The Task Force on Competitiveness, Productivity, and Economic Progress

Consultation with Stakeholders

Presentation by
Roger L. Martin, Chairman

Sudbury
July 25, 2002
This is a copy of the presentation given by Roger Martin in Sudbury on July 25th 2002. It was part of a consultation organized by the Institute and the Economic Development & Planning Services, City of Greater Sudbury.

This document provides an outline of the presentation and is incomplete without the accompanying oral commentary and discussion. It represents work in progress based on research conducted by the Institute for Competitiveness and Prosperity.

Much of the material is from the Institute’s first Working Paper, *A View of Ontario: Ontario’s Clusters of Innovation* which can be viewed at our Web site, [www.competeproser.ca](http://www.competeproser.ca)

The Web site also provides more information on the Institute and the Task Force on Competitiveness, Productivity, & Economic Progress.

We ask that you acknowledge the Institute as the source if you use the material from this presentation.
The Task Force

Task Force Mandate
To measure and monitor Ontario’s competitiveness, productivity and economic progress compared to other provinces and the US states and to report to the public on a regular basis.

Long Term Aspiration
We aspire to have a significant influence in increasing Ontario’s competitiveness, productivity and capacity for innovation. This will help ensure continued success in the creation of good jobs, increased prosperity and a high quality of life for all Ontarians.

We will accomplish this by undertaking research, publishing breakthrough reports and proposing significant innovations in public policy which stimulate businesses, governments and educational institutions to take action.
Our progress to date


Stakeholder consultations with:

• Central Ontario Smart Growth Strategy Sub-Panel

• Ontario Ministries of Municipal Affairs & Housing, Northern Development and Mines

• Queen’s Park Liaison Forum

• City of Toronto and Toronto Financial Services Alliance

A View of Ontario: Ontario’s Clusters of Innovation

GDP per capita is a key indicator of economic prosperity

- Ontario is a leader in Canada but just one of the pack in North America

*Effectiveness and Utilization drive GDP per capita*

*Clusters of traded industries increase competitiveness*

*Ontario’s Clusters of Innovation*
**Canada Among Leading Nations**

### GDP per Capita at Purchasing Power Parity (PPP) in $US (2000)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>GDP per capita at PPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States</td>
<td>$35,619</td>
</tr>
<tr>
<td>2</td>
<td>Norway</td>
<td>$30,166</td>
</tr>
<tr>
<td>3</td>
<td>Switzerland</td>
<td>$30,138</td>
</tr>
<tr>
<td>4</td>
<td>Ireland</td>
<td>$29,174</td>
</tr>
<tr>
<td>5</td>
<td>Denmark</td>
<td>$29,061</td>
</tr>
<tr>
<td>6</td>
<td>Canada</td>
<td>$27,998</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>$27,836</td>
</tr>
<tr>
<td>8</td>
<td>Austria</td>
<td>$27,001</td>
</tr>
</tbody>
</table>

Note: Only countries with population over 3.8 million are included here. If all countries were included, Canada would rank 8th.

Source: OECD Main Accounts, National Data; CANSIM
## Ontario Lags Alberta in GDP per Capita (2000)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Province</th>
<th>Nominal GDP Per Capita in CDN</th>
<th>GDP per Capita at PPP in US</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alberta</td>
<td>$47,659</td>
<td>$40,016</td>
</tr>
<tr>
<td>2</td>
<td>Ontario</td>
<td>$36,837</td>
<td>$30,420</td>
</tr>
<tr>
<td>3</td>
<td>Saskatchewan</td>
<td>$32,775</td>
<td>$27,519</td>
</tr>
<tr>
<td>4</td>
<td>British Columbia</td>
<td>$31,452</td>
<td>$26,408</td>
</tr>
<tr>
<td>5</td>
<td>Québec</td>
<td>$30,307</td>
<td>$25,052</td>
</tr>
<tr>
<td>6</td>
<td>Manitoba</td>
<td>$29,493</td>
<td>$24,763</td>
</tr>
<tr>
<td>7</td>
<td>Newfoundland</td>
<td>$26,166</td>
<td>$21,970</td>
</tr>
<tr>
<td>8</td>
<td>New Brunswick</td>
<td>$26,092</td>
<td>$21,908</td>
</tr>
<tr>
<td>9</td>
<td>Nova Scotia</td>
<td>$25,552</td>
<td>$21,455</td>
</tr>
<tr>
<td>10</td>
<td>PEI</td>
<td>$24,236</td>
<td>$20,349</td>
</tr>
</tbody>
</table>

