

# Public Housing Preferences

Evidence from New York City 1930-2010

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# Motivation

Rents in U.S. cities have surged, displacing low- and middle-income households (Gyourko et al., 2013).

In the 20th century, **public housing enabled access to high-opportunity areas** — but support for public housing waned after the 1970s.

Critics argue it's **inefficient** (Olsen, 2003), and generates **negative externalities**: crime, stigma, poor schools (Aliprantis and Hartley, 2015; Sandler, 2017; Blanco and Neri, 2025; Tach and Emory, 2017).

Albany Houses, 1950



But most research treats public housing as homogeneous  $\Rightarrow$  We know little about how **what gets built**—its *scale, architecture, and tenant mix*—shapes neighborhoods.

- 43% find low-income housing design unattractive (Housing Illinois Survey, 2003).
- Early public housing followed the urban renewal vision  $\Rightarrow$  “**Tower in the Park**”
  - $\rightarrow$  Removes eyes on the street (Jacobs, 1992).
  - $\rightarrow$  Generates un-policeable spaces (Newman, 1997).

# This paper I

- ➡ Did certain characteristics of public housing create less or more neighborhood demand?

## How I do it

1. Built novel census tract data-set harmonized to 2010 tract boundaries.
  - Archival public housing information on racial composition and characteristics
  - 19,440 digitized rental listings from the New York Times.
  - Racial and rental information from the US federal census at the census tract level.
- ▶ Separate sorting by private residents from mechanical effects of public housing placement.
- ▶ Compare listing and contract rents to isolate the market response to public housing.
- ▶ Deflate all rental prices to 2010 \$ using the CPI.

# This paper II

- ➡ Did certain characteristics of public housing create less or more neighborhood demand?

## How I do it

2. Leverage staggered project construction to estimate the causal effects of public housing on
  - White, Black, Hispanic Population and rent prices.
  - Use distance as a treatment intensity.
3. Static neighborhood choice model to
  - translate reduced-form estimates into individual preferences for public housing.
  - obtain MWTP for public housing characteristics.
  - leverage the sampling variance of the reduced-form estimates to assess MWTP estimate precision.

# Preview of Results

## 1. Public housing reshaped neighborhood composition:

- ▶ **White population:** +46% (+1,577) at construction, -44% (-1,504) after 60 years; private White residents fell by 88% (-2,997).
- ▶ **Black population:** +236% (+3,553) at onset, +160% (+2,405) after 60 years; private Black population declined 76% (-1,141).
- ▶ **Hispanic population:** +175% (+1,316) long-run increase; entirely driven by public housing placement, with no private response.

## 2. MWTP estimates highlight design and sorting preferences:

- ▶ **Scale:** Larger projects disfavored (MWTP: -\$136 to -\$288 per +100 units).
- ▶ **Design:** Taller buildings penalized (MWTP: -\$123 for Whites, -\$127 for Blacks).
- ▶ **Quality:** Higher construction costs valued (MWTP: +\$40-\$54 per \$1,000).
- ▶ **Tenant mix:** Whites prefer White-majority projects; Blacks and Hispanics avoid high-Black share developments.

# Literature

## 1. Neighborhood effects of Public housing

Almagro et al. (2023), Blanco (2022), Blanco and Neri (2025), Diamond and McQuade (2019), Aliprantis and Hartley (2015), Ellen et al. (2007), and Schwartz et al. (2006)

- ▶ **Contribution:** Heterogeneity in public housing attributes.

## 2. Housing Externalities

Redding and Sturm (2024), Asquith et al. (2023), Campbell et al. (2011), Rossi-Hansberg et al. (2010), and Autor et al. (2014, 2017)

- ▶ **Contribution:** Building quality has positive long-run effects on neighborhoods.

## 3. Location Choice

Logan and Parman (2017), Boustan (2010), Card et al. (2008), Bayer et al. (2007), Bajari and Kahn (2005), and Cutler et al. (1999)

- ▶ **Contribution:** Link reduced-form DiD coefficients to structural preferences.

# Urban Renewal and Public Housing in New York City

Public housing in New York City aimed to renew urban areas:

- Eliminate slums, provide housing to white working-class residents. Tenant characteristics
- Remodeling of the built environment  $\Rightarrow$  “Tower in the Park”.
- Public housing was celebrated as a symbol of progress and gained strong public support.

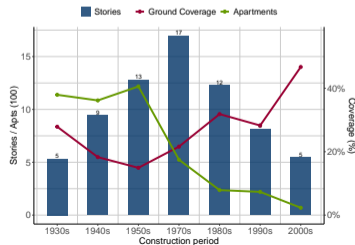
1970 marks a turning point:

- Policy shifted to serving very low-income residents with reduced federal investment and relaxed tenant screening.
- Budget cuts undermined maintenance and weakening support for public housing.

“Today – Yesterday”, 1948



Project Characteristics



# Data

## Public Housing Data

Data from NYCHA and the LaGuardia & Wagner Archives covering all 275 Public Housing projects, including:

- Completion year, construction costs, number of units, building height, and ground coverage.
- Annual racial composition, including tenant mix at initial opening. [PH composition](#)

## US Federal Census

Tract-level data on Whites, Blacks, Hispanics and median contract rents from 1930 to 2010 ⇒ harmonized to 2010 tract boundaries. [Tract boundaries](#)

- ➡ Use annual counts of public housing residents to isolate private sorting from mechanical placement effects of public housing.

## Property-Level Rent Data

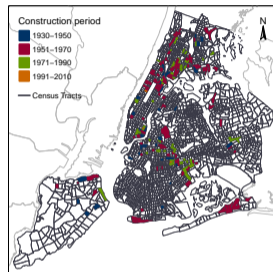
Digitized 19,446 rental listings from the New York Times real estate section, in each decennial census year from 1930 to 2010. [Listing Data](#) [Rental Price Stats](#)

# Empirical Strategy: Stacked DiD

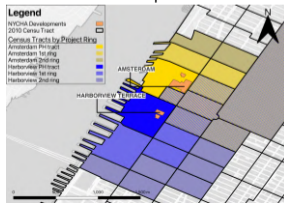
Difference-in-differences design using variation in proximity to projects (Blanco and Neri, 2025):

- Tracts closer to a project receive stronger treatment; two neighbor rings define exposure.
- Compare changes in treated and adjacent tracts to second-ring controls.
- **Stacked DiD:** Each project defines a sub-experiment; all are stacked into a single dataset.
- **Key assumption:** In absence of treatment, trends would evolve similarly across rings. Benchmark trends

