

Understanding the Causes of High Housing Prices in Toronto

2022-04-18

PUSHPENDRA SHARMA

NORTH YORK | Toronto

Table of Contents

Executive Summary	3
1. Introduction.....	4
2. Background	5
3. Design of the Study.....	6
4. Analysis of the Results.....	6
4.1 Annual Trend of Housing Prices	6
4.2 Monthly Trend of Housing Prices	8
4.2.1 Sales to New Listing Ratio	8
4.2.2 Average Months of Inventory	10
4.2.3 Average Selling Price to Listing Price	11
4.2.4 Average Days on the Market	12
4.2.5 Top Three Affordable Districts in Toronto.....	13
4.3 Monthly Trend of Benchmark Housing Prices	14
5. Conclusion and Recommendation	15
6. References.....	16
7. Appendix.....	0

List of Figures

Figure 1: Average house price for city of Toronto over time.	4
Figure 2: Demand and supply variables and their influence on house prices.	5
Figure 3: Sales and Average housing price over time.	7
Figure 4: Interest rates and average housing price over time.	8
Figure 5: SNLR and Average Price for city of Toronto.	9
Figure 6: Variation of average months of inventory and price over time.	10
Figure 7: Avg SP/LP and Price over time for city of Toronto.	11
Figure 8: Avg DOM and Price over time for city of Toronto.	12
Figure 9: Districts in City of Toronto.	13
Figure 10: Average price of different districts in the city of Toronto.	0
Figure 11: Average price of different types of homes in each district for the city of Toronto.	1
Figure 12: MSL index for different types of homes in each district for the city of Toronto.	2

List of Tables

Table 1 SNLR ratio and its relation with market.	9
Table 2 MI ratio and its relationship with market.	10

Executive Summary

This data-driven study was undertaken to understand the causes of high housing prices in the City of Toronto. To understand the housing price trends and their causes over time, annual and monthly housing price data was scrapped from Toronto Regional Real Estate Board's (TRREB) website. First, we analyzed the trend in housing prices over the last 26 years and understood the effect of socio-economic parameters such as population, interest rates, and sales on housing prices.

We also analyzed the trend in housing prices monthly for each district in Toronto in the last 10 years. Based on the analysis of supply and demand parameters such as sales to listing ratio, months of inventory, and average days on the market, we concluded that the housing market in Toronto is a supplier's market and there is a lack of supply. Finally, we analyzed the benchmark prices for different types of homes in each district to understand the effect of house type on the price.

Based on our analysis, we recommend that more houses should be built by increasing the rate of construction to counter the lack of supply in the market. Also, the population density in Toronto is 1/4th as compared to other metropolitan cities such as London, and New York, therefore, increase density in neighborhoods zoned exclusively for single-family homes.

1. Introduction

The number of houses sold in Greater Toronto has doubled and the housing prices have increased by 450% since 1996. The average house price in 1996 was \$198,150 which now has increased to \$1,095,475 in 2021 or by 453 percent and a compound annual growth rate of 7.08 percent. More than a million houses have been sold since 1996 in GTA areas with a total dollar volume greater than \$1.1 trillion. [1]

Figure 1 shows the change in housing prices since 1976.

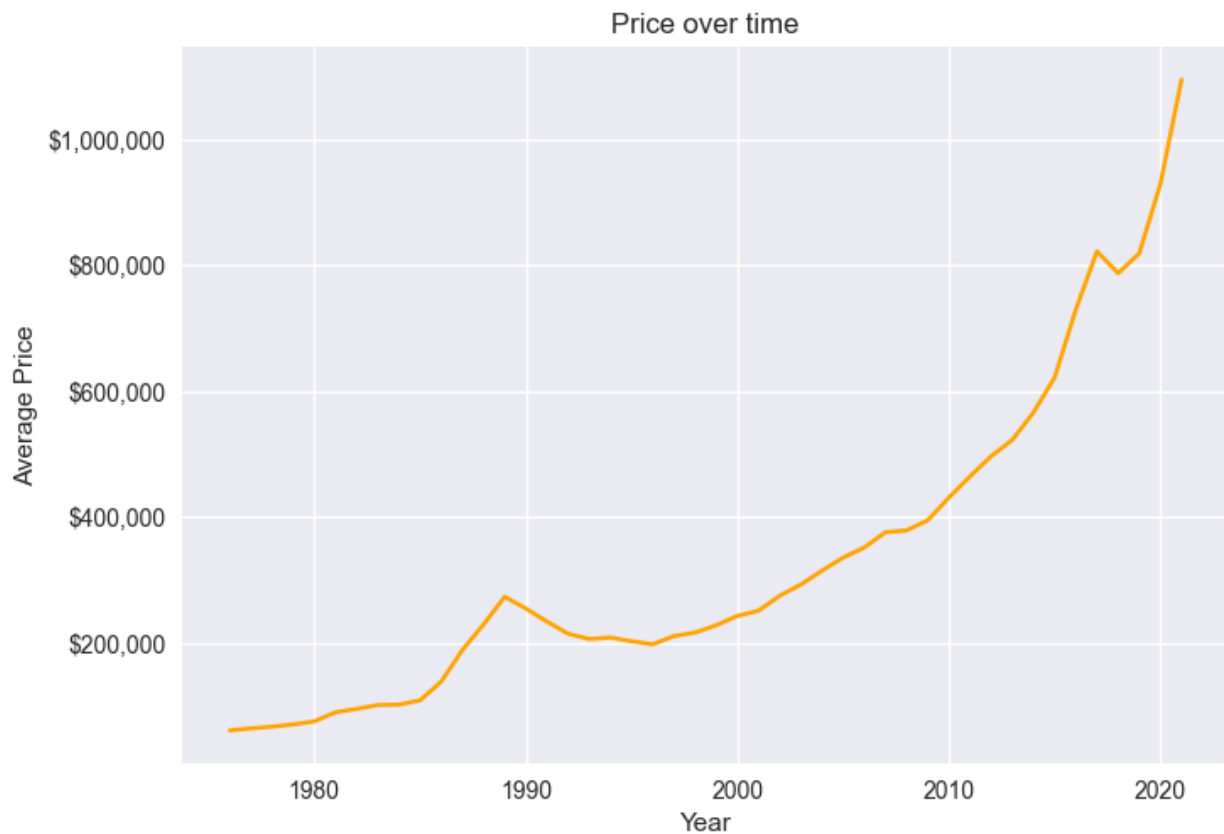


Figure 1. Average house price for the city of Toronto over time.

We can see that housing prices are increasing exponentially with time. There have been explanations for the exponential increase in the prices over time, but these explanations have been non-quantitative and the data underlying these explanations have been scarce. In this study, data from TRREB's website was scrapped and analyzed using python to understand the drastic increase in housing prices over time.

