Does Affordability Status Matter in 'Who Wants Multifamily Housing in their Backyards?'

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Motivation

Neighborhoods Matter for Children

- Better neighborhood benefits children (Watson, 2009; Chetty, Hendren, and Katz, 2016)
- Chetty et al., 2022 (Nature): Low-SES child grow up in high-SES parents occupied counties, adulthood income would increase by 20% on average
- Nuance effect on adult for inter-city relocation (Chyn and Katz, 2021)

Majority of Low-Income Children Still Remain in Lower Opportunity Neighborhoods

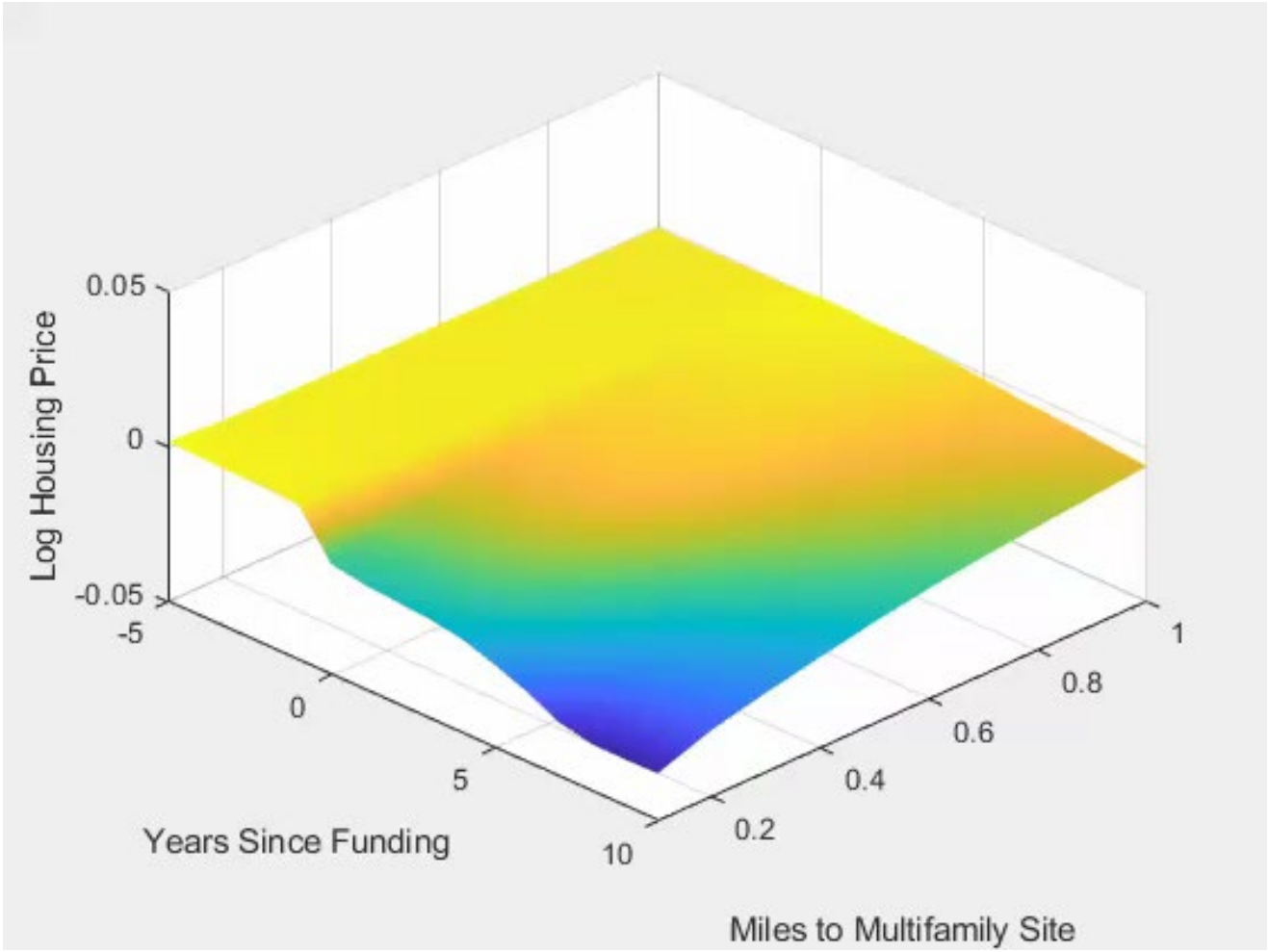
- Metro-wide Fair Market Rent (FMR) Voucher Subsidy Structure Reinforces

Costly on Neighbors to Build LIHTC Housing in Moderate-/High-Income Areas

- LIHTC is Nation's Largest Place-Based Program, 2.5million Units since 1987
- Diamond & McQuade (DM, 2019) Show LIHTC Units Decrease Surrounding Residential Property Values in Such Neighborhoods

Key Result of Earlier Research

LIHTC – All Income Neighborhoods



Research Question

Is the Diamond & McQuade (2019) Result Unique to Affordable Housing or Common for all Multifamily Housing?

- NIMBYism of Apartments is Well Established
- Large Unsubsidized Apartments Decrease Rents by 6% in Lower-income Areas (Asquith et al, 2021)

How Do Effects Differ Based Upon a Neighborhood's Existing Density?

- Area Income is Highly Correlated with Density
- Potentially Easier to "hide" Affordable Status in Dense Areas

LIHTC Program

Only Place-Based Subsidy

- Originated through passage of the Tax Reform Act of 1986
- Awarding private developers tax credits which use to offset federal income tax liabilities
- At least 2.5 million units subsidized since 1987

Two Main Variants

- Awards developers tax credits up to 5.2% of the project's development costs minus land for 10-years for operating rent-restricted units for at least 15 years
- Awards up to 11.7% of the project's development costs minus land for 10-years but requires either new construction or a substantial rehabilitation, with restricted use of municipal bond financing

In This Paper…

Create a Database of New Multifamily Developments from Yardi Matrix

- Focuses on Multifamily Buildings w/ 50+ Units in Major US Metros

Replicate and Extend Original DM Study using Identical Non-Parametric Estimator and Similar Data Supplemented with New Data (Yardi)

- Follow Diamond & McQuade (2019) as Closely as Possible
- 1995-2012, Expand to 350 Counties across 35 States
- Expand additional 4 years of housing transactions data, 1995-2016

Explore Supply and Demand Mechanisms

- Focus on Rehabs to Control for Supply and Congestion Effects

Re-Calculate Welfare Effects Using New Estimates

Data – Similar to Original Study

LIHTC Database

- Originally Assembled by HUD, Annual Updates
- Downloaded Exact DM Version from Website

