Connected Communities Ordinance

Housing Market Research and Findings

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Agenda

- Background on eTOD and Connected Communities Ordinance
- Research Questions and Setup
- Findings and Key Takeaways
- Potential for expanded research
- Q&A

Equitable Transit Oriented Development in Chicago

And the Connected Communities Ordinance

TOD in Chicago Begins in 2013

- Since 2013, the City of Chicago has been encouraging compact, mixed-use transit-oriented development (TOD) near CTA and Metra rail stations
- TOD ordinances since 2013 have gone through multiple amendments and varying degrees of incentives and/or requirements
- 2022 Connected Communities Ordinance included explicit requirements/restrictions for developments near certain transit locations (train stations and bus corridors)

Amendments made in 2015 and 2019

- Both amendments still voluntary
  - Incentives to developers near transit to reduce parking, increase height and density, and design projects to increase walkability and affordability
- 2019 amendment included an explicit equity focus and expanded TOD policy provisions incentives to high-frequency bus corridors and the densest residential zones
  - Previously had been excluded
- 2019 amendment also required the city to evaluate the performance of recent TOD projects and recommend revisions where appropriate

eTOD Policy Plan Implemented in 2020

- eTOD policy plan proposes a roadmap for City actions over the next three years to advance racial equity, community wealth building, climate resilience and public health goals through equitable Transit-Oriented Development (eTOD)

"Through thoughtful policy decisions, investments and program placement that incorporate these values, development occurring in transit-served locations can more effectively benefit all Chicagoans, regardless of whether they reside near transit assets"

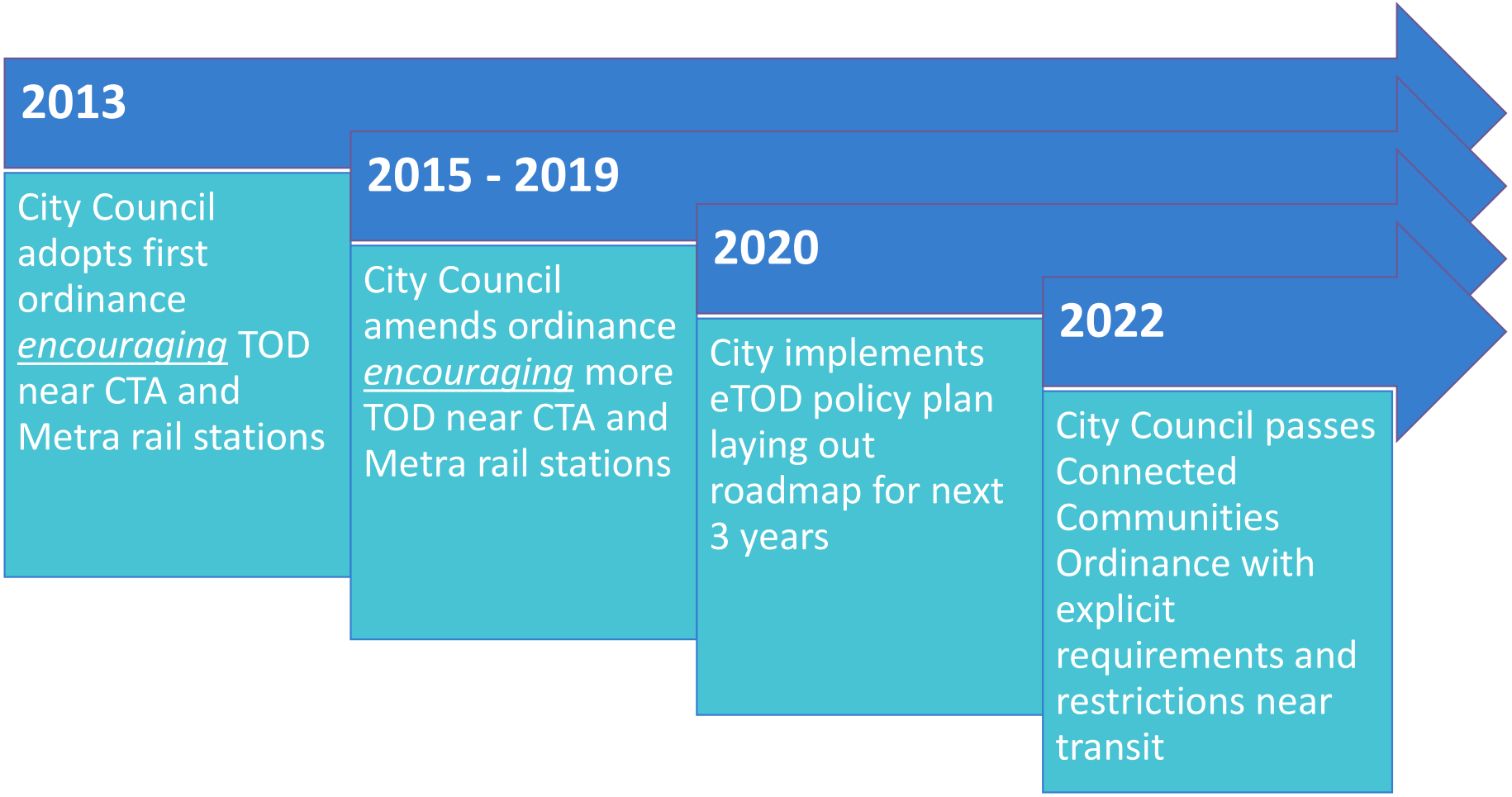
- City of Chicago 2020 eTOD Policy Plan

Connected Communities Ordinance

- Expands incentives from previous ordinance and includes restrictions on deconversions of MF housing to 2-flat and SF homes in certain areas

