# The Assessment Gap: Racial Inequalities in Property Taxation

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# How Can Tax Burden Vary, Holding Rates Fixed?

Key feature of property tax:

- Tax paid intended to be proportional to market value of home…
- … but tax bills are computed based on “assessment” value

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(*Theoretical ad valorem tax*)

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→ Effective Tax Rate

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(*How the property tax actually works*)

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Effective tax rate: $f\left(\frac{A}{M}; r\right)$

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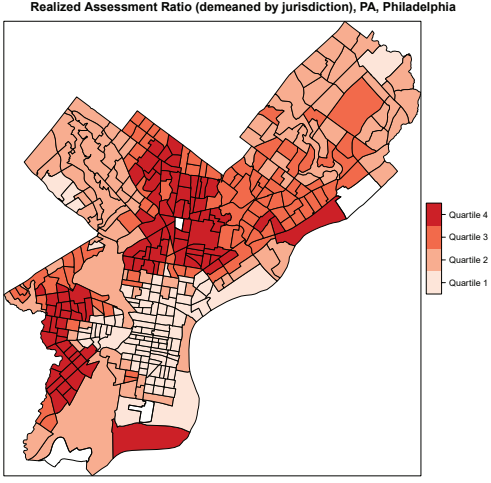
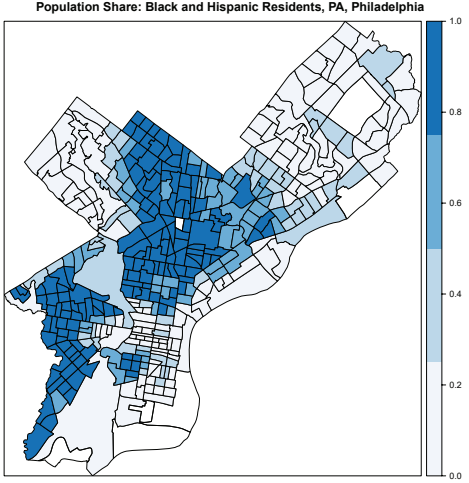
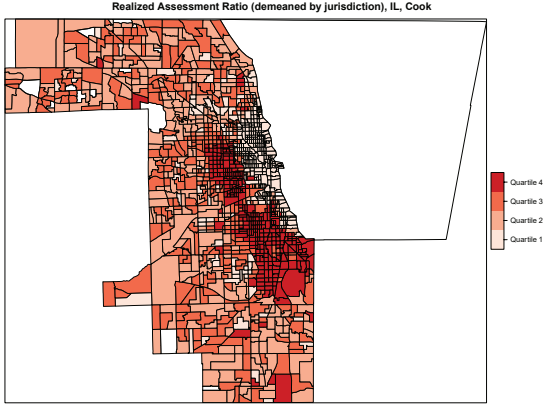
➢ Within taxing jurisdiction, variation in assessment ratio is sufficient for inequality

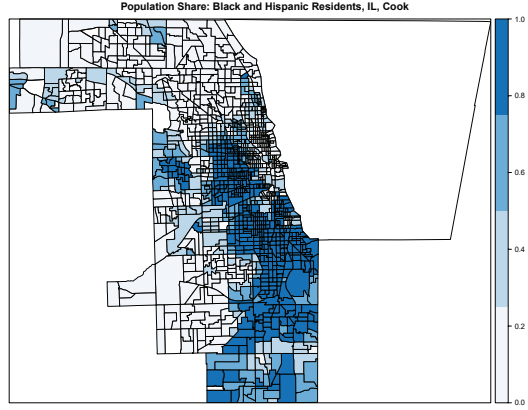
# Philadelphia: Assessment Ratios and Demographic Heatmap



# Cook County, IL: Assessment Ratios and Demographics



# The Racial Assessment Gap

**Assessment gap:** 10-13% higher tax burden for black and Hispanic homeowners, **within Tax Jurisdiction**

- Cannot be Tiebout sorting along preferences for public goods
- $300-$390 annually for median minority homeowner
- At 90th percentile: approx $800 annually

