

Thunder Bay's Economic Activity Index

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Gross Domestic Product (GDP) measures are often used to determine the health of an economy. However, a different methodology is applied to calculate the GDP of a national versus regional economy. As a result, regional GDP estimates are subject to various assumptions which may result in reduced reliability. Moreover, GDP measures are general and have complex compositions. Often, a regional index is used to complement GDP measures by highlighting the major factors that contribute to the expansion or contraction of economic activities.

Along these lines, Thunder Bay Ventures (TBV) commissioned a study which established the Thunder Bay Economic Activity Index (TBEAI). The TBEAI is a unique, customized regional index that considers the nature of Thunder Bay's economy. The objective of the TBEAI is to better reflect the reality and dynamic of Thunder Bay's economy, and to help the community stay informed about changes in economic activity.

The TBEAI uses five major factors that signal changes in Thunder Bay's economic activity. The five factors are: i) total employment; ii) retail sales; iii) average resale home price; iv) employment benefit claims; and v) affordability of housing. These factors were selected based on empirical and theoretical economic rationale.

New insights from a Regional Capacity for Resiliency (RCR) score

In addition to the TBEAI, this newsletter also debuts a new measure of regional economic, socio-demographic, and environmental resiliency. The Regional Capacity for Resiliency (RCR) score was developed and measured for all Census Metropolitan Areas in Ontario by Derek Wentzell as part of his research project requirement in the Masters of Science in Management program at Lakehead University (supervisory committee – Dr. Lento and Dr. Dadgostar). Background information on, and insights from, the RCR scores are presented in the last page of this newsletter.

TBEAI Methodology

The methodology utilized to calculate the TBEAI is based on the Conference Board of Canada's model for calculating a composite index. Six steps are undertaken to calculate the TBEAI:

1. Period-to-period changes are computed for each component.
2. The period contributions of the components are adjusted to equalize the volatility of each component.
3. The adjusted period contribution across the components for each period is summed to obtain the growth rate of the index.
4. The sum of the adjusted contributions of the composite index is adjusted to equate their trend to that of the coincident index.
5. The level of the index is computed using the symmetric percentage change formula.
6. The index is rebased to average 100 in the base year.

TBEAI & GDP Outlook

The following is the TBEAI and Conference Board of Canada's real GDP outlook for Thunder Bay:

	2014-2015 Average Growth	Average Forecast Error	Forecast	
			2016	2017
Conference Board GDP Forecast	1.45%	0.55%	1.24%	0.95%
TBEAI Forecast	1.10%	0.20%	0.87%	1.20%
Actual GDP Growth	0.90%			

The table above shows that the TBEAI forecasted lower average growth for 2014 and 2015 than the Conference Board. Actual data reveals that both the Conference Board and TBEAI overestimated the average growth for 2014 and 2015; however, the TBEAI forecast was closer to the actual average economic growth as revealed by the magnitude of the average forecast errors.

TBEAI Components

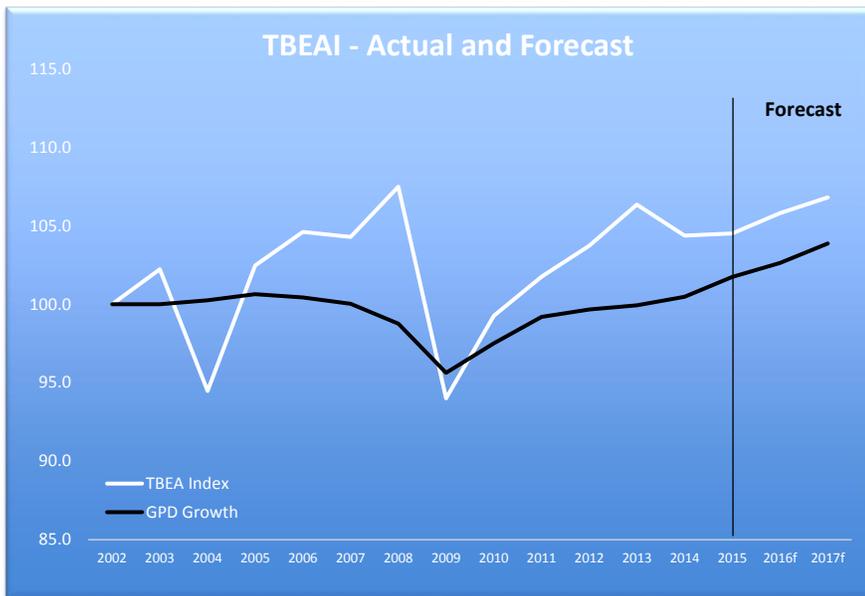
The following shows the ranking in growth from 2002 to 2015 for the five components of the TBEAI from highest to lowest:

