The Effect of LIHTC on Housing Markets: Quantities, Rents, and Welfare

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Introduction

$\Rightarrow$ We study how Low-Income Housing Tax Credit (LIHTC) projects affect local housing markets; approved LIHTC projects are local supply shocks

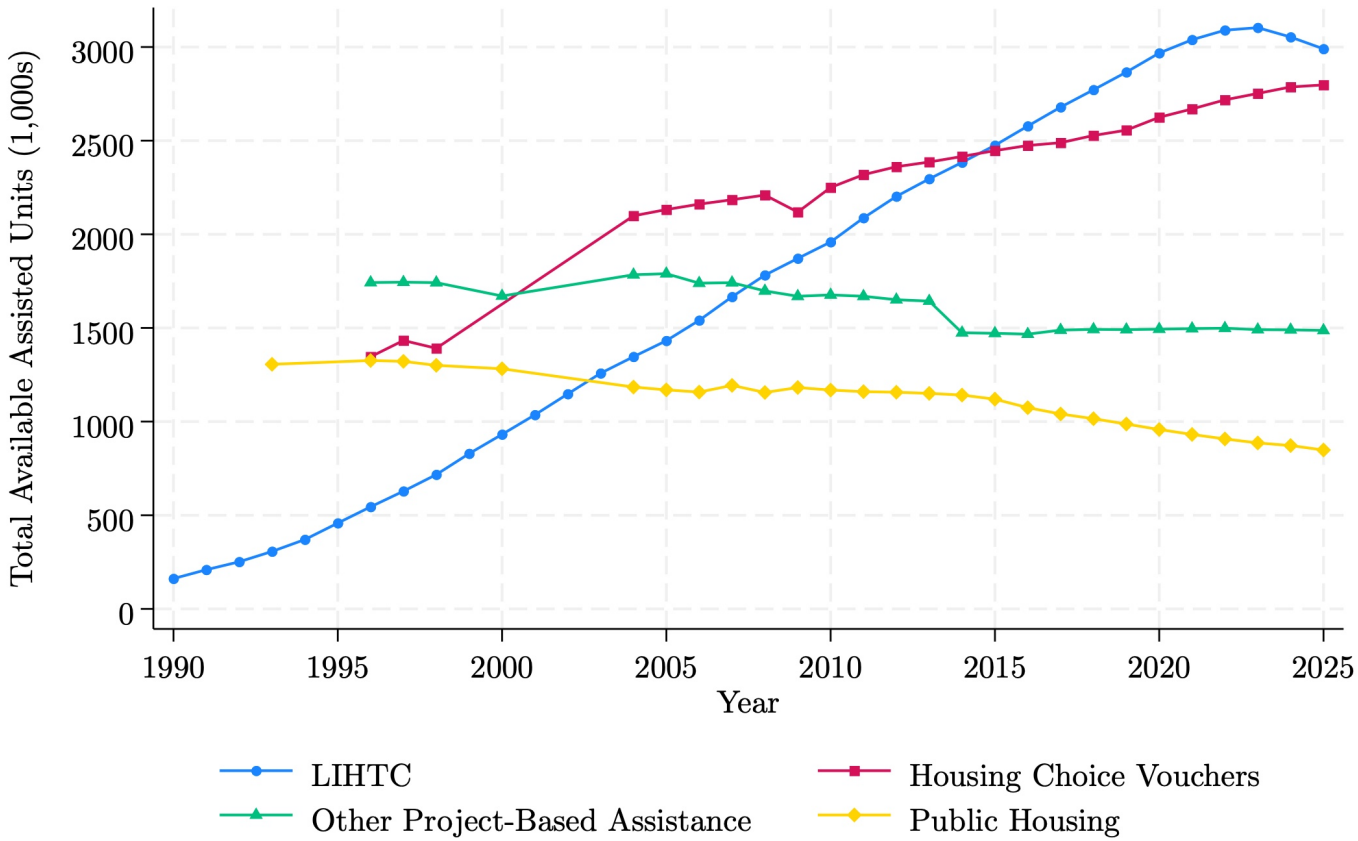
1. Does LIHTC increase the stock of rental housing?
2. Does LIHTC affect neighborhood rents?
3. Does LIHTC generate important spillovers or externalities?
4. How much surplus does LIHTC generate, and who receives it?

$\Rightarrow$ We collected a comprehensive dataset on LIHTC applications, and estimate effects using a dif-in-dif design that compares block groups with winning and losing LIHTC applications.

$\Rightarrow$ We then use these estimated treatment effects as inputs into a welfare analysis.

LIHTC

There are about 3 million LIHTC units as of 2025, making it the largest housing assistance program. At $150K each, this is $450B worth of apartments.



