

# Project Proposal: Information Gaps in New York City Specialized High School Admissions

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May 7, 2019

## 1. Executive Summary

Racial disparities in admissions to New York City specialized high schools could be due to an information gap: black, Hispanic, and low-income students may be uninformed about the admissions process. Information about the admissions process is publicly available via the New York City Department of Education's Specialized High Schools Handbook, but this handbook is neither widely available nor easily digestible. We propose a low-cost intervention: printing and distributing the Specialized High Schools Handbook along with a summary 1-sheet to the students, parents, and faculty of public middle schools in low-income neighborhoods. In order to test the most effective way to distribute this information, we propose a randomized controlled trial in which we distribute this information to students, parents, and faculty separately. We also propose to test distributing the information in sixth grade versus seventh grade versus eighth grade (for a total of 9 treatment arms). We expect the intervention to lead to more black, Hispanic, and low-income students taking the Specialized High Schools Admissions Test (SHSAT). We expect that if more of these students take the exam, more will be admitted to the specialized high schools.

## 2. Motivations and Background

There are nine "specialized" high schools in the New York City public school system. These schools are intended to serve the needs of high-achieving students and offer significantly

more rigorous academics than local public schools. The specialized high schools are open to all NYC residents of high school age and (like other public schools) they do not charge tuition.

The specialized high schools offer significant opportunities for low-income students. The schools are very prestigious and have produced many notable alumni. By providing an elite education at no cost, the schools help close the endowment gap created by underfunded public schools.

Admission to the specialized high schools is very competitive. Admission is based solely on scores on the Specialized High Schools Admissions Test (SHSAT), a three-hour examination that tests general math and verbal skills (e.g., computation and reading comprehension). While the SHSAT does not require knowledge of specific academic subjects (e.g., history), it is still possible to prepare for the exam and improve one's scores. Students opt to take the SHSAT in eighth grade.

In recent years, the specialized high school system has been criticized for an extreme lack of racial diversity. Black and Hispanic students in particular are dramatically underrepresented. There are over 1.1 million students enrolled in the New York City public school system with 70,000–90,000 students per grade.<sup>1</sup> The specialized high schools admit about 4,800 students per year. In the New York City public school system as a whole, 40.5% of the students are Hispanic; 26.0% are black; 16.1% are Asian; and 15.0% are white. In the specialized high school system, in contrast, 6.1% of students are Hispanic; 3.7% are black; 60.9% are Asian; and 24.1% are white.<sup>2</sup> The distribution is even more extreme at some schools: at Stuyvesant High School, 3.7%

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<sup>1</sup> According to the New York City Department of Education (DOE) data (<https://www.schools.nyc.gov/about-us/reports/doe-data-at-a-glance>).

<sup>2</sup> According to a report from the New York City Independent Budget Office (<https://ibo.nyc.ny.us/iboreports/admissions-overhaul-simulating-the-outcome-under-the-mayors-plan-for-admission-s-to-the-citys-specialized-high-schools-jan-2019.pdf>).

of the students admitted in 2019 were Hispanic; 0.8% were black; 65.6% were Asian; and 21.7% were white. Stuyvesant High School admitted 895 students in 2019 and only 7 were black.<sup>3</sup>

We hypothesize that the racial disparities in admissions to the specialized high schools are due in part to an information gap: black, Hispanic, and low-income students may be simply uninformed about the admissions process. Anecdotal evidence suggests that this could be the case; we present some of this evidence in Appendix A.

### 3. Literature Review

All studies on information gaps owe a debt to the literature on employer-sponsored pensions and retirement savings plans. The research has generally found that informing employees about retirement savings programs increases participation in them. This implies a causal relationship: participation may be low *because* employees are uninformed. Retirement savings plans can be difficult to understand and, moreover, their benefits are abstract—the programs pay off far in the future. Chan and Stevens’s (2008) analysis of the national Health and Retirement Study found that employees failed to respond to savings incentives simply because they did not know about the incentives. Choi et al. (2001) also found that employees tend to follow a “path of least resistance:” default options have a large impact on participation. Duflo and Saez (2002), lastly, performed a randomized controlled trial in which they incentivized attendance at an information session about a university’s retirement savings program. Duflo and Saez concluded that “financial education . . . increases participation in savings plans.” They also found evidence of social network and peer effects, further concluding that “peer effects have a

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<sup>3</sup> <https://www.nytimes.com/2019/03/18/nyregion/black-students-nyc-high-schools.html>

strong influence on the decision to enroll.” On the whole, the literature retirement savings plans suggests that information gaps can limit participation in beneficial programs.

