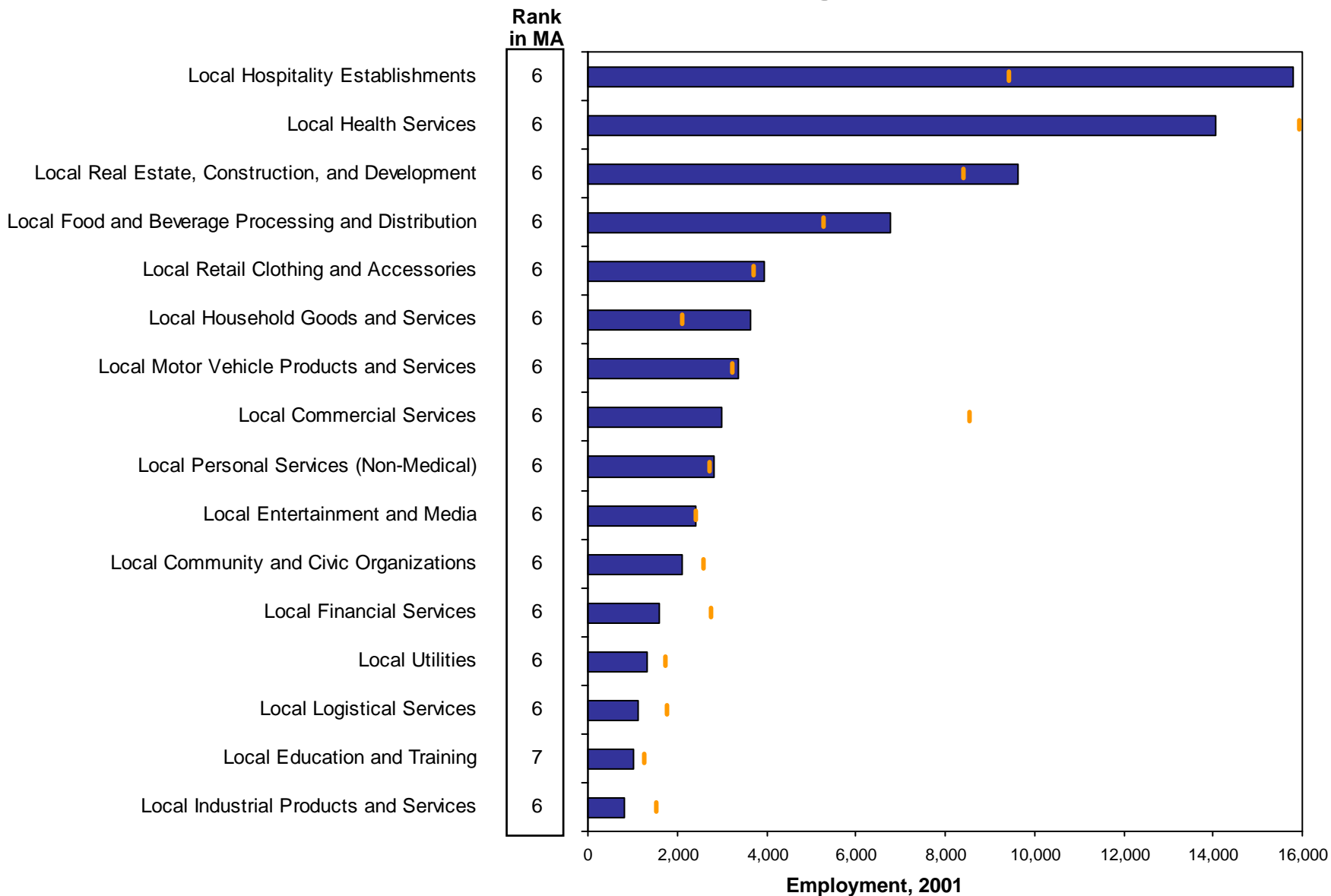
Data: private, non-agricultural employment. Note: Regional data does not total precisely to statewide data due to omissions for confidentiality in the regions.

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# Employment By Local Cluster

## Cape and Islands Region



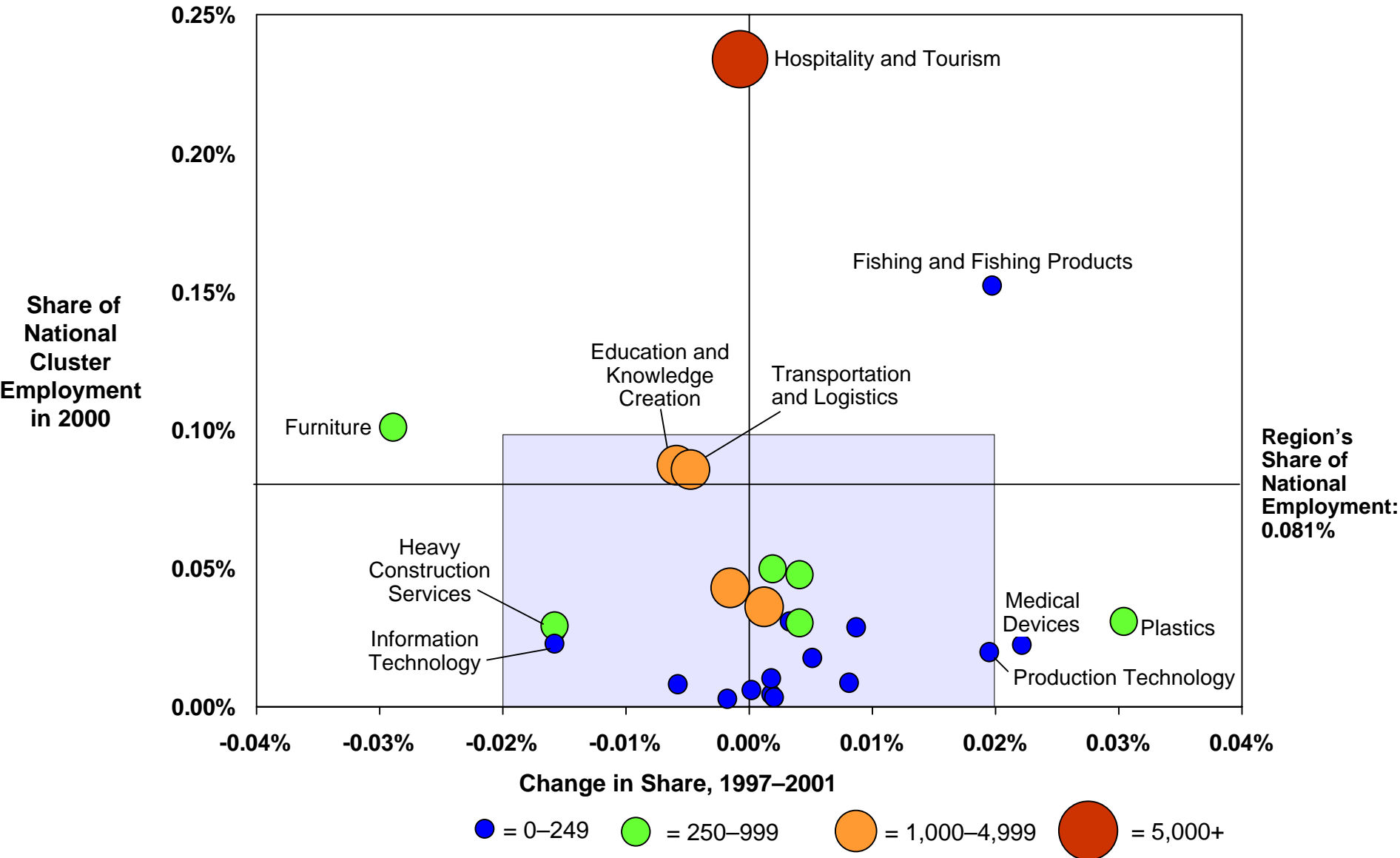
| - Indicates expected employment at rates in the **state benchmark** for local clusters. Rank is across 7 state regions.

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

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# Specialization By Traded Cluster