U.S. Census Bureau Data (1990)

- Block-Group Level, Within-Metro Relative Ranking

Home Mortgage Disclosure Act (HMDA)

- Home Buyer Income & Race to Recover Welfare Effects

Residential Price Transactions (Corelogic)

- Original Study Uses DataQuick; Acquired by Corelogic in 2013
- Unable to Exactly Match DataQuick Sample, Coverage Expands Over Time
- Focus on All Available Counties using the Same Standard (>1,000 transactions per year, Available as of 1996)

New Data - Yardi Matrix

Monthly Property-level Information

- Physical attributes, rent histories, year of development, exact address location
- Specializes in Rental Developments with more than 50 Units
- Drop Buildings Known to be Subsidized (Most Likely LIHTC)

Tracks over 3.69 Million Rental Units

- Focus on 1995-2012 like Original DM Study
- 82.4% Coverage as Compared to Census Buildings w/ 5+ Unit Completions

Combined Sample Attributes

- Focus on LIHTC & Market-Rate (Yardi) in 350 counties across 35 states
- 6,640 LIHTC and 8,566 Market-Rate Multifamily Properties
- 16 million residential transactions within 1.5 miles of Building from 1995-2016

Endogeneity

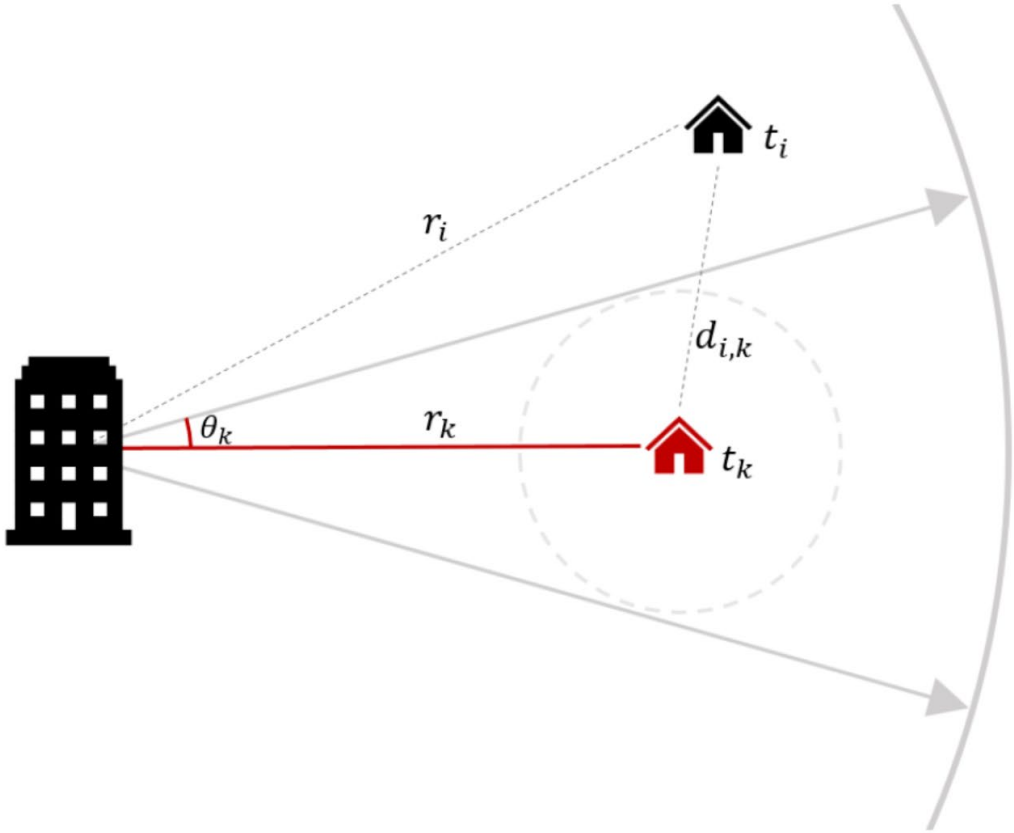
Empirical Problem

- LIHTC Developers Locate Projects in Already Improving Areas
- This Called Omitted Variable Bias (Correlation ≠ Causation)

Control for Hyperlocal Price Trend

- Precise location of new development is plausible exogenous due to highly local lot supply and constrained local land supply
- Though general neighborhood decision is endogenous, it is difficult for developers to time the market due to external and unpredictable regulation delays
- Our flat price surface (w/ large CIs) before the LIHTC treatment helps validate our identification strategy

