

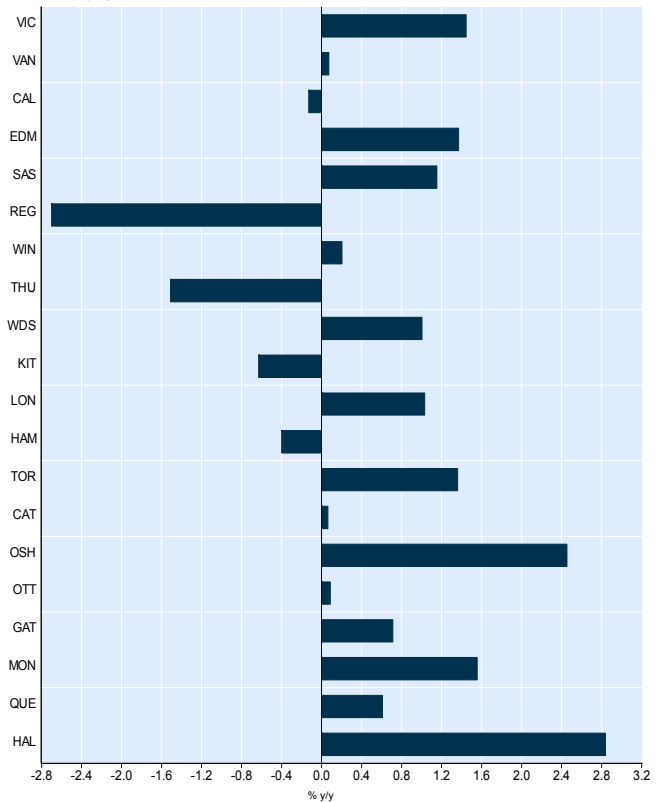
## Halifax, Oshawa and Montreal on the podium

**FACTS:** According to our proprietary Metropolitan Economic Momentum Index (see page 3 for methodology), Halifax enjoyed the largest economic upswing on a y/y basis in Q3 2018 as its MEMI rose 2.8% (top chart). The six constituent indicators fuelled this gain, but the most important contributor was the 4.5% rise in employment. The MEMI rose 2.5% in Oshawa. The three indicators related to housing (home sales, housing starts and home prices) declined (see chart next page), but this was more than offset by the largest increases among the metropolitan areas considered in employment (+5.3%) and non-residential building construction (+22.8%). The MEMI rose 1.6% in Montreal with important contributions from employment, non-residential building construction and home prices.

**OPINION:** Halifax led the pack for a third quarter in a row. This was mainly due to a resurgence in employment since the beginning of the year (bottom chart). It is not sure however that Halifax will keep the crown for the whole year, as quarterly declines were reported for four indicators (including employment) in Q3. Oshawa enjoyed a sudden jump in employment in Q2. Barring a complete reversal, this will continue to boost its MEMI for the next two quarters. But it might still lose some ranks if non-residential building construction peaked in Q3. Montreal captured third rank for a second quarter in a row, but this was due to a large diffusion of gains (five of the six indicators showing y/y rises) rather than an outstanding performance for specific indicators. For instance, Montreal was only 11<sup>th</sup> out of 20 for employment (chart page 2), which remained stable after having peaked in Q1. It was 6<sup>th</sup> for both non-residential building construction and home prices. Apart from Oshawa, the latter indicator negatively affected the standings of Toronto, Calgary, Edmonton, Regina and Saskatoon. Note that Vancouver's index was about flat on a y/y basis, quite a change since Q1 where this metropolitan area was on the podium. Four indicators were a drag on the index growth in Q3, that is, employment, the unemployment rate, home sales and housing starts.

Marc Pinsonneault

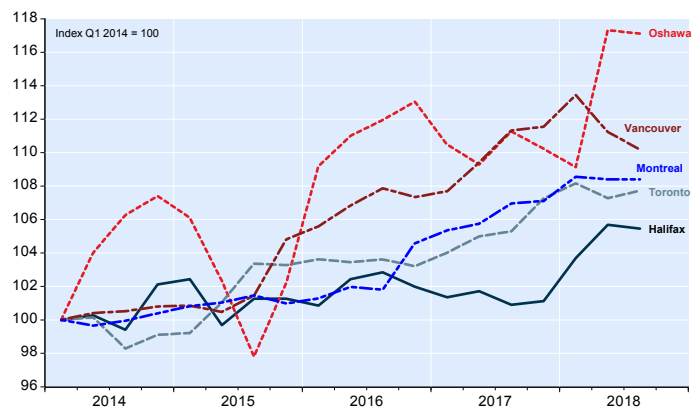
MEMI y/y growth in Q3 2018



NBF Economics and Strategy (Calculations from data published by Statistics Canada, CMHC, CREA and Teranet-National Bank HPI)

