Path Dependence in School Choice: The Role of Middle School Diversity in NYC High School Choices*

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Abstract

In recent years, selective admission rules have been criticized for perpetuating school segregation in New York City (NYC) public schools. However, there is increasing evidence that cross-race differences in preferences for schools may be a more important determinant of school segregation than admission rules. In this paper we shed light on the reasons behind racial differences in school choices by studying one factor that could affect family preferences for schools: exposure to diverse peers in earlier school levels. Instrumental variables estimates suggest that middle school students exposed to more diverse peers apply to end enroll in high schools that are also more diverse. Estimates are similar for all racial groups, with stronger effects for Black and Hispanic students who also enroll in higher value added high schools as a result. We argue that these difference in high school choices are not driven by a change in middle school test scores but more likely by changes in information, admission beliefs, and preferences for the racial composition of peers.

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1 Introduction

Today, many large urban districts in the U.S. assign students through centralized assignment plans which allow families to choose schools, decoupling students' home addresses from the schools they can attend. Past research, however, has shown that school choice systems have not been effective at reducing school segregation and cross-racial gaps in access to high-achieving schools, mainly because of cross-racial differences in preferences for schools. [1] To some extent, family preference for school proximity entails that residential segregation still translates into school segregation, despite the presence of school choice (Laverde, 2020). Nonetheless, family preferences for schools also feature some degree of homophily: applicants hold preferences over the racial composition of the student body (Hailey, 2022) and, more broadly, prefer enrolling in schools with similar classmates (Bjerre-Nielsen and Gandil, 2020).

We still know little about the source of these differences in school preferences and whether they matter for welfare. One view suggests that families have perfect information about schools and optimally choose what is best for them. An alternative view, however, is that differences in school preferences along racial and socio-economic lines stem from biased beliefs and differences in information about schools.

In this project we shed light on the reasons behind racial differences in school choices by studying one factor that could affect preferences for schools: exposure to diverse peers in earlier school levels. Using administrative data from New York City (NYC), we estimate the effect of attending a middle school with different peer racial make-up on subsequent high school choices. The racial gap in choice is particularly apparent in NYC, where Black and Hispanic applicants choose high schools enrolling fewer White and Asian students and high-achieving students than White and Asian applicants do. Black and Hispanic students also apply to high schools that have lower value-added and are less likely to screen on academic achievement, on average.

While racial gaps in choice remain substantial even after controlling for differences in academic achievement and residential district at the time of application, holding the middle school peer racial make-up fixed almost closes these gaps. Black and Hispanic students who attend majority White and Asian middle schools opt for high school choices similar to the ones of their White and Asian classmates. However, these empirical facts may reflect selection bias arising from persistence in school preferences across grades and differences in

[1] A 2019 report by UCLA's civil rights project (Frankenberg et al., 2019) found that Black and Hispanic students attended schools with a combined Black and Hispanic enrollment averaging 66%, while White and Asian students attended schools enrolling 22% and 34% of Black and Hispanic students, respectively.

exact residential address.

To tackle the problem of selection bias, we compare otherwise similar students who get randomly assigned by the school matching algorithm to middle schools with different racial compositions. Conditional on an applicant's preferences and school priorities, the NYC choice algorithm randomizes seat assignments, thereby manipulating peer racial make-up independently of potential outcomes. The estimation strategy that exploits this variation builds on the propensity score and instrumental variables methods developed in Abdulkadiroğlu et al. (2017), Abdulkadiroglu et al. (2022), and Angrist et al. (2022).

Specifically, we extend the method of Angrist et al. (2022) to the case where the endogenous variable is a function of the schools of enrollment and observed covariate of all the students. In that case, the control function needed to establish conditional random assignment of the offered school characteristic not only depends on each applicant's own propensity score vector and observed covariate, but also on the propensity score vectors and observed covariates of all the other applicants. Our empirical strategy thus uses information on all students in the match to compute the expected peer racial make-up of the school offered to each applicant, given the full set preferences, observed covariates, and school priorities. Controlling for the expected offered peer racial make-up, the racial make-up of the offered school is a valid instrument for the racial make-up of the enrolled school.

The instrumental variable (IV) estimates show that exposure to more diverse peers in middle schools significantly affects school choices. Black and Hispanic students who were randomly assigned to middle schools with 10 percentage points (p.p.) more White and Asian students choose high schools that enroll 1.3 p.p. more White and Asian students, on average. These high schools have 0.03 standard deviation (SD) higher value-added, enroll students with higher baseline test scores, and are more likely to use screened admission methods. Based on our IV estimates, a one SD (0.26 p.p.) increase in the share of White and Asian middle school peers reduces the racial gap in value-added and racial make-up of preferred school choices by 30% and 40% respectively. High school choices of White and Asian students are affected to a lesser degree by middle school peer diversity: enrollment in a middle school with 10 p.p. more Black and Hispanic students increases peer share of Hispanic students by 0.6 p.p., while reducing peer share of White and Asian students by 0.8 percentage points of the average high school choice. The differences in high school choice characteristics induced by middle school peer diversity translate into differences of similar magnitude in high school offer characteristics.

Middle school peer diversity may contribute to closing the racial gap in high school choice

through many mechanisms: information sharing, changes in beliefs about admission chances in competitive schools, peer effects on aspirations, and changes in preferences for interacting with different racial groups, mediated, for instance, by perceptions about discrimination. Importantly, we find no evidence of a direct effect of peer racial make-up on admission probabilities at selective programs, as IV estimates of middle school peer effects on achievement are not significant.

These findings add to the literature on the sources of gaps in demand for high-quality education by socio-economic status and ethnicity. Carlana et al. (2022), for instance, considers the role of aspiration gaps, while several studies document the existence of an information-socioeconomic gradient (Claudia Allende and Neilson, 2019; Andrabi et al., 2017; Hastings and Weinstein, 2008). Consistent with this latter group, our preliminary evidence based on administrative data suggests the importance of changes in information, but we cannot exclude any of the other mechanisms. As part of our ongoing research, we are surveying current high school applicants to disentangle and quantify the contribution of these different channels.

This paper also builds on research that considers how interactions with peers of different background may impact racial attitudes and beliefs (Corno et al., 2019; Boisjoly et al., 2006; Carrell et al., 2019; Rao, 2019). Following Rao (2019)'s findings in India, we provide suggestive evidence that interactions with school peers may play a role in shaping preferences.

Finally, our findings highlight the importance of path-dependence in school choice. As such, they contribute to the literature on the impact of school integration reforms (Idoux, 2021; Laverde, 2020; Bjerre-Nielsen and Gandil, 2020) by suggesting the existence of potential dynamic effects of these reforms. If exposure to more diverse peers is important to shaping student preferences, reducing school segregation in earlier school grades could also lower school segregation in later grades by changing demand for schools. This mechanism through which supply side policies might affect demand side preferences has been mostly overlooked so far.[2]

[2] Hahm and Park (2022) considers the potential dynamic effect of integration reforms but through changes in test scores that affect probability of admissions.