Access to Higher Education in a Centralized System: School Choice and Willingness to be Unassigned*

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Abstract

In Turkey, transition to higher education from high school is possible only through an exam at a national level implemented once in a year by a central authority. Driven by excess demand and high competition there is a large number of applicants every year retaking the test as they previously failed to obtain a sufficient test score to be placed in a desired program. Applicants submit a list of higher education programs up to 24 in an order of their preferences after receiving their test scores and last year's cutoff score for each program. Given the design of the placement procedure, it is possible to determine if the applicants choose risky options and hence implicitly choose to fail and retake the test next year looking at the last programs in their list. This paper aims at analyzing the gender differences in school choice and willingness to take the risk of being unassigned when applicants have a possibility of retaking. Using the lists of programs that applicants choose along with data on demographic characteristics, baseline academic achievement of applicants, and the characteristics of university programs of the year 2008, I find that girls are less likely to take the risk of being unassigned and more likely to choose lower profile programs as last option to guarantee their placements with respect to boys. Finally they are also more likely to be concerned about admission probability rather than other characteristics that are important later at labor market.
Keywords: university applications, education, preferences, logit model

VERY PRELIMINARY: PLEASE DO NOT QUOTE WITHOUT PERMISSION

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1 Introduction

In Turkey, transition to higher education from high school is possible only through a test-based exam at a national level implemented by a central authority. After taking the test, applicants submit a list of higher education programs in an order of their preferences and central authority assigns students to each program with limited capacities considering the preferences and test scores. Given the number of applications, the demand for higher education is quite far from to be met. Considering this huge excess demand, in order to avoid the over-enrollment in higher education, the system designed in a restrictive way. Therefore the national university entrance examination has a discarding structure with a double-fold objective: Firstly, it denies access to university for the least successful students with the presumption that they may drop out or generally perform poorly at university. Secondly it gives access to university to the most successful students and accordingly with their preferences offers them a place in a university and field of study that is presumed to maximize their utility. Driven by excess demand and high competition there is a large number of applicants every year retaking the test as they previously failed to obtain a sufficient test score to be placed in a desired program. Many applicants that are not satisfied with their test score choose to be unassigned and retake the test following year. As the retaking decision is affected by many factors that vary across individuals, it is reasonable to expect that the school choice and consequently labor market outcomes are expected to be influenced by this heterogeneity.

Equity of opportunities is one of the the major challenges in Turkish education system characterized by crucial disparities according to gender and region. The gender gap in education and labor market has remained as a persistent characteristic in Turkey since 1980s. Female labor force participation (especially urban level) has been lower than any other country in the OECD or Europe. Female labor participation has been higher in rural areas of the country, as girls usually stay home and join family labor while boys are more likely to go to school in these areas. As for the wage inequality, it mainly comes from low levels of female education and the inequality in education starts at very early levels of education where girls fail to complete even 8 years of compulsory schooling. On the other hand, similarly with many other countries in the world, girls have been showing higher performance compared to boys in terms of general education outcomes. Girls have

a higher high school GPA on average with respect to boys, but are less likely to take the test for university entrance. The gender gap in terms of university applications as not as severe as earlier levels of education where 44% of high school graduates were girls while 38% of applicants (including re-takers) were girls. Once girls take the test, they are more successful than boys in all fields, but this improvement in performance is not visible in the labor market. One of the most distinctive difference across gender at university applications appears to exist in retaking decision. Among the 2008 university entrance test applicants, 55% of girls were re-takers while 66% of boys retook the test. Similarly for those who are placed in a program, 76% of girls and 84% of boys have taken the test at least once before.