## Project Location



## Stacked Example



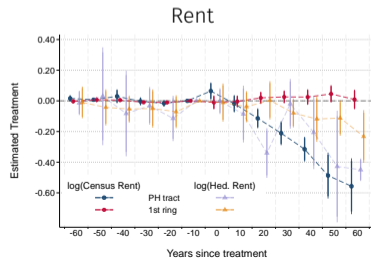
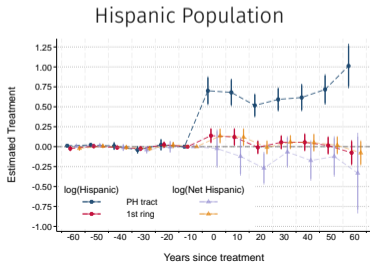
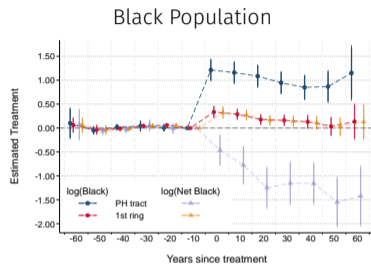
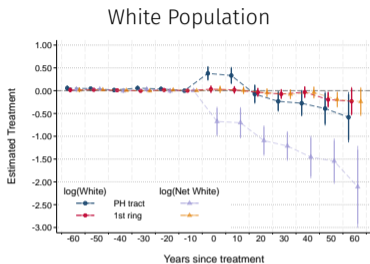
# Empirical Specification

- I estimate the following equation at the tract  $k$ , neighborhood  $m$ , project  $p$  and year  $t$  level:

$$y_{k,m,p,t} = \sum_R \sum_{\tau=-60}^{60} \beta_{\tau,R} \cdot \mathbf{D}_{k,\tau,R} + \mathbf{X}_{p,k} + \rho_{p,t} + \rho_{p,m,t} + u_{k,m,p,t}$$

- ▶  $\beta_{\tau,R}$ : Dynamic treatment effects for treated tracts vs. outer-ring controls.
- ▶  $\mathbf{X}_{p,k}$ : Controls include baseline outcome values to account for pre-treatment differences across rings, as well as infrastructure (renewal, subway, arterial roads) interacted with project IDs.
- ▶  $\rho_{p,t}$ : Project-by-year fixed effects account for time shocks within each project.
- ▶  $\rho_{p,m,t}$ : Neighborhood-by-year fixed effects, fully interacted with project, allow flexible trends across space.
- ▶ Standard errors are clustered at the project level to account for correlated shocks within each treatment unit.

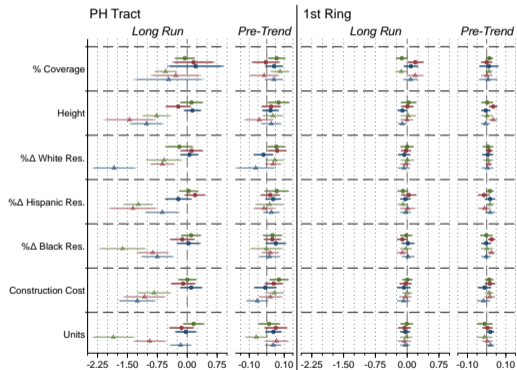
# Results — Reduced Form



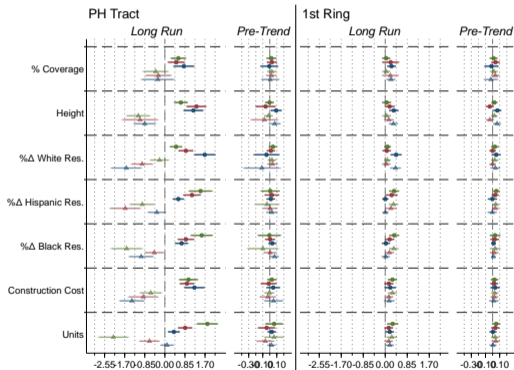
# Results - Heterogeneity

$$y_{kmpt} = \sum_{T \in \mathcal{T}} \sum_{R \in \mathcal{R}} \left[ \beta_{post}^{R,T} \mathbf{D}_{post}^{R,T} + \gamma_{pre}^{R,T} \mathbf{D}_{pre}^{R,T} \right] + \mathbf{X}'_{pk} \theta + \rho_{pt} + \rho_{pmt} + u_{kmpt}.$$

## White Population



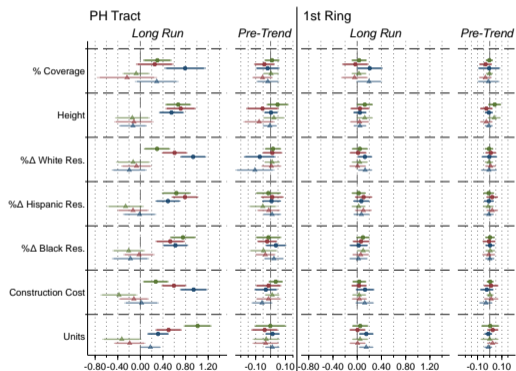
## Black Population



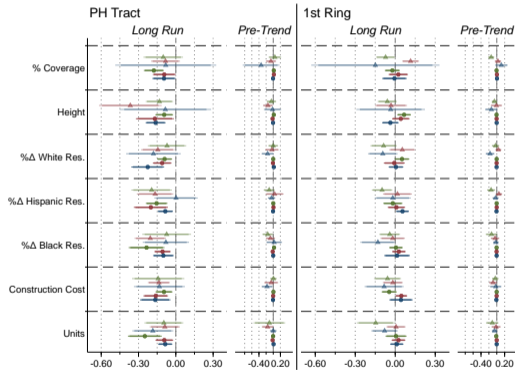
# Results - Heterogeneity

$$y_{kmpt} = \sum_{T \in \mathcal{T}} \sum_{R \in \mathcal{R}} \left[ \beta_{post}^{R,T} \mathbf{D}_{post}^{R,T} + \gamma_{pre}^{R,T} \mathbf{D}_{pre}^{R,T} \right] + \mathbf{X}'_{pk} \theta + \rho_{pt} + \rho_{pmt} + u_{kmpt}.$$

## Hispanic population



## Rents



# Heterogeneity and Robustness

- Alternative Rent Measures
- Effects Construction Period
- Effects by Borough
- Effects by Income Tercile
- No overlapping rings
- Alternative Estimators

# Conceptual Framework: Set-up

Households  $i \in N$ , group  $g \in \{B, W, H\}$ :

- choose location  $k$ ,
- consume  $C_i, h_{ik}$ ,
- prefer public housing ( $\beta_{PH}^g$ ),
- face shocks  $\epsilon_{ik}^g \sim \text{EV-I}$ .

Indirect utility:

$$V_{ik}^g = \beta_{PH_1}^g PH_{1k} + \beta_{PH_2}^g PH_{2k} + \log w_k - \alpha \log r_k + \epsilon_{ik}^g$$

Housing supply in tract  $k$ :

$$S_k = \delta_k r_k^{\psi_k}$$

## Conceptual Framework: Comparative Statics

Equilibrium is given by  $\{r_k^*, N_k^{B*}, N_k^{W*}, N_k^{H*}\}$ .