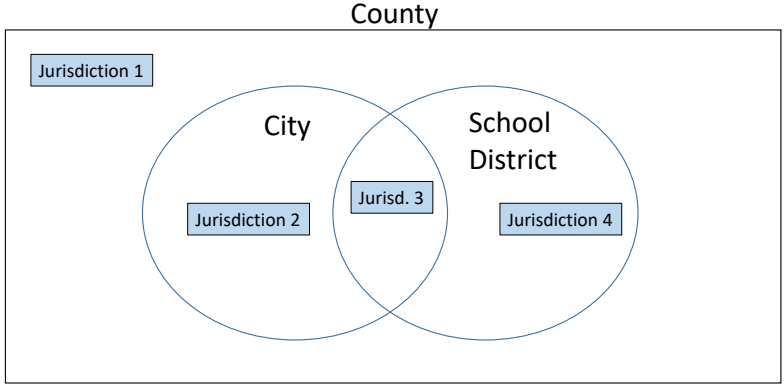
Two channels:

- 6%-7%: neighborhood attributes and racial sorting **(spatial / between)**
  - ▶ Assessments insufficiently responsive to highly local characteristics
- 5%-6%: individual homeowner **(not spatial / within)**
  - ▶ Racial differential in appeals behavior/outcomes

Small-geography Home Price Indices are potential policy fix

- Simple algorithm, using public data, fixes ~70% of total inequality

# "Taxing Jurisdiction": Precise Definition




"Jurisdiction": Geography served by unique network of overlapping gvts

▸ Further Theoretical Example ▸ Real-World Example

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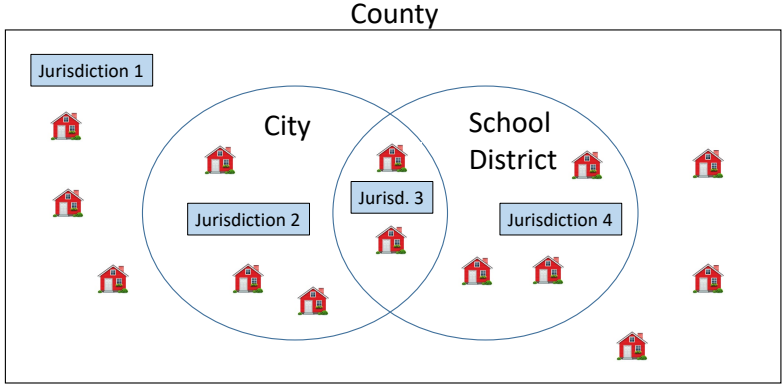


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▸ Further Theoretical Example ▸ Real-World Example

# Estimating Equation

$$ln(\frac{A_{ijt}}{M_{ijt}}) = \gamma_{jt} + \beta\, race_{ijt} + \varepsilon_{ijt}$$

- Equitable tax null: $\beta = 0$
- Omitted group in all regressions: white, non-Hispanic residents

$i$: property, $j$: jurisdiction, $t$: year, *race*: race or ethnicity

▸ Equitable Null Derivation

# Group Means: Legal Grounding

$$ln(\frac{A_{ijt}}{M_{ijt}}) = \gamma_{jt} + \beta\, race_{ijt} + \varepsilon_{ijt}$$

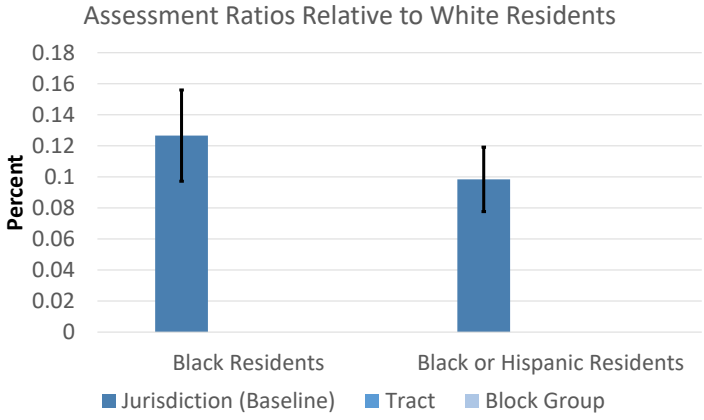
"Disparate impact" is legal standard by which courts evaluate discrimination claims

Federal Law, 24 CFR S100.500(a):

> *"[a] practice has a discriminatory effect where it actually or predictably results in a disparate impact on a group of persons[...] because of race, color, religion, sex, handicap, familial status, or national origin"*