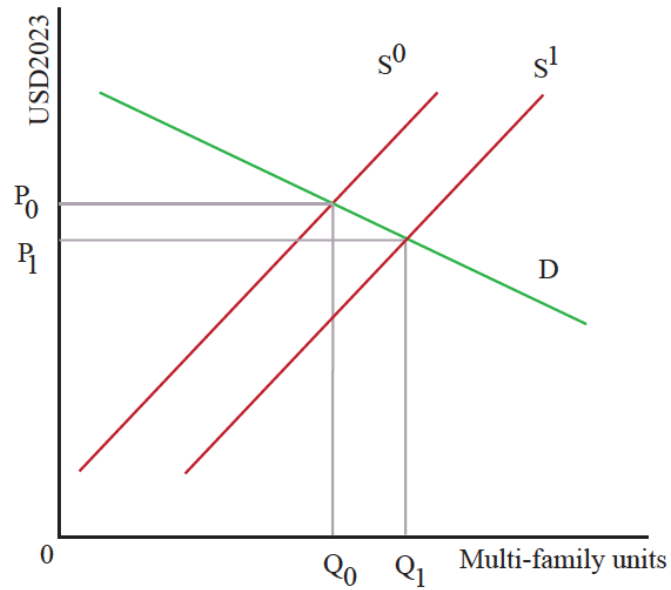
How LIHTC works - quick primer

LIHTC is a federal tax-credit program created by the 1986 Tax Reform Act and administered through the IRS.

- The federal government allocates tax credits to states on a per-capita basis: $3.00 per resident in 2025.
- Developers apply to state housing authorities with detailed project proposals. States allocate credits through competitive rounds using state-specific ranking criteria.
- Credits are claimed over 10 years and are typically syndicated to investors to finance construction. A standard 9% LIHTC is worth about 70% of eligible non-land development costs; projects in Qualified Census Tracts receive a larger basis boost.
- Most LIHTC buildings designate nearly all units as LIHTC units. These units are typically occupied by households with income below 60% of AMI, with rents capped at 30% of the applicable income limit.

Model I

Start with equilibrium (P_0, Q_0). Approval of a LIHTC project shifts the supply curve in the treated local market:

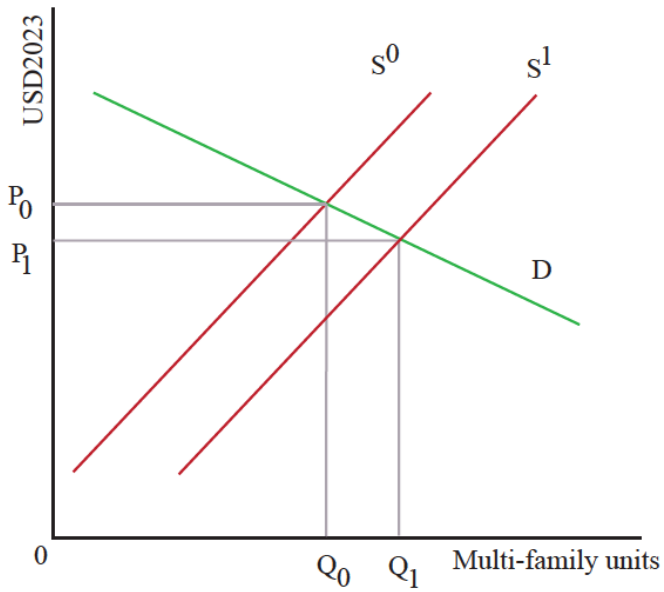


Treated market
(LIHTC project approved)

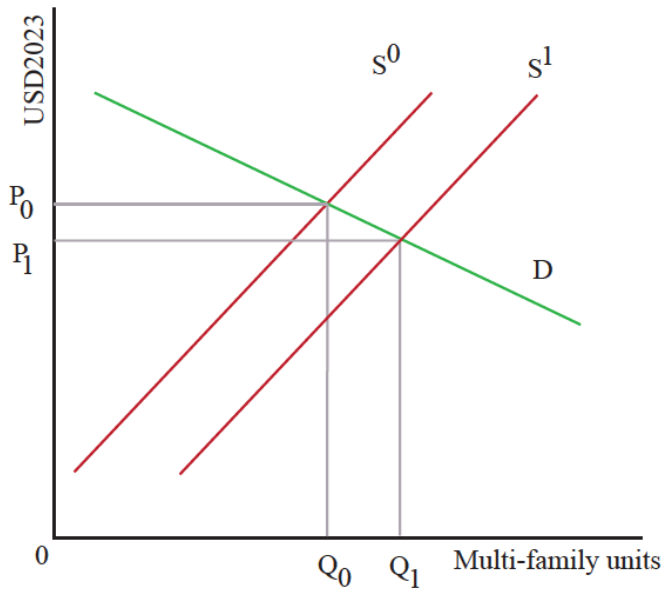
- In this example, LIHTC increases supply and lowers rent.
- Assumption: LIHTC shifts local supply, not local demand.

Model II

We compare the treated market with a control market that had a rejected LIHTC project:



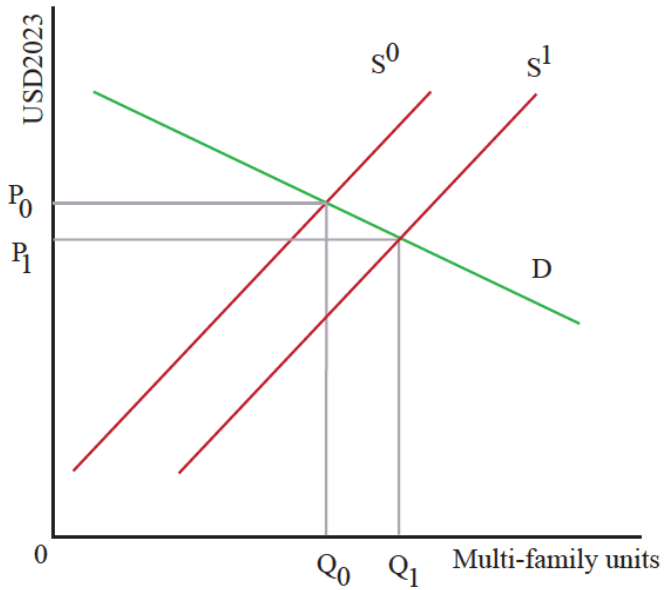
Treated market
(LIHTC project approved)