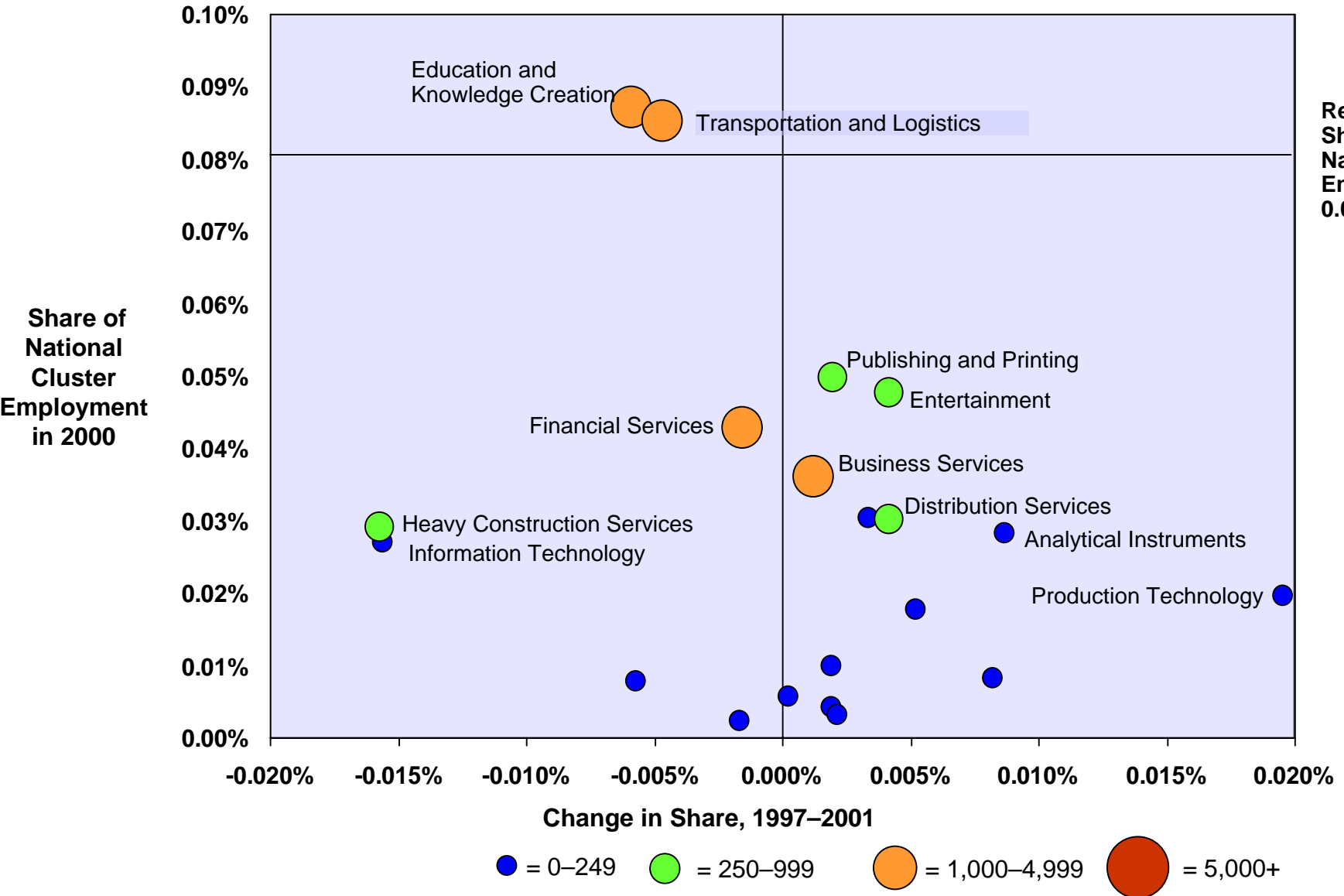
## Cape and Islands Region



# Specialization By Traded Cluster

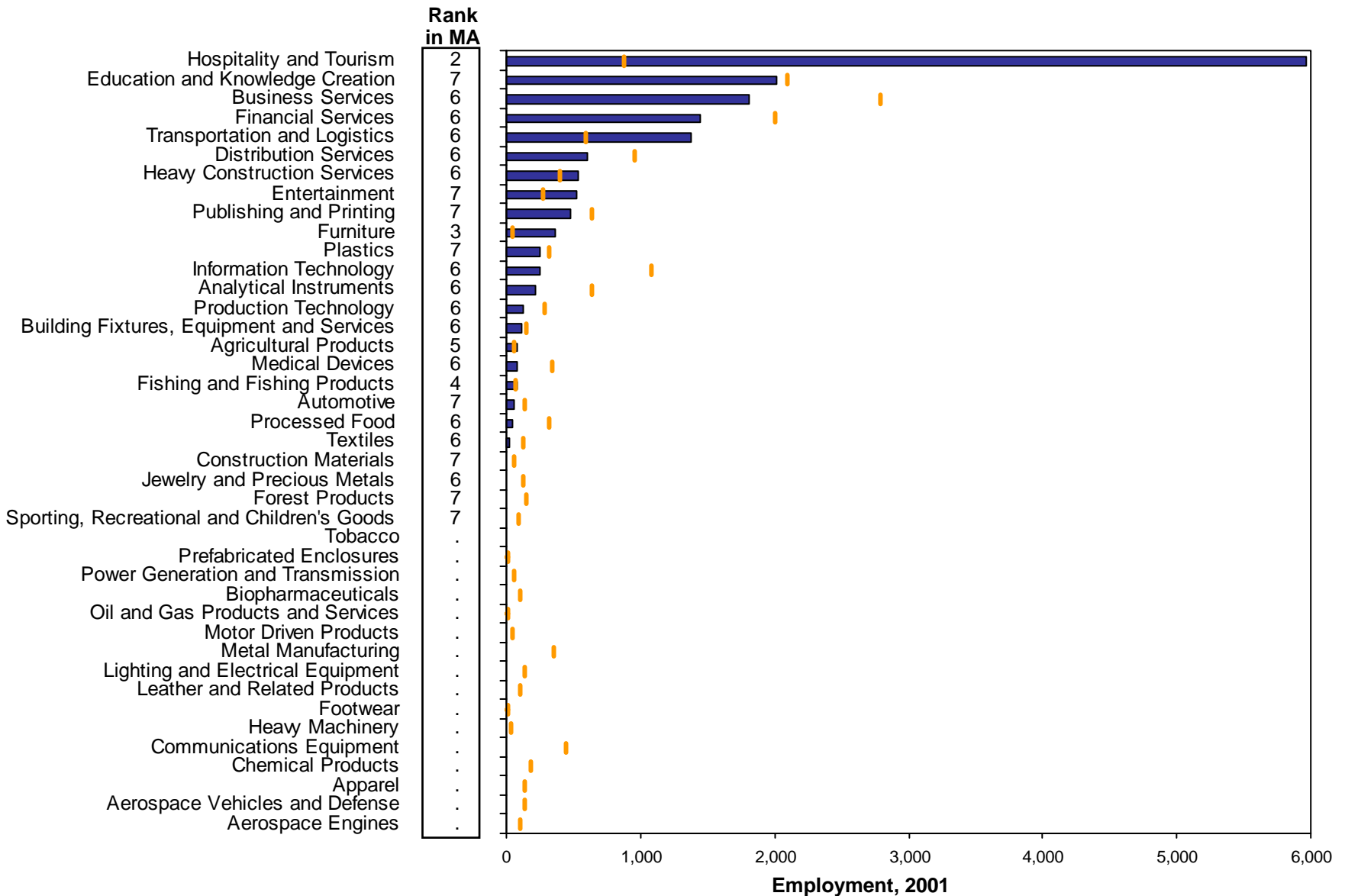
## Cape and Islands Region

Region's  
Share of  
National  
Employment:  
0.081%



# Employment By Traded Cluster

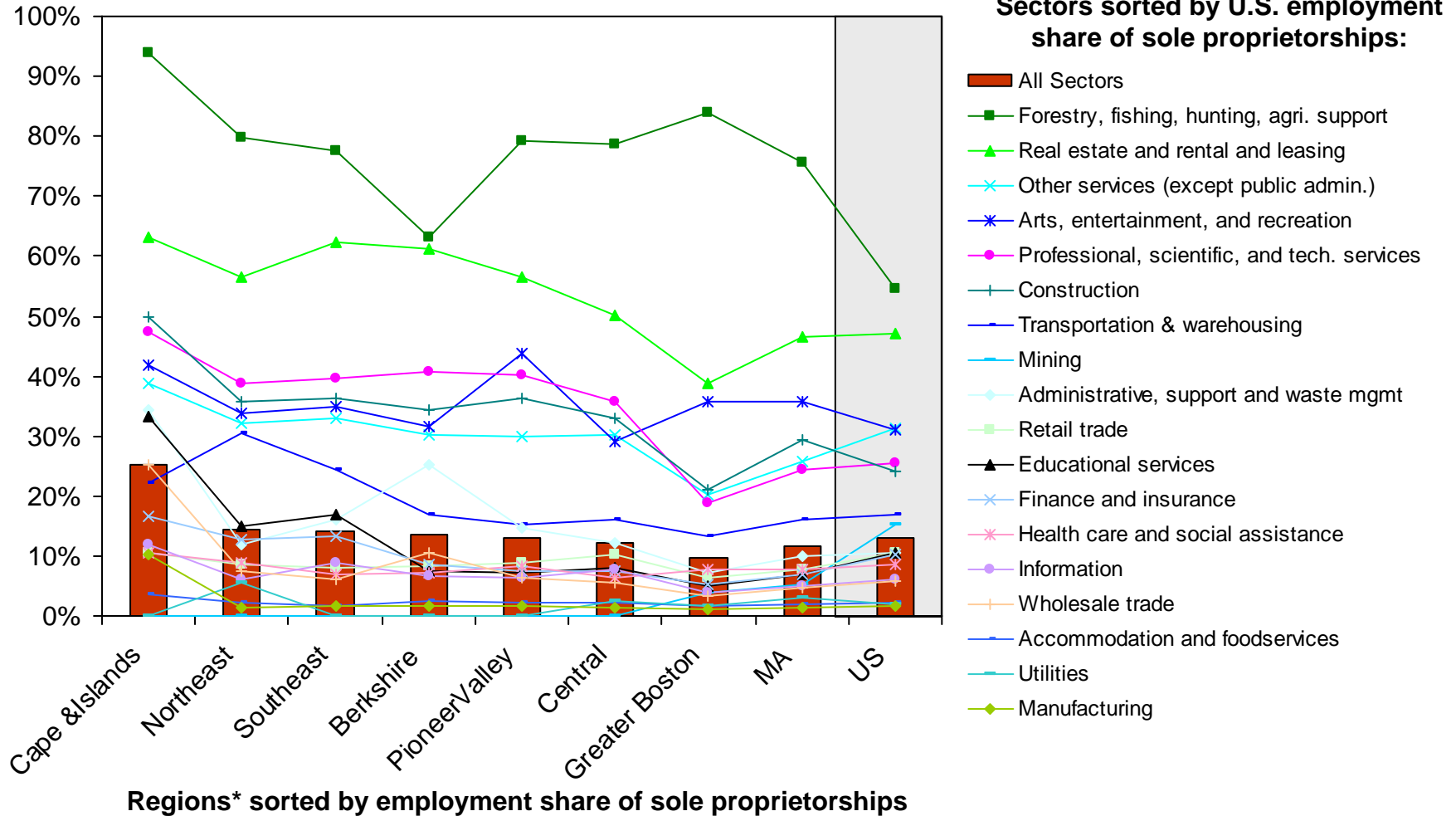
## Cape and Islands Region



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

# Sole Proprietorships

Share of Employment in Sole Proprietorships, 2001

