A Word from the Economist

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The Importance of Taking Seasonal Patterns into Account in the Analysis of Real Estate Market Statistics

In our publications and presentations, we consistently remind readers of the seasonal effect in most real estate market statistics, such as sales, prices and number of properties for sale. Because of this seasonal effect, it would be inappropriate to compare the sales or prices of two consecutive months or quarters. This article focuses on the concept of seasonality and how it influences real estate statistics and their interpretation.

What is Seasonality?

Seasonality refers to the fluctuations observed in a **monthly or quarterly data series** that occur at regular intervals. We are therefore not referring to random variations, but fluctuations that occur more or less at the same time every year[1].

To give you a better idea of the concept of seasonality, think about ice cream production in Québec (see chart 1): in the months of January and February, when winter temperatures are at their coldest, people tend to eat less ice cream and production is therefore very low. Production increases in response to an increase in demand, as temperatures begin to rise, and reaches a peak in July before decreasing until the end of the year. The increase in production that occurs from January to July and the slow-down that occurs from August to December repeats every year on essentially the same scale. We can therefore say that the production of ice cream shows a seasonal nature, or is influenced by seasonality.

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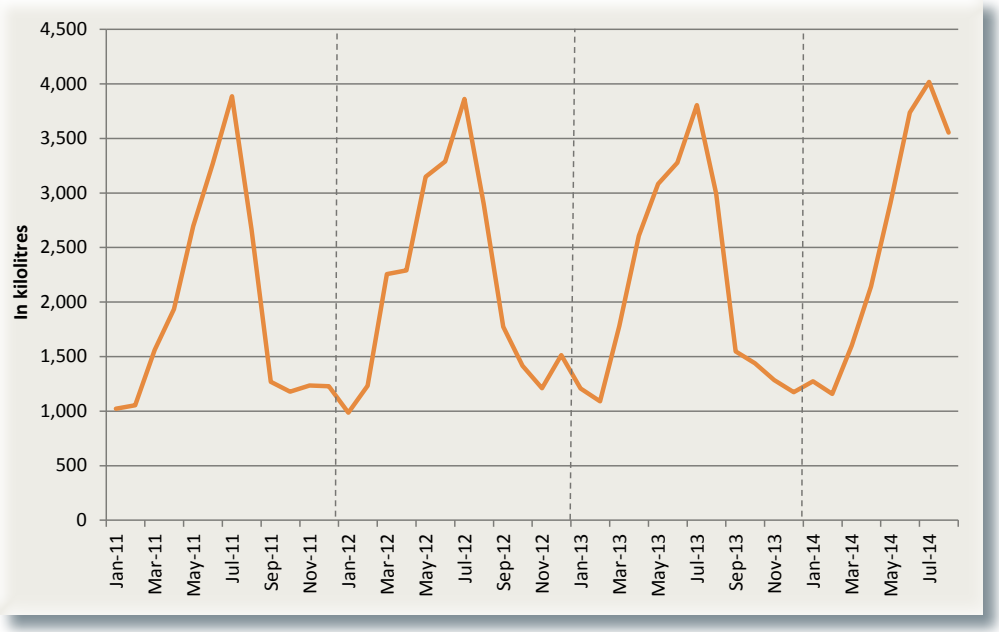
Chart 1

Ice Cream Production in Québec



Source: Statistics Canada

1 For more information about seasonally adjusted data, read the FAQ document by Statistics Canada.

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The Seasonal Effect in Real Estate

Just like the production of ice cream, real estate activity is also influenced by seasonal effects, meaning that the number of sales, the number of properties for sale and prices fluctuate depending on the time of year.