- Goals:
  - Advance equitable development and thriving neighborhoods near transit
  - Attract reinvestment and create jobs by encouraging and creating predictable standards for equitable development near transit
  - Support Chicago's economic recovery so that every Chicagoan can live in a vibrant, healthy and affordable community that connects them to transit and makes it easier for them to get to what they need — from jobs and schools to services and more.

eTOD And Connected Communities Ordinance Timeline



Connected Communities Ordinance

Approved by City Council July 22, 2022

Expands incentives and adds requirements for eTOD in certain community areas around;

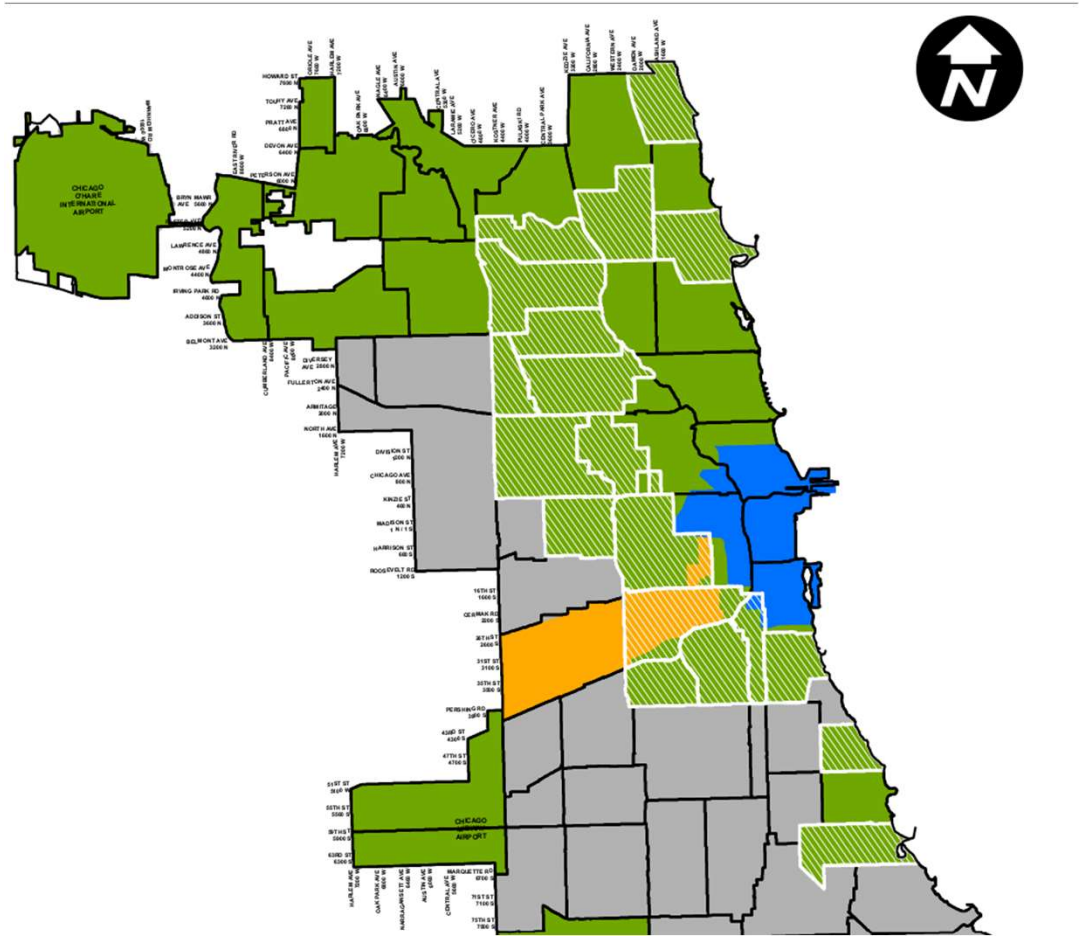
- Parking
- Density and Affordability
- "Parking Swap" Bonus
- Accessibility Zoning Bonus
- People-Friendly Design
- Inclusionary Application Zoning Process
- ***Addressing Deconversions***

Addressing Deconversions

- Restricts low-density development in certain areas ***zoned for multifamily*** in TOD areas
- Specifically, Detached houses and 2-flats are no longer permitted use in RT (SF only), RM, B, and C districts ***in Community Preservation Areas*** near Transit

  ½ mile radius from Metra or CTA stations

Community Preservation Areas



Research Question and Set-up

Are there potential unintended consequences for the housing market in areas covered by the CCO?

eTOD and CCO Goals

Housing	**Preserve existing unsubsidized affordable housing** within TOD zones, such as by disincentivizing the demolition and deconversion of 2-4 flat buildings.
	Streamline and incentivize the production of **multi-family affordable housing near transit.**
	Strengthen affordability and accessibility requirements for city-supported housing development in TOD zones, including through updates to the Affordable Requirements Ordinance.
	Modify the City's Qualified Allocation Plan (QAP) to include preference for **building affordable housing in TOD zones**, especially for very low-income residents.

