Historical Multifamily Supply High Level Overview

Concept

The core idea of our historical multifamily supply analysis is to step back through time looking at what buildings existed according to year built. We further attach condo/coop conversion data from the NY Attorney General's office so that we can see what buildings were condo/coop or rental in a given year (buildings that are currently coop may have been rental in 1984).

Caveat

It should be noted that we are likely undercounting in past years because this does not account for buildings which are demolished. However, we ignore this for the following reasons. 1) Large residential buildings being torn down to build fewer units is unlikely. 2) The novel finding of our analysis is that there are fewer rental units today than there were in 1980. If we could find a way to account for buildings that were demolished it would actually bolster our findings.

Output

The output of this project is an excel file of summary statistics in a pivot table. By filtering on AREA (NYC, Queens, Astoria) the pivot table shows the number of units by year from 1980 to 2017. Day to day use of our multifamily analysis should be through this pivot table. The collection of scripts in this repository should be used for yearly updates, troubleshooting or bespoke requests.

Steps

In the final stage of the process a dataframe called pluto augmented is utilized. This dataframe is pluto with the addition of the following fields:
• Type (condo, coop, rental, small housing)
• Conversion Year (year in which the building, if condo or coop, was converted)
• DECLARE_NEWBUILD (binary flag for if building was initially constructed as a coop/condo)

To get pluto augmented two other dataframes must first be created.

The first of these is a dataframe that identifies all buildings as condo, coop, rental, small (single or two family housing) or other. This is done by using the Department of Finance Notice of Property Value documents. By joining via PAD we can see the classification of every condo level BBL within a billing BBL. If the billing BBL class indicates condo, it is classified based on the most prevalent class at the condo level BBL within it. For instance, if a billing BBL is classified as RM that is a mixture of residential and commercial. If we look at the NOPV documents attached to it and see a few RK type lots (stores) along with an RR type lot (condo rental) which has 100

units, we can safely call this a rental building. However, if it has 100 R3 class lots inside of it, we can call it a condo building.

To create the conversion year dataframe we start with an excel file of all condo/coop conversions registered with the NY Attorney General's office which we procured with a FOIL request. Unfortunately, neither BBL nor any other NYC identifier is attached to the conversion documents. The only identifiers are a unique conversion ID and an address (which in many cases are multiple addresses). So to attach these to pluto we must normalize the addresses. This is done through a combination of the NYC Geoclient API, Google Maps API, manual address cleansing and manually finding the BBLs of given addresses. The dataframe is then put into a format which is friendly both to the final stage of the analysis as well as coming back later to troubleshoot or update.

In the last stage we join both of these dataframes with pluto. For each year we calculate

The number or rentals:
Sum of residential units in buildings built that year or ealier + sum of residential units in condo/coop buildings that were built that year or ealier and converted at a later date

The number of Coops (or condos):
Sum of residential units in coop (or condo) buildings built that year or earlier and were either constructed as coop (or condo) or were converted after that year.

To calculate the number of privately owned condos being rented we apply a proportion derived from the NYC HVS.

Finally the data is joined with a separate file that contains time series population for neighborhood, borough and city. This is saved as a csv and then an excel file with a pivot table in it is created.