Employment in selected metropolitan areas

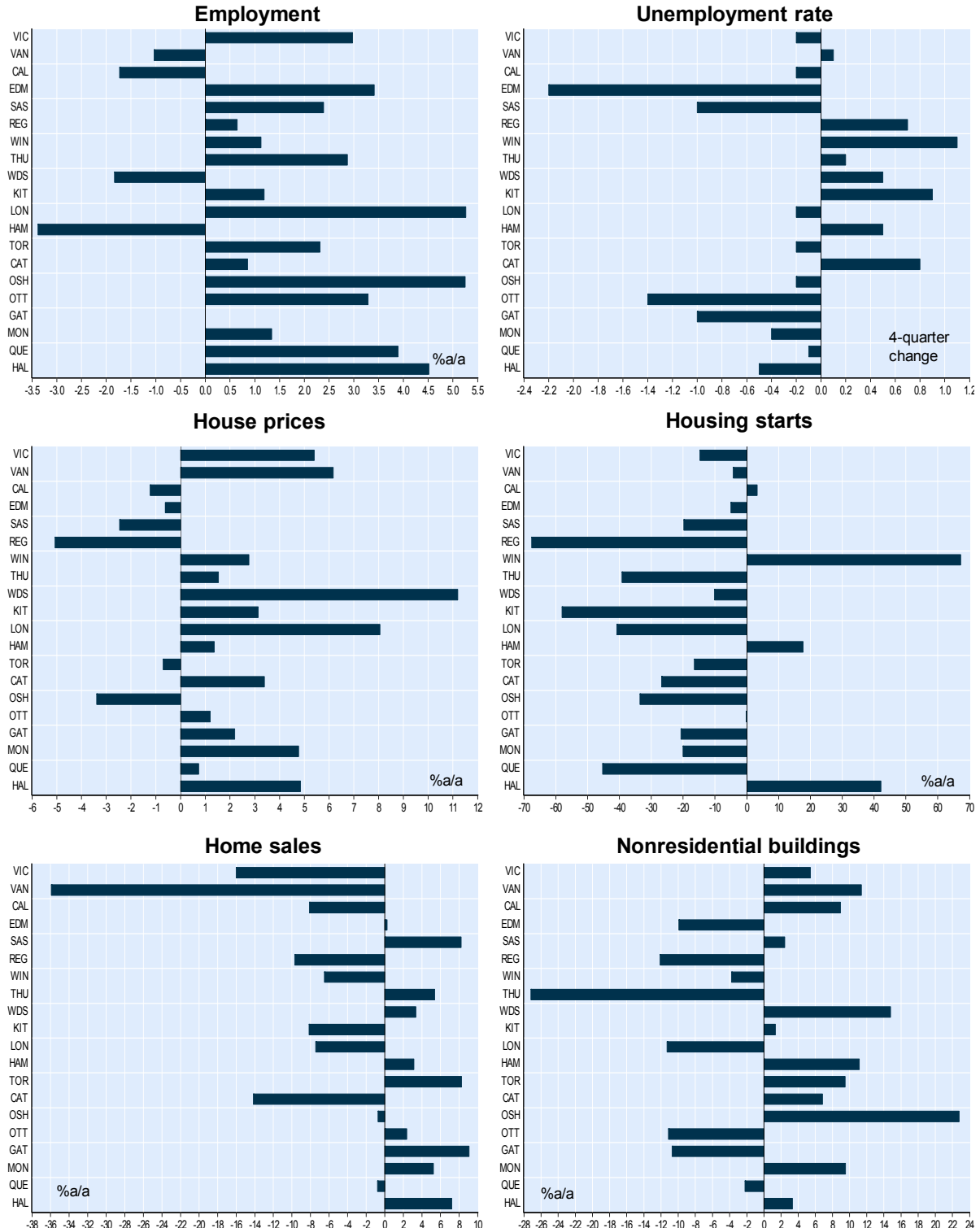
Three-month moving average, seasonally adjusted



NBF Economics and Strategy (data via Statistics Canada)