"The [2020] eTOD Policy Plan will expand this access and give our most disinvested neighborhoods the long overdue opportunity to enjoy these benefits while not being forced out of the community they call home"

- Former Mayor Lori E. Lightfoot

Research Question

- Do the restrictions in the CCO change housing market activity within the coverage areas compared to just outside of the coverage areas in a way that prevents the ordinance from achieving its goal of increasing housing opportunity, affordability, and accessibility, especially near transit?
    - Is there an increase or decrease in sale price compared to non-coverage areas after the ordinance passes?
    - Is there an increase or decrease in the number of sales compared to non-coverage areas after the ordinance passes?
    - Are there differences between these metrics for SF homes compared to MF homes?
    - Are there differences between the North, West, and South areas of Chicago?

Potential Outcomes

- If there is an increase in price within the coverage areas, how can the Trust and its partners ensure there is equitable access to these transit areas?

- If there is no difference between the two areas, how can this support continued implementation and potential expansion of similar eTOD ordinances?

Difference in Difference Analysis

- By comparing housing data near transit just inside community preservation areas to just outside of community preservation areas, I try to identify what impact the CCO may have had on the housing market (price and overall activity) while trying to minimize outside factors

The details are in the name!

- Not just a simple comparison between sale activity and average price in coverage area to just outside coverage area

- First, what is the difference before and after the ordinance passed in both areas

- Second, what is the difference between these differences?

Difference in Difference Simple Example

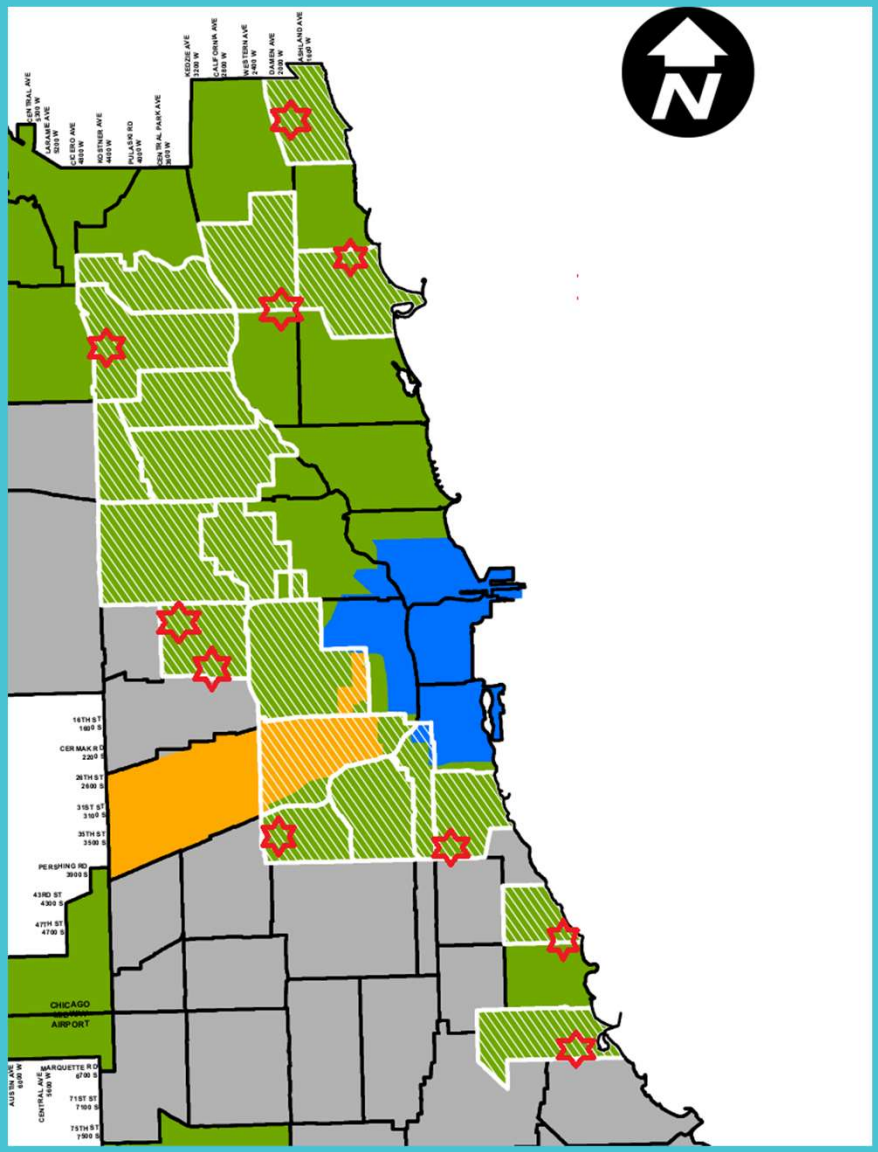
- Average price in CCO coverage area was $500,000 before ordinance passes, increases to $625,000 after ordinance passes.
  - Difference of 25%
- Average price just outside of CCO coverage area was $300,000 before ordinance passes, increases to $375,000 after ordinance passes.
  - Difference of 25%
- Difference in difference is 25% - 25% = 0
  - Even though the average prices are different, the change between the two areas before and after the ordinance were the same percentages.

