Maine Competitiveness:
Moving to a New Economic Development Model

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Additional information may be found at the website of the Institute for Strategy and Competitiveness, www.isc.hbs.edu
U.S. States
Comparative Private Wage Performance, 1990-2004

Maine
Rural and Metropolitan Wages, 2004

- Rural employment is 34.3 percent of the total in Maine, versus 16.0 percent nationwide
- The average wage in Maine rural counties is higher than the national average for rural counties

Metropolitan Maine = the Portland, Lewiston-Auburn, and Bangor Metro Area counties.
What is Competitiveness?

• Competitiveness is the **productivity** *(value per unit of input)* with which a region or cluster utilizes its human, capital, and natural resources. Productivity sets a nation’s or region’s standard of living *(wages, returns on capital, returns on natural resources)*

  – It is not **what** industries a region competes in that matters for prosperity, but **how** firms compete in those industries

• Nations or regions compete in offering the **most productive environment** for business
Upgrading the Business Environment

Factor (Input) Conditions

- Presence of high quality business inputs
  - Human resources
  - Capital resources
  - Physical infrastructure
  - Scientific and technological infrastructure
  - Administrative systems (e.g., permitting and approvals)
  - Business-related information
  - Sustainable natural resources

Demand Conditions

- Sophisticated and demanding local customer(s)
- Local needs that anticipate those elsewhere

Context for Firm Strategy and Rivalry

- Local rules, regulations, and norms that encourage investment and productivity
- Open and vigorous local competition

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 the process of enhancing the business environment to support and encourage increasingly sophisticated ways of competing
Cluster Development
Hospitality and Tourism in Cairns (Australia)

Sources: HBS student team research (2003) - Peter Tynan, Chai McConnell, Alexandra West, Jean Hayden
Competitiveness and Clusters
California Wine

- State Government Agencies (e.g., Select Committee on Wine Production and Economy)
- Growers / Vineyards
- Wineries / Processing Facilities

- California Agricultural Cluster
- Educational, Research, and Trade Organizations (e.g., Wine Institute, UC Davis, Culinary Institutes)

- Grapestock
- Fertilizer, Pesticides, Herbicides
- Grape Harvesting Equipment
- Irrigation Technology

- Winemaking
- Winemaking Equipment
- Barrels
- Bottles
- Caps and Corks
- Labels
- Public Relations and Advertising
- Specialized Publications (e.g., Wine Spectator, Trade Journal)

- Food Cluster
- Tourism Cluster

Source: California Wine Institute, Internet Search, California State Legislature. Based on Research by MBA 1997 Students R. Alexander, R. Arney, N. Black, E. Frost, and A. Shivananda
Competitiveness and Clusters
Houston Oil and Gas

Upstream

Oil & Natural Gas Exploration & Development

Oil & Natural Gas Completion & Production

Oilfield Services/Engineering & Contracting Firms

Equipment Suppliers
(e.g. Oil Field Chemicals, Drilling Rigs, Drill Tools)

Specialized Technology Services
(e.g. Drilling Consultants, Reservoir Services, Laboratory Analysis)

Subcontractors
(e.g. Surveying, Mud Logging, Maintenance Services)

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)

Downstream

Oil Transportation

Oil Trading

Oil Refining

Oil Distribution

Oil Wholesale Marketing

Oil Retail Marketing

Gas Gathering

Gas Processing

Gas Trading

Gas Transmission

Gas Distribution

Gas Marketing

Oil Refining

Oil Transportation

Oil Trading

Oil Refining

Oil Distribution

Oil Wholesale Marketing

Oil Retail Marketing

Gas Gathering

Gas Processing

Gas Trading

Gas Transmission

Gas Distribution

Gas Marketing

Oilfield Services/Engineering & Contracting Firms
# The Composition of Regional Economies
## United States, 2004

<table>
<thead>
<tr>
<th></th>
<th>Traded</th>
<th>Local</th>
<th>Natural Resource-Driven</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share of Employment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Growth Rate, 1990 to 2004</td>
<td>29.3%</td>
<td>70.0%</td>
<td>0.7%</td>
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<tr>
<td>0.7%</td>
<td>2.4%</td>
<td>-1.2%</td>
<td></td>
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<tr>
<td><strong>Average Wage</strong></td>
<td>$49,367</td>
<td>$30,416</td>
<td>$35,815</td>
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<tr>
<td>137.2%</td>
<td>84.5</td>
<td>99.5</td>
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<tr>
<td><strong>Relative Wage</strong></td>
<td>4.2%</td>
<td>3.4%</td>
<td>2.1%</td>
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<tr>
<td><strong>Wage Growth</strong></td>
<td></td>
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<tr>
<td>144.1</td>
<td>79.3</td>
<td>140.1</td>
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<tr>
<td><strong>Relative Productivity</strong></td>
<td></td>
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<tr>
<td>20.4</td>
<td>0.4</td>
<td>3.0</td>
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<tr>
<td><strong>Patents per 10,000 Employees</strong></td>
<td>590</td>
<td>241</td>
<td>48</td>
</tr>
<tr>
<td><strong>Number of SIC Industries</strong></td>
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</table>