2. Background

The Re/Max report analyzed the housing market in certain neighborhoods such as Toronto East, Toronto West, Toronto Central, Durham, Halton, Peel and York Regions, and Simcoe and Dufferin Counties. The report concludes that the reasons for high prices were population growth, land scarcity, and low-interest rates.[2]

Over the last 17 years, the population of the city of Toronto has grown by 1.77 million, or by 42% [3]. This rate of population growth is mainly attributed to immigration from other countries and provinces. In considering future trends in aging, mortality, fertility, and migration, the Toronto CMA's population is projected to grow by 47 percent by 2041, with the region welcoming 2.81 million net new residents over the next 28 years. This increase in population will bring an increase in demand for housing.

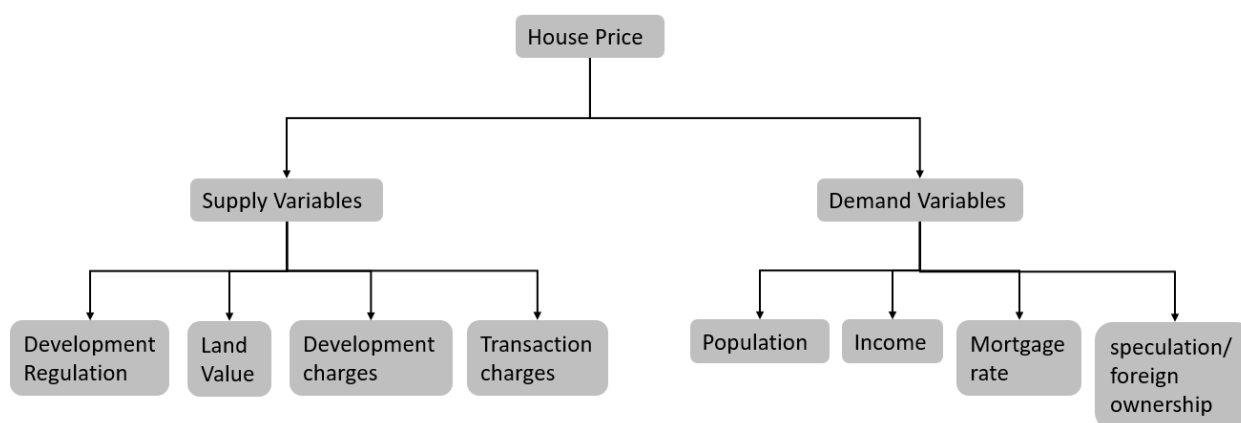


Figure 2: Demand and supply variables and their influence on house prices.

Figure 2 shows the basic forces of economics that drive the housing market – supply and demand. It also shows different micro variables that make up the supply and demand for the housing market. On the supply side, we have property development regulation, availability of land its price, development charges by the government, construction cost, transaction charges, and property tax. If government regulations are tough and the cost is high, it would be difficult to construct houses which will lead to a lack in supply.

On the demand on the demand side, we have everything from immigration to wage growth and lower rates which is a function of affordability. Also, on the demand side, we've got speculative investment and foreign and laundered money that increase competition in the market and drive housing prices high. For this study, based on the availability of data, I am going to focus on the supply side of the housing market. The goal of the study is to analyze the supply levels of houses in the market and based on the analysis propose a policy to cool down prices.

3. Design of the Study

To understand the trend in housing prices using data analysis, the following steps were undertaken:

1. Download pdf files that contain tabular data for annual and monthly housing prices.
2. Scrape data from pdf files to CSV files using python.
3. Perform data wrangling for bringing data into a tabular format.
4. Perform data cleaning to change get correct data types and deal with missing values.
5. Carry out exploratory data analysis (EDA) to generate insights regarding housing prices.

Python was used for data scraping, wrangling, cleaning, and exploratory data analysis. Excel and matplotlib were used for EDA and data visualization. Based on the data analysis using the above methodology and tools actionable policy is proposed in the conclusion and recommendation section.

4. Analysis of the Results

This section presents the result for the steps defined in the last section.

4.1 Annual Trend of Housing Prices

We can see from the figure that the number of houses sold is increasing over the years. There were three abrupt changes in the sales for the years 1986, 2007, and 2016. The sales were very high during these years and then decreased drastically during the next few years. The abrupt change in sales during 1986 was due to the housing bubble [4]. Similarly, the sudden drop in sales between the years 2007 and 2010 can be attributed to the 2008 financial crisis in the US [5].

Finally, there was a sudden change in housing sales in the year 2017. Experts [6] say this happened due to the Ontario government's regulation, fair housing plan that consisted of 16 new rules to cool the housing market. The most important rule among these was 15% non-resident tax.

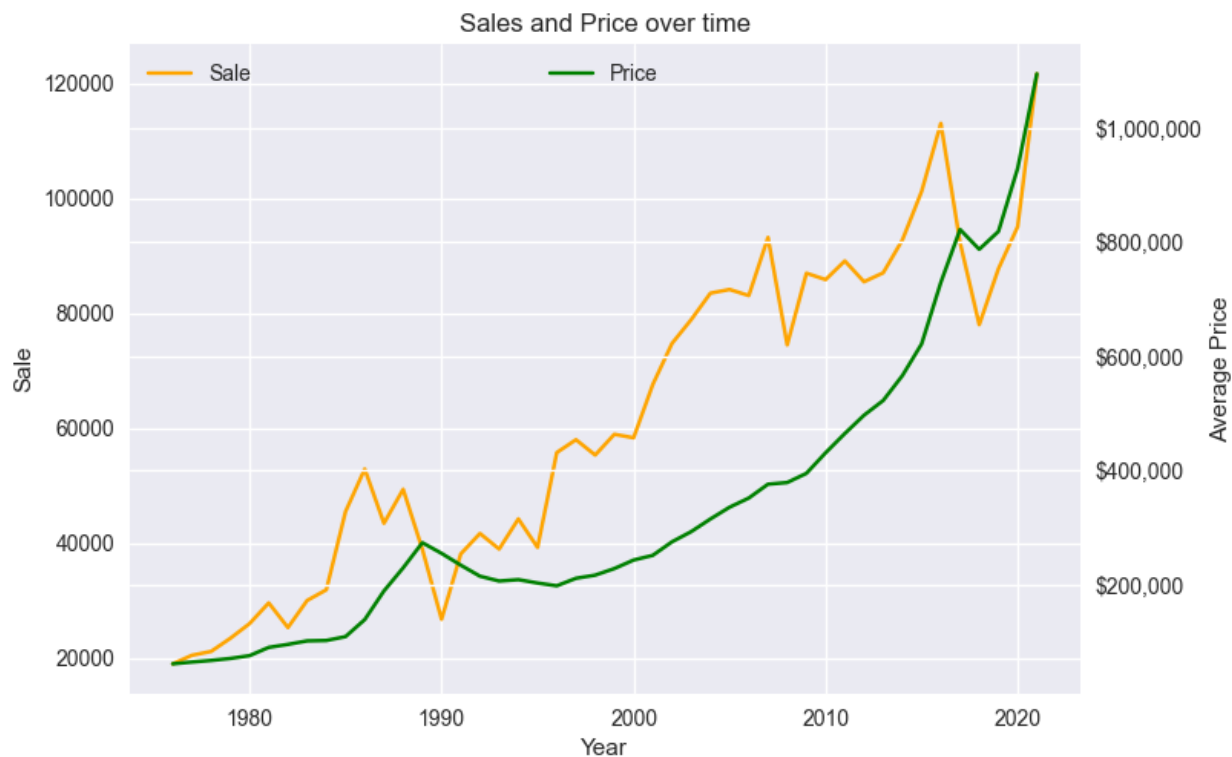


Figure 3: Sales and Average housing price over time.