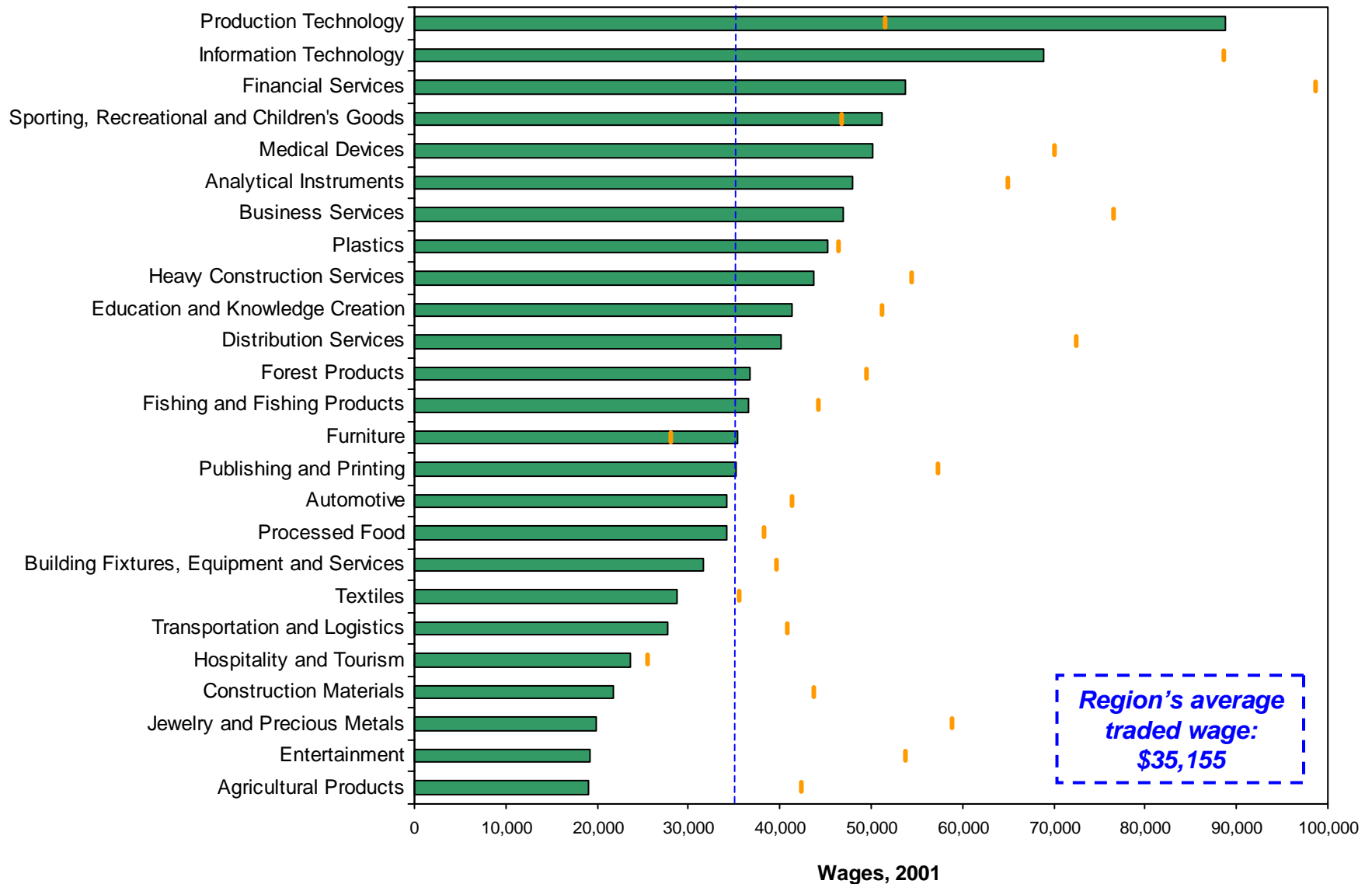


- Sole proprietorships are, as agriculture and government employees, not included in the dataset available for the cluster mapping project

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

# Wages By Traded Cluster

## Cape and Islands Region with State Benchmarks



*Region's average  
traded wage:  
\$35,155*

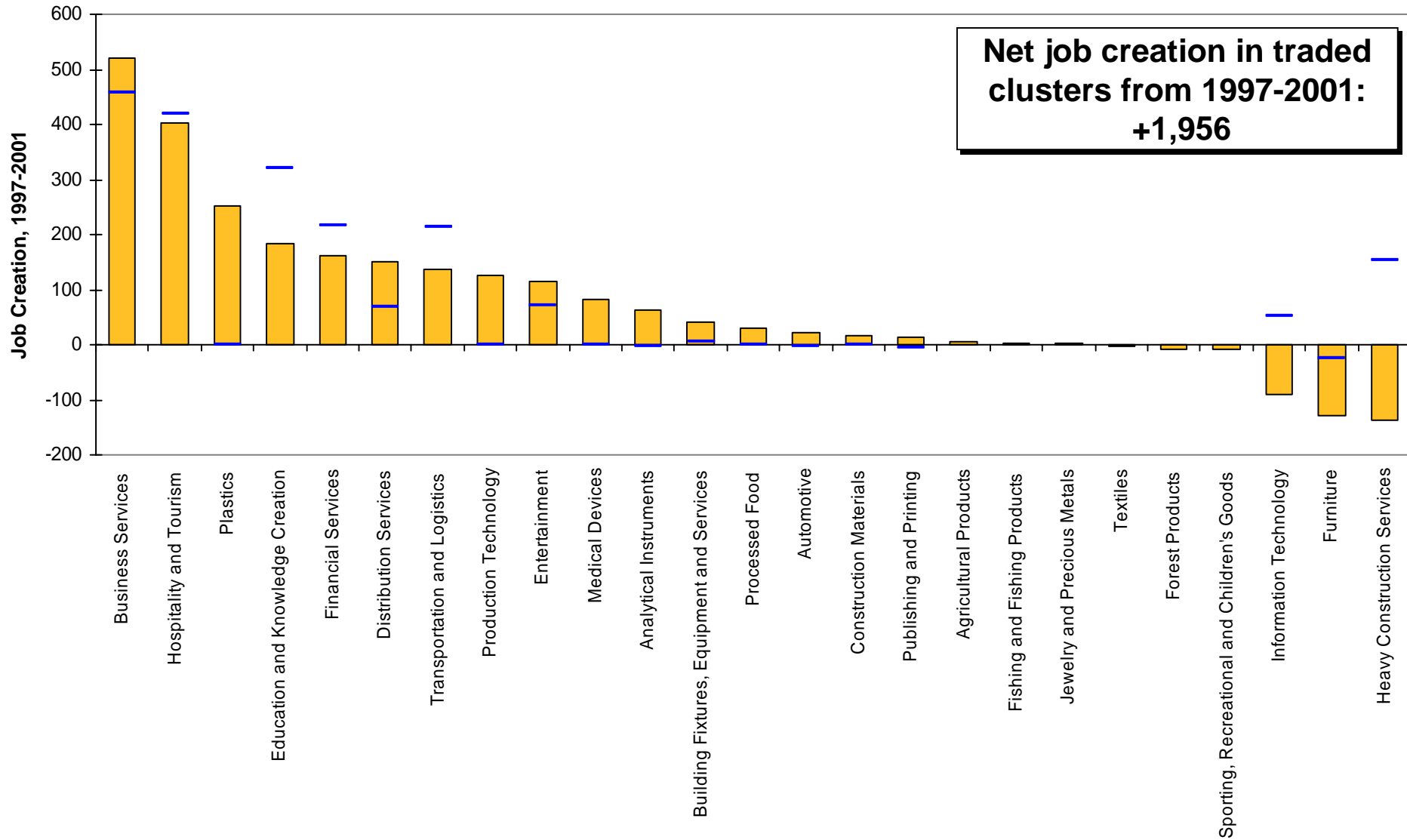
! - Indicates Massachusetts average wage in the cluster.