- 1) Resale home prices
- 2) Retail sales
- 3) Employment benefit claims
- 4) Total employment
- 5) Affordability of housing

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Additional Commentary ...

The following are some key economic highlights, based on commentary from the Conference Board of Canada.



1. Manufacturing Sector Continues its Slow Growth –

The manufacturing sector expanded for the sixth consecutive year in 2015; however, the sector is still half of its size from the pre-forestry collapse. A healthy US economy, weakening Canadian dollar, and strong housing markets should provide support for the forestry sector. Strong pulp/lumber prices will provide further support for the forestry sector, however, high electricity rates continue to impact competitiveness. Meanwhile, missed delivery dates continue to impact work by Bombardier's Thunder Bay plant on the \$1.2 billion contract to supply streetcars to the Toronto Transit Commission. Potential production shifts to other Bombardier plants could result in reductions to employment and output.

2. Construction Output Sagging –

Construction output dipped 1.1 per cent in 2015, the third straight year of contraction. Further contraction is expected for 2016 before a modest expansion in 2017. Major upcoming commercial projects include the Delta Hotel and Confederation College's "student wellness centre". Meanwhile, residential housing starts have stabilized in 2014 and 2015 at around 230 total new starts. Two large condominiums are also being planned.

3. Service Sector Expansion Slowing –

Service sector output inched forward by 0.3 per cent in 2015. Thunder Bay's port authority's remains the bright spot in the service (transportation and warehousing) sector with 2015 being its busiest season since 1997 and expansion planning underway.

TBEAI suggests economic growth continuing to lag behind the Province in recent years

TBEAI indicates that Thunder Bay's economy is struggling to regain steam after the Credit Crisis recession

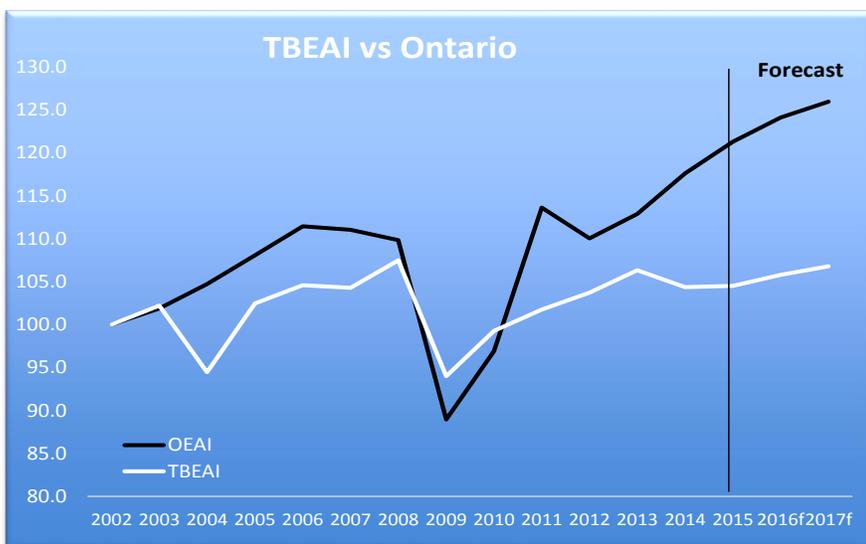
The TBEAI, as compared on the same basis to Ontario (Ontario Economic Activity Index - OEAI), suggests that Thunder Bay's economy is headed for slower growth than the province as a whole.

TBEAI signals economic growth to resume in 2016 and 2017 after the past two years of little to no growth

The TBEAI forecasts economic growth of 1.2% in 2016 and 0.9% in 2017 which is consistent with the Conference Board of Canada's GDP growth forecast of 0.9% and 1.2% per annum for these same years.