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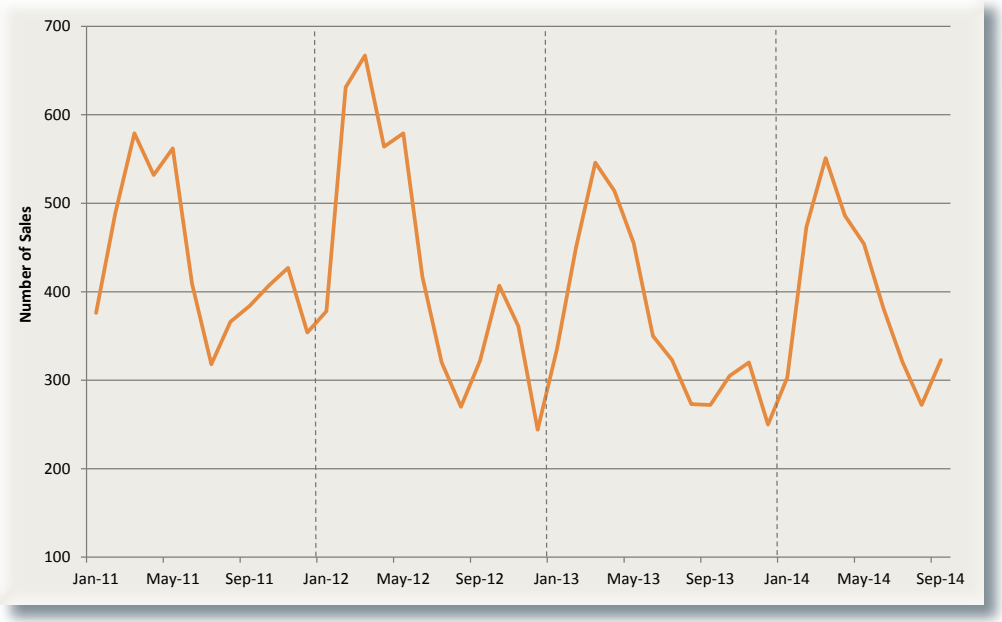
Chart 2

Residential Sales in the Agglomeration of Québec City



Source: QFREB by the Centris® system

For example, chart 2 shows the monthly evolution of home sales in the agglomeration of Québec City over the past four years. We can easily see that sales follow a pattern that is repeated year after year, and differentiates the two most active seasons of the year. Every year, sales accelerate from January to March, generally reaching a peak in March. Sales remain at a relatively high level until the month of May, when the most active period of the year comes to an end. Sales then start to drop and reach their lowest point during the standard vacation period of July-August. At the end of the summer, sales start to climb again and reach a peak in October-November, before dropping again during the holiday period in December. The first upward movement in sales is mainly due to an increase in activity among first-time buyers, who often try to move into their new home before the end of their rental agreement, which is usually June 30 in Québec. The second increase in sales in the fall is supported by more experienced buyers.

By looking at chart 2, we can clearly see that if we do not take into account the seasonal nature of sales, and compare two consecutive months, we risk concluding – every year – that there's a strong increase in sales from January to March. However, this analysis would not reveal anything interesting about the evolution of sales, as residential sales in March are consistently higher than in January due to seasonality. The same holds true for the production of ice cream: asserting that sales are higher in July than in January does not reveal any interesting trends about how the market is truly performing.

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Listings Also Follow a Seasonal Pattern

New listings follow almost the same fluctuations as sales (see chart 3): there are two main periods when new brokerage contracts are signed. The first wave takes place between January and May, with a peak in the month of March. A second, less pronounced wave can be observed between August and November. These fluctuations occur every year. It would therefore be misleading to compare the number of new listings in October with those of December, as there are always more brokerage contracts signed in October as compared to December.

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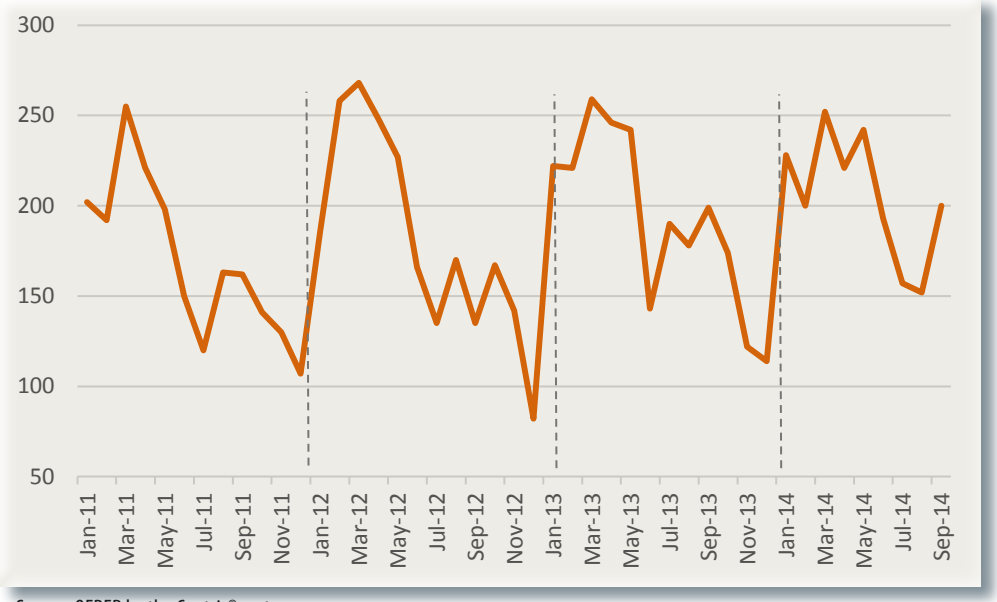
Chart 3

