

Segregation, Market Outcomes and Individual Impacts

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14.663 Spring 2009

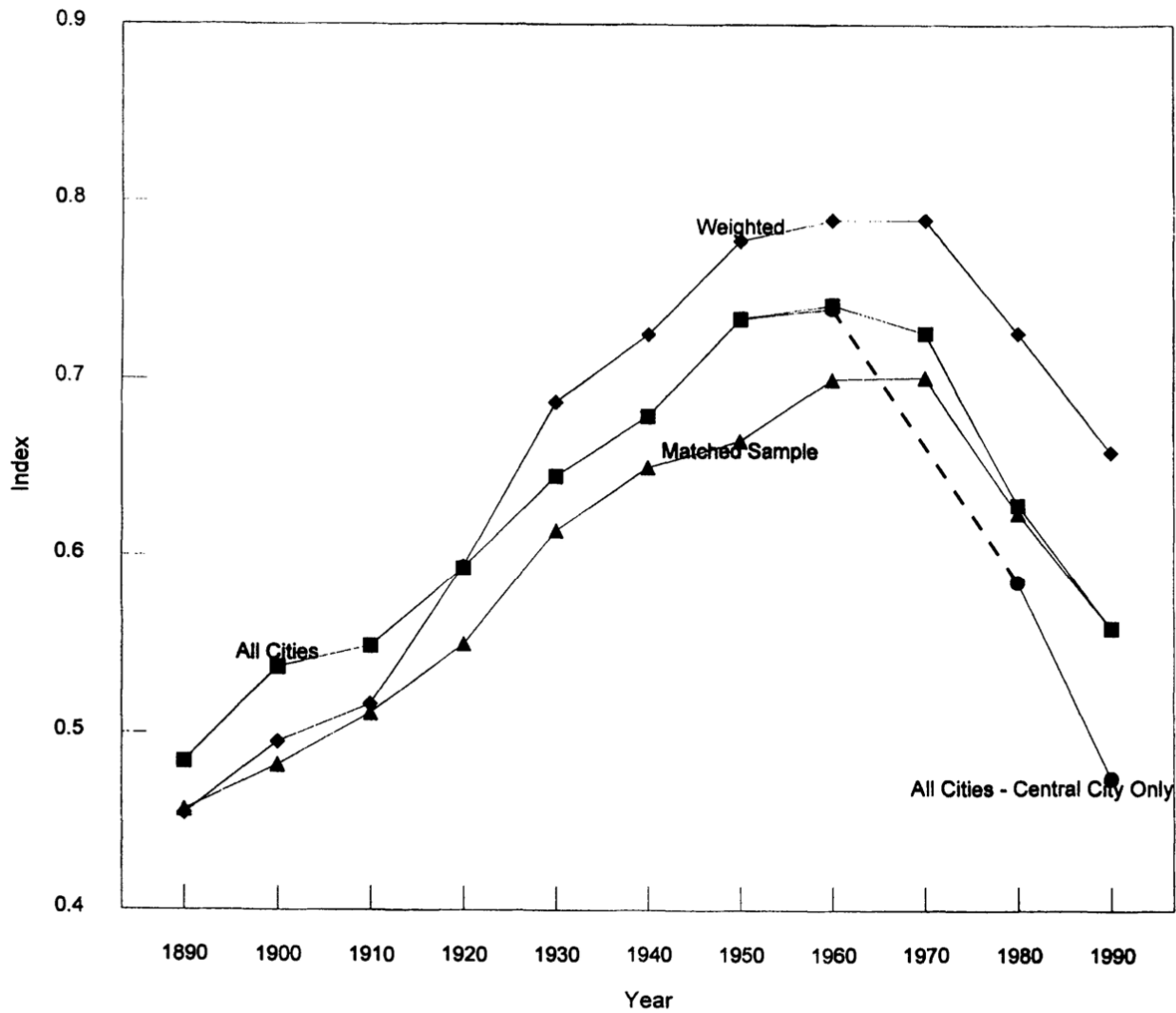


FIG. 1.—Index of dissimilarity, 1890–1990. Matched sample segregation is normalized to unmatched mean in 1990. The 1970 value for central city only segregation is interpolated from 1960 and 1980.

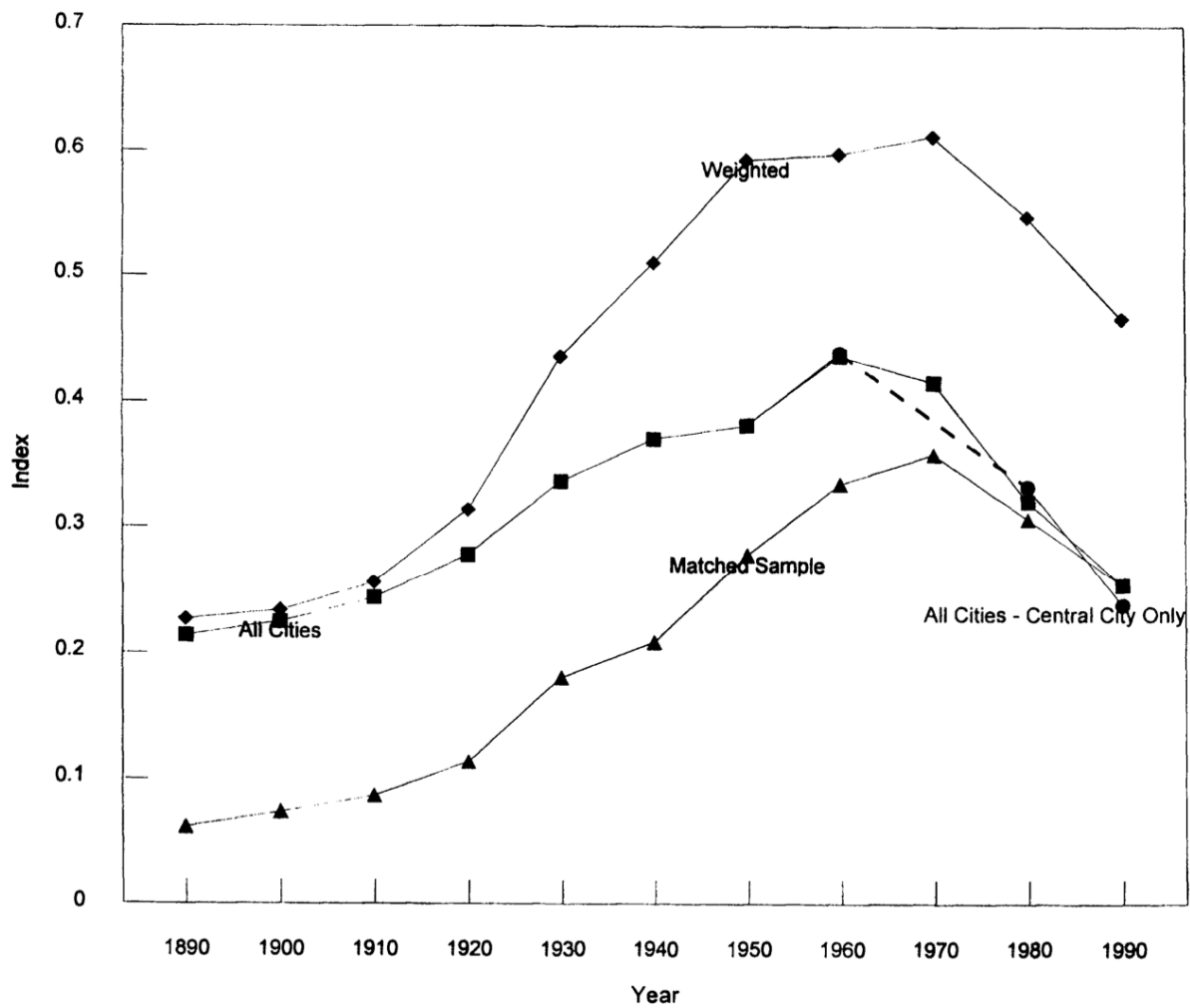


FIG. 2.—Index of isolation, 1890–1990. Matched sample segregation is normalized to unmatched mean in 1990. The 1970 value for central city only segregation is interpolated from 1960 and 1980.

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Fig.6

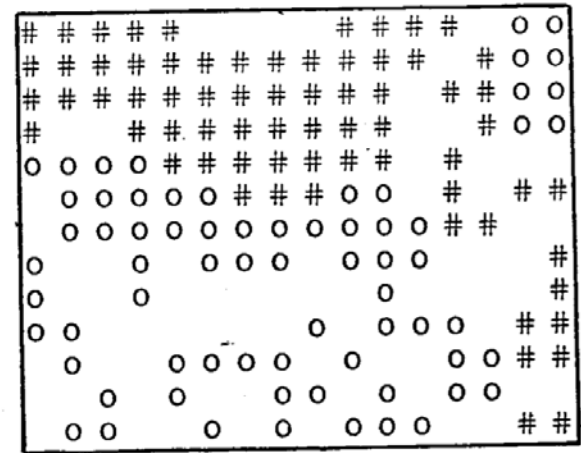


Fig.8

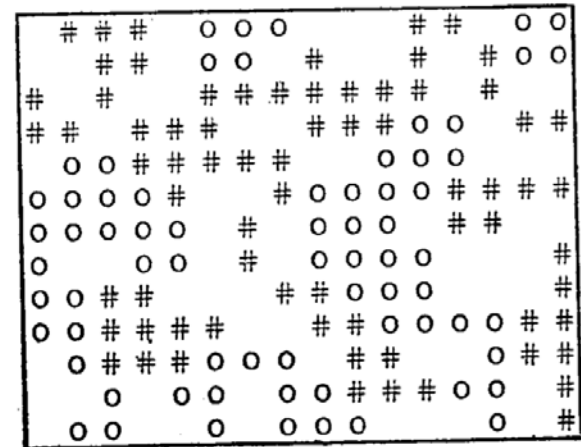
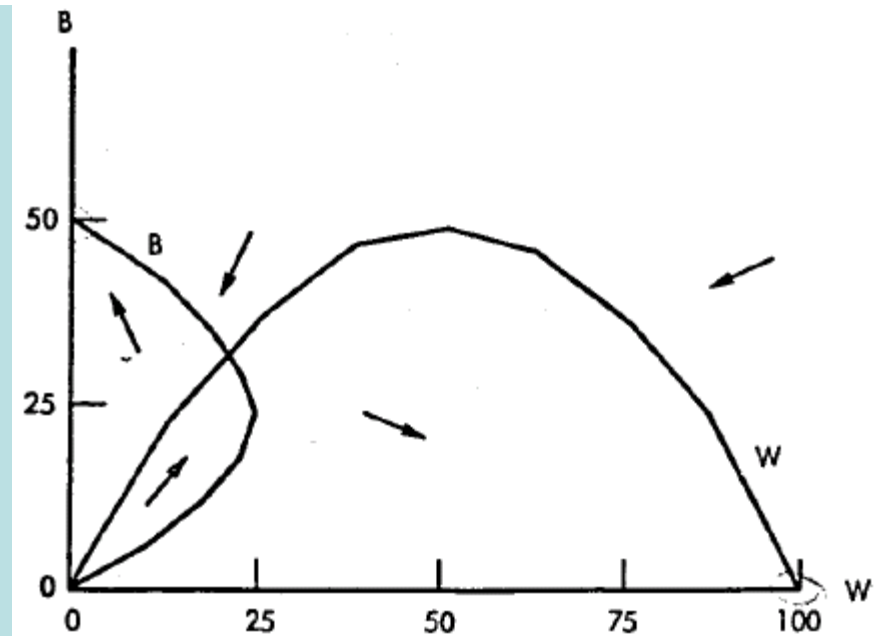


Fig.9



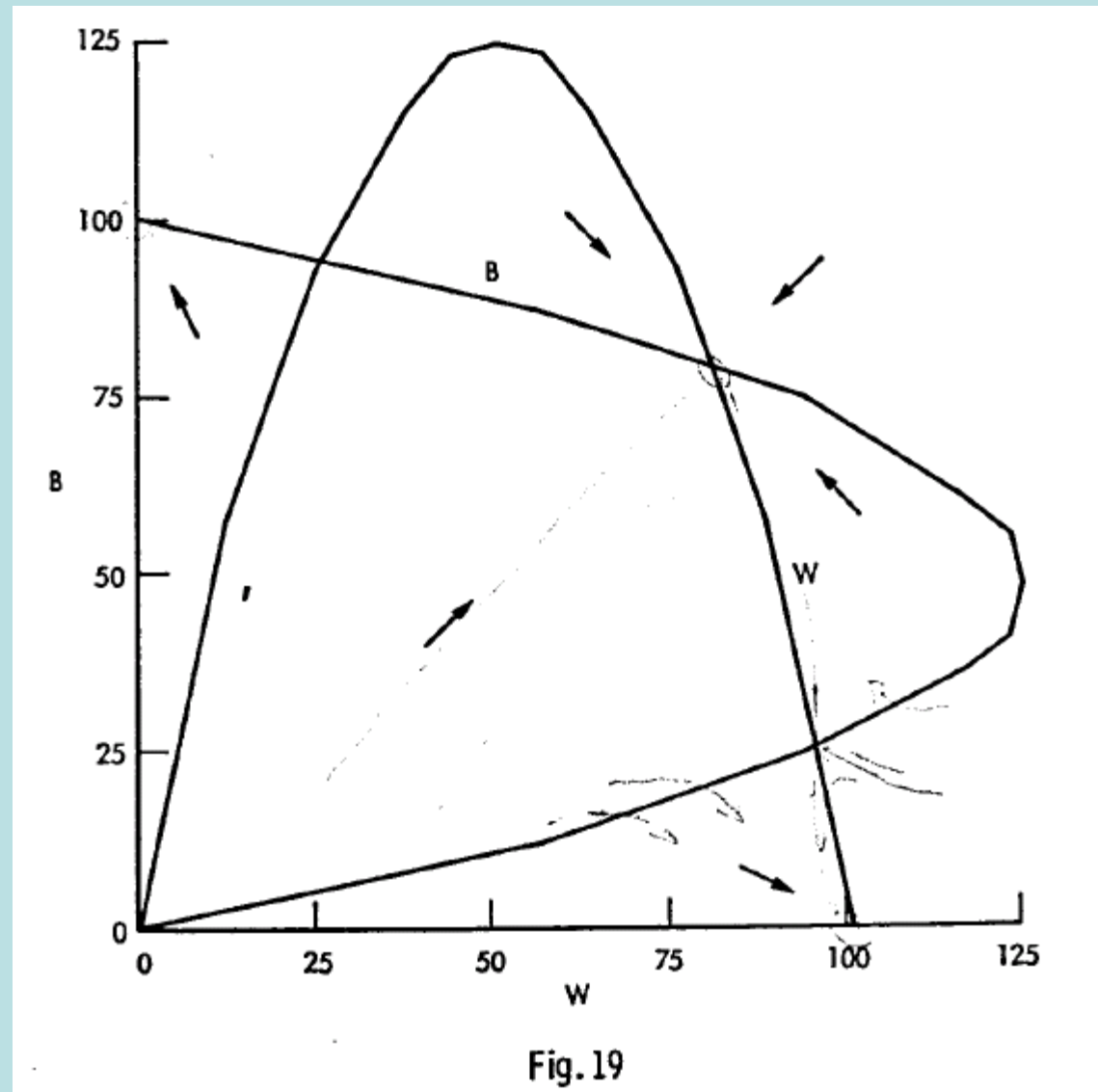
$$T_w(i) = 2 - (i)/50$$

$$T_B(i) = 2 - (i)/25$$

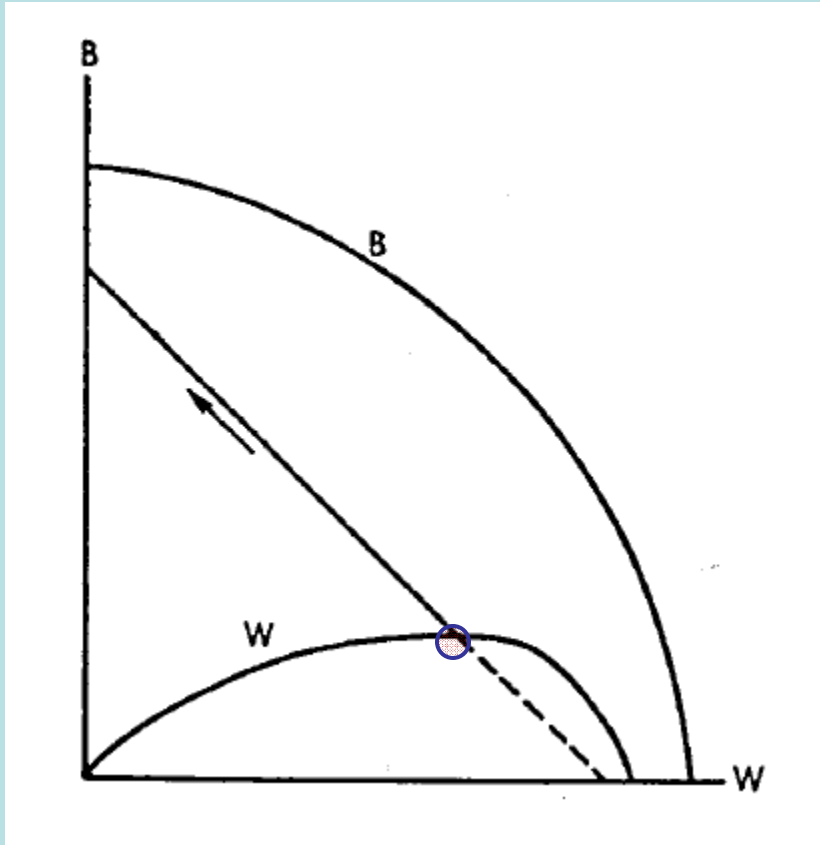


Schelling, 1971 [Figure 18]