Source: OECD Main Accounts, National Data; CANSIM; Institute for Competitiveness & Prosperity analysis
### Ontario Fares Well Among Leading Nations

**GDP per Capita at Purchasing Power Parity (PPP) in $US (2000)**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>GDP per Capita at PPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States</td>
<td>$35,619</td>
</tr>
<tr>
<td></td>
<td><strong>Ontario</strong></td>
<td><strong>$30,420</strong></td>
</tr>
<tr>
<td>2</td>
<td>Norway</td>
<td>$30,166</td>
</tr>
<tr>
<td>3</td>
<td>Switzerland</td>
<td>$30,138</td>
</tr>
<tr>
<td>4</td>
<td>Ireland</td>
<td>$29,174</td>
</tr>
<tr>
<td>5</td>
<td>Denmark</td>
<td>$29,061</td>
</tr>
<tr>
<td>6</td>
<td>Canada</td>
<td>$27,998</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>$27,836</td>
</tr>
<tr>
<td>8</td>
<td>Austria</td>
<td>$27,001</td>
</tr>
</tbody>
</table>

Source: OECD Main Accounts, National Data; CANSIM; Institute for Competitiveness & Prosperity analysis
Select States and Provinces for Comparison

States and Provinces with Population over 6 Million

- California: 33.9 million
- Texas: 20.9 million
- New York: 19.0 million
- Florida: 16.0 million
- Illinois: 12.4 million
- Pennsylvania: 12.3 million
- Ontario: 11.9 million
- Ohio: 11.4 million
- Michigan: 9.9 million
- New Jersey: 8.4 million
- Georgia: 8.2 million
- North Carolina: 8.0 million
- Quebec: 7.4 million
- Virginia: 7.1 million
- Massachusetts: 6.3 million
- Indiana: 6.1 million

Source: Statistics Canada (Census 2001); US Census Bureau (Census 2000)
Ontario in a North American Context

GDP per Capita for Select States and Provinces (2000)
(Provinces at Purchasing Power Parity in $US)

<table>
<thead>
<tr>
<th>Province</th>
<th>GDP per Capita at PPP in $US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>$44,878</td>
</tr>
<tr>
<td>New Jersey</td>
<td>$43,151</td>
</tr>
<tr>
<td>New York</td>
<td>$42,115</td>
</tr>
<tr>
<td>California</td>
<td>$39,698</td>
</tr>
<tr>
<td>Illinois</td>
<td>$37,626</td>
</tr>
<tr>
<td>Virginia</td>
<td>$36,922</td>
</tr>
<tr>
<td>Georgia</td>
<td>$36,175</td>
</tr>
<tr>
<td>Texas</td>
<td>$35,978</td>
</tr>
<tr>
<td>North Carolina</td>
<td>$35,002</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>$32,895</td>
</tr>
<tr>
<td>Ohio</td>
<td>$32,823</td>
</tr>
<tr>
<td>Michigan</td>
<td>$32,740</td>
</tr>
<tr>
<td>Indiana</td>
<td>$31,608</td>
</tr>
<tr>
<td>Ontario</td>
<td>$30,420</td>
</tr>
<tr>
<td>Florida</td>
<td>$29,539</td>
</tr>
<tr>
<td>Quebec</td>
<td>$25,052</td>
</tr>
</tbody>
</table>

Source: OECD Main Accounts, National Data; CANSIM II; US Department of Commerce, BEA (June 2002); Institute for Competitiveness & Prosperity analysis
A View of Ontario: Ontario’s Clusters of Innovation