New Listings in the City of Saguenay



Source: QFREB by the Centris® system

Chart 4

Active Residential Listings in Québec

Source: QFREB by the Centris® system

Chart 4 shows the evolution of active listings for the entire province for the past four years, but on a quarterly basis this time. Every year, the supply of properties reaches a peak in the second quarter of the year. Subsequently, the number of active listings decreases as properties sell, and remains relatively stable in the third and fourth quarters of the year. If we compare two consecutive quarters, such as the second and third quarters of 2012, for example, we would obtain a decrease of 5 per cent. However, this calculation method does not reveal anything interesting about the evolution of the market, as a similar decrease can be observed between the second and third quarters of every year.

Seasonality in Prices

Seasonality also affects prices, and this applies to all residential property categories. Since first-time buyers are, proportionately, more active at the start of the year and, in general, they tend to buy smaller and less expensive properties, the median price or average price is lower during the first months of the year, and this is true every year (see chart 5). This does not mean that a given property will sell for a lower price at the start of the year; a property will sell for the same price regardless of the time of year it is sold. What causes the seasonal effect in prices is the difference in the composition of sales at the start of the year and the composition of sales during the rest of the year. In the first months of the year, smaller properties and less expensive properties make up the majority of sales, resulting in an average price and median price that are relatively lower as compared to the rest of the year, when the number of more expensive properties carries greater weight among total sales.

In the case of prices (like with active listings, new listings and sales), it is more appropriate to compare the result of a particular month or quarter with the same month or quarter of the previous year.

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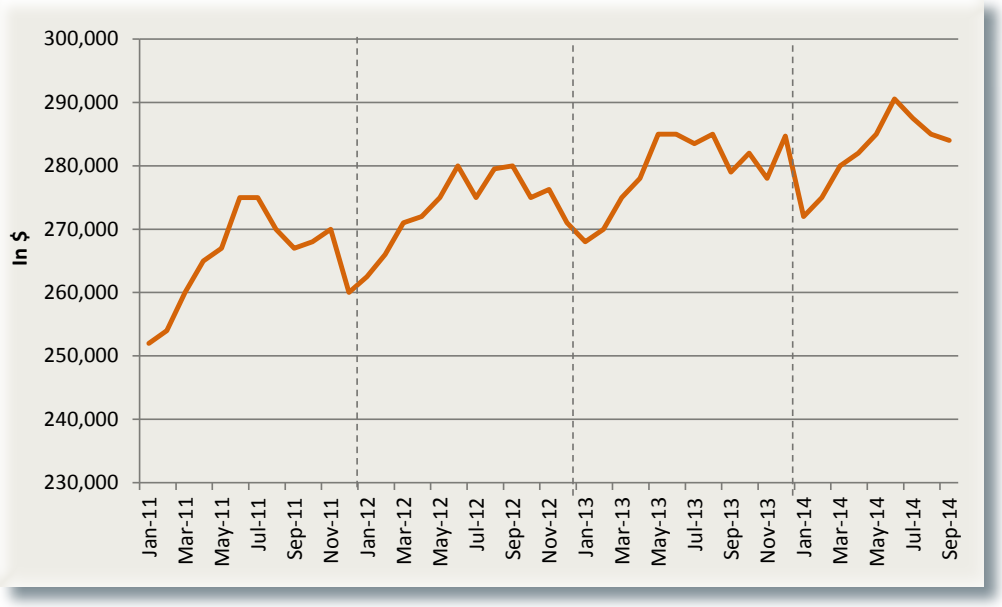
Chart 5

Median Price of Single-Family Homes in the Montréal CMA



Source: QFREB by the Centris® system

Consequences of Seasonality on the Analysis of the Real Estate Market

The seasonal nature of real estate statistics shapes the way that data must be interpreted and compared, and makes it inappropriate to compare sales, active listings, new listings and prices between two months or two quarters of the same year (consecutive or not). To obtain a relevant variation when seasonality is a factor in a data series, one solution consists of comparing the data of a given period with the data from the same period of the previous year. Thus, in chart 2, to determine if there was an increase in sales in September 2014, we must compare this number with the number of sales in September 2013, rather than the number of sales in the previous month. This approach eliminates the problem of seasonality and provides more pertinent information about real estate market trends.