$$T(i) = 5 - (i)/20.$$

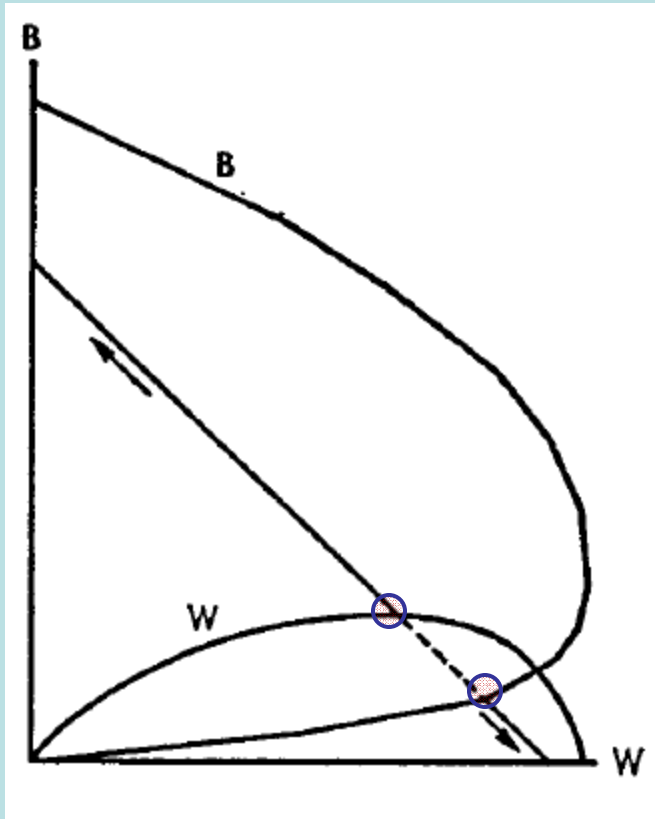


Schelling, 1971 [Figure 19]



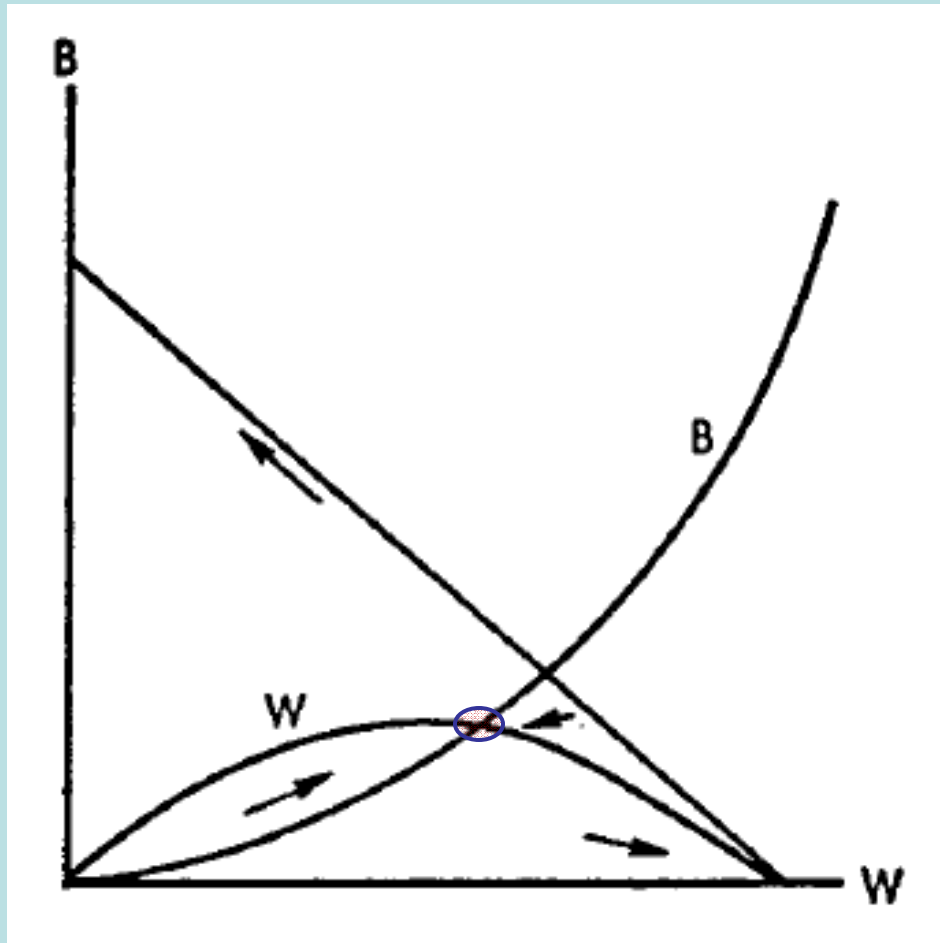
- 45 degree line is neighborhood capacity constraint
- There are many more B's than W's
- Points on dashed line are locally stable equilibria – W's are in their comfort zone
- However, there are numerous B's ready to move in if any W exits
- If the neighborhood drifts to the point where the 45 degree line intersects the W reaction curve, the equilibrium becomes unstable
- If one additional W exits at that point, neighborhood becomes all B

Schelling, 1971 [Figure 30]



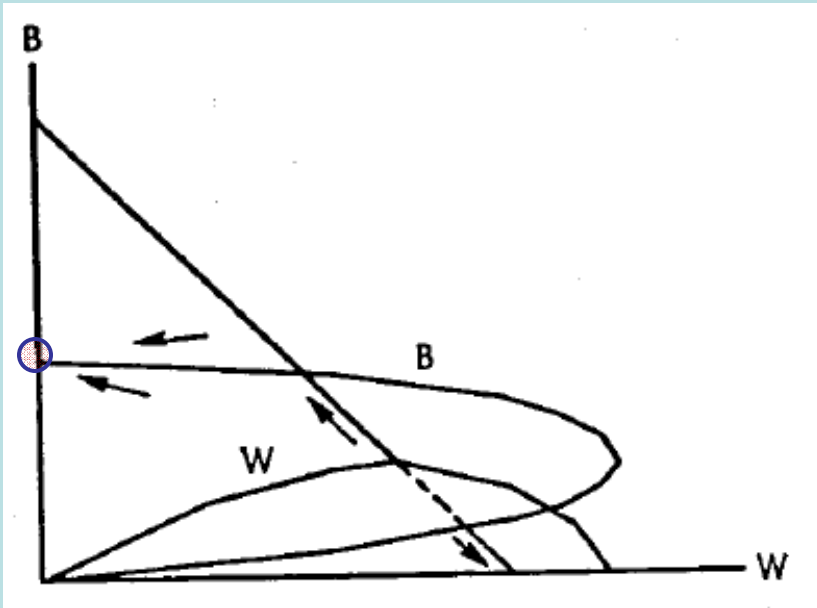
- Stable equilibria along the dashed line
- Depending on drift, neighborhood can tip all the way to B or W

Schelling, 1971 [Figure 31]



- Points within the ellipse leave excess capacity in the neighborhood
- Circled point of intersection is unstable because *someone* will move in.
- If that person is *W*, neighborhood tips *W*.
- If that person is *B*, neighborhood tips *B*.

Schelling, 1971 [Figure 32]



- Dashed area is locally stable
- All W equilibrium with full neighborhood also stable
- But if we end up above the ellipse, W flight occurs.
- However, there are not enough B 's to fill the neighborhood.
- Thus, becomes exclusively B neighborhood with vacancies...

Schelling, 1971 [Figure 33]

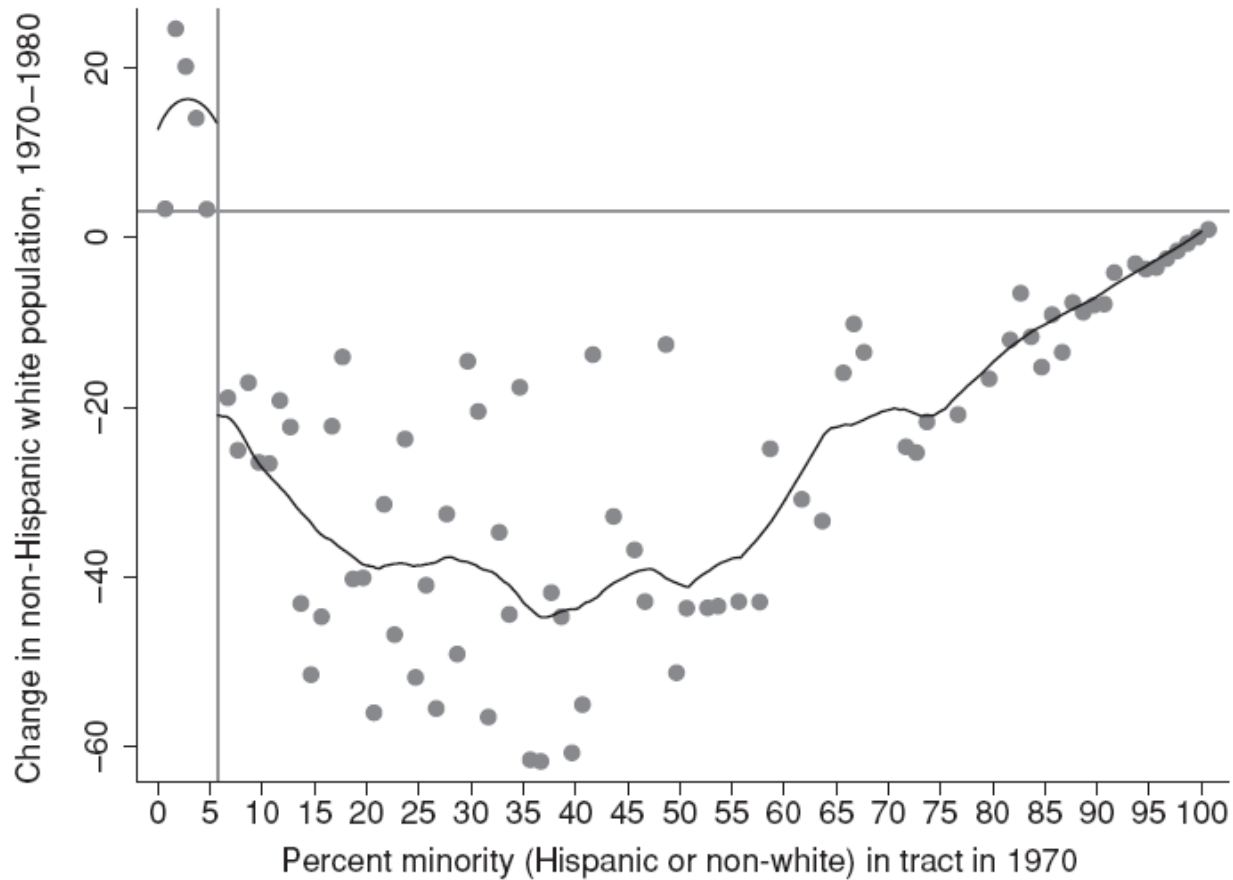


FIGURE I

Neighborhood Change in Chicago, 1970-1980

Notes. Dots show mean of the change in the tract-level non-Hispanic white population between 1970 and 1980 as a percentage of the total tract population in 1970, grouping tracts into cells of width 1% by the 1970 minority (Hispanic and/or nonwhite) share. The horizontal line depicts the unconditional mean. Also shown is a local linear regression fit to the tract-level data, using an Epanechnikov kernel and a bandwidth of 3.5 and estimated separately on each side of 5.7%. This point is chosen using a search procedure and a 2/3 sample of Chicago tracts. Only the remaining 1/3 subsample is used for the series depicted here. See text for details.