**GDP per capita is a key indicator of economic prosperity**

**Effectiveness and Utilization drive GDP per capita**
- These two components are the ones with real leverage potential to increase GDP per capita

*Clusters of traded industries increase competitiveness*

**Ontario’s Clusters of Innovation**
Components Parts of GDP per Capita

\[
\frac{\text{GDP Capita}}{} = \frac{\text{\$ Output Hour}}{} \times \frac{\text{Hours Workers}}{} \times \frac{\text{Workers Potential Labour Force}}{} \times \frac{\text{Potential Labour Force Population}}{}
\]

Effectiveness \quad Intensity \quad Utilization \quad Profile

The Components of GDP per Capita

**Effectiveness:** Represents the average value of output that is produced by an average worker in an hour. This term is the most widely used measure of labour productivity.

**Intensity:** Represents the average number of hours an employed person works on average.

**Utilization:** Represents the ratio of the number of people who have jobs to the number of people who are of working age in the region. This measure combines two features – the percentage of those seeking a job who are able to attain a job (participation rate), and the percentage of those able to work who seek to work (employment rate).

**Profile:** Represents the ratio of the working age population to the total population. This is often referred to as a region’s dependency ratio and is primarily determined by demographics.

Decomposing Ontario and Canada’s GDP per Capita

\[
\frac{\text{GDP Capita}}{\text{Ontario}} = \frac{\text{Output}}{\text{Hour}} \times \frac{\text{Workers}}{\text{Hours}} \times \frac{\text{Potential Labour Force}}{\text{Workers}} \times \frac{\text{Population}}{\text{Labour Force}}
\]

**Ontario**
- GDP Capita: C$36,837
- Effectiveness: $52.35
- Intensity: 1,680
- Utilization: 0.616
- Profile: 0.680

**Rest of Canada**
- GDP Capita: C$32,779
- Effectiveness: $50.90
- Intensity: 1,620
- Utilization: 0.579
- Profile: 0.686

**% Difference**
- Effectiveness: 11%
- Intensity: 3%
- Utilization: 4%
- Profile: 6%
- Overall: -1%

Note: 2000 data
Source: Statistics Canada, Annual Estimates of Employment, Earnings and Hours, 1991-2000; CANSIM; Institute for Competitiveness & Prosperity analysis
Baldwin’s Diagnosis: Impact of Decreased Utilization

Growth in Real GDP per Capita in the Canadian Economy

Labour Productivity for Select States and Provinces (1997)

(Ontario = 100)

- New York (4) 140
- New Jersey (6) 132
- Massachusetts (7) 125
- California (9) 124
- Illinois (11) 119
- Texas (13) 113
- Virginia (14) 112
- Georgia (16) 110
- North Carolina (18) 108
- Pennsylvania (20) 107
- Ohio (22) 105
- Michigan (26) 103
- Ontario (32) 100
- Florida (33) 99
- Indiana (35) 97
- Québec (49) 88

Effectiveness Drives GDP per Capita

GDP per Capita and Productivity in North America (1997)

A View of Ontario: Ontario’s Clusters of Innovation

GDP per capita is a key indicator of economic prosperity

Effectiveness and Utilization drive GDP per capita

Clusters of traded industries increase competitiveness
  • Ontario’s performance is encouraging and mystifying

Ontario’s Clusters of Innovation
Dynamics of a Cluster: Pressure and Support

- The context shaping the types of strategies employed and the nature of local rivalry

**Context for Firm Strategy and Rivalry**

**Demand Conditions**

- The nature of home demand for products and services

**Factor (Input) Conditions**

- The underlying inputs firms draw on in competing
  - natural (physical) resources
  - human resources
  - capital resources
  - physical infrastructure
  - administrative infrastructure
  - information infrastructure
  - scientific and technological infrastructure