We can also see from *Figure 3* that the price has a trend similar to sales over the years. This makes sense if we sell a greater number of houses the demand for houses will go up and that will lead to an increase in the price of houses. One thing to note here, there is a time lag between the trend for sales and price i.e., the peak point for sales is lagging behind 3 years as the change in demand takes time to show effects on price. We can also see that there are three inverted V shape peaks in the graph for the years 1989, 2007, and 2016. The reason for these peaks is the same as for sales - the 1989 housing bubble, 2008 financial crisis, and 2017 Ontario government regulations.

Between the years 1985 and 1989, the price of a house in Toronto increased 150%. A low unemployment rate in the late 1980s (7.5% as compared to 11.4% in 1985) and large immigration inflow (11.5% increase from 1980 to 1985) helped to inflate the housing bubble. Further analysis is needed to assess the reasons for the housing bubble in 1989.

It took thirteen years (1989 to 2002) to recover housing prices to the levels in 1989 in Toronto. And this calculation is without accounting for the inflation over the 13 years. It took only 2 and 3 years to recover the housing market in the years 2008 and 2017, respectively.

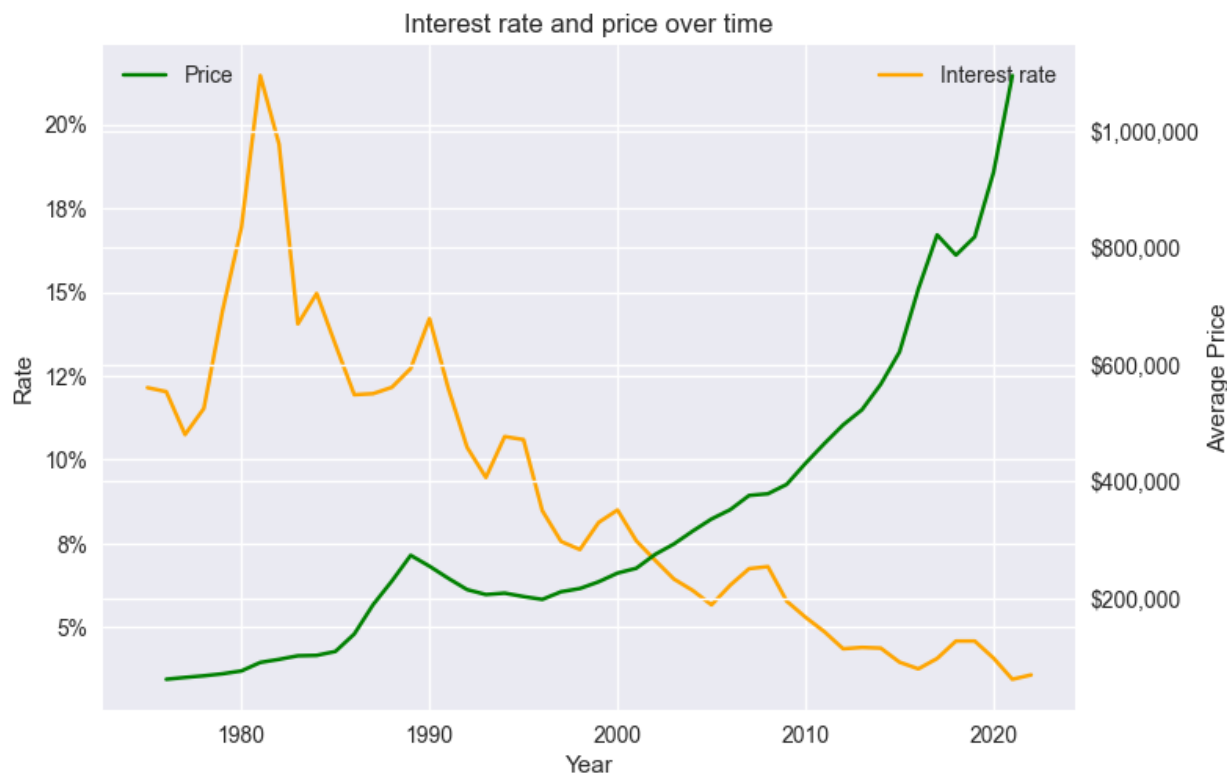


Figure 4: Interest rates and average housing price over time.

Figure 4 shows the variation of the 5-year fixed mortgage rate and average price over the years. In general, when interest is high, it is expensive to buy a house which leads to a decrease in demand. We can see for the year 1989 the prices are going down due to an increase in the interest rate. A similar pattern can be seen in the year 2017 when the Ontario government increased the interest rates by 15% for non-residents.

4.2 Monthly Trend of Housing Prices

To further understand the reasons/causes of drastic changes in housing prices over recent years, we will analyze the data with more granularity. To increase granularity, house price data for different neighborhoods for each month for the last 10 years was collected.

4.2.1 Sales to New Listing Ratio

Figure 5 shows the variation of sales to the new listing ratio (SNLR) (calculate by 12 months moving average) and price over the last 10 years for the city of Toronto.

