What Kind of Teachers Are Schools Looking For? Evidence from a Randomized Field Experiment*

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Abstract: Teacher quality is a pressing public policy concern, yet there is little evidence on what types of teachers schools actually prefer to hire. This paper reports the results of an experiment that involved sending schools fictitious resumes with randomly-chosen characteristics in an attempt to determine what characteristics schools value when hiring new teachers. The results of the study suggest that an applicant's academic background has little impact on the likelihood of success at private and charter schools, although public schools respond more favorably to candidates from more selective colleges. Additionally, private schools demonstrate a slight preference for female candidates, and all three sectors demonstrate a preference for in-state candidates.

Keywords: resume audit studies, teacher labor markets
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I. Introduction

A growing body of empirical work documents the enormous heterogeneity in quality amongst classroom teachers.[1] This quality matters. Recent work by Chetty, Friedman, and Rockoff (2011) finds that teacher quality in the early grades affects students' earnings in adulthood. And Hanushek (2011) writes, "Replacing the bottom 5-8 percent of teachers with average teachers could move the U.S. near the top of international math and science rankings with a present value of $100 trillion." It follows from this line of work that the distribution of teacher quality has the potential to dramatically affect the level and distribution of national income.

Unsurprisingly, there is a concerted effort to raise teacher quality. Programs like Teach for America have the goal of encouraging academically-talented recent college graduates to become teachers, and merit pay policies that are in place in some districts aim to have individuals who would be effective teachers select into the teaching profession. However, these policies and programs generally focus on the supply side of teacher labor markets. Less attention has been paid to the demand side. But clearly, the policies and actions of the districts, schools, and administrators on the hiring side of teacher labor markets affect who becomes a teacher as well. If these actors are hiring teachers suboptimally, there may be a potential to raise teacher quality by simply making changes to the hiring process. But despite this potential, little is known about how effective schools are in screening applicants or about what characteristics they seek in potential teachers.[2]

[1] Seminal work includes Aaronson, Barrow, and Sander (2007); Hanushek (1971); Murnane (1975); Rivkin, Hanushek, and Kain (2005); and Rockoff (2004). But also see Rothstein (2009, 2010) for an influential critique of conventional estimators of teacher value-added.

[2] There are some previous studies, such as Harris et al. (2010), which survey principals about what kinds of teachers they are looking for, although the sample sizes are typically small and it is not clear that actual hiring behavior is consistent with responses to surveys.

This paper sheds some light on the demand for teacher characteristics through a randomized controlled experiment in the labor market for new teachers. The experiment randomly manipulates characteristics on resumes submitted by fictitious candidates for teaching positions and then studies how the responses to different characteristics vary. In particular, I sent 6,000 fictitious resumes to randomly-selected schools across the United States, along with cover letters expressing an interest in being hired for a teaching position. The resumes attempt to experimentally induce the demand side's perceptions of a candidate's academic credentials, sex, geographic location, and other characteristics. Due to the random assignment of these resume characteristics, comparing responses to the various resumes should provide a credible estimate of what characteristics schools value in the initial screening stage when hiring new teachers. The results of the study suggest that an applicant's academic background has little impact on the likelihood of success at private and charter schools, although public schools respond more favorably to candidates from more selective colleges. Additionally, private schools demonstrate a slight preference for female candidates, and all three sectors demonstrate a preference for in-state candidates.

The rest of this paper is organized as follows: Section II provides relevant background information, Section III discusses the methodology used in this experiment on teacher labor markets, Section IV gives the results, and Section V concludes.

II. Background Information

A. Previous Research on Teacher Hiring

Earlier research on teacher labor markets includes work on teacher labor supply (Bacolod 2007; Corcoran, Evans, and Schwab 2004a, 2004b; Engel and Jacob 2011; Ransom and Sims

2008), the sorting of teachers across schools (Boyd et al. 2005a; Clotfelter, Ladd, and Vigdor 2005, 2006; Goldhaber, Gross, and Player 2011; Jackson 2009; Lankford, Loeb, and Wyckoff 2002), and the impact of counterfactual personnel policies on teacher quality (Rothstein 2012; Staiger and Rockoff 2010). There is less work on how effective schools are in screening teachers. However, Kane and Staiger (2005) find that teachers hired as part of a hiring surge by Los Angeles Unified School District to comply with a California class size reduction policy did not perform significantly differently from teachers hired the previous year as part of a much smaller cohort. This provides indirect evidence that the district was not effective in screening teachers because, if it were, one would expect the marginal teacher to be worse than the average teacher and for average teacher quality to fall as more teachers are hired.[3]

More directly related to the present study is Ballou (1996), an influential paper that addresses the question of how interested schools actually are in hiring academically-talented teachers. Ballou (1996) uses data from several waves of the Survey of Recent College Graduates and finds that, of those individuals who applied for any teaching position, those who had more impressive academic qualifications in terms of college selectivity or having majored in math or science were not more likely to be later found working as a teacher than those with less impressive academic qualifications. Ballou (1996) interprets this result as showing that the demand side does not show much interest in hiring teachers who are academically strong. But although Ballou (1996) provides additional information that supports this interpretation of the results, it is difficult to completely rule out the possibility that the results are driven by applicants who are more academically talented having better outside options than those who are less academically talented. They may thus have lower search intensities or be less likely to accept a

[3] Also see Jepsen and Rivkin (2009), a statewide study of California's class reduction policy that finds "little systematic relationship between cohort size and teacher quality."

position once offered, which could explain why talented applicants who applied for at least one teaching position do not end up working as teachers without implying anything about the preferences of schools over applicants for any particular teaching position.

Boyd et al. (2011) attempt to circumvent some of the difficulties of Ballou (1996) by employing data on teachers' applications to transfer to specific schools in New York City. These authors find that, of those teachers who applied for a transfer, those who had higher certification exam scores, who had a higher value-added, and who attended more selective colleges were more likely to be working in the new position the following year. Boyd et al. (2013) obtain similar results when using data on the matching of teachers to jobs in New York State to estimate a structural, game-theoretic, two-sided matching model of the teacher labor market. The general results in Boyd et al. (2011) and Boyd et al. (2013) are thus in contrast to Ballou (1996). The present paper thus seeks to cleanly identify preferences of schools over candidates at the initial screening stage by randomly assigning academic qualifications to resumes, sending them to specific schools, and then monitoring the responses received from these particular schools.

There is also a small body of research on the narrow geographic scope of teacher labor markets. A survey of Pennsylvania school superintendents found that, in the average district, 40% of the teachers had previously attended high school within the district (Strauss et al. 2000). Boyd et al. (2013) note that, "In New York State, over 60% of teachers first teach within 15 miles of the high school from which they graduated and 85% teach within 40 miles." And, Reininger (2012) finds, "Across the country, the median distance moved by teachers [relative to where they lived in 10^{th} grade], 13 miles, is much less than that of other college graduates, 54 miles, and is more similar to the median distance used by high school graduates, 7 miles."