- The availability and quality of local suppliers and related industries

**Related and Supporting Industries**

A large body of literature on industry clusters has been created during recent years by cluster practitioners and academic researchers alike. Over the past few years the Institute for Strategy and Competitiveness at Harvard Business School has conducted a cluster meta-study to aggregate systematically this information in order to learn more from it as a whole. Based on data on more than 700 clusters in close to 50 nations all over the world, it analyzes the locational, economic and competitive characteristics of industry clusters, the reasons behind their competitiveness or lack of competitiveness, and their patterns of evolution over time as well as the reasons behind these patterns. More information can be found at

http://www.isc.hbs.edu/econ-clustermetastudy.htm

On the following page is a chart from this Web site that represents the differences between “competitive” and “uncompetitive” clusters. The size of each element of the Porter diamond represents the number of clusters studies that have this element in place.
Competitive vs. Uncompetitive Clusters

Competitive Clusters:
May rely on any part of the full diamond

Uncompetitive Clusters:
Usually only rely on factor conditions


See previous slide for explanation
From commodity to cluster

California wine cluster - benefits of pressure and support.
- 680 commercial wineries, located near each other, competing with each other, and driving each other to succeed.
- Intense competition of so many producers creates the spark of innovation – new growing techniques, new grapes – which makes California wine a globally competitive product.

Australia – upgrading a natural resource
- Started with imitation Port and Sherry
- Willing to apply new technology and to source technology from around the world
- Now world-class wines

Niagara – drawing on unique characteristics
- Local producers capitalized on the weather by making ice wine, a unique, high-quality product that is globally competitive
- Local competition to produce ever-better variations.

Source: Porter, Institute for Strategy & Competitiveness, Harvard Business School and Institute for Competitiveness & Prosperity
Clusters evolve – they’re not created

Japan and consumer electronics

Transistor radios → Televisions → Colour Televisions → VCRs

Source: Porter, Institute for Strategy & Competitiveness, Harvard Business School and Institute for Competitiveness & Prosperity
Clusters and Government

- Create sound economic policies
- Support upgrading to all clusters, not choose among them
  - Productivity depends on how firms compete, not what industries they compete in
- Reinforce established and emerging ones, instead of trying to create entirely new ones
- Remove obstacles, relax constraints, eliminate inefficiencies

Source: Porter, Institute for Strategy & Competitiveness, Harvard Business School
Some lessons learned from cluster work in the U.S.

• Focus should be on sustaining prosperity not just growth for its own sake

• Success defined by innovation, not efficiency

• Diffusion of knowledge more important than level of R&D

• Success in traded clusters pulls along non-traded clusters

• “Low tech” successful clusters are more numerous than “high tech”

• Successful regions don’t pick winners but build on advantages to create specialized economies

Source: U.S. Council of Competitiveness
# Results from the US Cluster Mapping Project

## Identifying 41 Clusters of Traded Industries

### Upstream Materials and Products
- Metals and Materials
  - Construction Materials
  - Metal Manufacturing
- Forest Products
  - Forest Products
- Petroleum/Chemicals
  - Oil and Gas
  - Chemical Products
  - Plastics
- Semiconductors/Computer
  - Information Technology

### Industrial and Supporting Functions
- Multiple Business
  - Education and Knowledge Creation
  - Business Services
  - Heavy Machinery
  - Financial Services
  - Motor Driven Products
  - Prefabricated Enclosures
  - Production Technology
  - Analytical Instruments
  - Heavy Construction Services
- Transportation and Logistics
  - Automotive
  - Distribution Services
  - Transportation and Logistics
- Power
  - Power Generation
  - Power Transmission and Distribution
- Office
  - Publishing and Printing
- Telecommunications
  - Communications Equipment
- Defense
  - Aerospace Engines
  - Aerospace Vehicles and Defense

### Final Consumption Goods and Services
- Food/Beverages
  - Agricultural Products
  - Processed Foods
  - Fishing and Fishing Products
- Housing/Household
  - Building Fixtures, Equipment & Services
  - Lighting and Electrical Equipment
  - Furniture
- Textiles/Apparel
  - Textiles
  - Apparel
  - Footwear
- Health Care
  - Medical Devices
  - Pharmaceuticals and Biotechnology
- Personal
  - Leather and Sporting Goods
  - Jewelry and Precious Metals
  - Tobacco
- Entertainment/Leisure
  - Entertainment
  - Hospitality and Tourism