Although it is reported as a general trend that girls obtain better education outcomes with respect to boys, gender gap in labor markets remain persistent in many countries. While the gender gap in terms of education level explains most of the gap in the labor market, there is still a considerable gap both in terms of occupations and wages between male and female workers with the same education level. There are many studies providing explanations from different perspectives (Polachek 1981, Waldfogel, 1998, Goldin and Rouse, 2001) for the gender gap in the labour market, the literature is restricted on the link to the gender differences in educational outcomes. Relatively recent studies provide some results suggesting also that there are significant gender differences in attitudes towards risk and competition and in performance in competitive environments. Gneezy et al (2003) showed that women's performance is worse than men when the environment is more competitive. Similarly, Niederle and Vesterlund (2005) suggest that women also are more likely to avoid competitive situations and Dohmen and Falk (2006) argue that gender differences in avoiding competitive situations can be mostly explained by gender differences in the attitudes towards risk.

In the case of centralized system of university applications in Turkey, it is expected that the more risk averse the applicant is the lower is the reservation university program of the applicant as the safer choices will necessarily have lower cutoff scores therefore lower quality and popularity. Furthermore, the attitude towards risk of being unassigned is also related to time preferences as taking the risk of being unassigned requires taking

the risk of waiting another year to retake the test. In other words retaking decision is characterized by immediate costs but delayed benefits, thus time preferences are relevant. According to the evidence that DellaVigna and Paserman (2005) provide more impatient job seekers set lower reservation wages. Also, Paserman (2007) argues for US job seekers that there is a heterogeneity where the degree of discounting for low and medium wage workers is very high, while high wage workers are relatively more patient. The case of the decision of retaking the test of university entrance represents an example for such a situation where an applicant expects to obtain a higher test score in the next year with an additional cost of another year of preparation. As a result, any difference in time preferences would also lead to differences in the attitude towards risk of being unassigned and reservation university program.

In this paper, the institutional setting given the centralized system of university applications will be used as a tool in order to investigate gender differences in taking risk of being unassigned and therefore gender differences in reservation university programs and the potential effect on school choice and placement outcomes. The research question is whether and how female applicants differ from male applicants in terms of preferences on university program characteristics and attitudes towards risk of being unassigned. In particular, it is aimed to explore if there is a significant difference in willingness to take the risk of being unassigned at the university entrance test and the potential implications of such differences on school choice.

The design of the Turkish university entry exam and allocation mechanism provide a means to answer questions related to retaking decision and school choice by applicants with different demographics. The centralized system affords the opportunity to use administrative data and the institutional setting provides the identification strategy for the reservation university programs. The aim of this paper is to understand how applicants make the retaking decision and to contemplate the preferences by gender for specific characteristics of university programs. In particular, it seeks to answer if there is a heterogeneity both in the willingness to be unassigned and in the preferences for these university characteristics that can potentially explain the differences in placement outcomes.

After sitting for the test and receiving their scores for each field, each student lists as many as 24 university programs on her choice form in order of preference. If their test scores are not good enough to be placed in any of those departments in their list, they are assumed to fail the exam and they have the option of re-taking the exam next year. Since the test-based admission system is highly competitive, many students who do not achieve test scores high enough to be placed in one of their desired programs are willing to re-take the exam next year instead of being placed in an undesired program. Once an applicant is placed in one of the programs in her list, the option of rejecting and re-taking the exam is quite costly for the previously assigned re-takers. [1] Given that they have re-taking option at extra cost if they are assigned to a university program in the previous year, the last program on their list can be assumed to be the last university program before their outside option which is being unassigned.

In this paper, first I describe willingness to be unassigned and show the differences across gender, then I elaborate the link between willingness to be unassigned and school choice. I consider the choice of lowest cutoff score university program in the preference list of applicants as the last department that the applicant is willing to attend. In order to separate preferences from restrictions caused by cost of retaking or failing, I will compare the choice of last program with the choice of first program in their list. This approach is in the search of answering following crucial questions. Is there any gender differences in choices driven by differences in willingness to be unassigned? Controlling for test scores and high school achievements, some applicants might choose their last program having relatively lower cutoff scores as safe options to guarantee their placement. This will give us the information about the applicant's willingness to be placed in a relatively lower quality university program because of re-taking costs which can vary over different demographic groups. Answering these questions will also shed light on the heterogeneity in willingness to fail by gender which might affect the final allocation of abilities. My work does not only contribute to the explanation of gender gap in willingness to retake or being unassigned and placement outcomes but it will also take a place in debate on school choice (Hastings

