

The Effects of Low Income Housing Tax Credit Developments on Neighborhoods

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Federal Reserve Bank of Cleveland, 6/9/2011

- Low income housing support important part of housing market
- HUD housing programs for the poor \$ 26 billion of direct expenditures in 2002
- Two types: Project- and renter-based assistance
- Low-income housing tax credit (LIHTC) program is largest project-based assistance program
 - Tax credits for developers of low income housing
 - Tax expenditures of around \$5 billion per year,
 - Replacing public housing as dominant form of project-based assistance

LIHTC and the housing market

	1993	1995	1997	1999	2001	2003
LIHTC: All Units	338	475	634	817	1,000	1,205
LIHTC: New Construction Only	149	221	317	433	543	670
Occupied Public Housing Units	1,295	1,129	1,127	1,109	1,078	NA
Renter Occupied Housing	33,472	34,150	34,000	34,007	33,996	33,604
Owner Occupied Housing	61,252	63,544	65,487	68,796	72,265	72,238
Total Occupied Units	94,724	97,694	99,487	102,803	106,261	105,842
Fraction of Rentals LIHTC	0.010	0.014	0.019	0.024	0.029	0.036
Fraction of Rentals Public Housing	0.039	0.033	0.033	0.033	0.032	NA

- How do LIHTC units affect housing values, housing supply, and the composition of neighborhood residents?
 - Influx of poor residents (though not extremely poor)
 - Amenity effects
 - Crowd-out of private construction (Sinai and Waldfogel: 30-70 percent crowdout)
 - May depend on initial neighborhood characteristics
- Along the way: Do developers respond to tax credit incentives?

- Exploit a discontinuity in the size of the tax credit available to low income housing developers as a function of census tract characteristics
 - Projects in qualified census tracts (QCT) receive extra 30 percent credit
 - Discontinuity in criteria creates pseudo random assignment in the number of low income units and developments in the neighborhood of this discontinuity
 - Generates extra six units per tract on base of seven units
 - Without strong assumptions, only allows for identification of a local average treatment effect

- Effects of developments depend on neighborhood trajectory:
 - Leads to increase in home values, concentrated in stable and declining neighborhoods
 - Reduces median household income, concentrated in improving neighborhoods
 - Little crowdout of new rental construction in stable and declining areas, significant crowdout in gentrifying areas

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LIHTC Funding and Credit Size

- Each state received \$1.25 per resident per year that could be allocated to LIHTC developments → About \$3 billion in federal spending needed each year
- Tax credit received as a percentage of “eligible basis”
 - Newly constructed or substantially rehabilitated projects receive a base 70 percent credit
 - Minor rehabilitations receive a base 30 percent credit
- Qualified Census Tracts
 - Extra 30% tax credit
 - At least 50% of households in the tract below 60% of Annual Median Gross Income for the metropolitan area
 - Fraction of households eligible for rent reduction is running variable in a regression discontinuity

Federal Requirements of LIHTC Developments

- At least 40 percent of units must be occupied by tenants earning below 60% of AMGI
 - An audit in 1992 revealed that 78 percent of LIHTC unit residents earned between 50 and 60% of AMGI
- Annual rents cannot exceed 18% of AMGI, but do not depend on tenants incomes (except in a small number of special cases) if they qualify
 - Not a binding constraint for LIHTC rents at the QCT threshold
- Rent requirement binds for 15 years, and is phased out over the following 15 years
- Construction cost only of units rented at below 60% of AMGI is eligible for the tax credit (qualified basis)
 - Construction of 95% of units in LIHTC projects qualified for the tax credit

- Database provided by the department of Housing and Urban Development (HUD)
 - Includes information on every LIHTC project 1986-2004
 - Location by census tract (and address)
 - Number of units
 - Distribution of unit types
 - Focus on projects allocated credits in 1994 or later and placed in service prior to 2000
- Census tract, block group, and block level data from 1980, 1990 and 2000 normalized to 1990 geography
 - Housing values
 - Demographics
 - Characteristics of the housing stock
 - Sample includes all 1990 tracts/block groups in metropolitan areas

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Empirical approach

- Goal: relate 1990-2000 changes in neighborhood outcomes (Census) to number of LIHTC units placed in service (HUD data on universe of projects)
- Empirical issue: LIHTC unit location potentially endogenous to neighborhood evolution

