Canadian Break-Out Session
Niagara BiNational Region

Presented by
Jim Milway, Executive Director
The Institute for Competitiveness and Prosperity

Niagara-on-the-Lake
September 27, 2002
This is a copy of the breakout presentation given by James Milway in Niagara-on-the-Lake on September 27, 2002. It was one of the afternoon breakout sessions of the day long roundtable - Growing Knowledge Clusters in Niagara BiNational: Higher Ed and Industry in Partnership.

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 and second Working Papers which can be viewed at our Web site, www.competeprosper.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.
Measuring Ontario’s Prosperity

Drawing on our work to date

- Productivity and competitiveness drive economic progress

Mapping the performance gap

Hamilton and St. Catharines Cluster Data
Component parts of GDP per Capita

GDP Per Capita:

\[
\text{GDP Per Capita} = \frac{\text{Potential labour force}}{\text{Population}} \times \frac{\text{Jobs}}{\text{Potential labour force}} \times \frac{\text{Hrs Worked}}{\text{Jobs}} \times \frac{\text{GDP}}{\text{Hrs Worked}}
\]

- **Profile**
  - Potential labour force
  - Population

- **Utilization**
  - Jobs
  - Potential labour force

- **Intensity**
  - Hrs Worked
  - Jobs

- **Productivity**
  - GDP
  - Hrs Worked

- **Cluster mix**
- **Cluster content**
- **Urbanization**
- **Effectiveness**

Why GDP per capita?

- Measures value added in economy
  - How well Ontarians convert natural, capital and labour resources into products and services of value to consumers in Ontario and around the world
  - Ties into productivity, key part of Task Force mandate
- Per capita element enables comparisons over time and across jurisdictions
- Most commonly used measure – thereby allowing comparisons between jurisdictions
- Correlates closely with other proposed measures GNP, Personal Income, Personal Disposable Income
# 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 Fares Well Among Leading Nations

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

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<td>$27,001</td>
</tr>
</tbody>
</table>

Source: OECD Main Accounts, National Data; CANSIM; Institute for Competitiveness & Prosperity analysis
Ontario versus “The Four Motors”

GDP Per Capita, 1999 (PPP)

Source: Statistics Canada; Eurostat
Select States and Provinces for Comparison

States and Provinces with Population over 6 Million

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

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)

Source: OECD Main Accounts, National Data; CANSIM II; US Department of Commerce, BEA (June 2002); Institute for Competitiveness & Prosperity analysis
Ontario’s performance since 1980

Real GDP per Capita
Constant $US (2000)

$000
$50.0
$40.0
$30.0
$20.0
$10.0
$0.0


highest in peer group
median
Ontario
lowest in peer group

Ontario Rank
11th 11th 14th 14th 14th
Year 2000

Performance Gap/Lead
$828 $1,389 $2,140 $2,366 $4,880

Source: OECD; Statistics Canada; US Department of Commerce, BEA; Institute for Competitiveness & Prosperity analysis
Note: 1980 data used for Ontario and Quebec based on 1981 results
Measuring Ontario’s Prosperity

Drawing on our work to date

Mapping the performance gap

- Ontario’s GDP per capita trails the peer group median by $6,000, largely as the result of lower productivity or effectiveness

Hamilton and St. Catharines Cluster Data
Mapping the prosperity gap

(US$000)

Median GDP per capita: $35.3
Profile: +0.8
Participation: +0.1
Employment: +0.8
Mix of clusters: -0.7
Urbanization: -2.7
Effectiveness: -3.2
Ontario’s Current GDP per capita: $30.4

Prosperity Gap: $4,880 or 13.8% of GDP/capita

Source: Statistics Canada, Bureau of Economic Analysis, Institute for Competitiveness and Prosperity
Note: Median comprises 16 North American jurisdictions with populations that exceed 6 million
Ontario’s demographic profile

Ontario and Selected North American Jurisdictions

Source: Statistics Canada, 2001 Census; U.S. Census Bureau, Census 2000

Ontario’s favourable profile adds 2.6% to its GDP per capita
Mapping the prosperity gap

Ontario's Current GDP per capita (86.2% of median)

<table>
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<th>Profile</th>
<th>Utilization</th>
<th>Productivity</th>
</tr>
</thead>
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<tr>
<td>Median GDP per capita</td>
<td>Participation</td>
<td>Mix of clusters</td>
</tr>
<tr>
<td>Profile</td>
<td>Employment</td>
<td>Urbanization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effectiveness</td>
</tr>
</tbody>
</table>