Partial effect of the introduction of Public Housing in ring  $R$ :

$$\frac{\partial \log(r_k^*)}{\partial PH_{R,k}} = \frac{\Xi_R^g}{\psi_k + \alpha} = \hat{\beta}_{PH_R}^{rent} \quad (1)$$

Equilibrium population response:

$$\frac{\partial \log(N_k^{g*})}{\partial PH_{R,k}} = \beta_{PH_R}^g - \alpha \cdot \frac{\partial \log(r_k^*)}{\partial PH_{R,k}} = \hat{\beta}_{PH_R}^g \quad (2)$$

Recover preference parameters from reduced-form coefficients, distinguishing medium run ( $t = 0-30$ ) and long run ( $t = 40-60$ ) impacts:

$$\beta_{PH_R,t}^g = \hat{\beta}_{PH_R,t}^g + \alpha \times \hat{\beta}_{PH_R,t}^{rent} \quad (3)$$

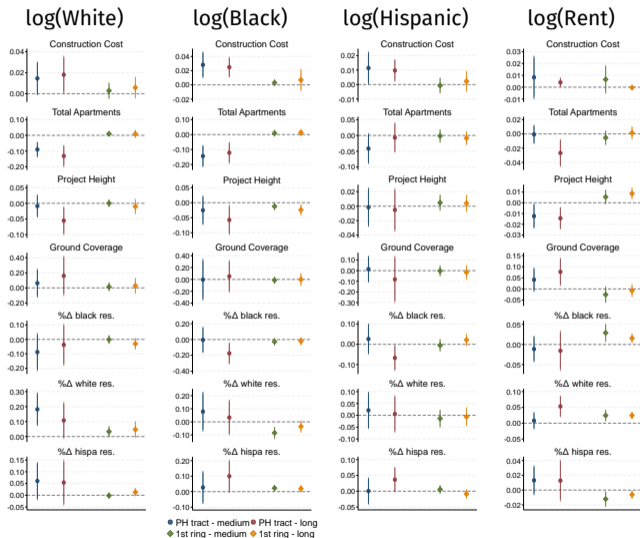
# Public Housing Characteristics

- Quantify how private (non-public housing) residents value different attributes of nearby public housing.
- Focus: Effects 0–30 and 40–60 years after construction.
- Idea: Interact treatment status (PH tract, 1st ring) with time-invariant project attributes.

$$y_{k,m,p,t} = \sum_{\substack{\tau \in \{0-30, \\ 40-60\}}} \sum_{i \in \mathbf{ATTR}} (\gamma_{0i\tau} PH\ tract_{p,t} + \gamma_{1i\tau} 1st\ ring_{p,t}) \times ATTR_i \\ + \mathbf{X}_{p,k} + \rho_{p,t} + \rho_{p,m,t} + u_{k,m,p,t}$$

- ▶  $ATTR_i \in$  # units (100), # stories height, % ground coverage, construction cost per room (\$), % $\Delta$  in the racial composition of tenant.

# Public Housing Characteristics



## Marginal Willingness to Pay

Estimate households' MWTP for public housing attributes (e.g., height, cost, tenant mix) using empirical point estimates and variance.

Formally the MWTP it is defined as:

$$\text{MWTP}_{\text{ATTR}_{i,R,t}}^g = - \frac{\frac{\partial V}{\partial \text{ATTR}_{i,R,t}}}{\frac{\partial V}{\partial \log r_{R,t}}} = \frac{\beta_{\text{ATTR}_{i,R,t}}^g}{\alpha}. \quad (4)$$

Assess precision of the MWTP using the empirical variance of the estimates::

$$\text{Var}(\beta_{\text{ATTR}_{i,R,t}}^g) = \text{Var}(\hat{\beta}_{\text{ATTR}_{i,R,t}}^g) + \alpha^2 \text{Var}(\hat{\beta}_{\text{ATTR}_{i,R,t}}^{\text{rent}}) \quad (5)$$

$p$ -values are derived via delta method and normal approximation:

$$p = 2 \cdot \Phi \left( - \left| \frac{\text{MWTP}}{\text{SE}(\text{MWTP})} \right| \right) \quad (6)$$

# MWTP Whites

	0-30 years		40-60 years	
	MWTP (%)	MWTP (\$)	MWTP (%)	MWTP (\$)
PH Tract				
# Apartments	-0.30*** (0.083)	-136.11	-0.47*** (0.119)	-287.87
Construction cost	0.06** (0.029)	25.68	0.06** (0.031)	39.74
# Stories	-0.04 (0.062)	-18.35	-0.20** (0.078)	-122.74
%Δ Black res.	-0.31 (0.222)	-137.80	-0.14 (0.249)	-87.05
%Δ Hisp. res.	0.22 (0.137)	97.65	0.19 (0.166)	119.39
%Δ White res.	0.61*** (0.189)	276.71	0.41* (0.211)	254.78
% Ground coverage	0.25 (0.323)	112.81	0.61 (0.454)	378.01
1 <sup>st</sup> Ring				
# Apartments	0.03 (0.029)	15.62	0.03 (0.045)	29.70
Construction cost	0.02 (0.015)	9.06	0.02 (0.018)	17.38
# Stories	0.01 (0.021)	3.64	-0.03 (0.041)	-23.40
%Δ Black res.	0.02 (0.054)	13.92	-0.09 (0.069)	-79.07
%Δ Hisp. res.	-0.02 (0.024)	-9.87	0.04 (0.030)	34.18
%Δ White res.	0.13** (0.066)	75.73	0.18* (0.095)	164.55
% Ground coverage	0.02 (0.101)	13.15	0.09 (0.181)	79.59

- Units:** +100 PH units → MWTP: -\$136 (0-30 yrs), -\$288 (40-60 yrs)
- Height:** +1 story → MWTP: -\$123 (40-60 yrs)
- Unit Cost:** +\$1,000 → MWTP: +\$26 (0-30 yrs), +\$40 (40-60 yrs)
- White Tenant Share:** +10pp → MWTP:
  - Treated tracts: +\$277 (0-30 yrs), +\$255 (40-60 yrs)
  - Adjacent tracts: +\$76 (0-30 yrs), +\$165 (40-60 yrs)

# MWTP Blacks

Variable	0-30 years		40-60 years	
	MWTP (%)	MWTP (\$)	MWTP (%)	MWTP (\$)
PH Tract				
# Apartments	-0.48*** (0.124)	-217.33	-0.43*** (0.124)	-266.76
Construction cost	0.10*** (0.033)	46.20	0.09*** (0.025)	53.81
# Stories	-0.10 (0.083)	-43.39	-0.21** (0.085)	-126.93
%Δ Black res.	-0.03 (0.279)	-13.17	-0.60** (0.237)	-369.63
%Δ Hisp. res.	0.10 (0.179)	46.71	0.35* (0.179)	213.26
%Δ White res.	0.27 (0.257)	122.12	0.16 (0.231)	101.53
% Ground coverage	0.03 (0.593)	12.16	0.25 (0.466)	154.67
1 <sup>st</sup> Ring				
# Apartments	0.03 (0.039)	14.73	0.05 (0.041)	42.69
Construction cost	0.02 (0.010)	9.34	0.02 (0.027)	20.68
# Stories	-0.04 (0.023)	-20.07	-0.07** (0.032)	-65.24
%Δ Black res.	-0.06 (0.083)	-36.17	-0.06 (0.089)	-52.27
%Δ Hisp. res.	0.06* (0.035)	35.24	0.06 (0.039)	52.24
%Δ White res.	-0.26*** (0.081)	-145.74	-0.10 (0.079)	-87.78
% Ground coverage	-0.07 (0.111)	-39.63	-0.01 (0.186)	-13.50