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

# Job Creation By Traded Cluster

## Cape and Islands Region

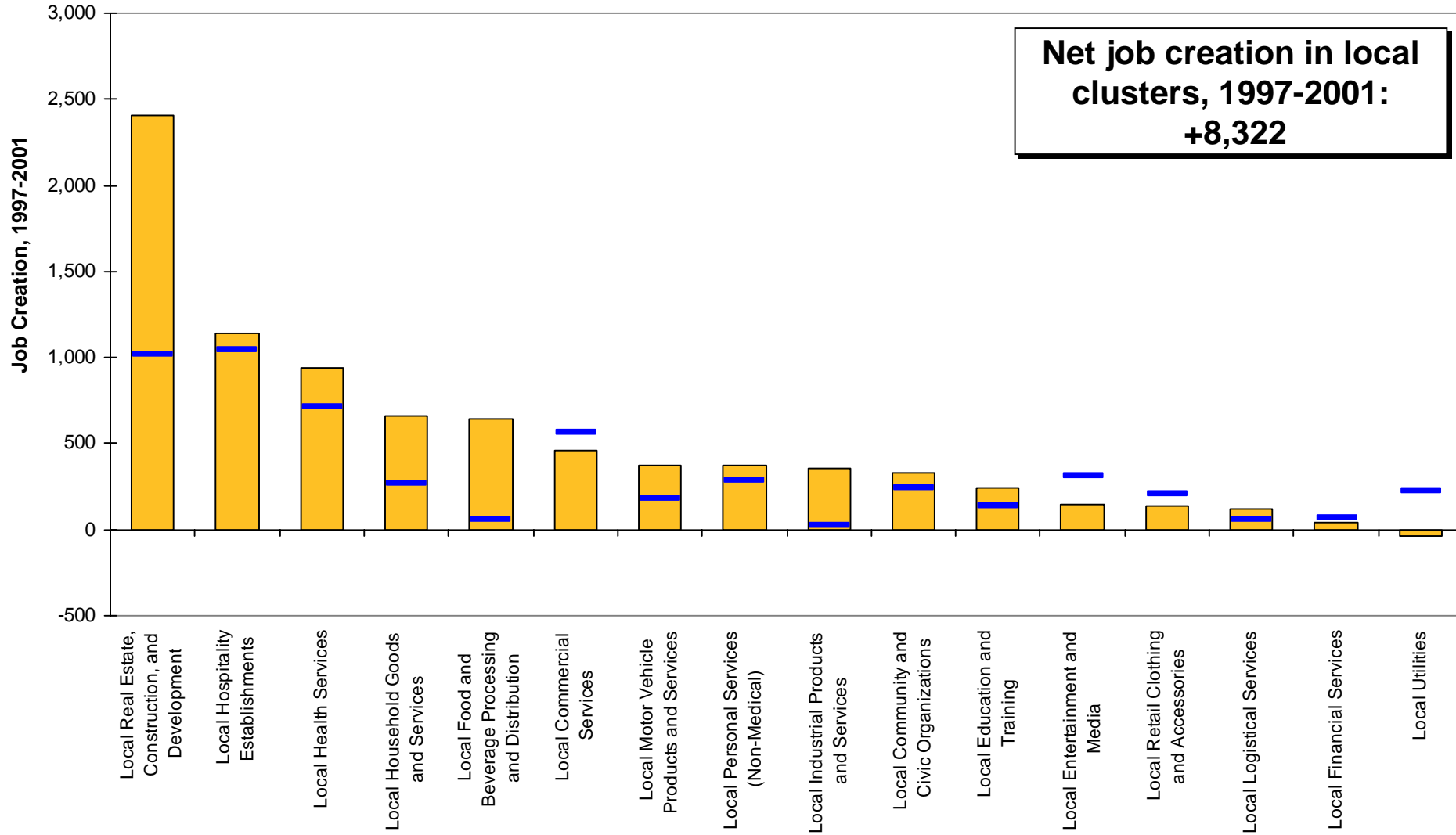


— Indicates expected job creation at rates achieved in **national benchmark** clusters, i.e. % change in national benchmark times initial employment.

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

# Job Creation By Local Cluster

## Cape and Islands Region



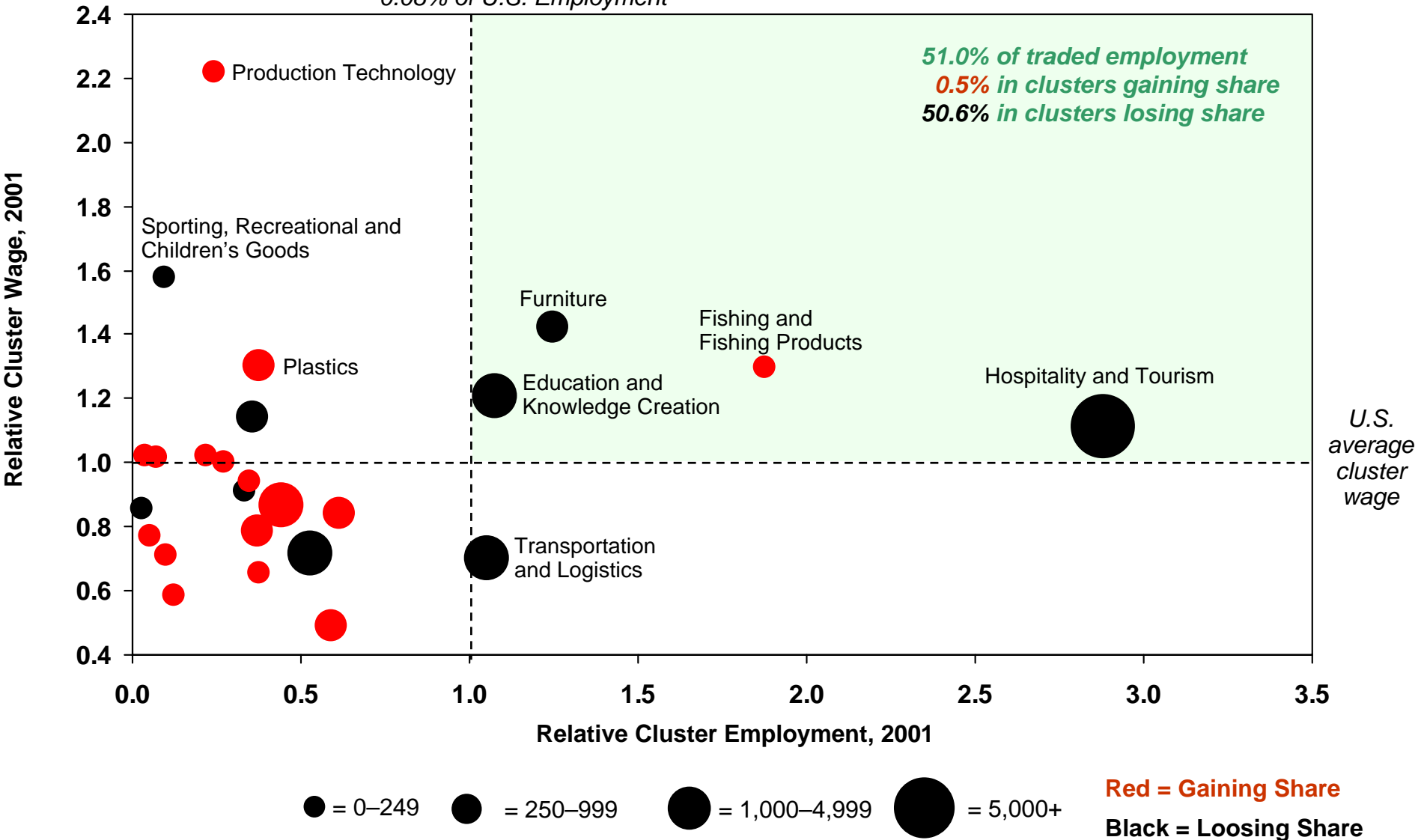
— Indicates expected job creation at rates achieved in **national benchmark** clusters, i.e. % change in national benchmark times initial employment

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

# Relative Cluster Performance

## Cape and Islands Region

0.08% of U.S. Employment



# Leading Sub-Clusters by Location Quotient

## Cape and Islands Region, 2001

Cluster	Subcluster	Location Quotient	Share of National Employment	Rank among Massachusetts Regions	Employment
Hospitality and Tourism	Boat Related Services	9.58	0.777%	1	649
	Water Passenger Transportation	3.81	0.309%	2	80
	Accommodations and Related Services	3.08	0.250%	2	4,530
	Tourism Related Services	1.53	0.124%	4	317
	Tourism Attractions	1.50	0.121%	6	337
	Ground Transportation	0.61	0.050%	6	48
Education and Knowledge Creation	Research Organizations	3.63	0.295%	3	1,473
	Educational Facilities	2.64	0.214%	7	315
Business Services	Laundry Services	1.83	0.149%	6	21
	Management Consulting	0.67	0.055%	6	691
	Photocopying	0.57	0.046%	6	38
Financial Services	Depository Institutions	1.32	0.107%	6	998
Transportation and Logistics	Bus Transportation	5.45	0.442%	4	109
	Marine Transportation	2.86	0.232%	2	229
	Air Transportation	1.20	0.097%	5	838
	Airports	0.75	0.061%	4	83
Distribution Services	Food Products Wholesaling	1.67	0.135%	4	216
	Transportation Vehicle and Equipment Distribution	1.14	0.092%	5	55
Heavy Construction Services	Subcontractors	0.80	0.065%	6	284
Entertainment	Entertainment Related Services	0.94	0.077%	6	208
	Entertainment Venues	0.82	0.066%	7	290
Publishing and Printing	Printing Services	1.39	0.112%	7	290
	Publishing	0.71	0.057%	7	181
Furniture	Furniture	2.13	0.172%	1	359
Information Technology	Software	0.86	0.069%	5	245
Analytical Instruments	Search and Navigation Equipment	0.82	0.066%	3	117
	Process Instruments	0.62	0.050%	5	95
Production Technology	Fabricated Plate Work	1.92	0.156%	5	126
Building Fixtures, Equipment and Services	Stone and Tile Work	0.82	0.066%	3	33
Agricultural Products	Farm Management and Related Services	1.06	0.086%	5	83
Fishing and Fishing Products	Fishing and Hunting	9.29	0.753%	4	75
Processed Food	Malt Beverages	0.52	0.043%	2	14
Textiles	Carpets and Rugs	0.57	0.046%	1	21