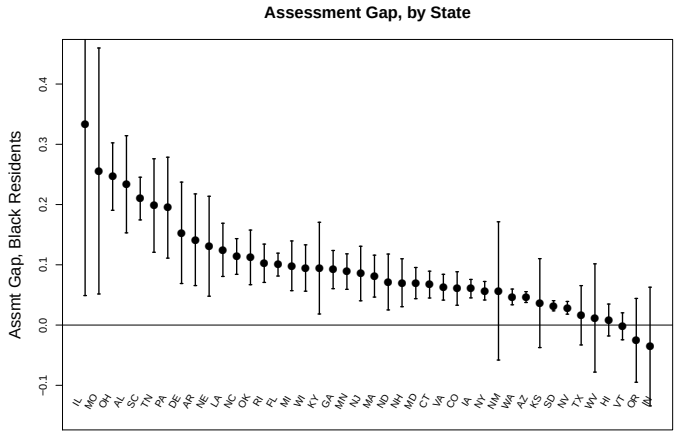
US Supreme Court (2015): in housing, sufficient for discrimination

# The Assessment Gap



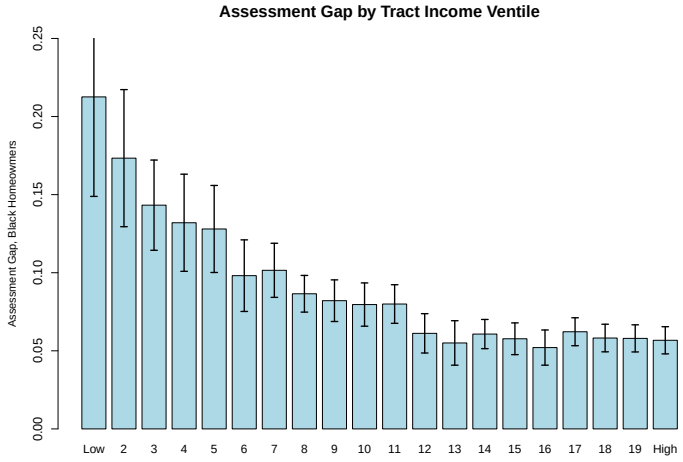

Baseline Regression

# State Breakdown

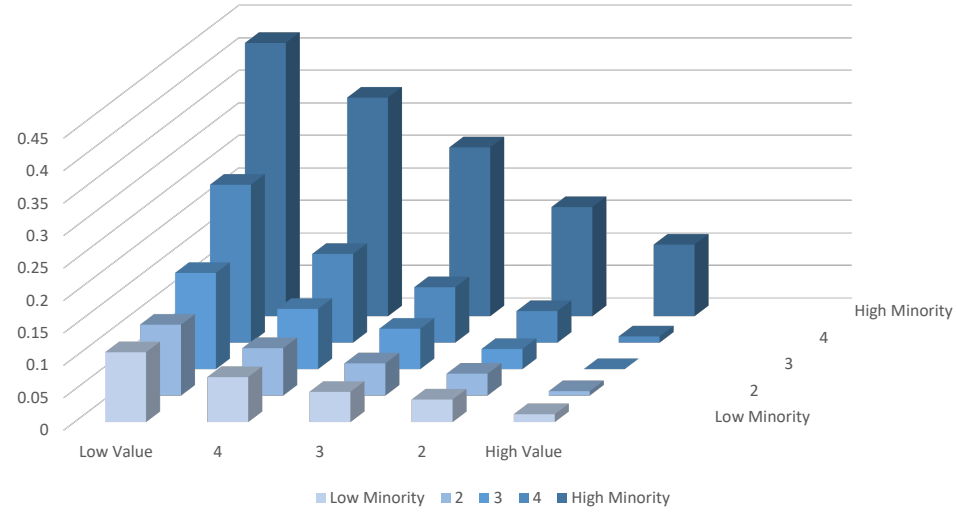



▸ State Breakdown, Black or Hispanic ▸ California Results

# Assessment Gap by Tract-Level Income (Black Residents)



# Assessment Gap by Tract-Level Home Value and Minority Share



# Decomposing Assessment Gap

Roadmap:

1. Distinguish: within-neighborhood inequality vs between-neighborhood inequality
2. *Neighborhood Composition*: between-variation in assessment ratio
3. *Homeowner Effect*: within-variation in assessment ratio