These statistics on geographic mobility may suggest that schools are casting a narrow net when searching for teachers. If this is true, it may be problematic because a broader search may result in better candidates. However, an alternative explanation for these statistics is that the candidates themselves may be particularly interested in working near where they grew up. The results of the matching model in Boyd et al. (2013) suggest that teachers do have a preference to work at nearby schools but also that schools do in fact also have a preference to hire teachers who live near the school at the time they applied for certification. Killeen, Loeb, and Williams (2013) obtain similar results when studying job application data for teachers in Vermont.[4] The present study builds on this earlier work by randomly varying the stated geographic location of job seekers in an attempt to cleanly identify the extent to which the demand side is responsible for the narrow geographic scope of teacher labor markets.

Although little is known about gender discrimination in teacher hiring, research suggests that labor market discrimination against women exists in other contexts (Altonji and Blank 1999; Goldin and Rouse 2000). But one interesting feature of the teaching profession is that it is one in which women are overrepresented. According to tabulations from the Current Population Survey, only 18.6% of elementary and middle school teachers are men. Men are even underrepresented as high school mathematics teachers, as tabulations from the Schools and Staffing Survey reveal that only 43.2% of mathematics teachers in grades 9-12 at public schools are men.[5] A goal of this study is to determine whether schools themselves have a role in exacerbating or reversing these disparities.

[4] Also see Boyd et al. (2005) on the relationship between geographic proximity and teacher turnover.
[5] The elementary and middle school figure is for 2012 and was found at http://www.bls.gov/cps/cpsaat11.pdf (accessed February 24, 2013). The high school mathematics figure is for 2007-08 and can be found in Table 75 of the 2012 *Digest of Education Statistics*.

B. The Relationship between Teacher Characteristics and Teacher Quality

An effective teacher hiring process would distinguish among candidates along dimensions that are related to productivity but would not discriminate based on irrelevant characteristics. This raises the question of whether the characteristics I consider in this study actually are related to teacher quality. For example, one might contend that it is unproblematic that schools treat applicants of high academic ability and low academic ability equally if academic ability is unrelated to success as a teacher.

Although there is not a universal consensus on the topic, there is a strong case to be made that academically-talented teachers are in fact better in the classroom. Hoxby and Leigh (2004) state that it is a matter of "logic" that "a teacher's value-added is related to her academic aptitude." Ballou and Podgursky (1997) argue that, "The link between teachers' cognitive abilities and student learning stands out in a literature that frequently fails to find significant relationships between other teacher attributes and student achievement."[6] A review article by Goldhaber (2008) notes that, although teacher quality is not generally associated with easily-observed characteristics of teachers, "Some readily identifiable characteristics do predict success in the classroom. In particular, measures of academic proficiency or cognitive ability, such as a teacher's performance on standardized tests (e.g., licensure tests or the SAT or the selectivity of the colleges she graduated from), and subject specific training (e.g., a degree in mathematics) in a teacher's specialty area appear to be predictors of teacher quality." Similar results have been found by a more recent wave of studies, including Clotfelter, Ladd, and Vigdor (2010);

[6] Another exception to the general result that observable teacher characteristics are not associated with achievement is that research generally finds that teachers improve over their first couple years on the job (see, e.g., Goldhaber 2008). However, experience is not a characteristic that I vary in this study because it may be easier for school officials to determine that a resume from an experienced applicant is fictitious. Thus, all the resumes in this study are for new teachers.

Goldhaber (2007); and Jackson and Bruegmann (2009).[7] This perceived relationship between between teacher aptitude and student success has also apparently motivated organizations such as Teach for America, which has the stated mission of "eliminat[ing] educational inequality by enlisting high-achieving recent college graduates and professionals to teach for two or more years in high potential communities throughout the United States."

Additional evidence in favor of the proposition that academically-talented teachers are better teachers comes from recent studies of Teach for America. One study based on random assignment of students to teachers finds that Teach for America teachers have a positive effect on math test scores, albeit not on reading test scores (Glazerman, Mayer, and Decker 2006). An observational study by Xu, Hannaway, and Taylor (2011) also finds a positive effect of Teach for America teachers on test scores. Also of note is Dobbie (2011), who finds that, amongst Teach for America teachers, those who are rated as having high academic achievement have a positive effect on student math test scores.

Researchers have also studied the effects of teacher gender. Work by Dee (2005, 2007) suggests that there are academic benefits when students are matched with a teacher of the same gender as themselves. Dee (2007) finds that, excluding mathematics, the test score gain to girls from having a female teacher is roughly equal to the test score loss to boys from having a female teacher. Thus, if the students in a classroom are balanced on gender, we would not expect teacher gender to have an effect on average achievement in these subjects even though it might affect the distribution of achievement.[8]

[7] However one recent example to the contrary is Harris and Sass (2011), which finds that teachers' SAT scores are not associated with teacher value-added.

[8] However, Dee (2007) also finds that having a female teacher has a negative relationship with math test scores for both boys and girls, although he suggests that this result may be due to nonrandom sorting of teachers to classrooms. But Antecol, Eren, and Ozbeklik (forthcoming) find, based on random assignment of students to teachers, that having a female teacher actually is associated with lower math test scores for female students. To the extent that this is true, having more male teachers may raise achievement across the board.

However, the results about gender match between students and teachers are noteworthy given that males now lag behind females on a variety of academic outcomes, including college attendance rates (Jacob 2002; Goldin, Katz, and Kuziemko 2006). Having a higher percentage of male teachers may reduce these gender gaps. Some commentators, such as Gormley (2012), have thus called for a larger number of male teachers. Although one may argue that male underperformance in school may not be a problem because men still outperform women in the labor market, it is also worth keeping in mind that men also fare worse than women on a number of "left tail" outcomes and that education may mitigate this problem. For example, Lochner and Moretti (2004) and Deming (2011) both note that men commit much more crime than women and also find that schooling has the potential to reduce crime.

Finally, the relationship between teacher geographic proximity and student achievement is unclear.[9] However, insofar as a preference for nearby applicants is indicative of schools casting a narrow net for potential teachers, this would be expected to result in worse hiring decisions. Furthermore, as with the other variables considered in this study, it is still of interest to know which characteristics schools actually do consider in hiring even if there is not universal consensus on which characteristics they ought to consider. This can further our understanding of how teacher labor markets operate and add to our knowledge about the composition of the teaching workforce.

