ECON 490 Project Proposal

Noah Blake Smith, Miglé Petrauskaite, and Benjamin Tu

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1 Introduction

1.1 Problem Statement

For decades, students attending public schools in the United States have underperformed compared to those in peer nations with similar levels of spending per pupil. In recent years, many American school districts have experimented with charter schools to combat this trend. We focus on charter schools in the District of Columbia (DC).

The central question of our study is as follows: *Do DC charter schools deliver higher-quality education than do local DC public schools?*

1.2 Stakeholders

The subjects of this study are the students of DC public and charter schools. Our implementation partners are the administrators and teachers of DC public and charter schools. Other relevant stakeholders include the parents/guardians of enrolled students as well as taxpayers.

1.3 Motivations

The motivation of this study is to improve the academic performance and intellectual development of middle- and low-income students in DC (i.e., students whose families cannot afford private schools). We accordingly seek to estimate the quality of education delivered by the charter-school model as compared to the traditional, localized system of education.

2 Intervention

2.1 Theory of Change

For decades, students in DC were assigned to public schools based on their addresses. In 1996, Congress passed the District of Columbia School Reform Act, which allowed the DC government to fund charter schools. The legislation's objective was to increase access to high-quality education amongst DC's K–12 low- and middle-income students.

Under the current system, DC families rank up to 12 charter schools for their children to attend. An optimization algorithm (designed by Nobel laureate Alvin Roth) matches students with schools on their lists. When demand for a charter school exceeds supply, seats are allocated by random lottery.

2.2 Market Failure

Conceptualizing the traditional US education system as a market, consumers (i.e., families) have two methods to express dissatisfaction: *voice* and *exit*.[1] Voice is the primary option used by consumers of traditional public schools. Examples include school-board elections and parent-teacher association (PTA) meetings. However, the option to exit public schools has traditionally been unavailable to families unable to afford private schooling.

Without the exit option, the traditional public-school system is monopolistic by nature. Monopolistic entities are not inherently bad, so long as regulation and consumer voice keep them in check. There is strong evidence, however, these checks have failed for US public schools, including those in DC. For example, surveys of public-school parents frequently show dissatisfaction with their local schools and desire for additional schooling options, especially for those in low-income areas.

Since voice has been largely ineffective, charter schools aim to give families the option to exit the local public school. In doing so, districts that provide charter option(s) seek to use a market mechanism that pushes schools to improve by adapting to consumer preferences.

[1] We borrow this terminology from economist Albert O. Hirschman, the author of *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (1970).

3 Design & Treatment

3.1 Outcome Variables

To assess treatment outcomes, we have three broad categories of variables: *knowledge*, *achievement*, and *responsibility*. We have endeavored to choose variables that measure outcomes objectively and are unlikely to be "invalidated" by heterogeneity in school policies.[2]

First, we will use standardized test scores as measures of knowledge attainment. Examples include the National Assessment of Educational Progress (NAEP), SAT, ACT, and Advanced Placement (AP) exams. There are pros and cons of each metric, which is why we intend to use a variety of measures.

Second, we will employ measures of educational achievement to assess treatment outcomes. These principally include rates of high-school graduation, college attendance, and college graduation.[3]

Third, we will use measures of responsibility to assess treatment outcomes. Examples include rates of tardiness, attendance, and homework completion.

3.2 Treatment Design

Because parents' demand for charter schools outstrips the supply, the DC school system allocates spots at charter schools through random lottery. This phenomenon creates a natural experiment whereby the lottery acts as an instrumental variable.

The treatment is the group of students randomly selected to attend charter schools. The control group comprises those who entered the lottery but were not selected.[4]

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[2] A classic example of a measure that might be "invalid" is student suspensions. Some schools, as a matter of policy, have a higher/lower threshold for suspensions. Thus, differences in suspension rates may simply be the result of differences in school policy rather than student behavior.

[3] It is important to distinguish between the latter two, as about half of Americans who begin tertiary education do not ultimately earn bachelor's degrees.

[4] Both groups experience an intent-to-treat effect. That is, families who choose to enter the charter-school lottery may be systematically different from those who do not (e.g., they might be wealthier). For this reason, it is important *not* to compare the treatment group to students whose families never entered the lottery.

We will estimate the conditional average treatment effect (CATE) of attending a charter school on students whose families entered the DC school lottery.

3.3 Potential Issues

Perhaps the most salient potential issue is data collection. Conducting this study would require the permission and cooperation of school administrators, which may prove difficult.

One way to incentivize cooperation would be to conduct an additional study of the effectiveness of teaching methods on behalf of school administrators. We could then advise the administrators on our findings. In exchange for such consultation services, the administrators might permit us to conduct our study.

It is to note that such an additional study would be amenable to the motivations of our original study and may provide sufficient benefit to administrators to incentivize cooperation. However, we must beware of how such an arrangement may bias our results.