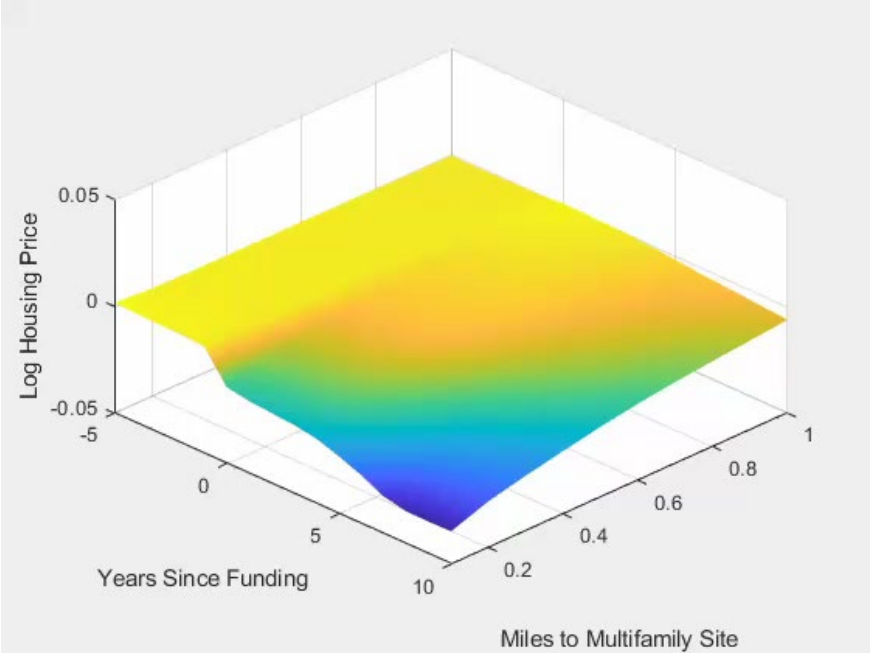
Diagram of Empirical Strategy



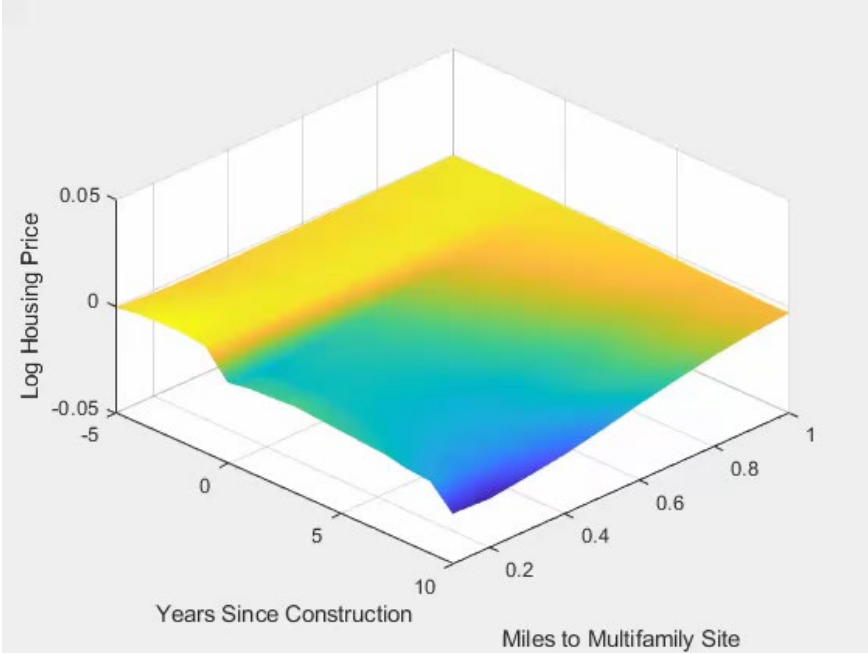
k represents the point that estimating the empirical derivative
i represents the selected housing transaction to calculate the derivative

Main Effect: All Neighborhoods

LIHTC



Market-Rate Multifamily (Yardi)



Neighborhood Income Status

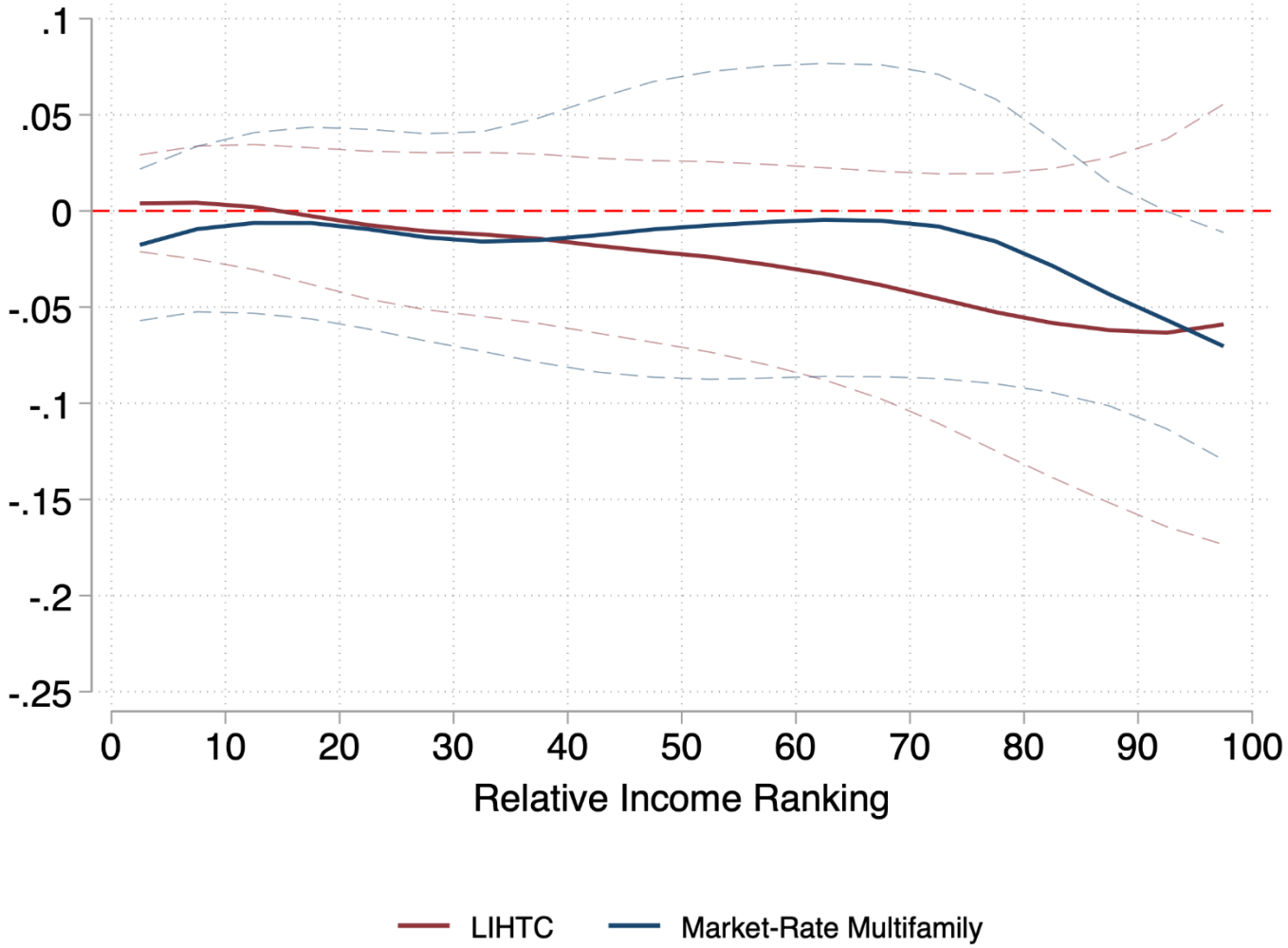
Previous Research Used National Dollar Cutoffs

- Ranked All Block Groups with LIHTC Units in Entire United States
- Even the 75th Pct of Income ($38,177) is Relatively Low
- Some Metros Had Only High- or Low-Income Neighborhoods

Prefer to Use Within-Metro Relative Ranking

- Rank All Block Groups by Median Income For Each Metro Area
- Define Four Income Quartiles (Q1 is Lowest, Q4 Highest)
- Fewer LIHTC Units in Above Median Income Neighborhoods
- Show Net Price Effect After Differencing Any Pre-Trends