The TBEAI suggests an economic contraction in 2014 and minimal growth in 2015 as indicated by a reduction in employment, a spike in employment beneficiaries, and a reduction in housing affordability. Economic growth was signaled by increasing retail sales and resale home prices.

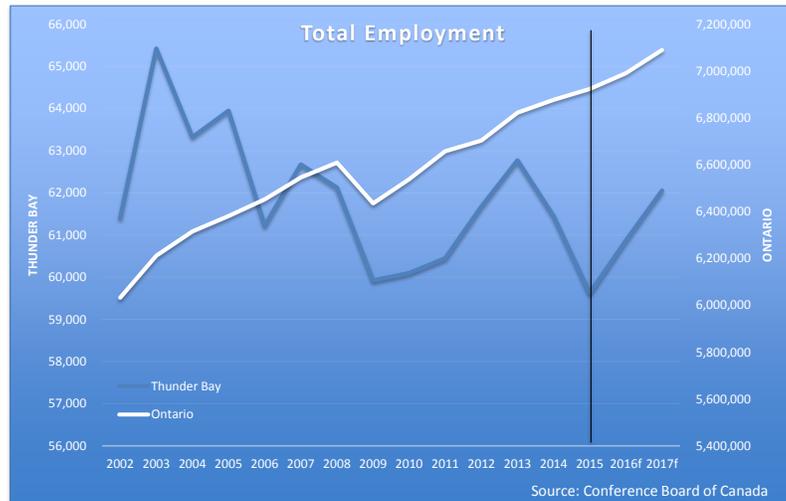
Note that the importance of Commodity Prices & Forecast Risk – Prolonged resource price weakness remains a significant risk to the regional economy and thus to Thunder Bay as the regional centre.



The gap in growth between Thunder Bay and Ontario began to widen in 2014 and is forecasted to continue into 2016 and 2017. The OEAI forecast, relative to the TBEAI, is mostly positively influenced by a large forecasted increases in the resale value of homes.

Employment dips to ten-year low, expected to rebound (Component #1)

Total employment in Thunder Bay has declined 2.9% from 2002 to 2015; however, total employment is forecasted to rebound back to historical norms by 2017. Job growth in Thunder Bay has been stagnant over the past ten years and significantly lags behind the growth experienced by Ontario where total employment grew by 14.8% from 2002 to 2015, or 1.06% per annum.



Long-term employment review:

- Thunder Bay's had no growth in employment over the past 30 years.
- Employment floats around an average of approx. 61,500.
- 2003 and 1998 were the best and worst, respectively.
- 2015's level are the lowest in the 2000s.



Employment Insurance Beneficiaries Increase (Component #4)

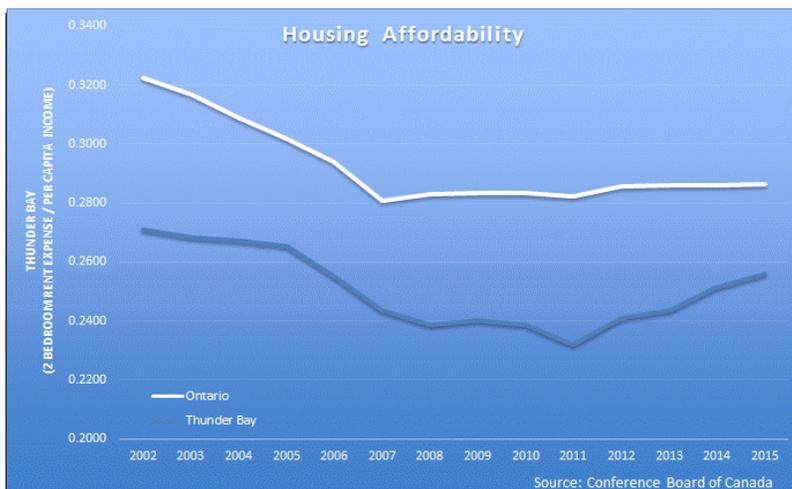
The number of employment insurance beneficiaries in Thunder Bay has declined by 11.1% from 2002 to 2015, where the total number of beneficiaries increased by 12.6% for Ontario as a whole. Unlike Thunder Bay, Ontario's beneficiary numbers are yet to decline below the pre-Credit Crisis levels.