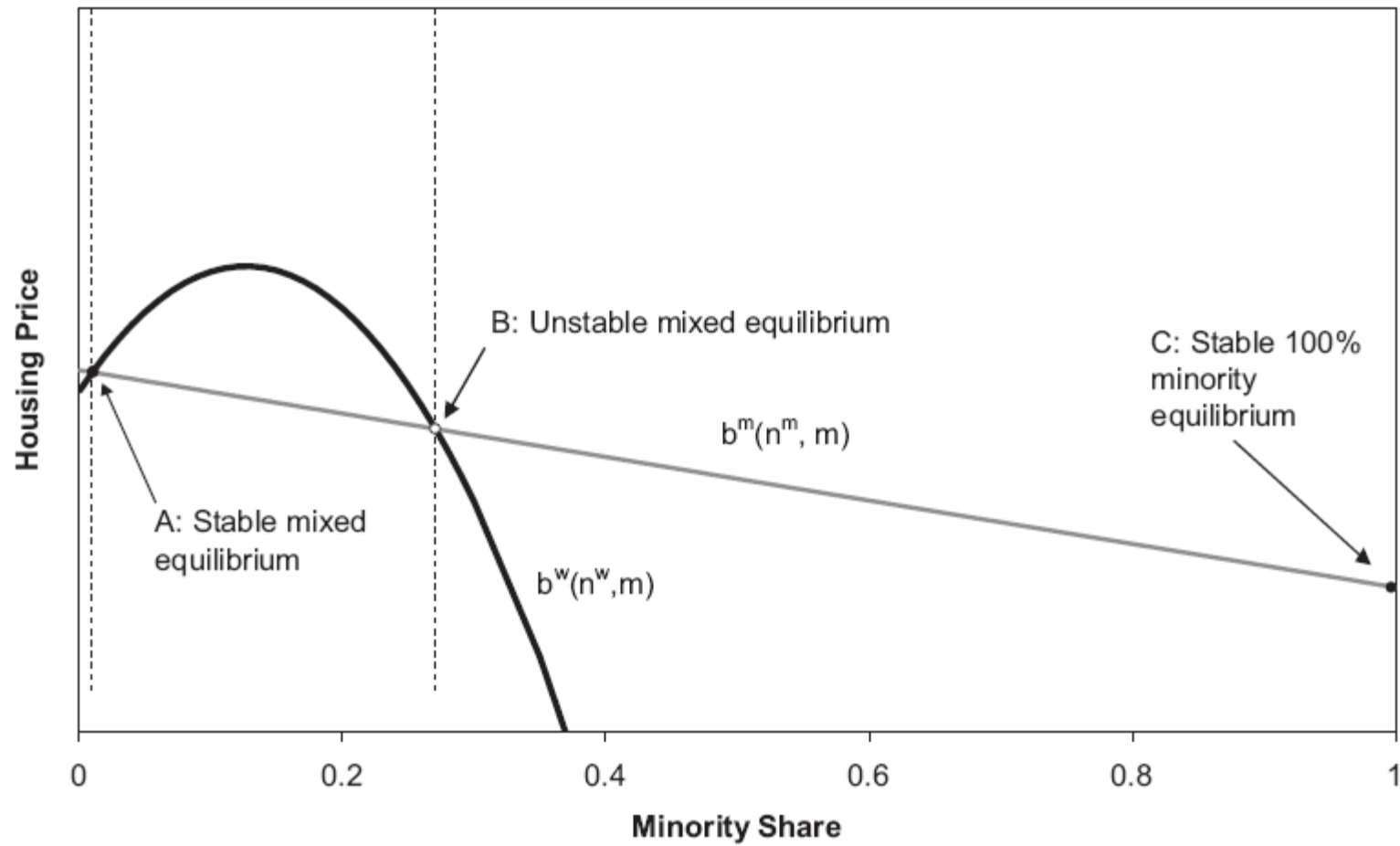


FIGURE II
Three Equilibria

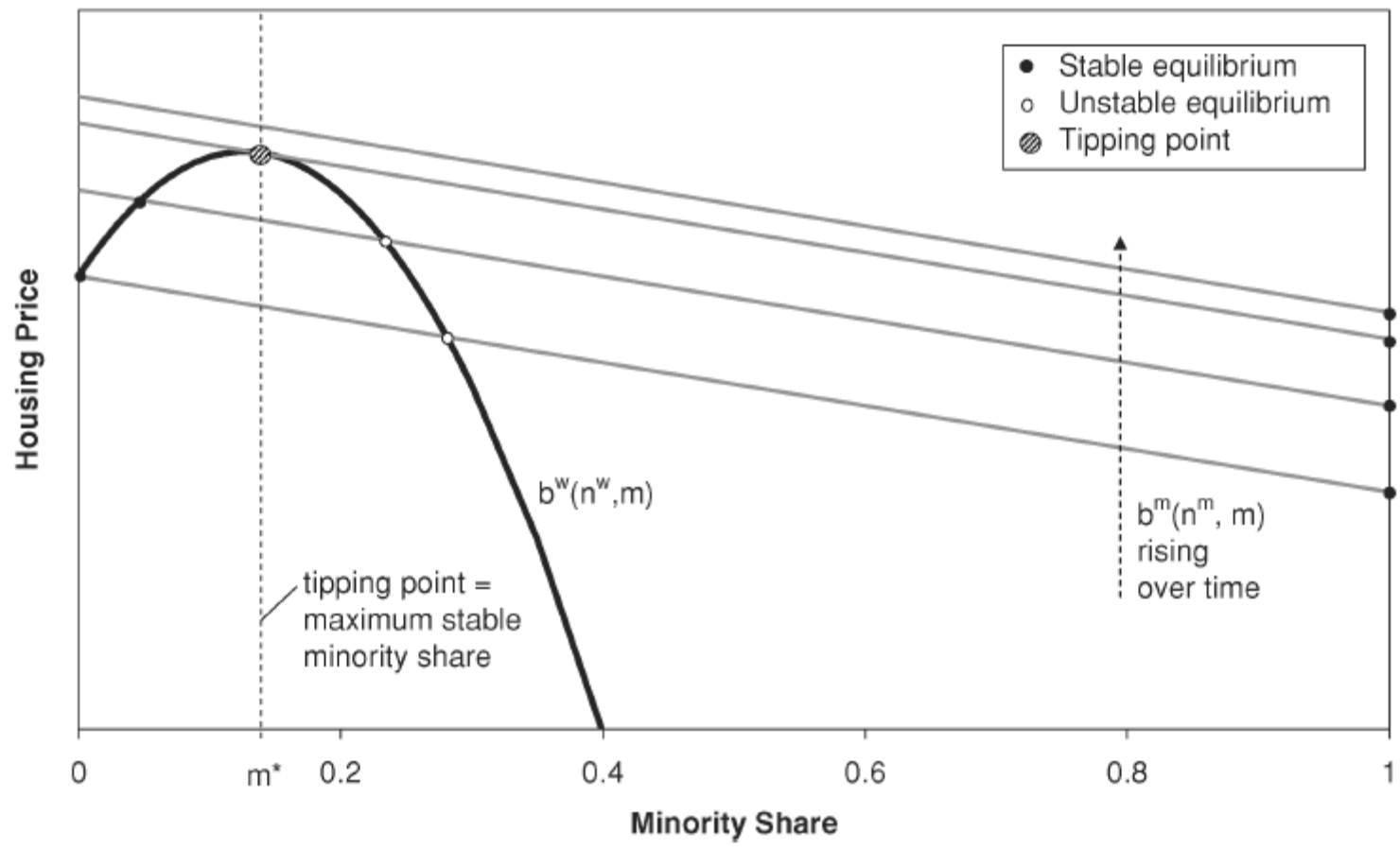


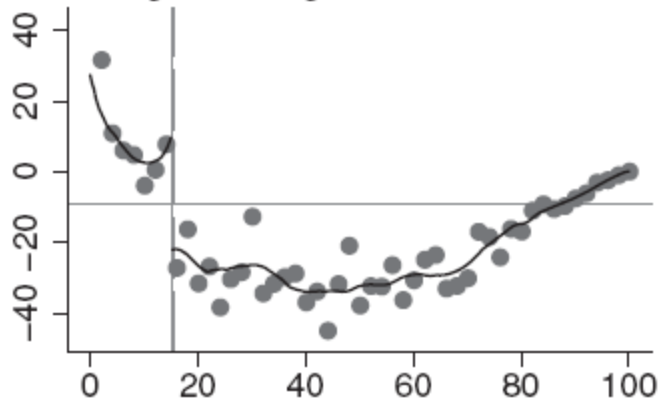
FIGURE III
 Rising Minority Demand Leads to a Tipping Point

TABLE I
SUMMARY STATISTICS FOR METROPOLITAN CENSUS TRACTS

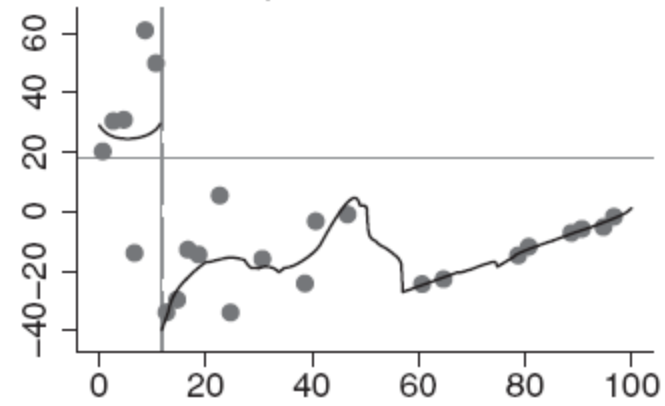
	1970	1980	1990
	(1)	(2)	(3)
# of tracts in NCDB data (with pop > 0)	46,334	51,857	64,891
# of tracts in MSAs	45,636	49,896	51,037
# of tracts in sample	35,725	39,283	40,187
# of MSAs in sample	104	113	114
Mean % minority, $t - 10$	16.4	23.5	29.0
Growth in total population, $t - 10$ to t (%)	31.0	24.0	16.6
Growth in white population, $t - 10$ to t as % of $t - 10$ population	19.5	13.2	4.2
<i>0%–5% minority in base year:</i>			
# of tracts in sample	17,097	13,001	9,394
Growth in total population	31.3	19.4	16.2
Growth in white population	25.2	15.7	11.8
<i>5%–20% minority in base year:</i>			
# of tracts in sample	10,770	13,301	13,666
Growth in total population	45.6	36.8	22.8
Growth in white population	28.2	23.4	9.7
<i>20%–40% minority in base year:</i>			
# of tracts in sample	3,131	4,870	6,325
Growth in total population	30.5	30.2	19.8
Growth in white population	0.7	6.6	-3.5
<i>40%–100% minority in base year:</i>			
# of tracts in sample	4,727	8,111	10,802
Growth in total population	-3.2	6.7	7.2
Growth in white population	-8.5	-3.9	-5.0

Note. Year at top of column is base year, $t - 10$.

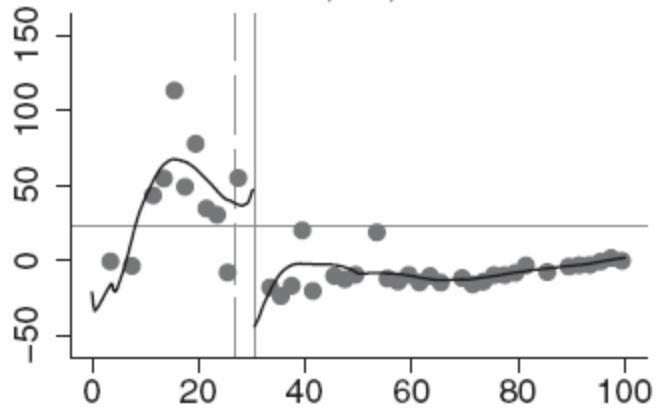
Los Angeles–Long Beach, CA, 1970–1980



Indianapolis, IN, 1970–1980



San Antonio, TX, 1980–1990



Nashville, TN, 1990–2000

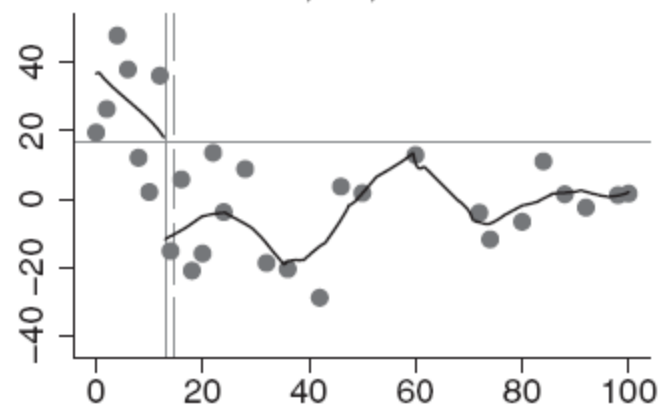


TABLE II
OVERVIEW OF CANDIDATE TIPPING POINTS

	1970–1980		1980–1990		1990–2000	
	Fixed point method	Structural break method	Fixed point method	Structural break method	Fixed point method	Structural break method
	(1)	(2)	(3)	(4)	(5)	(6)
Mean	11.87	8.98	13.53	11.69	14.46	13.96
SD	9.51	8.78	10.19	8.23	9.00	9.68
# of MSAs in sample	104	104	113	113	114	114
# without identified points	4	—	3	—	0	—
Correlations						
1970–1980, fixed point	1.00					
1970–1980, structural break	0.55	1.00				
1980–1990, fixed point	0.46	0.45	1.00			
1980–1990, structural break	0.45	0.39	0.64	1.00		
1990–2000, fixed point	0.50	0.44	0.59	0.68	1.00	
1990–2000, structural break	0.45	0.61	0.58	0.73	0.73	1.00

Notes. Tipping points describe the minority share in the census tract, measured in percentage points. Summary statistics are unweighted. All candidate points are estimated using a two-thirds subsample of the original data.

TABLE III
BASIC REGRESSION DISCONTINUITY MODELS FOR POPULATION CHANGES AROUND THE CANDIDATE TIPPING POINT

	Change in white population				Change in minority population		Change in total population	
	Pooled		Fully interacted		Pooled		Pooled	
	Fixed point	Struct. break	Fixed point	Struct. break	Fixed point	Struct. break	Fixed point	Struct. break
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1970–1980								
Beyond candidate tipping point in 1970	-12.1 (2.7)	-10.4 (3.4)	-14.2 (3.1)	-16.4 (4.3)	2.0 (1.0)	-0.1 (1.2)	-10.1 (3.0)	-10.4 (3.5)
Demographic/housing controls	y	y	n	n	y	y	y	y
<i>N</i>	11,611	11,886			11,611	11,886	11,611	11,886
<i>R</i> ²	0.25	0.25			0.22	0.22	0.23	0.24
1980–1990								
Beyond candidate tipping point in 1980	-13.6 (2.0)	-11.4 (3.5)	-17.0 (3.1)	-18.6 (3.5)	-1.1 (1.1)	0.3 (1.1)	-14.7 (2.6)	-11.1 (4.1)
<i>N</i>	12,151	13,067			12,151	13,067	12,151	13,067
<i>R</i> ²	0.30	0.30			0.26	0.26	0.29	0.29
1990–2000								
Beyond candidate tipping point in 1990	-7.3 (1.5)	-9.3 (1.8)	-3.6 (2.1)	-6.6 (2.0)	2.9 (1.1)	1.4 (0.8)	-4.3 (2.1)	-7.9 (2.2)
<i>N</i>	13,371	13,371			13,371	13,371	13,371	13,371
<i>R</i> ²	0.15	0.14			0.18	0.19	0.13	0.13

Notes. The unit of observation is a tract in the indicated decade. Dependent variables are the change in the relevant population (white in columns (1)–(4), minority in (5)–(6), or total in (7)–(8)) as a percentage (0–100) of the tract's total base-year population. Pooled specifications (columns (1)–(2) and (5)–(8)) include MSA fixed effects, a quartic polynomial in the deviation in the tract's minority share from the candidate tipping point, the unemployment rate, log(mean family income), housing vacancy rate, renter share, fraction of homes in single-unit buildings, and fraction of workers who commute using public transit, all measured in the base year at the tract-level. Standard errors are clustered on the MSA. Fully interacted specifications (columns (3)–(4)) report average tipping coefficients from city-by-city regressions with quartics in the tract minority share. The coefficient on the "beyond tipping point" indicator is averaged across cities, weighing cities by their numbers of tracts. Standard errors in these columns are robust to heteroscedasticity. All specifications are estimated using only the one-third of tracts not used to identify the tipping points.

TABLE IV
TIPPING IN THE 1990s, BY AMOUNT OF REMAINING UNDEVELOPED LAND

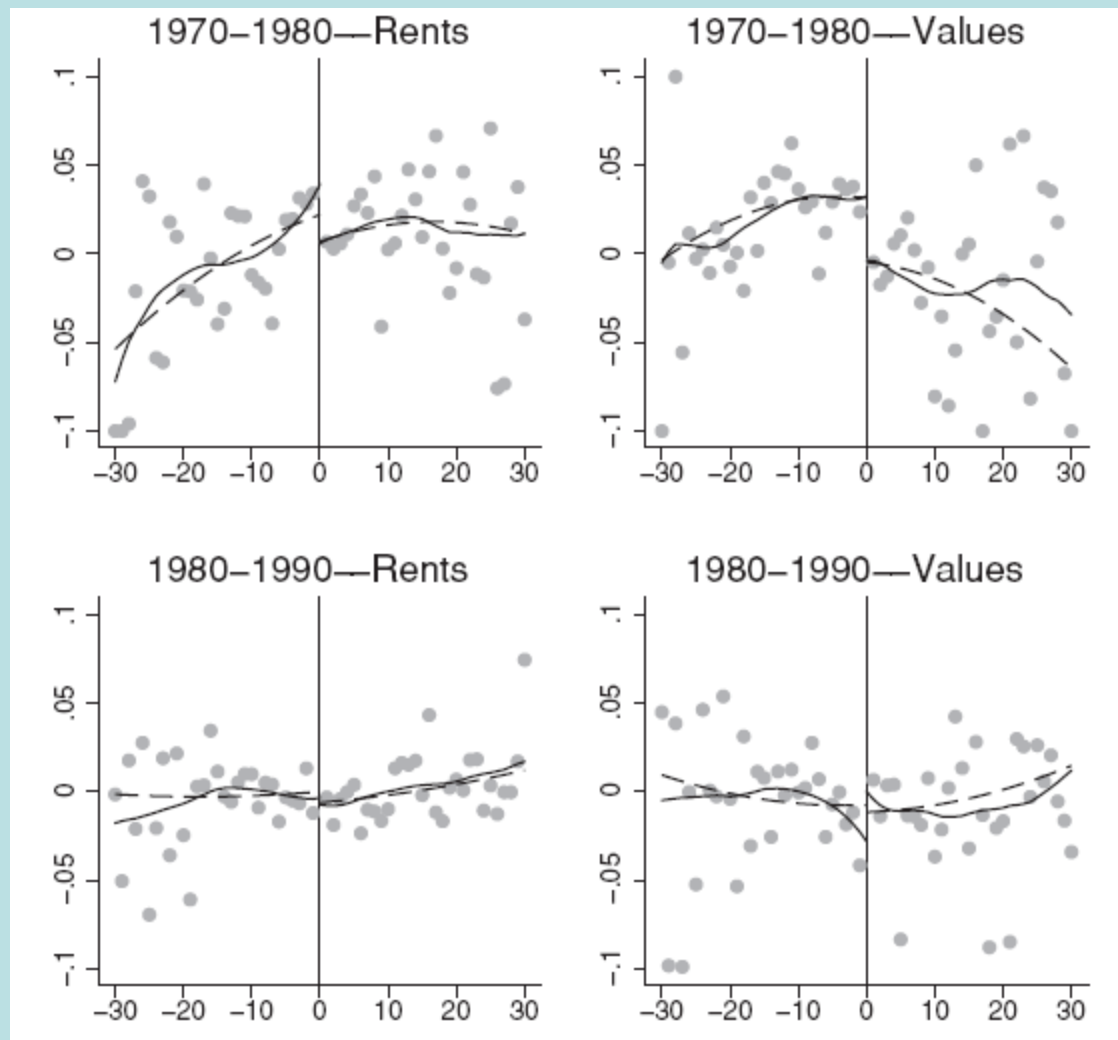
	Tipping discontinuity, 1990–2000				
	# of tracts	Change in white population	Change in minority population	Change in total population	Change in minority share
	(1)	(2)	(3)	(4)	(5)
Full sample	13,371	-7.3 (1.5)	2.9 (1.1)	-4.3 (2.1)	3.4 (0.4)
>91% developed	3,368	-4.7 (1.1)	4.7 (1.1)	0.0 (1.3)	4.6 (1.0)
<91% developed	9,875	-6.1 (1.8)	2.4 (1.3)	-3.7 (2.6)	2.5 (0.4)

Notes. See notes to Table III (columns (1), (5), and (7)) for details on sample and specifications. Fixed point candidate tipping points are used. Column (5) takes as the dependent variable the minority share in 2000 minus the minority share in 1990 but is otherwise identical. Developed land measure is computed from the National Land Cover Data; 91% is the 75th percentile of this measure. See text for details.

