Evidence of Neighborhood Effects from MTO: LATEs of Neighborhood Quality

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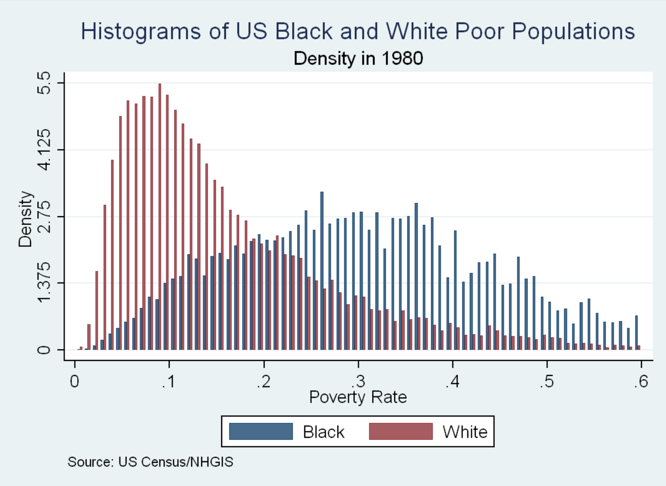
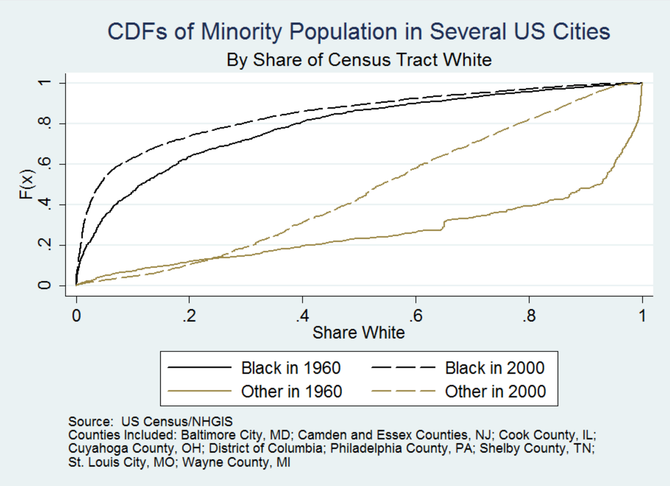
Abstract

This paper finds evidence of positive neighborhood effects on adult labor market outcomes using the Moving to Opportunity (MTO) housing mobility experiment by studying the subpopulation induced by MTO to move to higher quality neighborhoods. Earlier studies have failed to find these effects because they have concentrated on broader populations and more restrictive models of neighborhood effects. We propose and implement a new strategy for identifying heterogeneous transition-specific effects that exploits the identification of the idiosyncratic component of an ordered choice model. We estimate Local Average Treatment Effects (LATEs) of the change in quality most commonly induced by MTO vouchers, that is, between the first and second deciles of the national distribution of neighborhood quality. Although MTO vouchers induced much larger changes in neighborhood quality than standard Section 8 vouchers, the evidence on neighborhood effects from MTO is restrictive: The LATEs we are able to identify pertain to a subpopulation representing under 10 percent of program participants.

Motivation

At least since Wilson (1987), we have been interested in understanding racial disparities in terms of nbd effects:





Model of Neighborhood Choice and Potential Outcomes

Ordered Choice Model

$$D = j \iff D_j^* \leq 0 < D_{j-1}^*$$

Potential Outcomes

$$Y_j(X, U_j) = Y(D = j, X, U_j) = \mu_j(X) + U_j \text{ for } j = 1, \dots, J$$

A1: $D_{ij}^* = \mu(X_i) + \gamma_j Z_i - C_j - V_i$

$$U_D \equiv F_V(V)$$
$$\pi_j^Z(X) \equiv Pr(D > j | X, Z) = F_V(\mu(X) + \gamma_j Z - C_j)$$

A2: $C_j < C_{j+1}$

A3: $C_j - \gamma_j < C_{j+1} - \gamma_{j+1}$

A4: $(U_{ij}, V_i) \perp\!\!\!\perp Z_i \mid X_i$

A5: $\gamma_j \geq 0 \; \forall \; j, \;\; \gamma_j > 0$ for at least one j

A6: V_i has an absolutely continuous distribution

A7: $E[\,|Y_j|\,] < \infty \; \forall \; j$

A8: $0 < Pr(D_i = j \mid X_i) < 1 \; \forall \; j, \forall \; X \subset \text{supp} X$