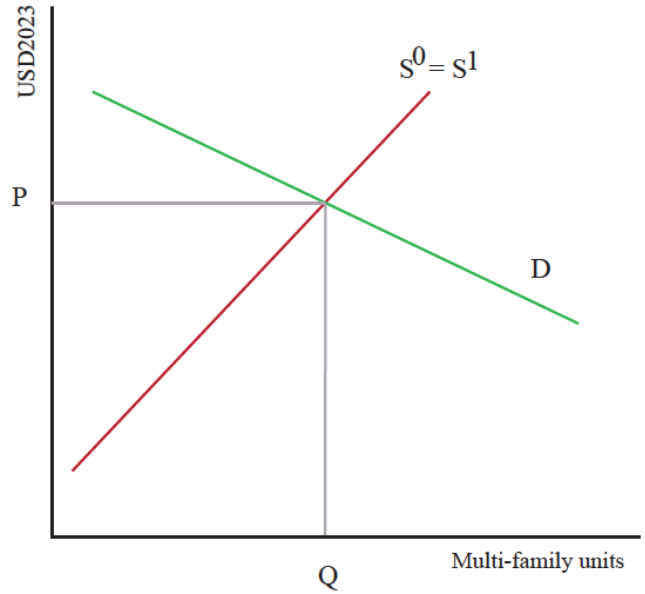
Control market
(LIHTC project rejected)

- In this example, there is **100% crowd-out**: in the absence of LIHTC tax credits, developers in the control market would have built the same number of units.

Model III



Treated market
(LIHTC project approved)



Control market
(LIHTC project rejected)

- In this example, there is **0%** crowd-out: absent LIHTC tax credits, developers would not have built the new multifamily units in the control market.

Literature I

Literature finds a wide range of crowd-out estimates:

- Sinai and Waldfogel [2005]. 1990 Cross-section, county and MSA. **50-70% crowd-out** for all public housing units.
- Eriksen and Rosenthal [2010]. 1990-2000 first differences, MSA, county, 10km disk around a tract. OLS 15% crowd out, IV **100% crowd-out** for LIHTC.
- Baum-Snow and Marion [2009] RDD on threshold for QCTs in 1990-2000. About **20% crowd-out** of rental units.
- Soltas [2024] uses a similar winner-loser design but compares LIHTC projects at the parcel level. He estimates **75% crowd-out** using a different definition, in which future LIHTC projects are counted as part of the crowd-out effect.

$\Rightarrow$ **Surprisingly little on the impact of LIHTC on market rents**

Literature II

Prices:

- Baum-Snow and Marion [2009] find 10% increase in price of owner-occupied units from 100 LIHTC units in block-group.
- Diamond and McQuade [2019], zero average effect on owner-occupied, -2%(+6%) in wealthy(poor) neighborhoods. Mcculloch [2025] reanalysis gets -2%.

Quality: Burge [2011] LIHTC units tend to be newer than market units (126 buildings in Tallahassee in 2002).

Externalities: Baum-Snow and Marion [2009],Diamond and McQuade [2019]: decline in tract income, decreases in crime near LIHTC units. Cook, Li, Binder [2026]: Higher-opportunity neighborhoods house tenants who are higher-income.

$\rightarrow$ **We find little evidence of large externalities, so we focus on changes in quantities and rents.**

Research design and data I

Unit of observation is a block-group period. We use 6 Census/ACS periods: 1990, 2000, 2005-2009, 2010-2014, 2015-2019, 2020-2024.

Why block groups?

- We want to describe a local housing market.
- Recent papers show that housing spillovers operate over smaller spatial scales; Baum-Snow and Marion [2009], Diamond and McQuade [2019], Pennington [2021] and Asquith et al. [2023]
- An average LIHTC project is small relative to an MSA, so MSA-level effects are unlikely to be detectable.
- But we check for treatment effects (spillovers) in nearby block-groups.

Research design and data II

LIHTC applications:

- Digitized lists of applications and awards from State Housing Authority websites and a commercial data aggregator. Each application reports state, year, successful or not, address, # units, rehab vs. new, project cost, etc.
- We collected lists of applications and awards for 479 application rounds in 43 states, mostly since the 2000s; precise geocoding for 55% of data

Sample	Applications	Approved projects	Rejected projects
Our full sample (43 states)	31,012	15,360	15,652
Post geocoding (38 states)	17,183	8,695	8,488

Research design and data III

Application data define the set of block groups:

- A block group with an approved project in a 5-year ACS period enters the treatment group.
- A block group with only rejected projects enters the control group; Robust to including not-yet-approved projects as additional control group.

Housing and Urban Development (HUD) dataset does not observe rejected projects, so we cannot use it for classifying block groups

- But HUD provides near-complete info on subsidized projects, including allocated dates and placed-in-service dates

Measurement issue: Missing applications and lack of geocoding

- Not a threat to identification if missing applications are not differentially related to potential outcomes for treated and control groups.