Over a short-run period, employment insurance beneficiaries in Thunder Bay increased from 2,550 to 2,700 from 2011 to 2015, while Ontario has experienced a decline in beneficiaries from 281,000 to 248,000 over the same period.

Retail sales continue slow, steady, stable growth (Component #2)

Thunder Bay's retail sales continue to show signs of strength, growing at an annual rate of 2.44% from 2002 to 2015. However, retail sales have grown by 3.58% from 2013 to 2015 while Ontario experienced growth of 9.44% over the same period. Over the next two years (2016 and 2017), retail sales are forecasted to grow by 3.5% for Thunder Bay and 9.4% for Ontario.

Thunder Bay home rental less affordable as rent hikes outpace income growth; Ontario still more costly (Component #3)



Fast Fact

The 2015 home affordability differential between T. Bay and Ontario is the smallest since 2002.

Growth 2002-2015
Per capita income
Ontario - 42.5%
T. Bay - 48.3%

Rent expense
Ontario - 26.6%
T. Bay - 40.1%

Home rental has become much less affordable in Thunder Bay since 2011 as income growth has failed to keep pace with rental increases. Since 2011, per capita income has increased by 8.2% while rental costs have increased by 19.5%. Over the same period, per capita income grew by 10.3% in Ontario while rental costs increased by 12%, thereby resulting in housing affordability in Ontario being relatively stable. Overall, Thunder Bay is still more affordable than the Ontario average.

Resale Home Prices Remain Strong (Component #5)

Average resale prices continue to remain strong in both Thunder Bay and Ontario. Thunder Bay's resale market has taken off over the past ten years, with prices rising 86.7% from 2006 to 2015 compared to a 67.5% increase for Ontario as a whole over the same period.

Prices are forecasted to continue to increase by 5.8% over the next two years (2016 and 2017); however, this is slightly below the forecasted increase of 10.8% for Ontario over the same period.

Regional Capacity for Resiliency



RCR Methodology

The methodology utilized to calculate the RCR is based on the resiliency capacity index developed by the Berkley Institute of Governmental Studies in conjunction with the ISO 37120 Sustainable Development of Communities. Four steps are undertaken to calculate the RCR:

1. Establish proven indicators of economic, social, and environmental regional resiliency.
2. Calculate the standardized deviation from the mean (z-score) for each indicator in order to facilitate comparisons across different bases.
3. Calculate the aggregate z-score for each city based on equally-weighted indicator values.
4. Convert the aggregate z-score into a ranking from lowest ranked city (#15) to the highest ranked city (#1).

All 15 Ontario Census Metropolitan Areas (CMAs) are included in the RCR. CMAs are used as the measurement basis in light of data availability and reliability.

Results at Indicator Level

The following are the results for Thunder Bay for each of the 21 indicators used to calculate the RCR measures....

Economic Capacity

1. Income inequality **Strength**
2. Economic diversification **Average**
3. Regional affordability **Strength**
4. Business environment **Weakness**
5. Labour force participation **Average**
6. Municipal debt/reserve ratio **Average**
7. Asset consumption ratio **Weakness**

Community & Environmental Capacity

8. Civic infrastructure **Strength**
9. Metropolitan stability **Strength**
10. Home ownership **Average**
11. Voter participation **Average**
12. Mun. build. GHG emission **Weakness**
13. Sustain. commuting to work **Weakness**
14. Solid waste diversion rate **Weakness**