CCO Difference in Difference Set-up

- Identified 10 CTA and Metra stations on the boarder of a community preservation area
  - Selected an area up to a ½ mile from the station and manually pulled sale data from Zillow
  - Collected data for the 9 months prior to the CCO passing (July 22, 2022) and 9 months after
  - Compiled data to run difference in difference regression analysis on various groupings of the data to measure statistical significance of any differences observed
    - entire dataset, SF only, MF only, etc.

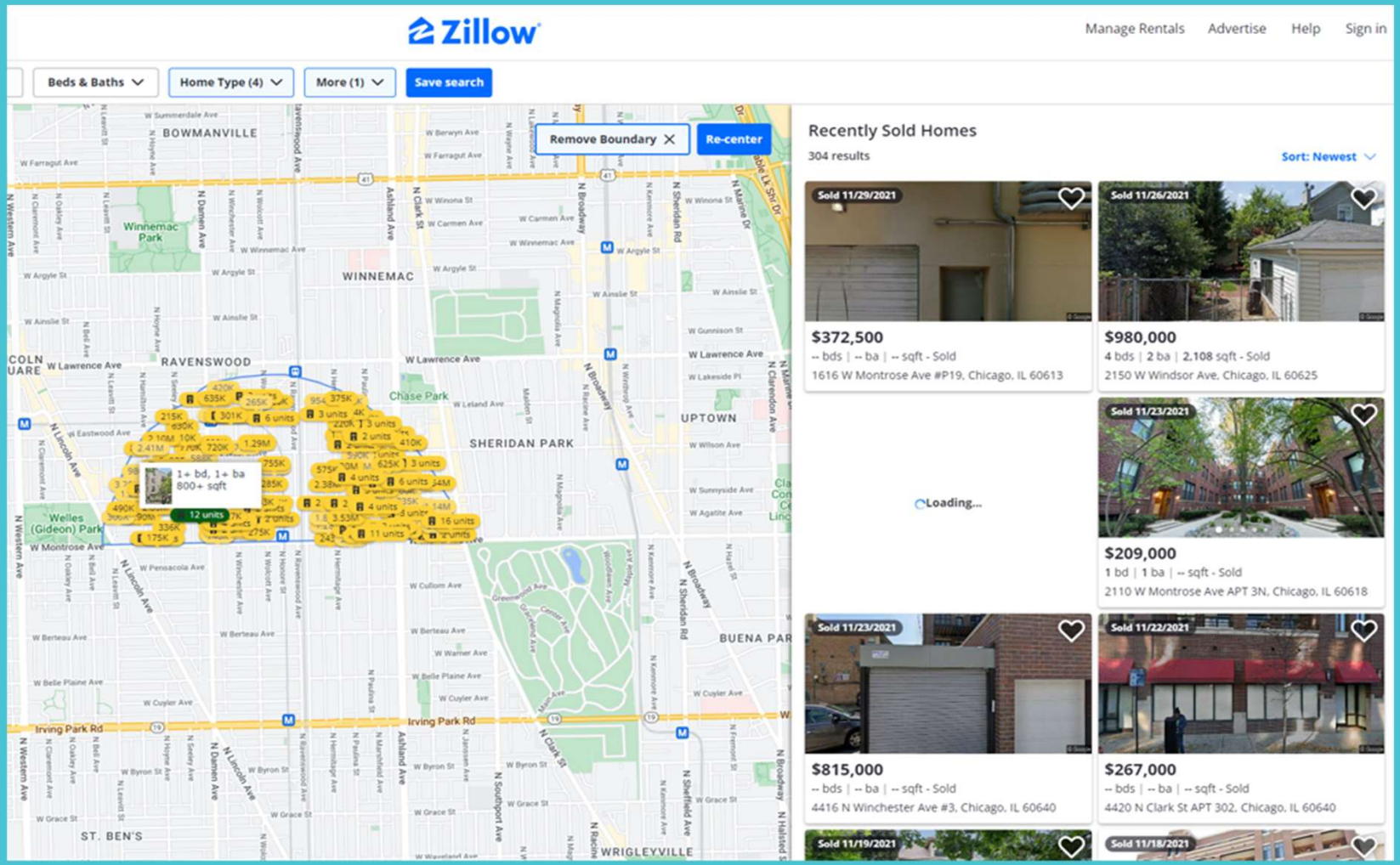
Selected Locations

Station/Area	Treatment	Control	Total
Montrose Brown Line	197	175	372
Bronzeville 35th ITT Green Line	130	226	356
53rd Metra Electric	162	124	286
Grayland Metra	117	131	248
Argyle Red Line	125	95	220
Rogers Park Metra	66	75	141
35th Orange Line	75	58	133
Garfield Park Green Line	41	69	110
63rd Metra	60	48	108
Kedzie-Homan Blue Line	43	19	62
Total	1016	1020	2036

