

## CA – Canada

The University of British Columbia (UBC) produces quarterly house price series for existing bungalows and two story executive dwellings located in ten main metropolitan areas of Canada: Victoria, Vancouver, Calgary, Edmonton, Regina, Winnipeg, Ottawa, Toronto, Montreal, and Halifax. Bungalows are defined as detached, one-story, three-bedroom dwellings with approximately 111 square meters of living space. Two-story executive dwellings are defined as a four-bedroom house with approximately 186 square meters of living space. Prices for the two types of dwellings are obtained through the Royal LePage house price survey.

Prices are determined by Royal LePage real estate experts based on their opinions of fair market value according to house price data from each location. Royal LePage offers disaggregated data grouped by area and property type. The UBC uses this data to create a house price series for each metro area by averaging the prices of detached bungalows and detached two story executive houses for each area. Metro data is offered at quarterly frequency, and goes back to the first quarter of 1975 for Victoria, Vancouver, Regina, Toronto and Montreal. We compute a national house price series by aggregating the ten house price series reported by UBC using a simple unweighted mean of all cities for which we have data in a given quarter.

A significant lag emerged in the publication of the house price series produced by the UBC. To avoid this lapse in data, we computed the Canadian house price series directly from Royal LePage disaggregated data. This affects the 2013Q1 through 2013Q4 releases. We collected data on bungalows and two-story executive dwelling prices in each of the ten metropolitan areas. Within each area, prices are reported for a particular neighborhood or sub-region. First we computed a weighted average for each dwelling type in each area. We used number of private dwellings occupied by usual residents from the 2006 Census as weights. In some cases, neighborhood and sub-region population data is compiled by the city and reported on the municipal government website. When this was not available, Census Tracts were used. In cases where prices are reported for suburbs, population data represents the regions with the highest concentration of single-family detached houses. The resulting weighted averages for the two dwelling types were averaged. The Royal LePage data is available starting in 2010Q1. We used the UBC data for each metropolitan area prior to 2010. The total population from the 2011 Census was used to aggregate the house price data across the metropolitan areas. 2011 Census data was not used to weight prices within each city due to lack of neighborhood and sub-region compilations.

The source of the current house price data has changed again. Starting in 2005, the series is based on the Multiple Listing Service<sup>®</sup> (MLS<sup>®</sup>) Home Price Index from the Canadian Real Estate Association, which is more timely and better reflects underlying changes in house prices. This affects the 2014 first quarter release and all subsequent updates. The MLS<sup>®</sup> index is released monthly and covers 11 major housing markets: Vancouver Island, Victoria, Greater Vancouver, Fraser Valley, Calgary, Regina, Saskatoon, Greater Toronto, Ottawa, Greater Montreal, and Greater Moncton. We use the series which is aggregated for all of these markets for single-family homes. The MLS<sup>®</sup> index is calculated using multivariate regression analysis and a hybrid model that combines the Repeat-Sales and Hedonic Price approaches. The index

therefore controls for the contributions made by various quantitative and qualitative housing features toward the house price.

The house price series are not seasonally-adjusted by the source. We seasonally-adjust the aggregate data using the BSTS model and then transform the series into an index with a base year in 2005=100. We deflate this house price series using the Personal Consumption Expenditure (PCE) deflator obtained from the OECD Economic Outlook database.

We complete the Canadian data by including a Personal Disposable Income (PDI) series, reported in *per capita* terms. To compute the PDI *per capita* series we divide household disposable income by the working-age population. Both series were available at a quarterly frequency and obtained from the OECD Economic Outlook database.

The source of the current PDI and working age population data has changed. This affects the PDI *per capita* series for the 2012 first quarter update and all subsequent updates. Net disposable income series for households and a separate net disposable income series for non-profit institutions serving households (NPISH) are collected from Statistics Canada. Both series start in the first quarter of 1981 and are added together. We use a separate discontinued series of net disposable income for households and NPISH from Statistics Canada to extend the PDI series to the first quarter of 1975. Current working age population data is now obtained from the OECD Main Economic Indicators database. It is reported at a monthly frequency starting in January of 1995, which we average to a quarterly frequency. We use the quarterly growth rates of the discontinued working age population series from the OECD Outlook 90 database to extend the series to the first quarter of 1975. We use the PCE deflator to report the PDI *per capita* series in real terms. Both nominal and real PDI measures are re-based to 2005=100.

#### *Information Resources:*

University of British Columbia (UBC) Centre for Urban Economics and Real Estate Data  
<http://cuer.sauder.ubc.ca/cma/index.html>

MLS<sup>®</sup> Home Price Index from the Canadian Real Estate Association  
[http://homepriceindex.ca/hpi\\_home\\_en.html](http://homepriceindex.ca/hpi_home_en.html)

Royal LePage  
<http://www.royallepage.ca/en/media/reports-surveys/survey-of-canadian-house-prices.aspx>

Statistics Canada  
<http://www5.statcan.gc.ca/cansim/a01?lang=eng>  
<http://www12.statcan.gc.ca/census-recensement/index-eng.cfm>

Bank of Canada Data  
<http://www.bankofcanada.ca/rates/indicators/capacity-and-inflation-pressures/real-estate-market-definitions/real-estate-market-historical-data/>

Description of Bank of Canada Data

[http://infocentre.central1.com/\\_html/pdf/can\\_housing.pdf](http://infocentre.central1.com/_html/pdf/can_housing.pdf)

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