Identification

$$D_i = j \iff \mu(X_i) + \gamma_j Z_i - C_j < V_i \leq \mu(X_i) + \gamma_{j-1} Z_i - C_{j-1},$$

But not everyone assigned a voucher moved with it! Allow for heterogeneity in response to voucher assignment:

$$\gamma_{ji}^M = \begin{cases} \gamma_j^M & \text{if } \tau_i^M = 1; \\ 0 & \text{if } \tau_i^{MTO} = 0 \end{cases} \text{ where } \tau_i^M = 1\{\, \mu^M(X_i) - V_i^M \geq 0 \,\}$$

Noting that normality is not assumed for outcomes, unobserved variables are:

$$(U_{ij}, V_i, V_i^{S8}, V_i^{MTO}) \perp\!\!\!\perp Z_i \text{ with } (V_i, V_i^{S8}, V_i^{MTO}) \sim \mathcal{N}\left(\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 & \rho^S & \rho^M \\ \rho^S & 1 & \rho_{S,M} \\ \rho^M & \rho_{S,M} & 1 \end{bmatrix} \right)$$

Since we observe $\tau_i^M \in \{0, 1\}$ when $Z_i^M = 1$, V_i (ie, U_{Di}) is identified off of the continuous quality measure q_i^* by interpolating between the cut-points C_j and γ_j^M of an ordered-choice model:

$$D_i^*(q_i^*) = 0 \implies V_i = \mu(X_i) - C(q_i^*) + \gamma^M(q_i^*) Z_i^M \tau_i^M$$

This Model:

- Equivalent to a cts model as $J \to \infty$
- Allows for essential heterogeneity
- Can identify transition-specific (j to $j+1$) effects without transition specific instruments

Neighborhood Quality

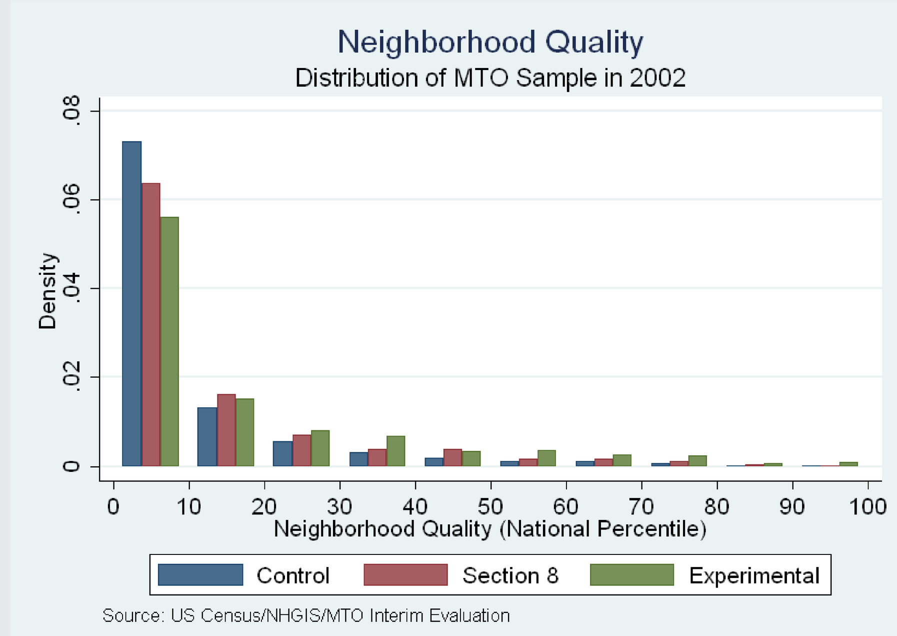
Nbd Quality q is defined as 1st principal component of: poverty rate · % HS diploma · % BA · % HHs single- headed · male EPR · female unempoylment rate

Discretized $D \in \{1, 2, \dots, 10\}$ are deciles of the national distribution of nbd quality

Avg Nbd Characteristics by Quality

Nbd Characteristic	Mean $D = 1$	Mean $D = 2$	Median Unconditional	Mean $D = 10$
Poverty Rate (%)	33	22	9	3
HS Diploma (%)	55	65	83	95
BA (%)	7	11	19	52
Single-Headed HHs (%)	52	38	24	11
Female UR (%)	16	10	5	2
Male EPR ($\times 100$)	55	65	79	89