C. Resume Audit Studies

The practice of studying the responses to fictitious job applications in order to measure employer preferences is known as a "resume audit study" or a "correspondence study." This

[9] Although some may argue that candidates from nearby will better understand the unique local context, it is not clear how important this is. Furthermore, one could just as easily make the case that students will benefit from being exposed to teachers who are different from themselves.

methodology was employed as early as 1970 to test for discrimination against immigrants in England (Jowell and Prescott-Clarke 1970). The methodology has recently enjoyed increased popularity in economics, owing in large part to Bertrand and Mullainathan's (2004) study of whether employers discriminate against job applicants with distinctively black names. Resume audit studies have also been used to study discrimination based on age (Lahey 2008), gender (Riach and Rich 2006), sexual orientation (Weichselbaumer 2003), immigrant status (Oreopoulos 2011), and obesity (Rooth 2009). Recent resume audit studies have gone beyond studying whether employers discriminate based on demographic and physical characteristics to study such topics as the extent to which employers value mathematics skills (Koedel and Tyhurst 2012) and how employers weigh unemployment spells of various durations (Kroft, Lange, and Notowidigo 2013).

A strength of resume audit studies is that they provide the researcher control over all information employers can observe about a candidate. This allows the researcher to randomly assign resume characteristics and isolate the effects of these characteristics on employer responses. This overcomes some of Heckman and Siegelman's (1993) criticisms of in-person audit studies, such as the possibility that the testers will differ from one another along important unobservable dimensions and the possibility that the testers will act in a way that leads to the results they believe the experimenter wants to find.[10]

However, a limitation of the typical resume audit study is that the researcher can observe only whether or not a candidate is called in for an interview, which may not provide a complete picture of the hiring process. Nonetheless, Riach and Rich (2006) point out, based on studies that send out fictitious resumes and then follow up with interviews of trained actors posing as job

[10] Some prominent examples of in-person audit studies are Neumark, Bank, and Van Nort (1996); Ondrich, Ross, and Yinger (2003); and Yinger (1986).

seekers, that most discrimination takes place at the initial resume screening stage of the hiring process. Thus, studying this initial screening stage seems to provide an effective means of gauging employer preferences. Intuitively, if hiring personnel have preferences over easily-observed characteristics such as gender, age, or academic credentials, it would seem that they would be able to exercise those preferences early on in the hiring process. Furthermore, although who is hired is likely of more interest than who is interviewed, there is a relationship between the two in that the pool of interviewees is also presumably the pool of potential hires. Thus, even if hires are made randomly from the pool of interviewees, factors that affect the probability of receiving an interview should also affect the unconditional probability of being hired.

III. Methods

A. Selecting the Sample

The first step of this resume audit study was to select the schools involved. I selected 3,000 schools to receive two resumes each. Thus, the overall sample of 6,000 is similar to that in earlier resume audit studies, such as Bertrand and Mullainathan (2004) and Lahey (2008).[11] The schools were selected at random from the 2009-10 Common Core of Data, which includes data on charter schools in addition to traditional public schools, and the 2009-10 Private School Survey. These data sets are intended to form a complete census of schools in the United States, and the 2009-10 data were the most recent data available at the time of the study. In order to explore heterogeneity across school sectors, the sample consists of 1,000 traditional public

[11] This sample size is also supported by power calculations and a small pilot study I conducted. Details are available upon request.

schools, 1,000 charter schools, and 1,000 private schools. Within each of these sectors, schools were sampled without replacement with a probability proportional to student enrollment.[12]

B. Creating the Resumes

The next step of the study was to create the fictitious resumes. The goal was to create realistic-looking resumes for recent college graduates seeking their first teaching position. To aid in this process I consulted guidebooks for prospective teachers, as well as some actual resumes of current and former teachers.[13] I then created one-page resume templates that were similar in style to the actual resumes I consulted. The resume templates contain fields to fill in a candidate's name and contact information, information on the candidate's educational background and licensure status, a list of personal strengths, and information on student teaching and other previous work experience. I use a variety of values for each of these variables, which may help overcome Heckman and Siegelman's (1993) critique of previous audit studies that estimate discrimination at only a single value of the background characteristics.

Characteristics of the fictitious job applicants were generally filled in to the resume templates at random and independently from one another, but an exception is the information on college major and teacher licensure. Based on conversations with officials at state licensure agencies in a number of states, all resumes sent to elementary schools listed a major and certification in elementary education. All resumes sent to secondary schools list a major and certification in mathematics, and with probability .25 the secondary school resumes list an

[12] In a small number of cases in which multiple schools in the sample had the same principal or administrator, one of the schools was selected at random to remain in the study and the rest were replaced by a new school selected at random from the relevant population.

[13] These guidebooks include Anthony and Roe (2003); Brause, Donohue, and Ryan (2002); Clement (2007); Enelow and Kursmark (2011); Feirsen and Weitzman (2004); Hougan (2011); McKinney (2000); Pollock (2011); Warner, Bryan, and Warner (2006); and Wei (2010).

additional certification in science. These fields were chosen in an attempt to maximize power for a given sample size, on the belief that job applicants in math and science would be more likely to receive a positive response relative to those in other disciplines.

The main academic credentials I consider in this study are grade point average (GPA) and college attended. Resumes were assigned a grade point average of 3.1, 3.5, and 3.9 with probability 1/3 each. The procedure for choosing the colleges is slightly more complicated. I began by randomly assigning each resume to list either a college in the same state as the school the resume was to be sent to (with probability .75) or a college in a different state (with probability .25).[14] I then selected all colleges in the 2011 edition of *Barron's Profiles of American Colleges* that offered majors in both elementary education and mathematics. Barron's assigns colleges to nine quality tiers, and not every state has a college in each quality tier. The in-state resumes were given a college in the highest selectivity tier of colleges in the state, a college in the lowest selectivity tier of colleges in the state, and a college in one of the middle selectivity tiers each with probability 1/3.[15] The out-of-state resumes were assigned a college in a similar manner, except that the three selectivity categories were based on colleges nationwide rather than just those in a particular state.

The names of the fictitious applicants were selected at random from names that were popular at the time the applicants likely would have been born. I utilized the five most common

[14] Importantly, schools receiving out-of-state resumes is not a rarity. For example, Killeen, Loeb, and Williams (2013) find that about 45% of applicants for teaching positions in Vermont are from outside the state. Although this figure is likely higher for Vermont than other states due to its small size, the point is that it is possible for teachers to cross state lines.

