School Availability and Choice

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Abstract

This study examines racial/ethnic differences in the propensity to exercise school choice, and how they differ according to the availability of schools. Previous literature finds significant effects of family's accessibility to school and the availability of schools on school selection across racial and SES groups. However, the measures of available schools are often imperfect proxies. This study utilizes student information from the Educational Longitudinal Study of 2002 (ELS:2002) and school information from the Common Core of Data (CCD) for 2001-2002, and the School District Data (SDDS) to map students' home locations and locations of available schools surrounding students' home. Spatial analysis and multinomial logistic regression are applied on the choice of six types of schools. We find significant racial/ethnic differences in school choice. Some types of school choice are more responsive to their availability than others.

School Availability and Choice

The expansion of school choice is an educational policy welcome by most parties concerned because school choice increases the freedom to choose. It can also create incentives for parents to engage in activities that build social capital, and promote educational opportunity for students from different backgrounds. More recently, the expansion of school choice has given rise an increasing proportion of students enrolled in chosen public schools, and students from disadvantaged families are becoming more likely to enroll in schools of choice (Tice et al., 2006). Schneider and colleagues (1996) find that African Americans and Hispanics are more likely to exercise school choice than Whites and Asians, after controlling for the availability of opportunities. This represents a shift in the traditional school choice pattern largely dominated by majority Whites from high socioeconomic backgrounds. Research is needed to document this new trend and to re-examine the determinants of school selection.

A specific area of school choice we focus on in this paper is the availability of schools. The major scholarship of contextual effects on parental school selection has largely neglected the availability of schools as a factor in parents' school choice. Availability is difficult to measure. Researchers have used proxies such as parents' report of considering more than one school, or students' actual movement from one school to another. These measures are problematic because they confound availability with actual decisions and are clearly endogenous to school choice. A better measure is needed to reveal this fundamental opportunity for choice, which varies according to residential conditions and school district regulations. The analysis on availability should take into account the available schools surrounding students' residence, as well as choices provided by school districts.

We combine new data and the state of the art spatial analysis using ArcGIS method to produce information about the number and types of schools around the residential location of the students. Four data sources are used. The first wave of the Educational Longitudinal Study (ELS: 2002) provides data on student background, school choice, and residential location (zipcode) from a nationally representative sample of 10th graders in 2002. The School District Demographic System (SDDS) of 2000 provides map files to

locate schools and district boundaries. These are crucial information for calculating the number of schools of certain types that are available around the center of a student's residential zipcode within certain distance of radius. The Common Core of Data (CCD) of 2001-2002 is used in conjunction with SDDS to identify high schools throughout the nation. It also provides basic characteristics of each school. Finally, the Census 2000 is in part used to locate student's residence and school location on the map (see Figure 1), and to construct neighborhood variables at zipcode level.

We investigate six types of school choices: public comprehensive school, magnet school, charter school, other public school of choice, catholic school, and other private school. Following Lauen (2007), the "neighborhood" school is defined as the public comprehensive school closest to a students' residence. This is the reference group in our school choice variable.

Preliminary analysis in Table 1 shows the types of schools each racial/ethnic group attended. We see significant difference between the majority Whites and minority groups of Blacks, Asians, and Hispanics. More Blacks, Asians and Hispanics than Whites attended magnet schools, whereas more Whites than minorities attended public comprehensive schools or public schools with choice programs. Both Asians and Whites were more likely to patronize Catholic and other private schools than were other groups. The number of charter high schools was small, and their distribution was not too substantively different between racial/ethnic groups. Such racial/ethnic differences in school choice appear to be primarily an urban phenomenon. Rural school choice surrounds the choice of public schools, and Whites show a higher propensity to participate in this type of school selection than do minorities.

The descriptive statistics also show that more schools are available to minority groups than to Whites. This is probably due to the fact that minorities are concentrated in large metropolitan areas. The distance from students' home location is positively related to the number of schools available, and the increase in availability by distance appears to be consistent across racial/ethnic groups. No matter how large the radius we use – 5, 10, 20, and 30 miles, Whites always have fewer school options than do minority groups.