MTO participants remained in low-quality nbds:



Low-poverty restriction did not rule this out:

Low-Poverty ($\leq$ 10%), Low-Quality ($D \leq 3$) Nbds in MTO States

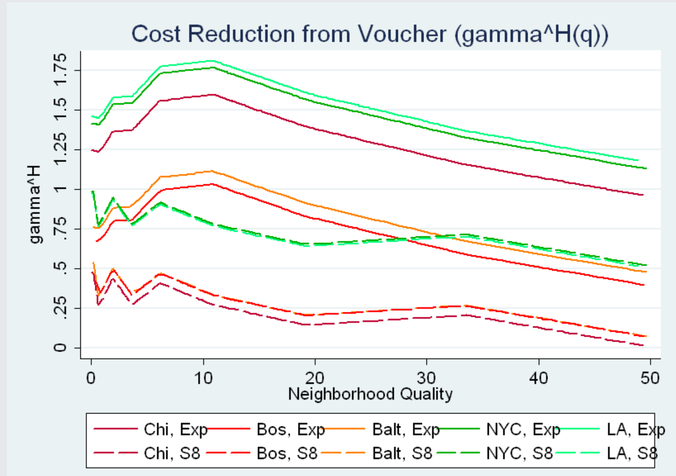
Nbd Quality	Number of Residents
$D = 1$	6,362
$D = 2$	93,385
$D = 3$	751,738

Estimation Results: Ordered Choice Model

Ordered Choice Model Parameter Estimates

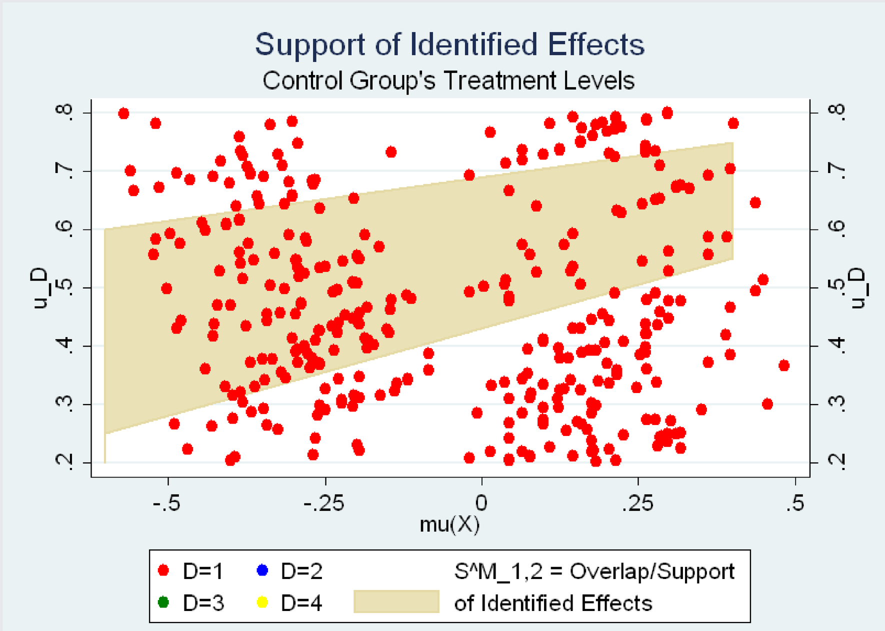
X_k and V	$\widehat{\beta}_k$	$\widehat{\beta}_k^S$	$\widehat{\beta}_k^M$		$\widehat{\beta}_k$	$\widehat{\beta}_k^S$	$\widehat{\beta}_k^M$
Baseline Characteristics				**Site FEs**			
No Teens in HH	0.08	0.48	0.39	Baltimore	0	0.03	–0.25
	(0.05)	(0.10)	(0.09)		–	(0.13)	(0.13)
No Family in Nbd	0.14	0.16	0.00	Boston	0.31	–0.49	0.02
	(0.05)	(0.12)	(0.06)		(0.10)	(0.21)	(0.02)
HH Member Victim	0.03	0.10	0.10	Chicago	–0.04	0.04	–0.50
	(0.05)	(0.10)	(0.10)		(0.09)	(0.13)	(0.13)
Baseline Nbd Quality	0.13	–0.02	–0.10	Los Angeles	–0.52	0.39	0.47
	(0.01)	(0.03)	(0.02)		(0.10)	(0.17)	(0.13)
Unobserved Factors							
ρ^S and ρ^M	–	0.07	–0.17	New York City	–0.58	0.60	–0.13
	–	(0.10)	(0.11)		(0.09)	(0.15)	(0.15)