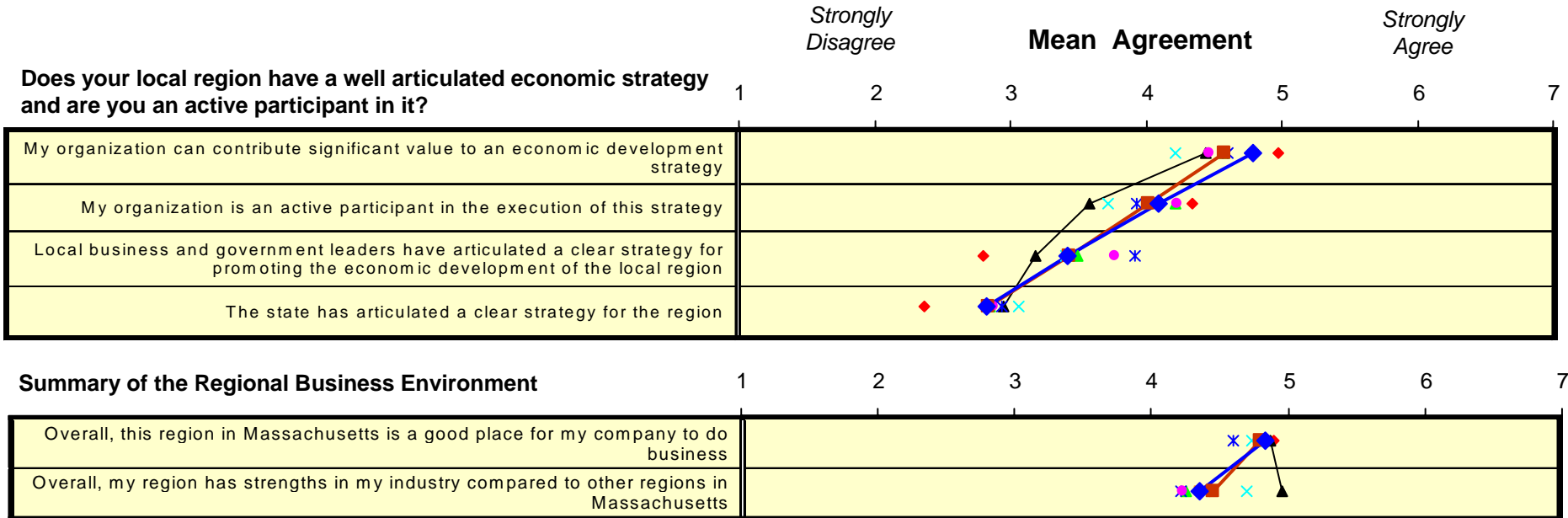
# Business Environment

## Cape & Islands

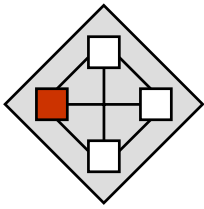
- Overall, the region is seen as lagging many regions in Massachusetts as a location for doing business
  - Specific advantages are the quality of life and basic education
  - Critical disadvantages are the **cost of doing business and of living**, the **quality of the transportation infrastructure**, and the **quality of specialized suppliers**
  - The satisfaction with **educational institutions** is low compared to other regions of the state
- Cost of living, transportation, and access to skilled employees are seen as the most important challenges for the region
  - Housing availability is already a critical barrier for growth

# Regional Comparisons

## Regional Strategy & Summary of the Regional Business Environment



- ◆ Berkshire
- ◆ Cape and Islands
- ▲ Central
- ▲ Greater Boston
- × Northeast
- × Pioneer Valley
- Southeast
- Massachusetts



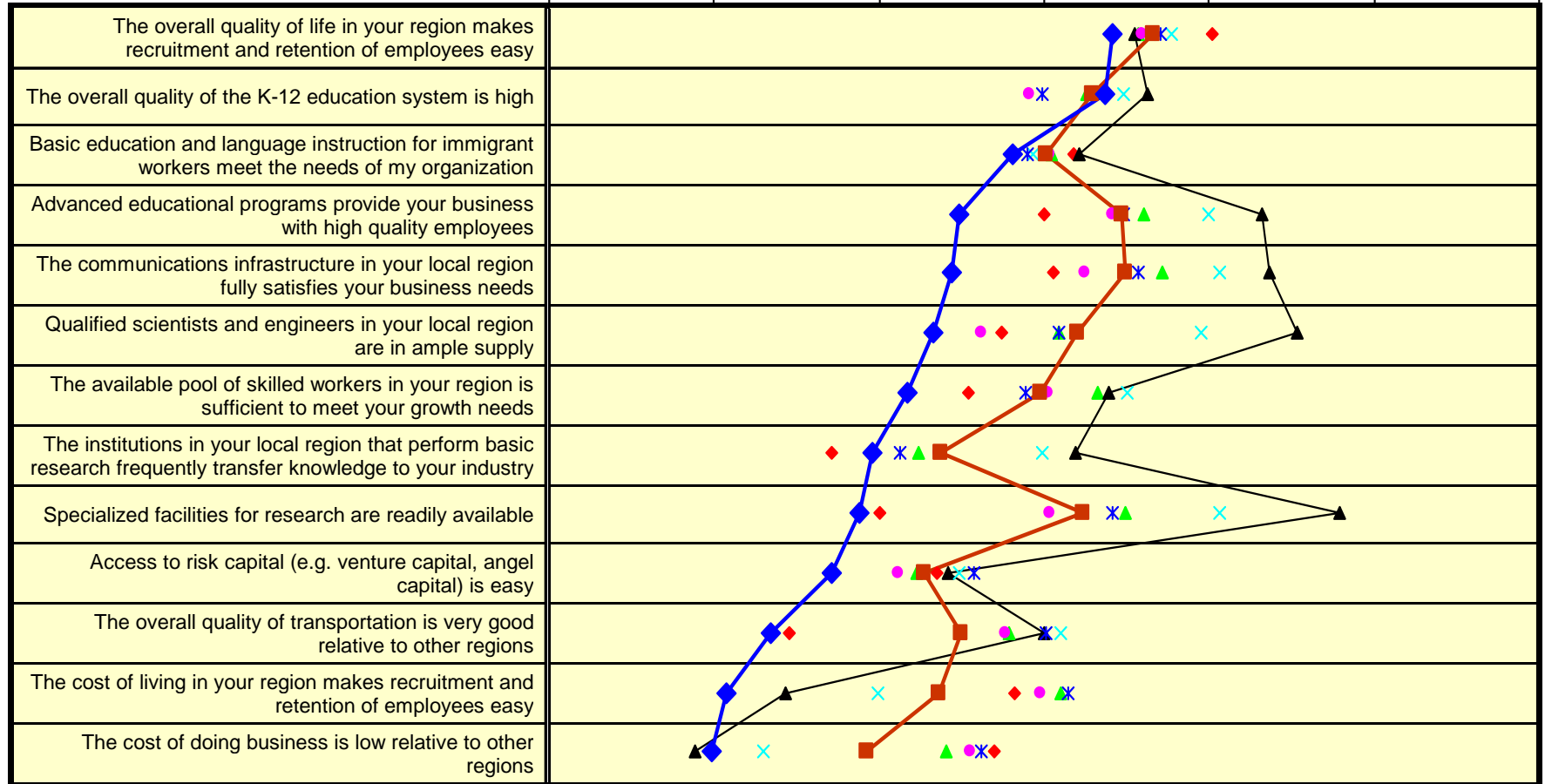
# Regional Comparisons

## Availability of Inputs

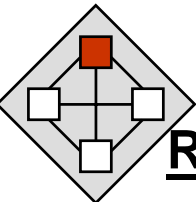
Strongly Disagree  
1

Mean Agreement

Strongly Agree  
7

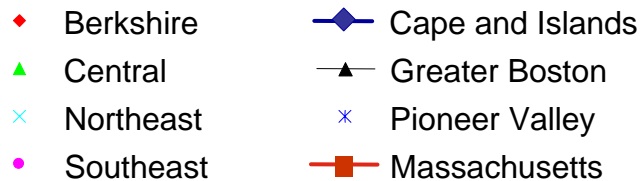
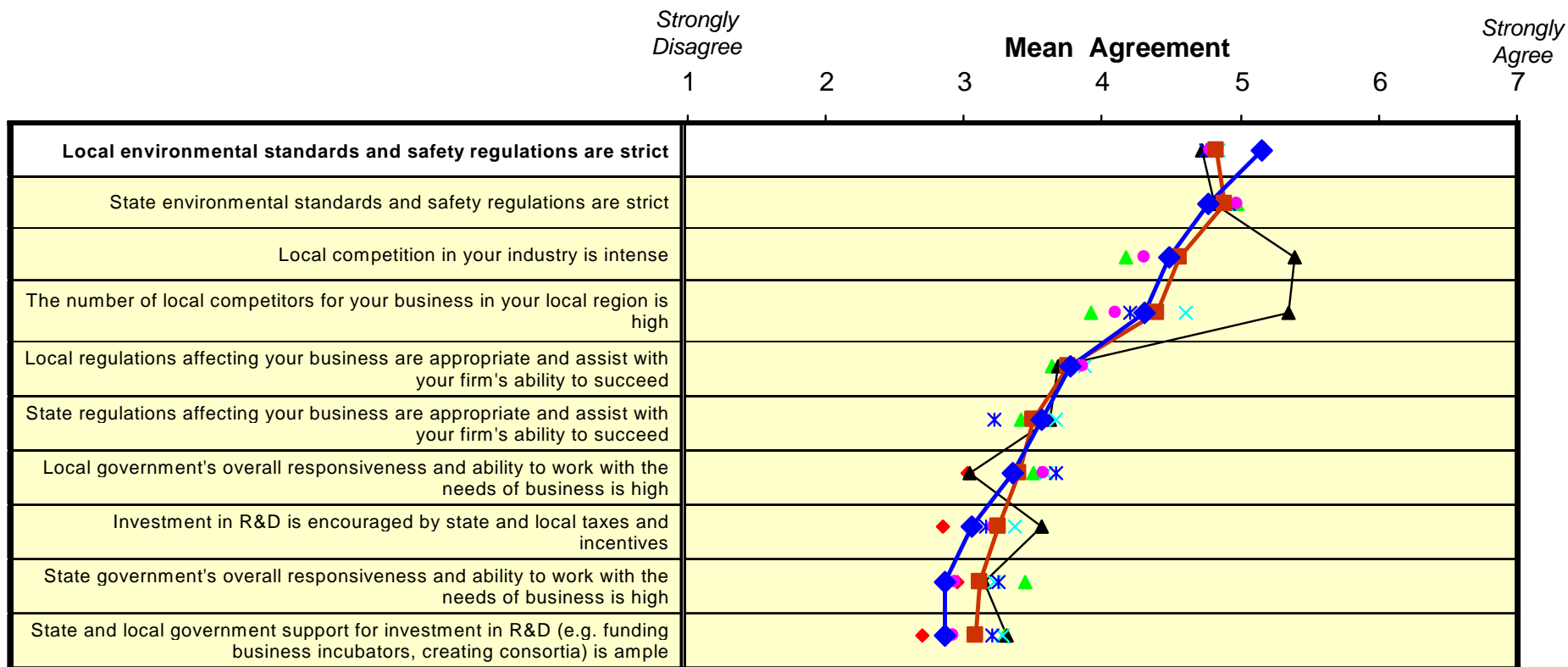