"Neighborhood": US Census tract or block group (much smaller than jurisdiction)

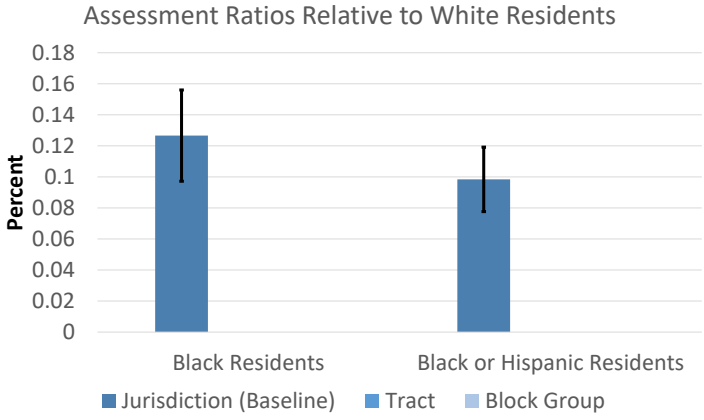
# Homeowner Effect

Goal: Hold constant all spatial & geographic factors

Ideal experiment: Adjacent homes; homeowners of different race/ethnicity

Feasible: Condition on successively smaller geographies; show stable estimates

# Homeowner Effect




Baseline Regression

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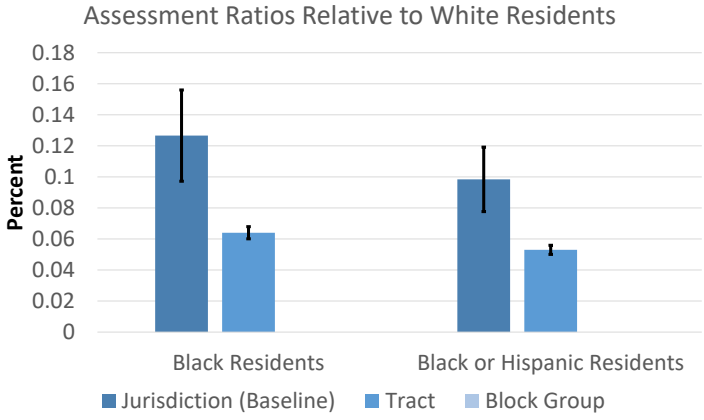


Baseline Regression  Tract Regression

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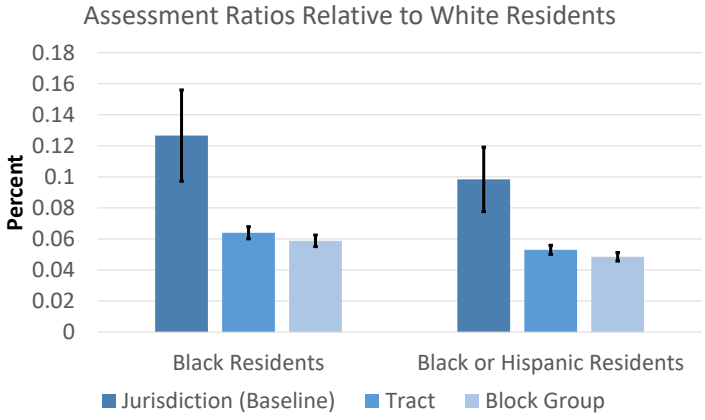


Baseline Regression  Tract Regression  Block Group Regression

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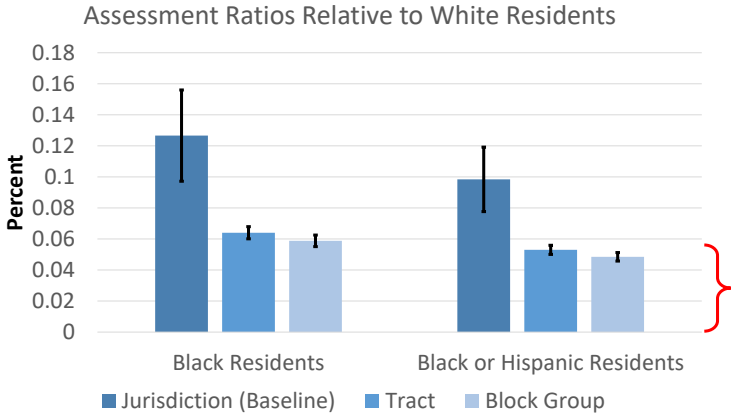