Research design and data IV

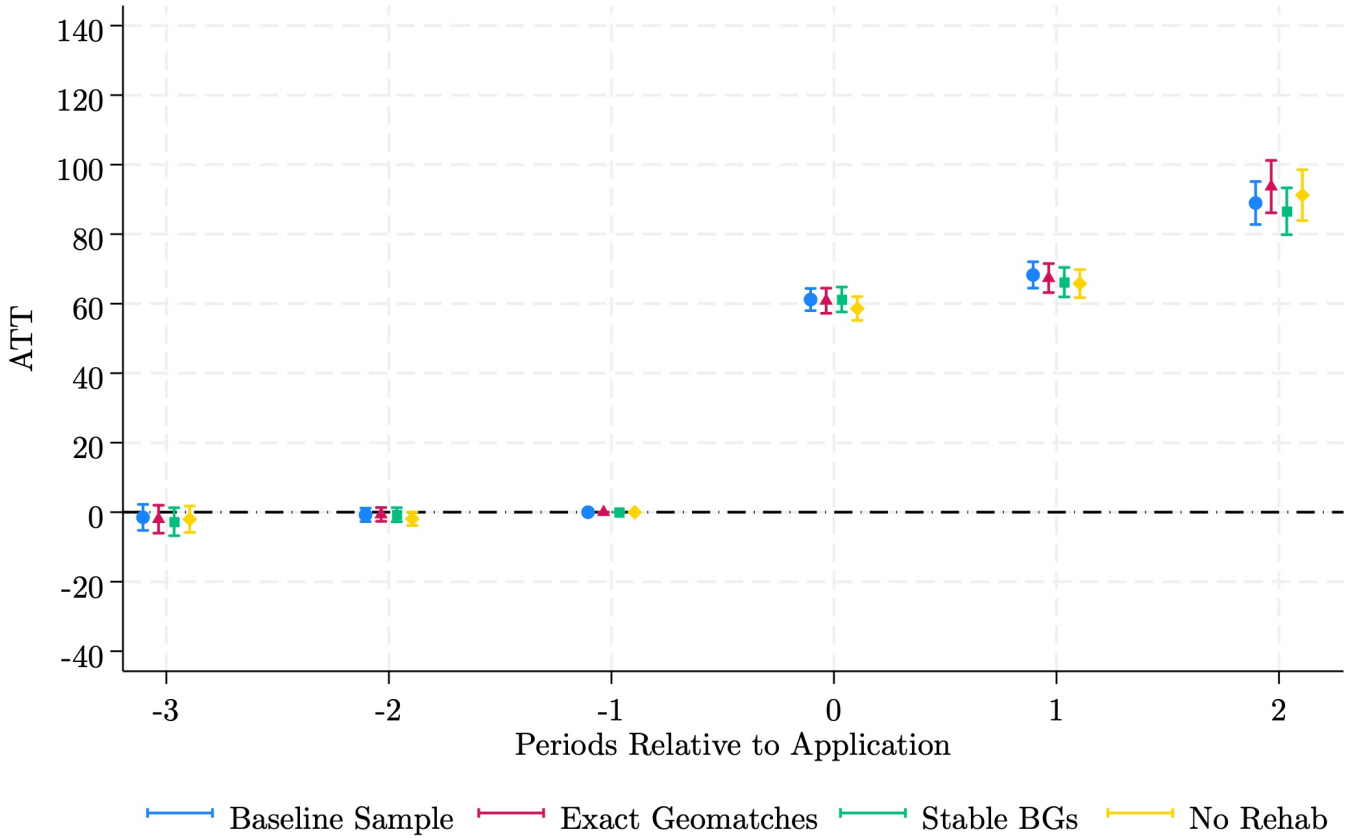
Staggered adoption DiD with state fixed effects. Use doubly robust estimator with main sample [Sant'Anna and Zhao, 2020].

Award/ treatment path	1990	2000	2005-9	2010-14	2015-19	2020-24
P_0 (control)	*	*	0	0	0	0
P_{11} (main)	*	*	1	*	*	*
P_{12}	*	*	0	1	*	*
P_{13}	*	*	0	0	1	*
P_{21} (nice)	*	*	1	0	0	*
P_{22}	*	*	0	1	0	0

- Blue: main sample with one or more awards, dynamics, composition issues, etc.
- Pink: control block groups, application(s), but no award ever.
- Green: subset with one award, cleaner sample.