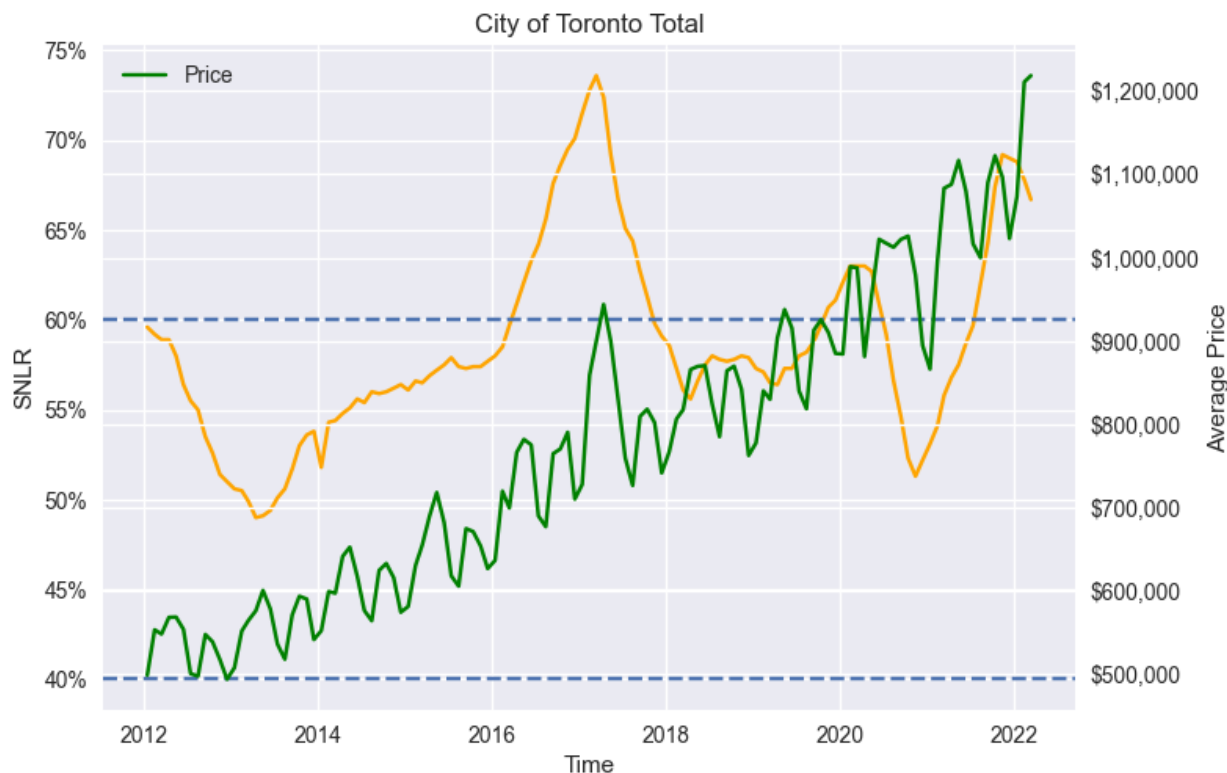


Figure 5: SNLR and Average Price for the city of Toronto.

The SNLR ratio is related to market dynamics in the following way:

Table 1 SNLR ratio and its relation with market.

SNLR Value	Market	Comment
Below 40%	Buyer's Market	Gives a chance to buyers to come at lower prices
Between 40% to 60%	Balanced Market	Balanced market where prices are reasonable
Above 60%	Seller's Market	Conditions are favorable for sellers to get higher prices for their homes

The curve in orange represents the variation of SNLR over time. We can see that SNLR was above 60% between 2016 and 2018. It again became more than 60% at the end of 2021 and is currently above 60%. The SNLR above 60% represents a seller's market i.e., there is a large number of qualified buyers competing for a small number of homes, allowing sellers to drive up the prices. This situation also represents a lack of house supply in the market.

The SNLR ratio always has been greater than or equal to 50% for the city of Toronto. This shows that in the last 10 years the housing market in Toronto never has been a buyer's market. Also when SNLR goes up the price of houses goes up. This trend can be seen in the year 2017 and at the end of 2021. The increase in SNLR ratio causes a lack of supply of houses which allows suppliers to set high prices.

4.2.2 Average Months of Inventory

Figure 6 shows the variation of active listing to sales ratio (calculated by 12 months moving average) also known as months of inventory (MI) and price over the last 10 years for the city of Toronto.

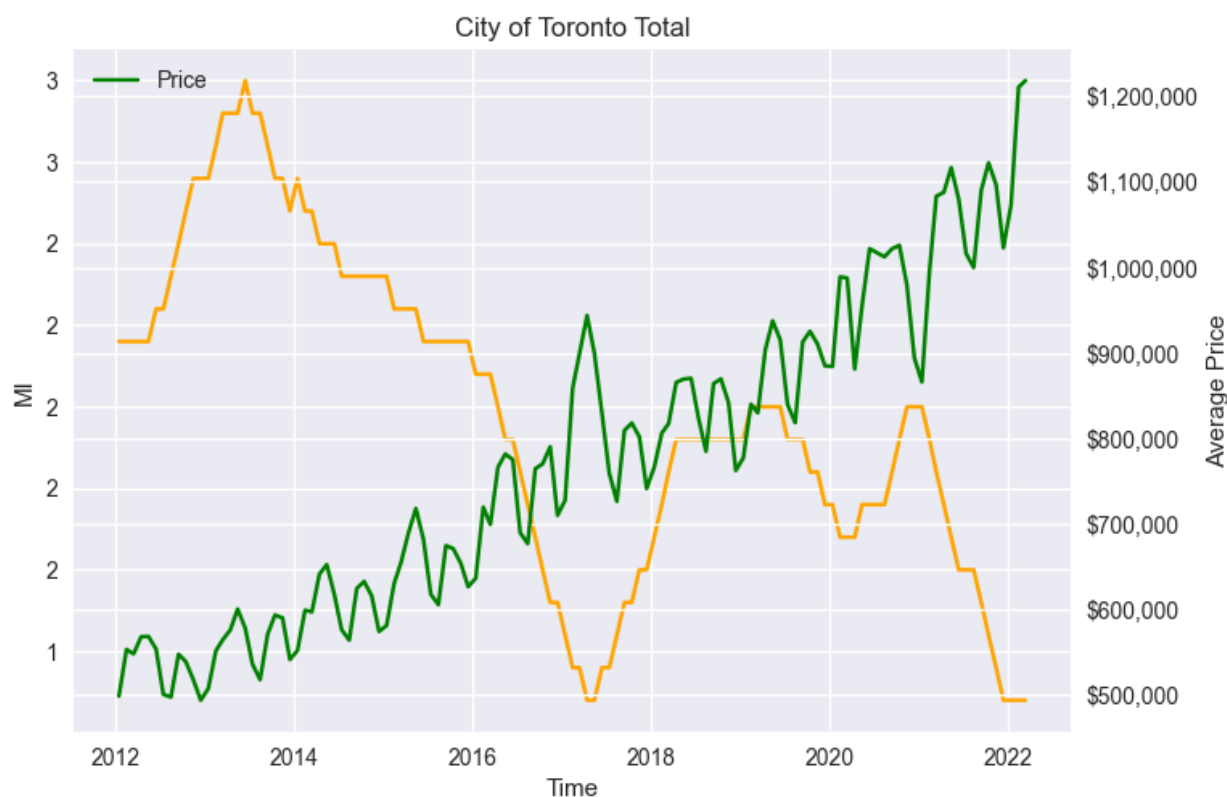


Figure 6: Variation of average months of inventory and price over time.

The MI ratio is related to market dynamics in the following way:

Table 2 MI ratio and its relationship with the market.

MI Value	Market	Comment
Above six months	Buyer's Market	Gives a chance to buyers to come at lower prices
Between 4 and 6 months	Balanced Market	Balanced market where prices are reasonable

Below six months	Seller's Market	Conditions are favorable for sellers to get higher prices for their homes
------------------	-----------------	---

The curve in orange represents the variation of MI over time. We can see that MI has been below 4 months for the last 10 years. The value below 4 months for MI represents the seller's market i.e., there is a large number of qualified buyers competing for a small number of homes, allowing sellers to drive up the prices. This situation also represents a lack of house supply in the market. From the graph above we can say that presently the value of MI is 0.5 months i.e., it would take just 15 days to completely liquidate current inventories at the current rate of sales activity.

Also, we can see that when MI goes down the price of houses goes up. This trend can be observed during 2017 and at the end of 2021. The low value of MI represents a lack of supply which drives housing prices high.

4.2.3 Average Selling Price to Listing Price

Figure 7 shows the ratio between average selling price to listing price (SP/LP).