- Units:** +100 PH units → MWTP: -\$217 (0-30 yrs), -\$267 (40-60 yrs)
- Height:** +1 story → MWTP:
  - Treated tracts: -\$127 (40-60 yrs)
  - Adjacent tracts: -\$65 (40-60 yrs)
- Unit Cost:** +\$1,000 → MWTP: +\$46 (0-30 yrs), +\$54 (40-60 yrs)
- Black Tenant Share:** +10pp → MWTP: -\$370 (40-60 yrs)
- Hispanic Tenant Share:** +10pp → MWTP:
  - Treated tracts: +\$213 (40-60 yrs)
  - Adjacent tracts: +\$35 (0-30 yrs), +\$52 (40-60 yrs)

# MWTP Hispanics

	0-30 years		40-60 years	
	MWTP (%)	MWTP (\$)	MWTP (%)	MWTP (\$)
PH Tract				
# Apartments	-0.06 (0.074)	-26.51	-0.03 (0.079)	-16.71
Construction cost	0.05** (0.021)	20.56	0.04*** (0.013)	25.41
# Stories	-0.01 (0.045)	-3.91	-0.03 (0.049)	-18.83
%Δ Black res.	0.01 (0.125)	2.93	-0.19* (0.110)	-116.41
%Δ Hisp. res.	0.03 (0.070)	15.79	0.11 (0.067)	66.32
%Δ White res.	0.11 (0.123)	48.17	0.05 (0.130)	30.57
% Ground coverage	0.11 (0.215)	51.27	-0.21 (0.382)	-127.57
1 <sup>st</sup> Ring				
# Apartments	-0.01 (0.037)	-5.48	-0.02 (0.038)	-22.19
Construction cost	0.00 (0.011)	2.53	0.01 (0.013)	6.37
# Stories	0.02 (0.020)	12.16	0.02 (0.021)	20.17
%Δ Black res.	0.01 (0.055)	5.72	0.08 (0.053)	75.94
%Δ Hisp. res.	0.01 (0.024)	3.89	-0.03 (0.026)	-30.86
%Δ White res.	-0.02 (0.065)	-9.38	0.00 (0.069)	2.59
% Ground coverage	-0.03 (0.091)	-17.71	-0.07 (0.118)	-61.88

1. **Unit Cost:** +\$1,000 → MWTP: +\$21 (0-30 yrs), +\$25 (40-60 yrs)
2. **Black Tenant Share:** +10pp → MWTP: -\$116 (40-60 yrs)

# Conclusion

## What this paper shows:

- Public housing had large, persistent effects on neighborhood composition: it drove out private White residents, attracted public Black tenants, and led to substantial rent declines in treated areas.
- Households, especially White and Black residents, revealed sharp preferences over building scale, quality, and racial composition.

## Key implications

- Well-built, small-scale projects are more broadly accepted, but constrain unit supply.
- Large-scale developments expand affordable housing, but may trigger adverse market responses and sorting.
- Expanding public housing in high-opportunity areas requires balancing *scale* with *social acceptance*.

Thank you

# Tenant Characteristics

*Table:* Household characteristics of residents and eligible residents of public housing developments in New York City, 1940

	First Houses		Harlem River		Williamsburg		Queensbridge		Red Hook	
	Residents	Eligible Households	Residents	Eligible Households	Residents	Eligible Households	Residents	Eligible Households	Residents	Eligible Households
White	100	100	0.3	0	99.8	100	98.8	100	99.4	100
Married, spouse present	88.5	69	85.6	67.3	92.8	76.6	86.2	71.3	89.2	72.5
High school, no degree	12.3	11.2	26.4	15.4	13.3	12.2	16.6	11.3	17.2	11.4
More than high school	7.4	6.4	12.5	4.8	5.4	6.4	2.9	6.2	2.9	6.2
Employed	89.3	79.6	87.2	84.9	85.6	83.5	80.3	80.6	73.9	80.8
Median household yearly income	1,100.00	800.1	1,220.00	923	1,300.00	1,100.50	936	900.3	800	939.3
Observations	122	356,102	576	58,517	1,607	638,877	3,149	447,893	2,529	487,816

*Notes:* Eligible households are all four-person, married-couple households with two minor children and a head of household that was employed. These household characteristics match the nuclear-family, working-class ideal embraced by housing authorities during this era (Radford 1996).

*Source:* Allen & van Riper 2020

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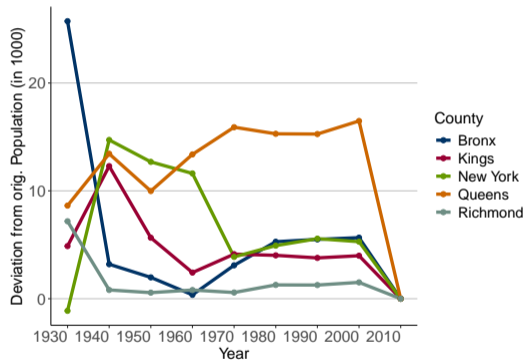
# Census Tracts

Count variables:

$$\hat{y}_i = \sum_{j \in \mathcal{J}_i} \frac{A_{ij}}{A_j} \cdot y_j,$$

Monetary variables:

$$\hat{y}_i = \frac{\sum_{j \in \mathcal{J}_i} y_j \cdot w_{ij}}{\sum_{j \in \mathcal{J}_i} w_{ij}},$$



Census Tracts 2010

# Listing Data

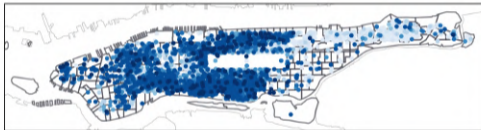
Figure: Example of a Rental Listings

SEPTEMBER 24, 1950.