Prosperity Gap: $4,880 or 13.8% of GDP/capita

Source: Statistics Canada, Bureau of Economic Analysis, Institute for Competitiveness and Prosperity
Note: Median comprises 16 North American jurisdictions with populations that exceed 6 million
Utilization: Participation & Employment Rates

\[
\text{Utilization} = \frac{\text{Participation rate} \times \text{Employment rate}}{\text{Workers + Job seekers}} \times \frac{\text{Employed people}}{\text{Workers + Job Seekers}} = \frac{\text{Employed people}}{\text{Working Aged Population}}
\]
Ontario’s Participation Rate is a strength

Ontario’s over-performance adds 0.3% to GDP per capita

Ontario’s Employment Rate is an improvement opportunity

Average Employment Rate, 1997 - 2000

Ontario’s employment rate gap represents a 2.3% improvement opportunity

Source: Statistics Canada, Labour Force Survey; Bureau of Labour Statistics
Note: U.S. states figure represents the median employment rate, for each year listed, for the 12 peer group states.
Mapping the prosperity gap

Ontario's Current GDP per capita (86.2% of median)

Prosperity Gap: $4,880 or 13.8% of GDP/capita

Profile
- Mix of clusters
- Urbanization
- Effectiveness

Utilization
- Participation
- Employment

Productivity

Median GDP per capita

Source: Statistics Canada, Bureau of Economic Analysis, Institute for Competitiveness and Prosperity
Note: Median comprises 16 North American jurisdictions with populations that exceed 6 million
Annual Wage Correlates Closely with Productivity

Wages vs. Productivity
Ontario and Selected North American Jurisdictions

R² = 0.8808
y = 0.0023x + 28.1

Source: Statistics Canada, Bureau of Economic Analysis, Institute for Competitiveness and Prosperity
Urbanization and Productivity

Per cent of Population in Urban Areas vs. Labour Productivity
(1997, Ontario labour productivity = 100)

Impact of Ontario’s Low Urbanization

Per cent of Population in Urban Areas vs. Labour Productivity (1997, Ontario labour productivity = 100)

A shift to median urbanization improves productivity by 8.7% - this translates directly to GDP per capita

Average Weekly Hours, Canada and U.S. (1981 – 2001)

Mapping the prosperity gap

Median GDP per capita: $35.3

Profile: +0.8
Profile Participation: +0.1
Profile Employment: +0.8
Profile Mix of clusters: -0.7
Profile Urban-ization: -2.7
Profile Effectiveness: -3.2
Profile Ontario’s Current GDP per capita: $30.4

Prosperity Gap: $4,880 or 13.8% of GDP/capita

Source: Statistics Canada, Bureau of Economic Analysis, Institute for Competitiveness and Prosperity
Note: Median comprises 16 North American jurisdictions with populations that exceed 6 million
### Performance leads and gaps within the peer group

<table>
<thead>
<tr>
<th>State</th>
<th>GDP per capita</th>
<th>PROFILE</th>
<th>UTILIZATION</th>
<th>PRODUCTIVITY</th>
<th>Performance Lead or Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>$44,878</td>
<td>$135</td>
<td>$750</td>
<td>$656</td>
<td>$998, $4,448, $2,590, $9,578</td>
</tr>
<tr>
<td>New Jersey</td>
<td>$43,151</td>
<td>$0</td>
<td>$73</td>
<td>$48</td>
<td>$448, $916, $6,463, $7,851</td>
</tr>
<tr>
<td>New York</td>
<td>$42,115</td>
<td>$128</td>
<td>$2,952</td>
<td>$385</td>
<td>$288, $2,697, $7,295, $6,816</td>
</tr>
<tr>
<td>California</td>
<td>$39,698</td>
<td>$0</td>
<td>$98</td>
<td>$605</td>
<td>$316, $4,155, $630, $4,398</td>
</tr>
<tr>
<td>Illinois</td>
<td>$37,626</td>
<td>$171</td>
<td>$651</td>
<td>$42</td>
<td>$957, $885, $38, $2,326</td>
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<tr>
<td>Virginia</td>
<td>$36,922</td>
<td>$924</td>
<td>$51</td>
<td>$629</td>
<td>$173, $1,002, $1,194, $1,623</td>
</tr>
<tr>
<td>Georgia</td>
<td>$36,175</td>
<td>$958</td>
<td>$734</td>
<td>$172</td>
<td>$400, $3,362, $2,775, $875</td>
</tr>
<tr>
<td>Texas</td>
<td>$35,598</td>
<td>$54</td>
<td>$1,374</td>
<td>$159</td>
<td>$37, $906, $1,914, $298</td>
</tr>
<tr>
<td>N. Carolina</td>
<td>$35,002</td>
<td>$521</td>
<td>$49</td>
<td>$461</td>
<td>$908, $3,995, $3,673, $298</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>$32,895</td>
<td>$919</td>
<td>$1,926</td>
<td>$40</td>
<td>$146, $145, $771, $2,405</td>
</tr>
<tr>
<td>Ohio</td>
<td>$32,823</td>
<td>$452</td>
<td>$478</td>
<td>$120</td>
<td>$36, $1,377, $253, $2,477</td>
</tr>
<tr>
<td>Michigan</td>
<td>$32,740</td>
<td>$149</td>
<td>$250</td>
<td>$176</td>
<td>$55, $150, $2,432, $2,560</td>
</tr>
<tr>
<td>Indiana</td>
<td>$31,608</td>
<td>$96</td>
<td>$1,125</td>
<td>$512</td>
<td>$117, $4,122, $30, $3,691</td>
</tr>
<tr>
<td>Ontario</td>
<td>$30,420</td>
<td>$805</td>
<td>$103</td>
<td>$713</td>
<td>$825, $2,653, $3,247, $4,880</td>
</tr>
<tr>
<td>Florida</td>
<td>$29,539</td>
<td>$1,402</td>
<td>$2,086</td>
<td>$131</td>
<td>$1,000, $2,851, $4,255, $5,761</td>
</tr>
<tr>
<td>Quebec</td>
<td>$25,052</td>
<td>$1,121</td>
<td>$1,324</td>
<td>$1,430</td>
<td>$101, $4,082, $4,634, $10,248</td>
</tr>
<tr>
<td>median</td>
<td>$35,300</td>
<td>$0</td>
<td>$1</td>
<td>$1</td>
<td>$0, $3, $330, $0</td>
</tr>
</tbody>
</table>