Results from the US Cluster Mapping Project

The Economics of Traded Clusters, Local Industries, and Natural Resources

Share of Employment

- Traded Clusters: 32%
- Local Industries: 67%
- Natural Resources: 1%

Share of Income

- Traded Clusters: 43%
- Local Industries: 56%
- Natural Resources: 1%

Average Wage ($US thousands)

- Traded Clusters: $42
- Local Industries: $26
- Natural Resources: $31

Patents per 10,000 employees

- Traded Clusters: 20.48
- Local Industries: 1.38
- Natural Resources: 6.40

Distribution of Traded Cluster Employment

Share of Employment in Traded Clusters

<table>
<thead>
<tr>
<th>Region</th>
<th>Traded Clusters</th>
<th>Local Industries</th>
<th>Natural Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>1%</td>
<td>67%</td>
<td>32%</td>
</tr>
<tr>
<td>Canada</td>
<td>2%</td>
<td>61%</td>
<td>37%</td>
</tr>
<tr>
<td>Ontario</td>
<td>1%</td>
<td>59%</td>
<td>40%</td>
</tr>
<tr>
<td>Sudbury</td>
<td>9%</td>
<td>72%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Note: US Statistics are for 1999; Canadian Statistics are for 2000.
Ontario’s Wages for Several Industrial Sectors

AVERAGE ANNUAL WAGES IN ONTARIO (2000)

- **Mining**: $56,586
- **All Natural Resources**: $49,765
- **Goods producing industries**: $44,054
- **Service producing industries**: $31,864

Note: Figures based on weekly wage and 50 working weeks in one year.
Source: Statistics Canada; Institute for Competitiveness & Prosperity analysis
Ontario and Traded Clusters

Share of Employment in Traded Clusters
Canada and the US, and Select States and Provinces

<table>
<thead>
<tr>
<th>Country</th>
<th>Share of Employment in Traded Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario</td>
<td>41.4%</td>
</tr>
<tr>
<td>Quebec</td>
<td>39.7%</td>
</tr>
<tr>
<td>Canada</td>
<td>39.6%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>37.7%</td>
</tr>
<tr>
<td>Indiana</td>
<td>36.8%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>36.1%</td>
</tr>
<tr>
<td>California</td>
<td>35.0%</td>
</tr>
<tr>
<td>Virginia</td>
<td>34.3%</td>
</tr>
<tr>
<td>Georgia</td>
<td>33.9%</td>
</tr>
<tr>
<td>New Jersey</td>
<td>33.9%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>33.8%</td>
</tr>
<tr>
<td>Michigan</td>
<td>33.8%</td>
</tr>
<tr>
<td>Illinois</td>
<td>33.7%</td>
</tr>
<tr>
<td>Ohio</td>
<td>33.4%</td>
</tr>
<tr>
<td>US</td>
<td>33.0%</td>
</tr>
<tr>
<td>New York</td>
<td>32.3%</td>
</tr>
<tr>
<td>Texas</td>
<td>30.8%</td>
</tr>
<tr>
<td>Florida</td>
<td>25.7%</td>
</tr>
</tbody>
</table>

Note: US Statistics are for 1999; Canadian Statistics are for 2000
Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity analysis
GDP per capita is a key indicator of economic prosperity

Effectiveness and Utilization drive GDP per capita

Clusters of traded industries increase competitiveness

Ontario’s Clusters of Innovation
  • We have strength and diversity
A First Look at Ontario’s Clusters