Apartments Unfurnished—Manhattan	Apartments Unfurnished—Manhattan
<p><b>Apartments, Three, Four, Five Rooms</b>  <b>75'S EAST.</b> Cooperative for sale, 4 1/2 spacious rms, woodburning fireplace, cross ventilation, Charming roof garden. Maint only \$145 mo. Priced to sell. Mr. Hodges, W.M., A. WHITE &amp; SONS, 422 Park Ave, PL 9-0700.</p> <p><b>76'S EAST.</b> 3 room upper duplex, 2 masters, 2 baths, powder rm, fireplace, Oct occupancy, 3 yr lease. Miss Robinson, W.M., A. WHITE &amp; SONS, 422 Park Ave, PL 9-0700.</p> <p><b>71ST ST (off Park Ave).</b> Mod 3 rms, 3 flights up: \$155. WA 4-2656, till 2 P.M.</p> <p><b>72D (ON WEST END)</b>                      attractive 3-room apartment in new co-op building, \$175. EN 2-7799, 10-17, 4-5</p> <p><b>72 ST, 146 W.</b> Basement apt, court level, 4 rms, bath, new stove, new refrig, \$65, gas &amp; elec incl. MU 2-7614</p> <p><b>73D (Riverside Drive), 4 1/2 large, ground floor, garden, 2 entrances, suitable professional-living. EN 2-8920.</b></p> <p><b>73 ST, 16 E.</b> Large living room, bedroom, real kitchen, alt. from \$175. ROSSBACH ASSOCIATES, Inc, PL 5-3533</p> <p><b>74 ST &amp; PARK AVE (101 E 74TH)</b>                      NEWLY CREATED APTS                      HIGH-TYPE ELEV BLDG                      2 1/2 &amp; 3 1/2 ROOM APTS                      High floor. Sunny, cross-ventilation. See Supt on premises.</p>	<p><b>Apartments, Three, Four, Five Rooms</b>  <b>88 ST, 100 W</b>                      Luxurious modern elevator apartments 4 ROOMS. CHOICE CORNER RENT \$150 5 ROOMS. RENT \$160                      Newly equipped Hollywood kitchens                      Immediate possession. References.                      Supt on premises or. HOUSE BR 9-7128</p> <p><b>89 ST, 504 E. SMALL NEW BLDG.</b>                      Quiet, Exclusive, Nr. Grace Pk.                      Large 3 1/2, \$165. Agent premises, RH 4-9788</p> <p><b>90TH, 14 WEST (CP)</b>                      Spacious, newly remodeled, 2 1/2 (outside), terrace, unfurnished or furnished. Lease. Reasonable</p> <p><b>90TH, 1737 York Ave. 3 1/2, fine kitchen, 2 window ledges, modern air Grade Park, 4 bus lines, river view from \$120 Porter &amp; Co. TR 9-5000 or Supt.</b></p> <p><b>90TH, West (Park Mtsk), 2 1/2 rooms, whole second floor, brownstone. \$150. Highest references. SC. 4-0469.</b></p> <p><b>90'S, E. 4-rm co-op; mod kb; terrace. \$8,500. Low maint. Broker, PL 7-2358.</b></p> <p><b>30D (Madison). Lovely garden apt floor through room, large bedroom, kitchen, \$165. Nelson, BU 8-0087.</b></p>

Figure: Spatial Distribution of Rental Listings

Manhattan



Boundaries

- County
- Census Tract

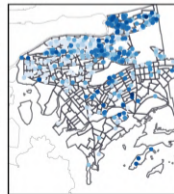
Year

- 1930
- 1940
- 1950
- 1960
- 1970
- 1980
- 1990
- 2000
- 2010

Brooklyn & Queens



Bronx



back

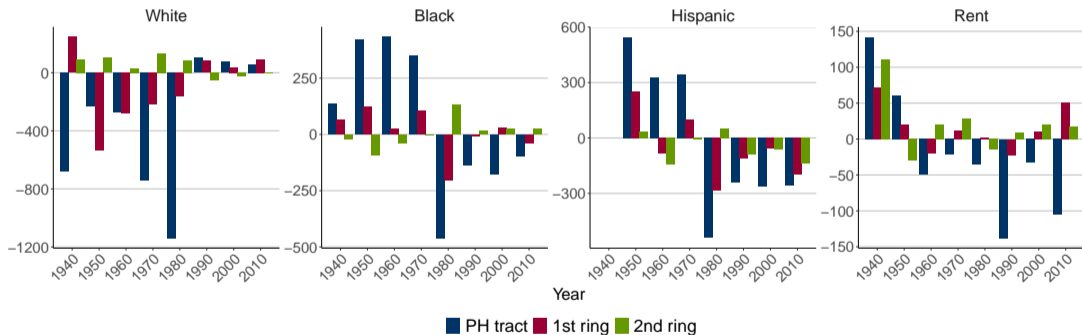
# Rent Price Statistics

Year	US census		NYT rental listings					Obs
	Avg. rent	Avg. rent no p.h.	Med. Rent	Med rent p.r.	Avg. rent	Avg. rent p.r.	Avg rooms	
1930	808.22 (2505.53)	836.31 (2637.84)	1358.23	507.88	1877.25 (1867.09)	712.47 (771.37)	3.63 (2.51)	8847
1940	605.45 (185.39)	618.01 (185.94)	1168.39	389.46	1840.45 (2386)	615.18 (1121.86)	3.64 (2.28)	1561
1950	342.83 (174.18)	346.55 (179.16)	1076.93	434.39	1332.28 (1408.2)	511.38 (357.42)	2.99 (1.51)	1572
1960	431.71 (164.9)	441.39 (167.46)	1053.66	324.20	1289.63 (756.11)	390.17 (187.73)	3.46 (1.34)	1632
1970	574.78 (226.33)	587.08 (233.7)	1826.87	615.51	2058.89 (1153.69)	774.6 (557.55)	3.37 (1.72)	1432
1980	576.6 (174)	593.11 (173)	1574.87	741.12	1886.81 (1437.99)	1000.31 (844.8)	2.81 (1.98)	1509
1990	806.78 (237.28)	839.85 (223.46)	1919.01	1251.53	2212.58 (1218.39)	1302.05 (796.87)	2.48 (2.12)	1585
2000	864.51 (304.1)	901.53 (293.09)	3293.03	1618.02	3819.1 (2586.1)	1900.45 (1224.96)	2.89 (2.07)	1197
2010	1132.89 (339.46)	1184.11 (308.38)	2700.00	1297.50	3483.18 (2584.45)	1612.85 (1161.03)	3.24 (2.41)	111

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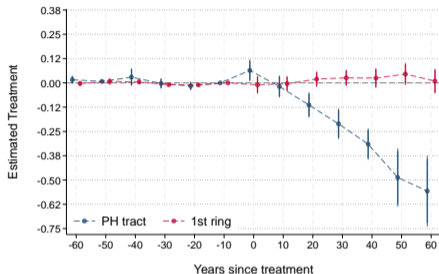
# Empirical Strategy: Benchmarking

Figure: Deviation from Average City Trend



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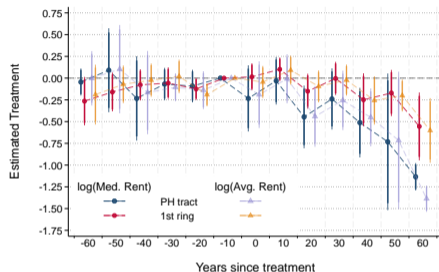
# Results - Rents



## log(Census Rent)

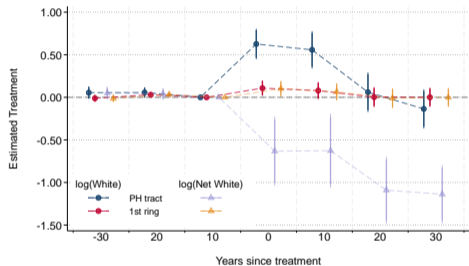
▶ **Census rents:** Initially rose 6.6%, but declined 43% over 60 years.