There is also a small but significant literature on information gaps in education. Hastings and Weinstein (2007) provided parents with clearer information about school quality; in the Charlotte-Mecklenburg Public School District in North Carolina, parents can choose which school to send their child(ren) to. While the information on school quality was publicly available prior to the study, it neither digestible nor easily accessible. In response to the intervention, parents did alter their decisions, but they also considered other factors such as how far away the school was (i.e., travel costs). Whereas Hastings and Weinstein aimed their intervention, Jensen (2010) focused on closing information gaps among students. He informed eighth grade boys in the Dominican Republic about the returns to education (higher wages upon completing twelfth grade) and found that they consequently completed more years of schooling. The effect was largest for the “least poor” students. Both studies showed that closing information gaps can be a cost-effective way to increase the demand for education.

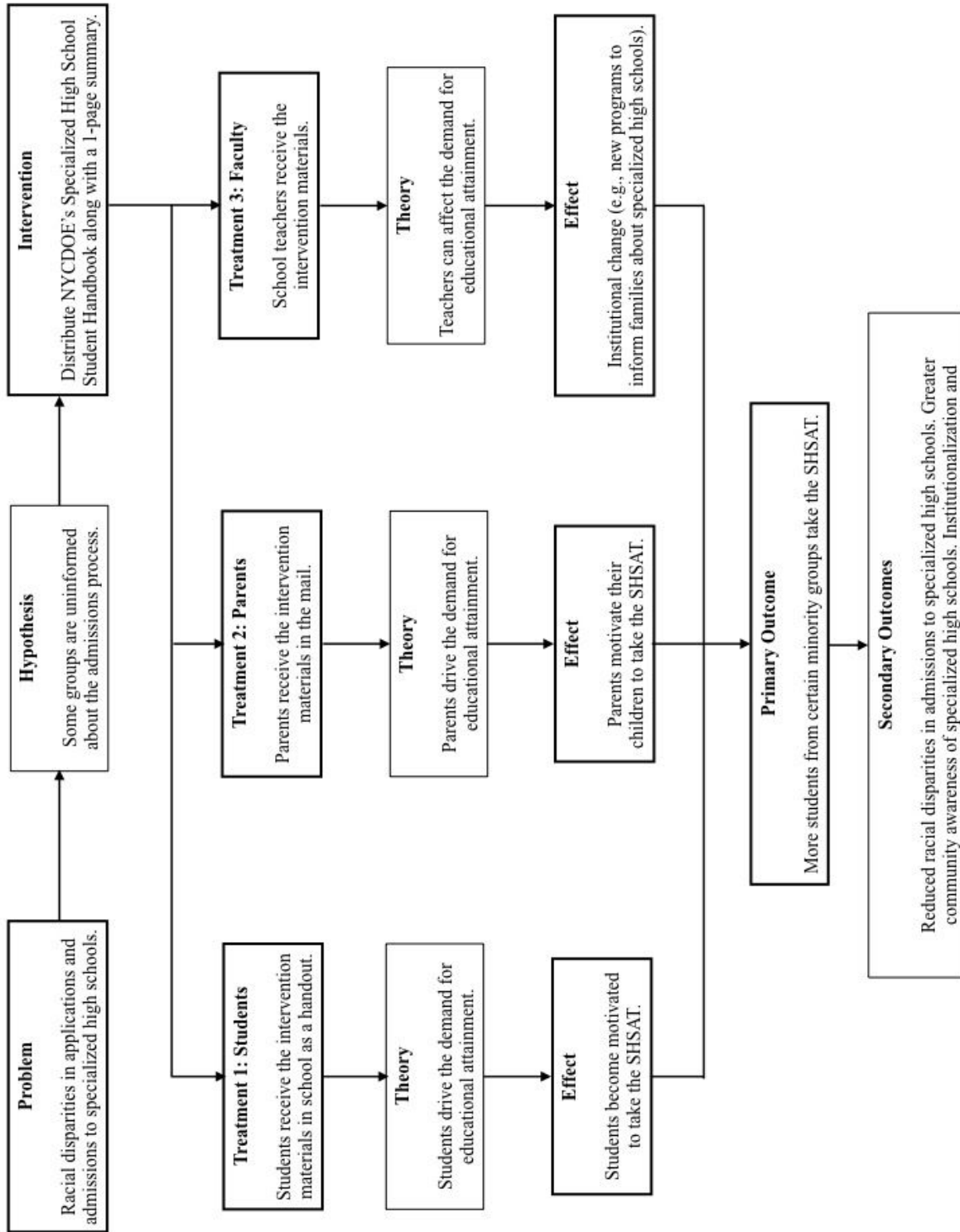
Who receives the intervention matters. In a 2015 study, Behrman et al. used cash transfers to incentivize the performance of students, teachers, and school administrators in Mexico. They had three treatment arms: students only; teachers only; and students, teachers, and school administrators together. Incentivizing all three groups had the greatest impact; incentivizing the students only had a smaller impact; and incentivizing teachers only had no impact. Behrman et al. do not isolate the effect of incentivizing administrators only.