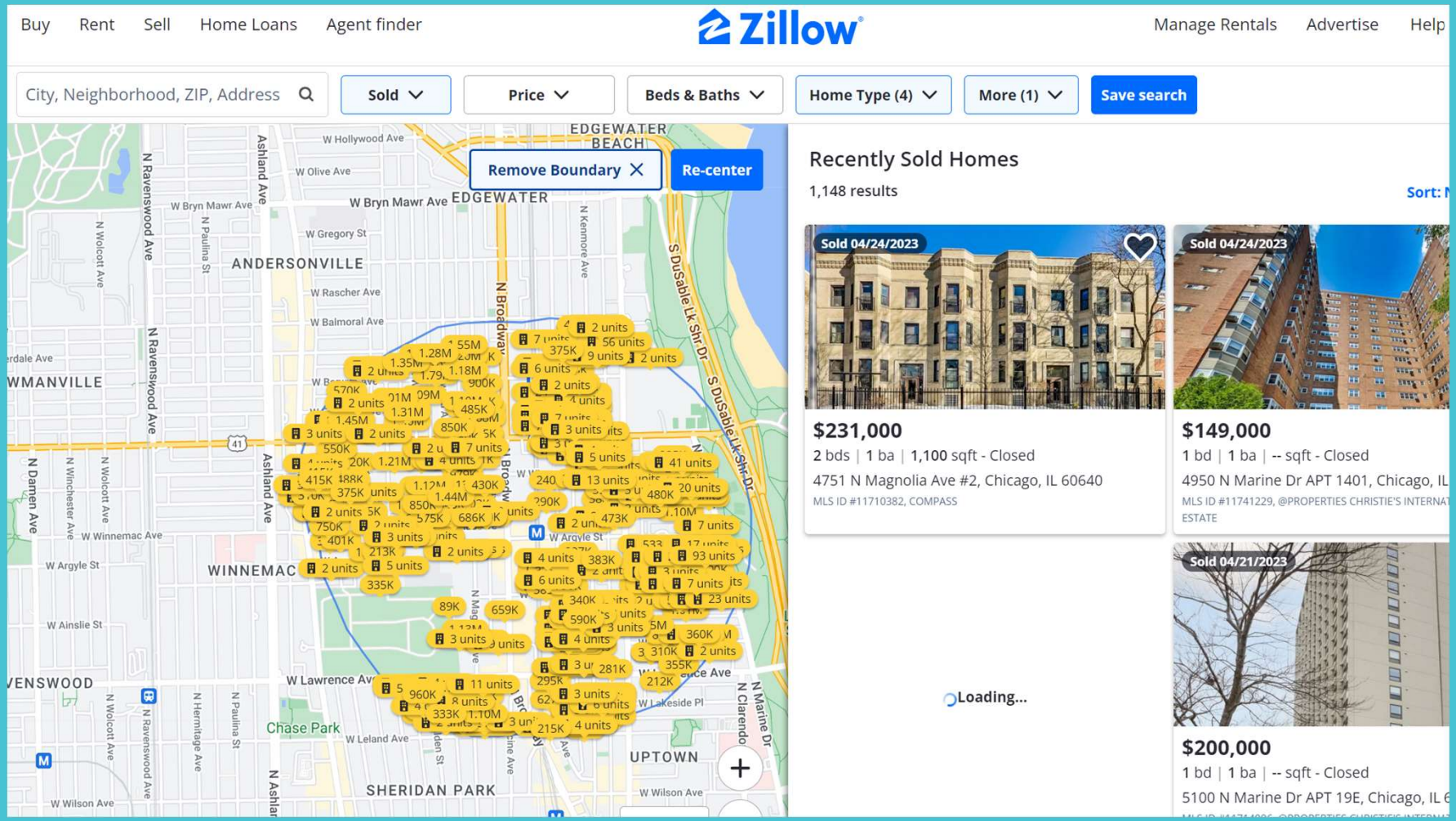


Treatment and Control Areas

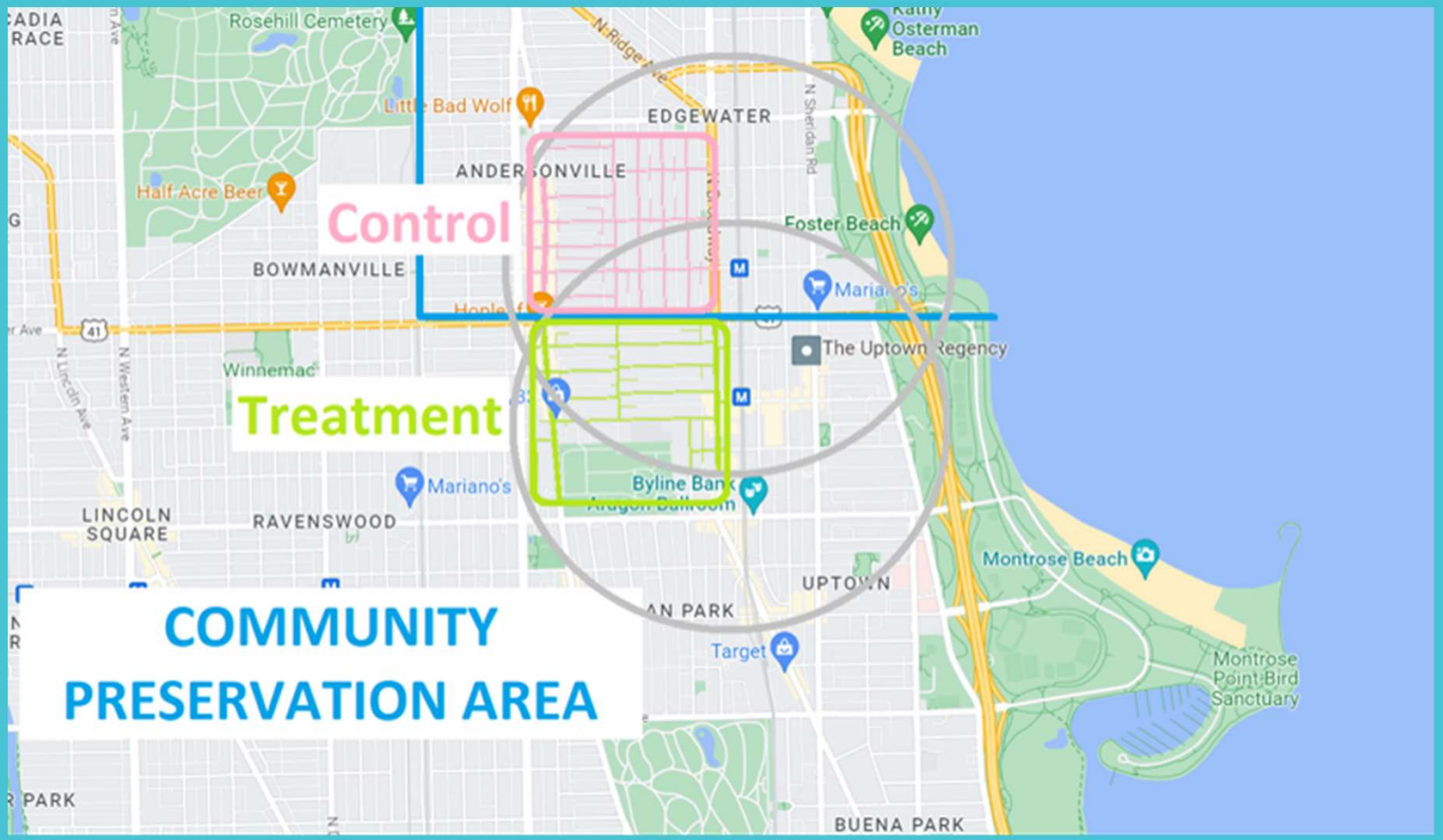
Pulling Data from Zillow



Pulling Data from Zillow



How areas were determined



Conducted Difference in Difference Regression using R

$$y_{it} = \alpha + \beta Treat_{it} + \gamma Post_{it} + \lambda Treat_{it} x Post_{it} + \epsilon_{it}$$

- Treat means home is within the community preservation area and covered by the CCO
- Post means that the home was sold AFTER July 22, 2022, when the ordinance passed
- Treat*Post is the variable of interest, this will provide us with the combined estimated impact of being treated (in a CCO area) and being sold after the CCO passed.
- Y provides the estimate for either number of homes sold or average log of sale price
  - Analyzing the log sale price allows prices to be normalized but still captures trends, which is what we are most interested in

Findings and Key Takeaways

No statistically significant difference in average log sale price between areas

There was no statistically significant difference in average log sale price change between areas

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = zillow_data)

Residuals:
    Min      1Q  Median      3Q     Max
-3.0421 -0.4199 -0.0199  0.4514  3.3813

Coefficients:
                      Estimate Std. Error t value             Pr(>|t|)
(Intercept)           12.77123    0.02969 430.176 <0.0000000000000002 ***
TreatmentTreatment    -0.08909    0.04187  -2.128               0.0335 *
