

# **Data Visualization with Tableau**

**Lighthouse Labs - Project 3**

**Option 1**

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# Project Goals

- Learn how to use the various features of Tableau
- Create Tableau visualizations:
  - To give meaning to various datasets
  - Make trends easier to spot
  - Help explain the historical housing market in Canada
  - Explain various relationships between various datasets

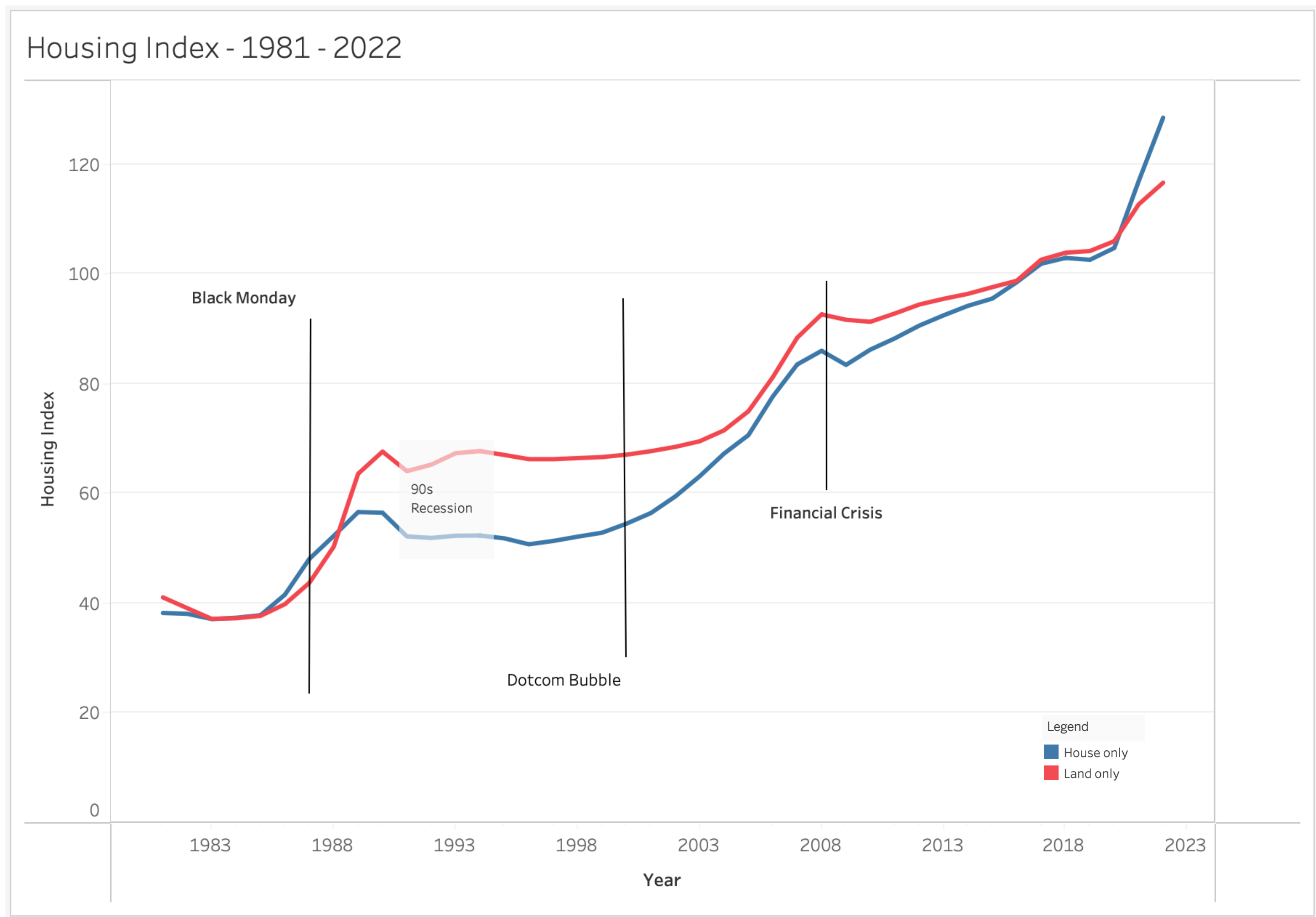
# Process

- Review data in original form for completeness, errors, missing values, etc.
- Clean data and import data into Tableau.
- Create relationships between the various tables and datasets.
- Create various data visualizations in Tableau.
- Realize insights from visualizations and answer questions regarding the data.
- Create new questions based on the visualizations that can further be answered.
- Reflect on process and see what we learned for the future.