TABLE VII
 VARIATION IN DISCONTINUITY AT THE TIPPING POINT BY MEASURES OF DISTANCE TO THE EXISTING GHETTO

	By central city / remainder of MSA			By distance to nearest high-minority-share tract			By indicator for having a neighbor with $m > m^*$		
	1970– 1980	1980– 1990	1990– 2000	1970– 1980	1980– 1990	1990– 2000	1970– 1980	1980– 1990	1990– 2000
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Main effect: beyond tipping point	-10.7	-10.6	-4.9	-7.6	-4.7	-3.4	-0.6	-2.7	-3.4
	(3.5)	(2.5)	(2.2)	(2.2)	(2.7)	(1.2)	(3.0)	(2.2)	(1.4)
Interaction: beyond TP × outside of central city	3.0	-5.9	-2.5						
	(5.1)	(4.6)	(2.8)						
Total tipping effect when outside of central city	-7.7	-16.5	-7.3						
	(3.4)	(3.8)	(2.1)						
Interaction: beyond TP × nearest high-minority-share tract is 2–5 miles away				-3.9	5.1	0.1			
				(5.3)	(5.3)	(2.3)			
Interaction: beyond TP × nearest high-minority-share tract is >5 miles away				-2.6	-15.9	0.6			
				(4.4)	(4.8)	(2.9)			
Total tipping effect when distance is 2–5 miles				-11.5	0.5	-3.3			
				(5.1)	(4.1)	(1.9)			
Total tipping effect when distance is >5 miles				-10.3	-20.6	-2.8			
				(3.8)	(3.7)	(2.6)			
Interaction: beyond TP × none of neighbors have $m > m^*$							-30.3	-31.8	-2.1
							(7.0)	(4.7)	(5.4)
Total tipping effect when none of neighbors have $m > m^*$							-30.9	-34.5	-5.4
							(6.3)	(4.6)	(5.2)

Notes. Specifications are identical to those in Table III, column (1), but are fully interacted with the indicated tract characteristics. Reported here are the beyond-tipping-point main effects, interaction coefficients, and the net effect of being beyond the tipping point for tracts in each category. The nearest high-minority-share tract is the closest tract (measuring distances between tract centroids) with a minority share above 60%. "Neighbors" in columns (7)–(9) are the five closest tracts within 5 miles.



Card, Mas and Rothstein 2008

Tipping in Racial Composition of Elementary Schools

TABLE VIII
TIPPING IN ELEMENTARY SCHOOLS

	Tipping discontinuity, 1990–2000			
	Change in white population	Change in minority population	Change in total population	Change in minority share
	(1)	(2)	(3)	(4)
Beyond candidate tipping point	−7.4 (2.3)	0.9 (0.9)	−6.5 (2.3)	2.3 (0.8)
<i>N</i>	5,641	5,641	5,641	5,641

Note. Sample consists of elementary schools in the MSA. Tipping points are estimated using the fixed point method over a two-thirds subsample; the remaining one-third subsample is used to estimate the specifications shown here. Each includes a quartic polynomial in the minority share relative to the candidate tipping point, MSA fixed effects, and a control for the school free lunch share. Standard errors are clustered on the MSA.

TABLE IX
MODELS FOR THE LOCATION OF THE TIPPING POINT

	Mean [SD]			
	(1)	(2)	(3)	(4)
	Coefficients (SEs)			
Race attitudes index (positive = less tolerant)	-0.1 [0.6]	-2.77 (1.16)	-2.98 (1.08)	-2.66 (0.94)
% Black	11.4 [8.6]	0.53 (0.10)	0.59 (0.10)	0.81 (0.10)
% Hispanic	6.7 [9.9]	0.65 (0.07)	0.75 (0.07)	0.94 (0.09)
Population density (10,000s/sq mile)	0.50 [0.60]	-1.81 (0.45)	-1.80 (0.39)	-1.42 (0.39)
Log (MSA population)	13.7 [0.8]	-0.89 (0.60)	-1.15 (0.63)	0.70 (0.69)
Log (per capita income), whites	9.0 [0.7]		-11.77 (5.38)	-9.34 (3.99)
Log (per capita income), blacks	8.5 [0.8]		9.26 (5.62)	6.83 (4.68)
Log (per capita income), Hispanics	8.6 [0.8]		7.08 (2.92)	7.17 (2.34)
Fraction of houses built in last decade	0.26 [0.11]			1.90 (6.26)
Cumulative riots index	0.04 [0.09]			-14.33 (6.57)
Murders per 100,000 population	8.9 [5.5]			-0.50 (0.18)
Other index crimes per 100 population	5.9 [1.9]			-0.59 (0.36)
1980		-0.97 (1.26)	-4.66 (3.45)	-2.96 (2.68)
1990		-0.98 (1.02)	-10.40 (6.54)	-9.69 (5.04)
<i>N</i>		234	234	234
<i>R</i> ²		0.52	0.54	0.60

Card, Mas and Rothstein 2008

Table 1. Average Characteristics of All Tracts and Tracts +/-2% Around Turning Point, 1970-1990

	B. Tracts +/-2% Around Turning Point		
	1970	1980	1990
	(1)	(2)	(3)
No. of MSAs in Sample	104	113	114
No. of Tracts in Sample	9,308	5,602	5,047
No. of Tracts in 1/3 Sample	3,087	1,834	1,684
Total Population	32,332 (2010.0)	36,078 (1782.2)	39,408 (1805.2)
Minority Share	0.049 (0.049)	0.082 (0.065)	0.107 (0.080)
Renter Share	0.295 (0.200)	0.313 (0.212)	0.307 (0.188)
Renter Share, Whites			0.293 (0.177)
Renter Share, Nonwhites			0.467 (0.269)
Log Avg Family Income	10.794 (0.271)	10.880 (0.276)	11.054 (0.346)
Sh. Families with Income >45,000\$, Whites			0.544 (0.174)
Sh. Families with Income >45,000\$, Nonwhites			0.511 (0.234)
Share of College Graduates	0.140 (0.114)	0.202 (0.129)	0.260 (0.153)
Share of College Graduates, Whites			0.262 (0.158)
Share of College Graduates, Nonwhites			0.259 (0.182)

Table 2. Distribution and Correlates of Renter Share for Tracts with a Minority Share within $\pm 2\%$ of Tipping Point

A. Distribution of Renter Share						
	1970		1980		1990	
	(1)		(2)		(3)	
10th Percentile	0.092		0.091		0.092	
20th Percentile	0.135		0.133		0.141	
50th Percentile	0.236		0.264		0.276	
80th Percentile	0.440		0.487		0.462	
90th Percentile	0.606		0.618		0.571	
B. Correlates of Renter Share						
Log Avg. Family Income	-0.240	***	-0.178	***	-0.324	***
	(0.032)		(0.027)		(0.010)	
Share of Families with Children under Age 18	-0.835	***	-0.164	***	-0.326	***
	(0.060)		(0.001)		(0.055)	
Central City Location	0.120	***	0.106	***	0.215	***
	(0.014)		(0.012)		(0.012)	
Share of Neighboring Tracts beyond Tipping Point	0.166	***	0.08	***	0.215	***
	(0.023)		(0.016)		(0.012)	
Renter Share Whites					1.009	***
					(0.003)	
Renter Share Minorities					0.502	***
					(0.022)	

Each data point in panel B reports the coefficient of a separate regression of renter share on the specified variable and MSA fixed effects. Tract neighbors are defined to have their central point within a 3 mile buffer zone around a given tract's boundary. * $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

Table 3. Change in Owner-Occupied and Renter-Occupied Housing Units. Dependent Variables: Log Change in Owner-Occ or Renter-Occ Housing Units

	I. All Races, 1970-2000					
	A. 1970-1980		B. 1980-1990		C. 1990-2000	
	Own	Rent	Own	Rent	Own	Rent
Beyond Tipping Point	-0.073 *** (0.025)	-0.019 (0.024)	-0.080 *** (0.023)	-0.026 (0.025)	-0.050 *** (0.013)	0.016 (0.017)
Wald Test Own=Rent:	F(1.103)=3.19 * p=0.08		F(1.112)=4.07 ** p=0.05		F(1.113)=15.35 *** p=0.00	
n	11,808	11,691	12,931	13,042	13,229	13,333
R ²	0.34	0.29	0.23	0.34	0.14	0.07

II. By Race, 1990-2000

	A. Whites		B. Minorities	
	Own	Rent	Own	Rent
Beyond Tipping Point	-0.058 *** (0.016)	-0.005 (0.022)	-0.038 (0.027)	-0.021 (0.032)
Wald Test Own=Rent:	F(1.113)=5.74 ** p=0.02		F(1.113)=0.20 p=0.66	
n	12,622	12,887	12,580	11,588
R ²	0.29	0.13	0.20	0.18

All models control for MSA fixed effects, a quartic polynomial for the difference between a tract's minority share and the estimated MSA tipping point at the beginning of a decade. They also control for renter share, log average family income, share of families with children under age 18, unemployment rate, share of vacancies, and share of single-unit homes in a tract at the beginning of a decade. Robust standard errors in parentheses are clustered by MSA. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 6. Decadal Change in White Population - Robustness Test 2: Dependent Variable: Change of White Population - Percentage Points of White Total Tract Population

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>A: 1970-1980</u>								
Daywid Taping Point	-9.92 *** (3.47)	-7.51 *** (18.35)	-9.72 *** (13.44)	-14.54 *** (5.27)				
Daywid TP x Rental Share		23.50 ** (9.84)		-5.08 (3.47)				
<u>B: 1980-1990</u>								
Daywid Taping Point	-11.25 *** (3.44)	-9.92 *** (18.54)	-10.62 *** (13.44)	-16.45 *** (5.73)	-10.32 *** (3.87)	-14.12 *** (5.12)	-6.48 *** (2.58)	-11.17 ** (4.37)
Daywid TP x Rental Share		38.48 *** (7.72)		17.71 ** (6.57)		17.42 ** (8.76)		12.50 * (6.63)
<u>C: 1990-2000</u>								
Daywid Taping Point	-8.52 *** (2.78)	-9.37 *** (2.87)	-7.63 *** (1.73)	-15.80 *** (2.77)	-8.16 *** (2.72)	-9.45 *** (3.64)	-7.42 *** (1.34)	-13.64 *** (2.71)
Daywid TP x Rental Share		34.55 *** (4.57)		24.38 *** (5.63)		23.14 *** (4.34)		19.88 ** (5.83)
4th Point of Rental Share	1	1	1	1	1	1	1	1
1990-2000 Rental Share - 10%	1	0	0	1	1	1	1	1
Lagged Controls - 10%	1	0	0	1	1	1	1	1

Table 8. Decadal Change in White Population - Alternative Hypotheses. Dependent Variable: Decadal Change of White Population in Percentage Points of Initial Total Tract Population

	A. 1970-1980			B. 1980-1990			C. 1990-2000		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beyond Tipping Point	-17.5 *** (5.3)	-20.6 *** (5.7)	-11.8 ** (4.7)	-19.9 *** (5.5)	-20.6 *** (5.8)	-15.0 *** (5.2)	-19.4 *** (2.6)	-22.2 *** (2.6)	-14.2 ** (2.6)
Beyond TP x Renter Share	23.6 ** (9.6)	27.3 ** (12.1)	21.1 ** (9.6)	26.5 *** (7.7)	21.0 ** (9.2)	27.9 *** (8.5)	34.5 *** (4.6)	35.9 *** (4.4)	31.6 *** (4.8)
Beyond TP x Ln Avg. Family Income		34.0 *** (6.5)			10.4 ** (4.1)			9.0 *** (2.6)	
Beyond TP x Share Families with Children		-29.0 (17.6)			-70.0 *** (14.0)			-66.1 *** (12.1)	
Beyond TP x Central City Location			-3.7 (4.2)			-6.4 (4.0)			1.7 (2.4)
Beyond TP x Share of Tipped Neighbor Tracts			44.9 *** (6.7)			15.4 ** (6.3)			-3.0 (2.8)

Table 9. Decadal Change in Average House Values and Rents. Dependent Variable: Change of Log Average House Value or Rent

	I. House Values				II. Rents	
	(1)	(2)	(3)	(4)	(5)	(6)
A. 1970-1980						
Beyond Tipping Point	-0.008 (0.013)	-0.027 (0.022)	-0.004 (0.013)	-0.015 (0.019)	n/a	
Beyond TP x Renter Share		0.059 (0.053)		0.034 (0.045)		
η	9.752	9.752	9.752	9.752		
R^2	0.39	0.39	0.40	0.40		
B. 1980-1990						
Beyond Tipping Point	-0.024 ** (0.010)	-0.050 *** (0.016)	-0.023 ** (0.010)	-0.065 *** (0.015)	-0.023 ** (0.011)	-0.054 ** (0.014)
Beyond TP x Renter Share		0.111 *** (0.032)		0.139 *** (0.033)		0.092 ** (0.029)
η	12.221	12.221	12.220	12.220	12.273	12.273
R^2	0.63	0.63	0.63	0.64	0.20	0.20
C. 1990-2000						
Beyond Tipping Point	-0.016 (0.010)	-0.030 ** (0.017)	-0.012 (0.009)	-0.031 * (0.016)	-0.009 (0.007)	-0.005 (0.011)
Beyond TP x Renter Share		0.074 ** (0.036)		0.060 * (0.035)		-0.012 (0.019)
η	13.024	13.024	13.024	13.024	13.309	13.309
R^2	0.49	0.49	0.50	0.50	0.15	0.16
Renter Share	Y	Y	Y	Y	Y	Y
Democrat/Rep. and Controls	N	N	Y	Y	Y	Y

TABLE 1—A COMPARISON OF STUDENTS IN THE CHICAGO PUBLIC SCHOOLS (ChiPS)

Dependent variable	ChiPS students enrolled in 1995			Analysis sample (year prior to closure announcement)		
	All students (1)	Living in public housing (2)	Living in public housing developments with closures (3)	Control mean (s.d.) (4)	Demo mean (s.d.) (5)	Difference: Demo – Control (s.e.) (6)
Male	0.51 (0.50)	0.50 (0.50)	0.50 (0.50)	0.508 (0.500)	0.499 (0.500)	-0.014 (0.012)
Black	0.55 (0.50)	0.96 (0.20)	1.00 (0.06)	—	—	—
Living with at least one parent	0.863 (0.344)	0.911 (0.285)	0.910 (0.286)	0.920 (0.272)	0.910 (0.286)	-0.003 (0.011)
Living in foster care	0.037 (0.190)	0.047 (0.211)	0.050 (0.217)	0.046 (0.210)	0.053 (0.225)	0.004 (0.008)
In special education	0.118 (0.322)	0.135 (0.342)	0.133 (0.339)	0.114 (0.318)	0.116 (0.320)	-0.003 (0.009)
Free lunch	0.719 (0.450)	0.907 (0.290)	0.913 (0.282)	0.883 (0.322)	0.879 (0.326)	-0.009 (0.009)
Age	11.3 (3.9)	10.4 (3.9)	10.8 (3.9)	10.34 (4.02)	10.04 (4.01)	-0.323** (0.143)
Old for grade	0.07 (0.25)	0.10 (0.30)	0.10 (0.31)	0.197 (0.410)	0.200 (0.400)	0.013 (0.012)
Math score (percentile rank)	34.5 (28.0)	24.7 (24.0)	23.7 (23.8)	25.1 (24.2)	27.5 (24.6)	-0.73 (1.53)
Reading score (percentile rank)	32.8 (25.1)	23.5 (20.7)	22.2 (20.2)	22.8 (20.4)	24.6 (20.8)	-0.40 (1.07)
Math gain in prior year	-1.1 (16.8)	-2.8 (17.8)	-2.3 (17.6)	0.02 (18.60)	-0.37 (18.73)	0.13 (0.98)
Reading gain in prior year	-0.2 (17.5)	-2.1 (17.5)	-2.0 (17.3)	0.02 (17.83)	-0.15 (18.38)	0.14 (0.80)
GPA	1.88 (1.02)	1.42 (0.93)	1.36 (0.94)	1.458 (0.908)	1.538 (0.919)	0.056 (0.044)
Absences (per course)	18.5 (17.5)	28.8 (20.7)	31.4 (21.2)	23.7 (16.8)	20.2 (15.4)	-0.458 (0.690)
Course credits	22.8 (2.8)	22.5 (3.3)	22.5 (3.3)	23.0 (3.5)	23.3 (3.8)	0.105 (0.217)
Moved in past year	0.074 (0.262)	0.049 (0.216)	0.047 (0.211)	0.114 (0.313)	0.109 (0.312)	-0.016 (0.016)
Changed schools in past year	0.212 (0.409)	0.195 (0.396)	0.188 (0.391)	0.169 (0.374)	0.174 (0.379)	0.007 (0.011)
Census-tract poverty rate	0.27 (0.21)	0.72 (0.21)	0.82 (0.11)	0.844 (0.100)	0.825 (0.118)	0.004 (0.012)
Percent school peers meeting national norms in math	0.28 (0.17)	0.17 (0.11)	0.16 (0.11)	0.168 (0.103)	0.198 (0.117)	-0.005 (0.015)
Number of observations	416,104	28,996	18,484	7,030	3,526	10,556