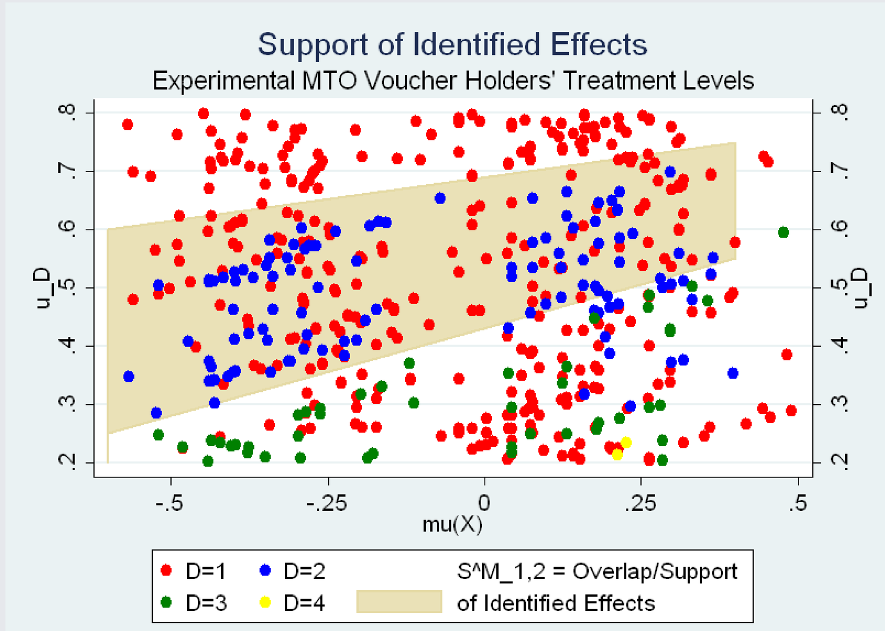
Take-up of MTO vouchers was lower than Section 8 vouchers, but conditional on take-up MTO vouchers had a larger effect on neighborhood quality:



Identification Support Set $\mathcal{S}_{1,2}^M$

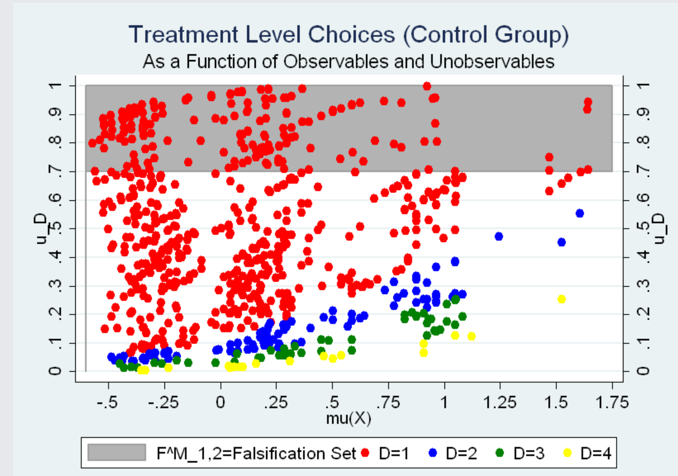
MTO vouchers allow us to identify the transition-specific effect of moving from $D = 1$ to $D = 2$ for the following subpopulation characterized by their $(\mu(X), U_D)$:

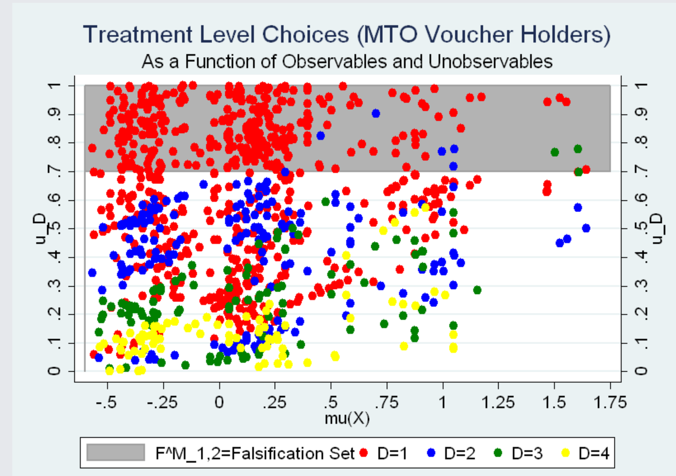




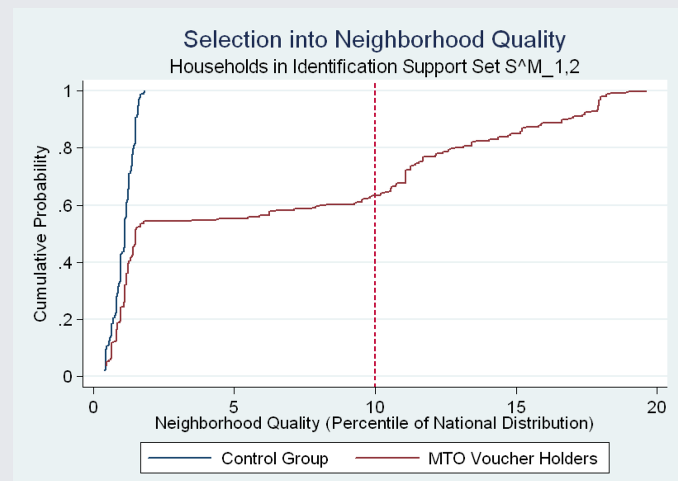
Falsification Set $\mathcal{F}_{1,2}^M$

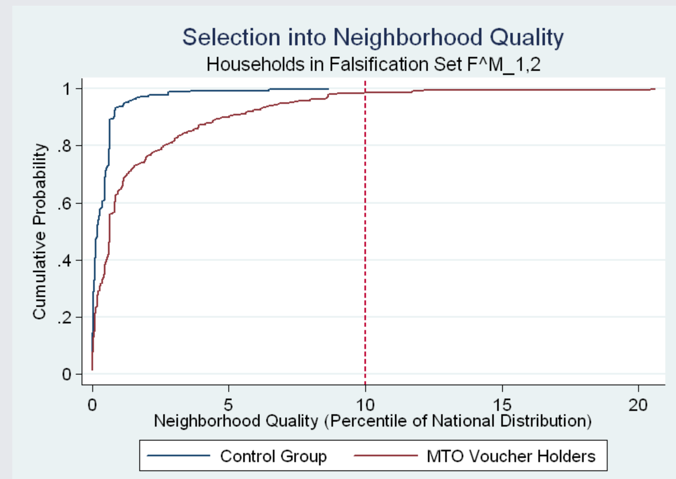
As a falsification test, we compare outcomes for individuals with $(\mu(X), U_D)$ such that $D = 1$ both with and without a voucher:





Changes in Nbd Quality for $\mathcal{S}_{1,2}^M$ and $\mathcal{F}_{1,2}^M$





Estimation Results: LATEs of Nbd Quality and Falsification Test

	$(\mu(X_i), U_{Di}) \in \mathcal{S}_{1,2}^M$	$(\mu(X_i), U_{Di}) \in \mathcal{S}_{1,2}^M$			$(\mu(X_i), U_{Di}) \in \mathcal{F}_{1,2}^M$		
	$\widehat{\triangle}_{1,2}^{LATE}(\tau^M = 1)$	$E[Y\|Z^M = 1]$	$E[Y\|Z^M = 0]$	Diff	$E[Y\|Z^M = 1]$	$E[Y\|Z^M = 0]$	Diff
Neighborhood Selection							
$D \in \{1, 2, 3, 4, 5\}$		1.37	1.00	**0.37**	1.02	1.00	**0.02**
$q \in [0, 50]$		6.4	1.1	**5.3**	1.7	0.4	**1.2**
Labor Market							
In Labor Force (%)	25.8* (20.2)	63.0	53.2	**9.8**	63.6	63.6	**0.0**
Employed (%)	31.2* (21.7)	53.5	41.7	**11.8**	47.1	53.6	**–6.5**
Household Income ($)	5,616 (4,990)	15,629	13,506	**2,123**	14,252	14,134	**119**
Earnings ($)	1,970 (4,672)	8,364	7,642	**722**	7,583	8,554	**–971**
Welfare Benefits							
Received TANF (%)	–40.0 (32.0)	24.9	39.9	**–15.0**	32.2	33.7	**–1.5**
Health							
BMI (Raw)	–3.1* (8.1)	29.7	30.9	**–1.2**	30.0	30.4	**–0.3**

Key References

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