Traded Cluster (Rank in Ontario)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Share of Employment in Traded Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services (1)</td>
<td>14%</td>
</tr>
<tr>
<td>Financial Services (2)</td>
<td>10%</td>
</tr>
<tr>
<td>Automotive (3)</td>
<td>8%</td>
</tr>
<tr>
<td>Education and Knowledge Creation (4)</td>
<td>6%</td>
</tr>
<tr>
<td>Hospitality and Tourism (5)</td>
<td>5%</td>
</tr>
<tr>
<td>Metal Manufacturing (6)</td>
<td>5%</td>
</tr>
<tr>
<td>Transportation and Logistics (7)</td>
<td>4%</td>
</tr>
<tr>
<td>Distribution Services (8)</td>
<td>4%</td>
</tr>
<tr>
<td>Heavy Construction Services (9)</td>
<td>4%</td>
</tr>
<tr>
<td>Publishing and Printing (10)</td>
<td>3%</td>
</tr>
<tr>
<td>Processed Food (11)</td>
<td>3%</td>
</tr>
<tr>
<td>Entertainment (12)</td>
<td>3%</td>
</tr>
<tr>
<td>Building Fixtures, Equipment and Services (13)</td>
<td>2%</td>
</tr>
<tr>
<td>Production Technology (14)</td>
<td>2%</td>
</tr>
<tr>
<td>Jewelry and Precious Metals (15)</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity analysis
Ontario’s Leading Clusters Relative to Canada (2000)

Traded Cluster (Rank in Ontario, Rank in Canada)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Rank in Ontario</th>
<th>Rank in Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Services</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Financial Services</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Automotive</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Metal Manufacturing</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Distribution Services</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Heavy Construction Services</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Publishing and Printing</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Processed Food</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Entertainment</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>31</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity analysis
Ontario’s Leading Clusters Relative to Canada and the US

Traded Cluster (Rank in Ontario, Rank in Canada, Rank in the US)

- Business Services (1, 1, 1)
- Financial Services (2, 2, 2)
- Automotive (3, 17, 10)
- Education and Knowledge Creation (4, 4, 4)
- Hospitality and Tourism (5, 3, 3)
- Metal Manufacturing (6, 14, 8)
- Transportation and Logistics (7, 5, 7)
- Distribution Services (8, 8, 5)
- Heavy Construction Services (9, 6, 6)
- Publishing and Printing (10, 11, 12)
- Processed Food (11, 7, 9)
- Entertainment (12, 9, 11)
- Oil and Gas (31, 10, 28)

Note: US Statistics are for 1999; Canadian Statistics are for 2000
Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity
### Leading Clusters by Share of Traded Cluster Employment (2000)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Employment</th>
<th>Share in Region</th>
<th>Share in Canada</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Metals Mining</td>
<td>5,908</td>
<td>7.9%</td>
<td>9.4%</td>
<td>15.1*</td>
</tr>
<tr>
<td>2 Education and Knowledge Creation</td>
<td>2,482</td>
<td>3.3%</td>
<td>0.8%</td>
<td>1.57</td>
</tr>
<tr>
<td>3 Hospitality and Tourism</td>
<td>2,321</td>
<td>3.1%</td>
<td>0.7%</td>
<td>1.29</td>
</tr>
<tr>
<td>4 Heavy Construction Services</td>
<td>2,181</td>
<td>2.9%</td>
<td>0.9%</td>
<td>1.66</td>
</tr>
<tr>
<td>5 Financial Services</td>
<td>1,220</td>
<td>1.6%</td>
<td>0.3%</td>
<td>0.57</td>
</tr>
<tr>
<td>6 Business Services</td>
<td>1,088</td>
<td>1.5%</td>
<td>0.2%</td>
<td>0.35</td>
</tr>
<tr>
<td>7 Entertainment</td>
<td>746</td>
<td>1.0%</td>
<td>0.5%</td>
<td>1.01</td>
</tr>
<tr>
<td>8 Transportation and Logistics</td>
<td>647</td>
<td>0.9%</td>
<td>0.3%</td>
<td>0.56</td>
</tr>
<tr>
<td>9 Publishing and Printing</td>
<td>394</td>
<td>0.5%</td>
<td>0.3%</td>
<td>0.55</td>
</tr>
<tr>
<td>10 Distribution Services</td>
<td>384</td>
<td>0.5%</td>
<td>0.2%</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Note: * indicates that the location quotient is a Canadian quotient. The other quotients are North American quotients.