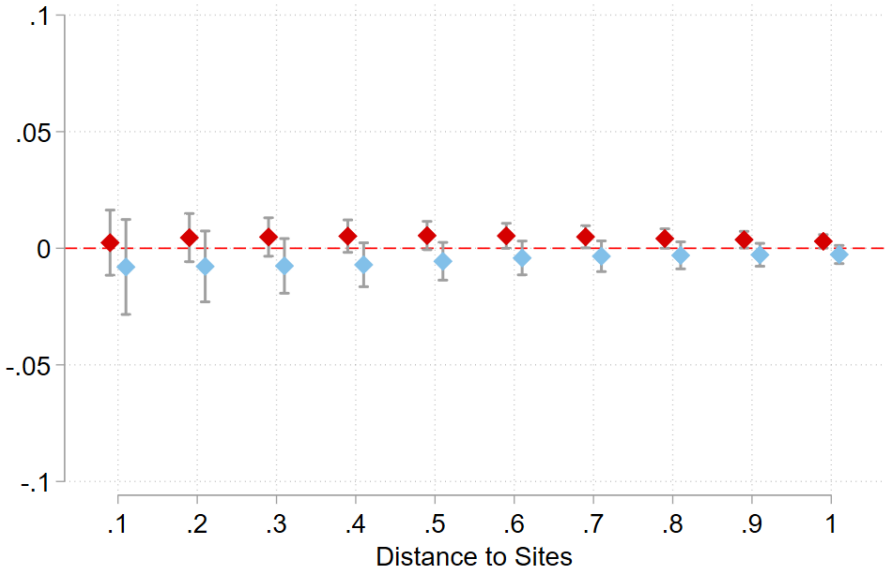
Price Effect w.r.t Income



Net Price Effect by Distance

Q1 Income (lowest)
BG Median HHs Income < 25th Percentile

Q4 Income (Highest)
BG Median HHs Income > 75th Percentile



90% CI LIHTC Market-Rate Multifamily

Net Price Effect by Distance

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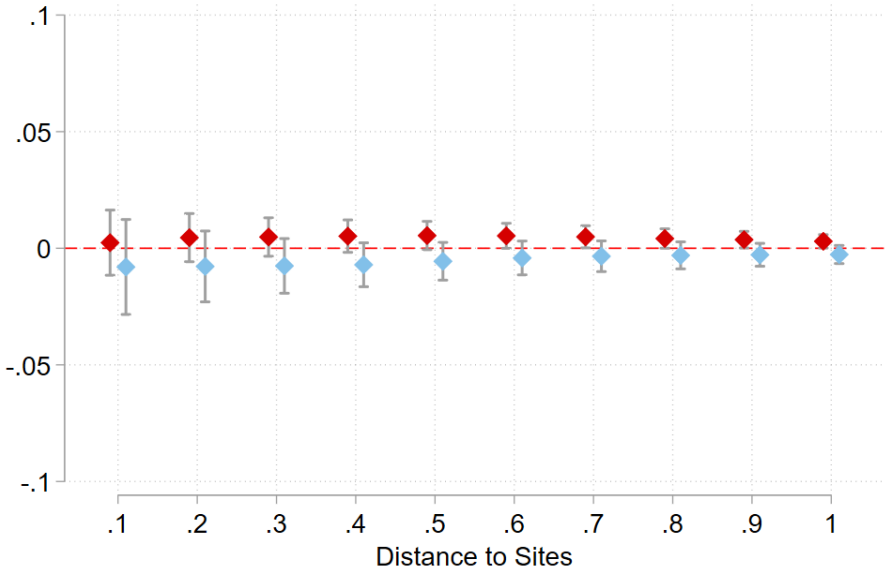
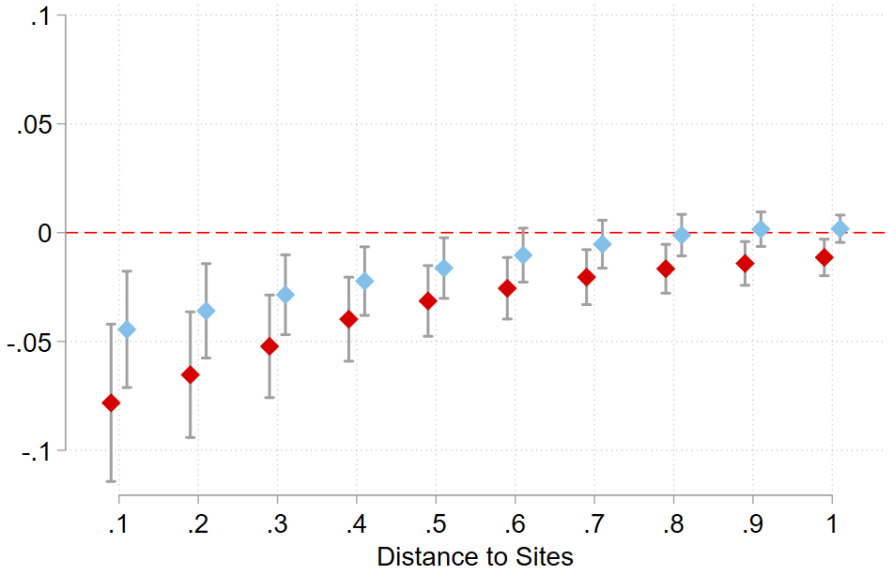
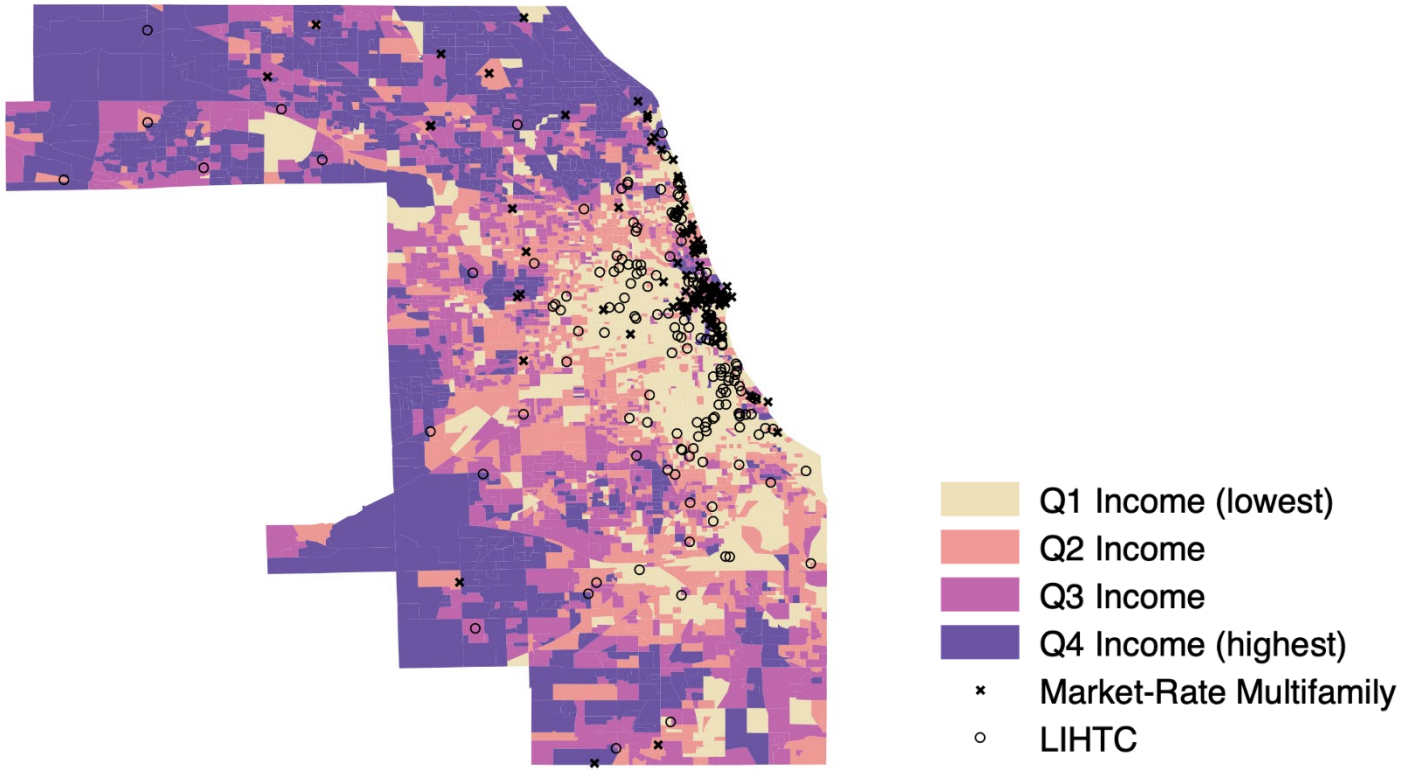