Baseline Regression | Tract Regression | Block Group Regression

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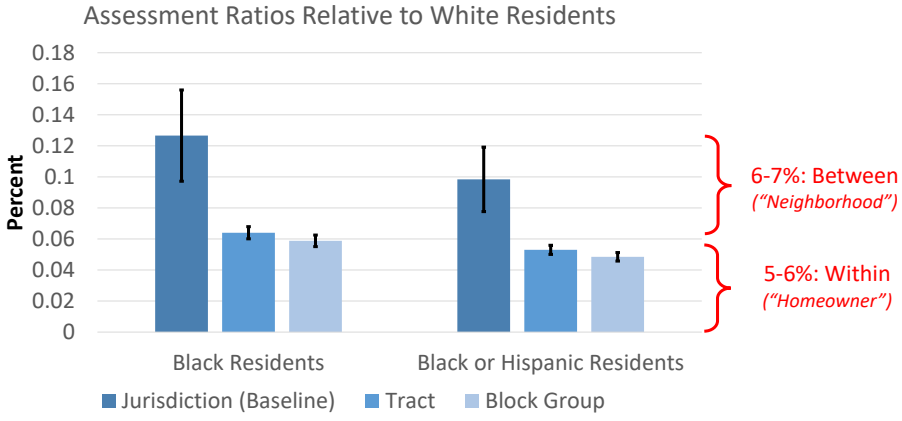



Baseline Regression | Tract Regression | Block Group Regression

# Neighborhood Composition

Spatial sorting by race in US is well-known

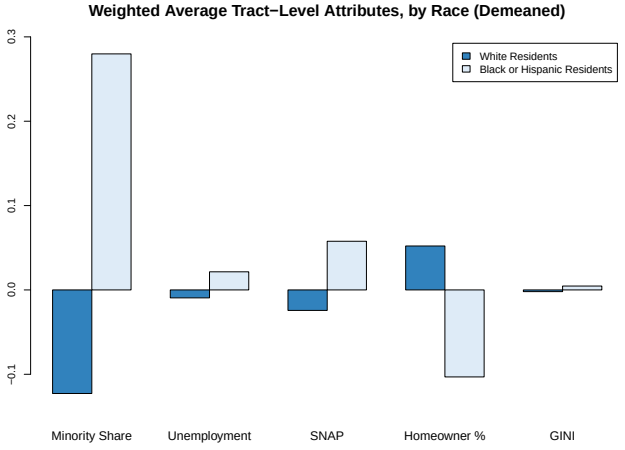
- Ananat (2011), Cutler and Glaeser (1997); many others

Result: neighborhood attributes faced by average resident varies by race

Characteristics are capitalized differently in market prices vs assessments

Generates spatial variation in tax burden that correlates with race

# Sample Differences




▸ More Variables ▸ Baseline Regression Evidence ▸ More Regression Evidence

# Implied Hedonic Prices

"Automated Valuation Models": some form of hedonic regression

Estimate two hedonic models: 1) LHS = Market, 2) LHS = Assessment

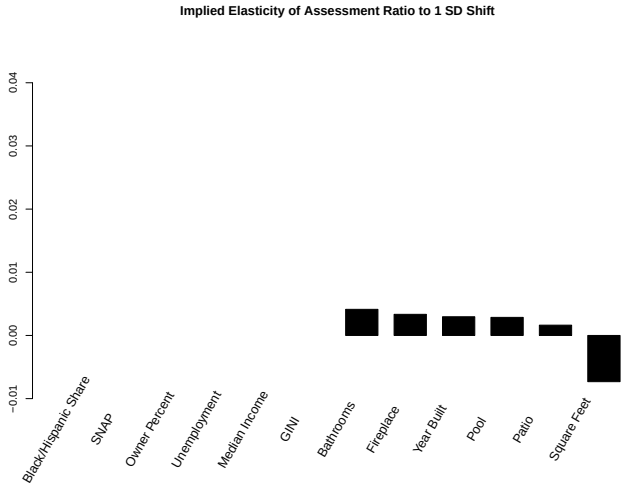
$$V_{icjt} = \gamma_{jt} + \Theta^V X_{icjt} + \beta^V W_{cjt} + \varepsilon_{icjt}$$