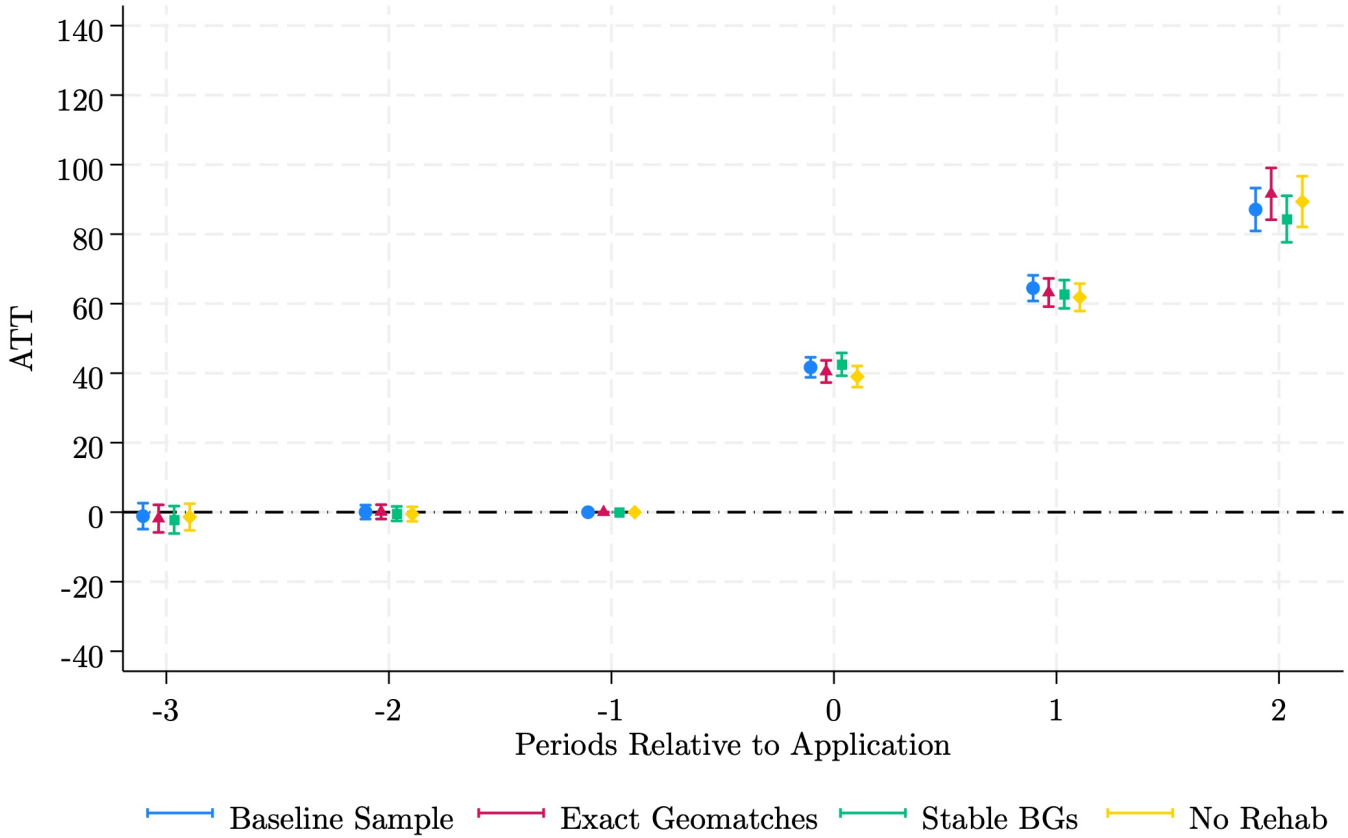
$\rightarrow$ We are currently estimating ATTs for each unique award path and imposing structure to recover an average ATT. This assumes additive effects of multiple projects, as in Cellini, Ferreira, and Rothstein [2007].

Outcomes: HUD units allocated



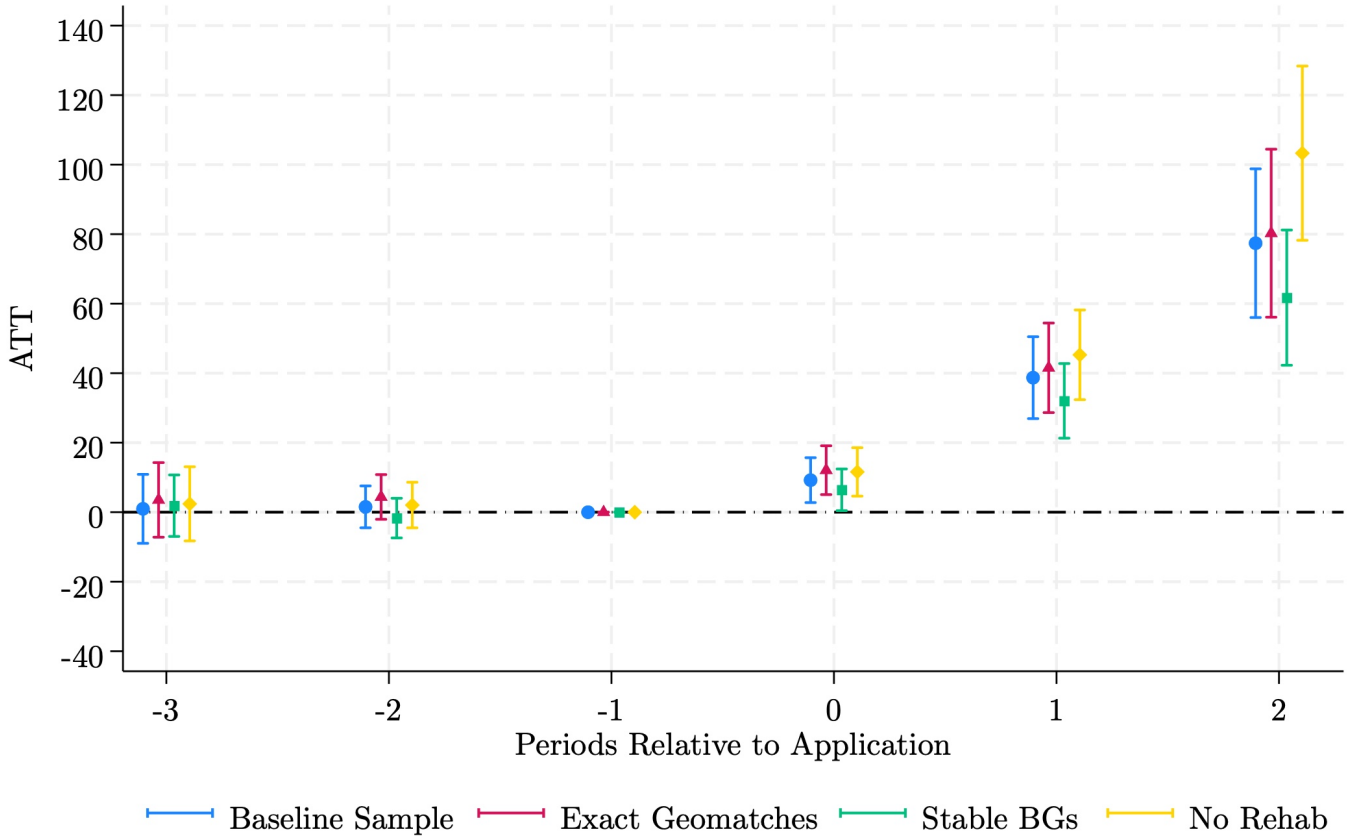
(1) Parallel trends look good; (2) Block groups receiving award have a jump on # of LIHTC units allocated; (3) Effects similar for exact geomatches, stable BGs, etc.

