

The Data Incubator Project Proposal

For the past six months, the Greater Seattle region once again had the biggest home-price increase in the nation. The fast-rising house prices and its future trend become the public concern.

Building permit data, which provides an estimate on the number of buildings planning on being constructed, offers a crucial insight for regional economic conditions and risk & opportunity analysis. It also shows as a reference of various private businesses, including market arrangement, roadwork planning, and investment analysis.

In this project, Building Permit data is collected by Seattle Department of Construction and Inspections, and publicly accessible on the City of Seattle Open Data portal. Local statistics from 2012 – 2017 are presented in a csv file with 55,800 rows of record data, categorized by Commercial, Industrial, Institutional, Multifamily, and Single Family/Duplex.

The raw data is pre-processed by several steps like handling missing values and generating valid identified zip code from address. And for the preliminary exploratory analysis, I divided it into two aspects: region analysis and time analysis.

For region analysis, I create a series of Seattle maps for building constructions in all the categories. Darker colors represent the more building constructions in corresponding areas.

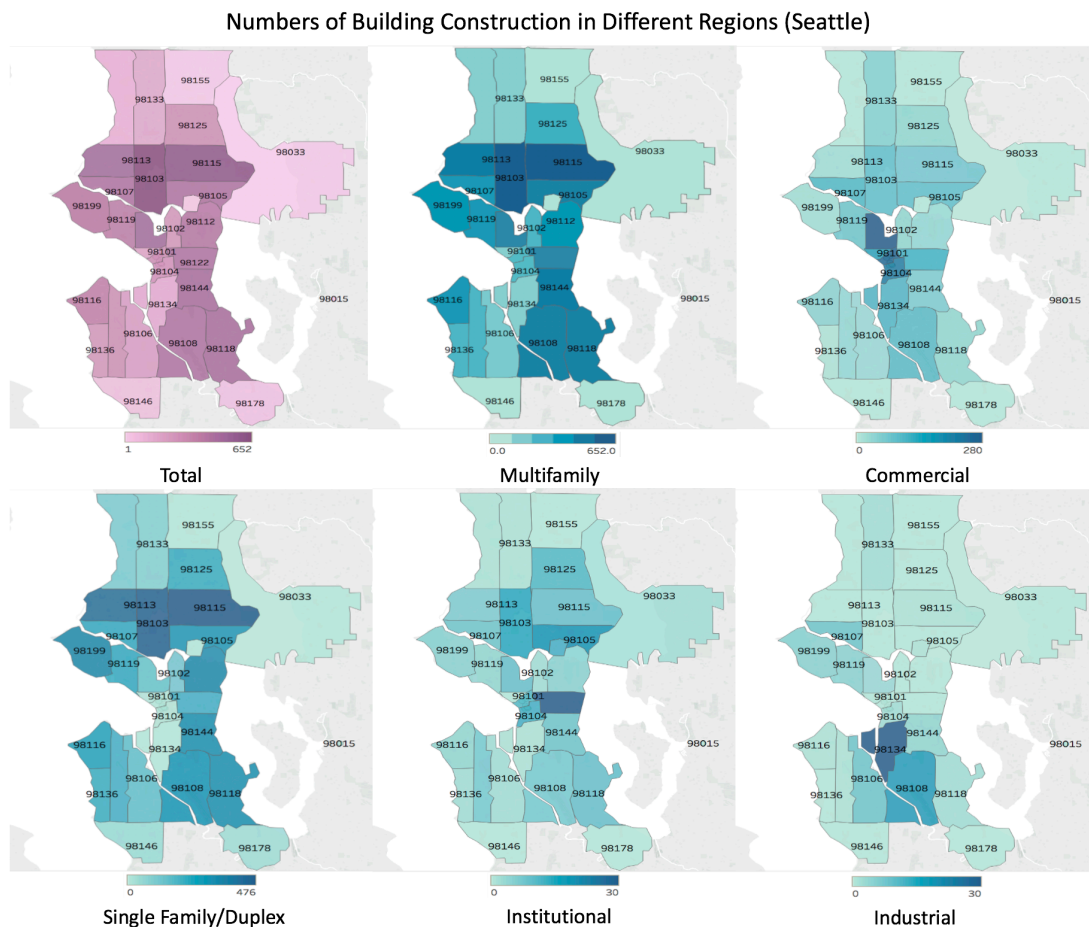


Fig.1 Region Maps

The maps intuitively show that areas with zip code 98113,98115,98103 have strong potential for house construction, suggesting more related business activities in the future, such as markets and transportation construction.

For time analysis, I choose the construction permit data in five categories and take the expiration date as planned day to finalize the construction process. Calculating and plotting the number of buildings completed in 2017 and 2018 by months, we get Fig.2 to show the trend of building construction.

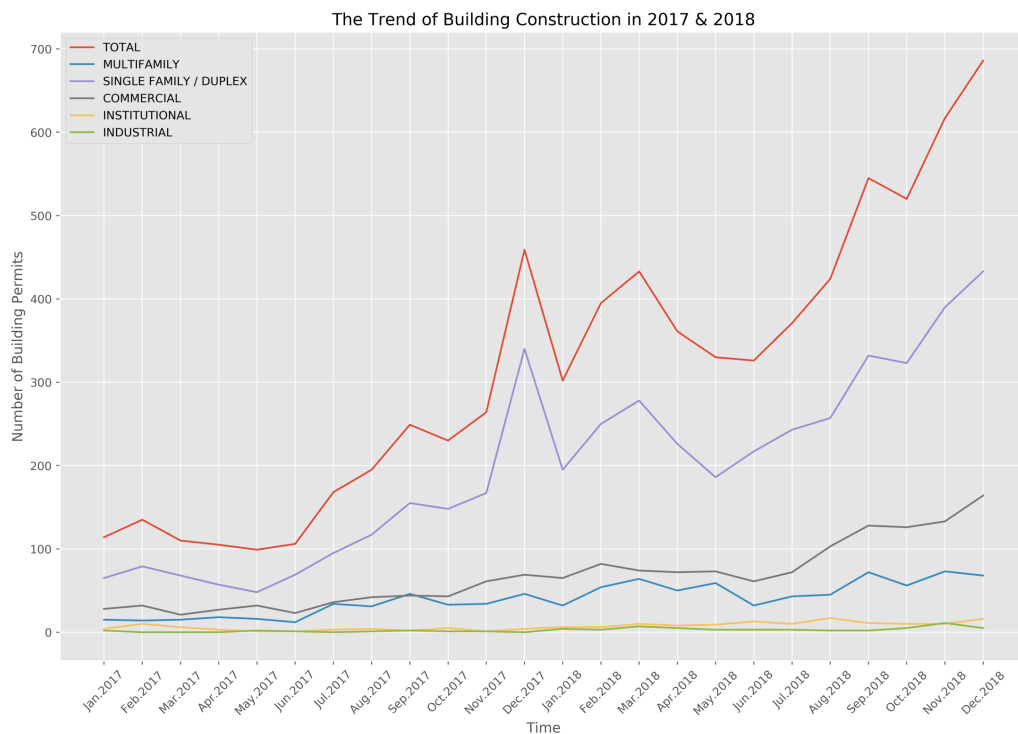


Fig.2 Time Trend

We observe that the numbers of industrial, institutional and commercial buildings construction will remain steady through 2017 and 2018, but family buildings, especially multifamily houses, grow rapidly through this two years and will have temporary peaks at the end of each year.

In general, increases in house construction permits may indicate that there is expectations that demand for housing will increase in the future.

For future work, other data sources should be evaluated, and more factors related to building permits, such as issue process and periods for different permit types, should be studied to get deeper understanding of the use of building permit data.