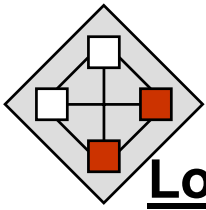
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# Regional Comparisons

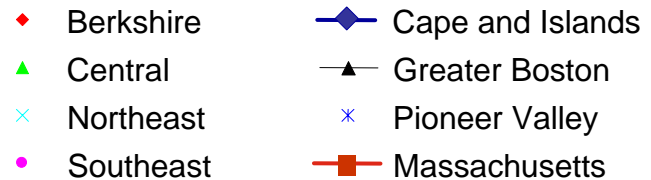
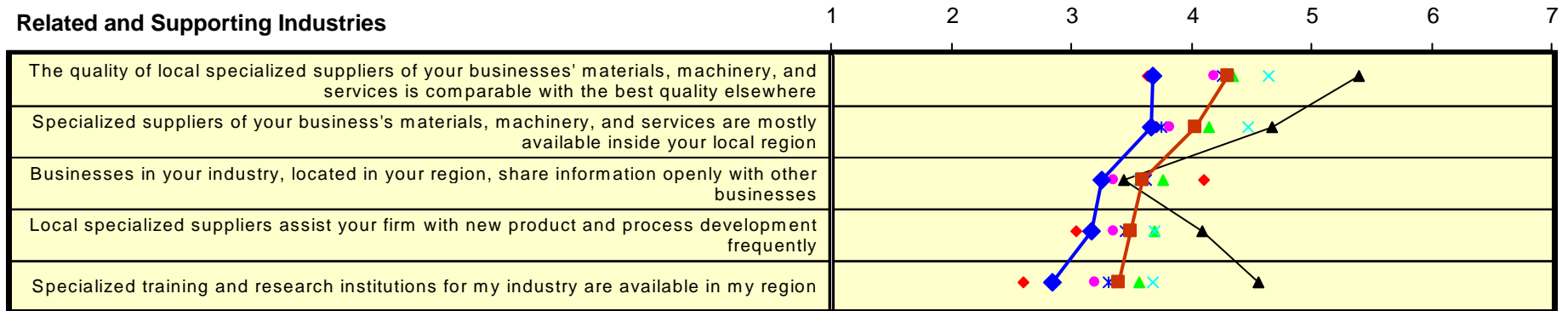
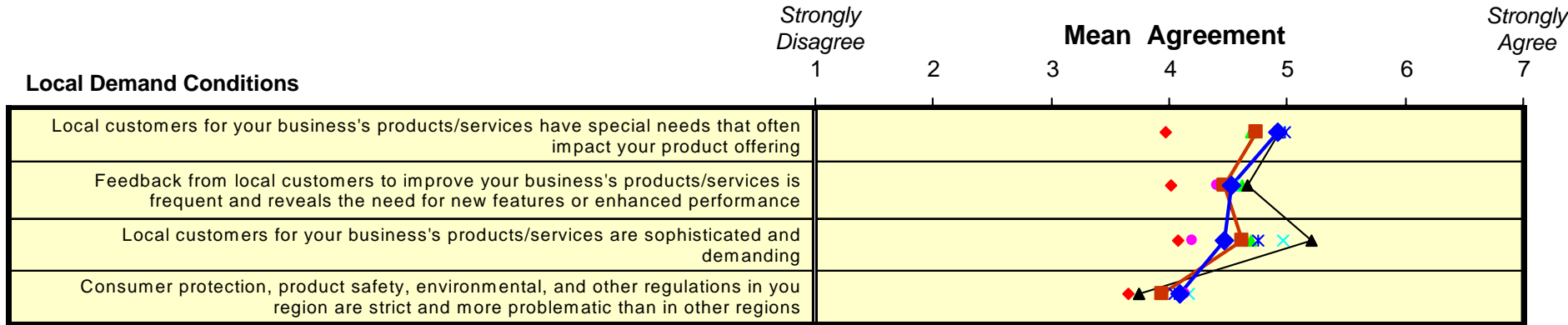
## Rules and Incentives Governing Investment and Competition





# Regional Comparisons

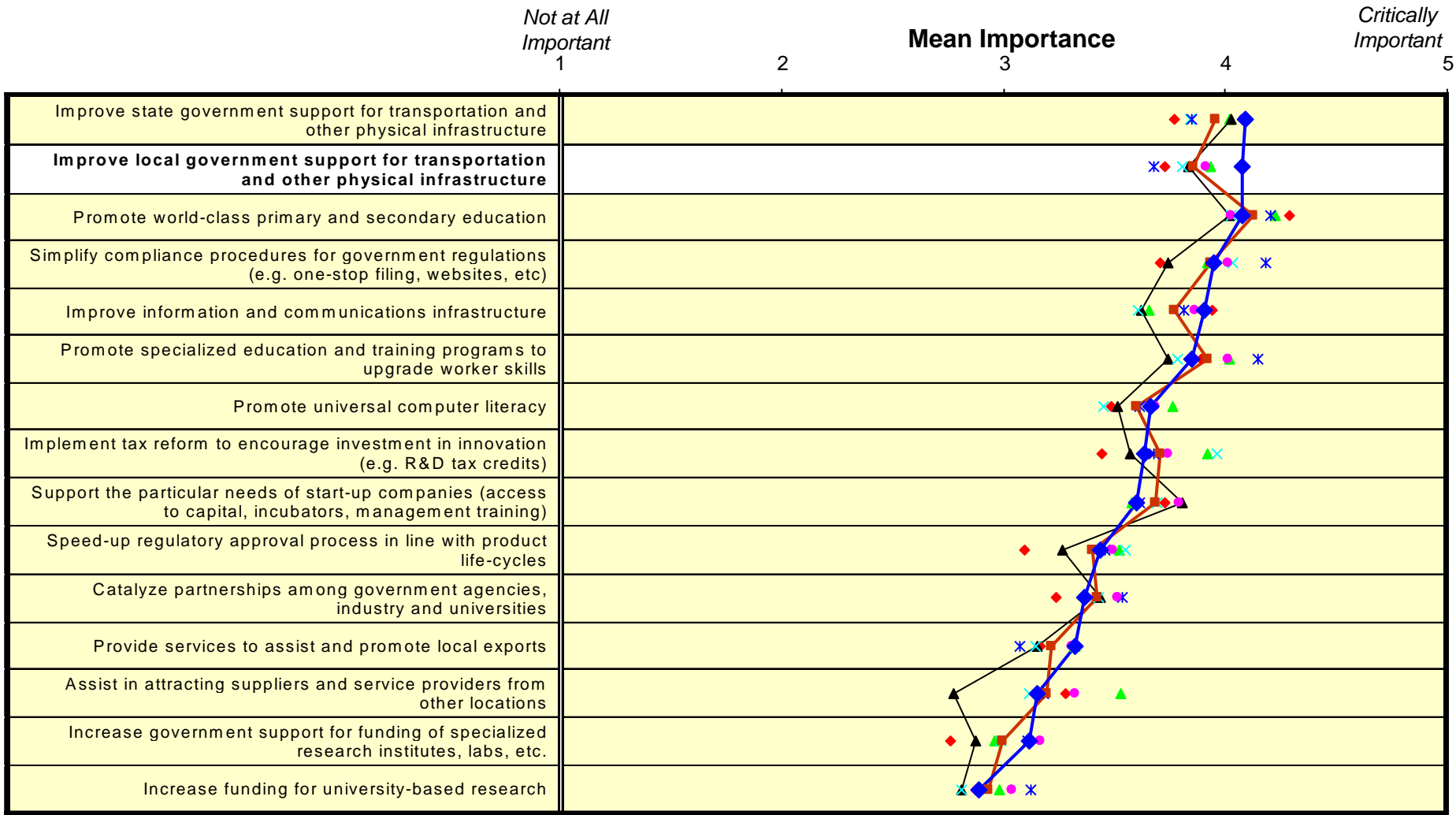
## Local Demand Conditions & Related and Supporting Industries



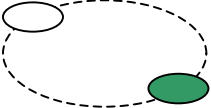


# Regional Comparisons

## Priorities for Government



- ◆ Berkshire
- ▲ Greater Boston
- ▲ Central
- × Northeast
- × Pioneer Valley
- Southeast
- ◆ Cape and Islands
- ▲ Greater Boston
- × Pioneer Valley
- Massachusetts

