

MARTIN  
**Prosperity***Institute*

## **Peterborough 3Ts Reference Report**

**Benchmarking Project: Ontario Competes**  
Ontario in the Creative Age

April 2009

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## Introduction

We have benchmarked all 15 of Ontario's Census Metropolitan Areas (CMAs) to better understand each city, its current competitive position and its future prospects. Each CMA has been benchmarked against 10 competitive North American regions of similar size.

It may also be necessary to refer to the [Understanding our Terminology](#) section on our website in order to fully understand all of the information presented here. The first working paper in this series is titled "Ontario Competes"<sup>1</sup> and acts as an introduction to the benchmarking process, contains our aggregate results for Ontario and is the foundation for this analysis. This paper contains a brief overview of the Peterborough CMA and its key results.

Peterborough is a CMA in the south of Ontario, has a population of 117,000 and a Gross Domestic Product (GDP) of \$5 billion (see Table 1). We have chosen our peers based on population size, geographic diversity and competitiveness. The population size for the Peterborough peer group is 100,000 – 250, 000 and include among them:

- Battle Creek, MI
- Bloomington, IL
- College Station, TX
- Dalton, GA
- Flagstaff, AZ
- Kelowna, BC
- Mount Vernon, WA
- Rocky Mount, NC
- Sherbrooke , QC
- State College, PA

Our analysis is based on these 10 peers and rankings are out of 11.

**Table 1: Summary Benchmarks**

Summary Statistics	Peterborough, ON	Peer	Peer	Peer	Provincial/State
		Minimum	Average	Maximum	Average
Total Population, 2006	117,000	115,700	149,000	197,000	546,000
GDP (CAD millions) 2006	\$5,000	\$5,000	\$6,000	\$9,000	\$29,000
Median Age, 2006	42.8	25.7	36.7	43.8	37.5
Overall Cost of Living Index	91.5	91.5	103.2	131.4	101.5

<sup>1</sup> "Ontario Competes" is the first document released as part of the Martin Prosperity Institute's benchmarking analysis for the *Ontario in the Creative Age* project. This document acts as a primer for all subsequent benchmarking releases; therefore, we highly recommend that one read this first. Follow this path to do so: [http://martinprosperity.org/media/pdfs/Ontario\\_Competes.pdf](http://martinprosperity.org/media/pdfs/Ontario_Competes.pdf)

## Technology Results

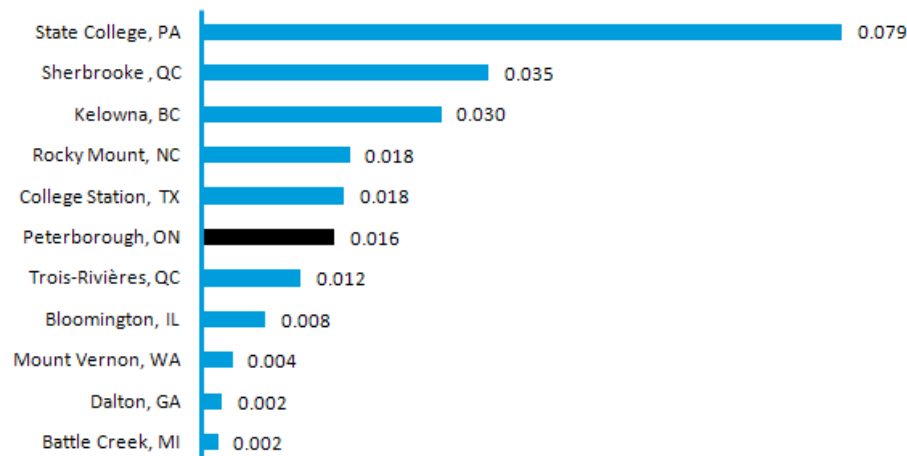
Peterborough has mixed performance on our Technology indicators (see Table 2). Peterborough ranks poorly on our Patent indicators which are a proxy for innovation. Peterborough ranks 8<sup>th</sup>, 1<sup>st</sup> and 7<sup>th</sup> on Total Patents, Patent Growth, and the North American Tech-Pole Index (see Figure 1) respectively; these three indicators are used to create the Technology input of the Creativity Index, an important measure of regional performance potential.

While Peterborough does not perform well on Total Patents or Patents per 10,000, it does much better on Short Term Patent Growth, ranking 1<sup>st</sup> with 30.4 percent year-over-year average growth; however, given the short time period used in this growth indicator, it remains to be seen if this is a long term and sustainable trend, not to mention that the small number of actual patents produced can amplify growth numbers. Peterborough performs slightly below average on the North American High Tech LQ. The region also performs below average on the North American Tech-Pole Index.