[15] For example, in Florida there are 23 institutions that meet the requirement of offering both a mathematics major and an elementary education major. The highest rated of these was The University of Miami, which falls in the "most competitive" category. Thus, all the resumes from the Florida in-state sample that were selected to have the highest selectivity level list The University of Miami as the college attended. The Florida in-state resumes that were selected to have the lowest selectivity level list one or another of the three institutions in Florida that offer both a mathematics major and elementary education major and are rated by Barron's as being "less competitive." The middle selectivity resumes from Florida list one or another of the 19 remaining universities in Florida that offer both a mathematics major and an elementary education major. Each college that matches the state and selectivity tier the college is to be selected from was equally likely to be chosen.

last names in the 1990 census (Brown, Johnson, Jones, Smith, and Williams), the ten most common first names for girls born in 1990 (Amanda, Ashley, Brittany, Elizabeth, Jennifer, Jessica, Lauren, Samantha, Sarah, and Stephanie), and the ten most common first names for boys born in 1990 (Andrew, Christopher, Daniel, David, James, Joseph, Joshua, Justin, Matthew, and Michael).[16] The study uses all 100 combinations of first and last names amongst these popular names. With the assistance of a direct mail marketing company, the resumes were randomly assigned actual apartment addresses in or near the city that the college listed on the resume is located in. Although I was not able to monitor any responses received by U.S. mail, one previous audit study that was able to do so found that very few employers responded by U.S. mail; moreover, when they did respond, it was never to request an interview (Lahey 2008). Each resume also lists student teaching experience at a school selected at random from the Common Core of Data that is in or near the city in which the applicant's college is located. The resumes were also randomly assigned additional previous work experience, as well as a list of personal strengths. Finally, the resumes were given functioning e-mail addresses and phone numbers in order to monitor the responses.

C. Sending the Resumes

One way in which this study differs from previous resume audit studies is that this study sends unsolicited e-mails to school administrators rather than applying to posted job openings. Although this was done for practical reasons, it is worth noting that Heckman and Siegelman (1993) criticize the practices of previous resume audit studies on the grounds that many job openings are not actually posted. Applying for only posted positions may therefore potentially

[16] The first names come from http://www.ssa.gov/cgi-bin/popularnames.cgi, and the last names come from http://www.census.gov/genealogy/www/data/1990surnames/names_files.html.

result in misleading measures of employers' preferences over candidates. Additionally, according to guidebooks for prospective teachers, sending unsolicited resumes is a recommended method of searching for a teaching position (Brause, Donohue, and Ryan 2002; McKinney 2000; Wei 2010).[17] Finally, the reasonably high response rate the unsolicited resumes received from schools in this study validates this method of job search.

Each school in this study received two resumes, generally one in June 2012 and one in August 2012. The purpose of the two-month lag between resumes is to lessen any suspicion of the two resumes having the same origin. Furthermore, each school received a resume in the second round that used a different format and style than the one it had received in the first round. All resumes were accompanied by a brief cover letter expressing an interest in being interviewed for a teaching position. The resumes were generally sent by e-mail to the principal, headmaster, or other lead administrator of the school.[18] I obtained e-mail addresses of school administrators by searching through state directories, looking at school websites, and calling schools and directly asking for the principal's e-mail address without providing any information about the purpose of the study. Resumes were sent by US mail to schools for which I was unable to obtain the head administrator's e-mail address using one of these three methods.

Finally, a word about the timing is in order. According to the guidebooks for prospective teachers I consulted, the market for new teachers occurs over an extended period of time but many hiring decisions are not made until just before the school year begins. One guidebook states, "May and June are the busiest months for hiring teachers….Hiring activity slows in

[17] The formal hiring process and the amount of discretion the principal has vary across school districts, although Rutledge et al. (2008) explain that principals can find ways to circumvent the formal process even in cases in which the rules make it difficult for them to hire their preferred candidates.

[18] Due to an apparent glitch with an e-mail add-in, for a small number of e-mails there is no record in the "sent items" folder of the e-mail actually having been sent. In these cases, I resent the e-mail. The main results are robust to alternative treatments of these cases, including controlling for these cases with a dummy variable or dropping them from the sample. Additionally, due to human error, a small number of e-mails were sent from a different e-mail address than originally intended. The results are also robust to alternative treatments of these cases.

July….Hiring picks back up in August and September as principals try to fill remaining vacancies, as well as last minute teacher transfers and retirements" (Hougan 2011, p. 140).[19] The four large urban districts studied in a recent report by the New Teacher Project all still had vacancies after the school year has begun (Levin and Quinn 2003). Moreover, Engel's (2012) tabulations of data from the Schools and Staffing Survey suggest that 25% of new teachers are hired before the previous school year ends, 30% are hired during the first half of the summer, 34% are hired during the second half of the summer, and 11% are hired after the school year has already begun. In an attempt to send resumes at around the time schools would be hiring, I opted to send the resumes in June and August. The resumes sent in August had roughly the same response rate as those sent in June.

D. Coding the Responses

I monitored the e-mail addresses and voicemails for responses until September 30, 2012. I then coded variables based on the type of response received. The main outcome variables employed in this study are a dummy for whether a resume received an interview request and a dummy for whether a resume received either an interview request, a request for more information, or a request to apply for or interview for a different position (e.g., a substitute teaching position.) I thus follow earlier authors, such as Lahey (2008), by considering both a broader and a narrower measure of success.

E. Models and Estimators

[19] Also see Feirsen and Weitzman (2004). Moreover, a survey of New York State school superintendents conducted by Balter and Duncombe (2008) finds that the average school district typically makes job offers in June. See Papay et al. (2013) on the consequences of late hiring.

Due to the random assignment of the resume characteristics, the analysis of the data is relatively simple and straightforward. Simple differences of means should provide unbiased estimates. I also show results of regression models estimated by ordinary least squares.[20] The full specification is

$$positive_{ijs} = \beta_0 + \beta_1 \cdot highGPA_{ijs} + \beta_2 \cdot mediumGPA_{ijs} + \beta_3 \cdot highselectivity_{ijs} + \beta_4 \cdot mediumselectivity_{ijs} + \beta_5 \cdot female_{ijs} + \beta_6 \cdot outofstate_{ijs} + x_{ijs}'\beta_7 + \delta_s + \varepsilon_{ijs}.$$

The unit of observation is a resume, with resume i being sent to school j in state s. Here $positive_{ijs}$ is an indicator for receiving a positive response to a resume, $highGPA_{ijs}$ is an indicator for the resume listing a GPA of 3.9, $mediumGPA_{ijs}$ is an indicator for the resume listing a GPA of 3.5, $highselectivity_{ijs}$ is an indicator for the resume belonging to the high selectivity tier, $mediumselectivity_{ijs}$ is an indicator for the resume belonging to the medium selectivity tier, $female_{ijs}$ is an indicator for the resume listing a female name, and $outofstate_{ijs}$ is a dummy for the resume listing an address and college from outside the state the receiving school is in. Control variables for whether the resume lists an additional certification in science, the level of the school, the sector of the school, the racial composition of the school, and the urbanicity of the school are included in the vector x_{ijs}. The term δ_s denotes a full set of state indicators for the receiving school. The error term is ε_{ijs}, and the β's are parameters to be estimated. I report standard errors that are clustered at the school level. I also estimate some models that do not control for covariates, including some that enter the various treatments in isolation. However, this does not have much impact on the point estimates, which is unsurprising given that the resume characteristics are assigned randomly. The effects on the standard errors are minimal as

[20] Although the results shown in this paper are from linear probability models, the results are very similar when estimating probits and logits.

well. On the other hand, there are substantive changes in the results when I reweight the sample (which consists of an equal number of public schools, charter schools, and private schools) to be representative of the school the average student is attending. Finally, I also explore heterogeneity by school sector and between elementary and secondary schools.