Q4 Income (Highest)
BG Median HHs Income > 75th Percentile

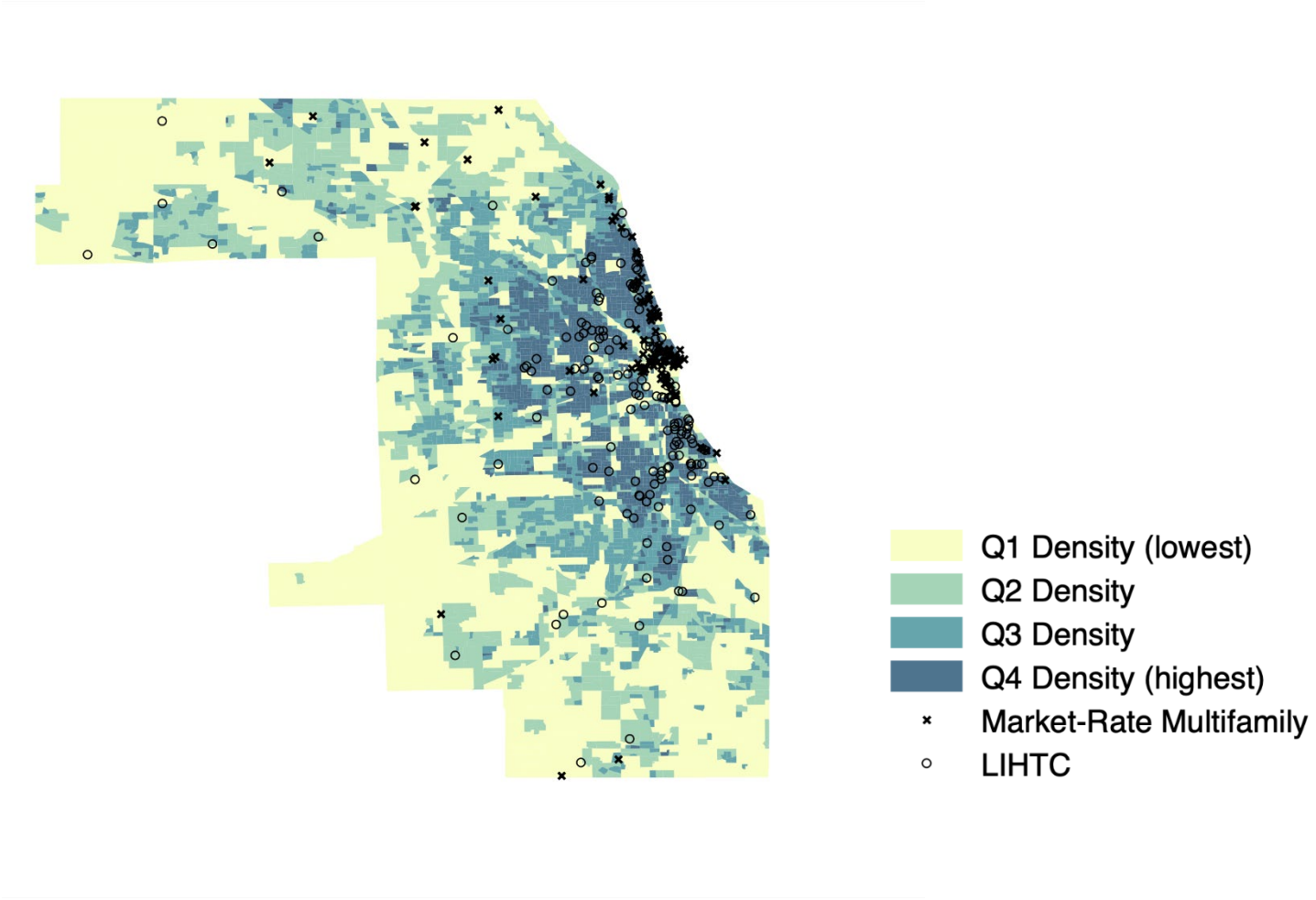


90% CI LIHTC Market-Rate Multifamily

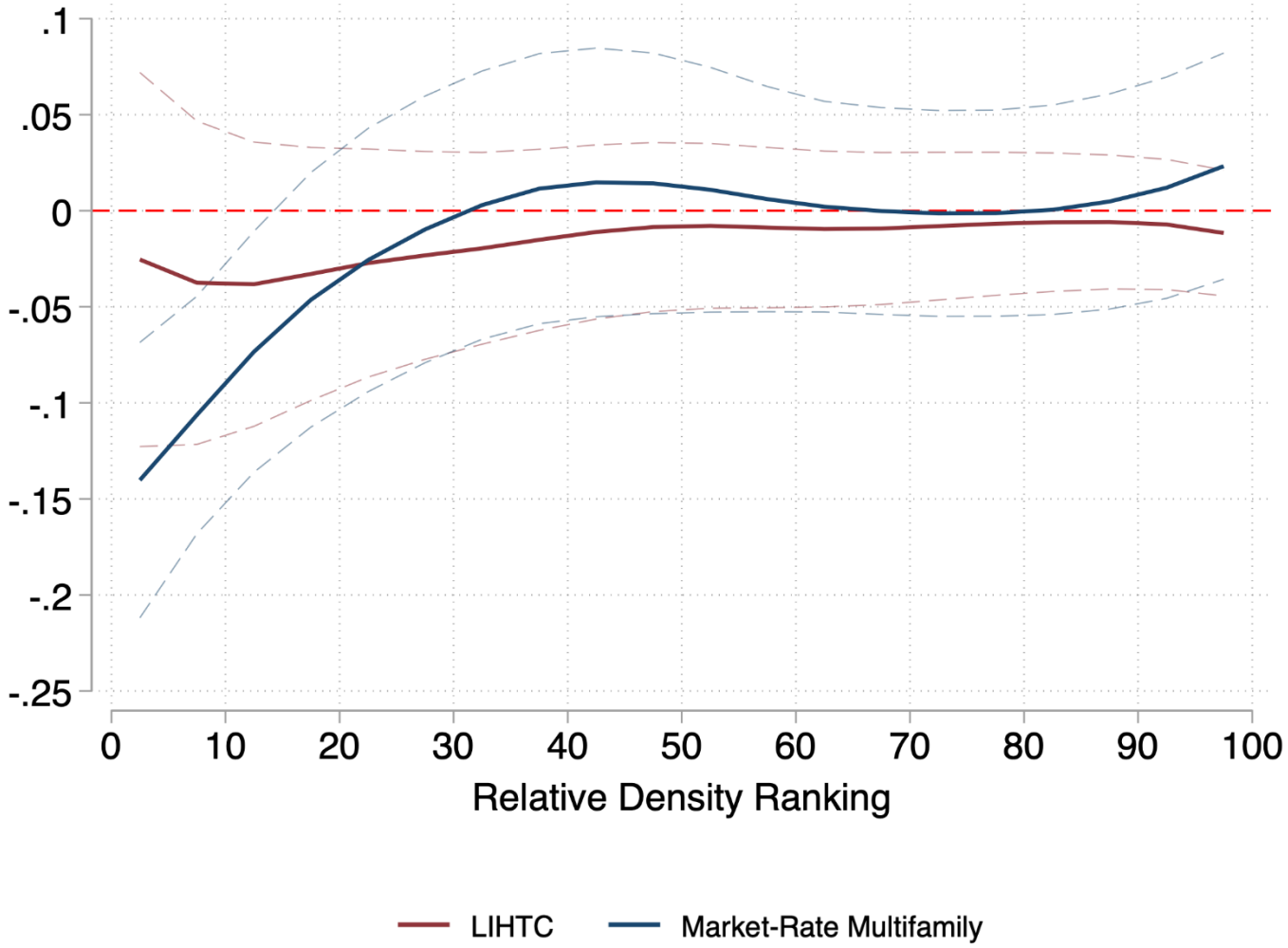
Income Map: Chicago



Density Map: Chicago

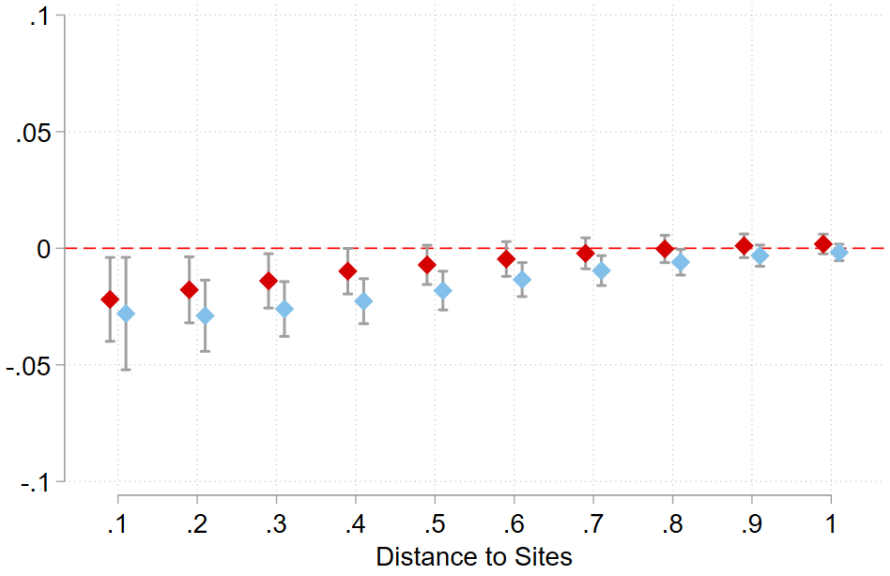


Price Effect w.r.t Density

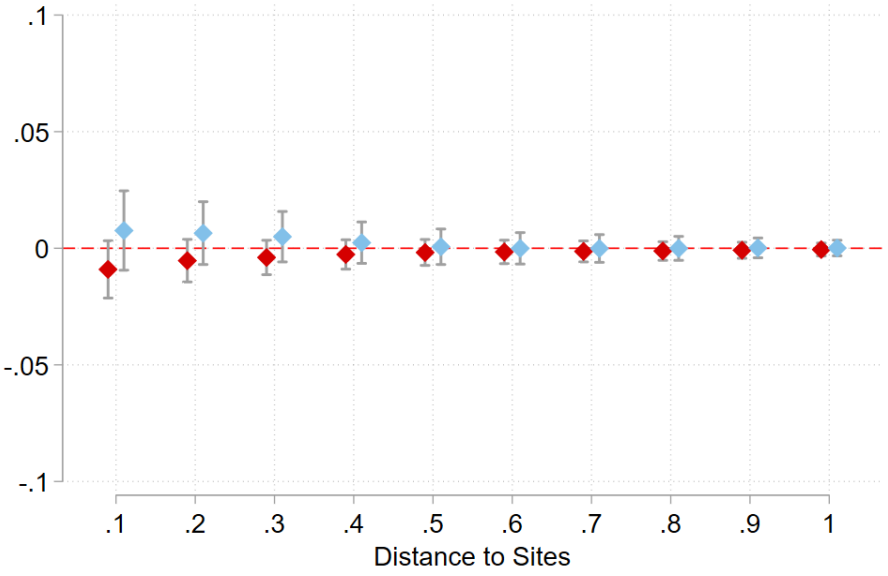


Net Price Effect by Distance

Low Density
BG Density < 50 Percentile



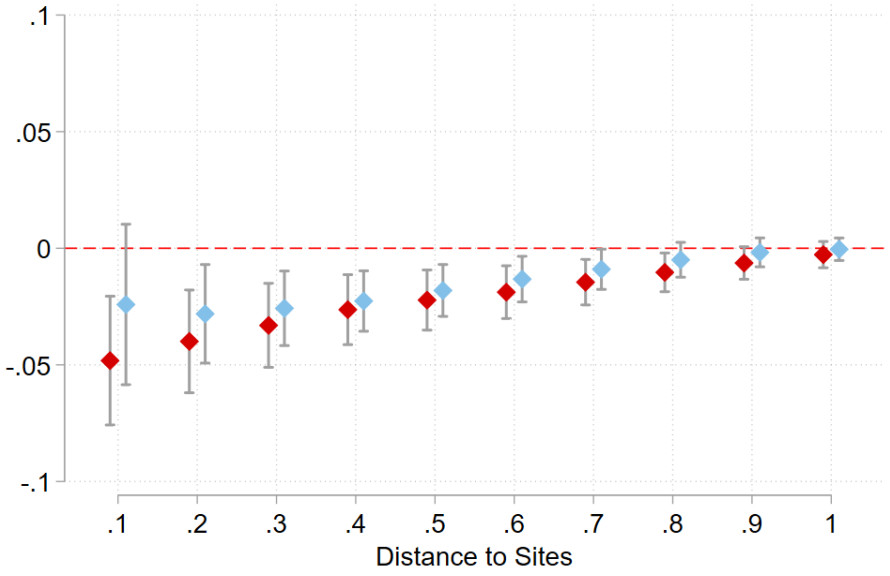
High Density