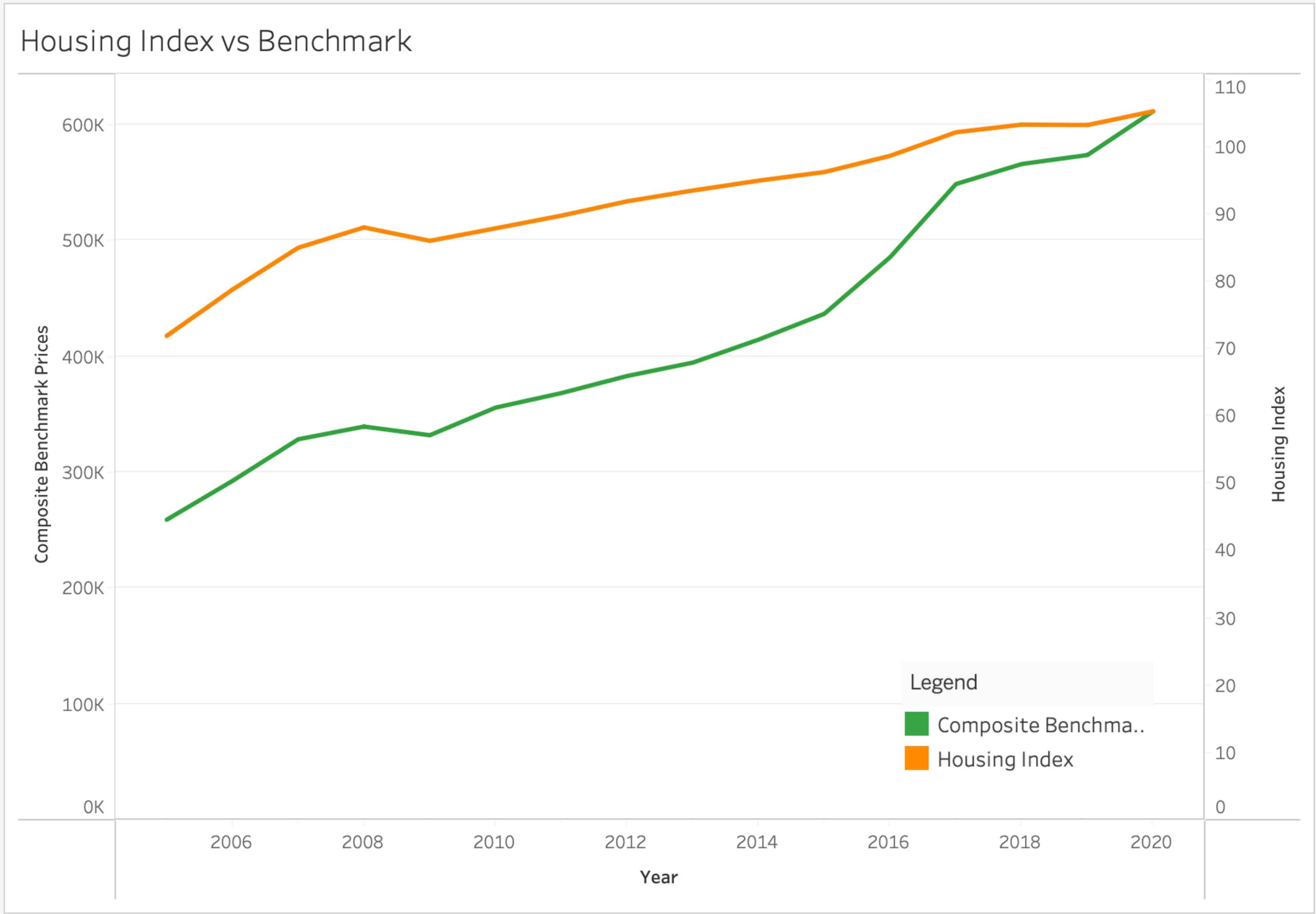
# Challenges

- Illness.
- Issue with date formats.
- CSV files not containing data in the right type. The pivot tables in the one dataset made it very hard to work with.
- Time. There is so much data and so many insights to be had that there just was not enough time to fully analyze and visualize everything that could be visualized.