IV. Results

Table 1 shows summary statistics. All variables except for the "Fraction Underrepresented Minority" variable are binary, so only means are shown in the main body of the table. The table indicates that roughly 4.3% of resumes sent received an interview request. When I define "positive outcome" more broadly to include cases in which the school asked for additional information about the candidate or asked the candidate to apply or interview for a different position the rate of positive response is roughly 7.9%. These figures are lower than the corresponding figures in previous resume audit studies, which is not altogether surprising given that the resumes in this experiment were not sent in response to posted positions. What is perhaps more surprising is that these figures are not too much lower than the corresponding figures in other studies. For example, Lahey (2008) and Kroft, Lange, and Notowidigdo (2013) both obtain interview request rates of about 4.7%, and under Lahey's broader definition of "positive response" the success rate is about 9.0%. The remaining rows of Table 1 show characteristics of the schools that received the resumes and also demonstrate that the actual assignments of the treatment variables are similar to the intended probabilities. The right-hand column of Table 1 shows means after reweighting the three sectors by relative enrollment. It is clear from examining this column that enrollment in traditional public schools (88.9%) is much higher than enrollment in either private schools (8.1%) or charter schools (3.0%). Furthermore,

public schools are disproportionately located in rural areas and are less likely to give a positive response or an interview request in response to receiving a resume.

The main results are first presented in Table 2. This table shows the raw positive response rate and the raw interview request rate for the various treatment conditions. The table shows that only 7.4% of candidates listing a high GPA of 3.9 received a positive response, compared to 7.9% of those listing the medium GPA of 3.5 and 8.3% of those listing the low GPA of 3.1. This pattern remains the same, although the magnitudes diminish, after reweighting by enrollment in the three sectors. Additionally, the resumes in the study listing a more selective college were slightly more likely to receive a positive response than those listing a less selective college. This gap widens when reweighting by enrollment, which suggests that there are differential effects by sector. Those listing a female name were slightly more likely to receive a positive response than those listing a male name, although this pattern is reversed when reweighting. Those that listed an in-state college and address were much more likely to receive a positive response than those that listed an out-of-state college and address, and this pattern remains after reweighting the sample. Lastly, although the magnitudes are naturally lower for interview requests, the table shows similar qualitative results for interview requests as for positive responses. This suggests that the "positive response" variable and the "interview request" variable may be measuring a similar underlying construct.

Table 3 shows the results for the "positive response" variable in a regression context. The table shows estimates for both the unweighted and the reweighted sample. The first four columns of each side of this table consider each of the four main sets of treatment variables in isolation, the fifth column combines all of the treatments into one regression, the sixth column adds additional covariates, and the seventh column includes a full set of dummy variables

identifying the state the receiving school is located in. Consistent with the random assignment of resume characteristics, the coefficients on the treatment variables do not change much across columns within these seven columns. However, some of the results do change between the unweighted sample and the weighted sample, which points to heterogeneous effects by sector.

The results of Table 3 suggest that having a high GPA does not help candidates. In fact, all of the point estimates are negative, albeit not statistically different from 0. The fact that having a low GPA is not an impediment to receiving a positive response is particularly noteworthy given the level of grade inflation in education schools documented by Koedel (2011). A GPA of 3.1 is potentially very low in the distribution, so it is interesting that these resumes are treated similarly to those listing a GPA of 3.5 or 3.9. Moreover, although the general results of Ballou (1996) suggest that strong academic qualifications do not help in obtaining a teaching position, Ballou (1996) actually finds a positive effect of undergraduate grade point average. However, although the effects of college selectivity are not statistically significant in the unweighted sample, they are large in magnitude and highly significant in the weighted sample. The results of column 14 suggest that attending a moderately selective college rather than a college in the lowest selectivity tier is associated with a 1.84 percentage point increase in positive responses, and attending a college in the highest selectivity tier is associated with a 3.61 percentage point increase in positive responses. By way of comparison, column 7 suggests statistically insignificant 0.82 percentage point and 1.29 percentage point increases. The difference across samples shows that there are differential effects across sectors. In particular, there is a large positive effect in the public sector, the sector that receives most of the weight in the regression of column 14.

The results in Table 3 also show that female candidates are roughly 1.2 percentage points more likely to receive a positive response than male candidates in the unweighted sample, and this estimate is significantly different from 0 at the 10% level.[21] However, this effect reverses in sign and becomes statistically insignificant in the weighted sample, suggesting that the effect is not driven by public schools. Furthermore, candidates from a different state than the receiving school is located in have a nearly three percentage point lower chance of receiving a positive response than an in-state candidate does in the unweighted sample, and this result is highly statistically significant. The magnitudes shrink slightly in the weighted sample but are still quite large. The coefficients on the additional covariates suggest that charter schools and private schools are more likely to give a positive response than public schools are and that schools with a higher share of underrepresented minority students are more likely to give a positive response than schools with a lower share are.

Table 4 shows the main results for interview requests in a regression context. There is a concern that these estimates might lack precision due to the overall lower incidence of interview requests than positive responses more broadly defined, but the results are qualitatively similar to those observed in Table 3 for positive responses. However, the magnitudes in Table 4 are generally lower than those in Table 3, which is in line with the lower mean of the left-hand side variable in Table 4.

Table 5 explores the differences by school sector in greater detail. This table shows the raw positive response and interview request rates for the various treatment conditions separately for traditional public schools, charter schools, and private schools. This table shows that having better academic qualifications is not associated with a higher likelihood of success in any of the

[21] In results not shown here, I also regressed the outcome variables used in this study on dummies for the particular first and last names used in the resumes. Results from F-tests suggest no differences between individual names.

three sectors, with the exception that college selectivity appears to matter for public schools. This table also shows that resumes listing male names were more likely than those listing female names to receive a positive response or an interview request at public schools, while the opposite was true at charter schools and private schools. All three sectors appear to show a large preference for in-state candidates.