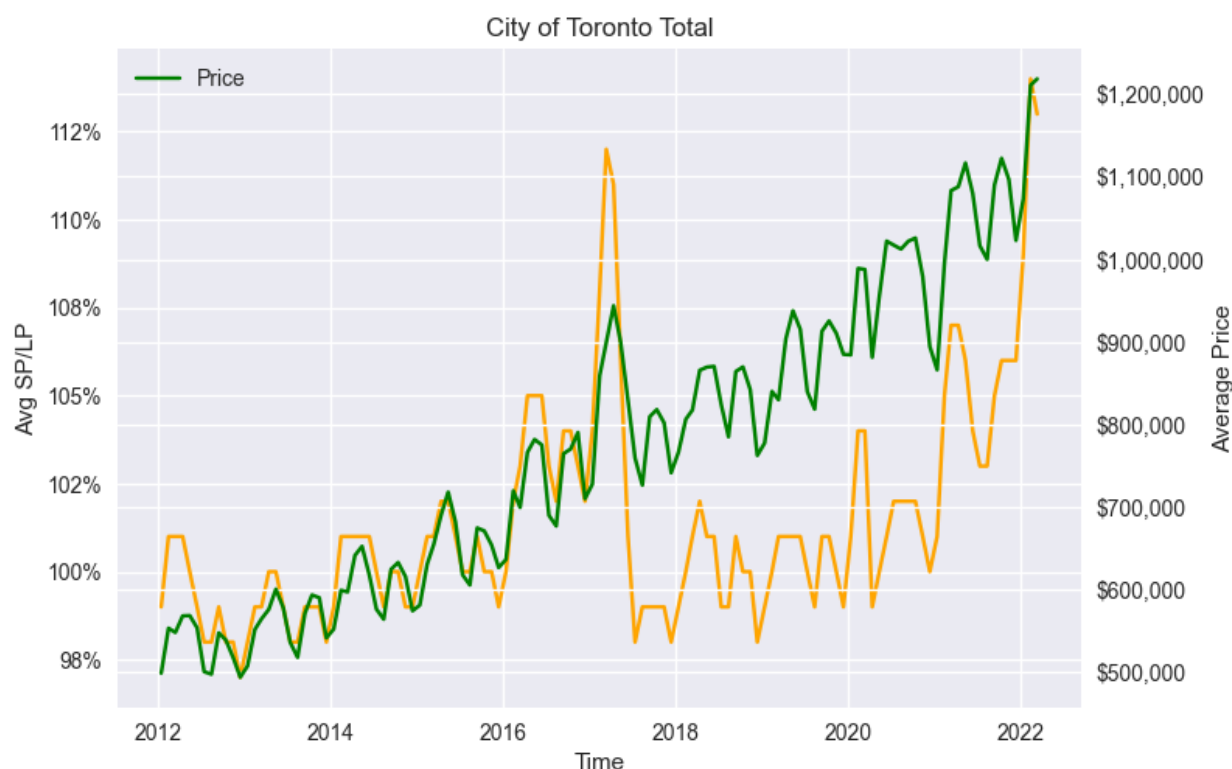


Figure 7: Avg SP/LP and Price overtime for the city of Toronto.

The average selling price to listing price (SP\LP) is represented in percentages. If a house has SP/LP greater than 100% this means the house was sold at more than the listing price. This ratio can help us in understanding how closely buyers and sellers are estimating the price of a house. In other words, if the ratio is more than 100% it represents a strong real estate market.

From the figure above we can say that the ratio remained above 100% for the city of Toronto except for some times between 2012 to 2014 and 2017. This shows that the real estate market is very strong in Toronto. The high ratio also shows that people are selling houses at higher prices than the listing prices. This indicates a shortage of houses in the market (lack of supply).

Looking at the trend for the SP\LP ratio, we can say that with an increase in the SP\LP ratio the price of houses also increases. We can see this trend in the year 2017 and at the end of 2021.

4.2.4 Average Days on the Market

Figure 8 shows the average number of days (Avg DOM) a house remained on the Toronto MLS system before it sold.

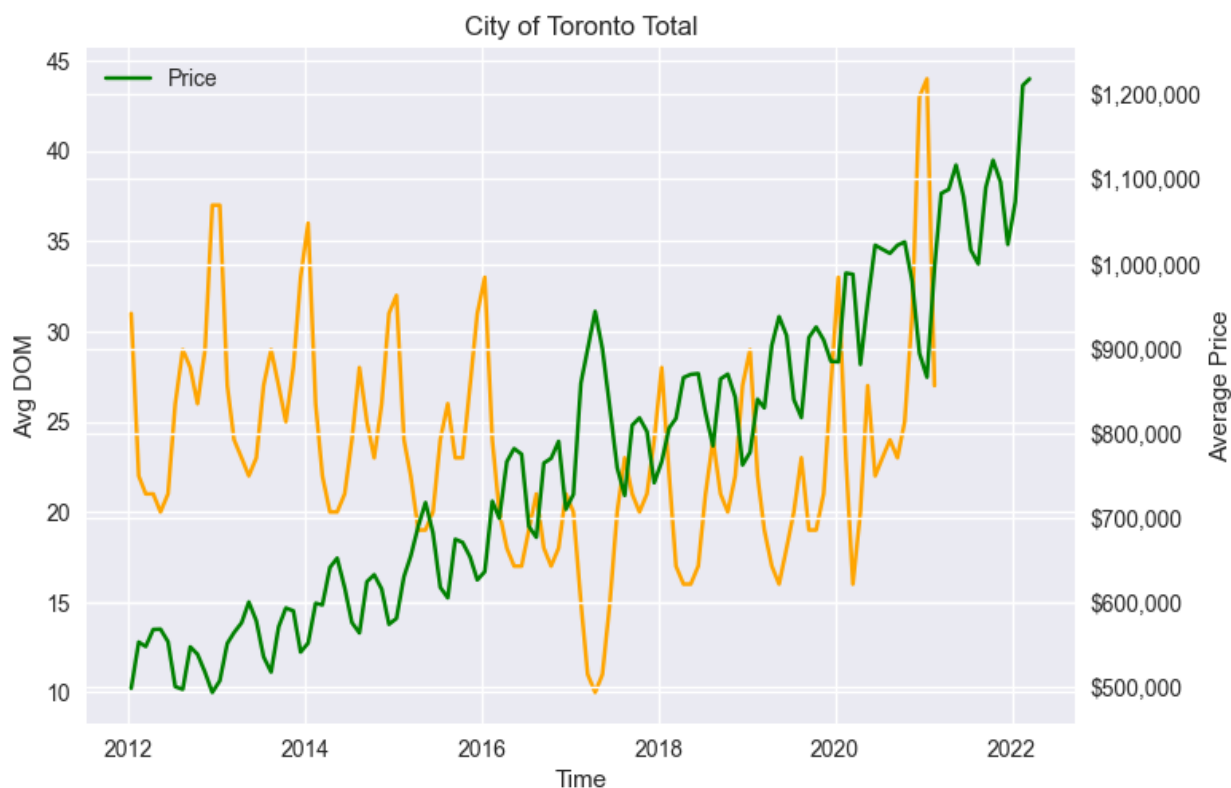


Figure 8: Avg DOM and Price overtime for the city of Toronto.