Outcomes: HUD units placed-in-service



(1) There is a construction lag between allocated and placed in service; (2) By T+2, placed-in-service units and allocated units converge.

Outcomes: ACS multi-family units



(1) ACS units show up with a longer lag; (2) By T+2, ACS multifamily units converge toward HUD placed-in-service units; (3) The T+2 estimates are used in the crowd-out and welfare calculations.

Crowd-out?

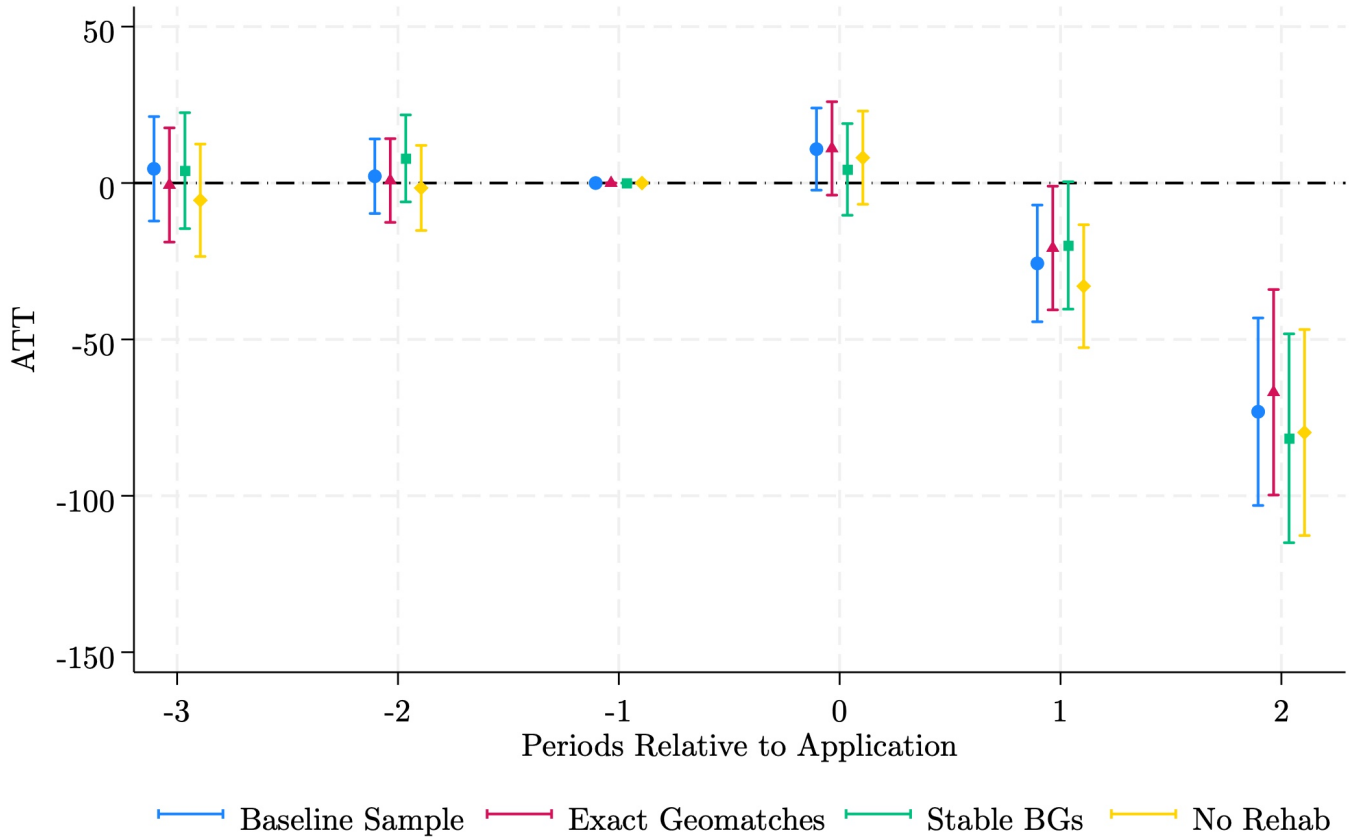
89 LIHTC units allocated $\Rightarrow$ 87 placed-in-service $\Rightarrow$ 77 ACS multi-family units

$\Longrightarrow$ 1-$\frac{77}{87}$=**11.5% crowd-out**, CI95[-6%,28%].

