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Supplement to:

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Online Supplement A: Supplemental Results

Table A1. Description of School Choice Sets Using Alternative School Choice Set Radii

	2000	2010	Change 2000-2010
Average Commute Distance Radius (Average of 9.1 miles)			
Number of Private Schools	115.69	104.97	-10.71
	(83.60)	(73.09)	(20.49)
Number of Magnet Schools	14.36	16.67	2.32
	(30.69)	(30.73)	(7.85)
Number of Charter Schools	4.22	18.92	14.70
	(6.20)	(15.18)	(11.52)
5 Mile Radius			
Number of Private Schools	56.26	51.09	-5.16
	(55.73)	(51.99)	(11.42)
Number of Magnet Schools	6.28	7.16	0.88
	(16.70)	(16.76)	(3.90)
Number of Charter Schools	1.62	8.78	7.17
	(2.98)	(8.61)	(7.52)
Half Average Commute Distance Radius (Average of 4.55 miles)			
Number of Private Schools	36.50	33.15	-3.35
	(28.99)	(26.44)	(9.12)
Number of Magnet Schools	5.14	5.68	0.54
	(12.25)	(12.28)	(0.23)
Number of Charter Schools	1.43	6.69	5.26
	(2.69)	(7.20)	(5.90)
1 Mile Radius			
Number of Private Schools	2.95	2.82	-0.13
	(4.07)	(4.26)	(2.08)
Number of Magnet Schools	0.29	0.30	0.01
	(1.03)	(1.03)	(0.61)
Number of Charter Schools	0.08	0.53	0.46
	(0.32)	(1.17)	(1.16)

Notes: Means are reported with standard deviations in parentheses (N = 3,057).

Table A2. Regression Estimates of Attendance Zone-School Racial Imbalance on School Choice and School Attendance Zone Characteristics for Alternative School Choice Radii (Table 2, Model 3 in Main Text)

	Average Commute		5 Mile		Half Average Commute		1 Mile	
School Choice								
Number of Private Schools	0.06		0.11	†	0.14	†	0.48	†
	(0.03)		(0.04)		(0.05)		(0.12)	
Number of Magnet Schools	-0.01		-0.03		-0.01		0.02	
	(0.06)		(0.10)		(0.12)		(0.26)	
Number of Charter Schools	-0.07		-0.08		-0.05		-0.20	
	(0.05)		(0.08)		(0.06)		(0.13)	
School Attendance Zone Characteristics								
Total Population (Thousands)	-0.00		0.01		0.01		0.02	
	(0.08)		(0.08)		(0.08)		(0.08)	
% Non-Hispanic White Children (Ages 5-9)	0.34	*	0.32	*	0.31	*	0.28	*
	(0.14)		(0.14)		(0.13)		(0.12)	
Land Area (Square Miles)	-0.01		-0.01		-0.01		-0.01	
	(0.01)		(0.01)		(0.01)		(0.01)	
Number of School Openings (1 Mile)	-0.65		-0.61		-0.60		-1.46	*
	(0.96)		(1.39)		(1.12)		(0.60)	
Number of School Closings (1 Mile)	-0.09		0.18		-0.09		-0.17	
	(0.16)		(0.20)		(0.13)		(0.16)	
2010 (Reference = 2000)	3.73	†	3.16	*	2.69	†	1.94	†
	(1.17)		(1.27)		(0.72)		(0.53)	
Constant	2.45	†	2.74	†	2.97	†	3.34	†
	(0.58)		(0.63)		(0.36)		(0.26)	
School Attendance Zone Fixed Effects	X		X		X		X	
R-Squared	0.858		0.858		0.857		0.855	

All continuous variables are centered at their sample means. Standard errors clustered at the school district level are in parentheses (N = 6,114). * $p < 0.05$; † $p < 0.01$.

Table A3. Regression Estimates of Attendance Zone-School Racial Imbalance on School Choice and School Attendance Zone Characteristics for Alternative School Choice Radii and Minimum Private School Enrollment of 10 Students in 3rd Grade (Table 2, Model 3 in Main Text)