[1] When the placement scores are calculated, high school gpa multiplied by relevant coefficients are added to the test score and these coefficients are lowered for applicants who are previously placed when they re-take in the next year.

et al. 2005, 2006, Cullen et al. 2003) with a different perspective. My focus will be the effect of a potential heterogeneity in willingness to take risk of being unassigned on school choice and therefore on the placement outcome given the gender differences in preferences and restrictions.

The exam is called as "Student Selection Exam" (OSS) and the central authority called Student Selection and Placement Center (OSYM in Turkish) conducts the exam and placement process. After sitting for OSS, applicants receive their test scores and those who pass a certain threshold in at least one of the main fields are expected to submit a list of choices of departments considering their own test scores and cutoff scores of each department from previous year's allocation which are published by OSYM.

I assemble a unique dataset that allows me to address the questions above. I use the 2008 OSS Applicant Survey provided by OSYM together with administrative data containing the preferences lists submitted by each applicant together with information on test scores in each field, high school information and achievements. I also merge the characteristics of cities, universities and programs corresponding to each program which is chosen by each applicant.

At first stage, I run a set of reduced form estimations of different measures for willingness to take the risk of being unassigned conditional on test scores and individual characteristics in order to see gender differences. I then implement a differences-in-differences method and multinomial logit model in order to estimate applicants' revealed preferences over alternative fields of university programs for their first and last choice. I run also a rank ordered logit model where only chosen programs are taken into account and preferences of applicants are mapped from the ranking of the programs in their list.

Preliminary results show that controlling for test score and other individual characteristics controlling also for high school, high school type and high school backgrounds fixed effects, girls are less likely to be willing to be unassigned and therefore have lower cutoff score programs as their last option in order to avoid to be unassigned even if their test scores are significantly higher on average. Girls are more likely to choose low profile

schools as their lowest cutoff score options in their list. Finally according to preliminary results of rank ordered logit model estimations girls are more likely than boys to be concerned about admission probability rather than other attributes such as foreign language as instruction language which is potentially an important asset for the labor market when they graduate.

The paper organizes as following: Section 2 provides details about the institutional settings and in the third section data and some descriptive statistics supporting the motivation of this paper are presented. Section 4 and 5 explain the research design and report the preliminary results and section 6 concludes.

2 More on the procedure of transition to Higher Education in Turkey

In this section, I briefly explain the university entrance system in Turkey. The settings of the application and admission procedure will be important to elaborate the research question of the paper and will also shed some light on the decision making of applicants.

The only requirement for OSS application is to be graduated and/or eligible to be graduated from high school. Applications are received by OSYM with a strict deadline in all around the country (around March). All high schools submit the GPA's of their students to OSYM. The submission of GPAs is independent from the university entrance test and might be before or after. Exam is conducted at a national level on the same date/time (in June) in all regions of the country.

High school students choose a broad field of study in their second year such as: Sciences, Turkish-Mathematics, Social Sciences, Foreign Languages, and Arts. The university entrance test has two general sections where the second section is relatively more sophisticated and each section has 4 following sub-sections in following fields: Social Sciences (history, geography and philosophy), Science (Biology, Chemistry and Physics), Mathematics, Literature. Regardless of student's choice of field at high school, each student answers essentially 4 sections which are Literature 1, Social sciences 1, Mathematics

1, and Science 1. They also might answer other sections that are more advanced requiring more detailed knowledge in the corresponding field. Based on the number of correct and wrong answers in these sections, 6 different test score is calculated for each individual in the following categories: OSS quantitative1 grade, OSS qualitative1 grade, OSS equally weighted1 grade, OSS quantitative2 grade, OSS qualitative2 grade, OSS equally weighted2 grade. As the coefficients that are multiplied with the number of correct answers in each section are higher for the sections that are related to applicant's high school field, applicants tend to give priority to answer relevant sections of the test in order to maximize their score.