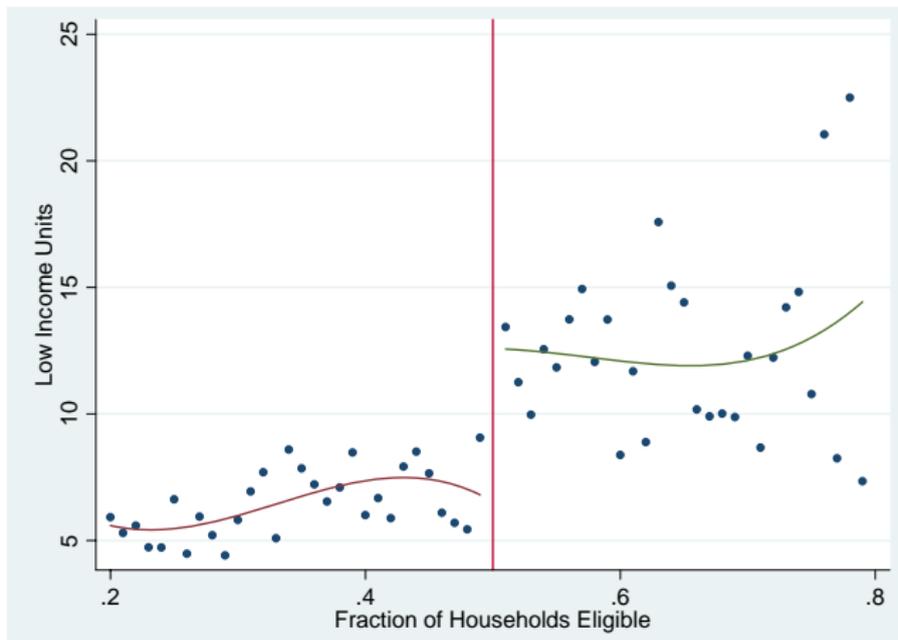
Empirical approach

- Goal: relate 1990-2000 changes in neighborhood outcomes (Census) to number of LIHTC units placed in service (HUD data on universe of projects)
- Empirical issue: LIHTC unit location potentially endogenous to neighborhood evolution
- QCT status generates pseudo-random assignment in units across eligibility threshold
- Estimate discontinuity using tract-level specification:

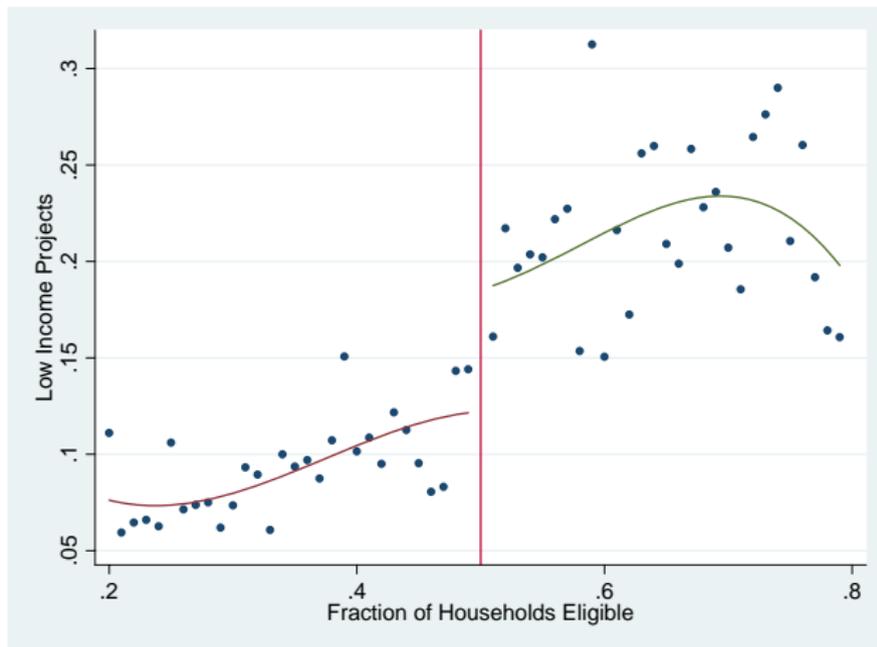
$$x_i = \gamma_0 + \gamma_1 D_i + f(e_i) + G'Z_i + u_i \quad (1)$$

- Approximate $f(e)$ using cubic polynomial
- Covariates Z included as robustness check