Other samples, housing outcomes, and spillovers:

- Similar no crowd-out estimates for nice sample nice sample
- Similar effects when also including not-yet treated control group not-yet-treated
- No effects on single-family, owned units other housing outcomes
- Spillover to neighboring block groups in the same tract is about 20 multifamily units in main sample. However, this drops to 7 if we restrict attention to stable borders, reducing measurement error. spillovers

ACS Average Gross Rent



Average gross rent declines by about \$73/month in treated block groups, a 2.5% decline for the average rental unit (same reduction for contract rent).

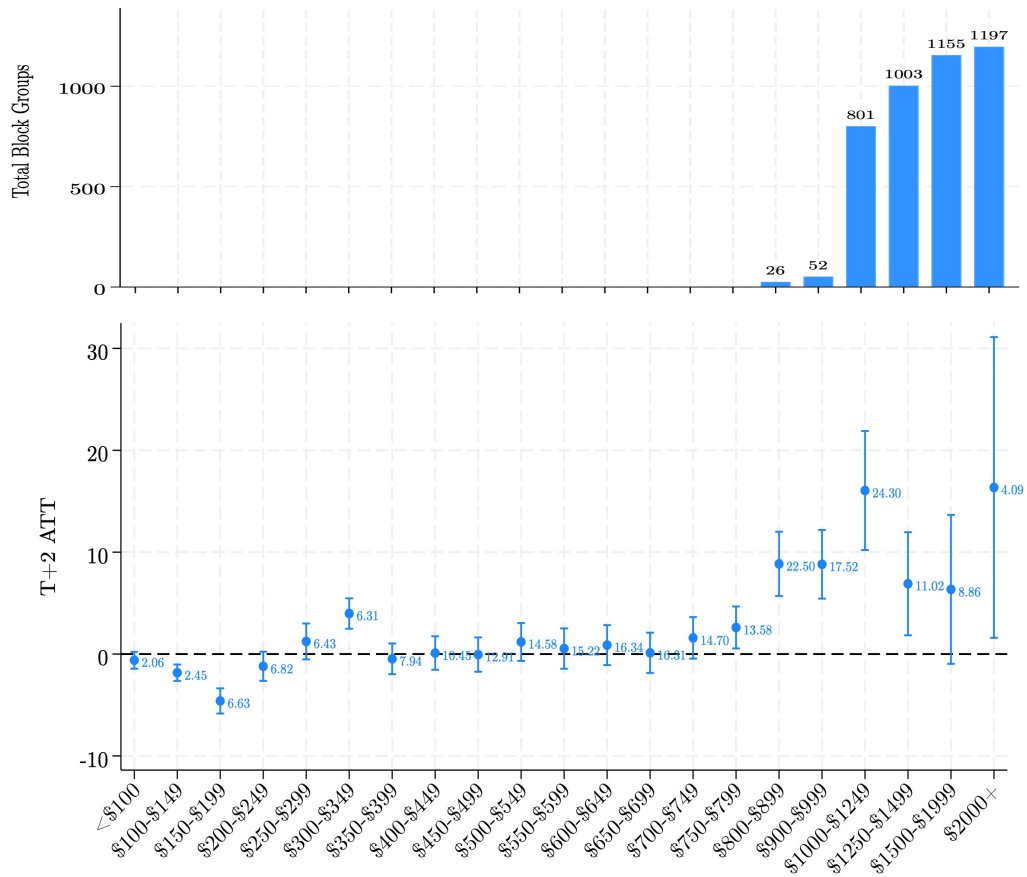
LIHTC rent vs neighborhood rent

ACS rents include both LIHTC and non-LIHTC units. LIHTC units are around 20% of total block group multi units after construction. How much of rent decrease is due to lower rents in LIHTC units?

- In our sample, LIHTC rent cap \$1,125/mo $>$ \$1,093/mo, not binding on average.
- Difficult to find LIHTC rent data; Cook, Li, and Binder [2026] use rent caps as a proxy; Soltas [2024] adjusts for binding vs not binding caps, average 12% discount; similar to Burge [2011].
- If the LIHTC cap does not bind, and 77 new LIHTC units rent then average market rents should fall between \$40 and \$80/month.

$\Longrightarrow$ Rent decline is consistent with supply response, not just mechanical.