A longer DOM value represents that the market has become less competitive. This essentially means that the buyers are taking their time to pick the best options as there is enough supply

(choices) in the market. Similarly, lower values of DOM represent that the market is competitive, and buyers don't have enough options to buy so they are willing to pay higher prices. In the figure above we can see that the Avg DOM was around 10 in 2017. This means that a typical house in the city of Toronto sold just in 10 days. The lower value of DOM indicates the lack of supply.

Also, from the figure, we can see that with the increase in DOM the price of houses decreases. This trend can be seen in 2017 and 2020. It should be noted that the Avg DOM data was not available for part of the years 2021 and 2022.

4.2.5 Top Three Affordable Districts in Toronto

Figure 9 shows different districts in the city of Toronto.

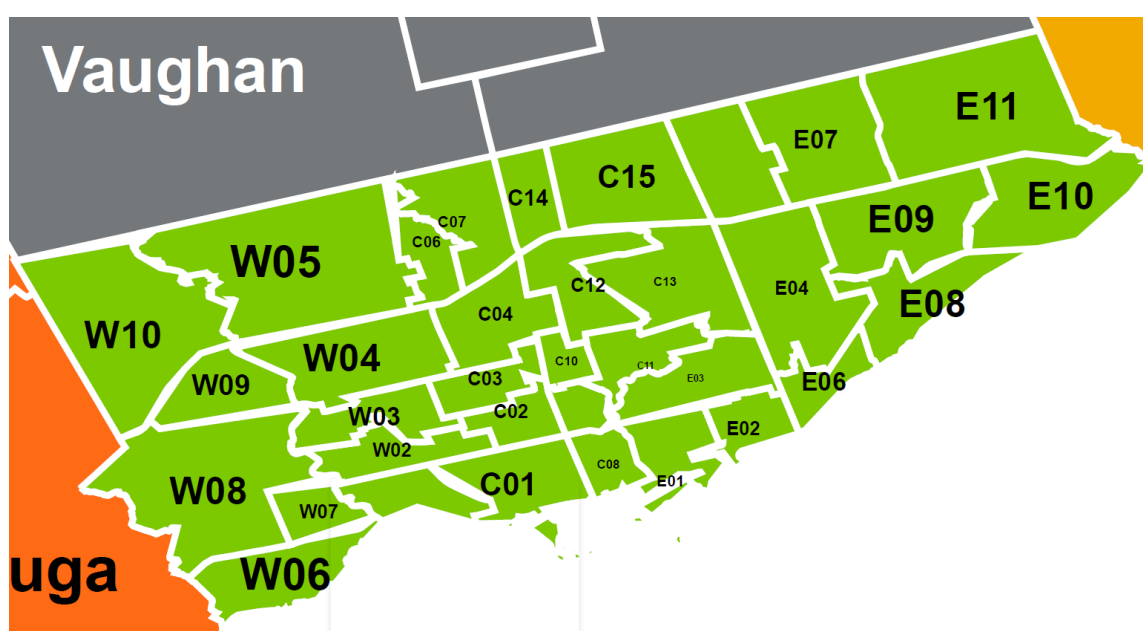


Figure 9: Districts in the City of Toronto.

We can see in *Figure 10* that all the districts in Toronto have house prices of more than 1M in 2022.

Toronto west has prices above 1 million for all the districts. The district W10 which is comprised of Rexdale, Clairville, Thistletown-Beaumont Heights, and Smithfield With had an average price of around 600k in 2020 but the average housing price in this district currently is above 1 million. This district saw a large change in average prices as compared to other districts in western Toronto. A similar trend can also be seen in the W05 district, which is made of Black Creek, Humber Summits, York University Heights, Hembermede, and Downsview Roding.

Central Toronto also has house prices over a million. Some of the districts such as C12 in central Toronto have average house prices of more than 4 million dollars. This district includes the Bridle Path, known colloquially as Millionaires' Row and home to hulking estates, including one formerly owned by Prince. Currently, the most affordable districts in Toronto are C01, C08, and C15.

C01 district comprises Niagara, Waterfront communities, Chinatown, trinity Bellwood, and little Portugal. C08 district comprises Regent Park, Moss Park, waterfront communities, and North st. James town. Finally, the C15 district comprises Don valley village, Bayview village, henry farm, and pleasant view. **These districts had the lowest prices in central Toronto. People looking for affordable housing should look for these apartments.**

East Toronto also has prices in the range of millions with the maximum average price going around 1.4 million dollars. District E2 which includes The beaches, east end Danforth, and woodbine corridor has the highest prices. The district E05 which includes Steels, L'Amoreaux, and Tam O-shanter suvillian is the most affordable in East Toronto.

Based on this Analysis all the top three districts are in Central Toronto, namely, C01, C08, and C015.

4.3 Monthly Trend of Benchmark Housing Prices

The benchmark price is calculated by TRREB to gauge a neighborhood's home price levels and trends. This price is calculated using an index that is determined based on a sophisticated statistical model that considers a home's quantitative (e.g., the number of rooms it has) and qualitative (e.g., whether it has a finished basement) features.

Figure 11 shows benchmark prices for composite (Cp), Single-family detached (SFD), Single-family attached (SFA), Townhouse (Th), and Apartment (Ap) houses over the last 10 years. We can see for all the districts SFD houses have the highest price while apartments have the lowest benchmark price. After SFD people prefer SFA and composite type houses as shown by the graph trends.

Interestingly C01 and C08 did not have much difference in the benchmark price for SFD and SFA type houses as seen for other districts. We can compare these benchmark prices to average house prices for understanding inflation in prices for different types of houses.

One thing to note here, the benchmark price for SFD houses in the C15 district is more than 2 million but the average house price was only one million This may represent two things - either the houses are undervalued in the C15 district or the SFD prices are too high as compared to other types of housing which are driving the average house prices lower than 1M.

Figure 12 shows the variation of the MLS® HPI index for different types of houses over the last 10 years. The index represents a change in housing prices with respect to price levels at a

point in time to price levels in a base (reference) period. The base period has an index value of 100. The benchmark prices for this data are set in January 2005. So, if the index for a house is 300, this means that the price for this house has increased by 200% from the base period.

If we look at the index for different types of houses for the districts C01, C08 and C15, we can see that the increase in the index for C01 for SFD, and SFA is the largest in recent years. This means demand for SFD and SFA houses is high in district C01. For C08, the index is increasing at approximately a similar rate for all types of houses. This shows that demand for all types of houses is high in C08. Finally, the index for apartments has increased drastically for C15 in recent months this means the rate of increase in demand for apartments is more as compared to other types of houses.

5. Conclusion and Recommendation

In this study, we first analyzed the annual trend in average housing prices for the city of Toronto since 1976. The annual analysis of trends and their relationship with socio-economic parameters gave insights into housing market events such as in 1989, 2008, and 2017 when housing prices had sudden changes over a small duration of time.