**Table 2: Technology Benchmarks**

Technology	Peterborough, ON	Peer Ranking	Peer Minimum	Peer Average	Peer Maximum	Provincial/State Average
Total Patents, 2005	16	8	2	21	42	517
Patents per 10,000, 2005	1.37	6	0.14	1.40	2.98	2.46
Patent Growth, Short Term (00-05)	30.4%	1	-4.5%	8.5%	30.4%	-0.5%
North American High Tech LQ, 2006	0.58	7	0.22	0.60	1.54	0.63
North American Tech-Pole Index	0.016	7	0.002	0.021	0.079	0.189

**Figure 1: North American Tech-Pole Index, 2006**



Source: MPI Analysis (2008). Statistics Canada Catalogue no. 97-559-XCB2006009. County Business Patterns, 2006.

## Talent Results

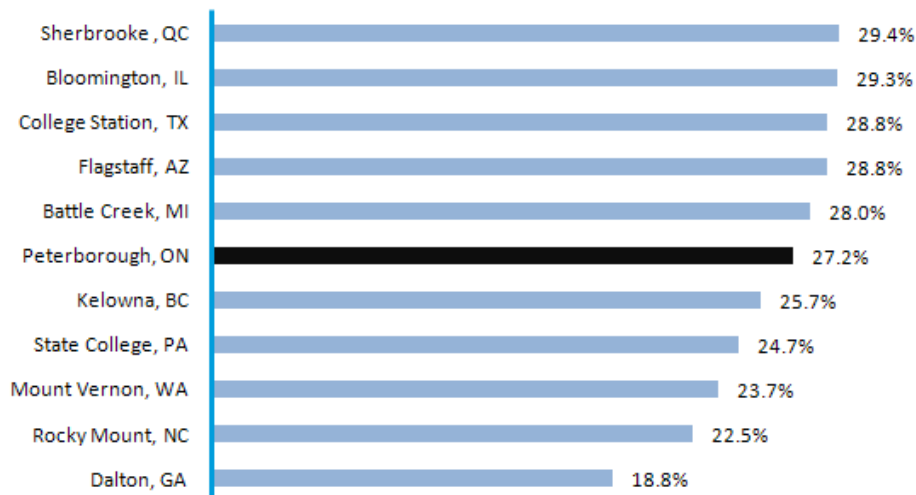
Talent indicators are measures of a region’s human capital and Peterborough’s performance on Talent is below average (see Table 3). The region ranks 6<sup>th</sup> amongst its peers on the Creative Class, which is an occupational human capital measure, and the only Talent variable that contributes to the Creativity Index. Peterborough has 27.2 percent of its population in creative jobs (see Figure 2), which is positive for a smaller region.

Peterborough does not rank well on the education measures, with a rank of 8<sup>th</sup> on the Talent Index, and 7<sup>th</sup> on Graduate and Professional Degrees. This is surprising given that Trent University is in Peterborough, but may be partly due to its subpar performance on the Brain Drain/Gain Index, where it ranks 9<sup>th</sup> among its peers. The brain drain Peterborough is experiencing may pose problems for the region’s future economic development given the importance of talent attraction and retention in a creative economy.

**Table 3: Talent Benchmarks**

Talent	Peterborough, ON	Peer Ranking	Peer Minimum	Peer Average	Peer Maximum	Provincial/State Average
Creative Class as % of Workforce, 2006	27.2%	6	18.8%	26.1%	29.4%	26.1%
Super Creative Core as % of Workforce, 2006	15.4%	4	6.6%	12.2%	18.5%	11.0%
Pop > 25, Above High School below BA, 2006	60.7%	N/A	51.7%	58.2%	65.5%	59.0%
Talent Index (Pop > 25, BA and above), 2006	16.2%	8	12.0%	23.4%	40.2%	21.7%
Pop > 25, Graduate and/or Professional Degree, 2006	6.6%	7	4.0%	9.2%	20.5%	7.5%
Brain Drain/Gain Index, 2006	0.48	9	0.38	0.78	1.28	N/A

**Figure 2: Creative Class, 2006**



Source: MPI Analysis (2008). Statistics Canada Catalogue no. 94-581-XCB2006007. US Census Bureau, American Community Survey. (2006).