For those having a grade higher than 160 in OSS qualitative1, OSS equally weighted1, OSS foreign language and a grade higher than 185 in OSS quantitative2, OSS qualitative2, OSS equally weighted2, OSS Placement grades are calculated while the others are considered as "failed". Placement grades are calculated as a sum of OSS grades and weighted high school GPA's. Weighted GPA's are calculated for each main category after the test by considering the average OSS grade and GPA of the all students of the high school that the applicant attended. The final weighted GPA in each main category is obtained by multiplying it with coefficients according to their field of study. In other words, an applicant gets a lower weighted GPA for the calculation of her placement grade in an off-field main category. For example, an applicant having chosen Sciences as high school field would have the highest coefficient for the OSS quantitative categories (e.g. 0.8) while it is lowest for OSS qualitative categories (0.2). Since it leads a lower placement grade for off-field categories, it strongly discourages applicants to choose off-field university programs.

Each university program is associated with one of the 7 categories and it has a pre-announced limited capacity which is determined by Higher Education Council. Applicants receive their final placement scores in all categories together with a booklet where they can see the capacity and the cutoff score of each department determined by the placement grade of the last admitted student. Knowing their final placement score in each category and the previous years' cut-off scores of each program, applicants make a list of programs up to 24 programs that can be associated with different categories.

Allocation algorithm is based on college optimal allocation mechanism. All students who choose a university program are ranked according to their placement grades in the associated main category with that department and the students having a higher grade are tentatively assigned to that program under the constraint of the capacity of the university program. (For example, computer engineering department is associated with the category quantitative 2 and all applicants choosing engineering department of university A are ranked according to their quantitative 2 placement grade.) Tentative assignments continue at each step of the algorithm mechanism until each applicant gets either one final assignment or no assignment. Since the demand for many programs is higher than the capacity of the programs, OSYM gives the priority to the applicants having higher test scores. Therefore an applicant will be placed to the program closest to the top of her preference list where her test score is sufficiently high compared to the other applicants having the same department in their preference list under the constraint of the program capacity.

On average only around half of the applicants are placed in a university program. The students who are not eligible to be placed in any department in their list get no assignment and can re-take the exam in the following years. Given the increasing number of re-takers together with new graduates (around 90 of high school graduates), the excess demand repeat itself every year.

A relevant feature of the system is the punishment for re-takers that are placed in a university program in the previous year. An applicant's weighted high school GPA is calculated with a lowered coefficient if (s)he is placed in a program in the previous year. This rule is highly discouraging applicants to have a program that they are not willing to attend in their list. Therefore applicants are encouraged to get no assignment this year and retake the test next year instead of attending an undesired program or rejecting the placement and retaking the test with lower weighted high school GPA.

3 Data and Descriptive Statistics

The dataset employed in this study is obtained from a merge of the 2008 OSS (Student Selection Examination) dataset and 2008 Survey of the OSS Applicants and Higher Education Programs dataset. The OSS dataset provides the individual information about test scores in each sections of the exam, high school weighted GPA's, preferences over higher education programs and placement for all the 1.646.376 applicants. On the other hand, the Survey of OSS applicants is a survey conducted by OSYM where the applicants are asked questions about socioeconomic characteristics of the household, high school achievements, private tutorials, applicant's views about high school education and private tutorials. This is a survey conducted online by OSYM and there are 62.775 applicants answering the survey questions in 2008. I use a random sample of about 16 percent with 9983 observations. Finally, Higher Education Programs dataset provides the information about characteristics of universities and higher education programs (distance, private or public, instruction language, cutoff grades of previous years, capacities...etc).

In order to construct the dataset, first the survey of OSS applicants is merged with the OSS dataset. Then the characteristics of university programs from Higher Education Programs dataset are merged by each university program that applicants list. I also obtained information on private tutoring centers and high schools by city and merged them by the city where the applicant attended high school.