## 4-quarter change of indicators comprised in the MEMI

Last observation: Q3 2018



NBF Economics and Strategy (Data from Statistics Canada, CMHC, CREA and Teranet-National Bank HPI)

## Purpose

We constructed the Metropolitan Economic Momentum Index (MEMI) to gauge the current economic momentum of census metropolitan areas (CMA), with a special emphasis on their fiscal capacity. Growth in the index reflects growth in the following six quarterly economic indicators: average employment level in quarter, average unemployment level in quarter, housing starts, number of MLS home sales, investment in non-residential building construction in constant dollars, and the Teranet-National Bank House Price Index (MLS House Price Index for Regina and Saskatoon).

## Methodology

The index constitutes a weighted average of the symmetrical quarterly growth rate of each indicator. The symmetrical growth rate is given by:

$$G = 200 * (X_q - X_{q-1}) / (X_q + X_{q-1})$$

where X is an indicator, q is the current quarter, and q-1 is the previous quarter. What is particular about a symmetrical growth rate is that an increase in an indicator (say  $X_1 - X_0 > 0$ ) will generate the same percentage (with inverted sign) as a decrease from  $X_0$  to  $X_1$ . Given that change in the unemployment rate is itself a symmetrical change in percentage points, in this case the equation can be expressed as  $G = -(X_q - X_{q-1})$ , which means that an increase in the unemployment rate makes a negative contribution to the MEMI and vice versa.

The symmetrical growth rate of each indicator is then divided by the standard deviation of the symmetrical growth rate of the aggregate indicator for all the CMAs. Accordingly, for each CMA, the symmetrical growth rate of employment is divided by the standard deviation of the symmetrical growth rate of employment for all of the CMAs considered. We thus obtain a normalized growth rate that is comparable across indicators even if some indicators vary more widely than others.

For each CMA, the normalized symmetrical growth rates of all six indicators are then summed and this sum is divided by a constant that is the sum of the standard deviations of the symmetrical growth rates of the aggregate indicators. This gives us a growth rate that has the dimension of a quarterly change (symmetrical but not normalized) in a single indicator, regardless of the number of indicators considered. Once converted to a conventional growth rate, this figure becomes the quarterly growth rate of the MEMI for the CMA considered. For example, we apply the result for 2005Q2 to 100 (base level of the index at 2005Q1), and to the index level thus obtained we apply the result for 2005Q3 to obtain the index level for that quarter, and so on. This way, we obtain a historical series for the MEMI for each CMA.

## List of abbreviations

CMA (province)	Abb.	CMA (province)	Abb.
Victoria (B.C.)	VIC	Kitchener-Cambridge-Waterloo (Ont.)	KIT
Vancouver (B.C.)	VAN	St. Catharines-Niagara (Ont.)	CAT
Edmonton (Alb.)	EDM	Hamilton (Ont.)	HAM
Calgary (Alb.)	CAL	Toronto (Ont.)	TOR
Saskatoon (Sask.)	SAS	Oshawa (Ont.)	OSH
Regina (Sask.)	REG	Ottawa (Ont.)	OTT
Winnipeg (Man.)	WIN	Gatineau (Qué.)	GAT
Thunder Bay (Ont.)	THU	Montreal (Qué.)	MON
Windsor (Ont.)	WDS	Quebec City (Qué.)	QUE
London (Ont.)	LON	Halifax (N.S.)	HAL

## Economics and Strategy

### Montreal Office

514-879-2529

#### Stéfane Marion

Chief Economist and Strategist  
stefane.marion@nbc.ca

#### Matthieu Arseneau

Deputy Chief Economist  
matthieu.arseneau@nbc.ca

#### Krishen Rangasamy

Senior Economist  
krishen.rangasamy@nbc.ca

#### Paul-André Pinsonnault

Senior Fixed Income Economist  
paulandre.pinsonnault@nbc.ca

#### Marc Pinsonneault

Senior Economist  
marc.pinsonneault@nbc.ca

#### Kyle Dahms

Economist  
kyle.dahms@nbc.ca

#### Jocelyn Paquet

Economist  
jocelyn.paquet@nbc.ca

#### Angelo Katsoras

Geopolitical Analyst  
angelo.katsoras@nbc.ca

### Toronto Office

416-869-8598

#### Warren Lovely

MD & Head of Public Sector Strategy  
warren.lovely@nbc.ca

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# MEMI - Metropolitan Economic Momentum Index



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