Change in rental units by rent bin



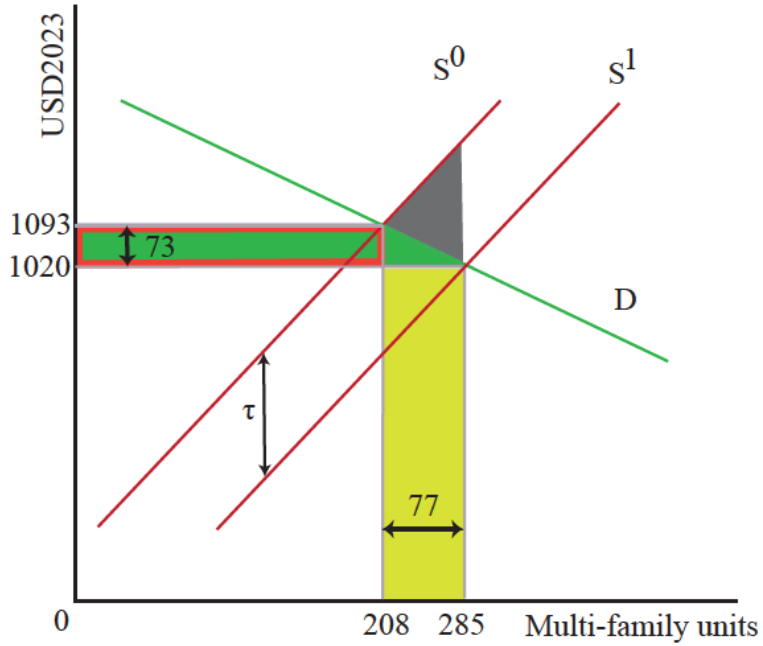
Top: distribution of block groups by LIHTC rent cap. Bottom: treatment effect on the number of rental units in each rent bin. The increase is concentrated below the typical LIHTC cap, while the lowest-rent bins are largely unaffected.

Demand shifters and neighborhood externalities

- Average rooms for renters increase by 0.2 (control group mean 4.4). No effect on share of crowded units. Quality
- Owner occupied moved last five years up 8 (control group mean 158). For renters 25 of 216. There is a lot of turnover, LIHTC increases it a bit. Turnover
- Tiny positive effect on owner occupied price in ACS and CoreLogic at T, but nothing at $T+1$, $T+2$. Owner occupied
- Treated block groups have 0.006 larger share of residents with 'some college' (control group mean is 0.3). No effect on average income, but increase in number of people below AMI (mechanical effect of LIHTC). Demographics

$\rightarrow$ **Overall, there is little evidence of a large demand shift or deterioration in neighborhood quality.**

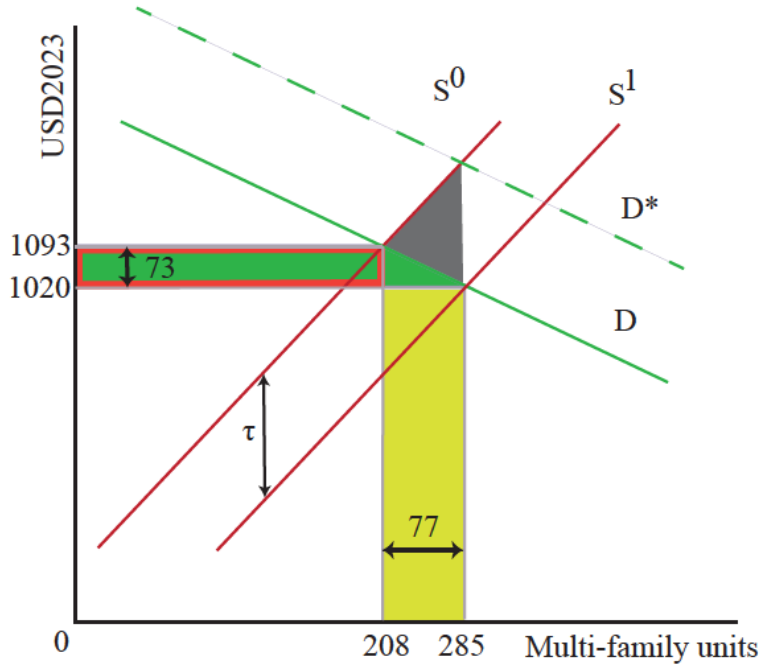
Welfare I



- Green area is Δ Consumer Surplus from an average increase of 77 LIHTC units, 30yrPV at 10% is $2.67m or **$35K per unit**.
- Red rectangle shows transfers from incumbent landlords to existing renters: **$30.5K per unit**

⇒88% of the increase in consumer surplus comes from local market rent reductions

Welfare II



- Yellow rectangle gives revenues for LIHTC developers: PV of **$115K per unit**
- Average development cost is $150K per unit (based on our application data); -**$35K/unit** - operating expenses

$\Rightarrow$ **LIHTC projects would not have been developed without subsidies**

Note: D* is a social demand such that the implied LIHTC subsidy is optimal

Welfare III

Subsidies: 70% of non-land costs or $89K per unit LIHTC

subsidies of $89K/unit create:

- Transfers from landlords to tenants of $30.5K.
- Increase in consumer surplus of $35K.
- Developer losses of -$35K per unit, gains of $55K/unit after subsidy (minus expenses)

$\Longrightarrow$ LIHTC households would rather have the subsidy than the housing. Developers are better off with the subsidy. Landlords probably don't want the program.

$\Longrightarrow$ Policy implication: Room to lower the subsidy per unit; reduce federal taxation and/or increase number of subsidized units.

Conclusion

We investigate the effect of LIHTC on local housing markets. We find

- A marginal LIHTC unit awarded adds about one multi-family rental unit to the housing stock. There is close to zero crowd out.
- An average LIHTC project reduces rental prices by about 2.5%. No effect on owner occupied market.
- Effects of LIHTC on composition/demographics appear small. No obvious evidence of large external effects.
- On average, LIHTC transfers $89k to developers to increase tenant welfare by $35K, decrease incumbent landlord surplus by $30.5K, and increase developer profits by $55K per unit.

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