	Average Commute		5 Mile		Half Average Commute		1 Mile	
School Choice								
Number of Private Schools	0.07		0.11	†	0.18	†	0.50	†
	(0.04)		(0.04)		(0.06)		(0.13)	
Number of Magnet Schools	-0.02		-0.04		-0.02		0.04	
	(0.06)		(0.10)		(0.13)		(0.26)	
Number of Charter Schools	-0.05		-0.06		-0.03		-0.12	
	(0.05)		(0.07)		(0.05)		(0.13)	
School Attendance Zone Characteristics								
Total Population (Thousands)	0.00		0.01		0.01		0.02	
	(0.08)		(0.08)		(0.08)		(0.08)	
% Non-Hispanic White Children (Ages 5-9)	0.34	*	0.32	*	0.32	*	0.29	*
	(0.15)		(0.15)		(0.13)		(0.13)	
Land Area (Square Miles)	-0.01		-0.01		-0.01		-0.01	
	(0.01)		(0.01)		(0.01)		(0.01)	
Number of School Openings (1 Mile)	-0.95		-1.25		-1.23		-1.90	*
	(1.27)		(1.45)		(1.25)		(0.71)	
Number of School Closings (1 Mile)	0.01		0.20		-0.01		-0.17	
	(0.14)		(0.17)		(0.16)		(0.17)	
2010 (Reference = 2000)	4.20	†	3.36	*	3.10	†	2.05	†
	(1.45)		(1.42)		(0.89)		(0.60)	
Constant	2.22	†	2.63	†	2.76	†	3.28	†
	(0.72)		(0.71)		(0.44)		(0.30)	
School Attendance Zone Fixed Effects	X		X		X		X	
R-Squared	0.859		0.857		0.857		0.855	

All continuous variables are centered at their sample means. Standard errors clustered at the school district level are in parentheses (N = 6,114). * $p < 0.05$; † $p < 0.01$.

Table A4. Regression Estimates of Attendance Zone-School Racial Imbalance on Neighborhood Socioeconomic Change and School Choice for Urban Schools

	(1)		(2)		(3)	
School Choice Options[a]						
Number of Private Schools			0.12	†	0.13	†
			(0.04)		(0.04)	
Number of Magnet Schools			-0.08		-0.09	
			(0.07)		(0.08)	
Number of Charter Schools			-0.06		-0.04	
			(0.10)		(0.09)	
School Attendance Zone Characteristics						
Total Population (Thousands)	0.03		0.01		-0.00	
	(0.04)		(0.04)		(0.04)	
% Non-Hispanic White Children (Ages 5-9)	0.43	*	0.44	†	0.44	†
	(0.15)		(0.14)		(0.14)	
Land Area (Square Miles)	-0.00		-0.00		-0.00	
	(0.01)		(0.01)		(0.01)	
Number of School Openings (1 Mile)	-0.79		0.18		-0.32	
	(0.45)		(0.84)		(0.62)	
Number of School Closings (1 Mile)	-0.35	*	-0.13		-0.13	
	(0.13)		(0.17)		(0.16)	
Neighborhood[b] Change Types (Reference = Mean Socioeconomic Change)						
Socioeconomic Decline	-2.13	*	-2.26	*	-2.41	†
	(1.00)		(0.91)		(0.76)	
Socioeconomic Decline*No. Private Schools					-0.07	†
					(0.02)	
Socioeconomic Decline*No. Magnet Schools					0.08	†
					(0.02)	
Socioeconomic Decline*No. Charter Schools					0.09	
					(0.12)	
Gentrification	1.99		1.84	*	2.75	
	(1.00)		(0.81)		(1.79)	
Gentrification*No. Private Schools					-0.01	
					(0.03)	
Gentrification*No. Magnet Schools					-0.01	
					(0.02)	
Gentrification*No. Charter Schools					-0.11	
					(0.18)	
Socioeconomic Ascent	2.71		2.34		2.21	
	(2.54)		(2.52)		(2.46)	
Socioeconomic Ascent*No. Private Schools					-0.06	
					(0.06)	
Socioeconomic Ascent*No. Magnet Schools					0.01	
					(0.08)	
Socioeconomic Ascent*No. Charter Schools					0.21	
					(0.31)	
2010 (Reference = 2000)	1.49	*	2.49	†	2.42	†
	(0.54)		(0.78)		(0.77)	
Constant	6.38	†	5.18	†	5.17	†
	(0.79)		(0.84)		(0.80)	
School Attendance Zone Fixed Effects	X		X		X	
R-Squared	0.878		0.882		0.883	

All continuous variables are centered at their sample means. Standard errors clustered at the school district level are in parentheses (N = 4,264). [a] School choice radius defined as half the average commute distance for each district. [b] Neighborhood defined as school attendance zone. * $P < 0.05$; † $P < 0.01$.