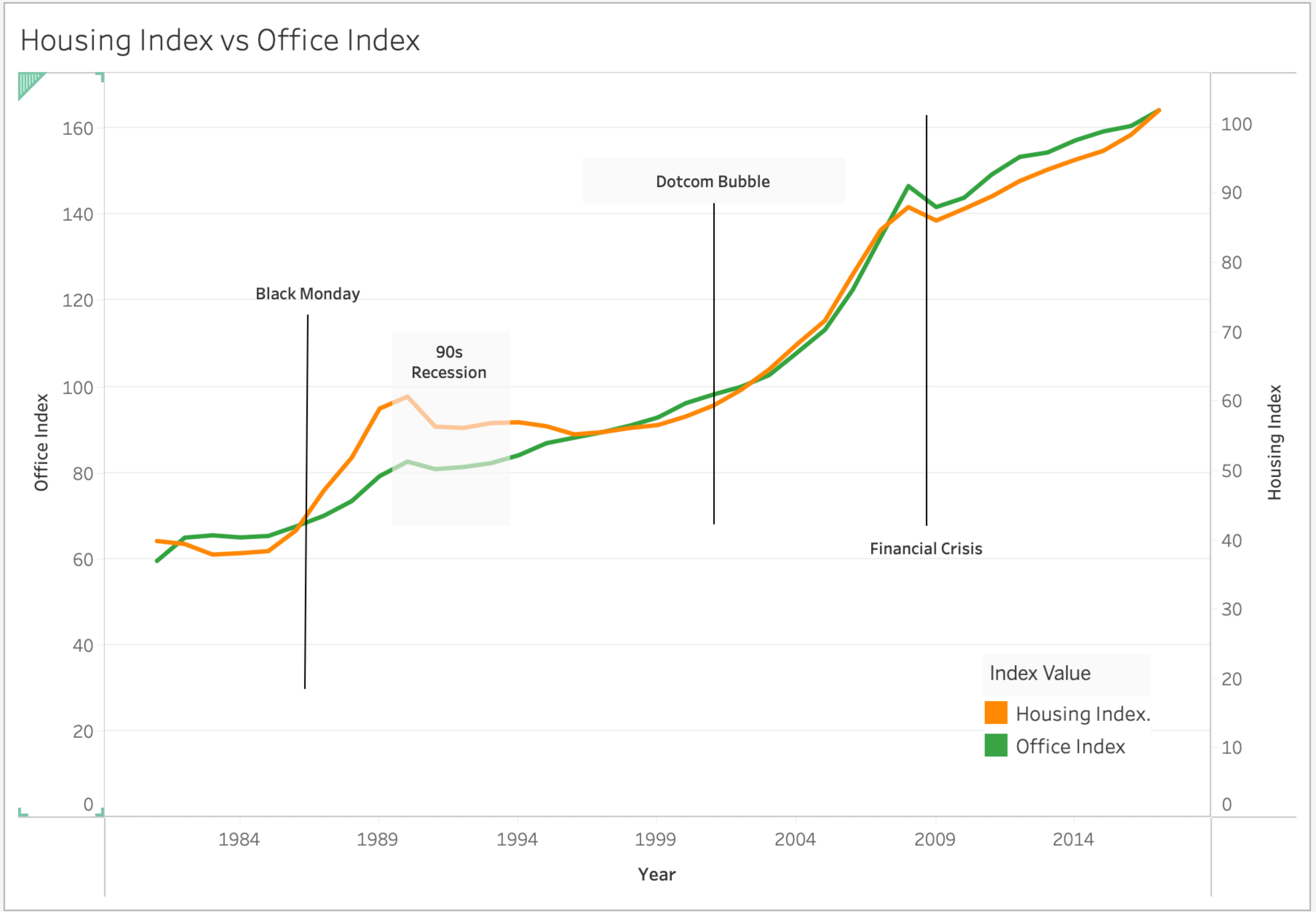
- The housing market has increased quite rapidly between 1981 and 2023.
- While there were some temporary dips caused by the 1990's recession and the 2007-2009 financial crisis, the overall trend has remained positive
- There has been an acceleration in the increases in the last few years .
- House prices and land prices have remained relatively in sync over the years with houses only very recently accelerating at a much quicker pace. This can be explained by the recent supply chain crisis and high inflation resulting in building costs being much greater.



- The housing market index and benchmark prices have both increased steadily since 2005 minus a short term correction after the 2007-2009 financial crisis.
- These two measured remained fairly in-sync up until about 2010 at which point the benchmark prices began to increase more rapidly than the housing index and are projected to surpass it in the coming years if this trend continues.