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TABLE 2—THE IMPACT OF PUBLIC HOUSING CLOSURES THREE YEARS AFTER INITIAL NOTIFICATION

Dependent variable	Control mean (1)	Difference: Demo – Control (no controls) (2)	Difference: Demo – Control (controls) (3)	Difference: Demo – Control (controls) (4)
<i>Sample attrition</i>				
Left the ChiPS (i.e., transferred to a private school or moved out of the district)	0.061 (0.239)	0.000 (0.002)	0.000 (0.006)	0.000 (0.006)
Enrolled in school (ages 3–13)	0.899 (0.277)	–0.011 (0.007)	–0.006 (0.007)	–0.007 (0.007)
Missing transcript outcomes (ages 3–13)	0.823 (0.382)	0.000 (0.006)	0.000 (0.006)	0.000 (0.006)
Missing test score outcomes (ages 3–13)	0.335 (0.472)	0.004 (0.009)	0.000 (0.009)	0.000 (0.009)
Controls for student demographics	—	No	Yes	Yes
Controls for prior achievement	—	No	No	Yes

TABLE 2—THE IMPACT OF PUBLIC HOUSING CLOSURES THREE YEARS AFTER INITIAL NOTIFICATION

Dependent variable	Control mean (1)	Difference: Demo – Control (no controls) (2)	Difference: Demo – Control (controls) (3)	Difference: Demo – Control (controls) (4)
<i>Educational outcomes</i>				
Dropped out (ages 14+)	0.538 (0.499)	0.048* (0.025)	0.043** (0.022)	0.044** (0.021)
Math score (percentile rank)	31.6 (24.8)	–0.474 (0.858)	–0.401 (0.835)	0.200 (0.762)
Reading score (percentile rank)	27.6 (21.0)	–0.196 (0.246)	–0.159 (0.730)	0.099 (0.680)
Old for grade	0.330 (0.470)	–0.005 (0.014)	–0.006 (0.012)	–0.005 (0.012)
Absences (per course)	14.8 (11.4)	0.38 (0.96)	0.41 (0.97)	0.57 (0.98)
Credits	25.4 (4.7)	0.49 (0.28)	0.42 (0.28)	0.35 (0.28)
GPA	1.55 (0.93)	0.017 (0.069)	0.010 (0.067)	–0.017 (0.064)
Controls for student demographics	—	No	Yes	Yes
Controls for prior achievement	—	No	No	Yes

TABLE 2—THE IMPACT OF PUBLIC HOUSING CLOSURES THREE YEARS AFTER INITIAL NOTIFICATION

Dependent variable	Control mean (1)	Difference: Demo – Control (no controls) (2)	Difference: Demo – Control (controls) (3)	Difference: Demo – Control (controls) (4)
<i>Relocation outcomes</i>				
Living in public housing	0.615 (0.449)	–0.205** (0.012)	–0.204** (0.012)	–0.200** (0.012)
Years in public housing since closure announcement	2.19 (1.07)	–0.596** (0.032)	–0.594** (0.032)	–0.576** (0.032)
Miles from original residence	1.45 (2.56)	1.29** (0.08)	1.29** (0.08)	1.26** (0.08)
Census-tract poverty rate	0.676 (0.269)	–0.147** (0.008)	–0.146** (0.008)	–0.143** (0.008)
Changed schools since notification	0.576 (0.494)	0.172** (0.013)	0.172** (0.013)	0.170** (0.012)
Number of school moves ^a	1.45 (0.69)	0.01 (0.03)	0.01 (0.03)	0.01 (0.02)
Percent school peers met norms in math	0.274 (0.112)	0.001 (0.003)	0.002 (0.003)	–0.002 (0.003)
Controls for student demographics	—	No	Yes	Yes
Controls for prior achievement	—	No	No	Yes

TABLE 3—THE EFFECTS OF PUBLIC HOUSING CLOSURES OVER TIME

	Difference: Demo – Control				
	Year 1	Year 2	Year 3	Year 4	Year 5
<i>Sample attrition (n = 7,483)</i>					
Left the ChiPS (i.e., transferred to private school or moved out of the district)	0.002 (0.005)	-0.002 (0.006)	0.001 (0.007)	0.005 (0.008)	0.001 (0.009)
Enrolled in school (ages 3–13; n = 5,603)	-0.001 (0.006)	-0.002 (0.008)	-0.007 (0.009)	-0.006 (0.011)	-0.005 (0.011)
Missing test score outcomes (ages 3–13; n = 5,603)	0.031 (0.011)	0.030 (0.012)	0.000 (0.011)	0.016 (0.012)	0.004 (0.011)
<i>Educational outcomes (n = 3,889)</i>					
Dropped out (age 14+, n = 1,678)	0.036 (0.024)	0.047* (0.027)	0.067** (0.027)	0.085** (0.027)	0.074** (0.026)
Old for grade	-0.002 (0.010)	0.003 (0.016)	0.000 (0.018)	0.005 (0.019)	0.005 (0.019)
Math score (percentile rank)	-0.041 (1.110)	-0.326 (1.142)	-0.079 (1.104)	0.364 (1.131)	0.489 (1.154)
<i>Relocation outcomes (n = 3,889)</i>					
Living in public housing	-0.100** (0.016)	-0.185** (0.020)	-0.174** (0.020)	-0.165** (0.020)	-0.111** (0.019)
Census-tract poverty rate	-0.058** (0.009)	-0.106** (0.010)	-0.107** (0.011)	-0.109** (0.011)	-0.081** (0.011)
Changed schools since notification	0.157** (0.020)	0.196** (0.020)	0.192** (0.020)	0.179** (0.018)	0.123** (0.016)
Percent school peers met norms in math	-0.001 (0.003)	0.006 (0.004)	0.001 (0.004)	0.004 (0.004)	0.003 (0.004)
Controls for student demographics	Yes	Yes	Yes	Yes	Yes
Controls for prior achievement	Yes	Yes	Yes	Yes	Yes

TABLE 6—THE RELATIONSHIP BETWEEN PUBLIC HOUSING PARTICIPATION AND STUDENT ACHIEVEMENT

Outcome variables	First stage	OLS	2SLS
Math score (percentile rank)	−0.600 (0.037) <i>F</i> = 263.1	0.055 (0.281)	−0.331 (1.261)
Reading score (percentile rank)	−0.600 (0.037) <i>F</i> = 263.1	−0.236 (0.248)	−0.163 (1.127)
Old for grade	−0.597 (0.032) <i>F</i> = 351.2	0.004 (0.005)	0.008 (0.020)
Absences (per course)	−0.197 (0.032) <i>F</i> = 36.6	1.186 (0.846)	−2.890 (5.018)
Credits	−0.197 (0.032) <i>F</i> = 36.6	−0.065 (0.291)	−1.791 (1.452)
GPA	−0.197 (0.032) <i>F</i> = 36.6	−0.048 (0.061)	0.088 (0.328)

Notes: The estimates in rows 1–3 are based on the specifications in (3') and (4') where the public housing variable is defined as the number of years living in public housing since closure announcement. The estimates for the high school transcript outcomes in rows 4–6 come from equations (3) and (4) where public housing is a binary variable indicating whether the student was living in public housing in year *t*. In both cases, outcomes are measured three years after the closure announcement, corresponding to the estimates in Table 2. See the text for more detailed discussion. Eicker-White standard errors that account for correlation of errors within students are shown in parentheses.

TABLE C1
COMPANY GROWTH AND IN 1992 AND 1993 (BASED ON 1991
FINANCIAL STATEMENTS)

Type of expenditure	Largest projects	Smallest projects	Difference
	per 1991 base-period units		
Acquisition costs:			
- jointly owned	12.51	1.91	10.62
- 100% owned	1.84	0.70	1.14
Break-even costs and			
- attempted R&E	21.18	17.20	4.98
- other costs	11.14	2.10	9.04
- R&E capital	4.23	3.97	0.26
- other	0.50	0.70	-0.20

Source: author's calculations. All figures are based on 1991 data. With the exception of jointly owned R&E, all other figures are based on 1992 data. The difference between the largest and smallest projects is calculated as the difference between the largest and smallest projects. The difference between the largest and smallest projects is calculated as the difference between the largest and smallest projects. The difference between the largest and smallest projects is calculated as the difference between the largest and smallest projects.

TABLE VI

MEAN UTILITIES AND MEAN DIFFERENCES BETWEEN YOUTH (AGE 14-19) AND ADULTS (AGE 20-64) IN THE UNITED STATES AND BETWEEN YOUTH (AGE 14-19) AND ADULTS (AGE 20-64) IN THE UNITED STATES BY SEX AND RACE

	(1) Youth Utility Mean	(2) Adult Utility Mean	(3) Difference Utility (Adult minus Youth)
Total Sample			
Total Sample (N = 19,940)			
Total Sample (N = 19,940) by Sex			
Male	0.89	0.92	0.03
Female	0.88	0.91	0.03
Total Sample (N = 19,940) by Race			
White	0.90	0.93	0.03
Black	0.87	0.90	0.03
Hispanic	0.89	0.92	0.03
Total Sample (N = 19,940) by Education			
High School or Less	0.89	0.92	0.03
Some College	0.90	0.93	0.03
College Graduate	0.91	0.94	0.03
Total Sample (N = 19,940) by Age			
14-19	0.89	0.92	0.03
20-64	0.90	0.93	0.03
Total Sample (N = 19,940) by Income			
Low	0.88	0.91	0.03
High	0.90	0.93	0.03
Total Sample (N = 19,940) by Employment			
Unemployed	0.88	0.91	0.03
Employed	0.89	0.92	0.03
Total Sample (N = 19,940) by Health			
Good	0.89	0.92	0.03
Poor	0.88	0.91	0.03
Total Sample (N = 19,940) by Marital Status			
Married	0.89	0.92	0.03
Single	0.89	0.92	0.03
Total Sample (N = 19,940) by Religion			
Protestant	0.89	0.92	0.03
Catholic	0.89	0.92	0.03
Other	0.89	0.92	0.03
Total Sample (N = 19,940) by State			
CA	0.89	0.92	0.03
IL	0.89	0.92	0.03
TX	0.89	0.92	0.03
VA	0.89	0.92	0.03
WA	0.89	0.92	0.03
WI	0.89	0.92	0.03
Other	0.89	0.92	0.03

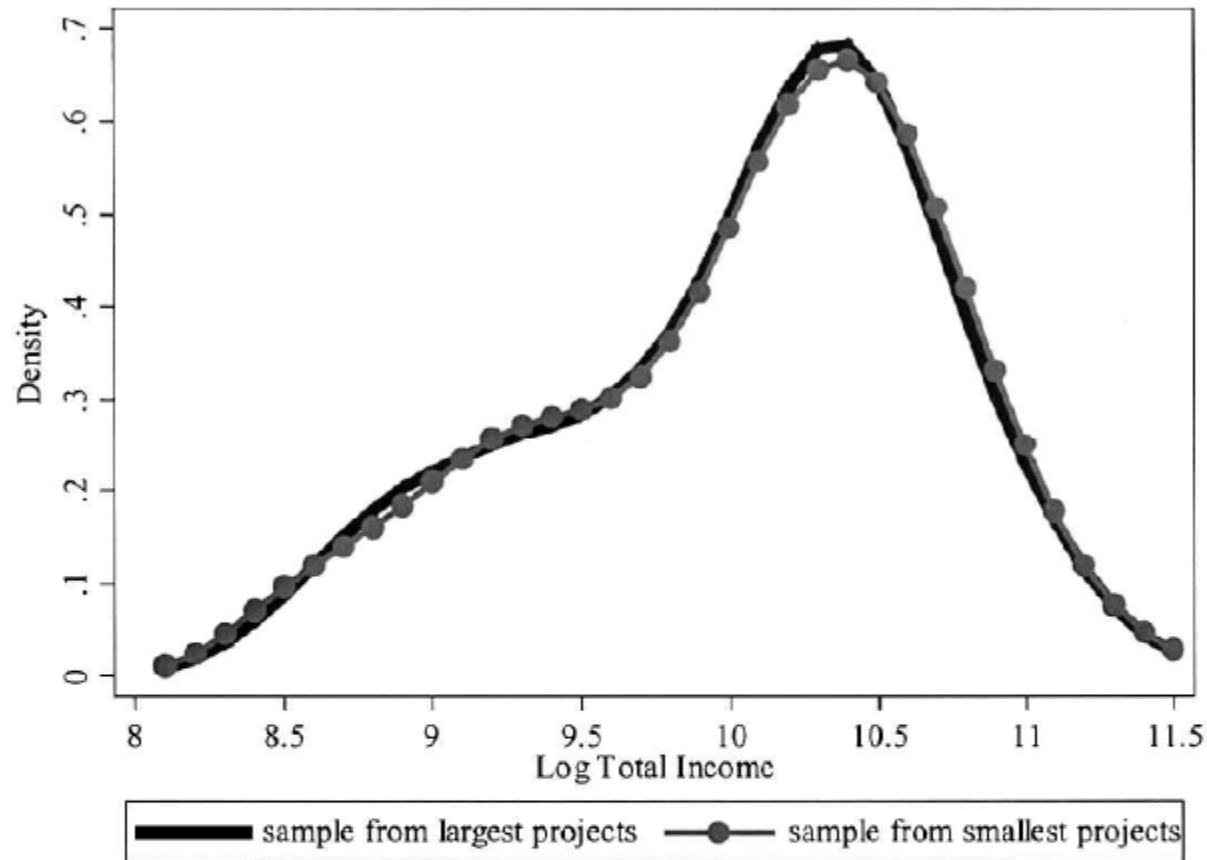


FIGURE II

Kernel Densities for Log Total Income for 29 to 36 Year-Olds in 1999 from High- and Low-Density Public Housing Projects

A: No Controls: Bandwidth = 0.20

The two kernel densities overlaid in Panel A and B are for the sample from the nine projects with the highest density of low-income households in the surrounding neighborhood and the sample from lowest density projects with 250 units or fewer, and in census tracts with fewer than 30 percent below the LICO. Residuals in Panel B are generated from regressing log total income on a full set of age and region dummies, period of entry dummies, plus family background controls. See text for further details.

TABLE VII

Means and Percentages for the Mean and Variance of the Quality Measures and Their Corresponding Percentages

	Year-wise mean and SD			Year-wise quality measures					
	Year	Mean	SD	Year	Mean	SD	Year	Mean	SD
No. number of accessible units in hospital									
2000-2001	2000	1000	1000	2000	1000	1000	2000	1000	1000
2001-2002	2001	1000	1000	2001	1000	1000	2001	1000	1000
2002-2003	2002	1000	1000	2002	1000	1000	2002	1000	1000
No. patients in emergency and ICU beds									
2000-2001	2000	1000	1000	2000	1000	1000	2000	1000	1000
2001-2002	2001	1000	1000	2001	1000	1000	2001	1000	1000
2002-2003	2002	1000	1000	2002	1000	1000	2002	1000	1000
No. patients in hospital and ICU beds									
2000-2001	2000	1000	1000	2000	1000	1000	2000	1000	1000
2001-2002	2001	1000	1000	2001	1000	1000	2001	1000	1000
2002-2003	2002	1000	1000	2002	1000	1000	2002	1000	1000

Table VII shows the mean and standard deviation of the quality measures and their corresponding percentages for the years 2000-2001, 2001-2002, and 2002-2003. The quality measures are: No. number of accessible units in hospital, No. patients in emergency and ICU beds, and No. patients in hospital and ICU beds. The percentages are calculated as follows: Mean = (Sum of all values) / (Number of observations) and SD = $\sqrt{\frac{\sum (x_i - \text{Mean})^2}{n}}$. The quality measures are: No. number of accessible units in hospital, No. patients in emergency and ICU beds, and No. patients in hospital and ICU beds. The percentages are calculated as follows: Mean = (Sum of all values) / (Number of observations) and SD = $\sqrt{\frac{\sum (x_i - \text{Mean})^2}{n}}$.