Table 1 provides the summary statistics of individual characteristics of applicants by gender. From this table, it is clear that girls have on average higher high school gpa and test scores and lower rate for retaking the test than boys. As it is previously stated, girls are less likely to obtain a high school degree and take the university entrance test with respect to boys and this might create a selection bias. In order to avoid the positive selection in the favor of female applicants, my analysis will be based on an empirical approach conditional on the test scores. In other words, it is aimed to investigate the differences in university applications controlling for the standardized test scores obtained by individuals.

Table 5 reports the results for the estimation of test scores in all categories on individual characteristics controlling for high school fixed effects and shows that girls have

higher test scores in many categories controlling for individual characteristics and the high differences in test scores between boys and girls seem to decrease once we control for high school field. This result is mostly driven by the fact that girls tend to choose social science fields at high school so get lower test scores in quantitative categories and boys are more likely to choose science and math fields so they tend to get lower scores in qualitative and foreign language categories. At the same table, positive and significant coefficient of the dummy variable taking value 1 of the applicant is a second taker, shows that there is a positive relationship between retaking and test scores in many categories. Controlling for other individual characteristics, second-takers have significantly higher test scores even though the level of this effect varies across categories. (e.g. there is no significant relationship between retaking and foreign language and qualitative 2 test scores while the highest significant effect is seen on quantitative test scores.). As the university entrance test is a standardized test, it is not surprising that an applicant is more likely to obtain a higher test score with another year of preparation and thus many applicants choose to re-take the test in order to increase their test scores. I estimated re-taking status on the individual characteristics controlling for high school fixed effects and found that boys are more likely to be a re-taker with respect to girls. Table 6 and 7 show the results for all and selected sample[2] respectively.

As the boys are more likely to be a re-taker with respect to girls, it is no surprise that girls are more likely to be placed in a university program given their test scores. I estimated discrete placement outcome in one of the 7 categories or no placement with multinomial logit on gender controlling for all of the test scores and high school GPA, and I found that there are significant differences between boys and girls in terms of placement outcome. Table 2 shows the mean gender differences in predicted probabilities of placement in all categories. First line indicates that boys are more likely to be unplaced with respect to girls. The difference between boys and girls is more visible for low and high test score applicants.[3]

Finally, Table 8 shows the estimation results of the cutoff scores of the programs chosen by applicants. First column reports the results for the estimation of cutoff score of the

[2]Selected sample is created by selecting out the individuals who failed to pass the threshold and discarded at first step. I used this sample in order to select out the applicants that fails to be placed and have no other option than re-taking.

[3]One might be concerned about the high share of male applicants in the sample when it comes to placement outcomes as it is a procedure of placement of applicants to a limited number of programs that have pre-announced capacities. On the other hand, this bias goes to a direction supporting the result.

program where applicant is placed conditional on the test scores and individual characteristics controlling for high school fixed effects and results show that cutoff scores of programs that boys are placed are higher by 1.8 on average. Similarly, second and third columns are for the cutoff scores of the first and last choice programs respectively.

4 Research Design: Willingness to Fail to be Assigned

Preliminary findings reported in the previous section show that girls target lower cutoff score programs and they are placed in programs that have lower cutoff scores although their test scores are higher with respect to boys on average. It is also shown that controlling for test scores, boys are more likely to be a re-taker. The question that I seek an answer for in this section is whether boys are more likely to be willing to be unassigned instead of being placed in a program that has a lower cutoff score. In order to find such an answer, one should elicit the list of university programs submitted by applicants.

Since applicants do not know the exact cutoff grades for university programs for the year that they take the exam, they infer a probability of being placed to any university program from previous years cutoffs of this program and their test score in corresponding category. Thus each student makes her list of choices depending on her expected utility of attending a university program under the constraint that the list can include up to 24 choices from 10.617 programs belonging one of the 7categories provided by 147 universities.