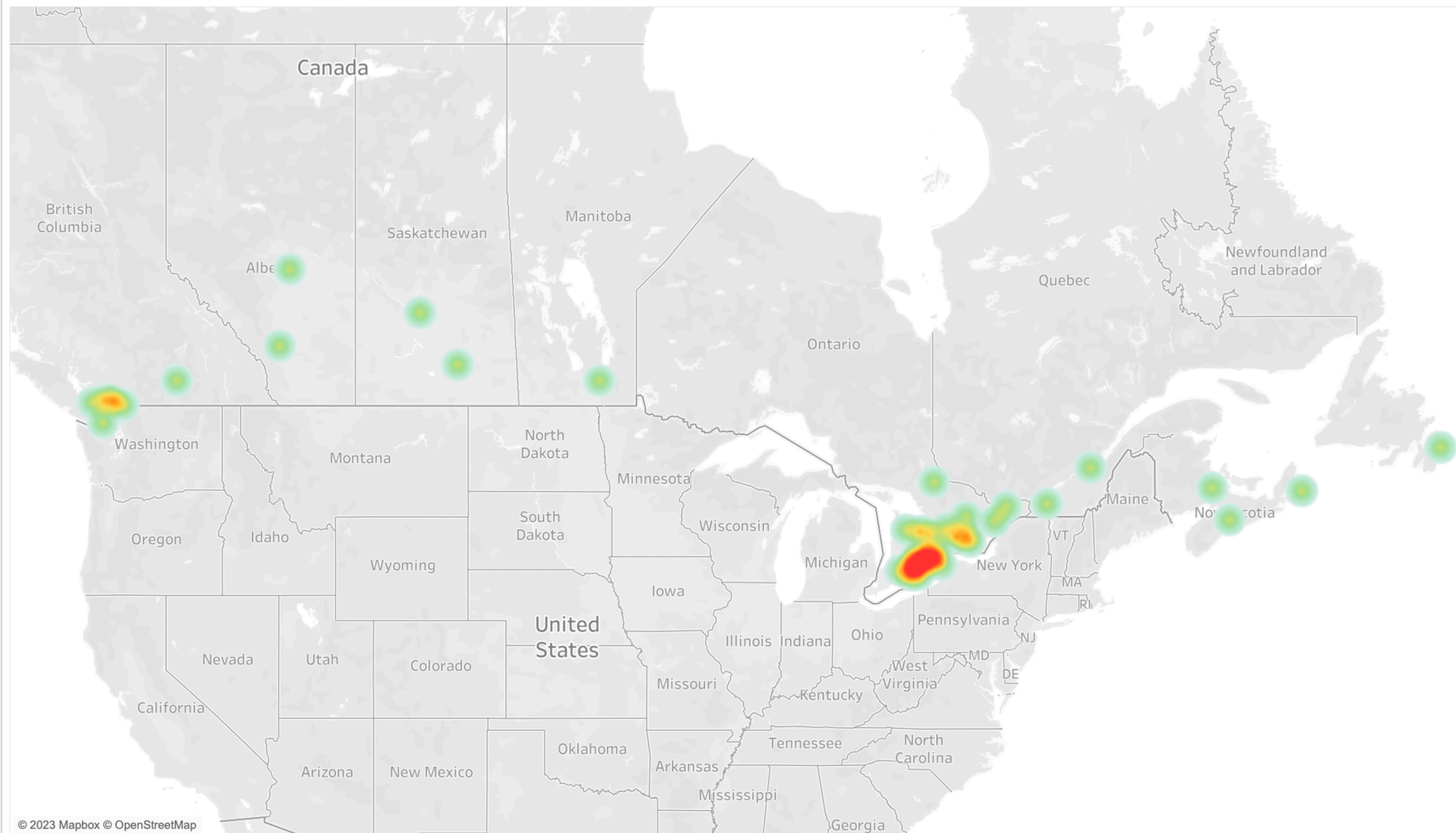
- Both the housing and office indices have increased quite rapidly between 1981 and 2015.
- While there were some temporary dips caused by the 1990's recession and the 2007-2009 financial crisis, the overall trend has remained positive.
- The overall change in average values have switched back and forth between both the office and housing markets with the housing market having recently surpassed the office index.
- There has been an acceleration in the increases post 2000 (minus the small dip already mentioned due to the 2007-2009 financial crisis).