▶ **NYT rents:** Median and average rent per room fell 68% and 75% in treated tracts; modest spillovers to adjacent areas appear after 60 years.

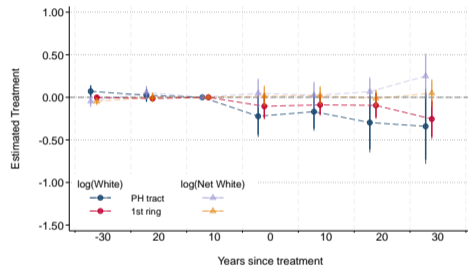


## NYT Rent

# Results - Construction Period



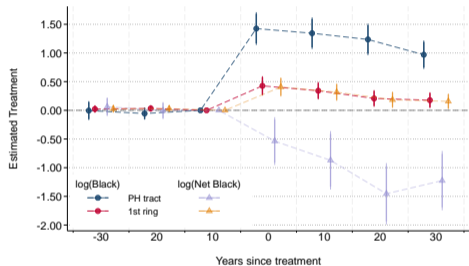
White Population - Pre 1970



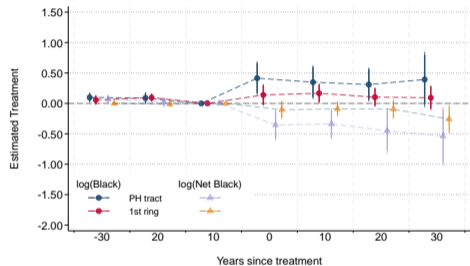
White Population - Pre 1970

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# Results - Construction Period



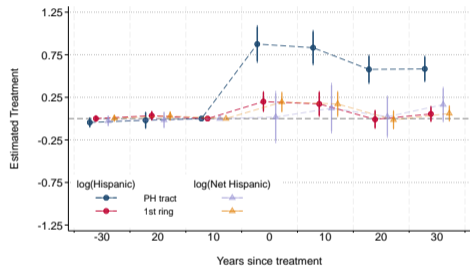
Black Population - Pre 1970



Black Population - Pre 1970

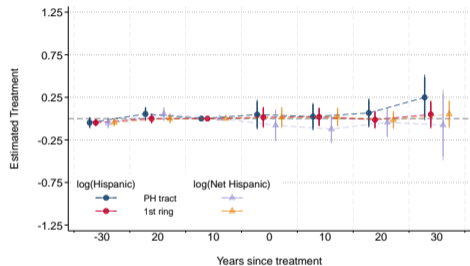
[back](#)

# Results - Construction Period



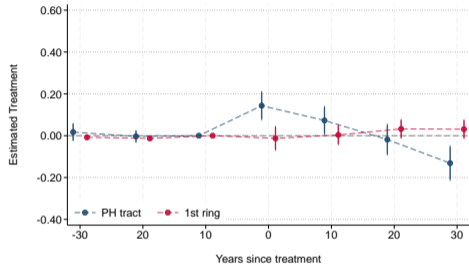
Hispanic Population - Pre 1970

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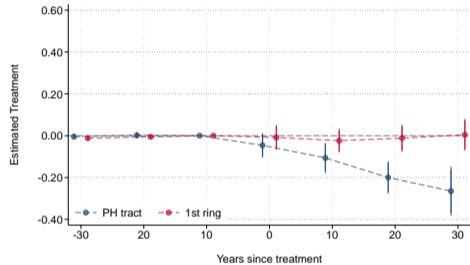
Hispanic Population - Pre 1970

# Results - 1970



log(Census Rent) - Pre 1970

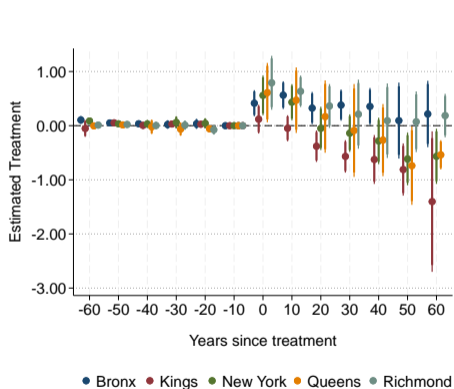
[back](#)



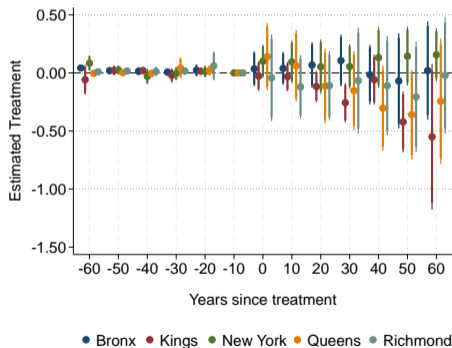
log(Census Rent) - Pre 1970

# Heterogeneity: Boroughs

$$y_{k,m,p,t} = \sum_{h \in H} \sum_R \sum_{\tau=-60}^{60} \beta_{\tau,r}^{(h)} \cdot \mathbf{1}(t - Y_p = \tau, R = R(k,p), h = h(m)) + \mathbf{X}_{p,k} + \rho_{p,t} + \rho_{p,m,t} + u_{k,m,p,t}$$



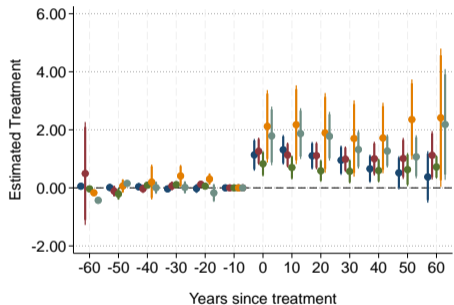
PH Tract



1st ring

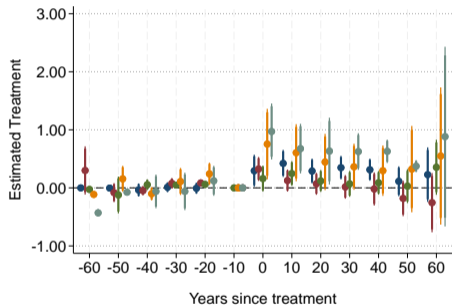
# Heterogeneity: Boroughs

log(Black)



● Bronx ● Kings ● New York ● Queens ● Richmond

PH Tract



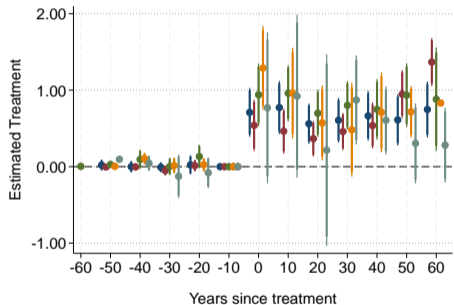
● Bronx ● Kings ● New York ● Queens ● Richmond