Source: Statistics Canada; Bureau of Economic Analysis, Institute for Competitiveness and Prosperity
Measuring Ontario’s Prosperity

*Drawing on our work to date*

*Mapping the performance gap*

Hamilton and St. Catharines Cluster Data
The Metal Manufacturing 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    Toronto</td>
<td>42,578</td>
<td>1.28</td>
</tr>
<tr>
<td>2    Hamilton</td>
<td>23,848</td>
<td>5.43</td>
</tr>
<tr>
<td>3    Kitchener</td>
<td>7,389</td>
<td>2.51</td>
</tr>
<tr>
<td>4    St. Catharines</td>
<td>7,004</td>
<td>2.91</td>
</tr>
<tr>
<td>5    Windsor</td>
<td>6,969</td>
<td>3.43</td>
</tr>
<tr>
<td>6    London</td>
<td>3,333</td>
<td>1.17</td>
</tr>
<tr>
<td>7    Oshawa</td>
<td>1,939</td>
<td>1.04</td>
</tr>
<tr>
<td>8    Ottawa</td>
<td>1,138</td>
<td>0.17</td>
</tr>
<tr>
<td>9    Thunder Bay</td>
<td>728</td>
<td>0.90</td>
</tr>
<tr>
<td>10   Sudbury</td>
<td>244</td>
<td>0.25</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
Components of the Metal Manufacturing Cluster

Specialized Equipment
- Wire and Springs
- Metal Equipment
- Fasteners
- Nonferrous Metals

Specialized Products
- Metal Furniture
- Metal Processing
- Metal Armaments
- Metal Machine Tools

Iron and Steel Mills and Foundries
- Related Metal Products
- Related Machinery

Metal Products
- Related Metal Equipment

Nonferrous Mills and Foundries
- Vehicles

Metal Processing
- Automotive Parts and Equipment

Processing Inputs
- Related Processing

43 Narrow Sub Cluster Industries
24 Broad Sub Cluster Industries

## The Education and Knowledge Creation Cluster

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

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

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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 Education and Knowledge Creation Cluster