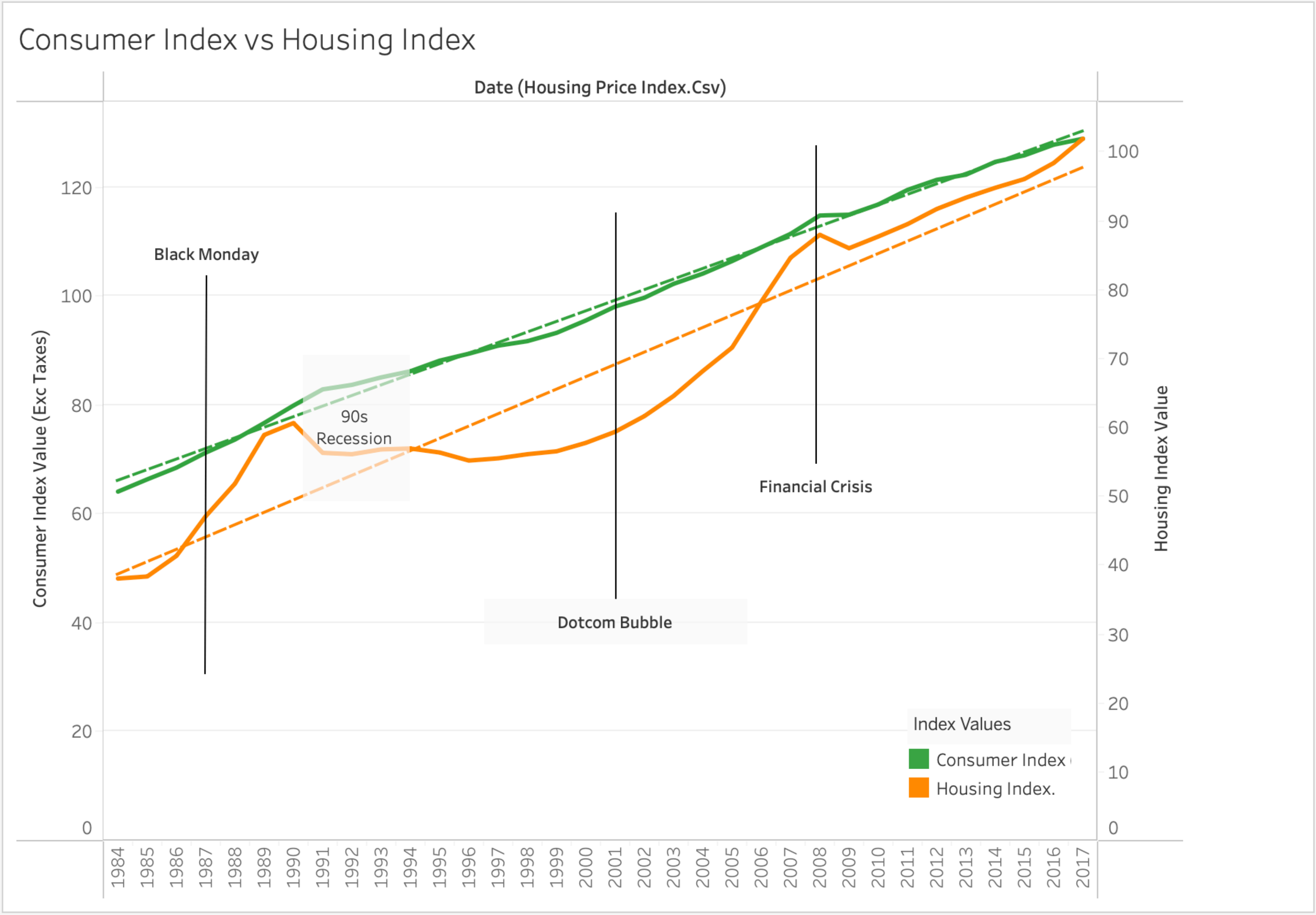
- The most expensive areas as outlined in the heat map to the right are the greater Vancouver and greater Toronto areas.
- The larger urban centres
- The overall change in average values have switched back and forth between both the office and housing markets with the housing market having recently surpassed the office index.
- There has been an acceleration in the increases post 2000 (minus the small dip already mentioned due to the 2007-2009 financial crisis).