Logistic regression is used to predict school choice. The results are shown in Table 2. We confirm that more school options increase the propensity to engage in school

choice, and ethnic minorities are more active in school choice than are Whites (reference group). Accounting for SES does not change this racial/ethnic pattern. The association between school availability and choice appears to be independent of SES. However, there is significant interaction between school availability and race/ethnicity. The number of schools available is associated with greater propensity of school choice by minority groups of Blacks, Asians, and Hispanics but not by Whites.

Previous literature finds that the determinants of parental choices for children's school vary from individual factors to characteristics of families, schools, and neighborhoods. Family socioeconomic status, school quality, distance from school, and neighborhood conditions can influence parental behaviors on school selections (Lankford & Wyckoff 1997; Schneider et al. 2000; Hastings & Weinstein 2007; Lauen 2007). To further develop our paper, we will use a multinomial regression model to examine choices of each type of school. We will also include covariates of the family, schools, and neighborhoods. In particular, we will construct variables to measure the quality of schools that are available within 1, 2, 3, 4, 5, 10, and 20 mile radius from students' home. We will compare the quality between the school the adolescent attended and the school closest to the adolescent's home if it is a different school. These variables will be used as predictors for further investigation of parental school choice.

References

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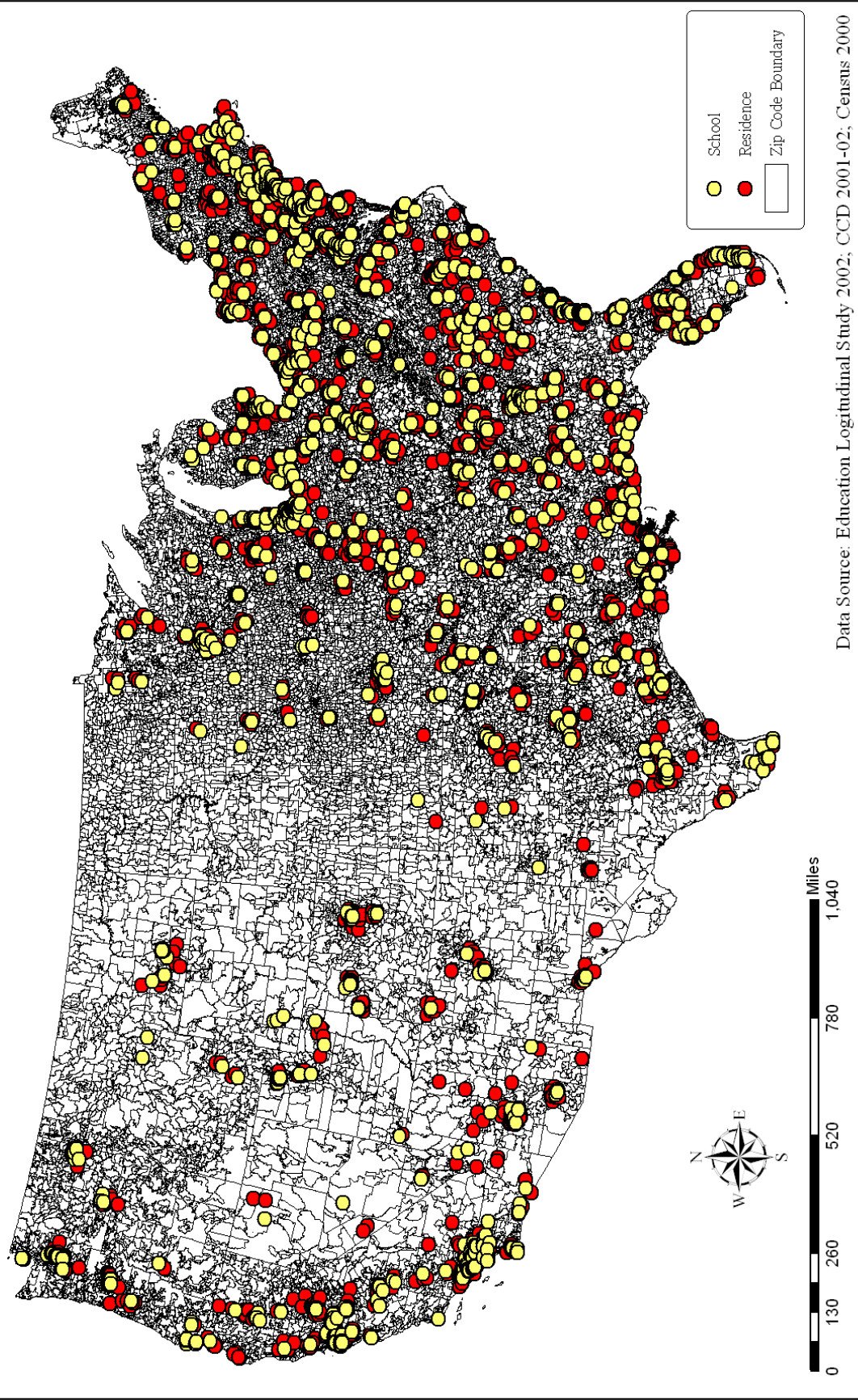
Data Source: Education Logitudinal Study 2002; CCD 2001-02; Census 2000