Pharmaceuticals

Educational Institutions

Research Instruments

Professional Services

Research Facilities

Computer Equipment

Computer and Software Distribution

Computer Software and Services

Communication Services

Related Professional Services

Supplies

Publishing

Information Services

Narrow Sub Clusters

Broad Sub Clusters

10 Narrow Sub Cluster Industries
30 Broad Sub Cluster Industries

The Hospitality and Tourism Cluster

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

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<tr>
<td>1 Toronto</td>
<td>47,965</td>
<td>0.79</td>
</tr>
<tr>
<td>2 Ottawa</td>
<td>12,714</td>
<td>1.07</td>
</tr>
<tr>
<td>3 St. Catharines</td>
<td>10,930</td>
<td>2.50</td>
</tr>
<tr>
<td>4 Windsor</td>
<td>4,985</td>
<td>1.35</td>
</tr>
<tr>
<td>5 Hamilton</td>
<td>4,658</td>
<td>0.58</td>
</tr>
<tr>
<td>6 Kitchener</td>
<td>3,025</td>
<td>0.57</td>
</tr>
<tr>
<td>7 London</td>
<td>2,638</td>
<td>0.51</td>
</tr>
<tr>
<td>8 Sudbury</td>
<td>2,321</td>
<td>1.29</td>
</tr>
<tr>
<td>9 Thunder Bay</td>
<td>1,951</td>
<td>1.33</td>
</tr>
<tr>
<td>10 Oshawa</td>
<td>1,611</td>
<td>0.48</td>
</tr>
</tbody>
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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 Transportation
  - Tour Services
  - Tourism Attractions
  - Other Attractions

- Support Services
- Passenger Transportation
- Marine Services
- Local Transportation
- Specialized Inputs
- Local Transportation
- Air Services

- Accommodations
- Vehicle Distribution
- Other Support Services

22 Narrow Sub Cluster Industries
12 Broad Sub Cluster Industries

## The Automotive Cluster

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

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<td>53,023</td>
<td>1.66</td>
</tr>
<tr>
<td>2  Oshawa</td>
<td>22,833</td>
<td>12.82</td>
</tr>
<tr>
<td>3  Windsor</td>
<td>21,447</td>
<td>11.04</td>
</tr>
<tr>
<td>4  Kitchener</td>
<td>9,969</td>
<td>3.53</td>
</tr>
<tr>
<td>5  London</td>
<td>8,897</td>
<td>3.26</td>
</tr>
<tr>
<td>6  St. Catharines</td>
<td>7,568</td>
<td>3.28</td>
</tr>
<tr>
<td>7  Hamilton</td>
<td>4,041</td>
<td>0.96</td>
</tr>
<tr>
<td>8  Ottawa</td>
<td>1,357</td>
<td>0.22</td>
</tr>
<tr>
<td>9  Sudbury</td>
<td>320</td>
<td>0.34</td>
</tr>
<tr>
<td>10 Thunder Bay</td>
<td>142</td>
<td>0.18</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
Components of the Automotive Cluster

- Related Vehicles
- Motor Vehicles
- Related Machinery
- Automotive Parts
- Flat Glass
- Forgings & Stampings
- Automotive Components
- Production Equipment
- Metal Processing
- Related Equipment
- Related Parts
- Narrow Sub Clusters
- Broad Sub Clusters

14 Narrow Sub Cluster Industries
18 Broad Sub Cluster Industries

By share of traded cluster employment ranks 10th in the US, 3rd in Ontario and 17th in the rest of Canada

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

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<td>42,642</td>
<td>1.27</td>
</tr>
<tr>
<td>2 Kitchener</td>
<td>6,870</td>
<td>2.32</td>
</tr>
<tr>
<td>3 Hamilton</td>
<td>6,095</td>
<td>1.38</td>
</tr>
<tr>
<td>4 London</td>
<td>3,972</td>
<td>1.38</td>
</tr>
<tr>
<td>5 St. Catharines</td>
<td>1,958</td>
<td>0.81</td>
</tr>
<tr>
<td>6 Ottawa</td>
<td>1,736</td>
<td>0.26</td>
</tr>
<tr>
<td>7 Thunder Bay</td>
<td>764</td>
<td>0.94</td>
</tr>
<tr>
<td>8 Windsor</td>
<td>695</td>
<td>0.34</td>
</tr>
<tr>
<td>9 Oshawa</td>
<td>569</td>
<td>0.30</td>
</tr>
<tr>
<td>10 Sudbury</td>
<td>330</td>
<td>0.33</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
Components of the Processed Food Cluster

Packaged Foods
- Processed Dairy and Related Products
- Meat and Related Products
- Specialty Foods
- Milling
- Paper Packages and Boxes

Flour
- Food Products Machinery
- Containers
- Related Packaging

Malt Beverages
- Candy and Chocolate
- Heavy Packaging

Distribution

Narrow Sub Clusters

43 Narrow Sub Cluster Industries
6 Broad Sub Cluster Industries

Based on your knowledge of St. Catharines, Hamilton and Halton, what industry clusters do you see as most critical to its competitiveness and prosperity?

What are the three or four most important factors 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 the region? What are the greatest challenges?

How should universities and colleges contribute to the economic development of St. Catharines, Hamilton and Halton?
What Can Canadian Universities Do?

- **Aspirations**
  - Focus on the global peak and set goals accordingly
  - Compete globally for faculty and students
  - Seek unique and differentiated positioning

- **Connectedness**
  - Seek to collaborate with proximate businesses
  - Be guided in part by their needs
  - And seek to guide them with your research-based insights