Lastly, this study is motivated by anecdotal evidence that some racial groups are more informed about the NYC specialized high school admissions process. This anecdotal

evidence—much of it from reporting in *The New York Times*—is collected in the appendix.

There are, however, two academic studies on the subject. Pérez (2011) performed an 18-month ethnographic study of two NYC public middle schools, one serving middle class families and the other serving predominantly low-income families of color. The first school had resources the second school did not—for example, a guidance department with full-time staff dedicated to the high schools admissions process. Pérez also found “widespread practices which resulted in white parents being informed of gifted programs available to their children, while Black and Latino parents were not.” She concluded that the NYC public high school admissions process “denied low-income parents of color opportunities for information or access.” In addition, Lee (2003) studied Chinese-American students at Stuyvesant High School specifically and found that their SAT scores correlated with their level of Chinese acculturation (as measured by the Chinese Culture Influence Test). Students who were bicultural—acculturated to both Chinese and American culture—had the highest SAT scores. Lee (2013) implies that the Chinese community in NYC exerts a positive influence on the academic performance of Chinese-American students. This is consistent with the anecdotal evidence that the Chinese community in NYC is better informed about the specialized high school program. There are numerous obvious reasons, though, to be cautious about attributing academic achievement to the influence of culture.

4. Theory of Change



## 5. Research Questions, Goals, and Hypotheses

We hypothesize that black, Hispanic, and low-income students *apply* to specialized high schools in lower numbers than their peers (i.e., white, Asian-American, and middle-/high-income students) because they are uninformed about the specialized high school admissions process. We hypothesize, in other words, that there is an information gap.

We believe that these groups are *admitted* to the specialized high schools in lower numbers in part because they *apply* in lower numbers. Admissions are a pipeline: a percentage of applications become acceptances, and students cannot be accepted if they do not apply. *Ceteris paribus*, increasing the number of applications from certain groups upstream should increase the number of acceptances downstream.

Black, Hispanic, and low-income students could be underrepresented in specialized high schools for other reasons. For one, they are more likely to attend under-resourced middle schools that could inadequately prepare them to succeed on the SHSAT. They could also be discouraged: the students who are aware of the specialized high schools might not apply because they believe they are unlikely to be accepted.

While these explanations are plausible, they do not preclude the existence of an information gap. All three of the explanations—and more—could be true; they are not mutually exclusive. We thus hypothesize (i) that there is an information gap and (ii) that this information gap plays a important role in the underrepresentation of certain groups. It is possible that this study could find evidence of an information gap but that this gap is not significant—i.e., closing the information gap does not appreciably increase the number of black, Hispanic, and low-income applicants. (Our study is designed iteratively: if we find no evidence of an

information gap, then the study ends.) However, we still believe that the study is worth undertaking because closing an information gap is significantly more cost-effective and easier than addressing the alternative explanations.

We have several research questions to test this hypothesis and related ones.

Primary Research Questions			
Question		Survey Round	Hypothesis
(1)	Relative to other groups (e.g., white, Asian-American, and middle/high-income households), are black, Hispanic, and low-income households less informed about the specialized high school admissions process? I.e., is there an information gap?	Baseline	Black, Hispanic and low-income households are less informed about the specialized high school admissions process than other groups.
(2)	If there is an information gap, is it a significant reason why fewer black, Hispanic, and low-income students apply to specialized high schools?	Baseline/ Follow-ups 1–3	Black, Hispanic, and low-income students apply to specialized high schools in lower numbers than their peers in part because they are uninformed about the process. The information gap is a significant contributor to the lower number of applications and thus admissions from these groups. Closing the information gap will lead to these students taking the SHSAT in greater numbers.
(3)	Is distributing the NYCDOE’s Specialized High School Handbook with a summary 1-sheet an effective way to inform students about the specialized high school admissions process?	Follow-up 1	Information on the specialized high schools is publicly available but not easily accessible or uniformly disseminated. Distributing this information along with a