Table 6 presents the results by sector in a regression context. This table shows the results of three regressions, one for each sector. These regressions include the full set of control variables from Table 3, including the state indicator variables. The results suggest that public schools may actually have a preference for more academically talented teachers, at least when academic talent is measured by the selectivity level of the college the applicant attended. On the other hand, charter and private schools do not seem to have this preference. If true, this result is interesting because charter and private schools are often believed to make better hiring decisions than traditional public schools due to having greater flexibility and facing more competitive pressure. On the other hand, the coefficients on the charter school and private school indicator variables in Tables 3 and 4 show that these schools are more likely to respond positively to candidates than traditional public schools are. This suggests that these schools may be following a strategy similar to the one advocated by Staiger and Rockoff (2010), in which schools have low barriers to entry when hiring teachers but high standards for retention.

The results of Table 6 also suggest that any preference for female candidates in the experiment is driven by private schools and perhaps also charter schools. Finally, the out-of-state disadvantage is large and highly significant for all three sectors. Whatever the reason for the more positive response given to in-state candidates, it must be something that affects all three sectors. One possibility is that schools may believe that out-of-state teachers are not actually

interested in coming. However, the labor market for teachers is very thick and so it is not clear why teachers would apply for jobs in places where they do not actually want to live. Furthermore, due to the general rigidity of teacher pay, searching for outside offers in an attempt to raise one's pay is unlikely in this market as well. Table 7, which focuses on interview requests, shows similar results as Table 6.

Table 8 explores whether there are differences by the level of the school. This table shows the raw positive response and interview request rates for resumes listing various characteristics separately for elementary schools and secondary schools. It also shows results that reweight by enrollment in the three sectors. A notable difference between the two levels is that higher GPAs are associated with a greater likelihood of success at elementary schools, while the reverse is true for high school mathematics teachers. The results for college selectivity are similar for the two levels. There appears to be a preference for females at both levels in the unweighted results, although this is especially true at the secondary level. This preference for females is not observed in the weighted results. The secondary level also displays a greater preference for in-state candidates than the elementary level does, although the effects are large at the elementary level as well. Tables 9 and 10 show the results by level in a regression context. Each of these tables reports the results of four regressions, and each of these regressions includes the full set of right-hand side variables from Table 3. The results in these tables support the results of Table 8. The results are broadly similar for the two levels, although there are some differences. For example, having a high GPA is associated with lower callbacks at the secondary level but not the elementary level. Furthermore, the slight preference for female teachers seen in Table 3 appears to be coming primarily from the secondary level.

VI. Conclusion

The results of this resume audit study suggest that an applicant's academic credentials have little impact on the likelihood of success at private and charter schools, although public schools respond more favorably to candidates from more selective colleges. Additionally, private schools demonstrate a slight preference for female candidates, and all three sectors demonstrate a preference for in-state candidates.

This paper's results have implications for whether offering higher salaries would result in better teachers. To the extent that schools are hiring from the available pool suboptimally, the potential to raise teacher quality by increasing salaries may be dampened; rather, it becomes important what the effect of teacher salaries on the pool of applicants is. Additionally, from the standpoint of applicants, it may be useful to compare the results of this paper to the college quality literature. A large literature, including Black and Smith (2006), Hoekstra (2009), and Long (2008, 2010), finds labor market returns to college quality. The results of this paper suggest a positive effect of college quality when applying for jobs at public schools but not at charter schools or private schools.

Because teachers have such a large impact on the life trajectories of their students, staffing schools with the best teachers is a crucial public policy goal. The results of this paper likely suggest some areas for optimism regarding teacher hiring practices in the United States, but also some areas for concern. But because there is still so little that is known about teacher hiring practices, additional research on the topic would potentially be very valuable.

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Table 1: Summary Statistics

Variable	Unweighted Mean	Weighted Mean
Outcomes		
Positive Response	0.0787	0.0514
Interview Request	0.0433	0.0315
Resume Characteristics		
High GPA	0.3255	0.3173
Medium GPA	0.3438	0.3440
Low GPA	0.3307	0.3387
High College Selectivity	0.3298	0.3255
Medium College Selectivity	0.3442	0.3491
Low College Selectivity	0.3260	0.3253
Female	0.5000	0.5038
Out-of-State	0.2565	0.2637
Science	0.1200	0.1045
School Characteristics		
Secondary School	0.4663	0.4218
Charter School	0.3333	0.0301
Private School	0.3333	0.0807
Traditional Public School	0.3333	0.8892
Fraction Underrepresented Minority	0.3479	0.3499
Located in City	0.3937	0.2495
Located in Suburb	0.3007	0.2971
Located in Town	0.1007	0.1318
Located in Rural Area	0.2050	0.3216

Notes: The sample size is 6,000. The unweighted standard deviation of the "Fraction Underrepresented Minority" variable is 0.3619, and the weighted standard deviation is 0.3348. All other variables are binary.

Table 2: Raw Positive Response and Interview Request Rates

	Unweighted		Weighted	
	Positive	Interview	Positive	Interview
High GPA	0.074	0.039	0.049	0.028
Medium GPA	0.079	0.045	0.051	0.033
Low GPA	0.083	0.045	0.054	0.033
High College Selectivity	0.084	0.045	0.067	0.036
Medium College Selectivity	0.079	0.043	0.051	0.034
Low College Selectivity	0.073	0.041	0.036	0.024
Male	0.073	0.039	0.053	0.031
Female	0.085	0.047	0.049	0.031
In-State	0.086	0.049	0.057	0.036
Out-of-State	0.057	0.027	0.035	0.018