The monthly housing price was analyzed using parameters such as SNLR, MI, Avg SP/LP, and Avg DOM to understand the causes of the drastic increase in price in recent years. Based on the values of SNLR, MI, Avg SP/LP, and Avg DOM, it was observed that the housing market in each of the districts is a seller's market. We concluded that there is a strong lack of supply based on these parameter values and we recommend bringing a policy to deal with the lack of supply.

Finally, we analyzed the index and benchmark price for each type of house for each neighborhood in the city of Toronto. The index showed that single-family detached homes are in very high demand as compared to single-family attached, townhouse, composite, and apartments type homes.

Based on the analysis we observed that the districts C01, C08, and C15 had the lowest average price as compared to other districts. We recommend that potential developers and customers buy property in these districts due to lower prices as compared to other districts. Although further analysis is required to understand the causes of low prices in these districts.

This study recommends a policy to build more houses by increasing the rate of construction to counter the lack of supply in the market. Also, the population density in Toronto is 1/4th as compared to other metropolitan cities such as London, and New York, therefore, increase density in neighborhoods zoned exclusively for single-family homes.

In the future, we plan to compare the benchmark prices to the average price for each of the house types to understand the inflation in prices. The present average price in this study is for

all types of houses, we will scrape average prices for each type of house from TRREB website to better understand the recent changes in prices. Also, we would collect data for immigrants in the city and analyze the effect of immigration on housing prices in the city.

6. References

1. <https://blog.remax.ca/greater-toronto-housing-market-report/#:~:text=Between%201996%20and%202021%2C%20more,rate%20of%207.08%20per%20cent.>
2. <http://download.remax.ca/PR/REMAXGTAQuarterCenturyMarketReport.pdf>
3. <https://www150.statcan.gc.ca/n1/en/type/data>
4. <https://runningofthebulls.typepad.com/files/canadian-housing-bubble.pdf>
5. <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1468-2427.2012.01184.x>
6. <https://www.philocities.com/torontorealestate/2017/12/21/what-really-happened-in-torontos-2017-real-estate-market-whats-to-come-in-2018>
7. <https://trreb.ca/index.php/market-news/mls-home-price-index/mls-home-price-index-archive>

7. Appendix

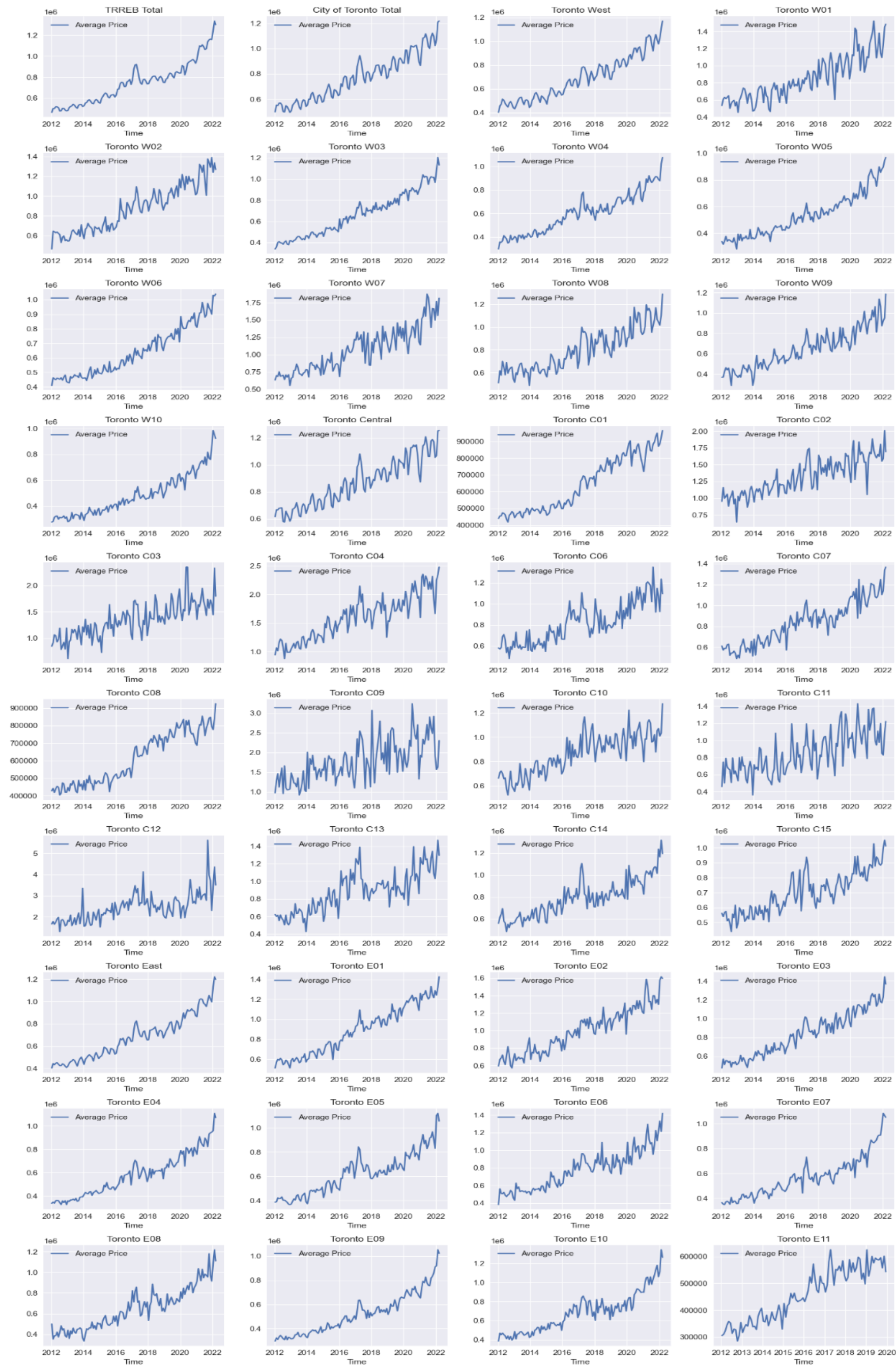


Figure 10: Average price of different districts in the city of Toronto.