1st ring

back

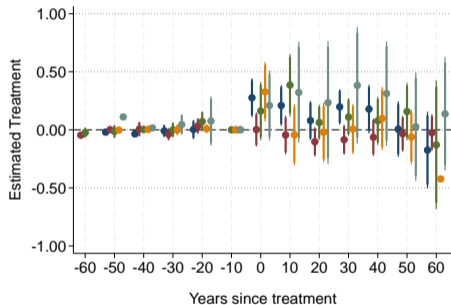
# Heterogeneity: Boroughs

log(Hispanic)



● Bronx ● Kings ● New York ● Queens ● Richmond

PH Tract

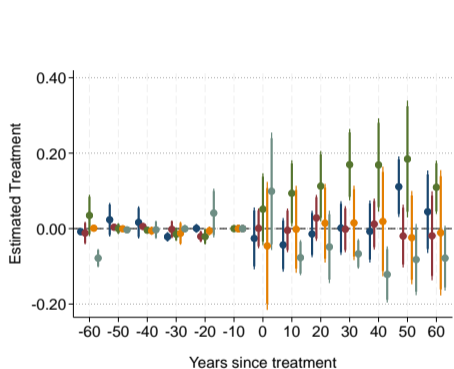
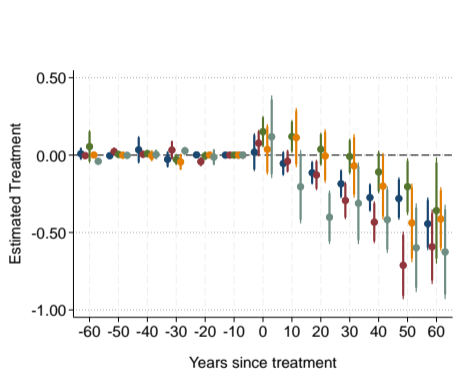


● Bronx ● Kings ● New York ● Queens ● Richmond

1st ring

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# Heterogeneity: Boroughs



PH Tract

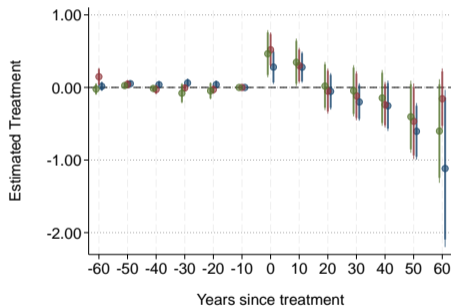
1st ring

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# Heterogeneity: Income Tertile

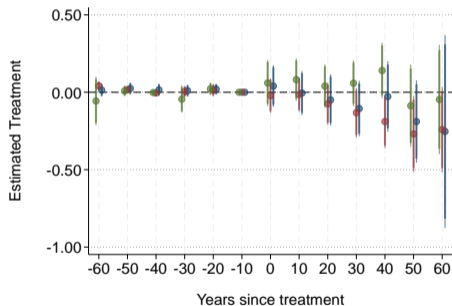
$$y_{k,m,p,t} = \sum_{h \in H} \sum_R \sum_{\tau=-60}^{60} \beta_{\tau,r}^{(h)} \cdot \mathbf{1}(t - Y_p = \tau, R = R(k,p), h = h(m)) + \mathbf{X}_{p,k} + \rho_{p,t} + \rho_{p,m,t} + u_{k,m,p,t}$$

log(White)



● 1st Tertile ● 2nd Tertile ● 3rd Tertile

PH Tract

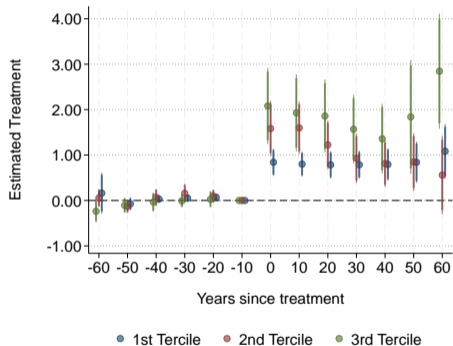


● 1st Tertile ● 2nd Tertile ● 3rd Tertile

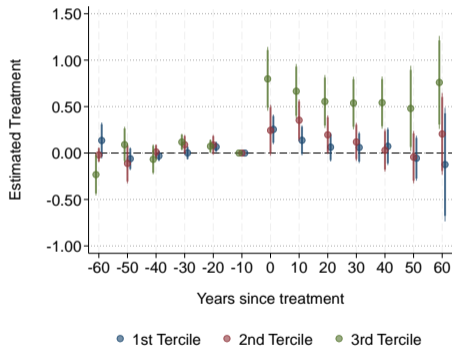
1st ring

# Heterogeneity: Income Tertile

log(Black)



PH Tract

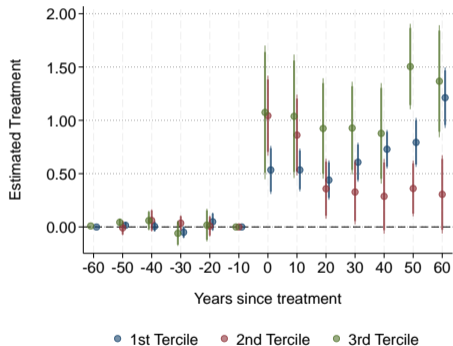


1st ring

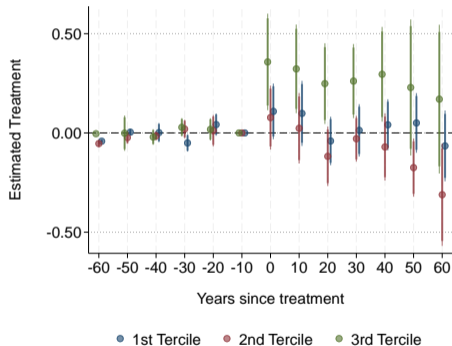
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# Heterogeneity: Income Tertile

log(Hispanic)



PH Tract

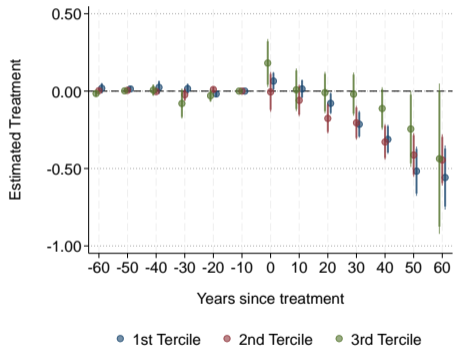


1st ring

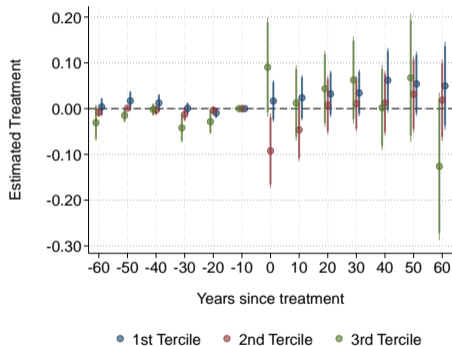
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# Heterogeneity: Income Tertile

log(Rent)