Online Supplement B: School Attendance Zone-School Poverty Imbalance Results

Here, we present results parallel to those in the main article for neighborhood-school poverty imbalance. We measure the poverty rate of elementary schools using the percentage of students that are eligible for Free Lunch (FL) through the National School Lunch Program, meaning that they live in families with incomes below 130 percent of the federal poverty line. Grade-specific Free Lunch data are not available, so we use the school-wide percentage of eligible students. We estimate a comparable poverty rate in the school attendance zone as the percentage of children (ages 6-11) who live in households with incomes less than 1.3 times the federal poverty line. We use linear interpolation between the 1.25 and 1.5 poverty ratio bins in census and ACS data to estimate the percentage of children with a poverty ratio under 1.3. Poverty differences are measured by the percentage of non-poor children in the school attendance zone minus the percentage of non-poor children in the corresponding zoned elementary school. Larger positive values indicate greater social advantage for neighborhoods relative to their local schools. Poverty imbalance between neighborhood and school populations tends to be larger than racial imbalance. In 2000, the average zoned public school population was 25.8 percentage points poorer than the surrounding neighborhood, and that imbalance increased by 2.3 percentage points, to 28.10, by 2010. The National Free Lunch Program is a proxy for poverty that incorporates actual family income as well as program participation factors. Nationally, a greater percentage of children have free-lunch status than the percentage who meet the poverty threshold for the program based on income alone. While these differences likely account for some portion of the imbalance we measure between residential and school populations, it is unlikely that they fully account for the fact that schools have more children in poverty than their surrounding neighborhoods. For these reasons, we interpret these findings with

caution, though changes in imbalance over time should be less affected by these measurement differences than point-in-time estimates.

The models in Table B1 regress school attendance zone-school poverty imbalance on the prevalence of school choice plus our control variables. The results in model 3 show that similar processes explain the neighborhood-school imbalance of nonpoor children as is true for non-Hispanic white children, though the magnitude of the effect of charter schools is larger for poverty imbalance than for racial imbalance. One notable difference is that increases in the number of magnet schools has a fairly large negative association with poverty imbalance, suggesting that poor children enroll in magnet schools at relatively higher rates than nonpoor children, net of the percentage of nonpoor children in the neighborhood.

Table B1. Regression Estimates of Attendance Zone-School Poverty Imbalance on School Choice and School Attendance Zone Characteristics

	(1)		(2)		(3)	
School Choice Options[a]						
Number of Private Schools	0.08	†	0.11	†	0.14	
	(0.02)		(0.02)		(0.14)	
Number of Magnet Schools	0.16		0.28		-0.26	
	(0.12)		(0.14)		(0.21)	
Number of Charter Schools	-0.07		0.12		-0.23	
	(0.08)		(0.11)		(0.13)	
School Attendance Zone Characteristics						
Total Population (Thousands)			-0.10		0.02	
			(0.06)		(0.06)	
% Non-Poor Children			0.19	†	0.78	†
			(0.05)		(0.05)	
Land Area (Square Miles)			-0.01		-0.00	
			(0.02)		(0.01)	
Number of School Openings (1 Mile)			-7.35		-2.23	
			(6.21)		(10.97)	
Number of School Closings (1 Mile)			-0.51		-0.71	
			(0.43)		(0.81)	
2010 (Reference = 2000)	2.85	*	2.62		6.64	*
	(1.36)		(1.50)		(2.80)	
Constant	25.52	†	25.65	***	23.63	†
	(0.68)		(0.75)		(1.40)	
District Fixed Effects	X		X			
School Attendance Zone Fixed Effects					X	
R-Squared	0.218		0.254		0.857	

All continuous variables are centered at their sample means. Standard errors clustered at the school district level are in parentheses (N = 6,114). [a] School choice radius is defined as half the average commute distance for each district. * $P < 0.05$; † $P < 0.01$.

Next, we present results for poverty imbalance by neighborhood socioeconomic change type. Figure B1 shows that gentrifying neighborhoods had the largest increases in poverty imbalance and also maintained higher levels than ascending neighborhoods in both years.

Figure B1. Average Attendance Zone - School Poverty Imbalance by School Attendance Zone Neighborhood Type, 2000 and 2010