The choice list typically includes university programs having cutoff scores around their placement grades in corresponding categories according to applicants' expectations about the cutoff scores that are mostly determined by the popularity of the programs and universities. The first program in any category in their list usually is a program that is most desired but also is expected to have higher cutoff score among other chosen programs in this category. The last program with the lowest cutoff score is assumed to be last program that the applicant is willing to attend in that category. In other words, the applicant is willing to fail to be assigned if not placed to the last program with the lowest cutoff score in that category.

Table 3 gives the summary statistics of some variables related to choices by gender. As it is previously mentioned, an applicant can put a certain number of choices up to 24 where the expected utility of attending last program in the list should be higher than the expected utility of re-taking the exam. In the sample of 9985 applicants, 1306 applicants did not submit a preference list. 1217 of them did not submit a list even if they had a higher test score than the threshold of 160 in at least one of the main fields (equally weighted-1, qualitative-1, quantitative-1, foreign language-1) while the rest has failed to pass the threshold of submitting choice list. 3238 applicants (one third of sample) submitted a full list of 24 departments and the average number of choices in the list is 14.28.

It is a very critical issue how to define the willingness to fail to be assigned. As a first stage of the analysis, I created a dummy variable taking value 0 if the applicant's placement scores are lower than cutoff scores of the last programs in all categories in her list and value 1 if there is at least one program having lower cutoff score than the placement grade of the applicant in one of the chosen categories. I take the lowest cutoff programs in each category listed by the applicant and take the differences between cutoff scores and applicants' test scores in corresponding categories. If all the differences are positive which means even the lowest cutoff score programs listed by the applicant have higher cutoff scores than applicant's test score in each category, then the applicant is assumed to be willing to fail to be assigned to a university program.

There are 7 categories:

$$t = \{t_1, t_2, t_3, t_4, t_5, t_6, t_7\} \tag{1}$$

Individual i having a set of test scores for each category:

$$s_t^i = \left\{S_{t_1}^i, S_{t_2}^i, S_{t_3}^i, S_{t_4}^i, S_{t_5}^i, S_{t_6}^i, S_{t_7}^i\right\} \tag{2}$$

Chooses up to 24 programs (k) from these 7 categories. Program(s) with the lowest cutoff scores in each category are the last program(s) for individual i to be placed:

$$k_{last}^i = \left\{k_{t_1}^i, k_{t_2}^i, k_{t_3}^i, k_{t_4}^i, k_{t_5}^i, k_{t_6}^i, k_{t_7}^i\right\} \tag{3}$$

with corresponding cutoff scores:

$$C^i_{kt} = \left\{C^i_{kt_1}, C^i_{kt_2}, C^i_{kt_3}, C^i_{kt_4}, C^i_{kt_5}, C^i_{kt_6}, C^i_{kt_7}\right\} \tag{4}$$

I define an applicant i as being willing to fail if $C^i_{kt} > s^i_t$ for all k_t and s_t for $t = 1, 2, ...7$

Using this definition, the probability of willingness to fail to be assigned is estimated conditional on test scores and individual characteristics controlling for fixed effects related to high school. Table 9 gives the results from simple OLS, high school type fixed effects, high school background fixed effects, high school fixed effects, and finally probit estimations where standard errors are clustered by high school city. According to these results that are robust to different specifications, the probability of being willing to fail to be unassigned is higher for boys.

Table 10 gives the results for some other specifications. The first two column gives the results from high school background fixed effect and high school fixed effect estimations where also squares and cubes of test scores are included. Last two columns are high school background fixed effect estimations for the sample of only first takers.

A way of comparing boys and girls in terms of the level of willingness to be unassigned is to estimate the number of safe choices on gender conditional on test score and individual characteristics controlling for high school related fixed effects. I define the number of safe choices as the number of university programs that are listed by applicant and that have lower cutoff scores than applicant's test score. It can be assumed that the more is the number of safe choices listed by applicant are, the more risk adverse the applicant is. The first column of the Table 11 shows that female applicants make more safe choices than male applicants that is to say they avoid more the risk of being unassigned.