BG Density > 50 Percentile



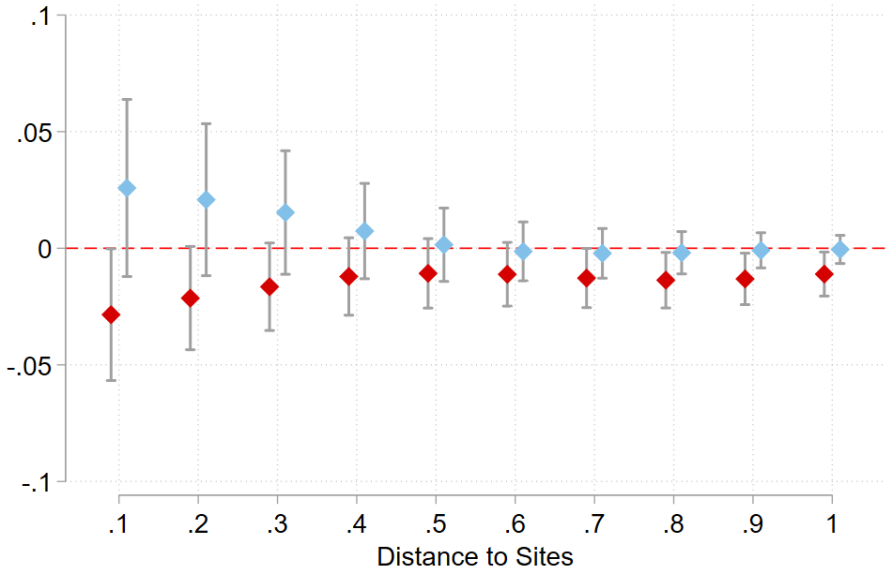
90% CI LIHTC Market-Rate Multifamily

Above-Median Income Areas

High Income & Low Density
Block Group Median HHs Income > 50th Pct
BG Density < 50th Percentile



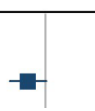
High Income & High Density
Block Group Median HHs Income > 50th Pct
BG Density > 50th Percentile



90% CI LIHTC Market-Rate Multifamily

Above Median Inc & Density

Study	N	Effect size with 90% CI
LIHTC		
Main Result	384	-0.0178 [-0.0369, 0.0012]
Q1/Q4 as Low/High Income or Density		
DM Cutoffs		
Renter Share as Density		
Single Family Detached Unit Share as Density		
Within Metro Ranking for In-Sample Block Groups		
Matched Sample		
Market-Rate Multifamily		
Main Result	557	0.0142 [-0.0131, 0.0414]
Q1/Q4 as Low/High Income or Density		
DM Cutoffs		
Renter Share as Density		
Single Family Detached Unit Share as Density		
Within Metro Ranking for In-Sample Block Groups		
Matched Sample		