School
Residence
Zip Code Boundary

Miles
0   130   260   520   780   1,040

Table 1. Mean of School Availability, Accessibility, and School Choice, by Race

Variable	White	Black	Asian	Hispanic	Difference (ref: white)
School Choice Attended					
Magnet school	.07	.22*	.17*	.18*	a, b
Charter school	.01	.02*	.01*	.02*	a, c
Other public school	.33	.25*	.26*	.31*	a, b
Other public school	.50	.48*	.48*	.46*	b, c
Catholic school	.05	.02*	.04*	.03*	a, b,
Other private school	.05	.01*	.04	.01*	a, c
School Availability					
Total number of schools:					
within 5 miles	1.84	3.6*	3.95*	3.42*	a, c
within 10 miles	6.15	10.95*	12.70*	11.09*	a, c
within 20 miles	19.19	30.07*	36.16*	32.05*	a, b,
within 30 miles	35.58	49.14*	59.37*	53.19*	a, b,
Number of charter schools:					
within 5 miles	.07	.24*	.19*	.18*	a, b
within 10 miles	.22	.53*	.46*	.41*	B
within 20 miles	.61	.97*	1.13*	1.07*	a
within 30 miles	.99	1.34*	1.70*	1.67*	a, b
Number of magnet schools:					
within 5 miles	.05	.21*	.38*	.37*	a, b
within 10 miles	.23	.64*	1.11*	1.07*	a, b
within 20 miles	.77	1.36*	2.92*	2.27*	a, b,
within 30 miles	1.29	2.02*	4.17*	3.11*	a, b,
Accessibility to school					
Socioeconomic Status	.16	-.39*	-.07*	-.68*	a, b,
Observations	8978	2031	1565	2175	

Note: All sample means of minority groups except one (Asian, other private schools) are significantly different from sample means of Whites at .05 level. All statistics are weighted.
   a: difference between Asian & Black.
   b: difference between Black & Hispanic.
   c: difference between Asian & Hispanic.

Urban

Variable	White	Black	Asian	Hispanic	(Diff)
School Attended					
Magnet school	0.16	0.32*	0.27*	0.25*	a, b, c
Charter school	0.00	0.01*	0.00*	0.00*	b
Other public school of choice	0.24	0.27*	0.21*	0.32*	a, b, c
Other public school	0.35	0.36*	0.40*	0.37*	a, b, c
Catholic school	0.13	0.02*	0.07*	0.04*	a, b, c
Other private school	0.12	0.01*	0.05*	0.01*	a, b, c
School Availability					
Total Number of Schools					
within 5 miles	2.63	4.53*	4.56*	4.27*	
within 10 miles	8.04	13.39*	13.36*	13.07*	
within 20 miles	20.56	33.25*	33.97*	34.41*	
within 30 miles	34.52	53.60*	54.10*	55.05*	
Number of Charter School					
within 5 miles	0.15	0.42*	0.33*	0.28*	a, b
within 10 miles	0.38	0.85*	0.59*	0.53*	a, b
within 20 miles	0.80	1.39*	0.94	1.13*	a, b
within 30 miles	1.18	1.91*	1.42	1.61*	b, c
Number of Magnet School					
within 5 miles	0.11	0.33*	0.48*	0.56*	a, b
within 10 miles	0.32	0.87*	1.04*	1.38*	b, c
within 20 miles	0.70	1.50*	1.82*	2.55*	b, c
within 30 miles	0.93	2.11*	2.21*	3.17*	b, c
Accessibility					
SES	0.39	-0.36*	-0.31*	-0.76*	b, c
N	2218	981	703	1017	