			clarifying 1-sheet/pamphlet will be sufficient to close any information gaps. If the data does not support this hypothesis, then other, then more expensive interventions may be needed (for example, in-person information sessions).
Secondary Research Questions			
	Question	Survey Round	Hypothesis
(4)	Who contributes more to the demand for educational attainment—students, parents, or school faculty? (I.e., who should receive interventions similar to this one in the future?)	Follow-up 1	If a certain treatment results in significantly more students taking the SHSAT than the groups, then this would suggest that that group should be the target of future informational interventions. We have no <i>a priori</i> hypothesis about which group will be most influential.
(5)	When is the best time to inform families about the specialized high school admissions process? Is it sixth grade, seventh grade, or eighth grade?	Follow-up 1	Informing families about the SHSAT in seventh or eighth grade will be most effective?
(6)	Are there other members of the community (e.g., pastors) who are influential in these decisions?	Baseline	We are aware that there is high turnover among NYC public school administrators and faculty members. Low-income communities have their own social networks; the “nodes” of these networks may be people outside of the school, e.g., local religious leaders.

## 6. Evaluation Design and Sampling Strategy

### Intervention Details

The intervention will begin at the start of the academic year for grades 6th through 8th. There are a total of 200 middle schools in the experiment that are broken up into three treatment groups and 1 control group. The three treatment groups will consist of 48 schools each receiving the intervention while the control group will consist of 56 schools not receiving the intervention. The intervention given to these treatment groups will consist of an informational pamphlet, and the standard informational Handbook of the SHSAT created by the DOE for NYC. We will create this pamphlet to inform the students of the test logistics, such as date, time, place, and materials to bring to test (pencil, calculator, etc.). It will also give a brief overview of each Specialized High School associated with the SHSAT, and the benefits of graduating from these schools. These benefits will include average wage and jobs of past alumni from these schools. The handbook is the unabridged version of the pamphlet, created by the NYC DOE. Most importantly, it is free and it contains a practice exam for the SHSAT that will help prepare students for the SHSAT. In addition, it will include more detailed descriptions of the specialized high schools and how they might compare and contrast from one another. We expect that this intervention will increase the amount of students who take the SHSAT.

### Sample Design

There are 631 public middle schools in New York City. Our objective is to create a sample of middle schools that represent low income students in grades 6th - 8th. It is these low income students that are disproportionately not taking the SHSAT and thus not enrolling into

these specialized schools. It has been reported that, “Nearly one-third of middle schools had enrollments in which 85 percent to 99 percent of students lived in “low socioeconomic status” neighborhoods, according to the 11-page IBO report.”<sup>4</sup> As a result, our sample of schools will come from zip codes that fall into this bottom third of income for NYC. Once data has been accumulated to which zip codes these are, we will have approximately 200 schools in our sample. The schools that are left out in our study are those whose students are mostly middle to high income. This is because we believe that the students who are not taking the SHSAT are those that come from low-income and diverse backgrounds. Our sample best represents this population. It is important to note, that while our sample may be selective, our treatment is externally valid for the population of all middle school students living in NYC. Thus our results and explanation from this experiment should be able to extend to any student in NYC that does not have awareness of the SHSAT.

The objective of targeting students in grades 6th through 8th is to determine which grade is the best to give out this information. It will test in which grade students are the most motivated to receive the treatment either directly, through their parents, or through their teachers. Our results will show if receiving this intervention earlier in your academic career will lead more students to take the SHSAT than later in their career. This could be a result of more time to prepare for the test or more time to make a decision.

The objective of having three treatment groups is to analyze who is best suited to deliver this information to these students in grades 6th-8th. These results will show which way is the most productive at influencing the student to take the SHAT. This could be a result of whether

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<sup>4</sup> <https://www.politico.com/states/new-york/city-hall/story/2018/08/29/report-low-income-students-concentrated-in-a-third-of-nyc-middle-schools-584061>

the student themselves, their parents, or their school administration is most concerned with the students academic success.

## 7. Data Collection

We will conduct a baseline survey for all parents students and teachers from all of the 631 middle schools in New York City. We will collect data beyond our sample of 200 low income middle schools in order to empirically see the information gap between high, middle, and low income students, parents and teachers. The first question we will ask is whether or not they have heard about the SHSAT. This information will allow us to determine if there is an information gap among parents, teachers, and students. In addition, it will ensure there are no baseline differences in awareness of the test among treatment and control groups. The baseline survey will then continue to ask questions that fall under three different categories, demographic, household socioeconomic, and school characteristics. It will collect data to account for possible pre-existing differences in characteristics between control and treatment groups. From this data we will limit any potential exogenous variation in our sample.