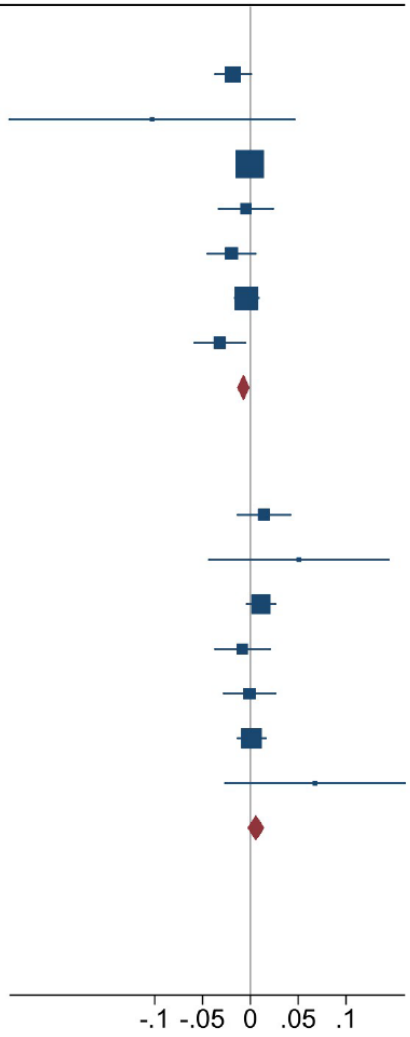


Test of group differences: $Q_b(1) = 3.85$, $p = 0.05$

High Income and Dense Areas

Study	N	Effect size with 90% CI
LIHTC		
Main Result	384	-0.0178 [-0.0369, 0.0012]
Q1/Q4 as Low/High Income or Density	22	-0.1027 [-0.2516, 0.0463]
DM Cutoffs	1309	-0.0006 [-0.0107, 0.0094]
Renter Share as Density	242	-0.0046 [-0.0334, 0.0243]
Single Family Detached Unit Share as Density	385	-0.0195 [-0.0445, 0.0056]
Within Metro Ranking for In-Sample Block Groups	918	-0.0038 [-0.0163, 0.0086]
Matched Sample	237	-0.0318 [-0.0581, -0.0056]
		-0.0072 [-0.0137, -0.0006]
Market-Rate Multifamily		
Main Result	557	0.0142 [-0.0131, 0.0414]
Q1/Q4 as Low/High Income or Density	57	0.0511 [-0.0429, 0.1452]
DM Cutoffs	1142	0.0111 [-0.0041, 0.0263]
Renter Share as Density	623	-0.0081 [-0.0371, 0.0208]
Single Family Detached Unit Share as Density	936	-0.0007 [-0.0275, 0.0261]
Within Metro Ranking for In-Sample Block Groups	1220	0.0014 [-0.0133, 0.0161]
Matched Sample	122	0.0676 [-0.0262, 0.1614]
		0.0058 [-0.0029, 0.0146]

Test of group differences: $Q_b(1) = 3.85$, $p = 0.05$



Welfare Calculation

Recover MWTP

- Using empirical derivative to recover the MWTP and preference parameters
- Identical procedure and assumptions of original DM study
- Average and aggregate by neighborhood type: Amenity & Dis-amenity

Average Willingness to Pay

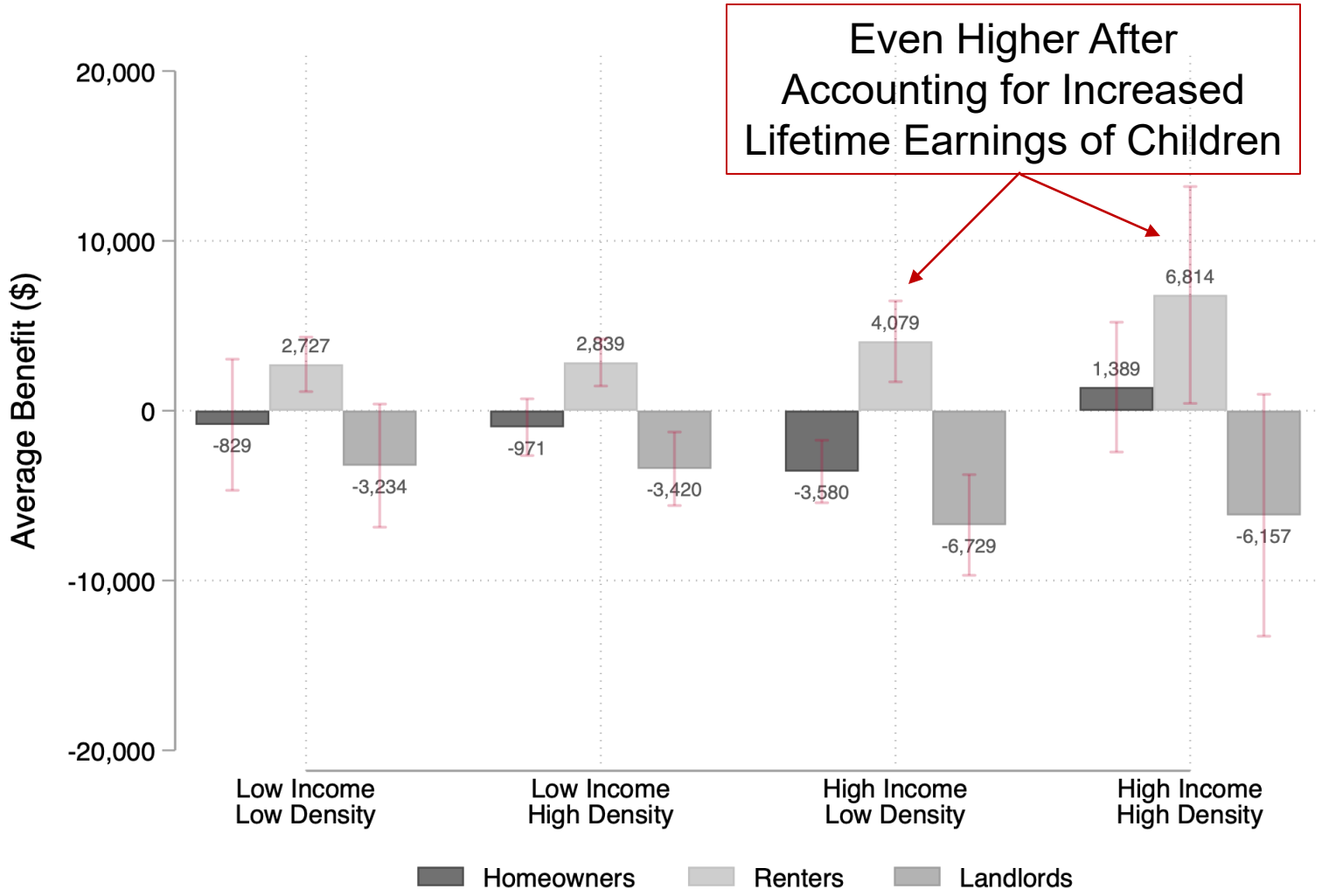
- Homeowners: varies by (dis)amenities for living close to sites
- Absentee landlords: mostly utility loss fully due to (-) price effect
- Renters: always better off due to combine two effects

Aggregate Benefits to Society

- Less harm of LIHTC Properties in Abv Median Density Areas (Large CIs)
- Multifamily properties bring $105 million benefits in high-income high-density area

Calculation Does <u>Not</u> Account for ↑ Lifetime Earnings

Average Benefit from LIHTC



Summary and Implications

Similar Spillover Effects from Multifamily Developments Regardless of LIHTC Subsidy

- Subsidized Status Matters Less in Sufficiently Dense Neighborhoods
- Consistent with Earlier NIMBY Evidence Against Any Multifamily in Less Dense Areas
- Our results suggest a demand story instead of supply or congestion

Target LIHTC Housing to Above-Median-Income Areas with Existing Density (ie, not suburbs)

- Minimizes Negative Spillovers, Maximizes Benefits
- Provides Children Access to Higher Quality Education and Social Networks
- Aggregate Benefits should be much Larger after accounting for increases in lifetime earnings of children (less subsidies, higher income taxes paid, etc.)