Note:1. Sample is weighted
2. a: difference in mean between Asian & Black; b: difference in mean between Black & Hispanic; c: difference in mean between Asian & Hispanic. *: Difference between white.

Rural

Variable	White	Black	Asian	Hispanic	(Diff)
School Attended					
Magnet school	0.01	0.01*	0.00*	0.11*	a, b, c
Charter school	0.02	0.00*	0.00*	0.11*	a, b, c
Other public school of choice	0.36	0.28*	0.25*	0.23*	a, b, c
Other public school	0.61	0.71*	0.73*	0.54*	a, b, c
Catholic school	0.00	0.00*	0.00*	0.00*	a, b, c
Other private school	0.02	0.02*	0.04*	0.01*	a, b, c
School Availability					
Total Number of Schools					
within 5 miles	0.81	0.81	1.19*	1.57*	a, b, c
within 10 miles	2.94	2.52	4.52*	5.07*	a, b
within 20 miles	11.36	8.45*	14.89*	14.39*	a, b
within 30 miles	24.44	18.10*	29.22	25.62	a, b
Number of Charter School					
within 5 miles	0.02	0.02*	0.03	0.06*	
within 10 miles	0.05	0.06	0.25*	0.23*	a, b
within 20 miles	0.18	0.15	0.64*	0.42*	a, b, c
within 30 miles	0.51	0.31*	1.14*	0.88*	a, b
Number of Magnet School					
within 5 miles	0.01	0.02*	0.00	0.01	
within 10 miles	0.07	0.16*	0.18*	0.07	b
within 20 miles	0.31	0.57*	0.70	0.21*	b, c
within 30 miles	0.87	1.49*	1.81	0.56*	b, c
Accessibility					
SES	-0.09	-0.60	-0.11*	-0.47	a, b, c
N	2215	247	93	188	

Note:1. Sample is weighted

2. a: difference in mean between Asian & Black; b: difference in mean between Black & Hispanic; c: difference in mean between Asian & Hispanic. *: Difference between white.

Table 2. Odds Ratios of Attending School of Choice Over Neighborhood Schools

	Logistic Models							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Race								
Black	1.07**	1.15**	1.07**	1.10**	1.13**	1.10**	1.04**	1.07**
Asian	1.08**	1.11**	1.03**	1.05**	1.08**	1.04**	1.06**	1.14**
Hispanic	1.16**	1.29**	1.21**	1.23**	1.26**	1.36**	1.29**	1.30**
Other race	1.37**	1.41**	1.39**	1.40**	1.40**	1.45**	1.40**	1.40**
Accessibility								
SES		1.12**	1.12**	1.12**	1.12**	1.11**	1.12**	1.12**
School Availability								
#school within 5 miles			1.03**			1.06**		
#school within 10 miles				1.00**			1.00**	
#school within 20 miles					1.00**			1.00**
Interaction:								
Black* # within 5m						0.98**		
Asian*# within 5m						0.98**		
Hispanic* # within 5m						0.95**		
Other race*# within 5m						0.97**		
Black*# within 10m							1.00**	
Asian*# within 10m							0.99*	
Hispanic*# within 10m							0.99**	
Other race*# within 10m							1.00	
Black*# within 20m								1.00**
Asian*# within 20m								0.99**
Hispanic*# within 20m								0.99**
Other race*# within 20m								1.00
Observations	15362	15362	15362	15362	15362	15362	15362	15362

+ significant at 10%; * significant at 5%; ** significant at 1%