We will leave the questions regarding school characteristics to the teachers and administration. These questions will allow us to control for school level characteristics in our regression such as percentage of students who have taken the SHSAT, and average graduation rate in previous years. This data will allow us to eliminate selection bias in our sample such the baseline difference in either the school knowing about test and/or having a significant different percentage in those who have taken the test before. In the case that the control group has a higher average than the treatment groups, it would underestimate the effect of the treatment.

Only parents will be given questions regarding household characteristics. This will allow us to limit the selection bias among households. The data will allow us to account for baseline differences among parents level of education, siblings level of education, and payment to extracurricular resources such as tutors. These variables are positively correlated to the outcome variable and would need to be controlled for in the regression. We will ask about income even though we have already chosen our sample based on the income level of their zip code. This will allow us to see how far the households income level varies from the average.

The students will be given a more streamlined survey only regarding demographic information, such as age, gender, and grade level. We will ask them if they have friends in neighboring schools, and if so which school. There could be potential spillover effects among the students when they have friends in neighboring schools. This is especially a problem when there are friends among treatment and control schools. In this case, the student in treatment group could pass their intervention along to their friend in the control group. Consequently it could underestimate the effect of the intervention. By accumulating this data we can see how significant this might be for us in our regression. If significant, then we could expand the radius between control and treatment schools in order to limit this possibility.

It is important to note that everyone taking the survey will be asked whether they have heard about the SHSAT as well as demographic questions. If they only answer yes, then there will be follow up questions to discover how they found out about the SHSAT. This information will help us form a preliminary idea to who is best suited to motivate the student about the SHSAT. Appendix B outlines the questions that will be asked on the survey for each of these groups in more detail.

The baseline survey will be given to the recipients in May of the previous academic year. For example, for 6th graders it will be given in May of their 5th grade year. This is driven by the fact that it will maximize the take up percentage because it will be given to teachers and students during the school session. To further maximize the take up percentage we could have the principals encourage their faculty to complete it, and for the teachers to encourage their students to do it. The teachers could assign the survey to the students during homeroom to ensure they complete it. We would address the challenge of student attendance on the day the survey is administered by having both principal and teachers use a checklist to ensure all students and faculty complete the survey. In the case of parents, we would mail them the survey at the same time that the survey is given to teachers and students. Delivering it by mail comes with the challenge of take up as people are less likely to open mail that they do not recognize. We will address this challenge by using the school as an intermediary. The survey will be included with registration forms that school would request for the upcoming academic year. Thus, it will arrive on school letterhead so that the parents are more incentivized to open and complete the questions. In the case, that the school does not give us permission to do this. The alternative would be to creating a raffle incentive for completing the survey where the prize could be some reasonable monetary amount.

## 8. Analysis Plan

Assuming the baseline survey is successful at balancing the outcome variable at baseline, we will randomize the sample at the school level. Randomization will be successful when the outcome variable is not significantly different among the treatment and control groups at baseline. The outcome variable in this case is whether or not the student has taken the SHSAT.

Given that all of the students in our sample are 6th to 8th graders, this will not specifically be a problem. We chose the school level in order to minimize potential spillovers and monetary costs. There would be greater chance for spillovers at both the individual and grade level because there would be a greater likelihood of exposure between control and treatment groups. In addition it would be more costly at the individual level. Therefore, randomizing at the school level allows us to better coordinate the treatment as in each treatment group, the teachers and students are gathered under one roof. We will address the concern mentioned before of students or teachers having friends in neighboring schools by creating a sufficient radius among the treatment and control schools. If the baseline survey shows that this concern is significant, then will increase this radius accordingly.

The sample will be split into three treatment arms and 1 control arms. We analyze three different treatment arms in order to determine which treatment group is best at using this treatment to increase the number of students who take the test. One arm will consist of students, the second will consist of parents, and the third will consist teachers. The students, parents, and teachers from the treatment groups will be randomized such that they are not related to one another. The control group will have more schools than both of the treatment groups in order to account for any remaining heterogeneity after the baseline survey among students teachers and parents. There will be 200 schools among the 4 randomized groups.

1. Treatment group 1 (T1): Students in grades 6th-8th given intervention
2. Treatment group 2 (T2): Parents of different set of students in grades 6th - 8th given intervention

3. Treatment group 3 (T3) Intervention given Teachers and Guidance Counselors of separate group of students from both T1 and T3.

Control Group (C): No intervention given

The student treatment arm will consist of students from 48 of these schools. It will test to see how effective it is to give the treatment to student directly. How self motivated are they to use this information to their benefit and take the SHSAT. They will be assigned the treatment from their administrators. The administrators will give the students the pamphlet and handbook during homeroom. Similar to how the baseline survey was given, there will also be a checklist to maximize the take up percentage. These administrators are not included in either control or treatment groups for our study, and therefore contamination bias is avoided.