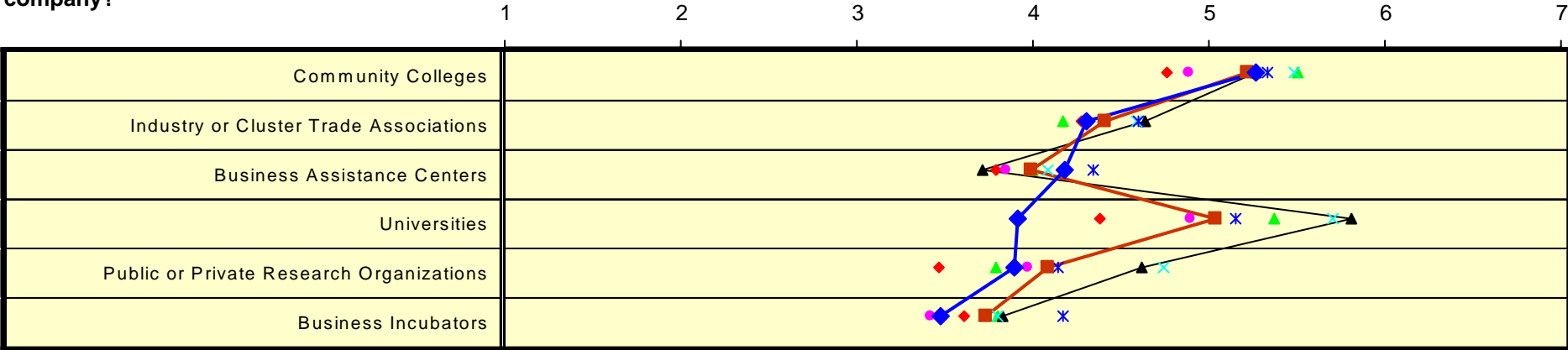


# Regional Comparisons

## Institutions & Education

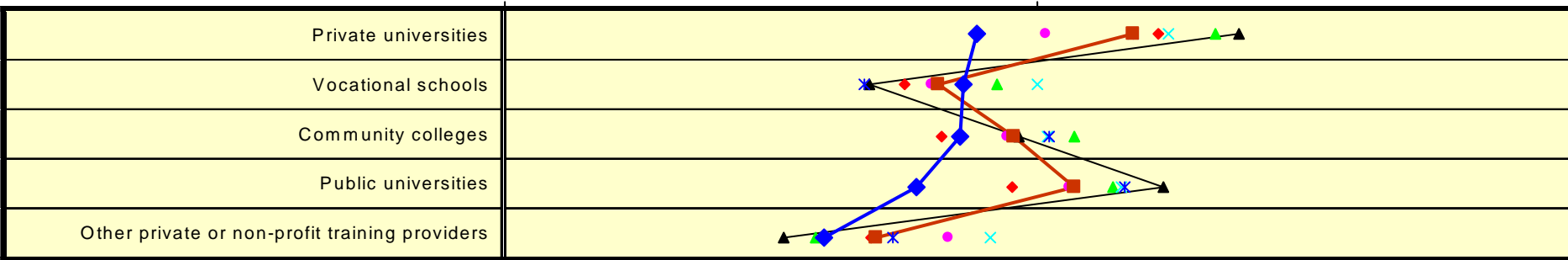
How satisfied are you with the impact of the following institutions, in your region, on your company?

Strongly Disagree      Mean Agreement      Strongly Agree



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

Inadequate      Mean Rating      Superior

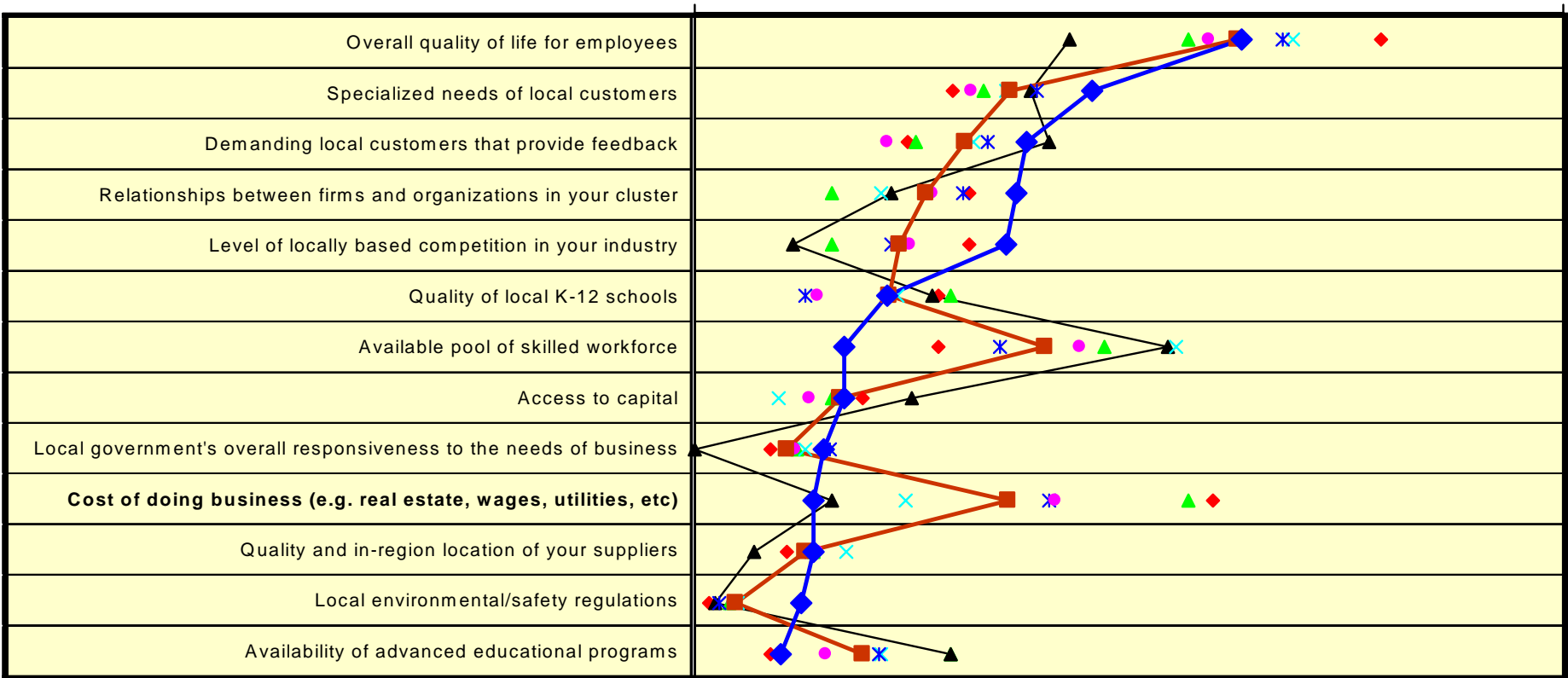


- ◆ Berkshire
- ▲ Central
- × Northeast
- Southeast
- ◆ Cape and Islands
- ▲ Greater Boston
- × Pioneer Valley
- Massachusetts

# Regional Comparisons

## Positive Impact on the Local Business Environment

0% Percent of Respondents which Ranked 100%  
Characteristic Among the Top Five Most Positive

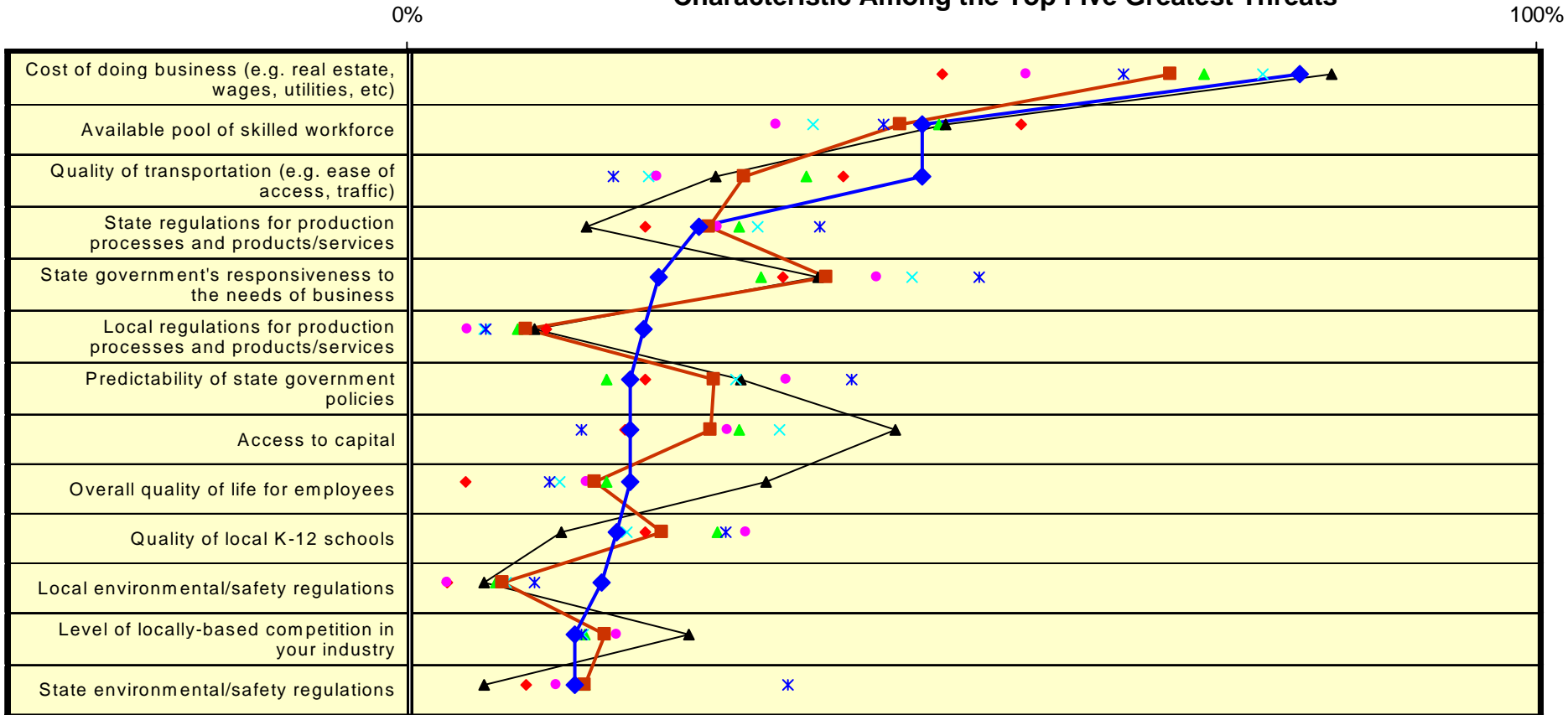


- ◆ Berkshire
- ◆ Cape and Islands
- ▲ Central
- ▲ Greater Boston
- × Northeast
- × Pioneer Valley
- Southeast
- Massachusetts