Number of Units



Number of Projects



Tax credits and project location

	(1)	(2)	(3)	(4)
Number of LIHTC Low Income Units	5.954 (2.563)*	5.721 (2.522)*	5.844 (2.451)*	5.562 (2.496)*
Number of LIHTC Low Income Units/1990 Rentals	0.020 (0.009)*	0.020 (0.009)*	0.012 (0.004)**	0.011 (0.004)*
Number of LIHTC Low Income Projects	0.064 (0.030)*	0.059 (0.029)*	0.062 (0.028)*	0.061 (0.028)*
Units Per Project	18.773 (12.494)	10.497 (12.001)	9.913 (11.044)	6.014 (10.982)
Demographic Controls	No	No	Yes	Yes
Housing Controls	No	No	No	Yes
County Fixed Effects	No	Yes	Yes	Yes

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Aggregating to rings

- Problems with tract level analysis:
 - Tracts can be big, so that marginal unit has little effect
 - Effect of project on tract outcome depends on where in tract located
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- Move to block-group level outcomes
- Draw 1km ring around block-group centroid
- Aggregate first-stage equation across blocks within ring:

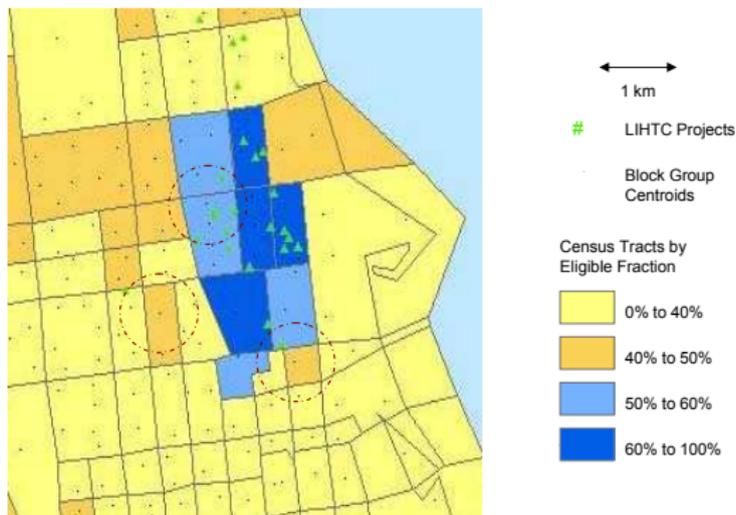
$$x_g = \sum_{i(g)} B_{ig}(\gamma_0 + \gamma_1 D_i + f(e_i) + G' Z_i + u_i) \quad (2)$$

→ Number of blocks within ring in qualified tracts is instrument

- Reduced form

$$\Delta y_g = \psi_0 + \psi_1 \sum_{i(g)} B_{ig} D_i + \sum_{i(g)} [B_{ig}(\delta_0 + \beta_1 f(e_i) + Q' Z_i)] + \tilde{\delta}' Z_g + \tilde{\varepsilon}_g \quad (3)$$

Uptown, Chicago and Identification



First stage - additional LIHTC units per qualified block

	All	Declining	Stable	Gentrifying
No Controls	0.30 (0.09)	0.24 (0.13)	0.24 (0.08)	0.29 (0.12)
All Controls	0.28 (0.09)	0.22 (0.12)	0.24 (0.08)	0.27 (0.12)
Obs.	154,186	47,437	48,404	46,464

IV results - effect of 100 units on neighborhood outcomes

	All	Stable	Gentrifying
Fraction of Owners Entering 1995-2000	0.059 (0.026) (0.042)	0.201 (0.061) (0.080)	0.063 (0.053) (0.064)
Fraction of Renters Entering 1995-2000	-0.010 (0.026)	-0.030 (0.056)	0.043 (0.051)
Change in log Median Household Income	-0.093 (0.054) (0.070)	-0.065 (0.101) (0.110)	-0.215 (0.118) (0.140)
Change in log Median Housing Value	0.149 (0.066) (0.099)	0.106 (0.084) (0.140)	0.056 (0.105) (0.150)

IV Results - Effect of LIHTC on New Construction

Outcome	All	Stable	Gentrifying
Renter Occupied Units Built 1995-2000	0.803 (0.133) (0.331)	0.991 (0.246) (0.217)	0.366 (0.291) (0.451)
Owner Occupied Units Built 1995-2000	-0.036 (0.086) (0.530)	0.220 (0.154) (0.399)	-0.183 (0.196) (0.772)

Conclusion

- Developers respond strongly to incentives suggested by tax credit program
- Apparent positive amenity effect of housing
- Turnover of owners in stable areas
- Lowers income in gentrifying areas
- Virtually no crowdout in declining and stable areas, large crowdout in gentrifying areas