The parent treatment arm will consist of parents from 48 different schools. It will test to see how effective they are at using the treatment to cause their kid to take the SHSAT. They will be assigned treatment through the mail service. As mentioned with the baseline survey, there is a challenge of take up when using the mail service. People are less incentivized to open unfamiliar mail than receiving something in person. Although in this case, these parents have already become familiar with the sender as they have already received the baseline survey previously. Still this may not lead to maximum take up with the parent treatment arm. Thus, we will also include a similar raffle incentive as we did with the baseline survey in order to encourage the take up rate.

The teacher treatment arm will consist of teachers from 48 different schools. It will test to see how effective they are at using the treatment to cause their students to take the SHSAT. They will be assigned treatment in their place of work. We will hand deliver the treatment (pamphlet



and handbook), to each of their schools. Assuming permission from the principle, these materials will then be assigned by putting them in the mailboxes of each of the faculty. This will ensure that all of the teachers will receive intervention even if they were absent on the day we were there.

We will conduct 7 years worth of follow up surveys in order to conduct 3 surveys each for the 6th, 7th, and 8th graders in our sample. The intent is to analyze if they took the SHSAT. In addition we will analyze for percentage for both who have taken and passed the SHSAT. As well as to see if they attend a specialized high school and how they like it. This will inform if these students feel they are being discriminated against for the background they come from. We will also perform a follow up right before the month they graduate to analyze their overall experience and to analyze the percentage that attend college. This will be explained in further detail in Appendix C with our thoughts on possible attrition.

### Empirical Analysis

The main variables of interest in our study are the variables that define each of the treatment arms at baseline and at the end of treatment. If the outcome variables did not have differences at baseline, then we can analyze the treatment against control group. We will then analyze the treatments effects against the other treatment groups. The intent to treatment analysis will show the causal relationship between the treatment and the outcome variable. We hope to find that there is a significant positive relationship, i.e., that this intervention increases the likelihood of taking the SHSAT. From there, we can then compare the effectiveness of the three ways of intervention (students, parents, or teachers).

First, we will analyze the causal effect of the student treatment arm who were given the intervention directly. We specifically are analyzing how effective students are at self motivating themselves. We will compare how many of these treatment students took the SHSAT against how many of the control students took the SHSAT. We expect that the the treatment will have significantly more students taking the SHSAT than the control because of the intervention. These first groups of students for both treatment and control will be the 8th graders from our sample because they are eligible to take the SHSAT. This same procedure will be followed up each year. This will allow us to analyze the if it was more effective to receive the treatment in 6th 7th or 8th grade.

Second, we will analyze the causal effect of the parent treatment arm who were given the intervention through the mail. In this treatment arm, we specifically analyze how effective these parents are at motivating their 8th grade public middle school kids to take the SHSAT. We will compare how many students of these 8th grade parents took the SHSAT against that of the control group of parents. Similar to the student treatment, we will follow up each year to analyze the difference at each grade level. We expect that the parents in the treatment will have more of their kids take the SHSAT than the control group of parents. Furthermore, we expect that more of the students of these parent treatment group will take the SHSAT than those in the student treatment group. This is because we believe that parents will be better at motivating their kid than the kid will be able to motivate themself.

Third, we will analyze the causal effect of the teacher treatment arm to see how effective teachers were at motivating their students to take the SHSAT. We will compare how many of their 8th grade students took the SHSAT to how many students of the control teacher group took

the SHSAT. We expect more these students of the treatment teachers will take the SHSAT than that of the control. Furthermore we expect more of these students to take the test than students from both the parent treatment and student treatment groups. This is because we believe that teachers are the best motivators for students in terms of educational opportunities. It is our hope that in the case of the teacher treatment group, that these schools will create some kind of cooperative program among all of the teachers. These program could effectively motivate more students to not just take the SHSAT, but perform better on the SHSAT students in other treatment groups.

In the likely case that there is not perfect compliance, we will perform a treatment on treated test on each of the treatment groups. This will explain the causal effect of each of these treatments when contamination is not completely eliminated and/or the take up rate of the intervention is not 100%. We expect to have the least take up rate from the parents treatment group due to the way they receive the intervention. This is due to the fact that the mail service is less reliable than receiving intervention in person. It is also possible that there could be contamination in the control group if students, teachers, or parents communicate their knowledge from the intervention to individuals in the control group. The treatment on treatment test will be performed similar to the intent to treat test for each of the treatment groups. The only difference is that we will divide each of our results from the intent to treat effect by the difference between the take up rate (treated/treatment) and the contamination rate (treated/control). The TOT or ITTs will inform the coefficients for each of our variables in our regression model (ordinary least square model). Along with our treatment variables we will control for any potential variables that could have correlation with our dependent or independent variables.