Heatmap showing total sales vales by region for 2020

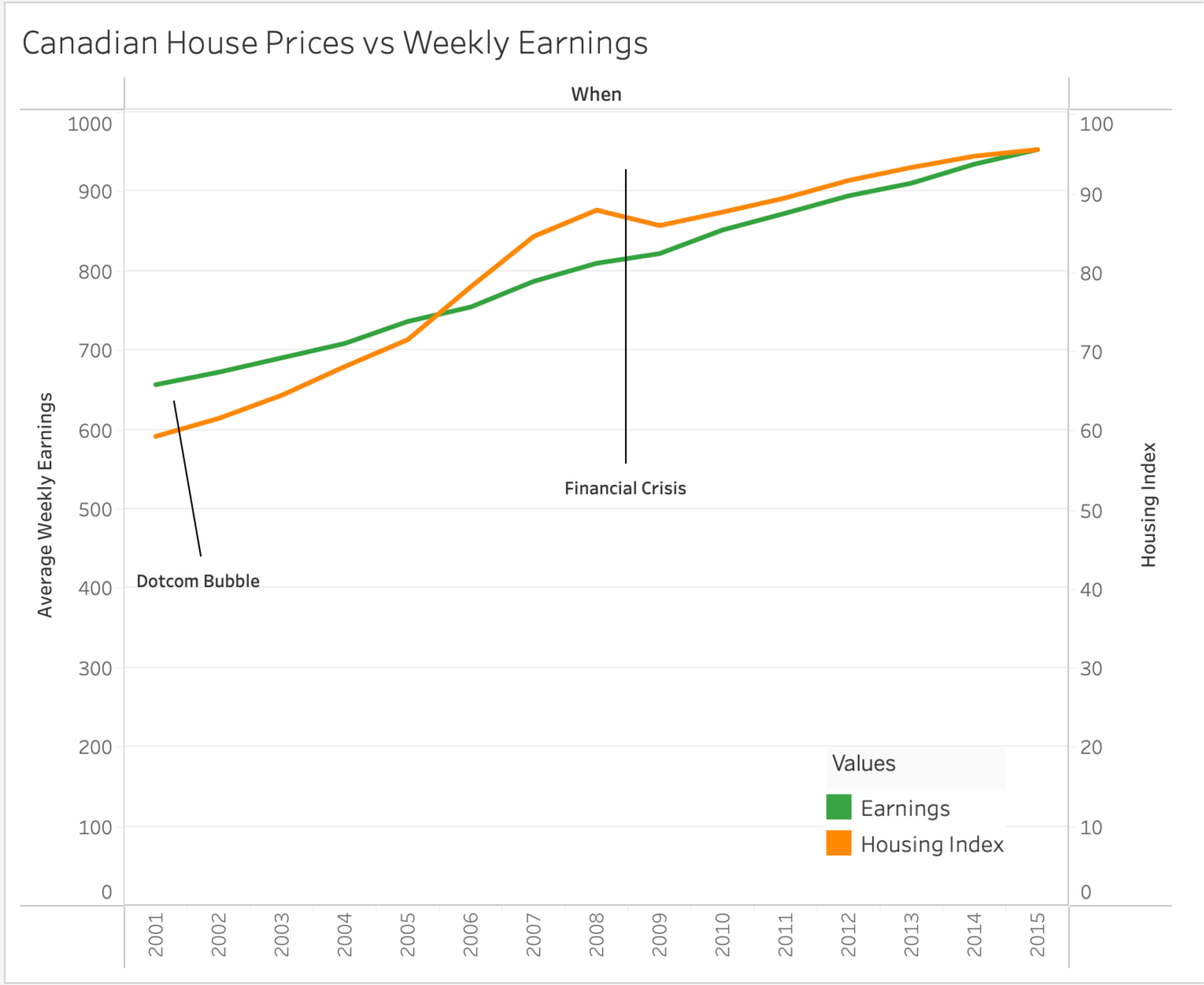




- The consumer index has remained relatively linear over the years while the housing index has been much more volatile.
- Black Monday surprisingly seemed to have not impact on either the housing or consumer index.
- While the housing index was impacted by the 90's recession negatively the consumer index actually initially increased before eventually decreasing.
- The Dotcom bubble had a small negative impact on the consumer index but the housing index kept increasing.
- The 2007-2009 financial crisis negatively affected both the housing and consumer indices.
- Plotted trend lines which show based on current trends the housing market may eventually overtake the consumer index in the coming years.



- Weekly earnings have increased on a relatively linear basis. They only took a very minor hit due to the 2007-2009 financial crisis.
- The housing index has been much more volatile and doesn't seem to move much in sync with the consumer index.
- The Dotcom bubble did not seem to have any negative impact to either index.
- Both weekly earnings and the housing index continue to increase.



# Future Goals

- Run additional visualizations to gain more insight into the housing market in Canada.
- Create and answer new questions initial insights have brought up.
- Redo the project with Option 2 with new data and new questions to get better at using Tableau.