Table 3: Determinants of Positive Responses

	Unweighted							Weighted						
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
High GPA	-0.0084				-0.0084	-0.0098	-0.0083	-0.0056				-0.0062	-0.0083	-0.0084
	(0.0086)				(0.0086)	(0.0085)	(0.0085)	(0.0103)				(0.0103)	(0.0102)	(0.0099)
Medium GPA	-0.0037				-0.0025	-0.0021	-0.0007	-0.0033				-0.0026	-0.0008	-0.0031
	(0.0084)				(0.0084)	(0.0083)	(0.0082)	(0.0100)				(0.0099)	(0.0098)	(0.0094)
High College Selectivity		0.0113			0.0119	0.0121	0.0129		0.0306***			0.0310***	0.0337***	0.0361***
		(0.0084)			(0.0084)	(0.0084)	(0.0084)		(0.0099)			(0.0099)	(0.0098)	(0.0101)
Medium College Selectivity		0.0068			0.0072	0.0080	0.0082		0.0144			0.0150*	0.0166*	0.0184**
		(0.0083)			(0.0083)	(0.0082)	(0.0082)		(0.0090)			(0.0090)	(0.0091)	(0.0091)
Female			0.0120*		0.0122*	0.0125*	0.0119*			-0.0039		-0.0040	-0.0042	-0.0064
			(0.0070)		(0.0070)	(0.0069)	(0.0070)			(0.0080)		(0.0080)	(0.0079)	(0.0081)
Out-of-State				-0.0289***	-0.0293***	-0.0289***	-0.0269***				-0.0220**	-0.0221**	-0.0224***	-0.0231***
				(0.0072)	(0.0072)	(0.0072)	(0.0072)				(0.0086)	(0.0086)	(0.0086)	(0.0087)
Science						0.0216*	0.0208						0.0329*	0.0348*
						(0.0131)	(0.0130)						(0.0183)	(0.0181)
Secondary School						-0.0024	-0.0022						-0.0012	0.0016
						(0.0083)	(0.0083)						(0.0102)	(0.0097)
Charter School						0.0555***	0.0517***						0.0541***	0.0533***
						(0.0101)	(0.0106)						(0.0109)	(0.0119)
Private School						0.0376***	0.0423***						0.0481***	0.0507***
						(0.0094)	(0.0096)						(0.0109)	(0.0110)
Fraction Underrepresented Minority						0.0317**	0.0330**						0.0571***	0.0539**
						(0.0150)	(0.0159)						(0.0213)	(0.0211)
Urbanicity Dummies?	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes	Yes
State Dummies?	No	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes
N	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000

Notes: Standard errors that are robust to clustering at the school level are in parentheses. A single asterisk denotes significance at the 10% level, a double asterisk denotes significance at the 5% level, and a triple asterisk denotes statistical significance at the 1% level.

Table 4: Determinants of Interview Requests

	Unweighted							Weighted						
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
High GPA	-0.0059				-0.0059	-0.0069	-0.0066	-0.0052				-0.0052	-0.0067	-0.0082
	(0.0064)				(0.0063)	(0.0063)	(0.0063)	(0.0084)				(0.0083)	(0.0083)	(0.0079)
Medium GPA	-0.0003				0.0005	0.0019	0.0023	-0.0000				0.0005	0.0031	0.0001
	(0.0065)				(0.0064)	(0.0063)	(0.0062)	(0.0084)				(0.0084)	(0.0083)	(0.0079)
High College Selectivity		0.0041			0.0046	0.0054	0.0059		0.0117			0.0121	0.0149*	0.0159**
		(0.0064)			(0.0064)	(0.0063)	(0.0063)		(0.0079)			(0.0079)	(0.0079)	(0.0080)
Medium College Selectivity		0.0017			0.0020	0.0031	0.0030		0.0091			0.0097	0.0109	0.0108
		(0.0062)			(0.0062)	(0.0061)	(0.0061)		(0.0078)			(0.0078)	(0.0079)	(0.0077)
Female			0.0080		0.0082	0.0087*	0.0081			0.0000		0.0002	0.0001	-0.0017
			(0.0053)		(0.0052)	(0.0052)	(0.0052)			(0.0062)		(0.0062)	(0.0061)	(0.0062)
Out-of-State				-0.0216***	-0.0219***	-0.0218***	-0.0205***				-0.0184***	-0.0185***	-0.0191***	-0.0194***
				(0.0053)	(0.0053)	(0.0053)	(0.0053)				(0.0068)	(0.0068)	(0.0067)	(0.0067)
Science						0.0165	0.0167						0.0198	0.0227
						(0.0110)	(0.0109)						(0.0153)	(0.0151)
Secondary School						0.0149**	0.0147**						0.0098	0.0105
						(0.0063)	(0.0063)						(0.0084)	(0.0080)
Charter School						0.0312***	0.0253***						0.0293***	0.0290***
						(0.0082)	(0.0086)						(0.0093)	(0.0103)
Private School						0.0106	0.0121*						0.0131	0.0112
						(0.0066)	(0.0066)						(0.0080)	(0.0082)
Fraction Underrepresented Minority						0.0497***	0.0479***						0.0568***	0.0462***
						(0.0118)	(0.0122)						(0.0184)	(0.0175)
Urbanicity Dummies?	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes	Yes
State Dummies?	No	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes
N	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000

Notes: Standard errors that are robust to clustering at the school level are in parentheses. A single asterisk denotes significance at the 10% level, a double asterisk denotes significance at the 5% level, and a triple asterisk denotes statistical significance at the 1% level.

Table 5: Raw Positive Response and Interview Request Rates by Sector

	Positive			Interview		
	Public	Charter	Private	Public	Charter	Private
High GPA	0.044	0.101	0.076	0.027	0.065	0.025
Medium GPA	0.047	0.114	0.077	0.032	0.073	0.030
Low GPA	0.050	0.121	0.079	0.032	0.081	0.024
High College Selectivity	0.065	0.115	0.073	0.035	0.071	0.031
Medium College Selectivity	0.046	0.104	0.090	0.033	0.066	0.030
Low College Selectivity	0.031	0.118	0.068	0.023	0.082	0.019
Male	0.051	0.101	0.067	0.031	0.068	0.020
Female	0.044	0.123	0.088	0.030	0.078	0.034
In-State	0.052	0.119	0.086	0.035	0.081	0.030
Out-of-State	0.032	0.090	0.051	0.017	0.048	0.018

Table 6: Determinants of Positive Responses by Sector

Variable	Public	Charter	Private
High GPA	-0.0092	-0.0159	-0.0028
	(0.0112)	(0.0181)	(0.0139)
Medium GPA	-0.0045	-0.0030	-0.0043
	(0.0107)	(0.0175)	(0.0140)
High College Selectivity	0.0409***	-0.0059	0.0017
	(0.0115)	(0.0177)	(0.0144)
Medium College Selectivity	0.0197*	-0.0147	0.0160
	(0.0103)	(0.0170)	(0.0147)
Female	-0.0109	0.0188	0.0215*
	(0.0091)	(0.0143)	(0.0118)
Out-of-State	-0.0221**	-0.0279*	-0.0309**
	(0.0098)	(0.0158)	(0.0120)
Science	0.0398*	0.0212	0.0036
	(0.0210)	(0.0239)	(0.0216)
Secondary School	0.0029	0.0028	0.0013
	(0.0111)	(0.0173)	(0.0155)
Fraction Underrepresented Minority	0.0604**	0.0339	-0.0244
	(0.0238)	(0.0297)	(0.0407)
Urbanicity Dummies?	Yes	Yes	Yes
State Dummies?	Yes	Yes	Yes
N	2,000	2,000	2,000

Notes: Standard errors that are robust to clustering at the school level are in parentheses. A single asterisk denotes significance at the 10% level, a double asterisk denotes significance at the 5% level, and a triple asterisk denotes statistical significance at the 1% level.