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However, if the comparison value is unusual, the results should be interpreted with caution. For example, during the last economic recession in 2009, sales in the first months of 2009 were particularly low. When we calculated the variation in sales between the first quarter of 2010 and that of 2009, we obviously obtained a dramatic increase as sales in the first quarter of 2009 were exceptionally weak. In this case, it would be preferable to establish a comparison using the average of results obtained in the first quarters of several previous years in order to obtain a more representative idea of the true trends.

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Seasonal Adjustment

The other way to address the issue of seasonality is to filter out the seasonal effect, or "seasonally adjust" a data series using well-established statistical methods (see chart 6). Statistics Canada has developed methods for seasonally adjusting the vast majority of monthly or quarterly economic indicators, and their methods are considered to be the reference in Canada. It is only when seasonally adjusted data are applied to our series that we can compare two months (or quarters) of the same year. It is important to understand, however, that when data are seasonally adjusted, the number no longer represents real data, but is "corrected" data that takes into account seasonal variations. For example, when we seasonally adjust monthly residential sales data, the result no longer represents the actual number of transactions that were concluded during the month but, rather, it represents a corrected number from which all seasonal characteristics were filtered out. Furthermore, in order to seasonally adjust data, it is recommended that you have a series that covers a period of at least seven years with a minimum number of observations each month[2]. This condition makes the seasonal adjustment of data very difficult, if not impossible, for many segments of the real estate market.

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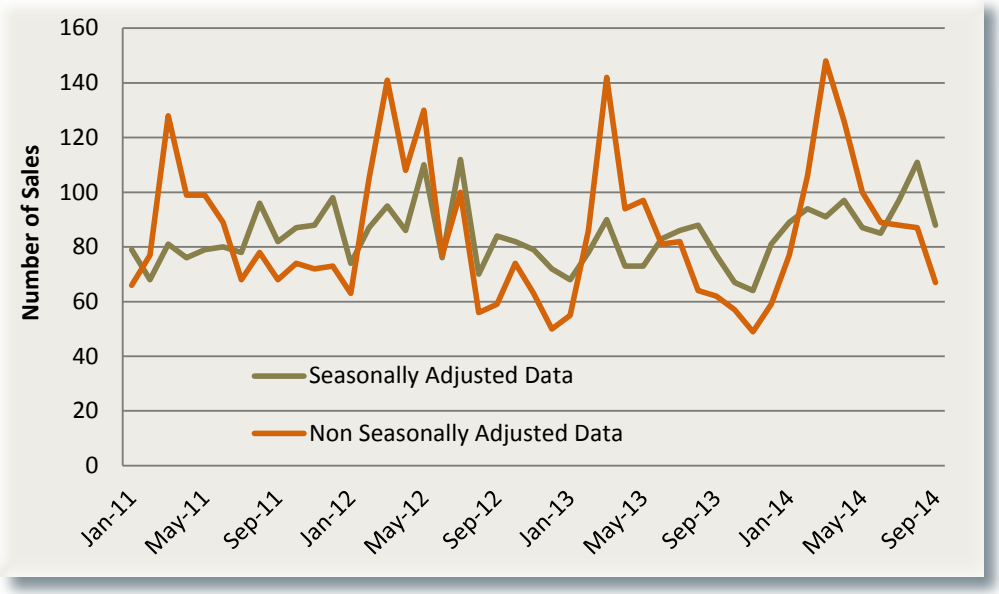
2 For more information about seasonal adjustment guidelines, click here.

Chart 6

Residential Sales in the Trois-Rivières CMA



Source: QFREB by the Centris® system and the Canadian Real Estate Association

Conclusion

To take into account the seasonal nature of the real estate market, we must compare the data we are interested in with the corresponding data from the same period of the previous year, or work with seasonally adjusted data. After considering the advantages and disadvantages specific to both of these methods, the Québec Federation of Real Estate Boards prefers, for its publications, comparing data from one month or quarter with data from the same month or quarter of the previous year.

To take into account the seasonal nature of the real estate market, we must compare the data we are interested in with the corresponding data from the same period of the previous year, or work with seasonally adjusted data.

If you have any questions or comments about the content of this article, please contact us by email at: stats@fciq.ca.

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