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity
The Location Quotient (LQ) Defined

- The location quotient is a ratio measure of the concentration for a cluster in a particular location relative to the North American average.
- An LQ > 1 indicates a higher than average concentration in the particular location.
- Sudbury’s cluster LQ’s are calculated as follows:

\[
LQ = \left( \frac{\text{Employment in the Cluster in Sudbury}}{\text{Total Sudbury Employment}} \right) \div \left( \frac{\text{Total Employment in the Cluster in North America}}{\text{Total North American Employment}} \right)
\]
## Sudbury Leads in the ‘Metals Mining’ Cluster

### Leading CMA’s by Traded Cluster Employment (2000)

<table>
<thead>
<tr>
<th>Ontario CMA</th>
<th>Employment</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Sudbury</td>
<td>5,908</td>
<td>15.10</td>
</tr>
<tr>
<td>2 Toronto</td>
<td>3,108</td>
<td>0.24</td>
</tr>
<tr>
<td>3 Ottawa</td>
<td>1,500</td>
<td>0.58</td>
</tr>
<tr>
<td>4 Thunder Bay</td>
<td>380</td>
<td>1.19</td>
</tr>
<tr>
<td>5 St. Catharines</td>
<td>341</td>
<td>0.36</td>
</tr>
<tr>
<td>6 Hamilton</td>
<td>281</td>
<td>0.16</td>
</tr>
<tr>
<td>7 Kitchener</td>
<td>160</td>
<td>0.14</td>
</tr>
<tr>
<td>8 London</td>
<td>125</td>
<td>0.11</td>
</tr>
<tr>
<td>9 Windsor</td>
<td>100</td>
<td>0.13</td>
</tr>
<tr>
<td>10 Oshawa</td>
<td>31</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Note: Location quotients are Canadian.
The Education and Knowledge Creation Cluster

10 Narrow Sub Cluster Industries
30 Broad Sub Cluster Industries
Note: For a definition of Narrow and Broad Sub Clusters, please see:  http://www.competeamples.ca/public/wp01.pdf

# The Education and Knowledge Creation Cluster

## Leading CMA’s by Traded Cluster Employment (2000)

<table>
<thead>
<tr>
<th>Location</th>
<th>Employment</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toronto</td>
<td>54,523</td>
<td>1.03</td>
</tr>
<tr>
<td>Ottawa</td>
<td>23,943</td>
<td>2.31</td>
</tr>
<tr>
<td>Hamilton</td>
<td>10,914</td>
<td>1.56</td>
</tr>
<tr>
<td>Kitchener</td>
<td>9,904</td>
<td>2.11</td>
</tr>
<tr>
<td>London</td>
<td>7,680</td>
<td>1.69</td>
</tr>
<tr>
<td>Windsor</td>
<td>3,985</td>
<td>1.23</td>
</tr>
<tr>
<td>St. Catharines</td>
<td>3,642</td>
<td>0.95</td>
</tr>
<tr>
<td>Sudbury</td>
<td>2,482</td>
<td>1.57</td>
</tr>
<tr>
<td>Thunder Bay</td>
<td>2,181</td>
<td>1.69</td>
</tr>
<tr>
<td>Oshawa</td>
<td>1,502</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Note: Location quotients are North American
Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity
The Hospitality and Tourism Cluster

- Related Professional Services
- Tour Services
- Tourism Attractions
- Related Attractions
- Support Services
- Passenger Transportation
- Specialized Inputs
- Local Transportation
- Marine Services
- Air Services
- Accommodations
- Other Attractions
- Other Support Services
- Narrow Sub Clusters
- Vehicle Distribution
- Broad Sub Clusters