UNDERSTANDING THE CAUSES OF HIGH HOUSE PRICES IN TORONTO

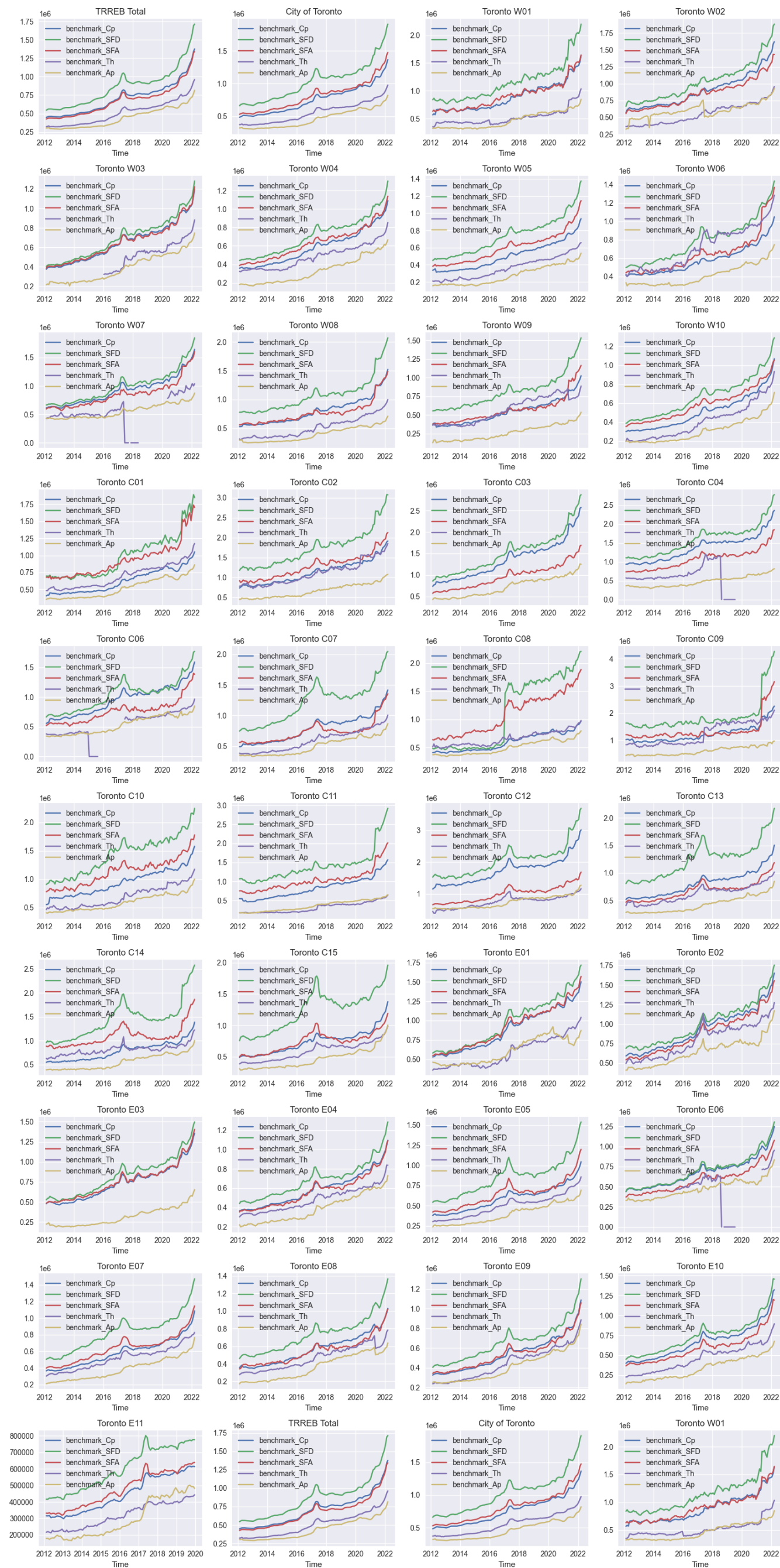


Figure 11: Average price of different types of homes in each district for the city of Toronto.

UNDERSTANDING THE CAUSES OF HIGH HOUSE PRICES IN TORONTO

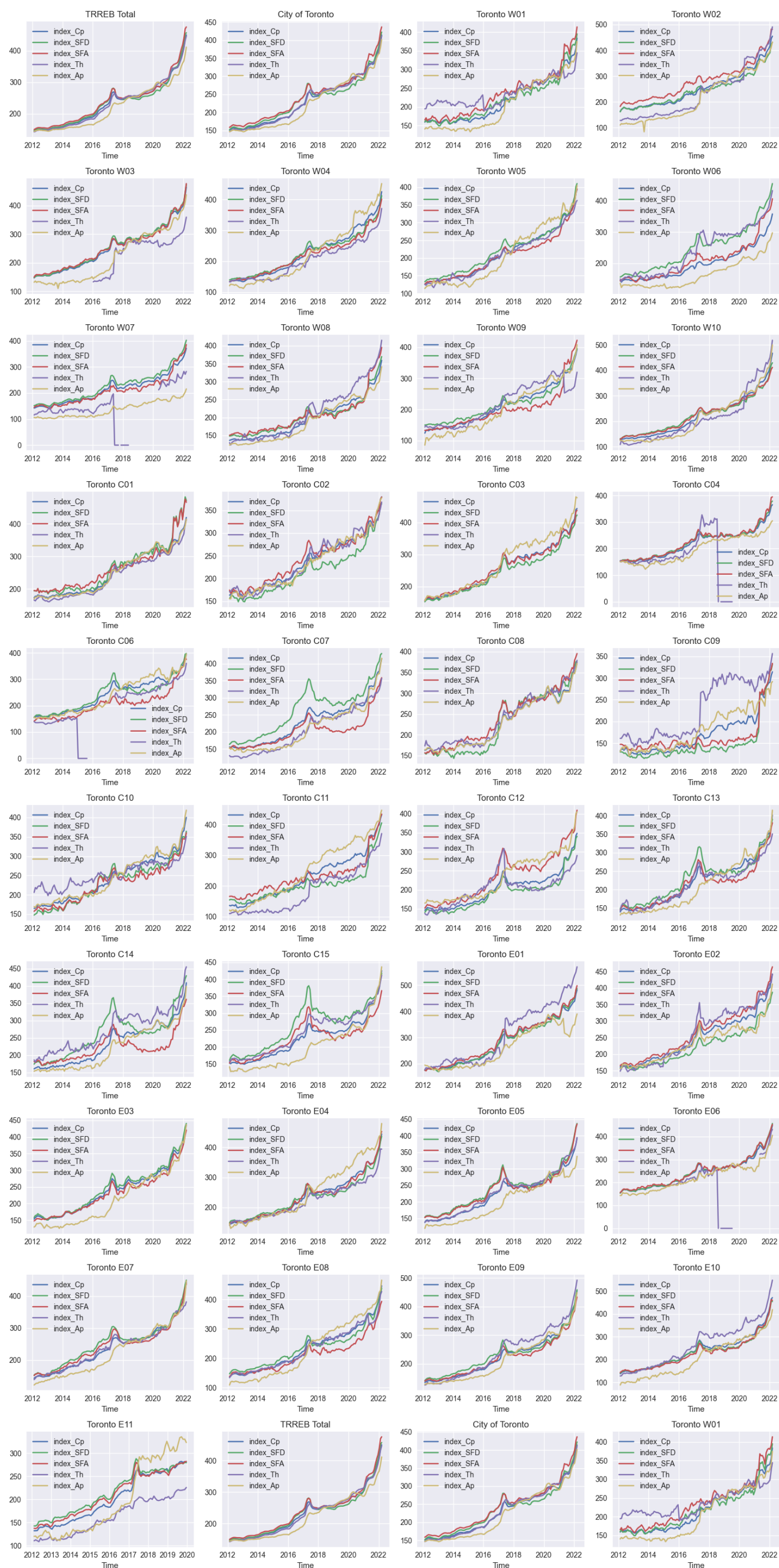


Figure 12:MSL index for different types of homes in each district for the city of Toronto.