- $Y = \beta_0 + \beta_1 \text{Student Treatment} + \beta_2 \text{Parent Treatment} + \beta_3 \text{Teacher Treatment} + \beta_4 \text{Time}$   
 $+ \beta_5 (\text{Treatment}_1 * \text{time}) + \beta_6 (\text{Treatment}_2 * \text{time}) + \beta_7 (\text{treatment}_3 * \text{time}) + \beta_8 \text{School's Mean \#}$   
 $\text{students took SHSAT previous years} + \beta_9 x_d + \beta_{10} x_{hh} + \beta_{11} x_s + \text{error}$

This will be explained in greater detail in Appendix D.

## 9. Conclusion

We hypothesize that the racial disparities in New York City specialized high school admissions are due in part to an information gap and that this information gap (if it exists) can be addressed through a relatively low-cost intervention (the wider distribution of materials). Using a randomized controlled trial study design, we will evaluate whether this intervention is effective and learn how to best deliver similar interventions in the future. This study also has the potential to contribute to the broader literature on education in development economics (who contributes more to the demand for educational attainment—students, parents, or school faculty?) as well as the literature on information gaps in poor communities.

If there is evidence of an information gap, then future studies might focus alternative ways to close the gap. Perhaps students would prefer to interact with the informational materials digitally (e.g., through text messages), and/or perhaps parents would derive more value from an in-person information session. Future studies can draw on the behavioral economics literature to design and test interventions. There may be additional ways to disseminate information within the target communities; the baseline survey will explore this.

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## 11. Appendices

### Appendix A: Anecdotal Evidence of an Information Gap

Eliza Shapiro reported on the racial disparities in admissions to Stuyvesant High School for *The New York Times* in March 2019.<sup>5</sup> The following is an excerpt from her article.

Venus Nnadi, 18, a Stuyvesant graduate who is a freshman at Harvard, said she remembered when a fifth-grade teacher pulled her aside at her Catholic middle school in Queens Village and encouraged her to consider an elite public school.

Ms. Nnadi, the daughter of Nigerian immigrants, had never heard of Stuyvesant, but she bought a test preparation book and started taking practice exams. She thinks often of her classmates who didn't have the same guidance.

"I had a lot of friends in my middle school who were just as smart as me, and who I know could be thriving at Stuyvesant if they had known it existed," said Ms. Nnadi, who was a standout on Stuyvesant's track team.

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<sup>5</sup> <https://www.nytimes.com/2019/03/22/nyregion/stuyvesant-high-school-black-students.html>

It was much the same for Hanna Gebremichael, the daughter of Eritrean immigrants, who found out the test existed three months before taking it—by Googling phrases like “best New York City high schools.”

Shapiro also reported that Asian-American communities—in contrast to the students above—were very knowledgeable about the specialized high school admissions process.

Navigating the NYC public high school admissions process can be a challenge even for privileged families. Parents at the “Gracie School”—a public middle school serving predominantly middle class families—confessed the following to Madeline Pérez in 2011:

“People outside of New York City don’t understand the public schools. They have no idea how competitive it is. Our friends in Westchester, they just go to the junior high that’s two blocks away, and then the high school next door to that.” — Kelly

“Outside of a city or urban center, none of my friends are familiar with what we experience here for [school admissions]. Sometimes our friends from the suburbs laugh at us. They think this is crazy. It’s very unique to New York City.” — Nannette

#### Appendix B: Baseline Survey Questions (Survey Instrument)

##### **Baseline Survey for Students**

1. Have you heard about the Specialized High Schools Admissions Test (SHSAT)?
  - a. If so, how did you hear about the SHSAT?
2. Age
3. Gender

##### **Baseline Survey for Parents**

1. Have you heard about the Specialized High Schools Admissions Test (SHSAT)?
  - a. If so, how did you hear about the SHSAT?

2. Age
3. Gender
4. What is the Mother's level of Education?
5. What is the Father's level of Education?
6. Does the student in question have any siblings?
  - a. If so, what is their level of education?
7. Have you used a tutor or any other extracurricular academic programs for the student in question?

### **Baseline Survey for Teachers**

1. Have you heard about the Specialized High Schools Admissions Test (SHSAT)?
  - a. If so, how did you hear about the SHSAT?
2. Age
3. Gender
4. Do you have a University Degree?
5. What are the class sizes of your classes this year?
6. What is the mean graduation rate in the previous year?