22 Narrow Sub Cluster Industries
12 Broad Sub Cluster Industries

# The Hospitality and Tourism Cluster

## Leading CMA’s by Traded Cluster Employment (2000)

<table>
<thead>
<tr>
<th>Location</th>
<th>Employment</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toronto</td>
<td>47,965</td>
<td>0.79</td>
</tr>
<tr>
<td>Ottawa</td>
<td>12,714</td>
<td>1.07</td>
</tr>
<tr>
<td>St. Catharines</td>
<td>10,930</td>
<td>2.50</td>
</tr>
<tr>
<td>Windsor</td>
<td>4,985</td>
<td>1.35</td>
</tr>
<tr>
<td>Hamilton</td>
<td>4,658</td>
<td>0.58</td>
</tr>
<tr>
<td>Kitchener</td>
<td>3,025</td>
<td>0.57</td>
</tr>
<tr>
<td>London</td>
<td>2,638</td>
<td>0.51</td>
</tr>
<tr>
<td>Sudbury</td>
<td>2,321</td>
<td>1.29</td>
</tr>
<tr>
<td>Thunder Bay</td>
<td>1,951</td>
<td>1.33</td>
</tr>
<tr>
<td>Oshawa</td>
<td>1,611</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Note: Location quotients are North American
Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity
Heavy Construction Services Cluster

- Glass and Clay
- Related Equipment and Components
- Transportation Services
- Subcontractors
- Final Construction
- Chemical and Related Products
- Construction Materials
- Equipment Distribution
- Fabricated Metal
- Other Materials
- Inputs
- Tiling and Glazing
- Explosives
- Equipment Rental
- Related Services

22 Narrow Sub Cluster Industries
14 Broad Sub Cluster Industries

## Heavy Construction Services Cluster

### Leading CMA’s by Traded Cluster Employment (2000)

<table>
<thead>
<tr>
<th>Ontario CMA</th>
<th>Employment</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Toronoto</td>
<td>39,943</td>
<td>0.91</td>
</tr>
<tr>
<td>2 Ottawa</td>
<td>7,965</td>
<td>0.92</td>
</tr>
<tr>
<td>3 Hamilton</td>
<td>5,695</td>
<td>0.98</td>
</tr>
<tr>
<td>4 Kitchener</td>
<td>3,702</td>
<td>0.95</td>
</tr>
<tr>
<td>5 St. Catharines</td>
<td>3,251</td>
<td>1.02</td>
</tr>
<tr>
<td>6 London</td>
<td>2,574</td>
<td>0.68</td>
</tr>
<tr>
<td>7 Sudbury</td>
<td>2,181</td>
<td>1.66</td>
</tr>
<tr>
<td>8 Windsor</td>
<td>1,993</td>
<td>0.74</td>
</tr>
<tr>
<td>9 Oshawa</td>
<td>1,542</td>
<td>0.63</td>
</tr>
<tr>
<td>10 Thunder Bay</td>
<td>1,516</td>
<td>1.41</td>
</tr>
</tbody>
</table>

**Note:** Location quotients are North American

**Source:** Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity
Measuring Ontario’s Prosperity: 
Developing an Economic Indicator System

- Laying the Groundwork – Reprise of First Working Paper
- Our Approach to an Indicator System
- The Descriptive Part of the Indicator System
- The Capacity for Innovation and Upgrading
- Social and Environmental Measures
- Conclusions and Next Steps
Next Steps

- Ongoing consultation on the results of the first Working Paper

- Consultation to determine the level of GDP per capita to which Ontarians aspire?
  - Median?
  - Top quartile?
  - A one-rank/year advancement?

- Identifying best practices in peer group states

- Fitting natural resources into the cluster approach

- Development of themes and recommendations for the Task Force’s first Annual Report
Some questions to consider together

Based on your knowledge of the Greater Sudbury Area what industry clusters do you see as most critical to its competitiveness and prosperity?

What are the three or four most important factors in Sudbury for the growth and competitiveness of the region and its clusters?

What are the greatest strengths of the business environment for enhancing the competitiveness of businesses or industries in Sudbury? What are the greatest challenges?

How should universities and colleges contribute to the economic development of Sudbury?