## Tolerance Results

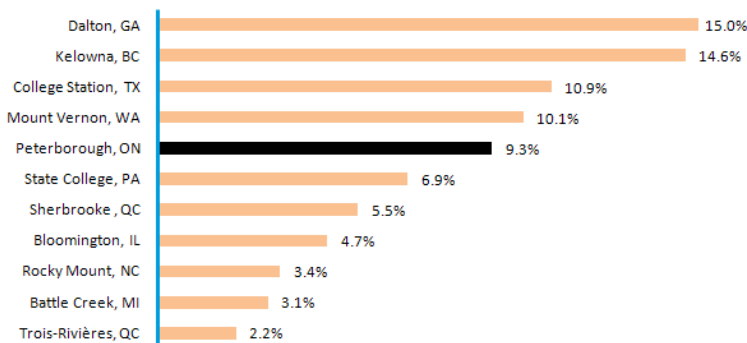
Tolerance is almost always a strength for Ontario’s CMAs, often ranking within the top three of their peers on these dimensions. Peterborough is no exception ranking 1<sup>st</sup> on both the Bohemian and Integration Indices (see Table 4).

Peterborough ranks 5<sup>th</sup> on the Mosaic Index, (see Figure 3) which is an input to the Creativity Index, and is above the peer median and the peer average. However, given the large amount of immigration in Ontario, Peterborough does not perform as competitively as other Ontario CMAs. On the Gay and Lesbian Index, another input to the Creativity Index, Peterborough is slightly above average (see Figure 4) among its peers ranking 5<sup>th</sup> with an Index score of 0.78. Increased tolerance encourages more diversity of thought which leads to more idea exchange that will accumulate advantages for the region.

Table 4: Tolerance Benchmarks

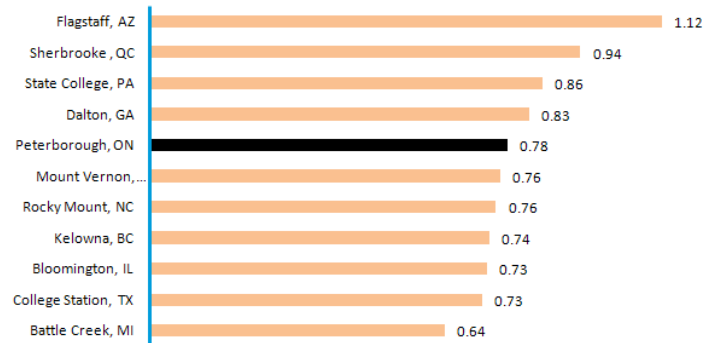
Tolerance	Peterborough, ON	Peer Ranking	Peer Min Value	Peer Average	Peer Max Value	N.A. Average of Urban Regions
Visible Minorities (% Pop), 2006	2.7%	11	2.7%	18.3%	49.4%	11.1%
Mosaic Index (% Pop), 2006	9.3%	5	3.1%	8.1%	15.0%	7.9%
Gay and Lesbian Index, 2006	0.78	5	0.64	0.81	1.12	0.81
Bohemian Index, 2006	1.10	1	0.16	0.48	1.10	0.69
Integration Index, 2006	0.89	1	0	0.72	0.89	N/A

Figure 4: Mosaic Index, 2006



Source: MPI Analysis (2008). Statistics Canada Catalogue no. 94-581-XCB2006007. US Census Bureau, American Community Survey. (2006).

Figure 3: Gay and Lesbian Index, 2006



Source: MPI Analysis (2008). Statistics Canada Catalogue no. 97-553-XWE2006002 and 97-552-XCB2006007. US Census (2006).

## Overall Performance

We also benchmark a number of indicators<sup>2</sup> that describe the region more broadly than the 3T indicators (see Table 5). GDP per capita is used as a traditional measure of regional performance. The Creativity Index (see Figure 5), which is a composite of select 3T indicators, is another effective measure of regional performance and a leading indicator, meaning that it ranks regions based on potential performance, not past performance.

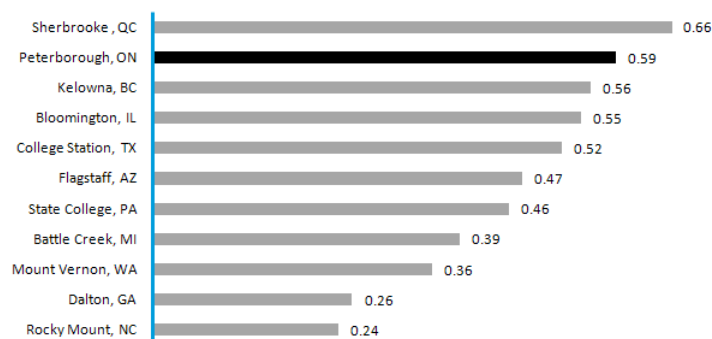
Peterborough ranks 7<sup>th</sup> on the GDP per capita measure (Bloomington is ranked 1<sup>st</sup>). The region performs well with respect to its peers on the Creativity Index, ranking 2<sup>nd</sup> with an Index of 0.59. Both Population Growth and Job Growth were positive for Peterborough, but below the peer average. Surprisingly, Change in Average Wage was -1.0 percent for Peterborough, yet was still above the peer average.