# Regional Comparisons

## Future Threats in the Local Business Environment

**Percent of Respondents which Ranked  
Characteristic Among the Top Five Greatest Threats**



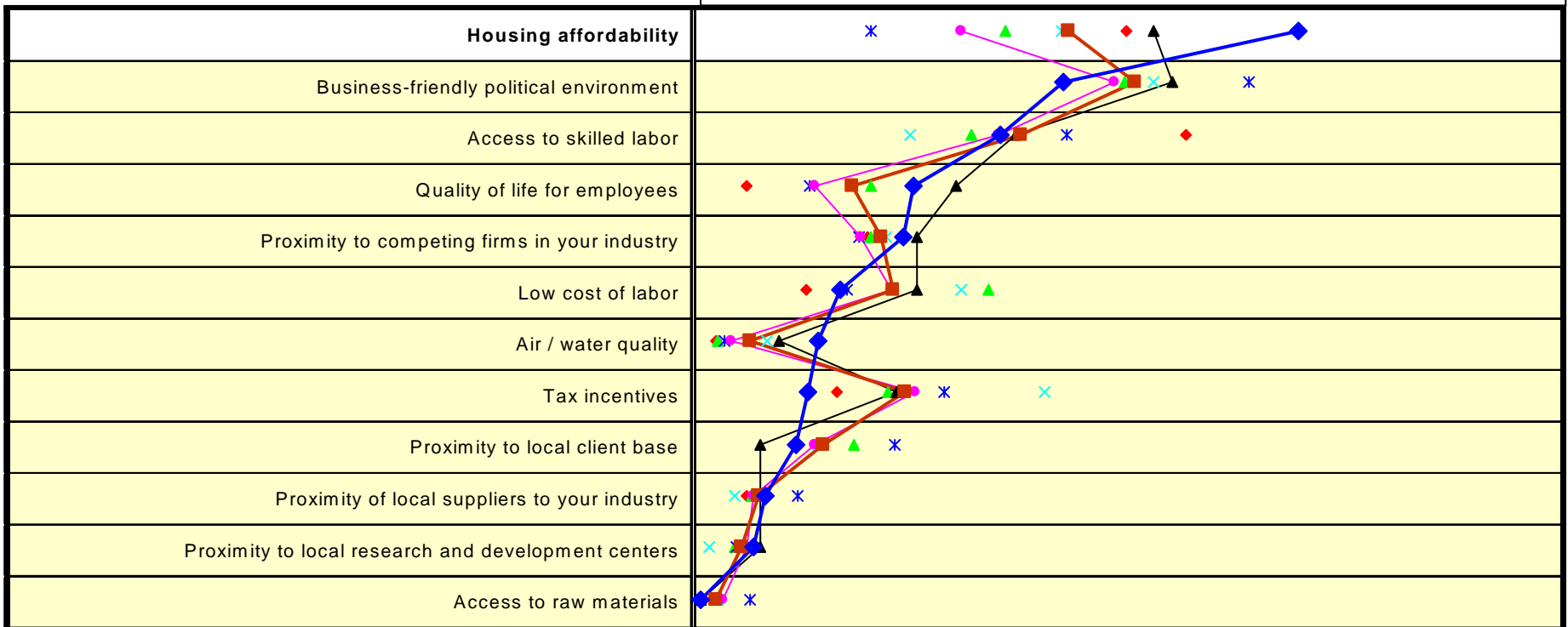
- ◆ Berkshire
- ◆ Cape and Islands
- ▲ Central
- ▲ Greater Boston
- × Northeast
- × Pioneer Valley
- Southeast
- Massachusetts

# Regional Comparisons

## Barriers to Expansion in the Next Five Years

Percent of Respondents which Ranked Characteristic Among the Top Three Greatest Barriers to Expansion

0% 100%



- ◆ Berkshire
- ▲ Central
- × Northeast
- ◆ Cape and Islands
- ▲ Greater Boston
- × Pioneer Valley
- ◆ Southeast
- Massachusetts

# Regional Competitiveness

## Cape & Islands

- Foundations of Regional Competitiveness
- Assessing the Competitiveness of the Cape & Islands region
- **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



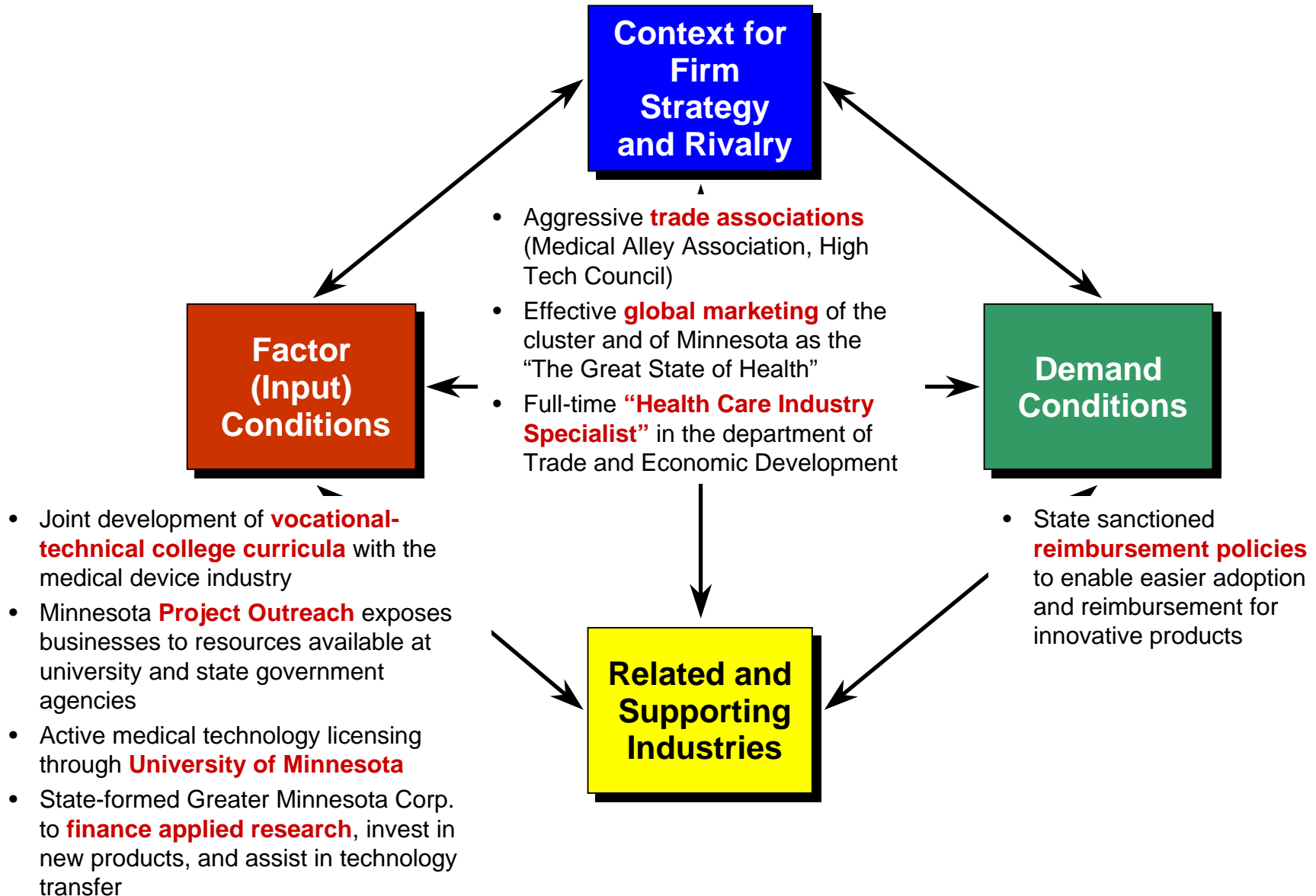
- Take an **active role** in upgrading the local infrastructure
- Nurture **local suppliers** and attract new supplier investments
- Work closely with local **educational and research institutions** to upgrade **quality and create specialized programs addressing cluster needs**
- Provide government with **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



# Towards an Action Agenda for the Cape & Islands region

- Develop the business environment to manage the effects of strong employment growth in line with the nature of the region
  - E.g., improve transportation infrastructure
  - E.G., provide opportunities for housing
- Mount cluster development efforts for existing clusters under threat, such as furniture, or with more potential, such as tourism
- Initiate cluster development efforts for emerging clusters, such as plastics and distribution services

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**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](http://www.isc.hbs.edu/MA_RCC.htm).**