TABLE VIII
ESTIMATED SIBLING AND NEIGHBOR CORRELATIONS

	Total income (males)		Earnings (males)		Number of years of welfare (1992–1999)	
	All Toronto	Public housing	All Toronto	Public housing	All Toronto	Public housing
Siblings						
Sibling correlation	0.284 (0.006)	0.312 (0.048)	0.280 (0.006)	0.261 (0.079)	0.241 (0.022)	0.217 (0.022)
Sibling correlation after controlling for observable family characteristics	0.268 (0.004)	0.296 (0.043)	0.265 (0.005)	0.244 (0.079)	0.205 (0.020)	0.185 (0.023)
Neighbors within enumeration areas (Toronto sample) and projects (public housing sample)						
Neighbor correlation	0.043 (0.013)	0.004 (0.004)	0.054 (0.023)	0.000 (0.004)	0.071 (0.030)	0.005 (0.003)
Neighbor covariance after controlling for observable family characteristics	0.028 (0.019)	0.005 (0.004)	0.041 (0.018)	0.000 (0.004)	0.046 (0.021)	0.004 (0.003)
Sample size	184,600	4,060	150,617	3,855	369,200	6,601
Number of sibling pairs	20,082	684	21,421	622	25,450	1,851
Number of neighborhoods	3,391	81	3,391	81	3,391	81

Adult men's incomes are averaged over six years for children in the IID from 1992–1999. The public housing sample combines all households living in uniquely matched MTHC postal codes. See text for details.

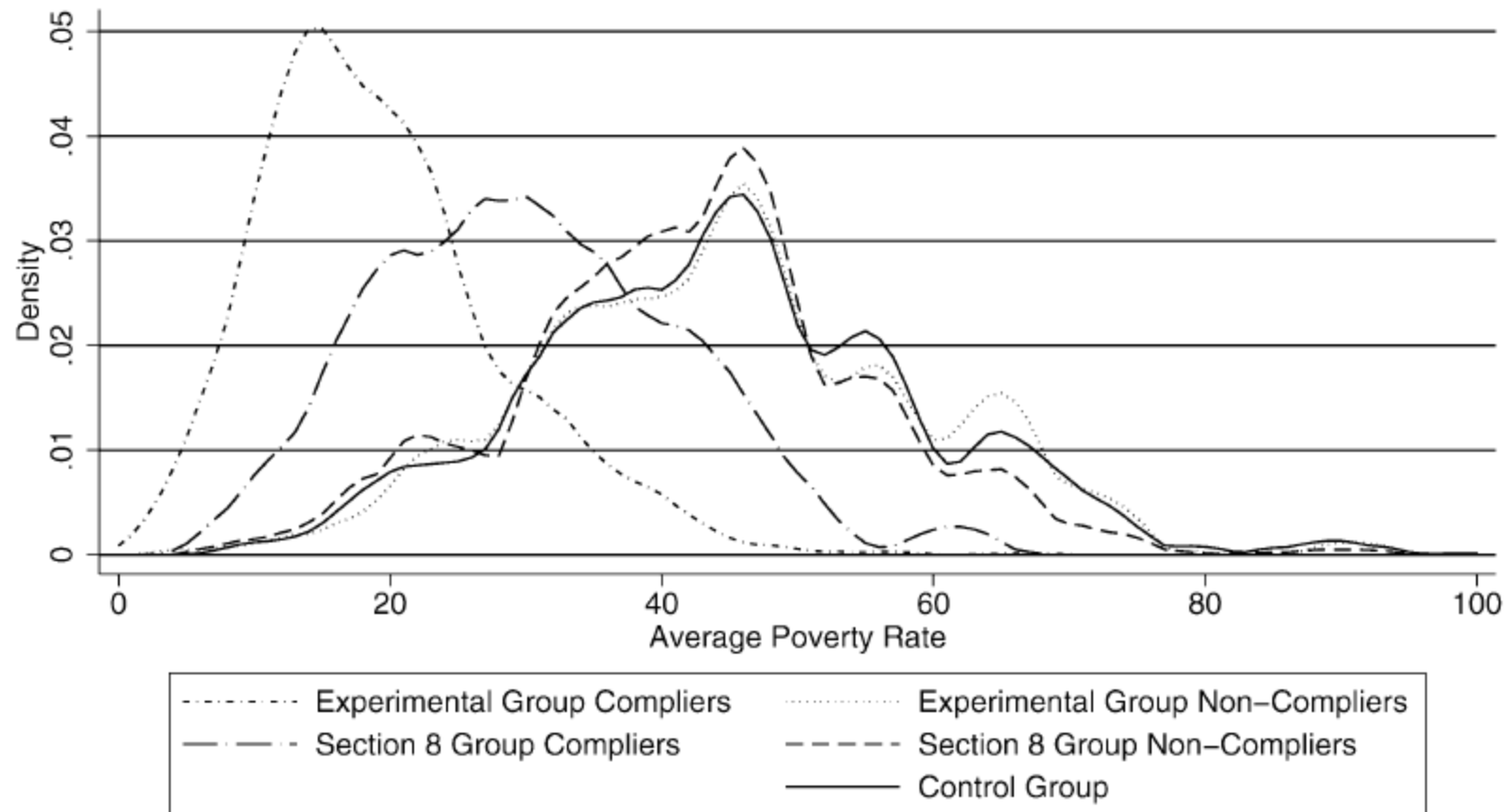


FIGURE 1.—Densities of average poverty rate, by group. Average poverty rate is a duration-weighted average of tract locations from random assignment through 12/31/2001. Poverty rate is based on linear interpolation of 1990 and 2000 Censuses. Density estimates used an Epanechnikov kernel with a half-width of 2.

TABLE I
DESCRIPTIVE STATISTICS OF NEIGHBORHOOD CHARACTERISTICS^a

	Experimental (i)	Section 8 (ii)	Control (iii)
Average census tract poverty rate	0.33	0.35	0.45
Average census tract poverty rate above 30%	0.52	0.62	0.87
Respondent saw illicit drugs being sold or used in neighborhood during past 30 days	0.33	0.34	0.46
Streets are safe or very safe at night	0.70	0.65	0.56
Member of household victimized by crime during past 6 months	0.17	0.16	0.21
Average census tract share on public assistance	0.16	0.17	0.23
Average census tract share of adults employed	0.83	0.83	0.78
Average census tract share workers in professional and managerial occupations	0.26	0.23	0.21
Average census tract share minority	0.82	0.87	0.90

^aCensus tract characteristics are the average for an individual's addresses from randomization through 2001 weighted by duration. Except for "professional and managerial occupations" (for which only 2000 Census data were used due to differences in the occupation classification used for the 1990 Census and 2000 Census), values for intercensus years are interpolated. "Saw illicit drugs," "streets are safe," and "victimized by crime" are based on adult report in the 2002 survey. All experimental – control and Section 8 – control differences have *p*-values < 0.05.

TABLE II
MEAN EFFECT SIZES FOR SUMMARY MEASURES OF OUTCOMES^a

	All Adults		All Youth		Female Youth		Male Youth		M – F Youth	
	E – C (i)	S – C (ii)	E – C (iii)	S – C (iv)	E – C (v)	S – C (vi)	E – C (vii)	S – C (viii)	E – C (ix)	S – C (x)
Economic self-sufficiency	0.017 (0.031)	0.037 (0.033)								
Absence of physical health problems	0.012 (0.024)	0.019 (0.026)	-0.038 (0.038)	-0.020 (0.040)	0.025 (0.053)	0.077 (0.055)	-0.112* (0.053)	-0.114 (0.061)	-0.138 (0.076)	-0.192* (0.084)
Absence of mental health problems	0.079* (0.030)	0.029 (0.033)	0.102 (0.053)	0.138* (0.056)	0.267* (0.062)	0.192* (0.067)	-0.052 (0.080)	0.054 (0.092)	-0.319* (0.101)	-0.138 (0.113)
Absence of risky behavior			-0.023 (0.043)	-0.039 (0.050)	0.142* (0.053)	0.129* (0.059)	-0.181* (0.062)	-0.208* (0.071)	-0.323* (0.080)	-0.337* (0.092)
Education			0.050 (0.041)	0.028 (0.047)	0.138* (0.065)	0.056 (0.068)	-0.053 (0.047)	-0.001 (0.060)	-0.191* (0.080)	-0.057 (0.090)
Overall	0.036 (0.020)	0.028 (0.022)	0.018 (0.025)	0.018 (0.026)	0.136* (0.034)	0.109* (0.034)	-0.099* (0.031)	-0.078* (0.037)	-0.235* (0.047)	-0.187* (0.051)

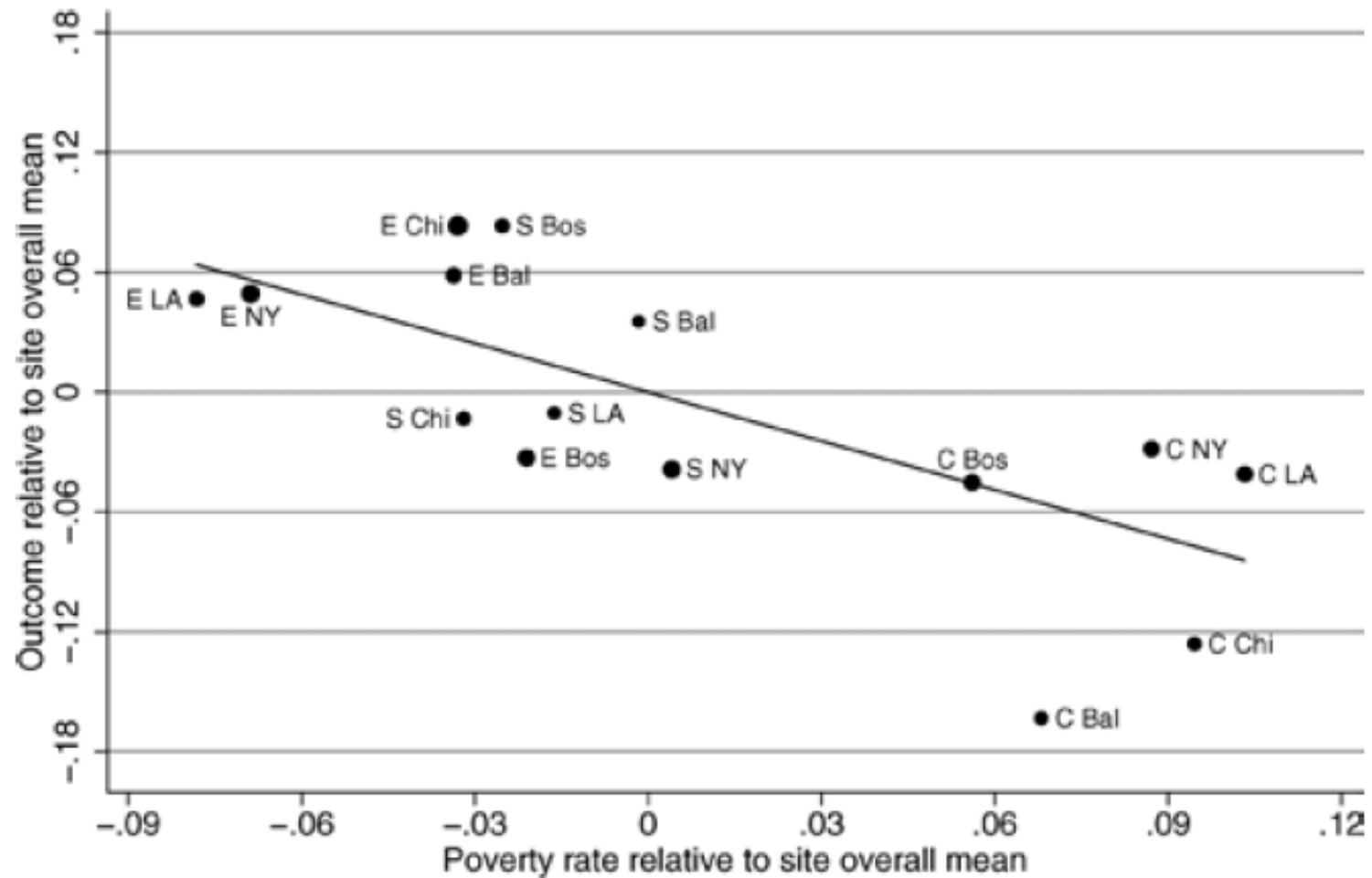
^aE – C denotes experimental – control; S – C denotes Section 8 – control. Estimates are the intent-to-treat mean effect sizes, from Equation (1), fully interacted with gender in columns (v)–(x) as described in the text. The estimated equations all include site indicators and the baseline covariates listed in Appendix A with those in Table A1 included for adults and those in Tables A1 and A2 included for youth. M – F Youth is male – female difference. Adult economic self-sufficiency: + adult not employed and not on TANF + employed + 2001 earnings – on TANF – 2001 government income. Adult mental health: – distress index – depression symptoms – worrying + calmness + sleep. Adult physical health: – self-reported health fair/poor – asthma attack past year – obesity – hypertension – trouble carrying/climbing. Adult overall includes 15 measures in self-sufficiency, physical health, and mental health. Youth physical health: – self-reported health fair/poor – asthma attack past year – obesity – nonsports injury past year. Youth mental health: – distress index – depression symptoms – anxiety symptoms. Youth risky behavior: – marijuana past 30 days – smoking past 30 days – alcohol past 30 days – ever pregnant or gotten someone pregnant. Youth education: + graduated high school or still in school + in school or working + WJ-R broad reading score + WJ-R broad math score. Youth overall includes 15 measures in physical health, mental health, risky behavior, and education. Sample sizes in the E, S, and C groups are 1,453, 993, and 1,080 for adults and 749, 510, and 548 for youth ages 15–20 on 12/31/2001. Robust standard errors adjusted for household clustering are in parentheses; * = *p*-value < 0.05.

SPECIFIC OUTCOMES WITH EFFECTS SIGNIFICANT AT 5 PERCENT LEVEL^a

	E/S (i)	CM (ii)	ITT (iii)	TOT (iv)	CCM (v)
A. Adult outcomes					
Obese, BMI \geq 30	E – C	0.468	-0.048 (0.022)	-0.103 (0.047)	0.502
Calm and peaceful	E – C	0.466	0.061 (0.022)	0.131 (0.047)	0.443
Psychological distress, K6 z-score	E – C	0.050	-0.092 (0.046)	-0.196 (0.099)	0.150
B. Youth (female and male) outcomes					
Ever had generalized anxiety symptoms	E – C	0.089	-0.044 (0.019)	-0.099 (0.042)	0.164
	S – C	0.089	-0.063 (0.019)	-0.114 (0.035)	0.147
Ever had depression symptoms	S – C	0.121	-0.039 (0.019)	-0.069 (0.035)	0.134
C. Female youth outcomes					
Psychological distress, K6 scale z-score	E – C	0.268	-0.289 (0.094)	-0.586 (0.197)	0.634
Ever had generalized anxiety symptoms	E – C	0.121	-0.069 (0.027)	-0.138 (0.055)	0.207
	S – C	0.121	-0.075 (0.029)	-0.131 (0.051)	0.168
Used marijuana in the past 30 days	E – C	0.131	-0.065 (0.029)	-0.130 (0.059)	0.202
	S – C	0.131	-0.072 (0.032)	-0.124 (0.056)	0.209
Used alcohol in past 30 days	S – C	0.206	-0.091 (0.038)	-0.155 (0.056)	0.306
D. Male youth outcomes					
Serious nonsports accident or injury in past year	E – C	0.062	0.087 (0.026)	0.215 (0.064)	0
	S – C	0.062	0.080 (0.028)	0.157 (0.058)	0
Ever had generalized anxiety symptoms	S – C	0.055	-0.049 (0.024)	-0.098 (0.047)	0.126
Smoked in past 30 days	E – C	0.125	0.103 (0.032)	0.257 (0.084)	0
	S – C	0.125	0.151 (0.037)	0.293 (0.073)	0.014