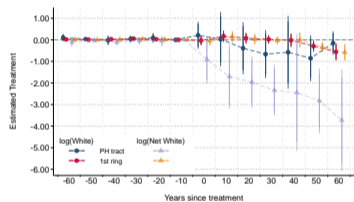
PH Tract



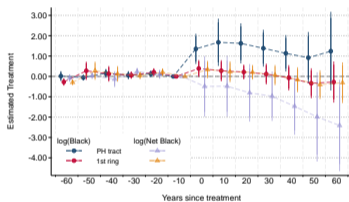
1st ring

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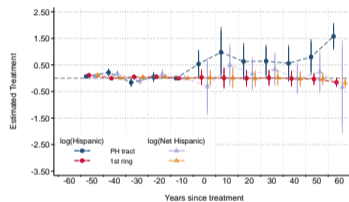
# Robustness: Non-overlapping rings



White



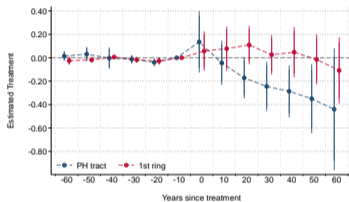
Black



Rent

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# Robustness: Non-overlapping rings

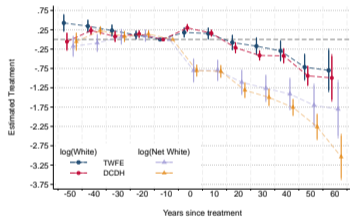


log(Rent)

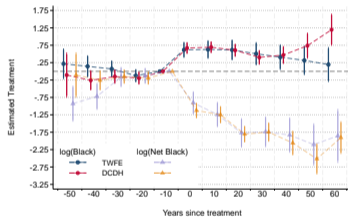
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# Robustness: Alternative Estimators

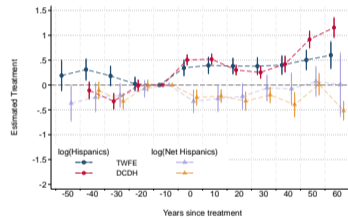
$$y_{k,m,t} = \sum_{\tau=-60}^{70} \beta_{\tau} (t - Y_p) + \mathbf{X}_i + \rho_t + \zeta_k + \Xi_{m,t} + u_{k,m,t}$$



White



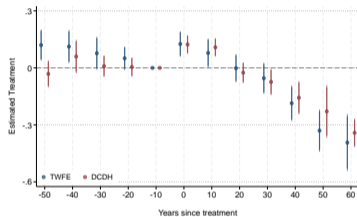
Black



Hispanic

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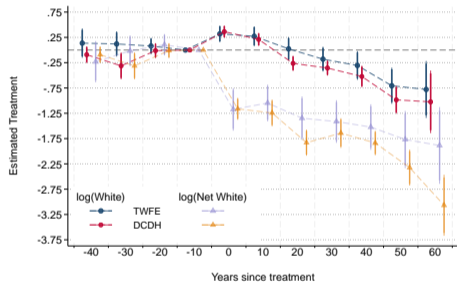
# Robustness: Alternative Estimators



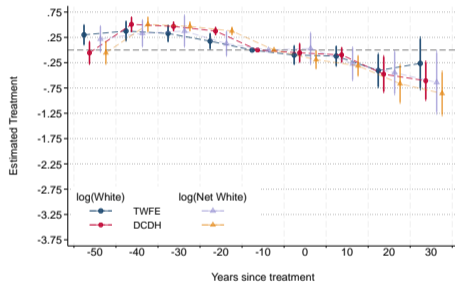
log(Rent)

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# Robustness: Alternative Estimators



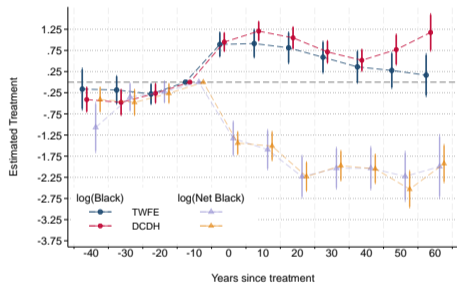
log(White) - pre 1970



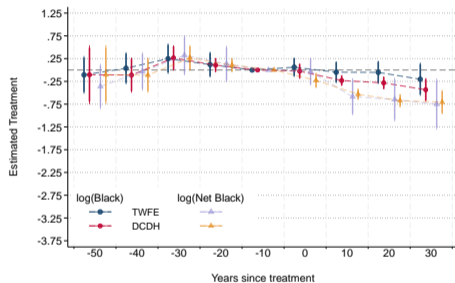
log(White) - post 1970

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# Robustness: Alternative Estimators



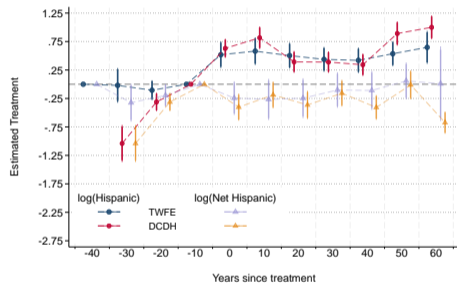
log(Black) - pre 1970



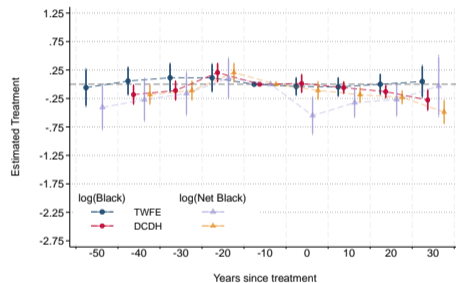
log(Black) - post 1970

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# Robustness: Alternative Estimators



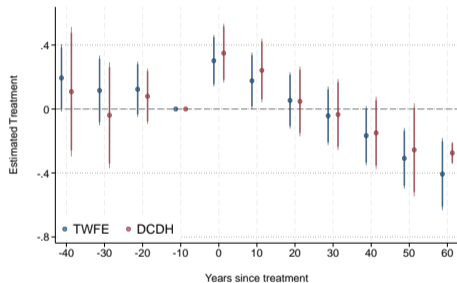
log(Hispanic) - pre 1970



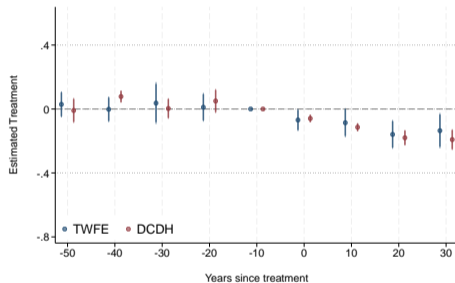
log(Hispanic) - post 1970

[back](#)

# Robustness: Alternative Estimators



log(Rent) - pre 1970



log(Rent) - post 1970

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