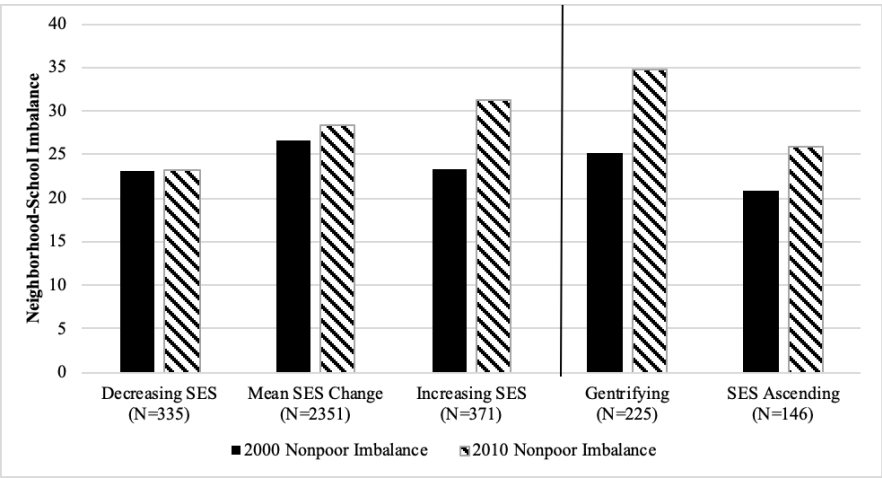

Table B2. Regression Estimates of School Attendance Zone - School Poverty Imbalance on Neighborhood Socioeconomic Change and School Choice

	(1)	(2)	(3)
School Choice Options[a]			
Number of Private Schools		0.15	0.14
		(0.11)	(0.10)
Number of Magnet Schools		-0.22	-0.22
		(0.31)	(0.31)
Number of Charter Schools		-0.05	-0.05
		(0.12)	(0.13)
School Attendance Zone Characteristics			
Total Population (Thousands)	0.06	0.04	0.02
	(0.05)	(0.06)	(0.06)
% Non-Poor Children			
Land Area (Square Miles)	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)
Number of School Openings (1 Mile)	-7.98	-6.72	-5.80
	(8.47)	(9.45)	(9.77)
Number of School Closings (1 Mile)	-0.40	-0.09	-0.14
	(0.76)	(0.70)	(0.76)
Neighborhood[b] Change Types (Reference = Mean Socioeconomic Change)			
Socioeconomic Decline	-1.65	-1.96	-2.59
	(2.10)	(2.02)	(1.91)
Socioeconomic Decline*No. Private Schools			-0.10
			(0.11)
Socioeconomic Decline*No. Magnet Schools			-0.23
			(0.12)
Socioeconomic Decline*No. Charter Schools			-0.15
			(0.68)
Gentrification	7.86 †	7.72 †	7.24 †
	(1.80)	(1.88)	(2.10)
Gentrification*No. Private Schools			0.04
			(0.08)
Gentrification*No. Magnet Schools			0.05
			(0.07)
Gentrification*No. Charter Schools			0.03
			(0.36)
Socioeconomic Ascent	3.20	2.73	2.83
	(1.78)	(1.78)	(1.84)
Socioeconomic Ascent*No. Private Schools			-0.01
			(0.09)
Socioeconomic Ascent*No. Magnet Schools			0.05
			(0.29)
Socioeconomic Ascent*No. Charter Schools			-0.06
			(0.60)
2010 (Reference = 2000)	1.90	2.79	2.72
	(2.36)	(1.99)	(2.03)
Constant	25.71 †	25.30 †	25.33 †
	(1.15)	(0.97)	(0.98)
School Attendance Zone Fixed Effects	X	X	X
R-Squared	0.769	0.771	0.773

All continuous variables are centered at their sample means. Standard errors clustered at the school district level are in parentheses (N = 6,114). [a] School choice radius defined as half the average commute distance for each district. [b] Neighborhood defined as school attendance zone. * $P < 0.05$; † $P < 0.01$.

Table B2 presents results for models that regress school attendance zone-school poverty imbalance on school choice and neighborhood socioeconomic change. In these models, we omit the control for the percentage of children in the neighborhood who are nonpoor because the neighborhood change indicators are also indicators of socioeconomic conditions. The results in model 1 are consistent with the results from model 1 in Table 4 in the main text in that gentrifying and ascending neighborhoods had larger increases in school attendance zone-school imbalance than those that experienced mean socioeconomic change; however, increases in poverty imbalance were largest in gentrifying neighborhoods (corroborating the unadjusted results in Figure B1). The results in model 2 indicate that proximate school choice alternatives do not fully explain the relationship between neighborhood socioeconomic change and poverty imbalance, as the coefficients on neighborhood socioeconomic changes remain substantively important (though as was the case for the racial imbalance results, the coefficients change somewhat in magnitude).

The interaction terms in model 3 show that similar to the results for racial imbalance, private schools are associated with smaller increases in the poverty imbalance in socioeconomically declining neighborhoods, compared to those with average socioeconomic change. Contrary to the racial imbalance results, the coefficient on the interaction between declining neighborhoods and magnet and charter schools is negative, which suggests that magnet and charter schools in proximity to declining neighborhoods disproportionately enroll poor children compared to neighborhoods with average socioeconomic change, thereby reducing the nonpoor imbalance in locally zoned schools. The coefficients on the interaction terms for gentrifying and socioeconomically ascending neighborhoods are neither statistically significant nor substantively large.