post                  -0.07076    0.04730  -1.496               0.1348
TreatmentTreatment:post -0.01301    0.06713  -0.194               0.8464
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7374 on 2027 degrees of freedom
Multiple R-squared:  0.006603,  Adjusted R-squared:  0.005133
F-statistic: 4.491 on 3 and 2027 DF,  p-value: 0.00379
```

- Current data is not strong enough to support a significant difference in changes in log sale price
  - -1.3% difference but with standard error of 6.7%
    - Could be 8% less or 5.4% more.
  - P-value .846
    - Significance at <.10

No Changes When Restricting to SF, MF and Removing Co-ops

No Co-ops

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = no_coops)

Residuals:
    Min      1Q  Median      3Q     Max
-3.0454 -0.4287 -0.0269  0.4318  3.3779

Coefficients:
                      Estimate Std. Error t value            Pr(>|t|)
(Intercept)           12.77457    0.02792 457.473 <0.0000000000000002 ***
TreatmentTreatment    -0.02911    0.03974  -0.733               0.4639
post                  -0.07410    0.04447  -1.666               0.0958 .
TreatmentTreatment:post -0.01566    0.06357  -0.246               0.8054
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6931 on 1994 degrees of freedom
Multiple R-squared:  0.003962,  Adjusted R-squared:  0.002463
F-statistic: 2.644 on 3 and 1994 DF,  p-value: 0.04776
```

SF only

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = SF_only)

Residuals:
     Min       1Q   Median       3Q      Max
-2.70643 -0.43369 -0.00379  0.46190  2.88146