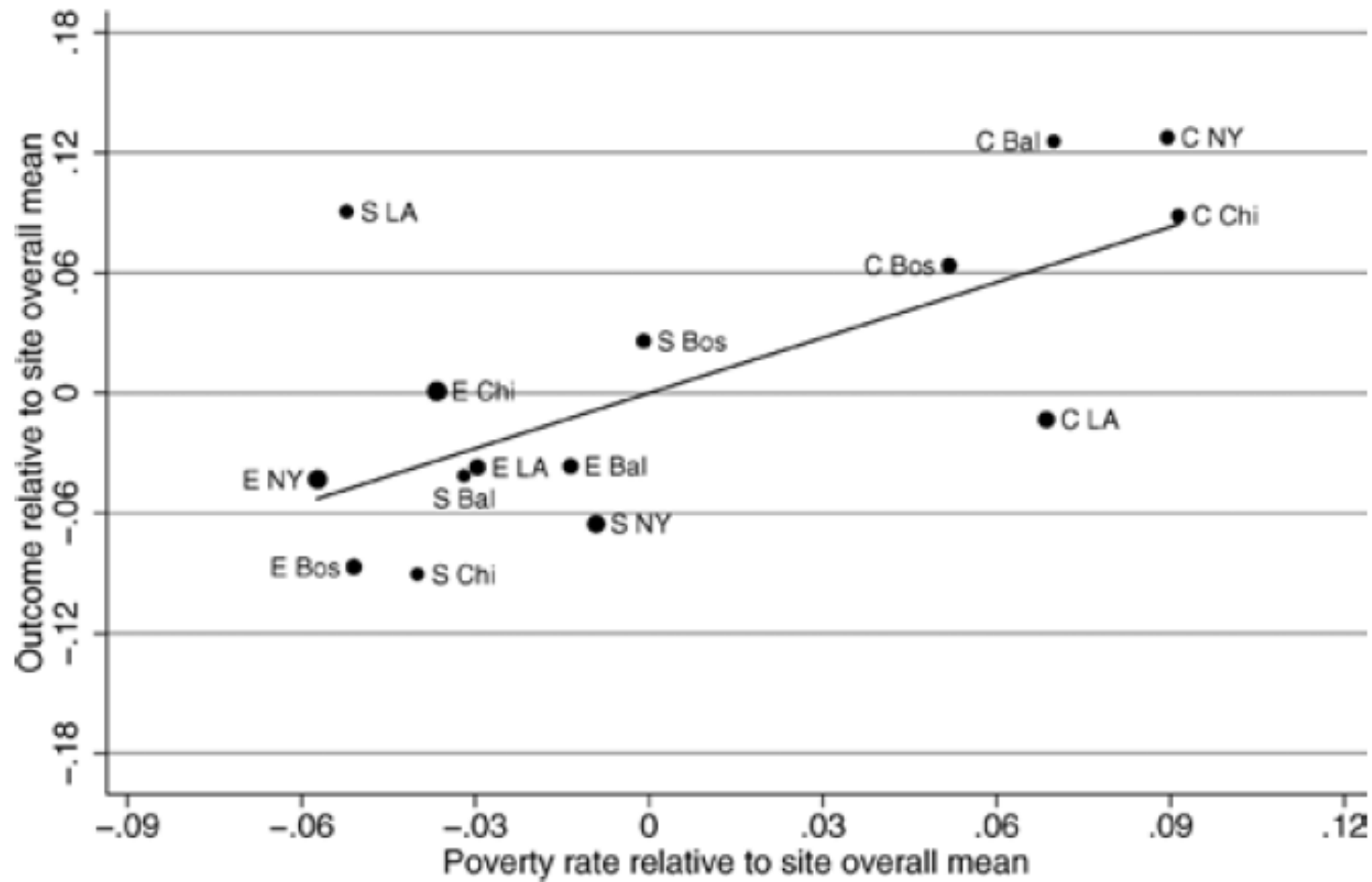
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C. Female Youth Overall



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D. Male Youth Overall

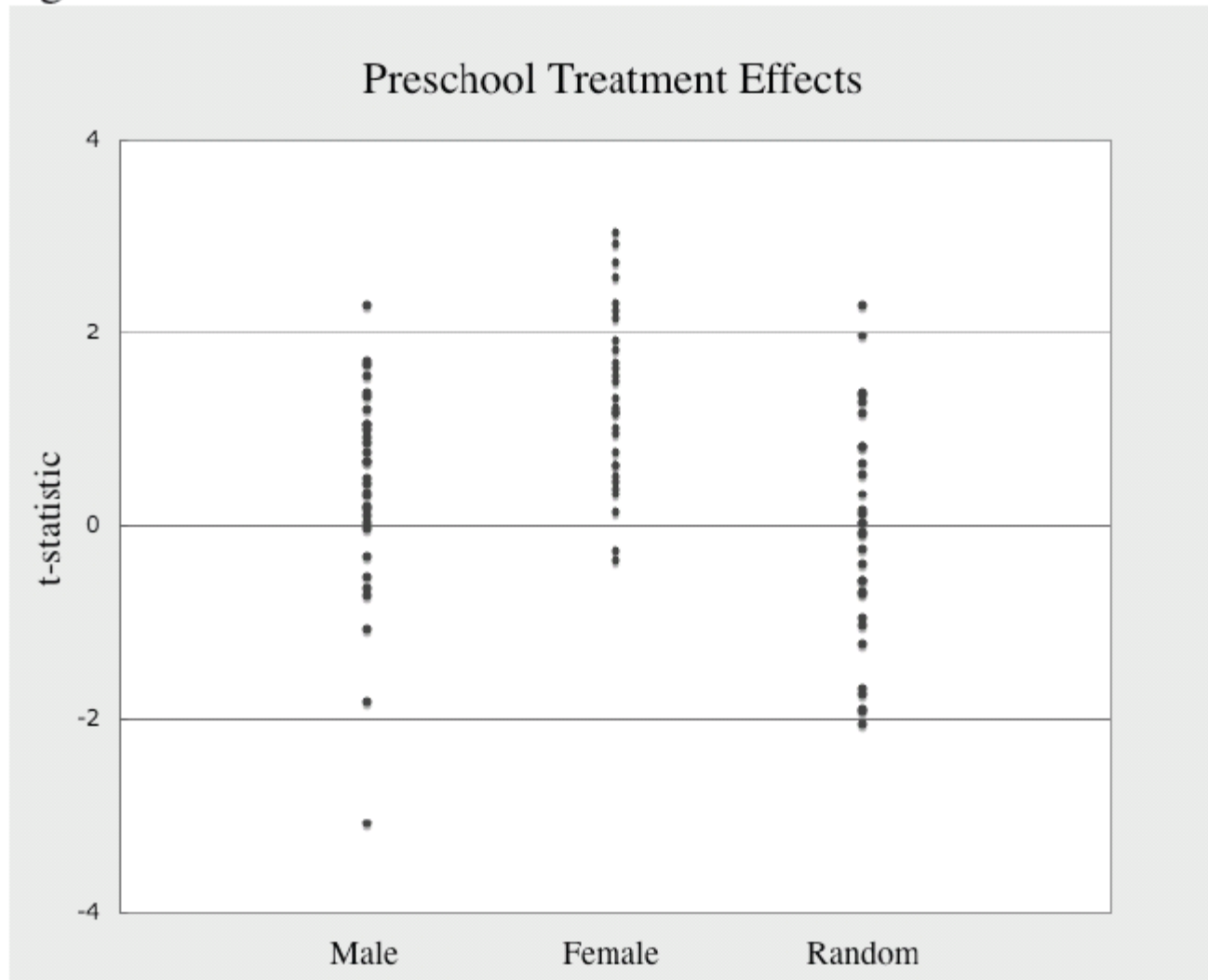


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TABLE IV
EFFECTS OF NEIGHBORHOOD POVERTY RATES ON SELECTED OUTCOMES^a

Variables	Group	Models			
		OLS	2SLS	2SLS	
		Poverty (i)	Poverty (ii)	Poverty (iii)	Compliance (iv)
Mental health	Adult	0.13 (0.17)	-0.62* (0.24)	-1.35* (0.60)	-0.17 (0.13)
	Youth (female and male)	0.57 (0.34)	-0.97* (0.41)	-0.18 (0.87)	0.20 (0.21)
	Female youth	0.99 (0.61)	-1.84* (0.50)	-1.88 (1.09)	-0.01 (0.25)
Risky behavior	Female youth	-0.61 (0.42)	-0.94* (0.39)	-1.03 (0.85)	-0.02 (0.19)
Overall	Female youth	-0.03 (0.28)	-0.90* (0.26)	-1.03 (0.56)	-0.03 (0.12)
Physical health	Male youth	-0.84* (0.35)	1.07* (0.49)	1.77 (1.09)	0.18 (0.26)
Risky behavior	Male youth	-0.06 (0.42)	1.46* (0.54)	0.94 (1.29)	-0.13 (0.31)
Overall	Male youth	-0.13 (0.23)	0.80* (0.28)	1.47* (0.68)	0.17 (0.16)

Figure 1: Effects of Preschool on Teen and Adult Outcomes



Michael Anderson, *JASA*, forthcoming

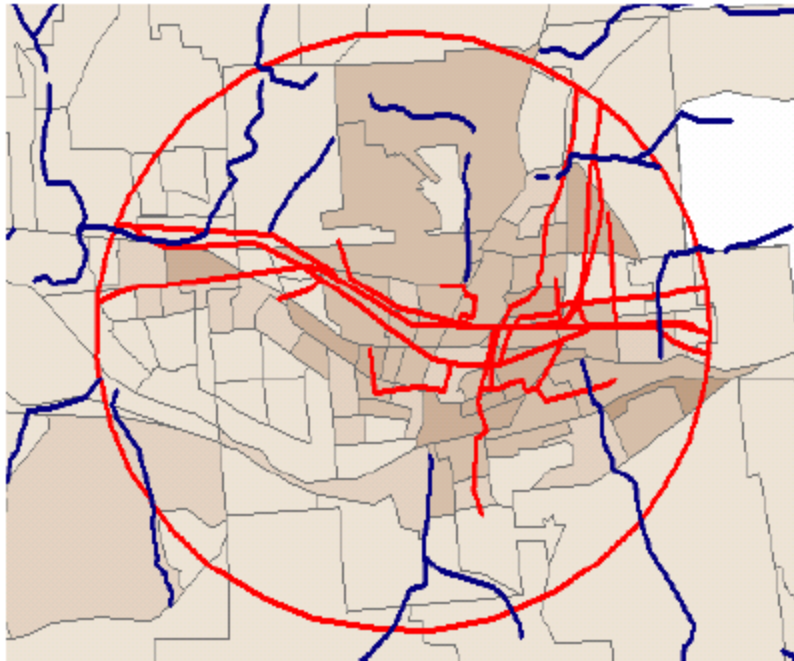
Appendix Table 1
P-Values of Tests of Random Assignment of Participant Demographic Characteristics across Work First Contractors
with Randomization Districts, 1999 - 2003

	Randomization District												All
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
1999 - 2000													
P-value	0.51	0.10	0.65	0.20	n/a	0.12	0.80	n/a	0.79	0.89	0.86	0.66	0.62
N	1,864	720	708	1,412		954	807		697	794	690	676	9,322
2000 - 2001													
P-value	0.36	0.16	0.01	0.31		0.55	0.98		0.66	0.85	0.92	0.25	0.35
N	1,462	1,381	498	1,384	n/a	954	682	n/a	145	849	527	1,484	9,366
2001 - 2002													
P-value	0.13	0.10	0.07	0.33	0.34	0.44	0.73	0.35	n/a	0.99	0.63	0.49	0.18
N	2,006	1,589	1,042	1,423	923	957	932	1,102		784	372	1,614	12,744
2002 - 2003													
P-value	0.38	0.95	0.34	0.95	0.81	0.58	0.65	0.18	n/a	0.76	n/a	0.08	0.76
N	717	634	332	715	642	436	476	382		419		978	5,731
All Years													
P-value	0.21	0.14	0.02	0.46	0.64	0.41	0.98	0.21	0.84	1.00	0.96	0.18	0.44
N	6,049	4,324	2,580	4,934	1,565	3,301	2,897	1,484	842	2,846	1,589	4,752	37,163

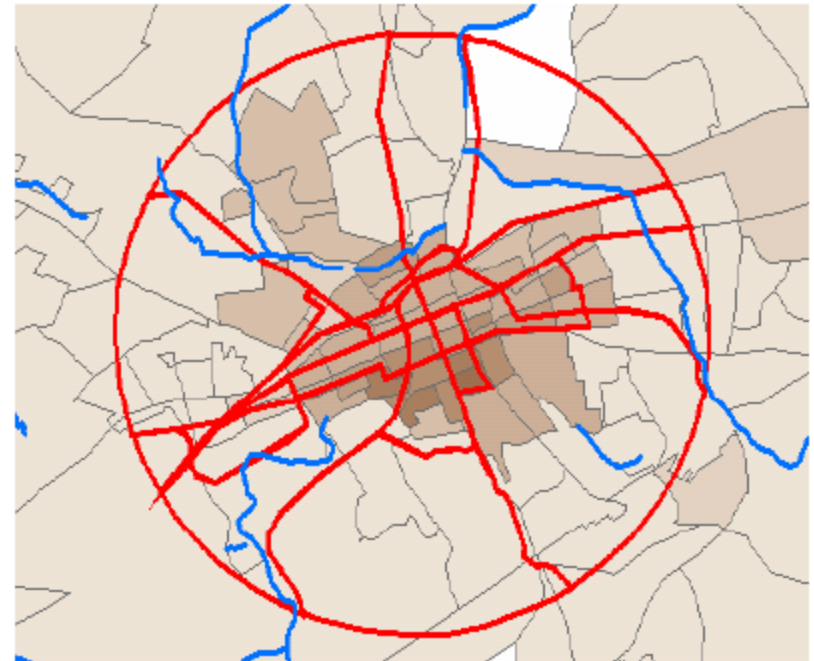
Each cell provides the p-value from a Seemingly Unrelated Regression for the null hypothesis that the 10 main sample covariates are balanced across clients assigned to Work First contractors within the relevant assignment district and year cell. Covariates tested are sex, white or Hispanic race, other race, age and age-squared, total quarters employed and total earnings in eight quarters prior to Work First assignment, total quarters employed in temporary help agency work and total temporary help agency earnings in eight quarters prior to Work First assignment. Right-hand column and bottom row provide analogous test statistics pooling across districts either within a year or across years within a district. Bottom right-hand cell provides the test statistic for all districts and years simultaneously. Cells marked "n/a" indicate that there was only one contractor operating in the district during most or all of the indicated year.

Figure 2.

Binghamton, NY



York, PA



19th century railroads, shown in red within the 4-kilometer radius historical city center, divide York, PA into a larger number of smaller neighborhoods than do the railroads in Binghamton, NY. Thus, even though the two cities had similar total lengths of track, similar African-American population inflows, and similar manufacturing bases (in fact, Binghamton was somewhat more industrial than York), York became more segregated, as can be seen from the smaller, more concentrated area of African-Americans near the railroad-defined neighborhoods at the city's center. Rivers in blue.

Figure A1. 1894 15' map showing Anaheim, CA, which is marked in green.

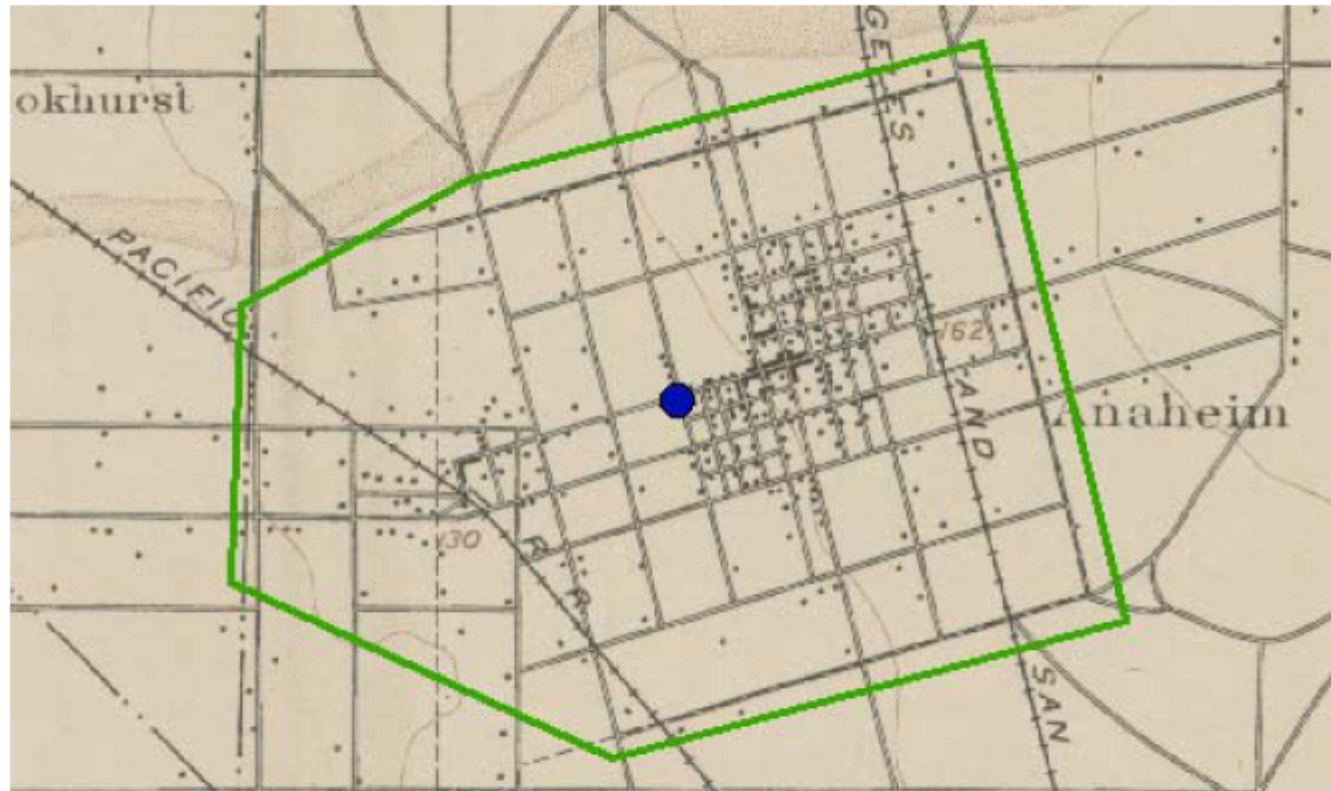


Figure A2. The outline of the densely occupied area of Anaheim, defined as dense housing (each house is represented by a dot) and regular streets. The centroid of the occupied area is marked in blue.