### **Appendix C: Follow Up Surveys**

We will perform follow up surveys after each academic year until the 6th graders in our study have graduated from high school.

- After 1 Year:
  - We will perform a follow up survey to only the 8th grade students after the opportunity to take the test has passed.
    - This will allow us the opportunity to see if our sample 8th grade students from treatment group have taken the test.
    - It will also allow us to see if these 8th grade students who have taken the test plan on attending any of the specialized high schools.
- After 2 Years:
  - We will perform follow up on the 7th graders of our sample because at this point we can analyze if they have taken the SHSAT or not.
  - We will also perform a follow up survey to see from those 8th grade who enrolled in a specialized school whether or not they enjoy their experience, and if they plan on graduating from their school.
- After 3 years:
  - We will perform follow up survey to our 6th graders from the sample to see if they have taken the SHSAT or not.



- We will also perform a follow up survey to the 7th graders from our sample to see from those who enrolled in a specialized school whether or not they enjoy their experience, and if they plan on graduating from their school.
- After 4 years
  - We will perform follow up survey to 6th graders in our sample to see from those who enrolled in a specialized school whether or not they enjoy their experience, and if they plan on graduating from their school.
- After 5 years
  - Will perform follow up survey after 5 years in order to see from those 8th graders now attending specialized schools to see if they graduated, and if they have been accepted to college.
- After 6 years
  - Will perform follow up survey to see from those 7th graders now attending specialized schools to see if they graduated, and if they have been accepted to college.
- After 7 years
  - Will perform follow up survey to see from those 6th graders now attending specialized schools to see if they graduated, and if they have been accepted to college.

#### Attrition from the Sample (Potential Problem for Follow Up Survey)

We anticipate a small share of the sample attriting that could potentially be a problem for our follow up surveys. Those students from the sample that are entering 8th grade are most likely to attrit after the first follow up has been completed. At this point, the opportunity to take the test (outcome variable) has passed. At this point they have either taken the test and passed, taken the test and failed, or did not take the test. Those who took the test and passed seem to be the least likely of the rest to attrit as they have maintained their interest in the experiment due to the benefits provided to them from the treatment. On the other hand, those who did not take the test after receiving treatment seem to be least interested in the experiment and are the most likely to attrit for follow up surveys. Important to note, the challenge of attrition presents itself to the

students entering sixth grade if they were to move to another school in NYC before enrolling in High School. This is similar for teachers for students entering 6th grade, as they give us they highest risk of turnover.

#### Appendix D: OLS Regression

- $Y = \beta_0 + \beta_1 \text{Student Treatment} + \beta_2 \text{Parent Treatment} + \beta_3 \text{Teacher Treatment} + \beta_4 \text{Time}$   
 $+ \beta_5 (\text{Treatment}_1 * \text{time}) + \beta_6 (\text{Treatment}_2 * \text{time}) + \beta_7 (\text{treatment}_3 * \text{time}) + \beta_8 \text{School's Mean \#}$   
 $\text{students took SHSAT previous years} + \beta_9 x_d + \beta_{10} x_{hh} + \beta_{11} x_s + \text{error}$

$\beta_1$ : This explains the causal effect the student treatment group has on our outcome variable of # of students who take the SHSAT

$\beta_2$ : This explains the causal effect the parent treatment group has on our outcome variable of # of students who take the SHSAT

$\beta_3$ : This explains the causal effect the teacher treatment group has on our outcome variable of # of students who take the SHSAT

$\beta_4$ : This explains the effect the average number of students who took the SHSAT in previous years at the schools of each of the observations in our study. We will control for this variable as we expect it to have positive correlation with our treatment variables.

$\beta_5$ : This is explains the effect that demographic characteristics will have on our outcome variable of # of students who take the SHSAT. We will control for this variable as we expect it to have correlation with our treatment variables.

$\beta_6$ : This is explains the effect that household characteristics will have on our outcome variable of # of students who take the SHSAT. We will control for this variable as we expect it to have correlation with our treatment variables.

$\beta_7$ : This is explains the effect that school characteristics will have on our outcome variable of # of students who take the SHSAT. We will control for this variable as we expect it to have correlation with our treatment variables.

$x_d$ : This is defined as demographic controls such as age, gender

$x_{hh}$ : This is defined as household controls such as Mother's level of education, Father's level of education, Siblings level of education, expenses to extracurricular academic support such as tutors

$x_s$ : This is defined as school level controls such as Teachers with university degrees, Mean graduation rate, school size, class size