Coefficients:
                      Estimate Std. Error t value            Pr(>|t|)
(Intercept)           13.27104    0.05496 241.466 < 0.0000000000000002 ***
TreatmentTreatment     0.07522    0.08295   0.907             0.36492
post                  -0.25565    0.08792  -2.908             0.00379 **
TreatmentTreatment:post  0.01535    0.13138   0.117             0.90705
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7455 on 540 degrees of freedom
Multiple R-squared:  0.02873,   Adjusted R-squared:  0.02334
F-statistic: 5.325 on 3 and 540 DF,  p-value: 0.001271
```

MF only

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = MF_only)

Residuals:
     Min       1Q   Median       3Q      Max
-2.83398 -0.35008 -0.00115  0.37249  1.73185

Coefficients:
                      Estimate Std. Error t value            Pr(>|t|)
(Intercept)           12.563114   0.027719 453.237 <0.0000000000000002 ***
TreatmentTreatment    -0.006959   0.038660  -0.180               0.857
post                   0.006051   0.044059   0.137               0.891
TreatmentTreatment:post -0.062976   0.062004  -1.016               0.310
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5761 on 1450 degrees of freedom
Multiple R-squared:  0.001913,  Adjusted R-squared:  -0.0001523
F-statistic: 0.9263 on 3 and 1450 DF,  p-value: 0.4273
```

Same Results When Looking at North, West and South Areas

North Side

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = northside)

Residuals:
     Min       1Q   Median       3Q      Max
-2.34469 -0.42976 -0.03748  0.42940  2.62821

Coefficients:
                      Estimate Std. Error t value            Pr(>|t|)
(Intercept)           13.05910    0.03892 335.526 <0.0000000000000002 ***
TreatmentTreatment    -0.13809    0.05395  -2.560              0.0106 *
post                  -0.10161    0.06506  -1.562              0.1187
TreatmentTreatment:post  0.01208    0.09119   0.132              0.8946
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6797 on 974 degrees of freedom
Multiple R-squared:  0.01383,   Adjusted R-squared:  0.0108
F-statistic: 4.554 on 3 and 974 DF,  p-value: 0.003545
```

West Side

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = westside)

Residuals:
     Min       1Q   Median       3Q      Max
-1.95419 -0.30584  0.04764  0.44655  1.58607

Coefficients:
                      Estimate Std. Error t value            Pr(>|t|)
(Intercept)           12.40138    0.08461 146.565 <0.0000000000000002 ***
TreatmentTreatment    -0.05694    0.12088  -0.471              0.638
post                  -0.32057    0.13049  -2.457              0.015 *
TreatmentTreatment:post  0.20556    0.18685   1.100              0.273
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6043 on 168 degrees of freedom
Multiple R-squared:  0.03934,   Adjusted R-squared:  0.02219
F-statistic: 2.293 on 3 and 168 DF,  p-value: 0.07986
```

South Side

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post,
    data = southside)

Residuals:
    Min      1Q  Median      3Q     Max
-2.7780 -0.3534  0.0174  0.4249  3.6454

Coefficients:
                      Estimate Std. Error t value            Pr(>|t|)
(Intercept)           12.50710    0.04454 280.778 <0.0000000000000002 ***
TreatmentTreatment    -0.08120    0.06408  -1.267              0.205
post                   0.08632    0.06822   1.265              0.206
TreatmentTreatment:post -0.06323    0.09809  -0.645              0.519
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7196 on 877 degrees of freedom
Multiple R-squared:  0.007555,  Adjusted R-squared:  0.00416
F-statistic: 2.225 on 3 and 877 DF,  p-value: 0.08375
```

And When Adding Area Fixed Effects

```
Call:
lm(formula = log_price ~ Treatment + post + Treatment * post +
    montrose_brownline + argyle_redline + grayland_metra + garfield_park +
    bronsville_35th_ITT + `35th_orange_line` + `53rd_metra_electric` +
    rodgers_park_metra + `63rd_metra` + kedzie_homan_blueline,
    data = zillow_data)

Residuals:
    Min      1Q  Median      3Q     Max
-3.0234 -0.4005 -0.0186  0.3856  3.7890

Coefficients: (1 not defined because of singularities)
                      Estimate Std. Error t value             Pr(>|t|)
(Intercept)           12.408021   0.087190 142.310 < 0.0000000000000002 ***
TreatmentTreatment    -0.099814   0.037482  -2.663              0.007806 **
post                  -0.047605   0.042079  -1.131              0.258058
montrose_brownline     0.754684   0.089928   8.392 < 0.0000000000000002 ***
argyle_redline         0.774108   0.094346   8.205 0.00000000000000406 ***
grayland_metra         0.646219   0.093116   6.940 0.00000000005266048 ***
garfield_park         -0.092845   0.104318  -0.890              0.373562
bronsville_35th_ITT    0.344528   0.090564   3.804              0.000146 ***
`35th_orange_line`     0.221392   0.100704   2.198              0.028031 *
`53rd_metra_electric` -0.044518   0.091764  -0.485              0.627636
rodgers_park_metra    -0.063276   0.099927  -0.633              0.526660
`63rd_metra`          -0.056542   0.104318  -0.542              0.587870
kedzie_homan_blueline         NA         NA      NA                    NA
TreatmentTreatment:post 0.006112   0.059657   0.102              0.918405
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6542 on 2018 degrees of freedom
Multiple R-squared:  0.2218,    Adjusted R-squared:  0.2171
F-statistic: 47.92 on 12 and 2018 DF,  p-value: < 0.00000000000000022
```

- Even when controlling for differences between areas
  - .06% difference but with standard error of 5.9%
    - Could be 6.5% less or 5.4% more.
  - P-value .918
- Same results for subgroups

Regression analysis returns similar results for changes in number of home sales