Table 7: Determinants of Interview Requests by Sector

Variable	Public	Charter	Private
High GPA	-0.0092	-0.0113	0.0004
	(0.0090)	(0.0143)	(0.0083)
Medium GPA	-0.0012	-0.0020	0.0071
	(0.0090)	(0.0142)	(0.0086)
High College Selectivity	0.0175*	-0.0127	0.0132
	(0.0092)	(0.0143)	(0.0089)
Medium College Selectivity	0.0118	-0.0160	0.0109
	(0.0087)	(0.0139)	(0.0081)
Female	-0.0043	0.0096	0.0153*
	(0.0071)	(0.0116)	(0.0078)
Out-of-State	-0.0201***	-0.0318***	-0.0119
	(0.0076)	(0.0123)	(0.0073)
Science	0.0243	0.0087	0.0192
	(0.0175)	(0.0212)	(0.0169)
Secondary School	0.0101	0.0235*	0.0192**
	(0.0091)	(0.0141)	(0.0096)
Fraction Underrepresented Minority	0.0462**	0.0546**	0.0138
	(0.0199)	(0.0248)	(0.0210)
Urbanicity Dummies?	Yes	Yes	Yes
State Dummies?	Yes	Yes	Yes
N	2,000	2,000	2,000

Notes: Standard errors that are robust to clustering at the school level are in parentheses. A single asterisk denotes significance at the 10% level, a double asterisk denotes significance at the 5% level, and a triple asterisk denotes statistical significance at the 1% level.

Table 8: Raw Positive Response and Interview Request Rates by Level

	Unweighted				Weighted			
	Positive		Interview		Positive		Interview	
	Elementary	Secondary	Elementary	Secondary	Elementary	Secondary	Elementary	Secondary
High GPA	0.078	0.070	0.035	0.044	0.053	0.043	0.027	0.029
Medium GPA	0.075	0.084	0.036	0.056	0.046	0.059	0.023	0.048
Low GPA	0.072	0.094	0.027	0.065	0.043	0.069	0.023	0.047
High College Selectivity	0.079	0.089	0.032	0.061	0.063	0.074	0.028	0.049
Medium College Selectivity	0.075	0.084	0.033	0.056	0.048	0.055	0.028	0.041
Low College Selectivity	0.070	0.076	0.033	0.050	0.030	0.045	0.017	0.034
Male	0.071	0.074	0.030	0.050	0.050	0.057	0.024	0.041
Female	0.078	0.092	0.036	0.061	0.044	0.057	0.024	0.042
In-State	0.081	0.091	0.036	0.064	0.050	0.066	0.026	0.050
Out-of-State	0.058	0.057	0.025	0.031	0.039	0.029	0.021	0.013

Table 9: Determinants of Positive Responses by Level

	Unweighted		Weighted	
Variable	Elementary	Secondary	Elementary	Secondary
High GPA	0.0047	-0.0251**	0.0060	-0.0288*
	(0.0116)	(0.0125)	(0.0123)	(0.0165)
Medium GPA	0.0034	-0.0053	0.0005	-0.0047
	(0.0110)	(0.0126)	(0.0125)	(0.0152)
High College Selectivity	0.0124	0.0152	0.0378***	0.0298*
	(0.0117)	(0.0123)	(0.0124)	(0.0173)
Medium College Selectivity	0.0058	0.0111	0.0215**	0.0114
	(0.0111)	(0.0126)	(0.0108)	(0.0150)
Female	0.0056	0.0177*	-0.0121	0.0020
	(0.0092)	(0.0106)	(0.0104)	(0.0124)
Out-of-State	-0.0200**	-0.0364***	-0.0107	-0.0397***
	(0.0096)	(0.0111)	(0.0111)	(0.0145)
Science		0.0223*		0.0378**
		(0.0131)		(0.0184)
Charter School	0.0592***	0.0451***	0.0567***	0.0437**
	(0.0150)	(0.0159)	(0.0163)	(0.0185)
Private School	0.0590***	0.0275*	0.0818***	0.0229
	(0.0130)	(0.0145)	(0.0144)	(0.0161)
Fraction Underrepresented Minority	0.0440*	0.0251	0.0945***	0.0156
	(0.0227)	(0.0228)	(0.0303)	(0.0275)
Urbanicity Dummies?	Yes	Yes	Yes	Yes
State Dummies?	Yes	Yes	Yes	Yes
N	3,202	2,798	3,202	2,798

Notes: Standard errors that are robust to clustering at the school level are in parentheses. A single asterisk denotes significance at the 10% level, a double asterisk denotes significance at the 5% level, and a triple asterisk denotes statistical significance at the 1% level.

Table 10: Determinants of Interview Requests by Level

	Unweighted		Weighted	
Variable	Elementary	Secondary	Elementary	Secondary
High GPA	0.0068	-0.0217**	-0.0008	-0.0191
	(0.0074)	(0.0103)	(0.0087)	(0.0141)
Medium GPA	0.0084	-0.0051	-0.0012	0.0051
	(0.0072)	(0.0108)	(0.0098)	(0.0138)
High College Selectivity	0.0013	0.0135	0.0145	0.0159
	(0.0078)	(0.0103)	(0.0089)	(0.0152)
Medium College Selectivity	0.0007	0.0074	0.0132	0.0086
	(0.0074)	(0.0102)	(0.0086)	(0.0135)
Female	0.0048	0.0110	-0.0041	0.0040
	(0.0062)	(0.0087)	(0.0073)	(0.0103)
Out-of-State	-0.0099	-0.0349***	-0.0052	-0.0412***
	(0.0065)	(0.0086)	(0.0083)	(0.0112)
Science		0.0178		0.0252
		(0.0110)		(0.0154)
Charter School	0.0253**	0.0286**	0.0235*	0.0318**
	(0.0112)	(0.0135)	(0.0134)	(0.0156)
Private School	0.0180**	0.0096	0.0298***	-0.0006
	(0.0073)	(0.0116)	(0.0094)	(0.0130)
Fraction Underrepresented Minority	0.0557***	0.0389**	0.0841***	0.0117
	(0.0160)	(0.0187)	(0.0254)	(0.0229)
Urbanicity Dummies?	Yes	Yes	Yes	Yes
State Dummies?	Yes	Yes	Yes	Yes
N	3,202	2,798	3,202	2,798

Notes: Standard errors that are robust to clustering at the school level are in parentheses. A single asterisk denotes significance at the 10% level, a double asterisk denotes significance at the 5% level, and a triple asterisk denotes statistical significance at the 1% level.