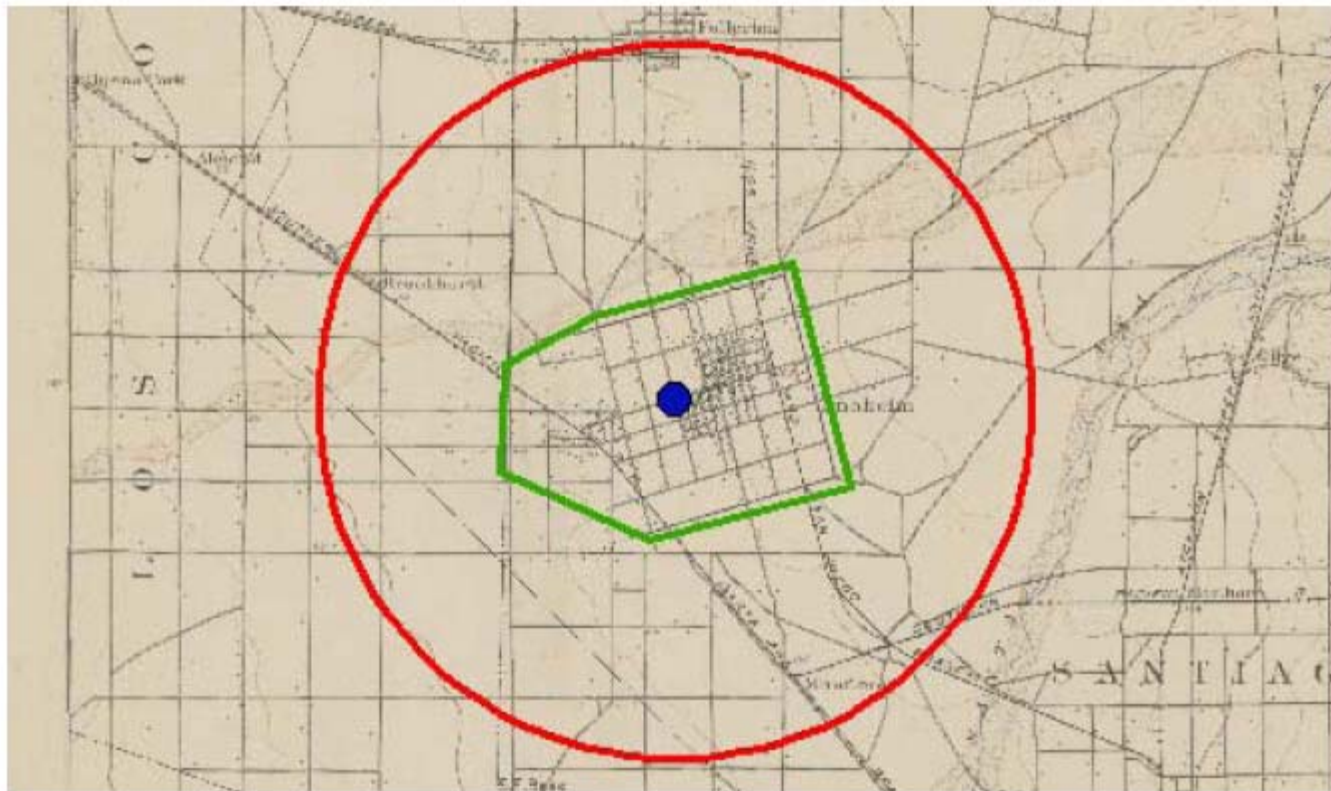


Figure A3. The historical city center is defined as the 4 kilometer-radius circle around the centroid of the historical city, and is shown here in red.



Figure A4. Every railroad within the 4-kilometer circle is marked and measured—detail is shown here in violet.

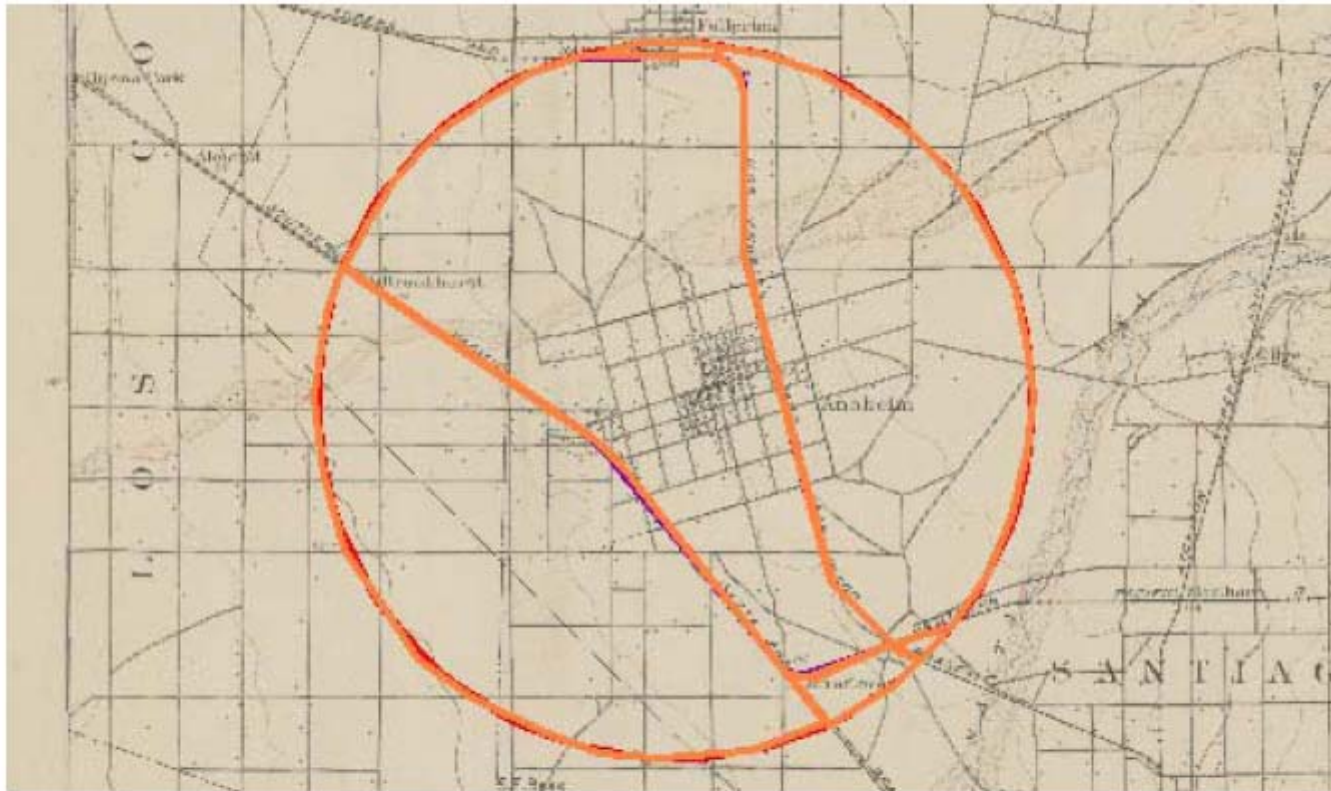


Figure A5. Neighborhoods are defined as polygons created by the intersection of railroads with each other and with the perimeter. Anaheim contains five neighborhoods, shown here in orange. The area of each neighborhood is calculated and used to calculate a RDI measuring the subdivision of the historical city center.



Figure A6. Year 2000 census tracts are shown in green. Note that current neighborhood borders, as defined by the US Census Bureau in 2000, closely follow historical railroad tracks.

Figure 3. Final sample of MSAs

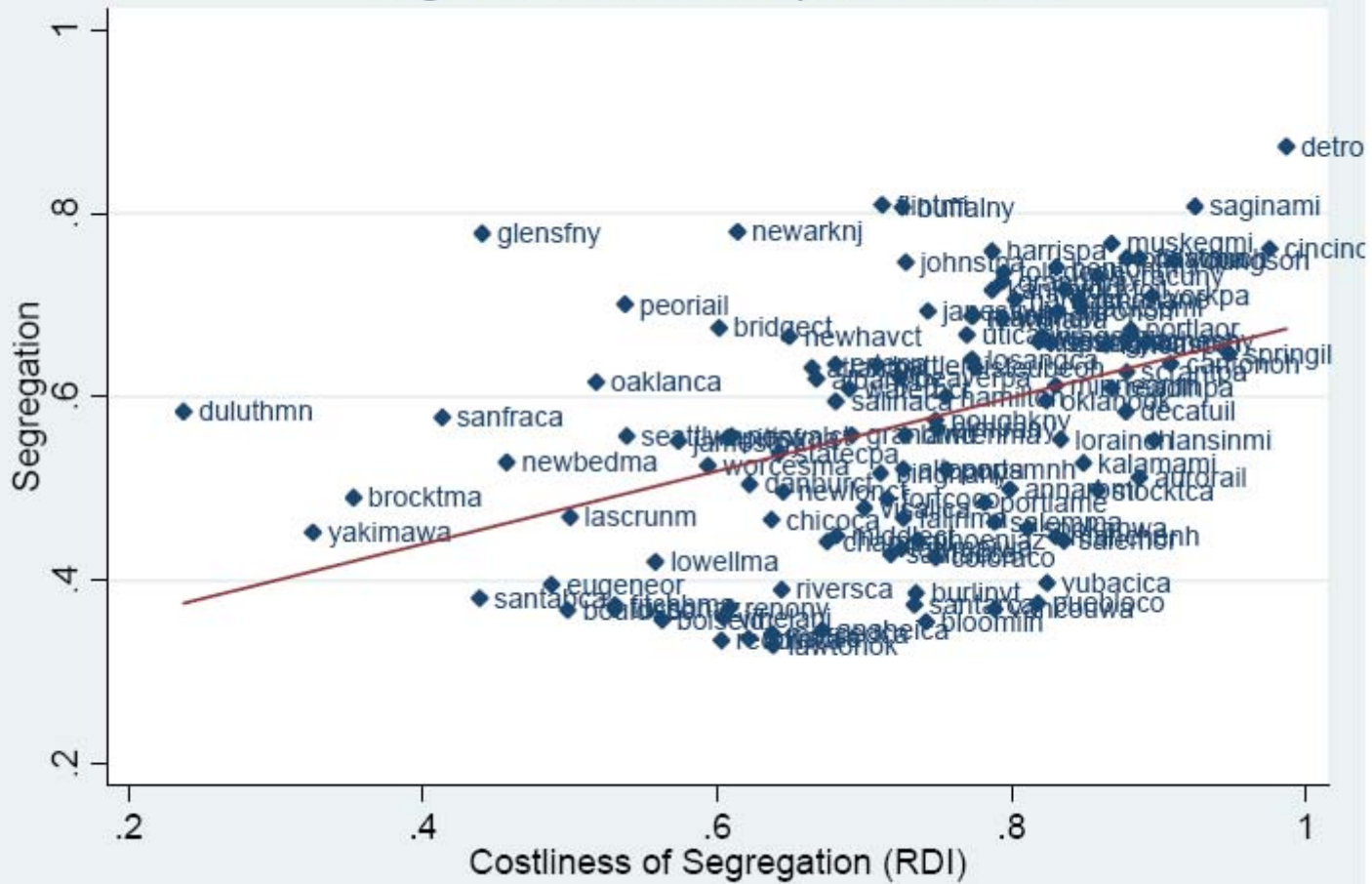


Table II: First Stage, by Decade

	1970	1980	1990
Railroad Division Index	.164** [.064]	.212** [.085]	.265*** [.087]
N	121	121	121

Notes: Robust standard errors in brackets. Specifications control for track length and percent Black. ***denote percent level and * at the 10 percent level.

1 The constant 1930 sample are those MSAs for which Cutler, Glaeser and Vigdor (1999) calculate segregation indexes and for which Ananat (2007) calculates RDI.

2 For 22 of 42 MSAs in the sample Cutler, Glaeser and Vigdor- (1999) do not provide 1950 segregation indices

Table IV: Impact of Segregation on Black Political Efficacy, 1990s
 (Each cell represents the coefficient on the dissimilarity index from a different regression.)

	OLS			2SLS		
	Full Sample (1)	Non-South (2)	2SLS Sample (3)	Basic (4)	Log weighted (5)	Outcomes population weighted (6)
<i>Outcome</i>						
Fraction Black House candidates	-0.043 [0.056]	-0.149 [0.118]	-0.202 [0.169]	-0.441 [0.226]*	-0.434 [0.214]**	-0.432 [0.275]
Fraction Black Representatives	-0.018 [0.058]	-0.162 [0.120]	-0.217 [0.171]	-0.363 [0.206]*	-0.362 [0.199]*	-0.383 [0.227]*
Fraction Democratic Representatives	-0.166 [0.147]	-0.02 [0.234]	0.013 [0.294]	-1.524 [1.131]	-1.33 [0.990]	-1.617 [1.187]
Average Leadership Conference on Civil Rights score	0.055 [0.109]	-0.016 [0.171]	-0.012 [0.214]	-1.596 [0.909]*	-1.47 [0.789]*	-1.638 [0.944]*
Average agreement with Congressional Black Caucus	-0.024 [0.065]	-0.027 [0.106]	-0.025 [0.131]	-0.882 [0.535]	-0.809 [0.471]*	-0.904 [0.551]
N	312	190	121	121	121	121

Notes: Robust standard errors in brackets. All regressions control for percent Black. Specifications 4-6 additionally control for length of track. ***denotes significance at the 1 percent level, ** at the 5 percent level and * at the 10 percent level.

Table VI: Two Stage Least Squares Estimates of the Impact of Segregation on Individual Political Behaviors and Attitudes
(Each cell represents the coefficient on the dissimilarity index from a different regression.)

	Non-Blacks			Blacks		
	1970s	1980s	1990s	1970s	1980s	1990s
<i>Outcome</i>						
<i>Political Behaviors</i>						
Voted in most recent election ¹	-0.889 [0.782]	0.196 [0.206]	-0.049 [0.135]	2.826 [1.436]*	0.741 [0.648]	-0.997 [0.646]
<i>Attitudes toward Race</i>						
Black/White Thermometer (0 to 100)	14.207 [25.441]	-10.56 [5.289]**	-24.25 [9.263]***		16.827 [37.733]	-13.477 [16.480]
Belief that government should aid Blacks (1) through Blacks should help themselves (7)	2.171 [3.244]	1.618 [0.891]*	2.055 [0.889]**		-2.36 [2.892]	0.248 [2.374]
<i>Political Attitudes</i>						
Identification as extremely liberal (1) through extremely conservative (7)	3.33 [2.540]	2.134 [1.151]*	2.832 [1.102]**		-2.138 [1.638]	-1.184 [2.547]
Identification as strong Democrat (1) through strong Republican (7) ²	9.74 [4.985]*	0.833 [1.032]	2.216 [1.242]*	-0.871 [0.677]	1.309 [2.070]	0.265 [1.878]
Voted for the Democrat in most recent Congressional election	-4.7 [2.781]*	-0.417 [0.616]	-1.015 [0.587]*		-0.638 [0.886]	0.433 [0.307]

Notes: Robust standard errors clustered at the congressional district level (or the MSA level for NSBA specifications) in brackets. All specifications control for length of track. ***denotes significance at the 1 percent level, ** at the 5 percent level and * at the 10 percent level. The data source is the National Election Survey except for the Black 1970s column which comes from the 1979-1980 wave of the National Survey of Black Americans.

1 The National Survey of Black Americans asks whether the respondent voted in the most recent presidential election.

2 The National Survey of Black Americans' outcome is a non-Democrat indicator.