Peterborough does not excel on any of the 3Ts. The same can be said of the Overall Performance indicators, where only its score on the Creativity Index is well above the peer average. These results should be considered carefully if Peterborough is to compete in a more creative economy.

**Table 5: Overall Benchmarks**

Overall Performance	Peterborough, ON	Peer Ranking	Peer Min Value	Peer Average	Peer Max Value	N.A. Average of Urban Regions
Population Growth (00-05)	5.1%	8	0%	6.6%	12.4%	5.7%
Job Growth (00-05)	4.8%	5	-3.6%	6.2%	19.9%	9.3%
GDP per capita, 2006	\$42,000	7	35,500	\$44,000	\$58,200	\$45,000
Change in Average Wage (00-05)	-1.0%	6	-11.2%	-1.2%	7.8%	0.1%
Creativity Index	0.59	2	0.24	0.46	0.66	N/A

**Figure 5: Creativity Index, 2006**



Source: MPI Analysis (2008). Statistics Canada Catalogue no. 97-553-XWE2006002 and 97-552-XCB2006007. US Census (2006).

<sup>2</sup> The growth numbers are important, but it must be noted that due to the short time frame covered, the data can be misleading.

## Appendix A: Research Methods

The process of benchmarking the Province of Ontario and its 15 Census Metropolitan Areas (CMAs) against peer regions in both the United States and Canada was conducted as part of the *Ontario in the Creative Age* project commissioned by the government of Ontario. In order to better understand the competitiveness of Ontario and its CMAs we conducted a quantitative analysis of North America by collecting data from national statistical agencies on over 30 different indicators that have been shown to influence regional economic prosperity. These collections of indicators developed by Florida (2002) are representative of the 3Ts of economic development (Technology, Talent and Tolerance) and are part of his larger Creative Class theory.

In selecting the North American regions for the benchmarking, the main determinate of peers for Ontario's CMAs was population. Population is a highly important variable to control for because each of the following factors is size and density dependent: the division of labour, economies of scope, agglomeration and scale. In total we compared the province to 20 peer states and provinces, selecting sub-national regions with a population of 6 million or more (17 states) and the 3 largest provinces (Quebec, British Columbia and Alberta). For the CMAs which range from Toronto with a population of 5.1 million to Peterborough with just under 120,000 people, we subdivided the 15 regions into five class categories (Population >2 million, 1-2 million, 0.5-1 million, 250,000-500,000 and 100,000-250,000) for which 10 peer regions having a similar population were selected. In total 50 peer regions were selected from the 20 peer states and provinces.

The indicators used to inform this report were based on previous research conducted by Richard Florida (2002) which showed that Technology, Talent, and Tolerance are key elements for the success and continued development of a region. A region needs substantial but balanced performance across ALL of the "Three Ts" to grow and be prosperous.

In order to maintain objectivity, the analysis involved in this benchmarking process was entirely quantitative. This may lead to results that seem odd when discussed out of context or by an individual with specific regional knowledge. For example, our analysis found that Ottawa-Gatineau is incredibly competitive on certain occupation measures which are a result of the large federal government presence in the CMA. When viewing the results it is important to remember that they have not been informed by specific knowledge that is local to the regions.



## Appendix B: Metric Definitions for Ontario Project Benchmarking

Summary Statistics	
Population	Population Counts from ACS and Statistics Canada, 2006
Median Age	Median Age from ACS and Statistics Canada, 2006
Overall Cost of Living Index	Composite measure that use CPI data from both the US and Canada.