```
Call:
lm(formula = Num_sales ~ Treatment + post + Treatment * post +
    montrose_brownline + argyle_redline + grayland_metra + garfield_park +
    bronsville_35th_ITT + `35th_orange_line` + `53rd_metra_electric` +
    rodgers_park_metra + `63rd_metra` + kedzie_homan_blueline,
    data = sales_data)

Residuals:
    Min      1Q  Median      3Q     Max
-0.4229 -0.2788 -0.1609 -0.0388  4.5995

Coefficients: (1 not defined because of singularities)
                          Estimate Std. Error t value             Pr(>|t|)
(Intercept)               1.116677   0.074563  14.976 < 0.0000000000000002 ***
TreatmentTreatment        0.004637   0.034740   0.133             0.893824
post                     -0.139481   0.037953  -3.675             0.000245 ***
montrose_brownline        0.301612   0.077926   3.870             0.000113 ***
argyle_redline            0.113833   0.081163   1.403             0.160946
grayland_metra            0.149684   0.080182   1.867             0.062107 .
garfield_park             0.062522   0.089388   0.699             0.484369
bronsville_35th_ITT       0.283818   0.078372   3.621             0.000302 ***
`35th_orange_line`        0.033752   0.085817   0.393             0.694146
`53rd_metra_electric`     0.196054   0.079232   2.474             0.013446 *
rodgers_park_metra        0.039588   0.085338   0.464             0.642787
`63rd_metra`              0.022711   0.088923   0.255             0.798448
kedzie_homan_blueline           NA         NA      NA                   NA
TreatmentTreatment:post   0.023224   0.053745   0.432             0.665713
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5375 on 1639 degrees of freedom
Multiple R-squared:  0.04943,   Adjusted R-squared:  0.04247
F-statistic: 7.102 on 12 and 1639 DF,  p-value: 0.000000000000951
```

Only statistically significant regression result is increase in number of sales for SF homes in CCO areas

- Data indicates that on average, the CCO coverage area had an additional 0.13 (+-.05) units sold per day during the post-period compared to the control group
  - or an additional 35 units total

```
Call:
lm(formula = Num_sales ~ Treatment + post + Treatment * post +
    montrose_brownline + argyle_redline + grayland_metra + garfield_park +
    bronsville_35th_ITT + `35th_orange_line` + `53rd_metra_electric` +
    rodgers_park_metra + `63rd_metra` + kedzie_homan_blueline,
    data = SF_sales_data)

Residuals:
     Min       1Q   Median       3Q      Max
-0.21556 -0.13910 -0.06405  0.00265  1.86090

Coefficients: (1 not defined because of singularities)
                          Estimate Std. Error t value             Pr(>|t|)
(Intercept)               1.038007   0.092481  11.224 <0.0000000000000002 ***
TreatmentTreatment       -0.055484   0.035260  -1.574               0.1162
post                     -0.065708   0.036898  -1.781               0.0756 .
montrose_brownline        0.029881   0.096401   0.310               0.7567
argyle_redline            0.008209   0.103971   0.079               0.9371
grayland_metra            0.166340   0.093310   1.783               0.0753 .
garfield_park            -0.002187   0.118585  -0.018               0.9853
bronsville_35th_ITT       0.101098   0.095886   1.054               0.2922
`35th_orange_line`        0.014827   0.097593   0.152               0.8793
`53rd_metra_electric`     0.001279   0.108093   0.012               0.9906
rodgers_park_metra       -0.014132   0.115610  -0.122               0.9028
`63rd_metra`             -0.004850   0.109744  -0.044               0.9648
kedzie_homan_blueline          NA         NA      NA                   NA
TreatmentTreatment:post   0.132404   0.055431   2.389               0.0173 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.2983 on 489 degrees of freedom
Multiple R-squared:  0.06371,   Adjusted R-squared:  0.04074
F-statistic: 2.773 on 12 and 489 DF,  p-value: 0.00115
```

Consideration

- Not a full year of data yet for before and after periods off CCO ordinance passing
- Did not gather data for all potential border areas
  - Could be significant impacts in areas not included in research
- Manual Errors
  - Conducted manual and excel/R checks for anomalies and errors

Now What?

- These are encouraging results which provide early indications that the CCO ordinance has little to no impact on housing values or sale activity
- Need for expanded research on other key variables
  - More focus on permitting/development and community preservation areas
- With expanded and additional research, could potentially support narrative around expanding ordinance to SF zones

Potential for expanded research

More data, more time, and different variables

GET MORE DATA

- Zillow data is available for purchase should an entity or organization be interested in conducting similar analysis for all boarder areas of differing sizes

- Could include additional variables like SQ ft, bedroom and bathroom size etc.

Run same analysis on variables like permit applications/approvals or development types

- Because the portion of the CCO ordinance this research focused on was intended to prevent deconversions, should consider same analysis structure on permitting and/or development for SF vs MF homes
  - Data is harder to collect
    - https://data.cityofchicago.org/Buildings/Building-Permits/ydr8-5enu/data
- Expand areas to include major bus corridors
- Could include additional variables like SQ ft, bedroom and bathroom size etc.

Q&A

Thank you for listening!