Socio-demographic Capacity

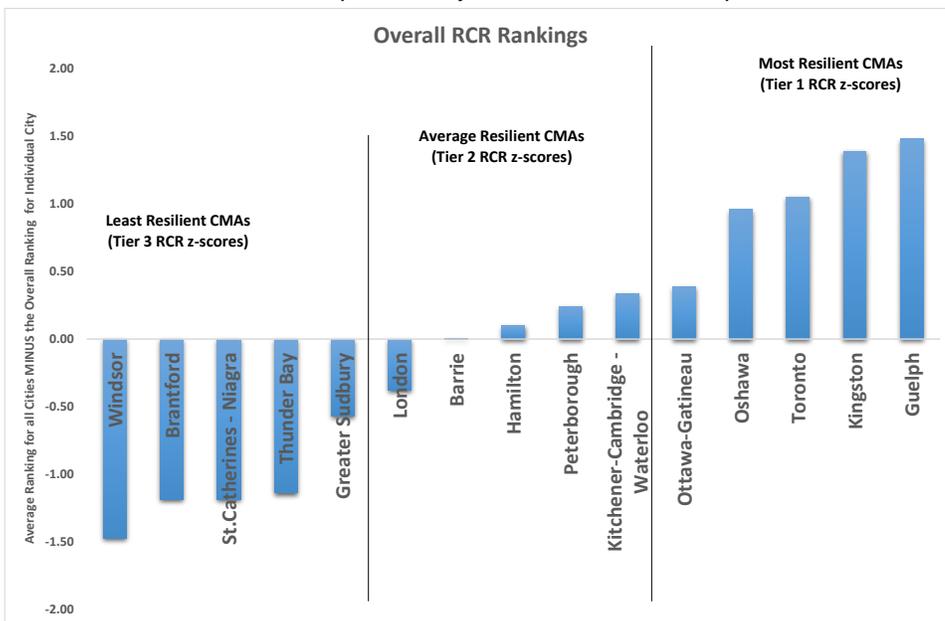
15. Educational attainment **Average**
16. Without disability rates **Weakness**
17. Reg. medical att. rates **Weakness**
18. Emergency wait times **Strength**
19. Net migration **Weakness**
20. Community safety **Weakness**
21. Age demographics **Average**

Communities and economies are more inter-connected and complex than ever before. As a result, our livelihoods are more exposed to negative “Black Swan” events which means they are unusual and extremely difficult to predict. In response, policymakers are increasingly focusing on understanding the resiliency of their communities as part of risk management strategies. For example, the Berkley Institute of Governmental Studies has developed a resiliency capacity index which is unique to U.S. political, regulatory, and societal norms. Additionally, the International Organization for Standardization compiled a broad set of indicators intended to measure the performance of city services, quality of life and sustainable development in communities (ISO 37120); however, they offer no methodology for aggregation of the individual metrics into an overall summary.

Policymakers have yet to develop a resiliency measure that reflects the unique nature of Canadian cities. As a result, Derek Wentzell developed the Regional Capacity for Resiliency (RCR) measure as part of his research requirement in the MSc. Management program at Lakehead University. The RCR was designed to provide a measure of economic, environmental, and socio-demographic resiliency unique to Canadian cities. Broad stakeholder feedback was obtained in establishing the individual RCR indicators that should be included in a Canadian resiliency measure. Our RCR calculations are based on Derek Wentzell’s research, and outlined in the RCR Methodology section.

Overall Results

The overall results are as follows (Thunder Bay ranks 12th out of 15 CMAs):



Average indicator ranking across the three pillars of resiliency

City	Overall		Economic		Community & Environment		Socio-Demographic	
Barrie	7.86	9	7.29	7	8.57	10	7.71	7
Brantford	9.05	13	10.29	15	8.14	7	8.71	10
Greater Sudbury	8.43	11	8.00	8	8.86	12	8.43	9
Guelph	6.38	1	6.14	3	6.71	4	6.29	3
Hamilton	7.76	8	5.86	1	8.29	8	9.14	12
Kingston	6.48	2	7.14	6	8.71	11	3.57	1
Kitchener-Cambridge - Waterloo	7.52	6	5.86	1	8.00	6	8.71	10
London	8.24	10	7.00	5	10.00	15	7.71	7
Oshawa	6.90	4	6.86	4	9.14	13	4.71	2
Ottawa-Gatineau	7.48	5	8.14	9	7.71	5	6.57	6
Peterborough	7.62	7	10.00	14	6.57	3	6.29	3
St.Catherines - Niagra	9.05	13	9.43	13	6.14	2	11.57	15
Thunder Bay	9.00	12	8.43	10	8.29	8	10.29	14
Toronto	6.81	3	9.00	12	5.00	1	6.43	5
Windsor	9.33	15	8.43	10	9.86	14	9.71	13

Thunder Bay ranks:

- Average in Economic Resiliency

- Average in Community / Environmental Resiliency

- Weak in Socio-Demographic resiliency