Overall Statistics	
Population Growth (2000-2005)	$(Population(2006) - Population(2001))/Population(2001)$
Job Growth (2000-2005)	$(Labor\ Force,\ Total\ Employment(2006) - Labor\ Force,\ Total\ Employment(2001))/Labor\ Force,\ Total\ Employment(2001)$
GDP per Capita, 2006	GDP/Population, PPP adjusted
Change in Average Wage (2000-2005)	$(Average\ Wage(2000) - Average\ Wage(2001))/Average\ Wage(2001)$
Creativity Index	State and Province: Technology (North American Tech Pole, Patent Growth (00-05) and Total Patents, Tolerance ( Bohemian Index, Integration Index, Gay Index and Mosaic Index), Talent (Creative Class) each account for 1/3 of index

Technology Measures	
Total Patents, 2005	Total number of patents issued to primary inventors in region 2005; US Patent & Trademark Office (USPTO)
Patents per 10,000, 2005	Total patents issued per 10,000 residents 2005; USPTO & U.S. Census
Patent Growth, Short Term (00-05)	Average annual growth in number of patents issued 2000-2005; USPTO
North American High Tech LQ, 2006	A location quotient captures the difference between a specific regions concentration of a specific characteristic and the average concentration across the entire country or larger regions. The high tech LQ measures the concentration of high technology among employment for a region against the concentration of high technology among employment for the US and Canada combined.
North American Tech Pole Index	Combination of two factors (1) the share of a region's employment that is high-tech and (2) the high tech location quotient (below) for U.S and Canada combined. High Tech includes software, electronics, biomedical products, and engineering

Talent Measures	
Creative Class, 2006	Percentage of the employed population in the region in the Super Creative occupations (see below) or occupations in the following categories: Management, Business/Finance, Law, Healthcare (does not include Healthcare support)
Super Creative Core, 2006	Percentage of the employed population in the region in occupations in the following categories: Computers, Architecture/Engineering, Science, Education, Arts and Design
Pop > 25, Above High School Below BA, 2006	Percentage of the population aged 25 and above in the region that has a high school diploma or equivalent and Percentage of the population aged 25 and above in the region that has a college certificate (associate's degree for U.S.)
Talent Index (Pop >25, BA and Above)	Percentage of the population aged 25 and above with a bachelor's degree or higher
Graduate and/or Professional Degree	Percentage of population aged 25 and above with a graduate and or professional degree
Brain Gain/ Brain Drain Index	Percentage of the workforce, age 25 and above, with at least a college certificate divided by the percentage of the population age 20 to 24 currently attending college or university

Tolerance (Inclusiveness) Measures	
Visible Minorities (% Pop)	Percentage of Non-white population
Mosaic Index (% Pop)	Percent of population that is foreign born
Gay and Lesbian Index	Location quotient that is the ratio of same sex unmarried partners to total partners in the region over same sex unmarried partners to total partners for the entire U.S. (from 2000); Census
Bohemian Index	Bohemian Index; Location quotient that measures whether a region has more or fewer professional artistically creative people than the average region 2006; estimated from Census, ACS
Integration Index	$Integration\ Index = 1 - \left( \frac{Total\ Visible\ Minority_{region}}{Total\ Population_{region}} \right) \sum \left  \frac{VGroup_{DA,G}}{VGroup_G} - \frac{VGroup_{DA,H}}{VGroup_H} \right $ <p>Where VGroup<sub>DA,G</sub> is the population of group G in the dissemination area                      And where VGroup<sub>DA,H</sub> is the population of group H in the dissemination area                      Where VGroup<sub>G</sub> is the total population of group G in the CMA                      Where VGroup<sub>H</sub> is the total population in group H in the CMA</p>

## Research Team

This work was jointly supervised by Dr. Kevin Stolarick, Research Director and David Smith, Project Leader. They would like to acknowledge the tremendous efforts of researchers Ronnie Sanders and Michael Wolfe for their countless hours dedicated to gathering, analyzing and processing the wide range of data used during this benchmarking project. They would also like to acknowledge the early contributions from researchers Scott Pennington and Yousuf Haque.

## Benchmarking Project

This paper is part of the *Ontario in the Creative Age* series, a project we are conducting for the Ontario Government. The project was first announced in the 2008 Ontario Budget Speech, and its purpose is to understand the changing composition of Ontario's economy and workforce, examine historical changes and projected future trends affecting Ontario, and provide recommendations to the Province for ensuring that Ontario's economy and people remain globally competitive and prosperous.

The purpose of the benchmarking papers in this series was to gather and analyze data on Ontario's CMAs and assess how well they compete with similar jurisdictions across North America our 3Ts of Economic Development. The assessments are intended to inform a constructive discussion on what factors contribute to regional economic development. They are not intended to be all encompassing.

## Disclaimer

The views represented in this paper are those of the Martin Prosperity Institute and may not necessarily reflect the views of its affiliates or its funding partners.

Any omissions or errors remain the sole responsibility of the research team. Any comments or questions regarding the content of this report may be directed to [info@martinprosperity.org](mailto:info@martinprosperity.org).