Note: 2004 data, except relative productivity which uses 1997 data.  
Specialization of Regional Economies
Selected U.S. Metropolitan Areas

- **Boston**: Analytical Instruments, Education and Knowledge Creation, Communications Equipment
- **Chicago**: Communications Equipment, Processed Food, Heavy Machinery
- **Los Angeles Area**: Apparel, Building Fixtures, Equipment and Services, Entertainment
- **San Francisco-Oakland-San Jose Bay Area**: Communications Equipment, Agricultural Products, Information Technology
- **Denver, CO**: Leather and Sporting Goods, Oil and Gas, Aerospace Vehicles and Defense
- **Wichita, KS**: Aerospace Vehicles and Defense, Heavy Machinery, Oil and Gas
- **Pittsburgh, PA**: Construction Materials, Metal Manufacturing, Education and Knowledge Creation
- **Seattle-Bellevue-Everett, WA**: Aerospace Vehicles and Defense, Fishing and Fishing Products, Analytical Instruments
- **San Diego**: Leather and Sporting Goods, Power Generation, Education and Knowledge Creation
- **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, Chemical Products

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
The Evolution of Regional Economies
San Diego

- Climate and Geography
- U.S. Military
- Bioscience Research Centers

- Hospitality and Tourism
- Transportation and Logistics
- Power Generation
- Aerospace Vehicles and Defense
- Communications Equipment
- Analytical Instruments
- Education and Knowledge Creation
- Medical Devices
- Information Technology
- Biotech / Pharmaceuticals
- Sporting and Leather Goods

Linkages Across Clusters
Schematic Representation

Note: Clusters with overlapping borders or identical shading have at least 20% overlap (by number of industries) in both directions.
Maine

Employment by Traded Cluster, 2004

<table>
<thead>
<tr>
<th>Rank in US</th>
<th>Employment, 2004</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>15,465</td>
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<tr>
<td>2</td>
<td>13,184</td>
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<tr>
<td>3</td>
<td>11,821</td>
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<td>1,925</td>
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<td>49</td>
<td>985</td>
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<tr>
<td>50</td>
<td>985</td>
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</table>

Note: Ranks are among the 50 US states plus the District of Columbia.
Maine overall employment rank = 40.


Meetings Dec-18-2006 RB MM
Maine

Employment by Local Cluster, 2004

Maine overall employment rank = 40.

Maine
Specialization by Traded Cluster, 1990-2004

Overall change in the Maine's Share of US Employment: -0.025%

Maine's Overall Share of US Employment: 0.43%
Maine
Specialization by Traded Cluster, 1990-2004 (continued)

Maine’s Overall Share of US Employment: 0.43%

Overall change in the Maine’s Share of US Employment: -0.025%


Change in Share of US Cluster Employment, 1990-2004

2,000 Employees =
Maine
Job Creation by Traded Cluster, 1990-2004

Net traded job creation, 1990-2004: -10,180

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in Maine, if it matched national benchmarks, would be +8,683.

Maine

Wages by Traded Cluster vs. National Benchmarks

Note: Wage data not available in all cluster due to suppression in data sources.

Impact of Cluster Mix on Average Wages

Maine’s Traded Clusters

Impact of Cluster Mix and Wage Level on the Gap between Maine and United States Average Wages, 2004

Employment in clusters with low average wages accounts for only 12% of the difference

Note: Assumes average wages of reported employment are representative of average wages for all employment in a cluster
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Maine Forest Products Cluster
Job Creation by Subcluster, 1990-2004

- Indicates expected job creation given national subcluster performance

Maine Hospitality and Tourism Cluster
Job Creation by Subcluster, 1990-2004

- Indicates expected job creation given national subcluster performance


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Maine Processed Food Cluster
Job Creation by Subcluster, 1990-2004

- Indicates expected job creation given national subcluster performance

The Process of Economic Development
Shifting Roles and Responsibilities

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

- Competitiveness must become a **bottoms-up process** in which many individuals, companies, and institutions take responsibility
- **Every** community and cluster can take steps to enhance competitiveness
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

Related and Supporting Industries

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

Factor (Input) Conditions

Demand Conditions
Clusters and Public Policy

- Clusters provide a framework for **organizing the implementation** of public policy and public investments towards economic development.

Diagram:

- Clusters
- Physical Infrastructure
- Entrepreneurship / Small Business Development
- Market Information and Disclosure
- Export Promotion
- Business Attraction
- Education and Workforce Training
- Science and Technology (e.g., research centers, university departments, technology transfer)
- Product standards
- Environmental standards
- Natural Resource Protection