Goal: compare $\Theta^A$, $\beta^A$ with $\Theta^M$, $\beta^M$

$V$: assessment or market; $i$: home, $c$: tract, $j$: jurisdiction

$t$: time, $X_{icjt}$: home attributes, $W_{cjt}$: local attributes

# Relative Hedonic Prices




▸ Estimated Hedonic Prices

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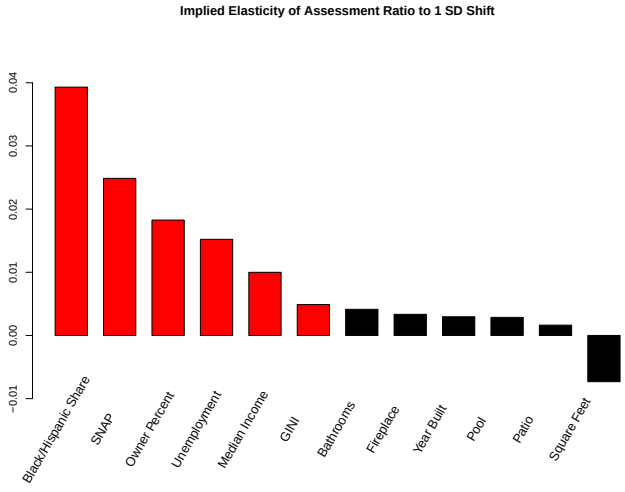



▸ Estimated Hedonic Prices

# Taking Stock

Overall assessment gap: 10-13%

Between variation: 6-7%

- Assessors underweight neighborhood attributes in projecting market prices
- Tactically: hedonic F.E. or rule-of-thumb growth for too large an area

Within variation: 5-6%

- So far unexplained
- Hypothesis: racial differential in appeals behavior/outcomes

# Mechanism for Homeowner Effect

Extensive social science literature:

- Minority residents may be less trusting of public officials
- May perceive institutions are not designed to serve them

Assessment Appeals:

- Almost always process for appealing assessment
- Obtained administrative micro-data from 2nd largest county

# Cook County, IL

Population: 5M; Homes: 1.9M

- Appeals, 2003-2015: 3.5M

Usual to hire tax attorney - perception: connections matter
Antiquated data/tech & low staffing: "assessment by appeal"

Additional info:

1. Appeal filed
2. Win / loss
3. Amount of reduction

▸ IL Homeowner Effect

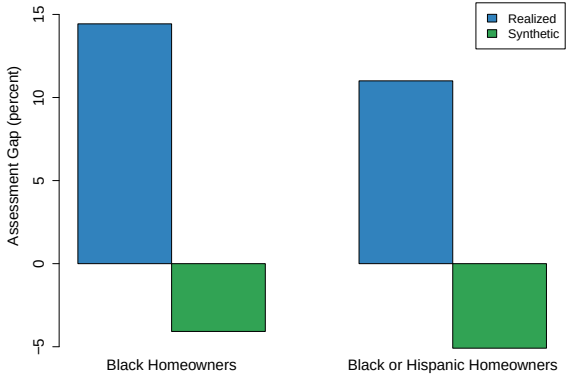
# Results: Appeals in Cook County

| | Dependent Variable: | | |
|---|---|---|---|
| | Appeal | Win Appeal | Reduction |
| | (1) | (2) | (3) |
| Black or Hispanic Mortgage Holder | −0.982*** | −1.993*** | −0.258*** |
| | (0.068) | (0.245) | (0.074) |
| Baseline Rate | 14.6 | 67.4 | 12.0 |
| Fixed Effects | BG-Year | BG-Year | BG-Year |
| No. Clusters | 3954 | 3933 | 3893 |
| Observations | 4,076,655 | 694,553 | 476,368 |
| $R^2$ | 0.383 | 0.415 | 0.443 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Notes: 1) linear probability model, 2) coefficients are (%)

Black Homeowners

# Correcting Assessment Gap: Using Zip-Code Level HPIs




▸ Underlying Regressions

# Take Aways

1. 10-13% higher property tax burden for black and/or Hispanic residents
2. Geographic channel and a homeowner channel:
   - Assessments insufficiently sensitive to local attributes
   - Racial differentials in appeals behavior and outcomes
3. Inequality can be significantly reduced by linking assessments to local-HPIs