Another measure of how much an applicant is willing to be unassigned is the negative differences between lowest cutoff scores programs' cutoffs scores and applicants' test scores for all categories. This is to measure how much higher the cutoff scores of the lowest cutoff score programs in all categories listed by the applicant are than her test scores in corresponding categories. As the sum of negative differences increase, the probability of no assignment increases. The second column of the Table 11 reports the results for the estimation of sum of negative differences between lowest cutoff score programs' cutoffs scores and applicants' test scores for all categories on gender conditional on individual

characteristics and high school related fixed effects. Consistently with the previous findings, this difference is higher for male applicants by 6.80 on average.

As it is previously noted above, girls are not only avoiding the risk of being unassigned but also they tend to target lower cutoff score university programs as their first choices. The results of the estimation of the cutoff score of the first choice on gender conditional on test scores and individual characteristics controlling for high school fixed effects are reported in the third column of the Table 11. This difference might be well driven by the differences in preferences on different fields as female applicants might prefer different fields than male applicants that might have lower cutoff scores. In order to eliminate this difference that results in differences in preferences on fields, I estimated the cutoff score of the first choice on gender controlling also for fields and the fourth column of the Table 11 shows that female applicants target lower cutoff score programs as their first choices than male applicants also within the same field. Similar to the measure of level of willingness to fail to be assigned, it is also possible to create a measure for how much higher male applicants target for their first choices with respect to female applicants. This measure is created by taking the difference between the cutoff score of the first choice and applicant's test score. Table 11 shows that this difference is higher for males with respect to females by 6.04 on average.

Summarizing the findings that are obtained in this section, it is agreeable to suggest that female applicants avoid the risk of being unassigned and they make safer therefore lower cutoff score choices to avoid this risk. When their first choices are evaluated, it is observed that they do not avoid only the risk of being unassigned but also they have a tendency to choose lower cutoff score programs as their first choice.

Although it is difficult to disentangle the reasons behind, these results can be arguably assumed as an evidence that girls have lower reservation cutoff scores for university programs with respect to boys. Although several arguments can be consistent with these findings such as avoiding competition, girls being more pessimistic or boys being more self confident, or some other cultural constraints that might affect their choices (e.g. Females are more restricted to leave their home town to go to big cities where the best

universities are[4]) and also limit their outside option (if they fail to be assigned they might not be given a second chance to retake). Although it is hard to provide strong evidence in this setting, it is still possible to interpret some facts to explain the potential effect of these constraints.

As the girls are positively selected in my sample, their parents are relatively better educated and the mean difference between private tutoring attendance of girls and boys is positive and significant[5]. These descriptive statistics could arguably support the idea that girls are not as restricted as one might expect because of the positive selection in the sample. Yet, it is very common to observe girls preferring to stay in their home town or choose a university in a city around their hometown. Dogan and Yuret (2011) shows that one of the main reasons behind lower rates of university enrollments is the fact that girls are less mobile than boys and it restricts the availability of the alternatives for their choice list. This tendency might affect their choices as they will not consider the universities that are out of their region as an alternative in the choice set. In order to control for the potential constraint of distance to good universities in big cities, I replicated my analysis for the sample of applicants that attended to a high school in one of the three big cities: Istanbul, Ankara and Izmir. Table 12 reports the results that are in line with previous findings suggesting that female applicants from three big cities are still more likely to avoid the risk being unassigned with respect to male applicants. Although it is not a very strong evidence, this result indicates that gender difference in willingness to take the risk of being unassigned is mostly driven by the differences in preferences of applicants rather than financial or cultural constraints.

5 Research Design: School Choice with Heterogenous Willingness to be Unassigned

5.1 Choosing Fields

Since applicants differ in willingness to be assigned the choice lists reflects these differences holding test scores constant. In the previous section some evidence was reported showing the gender differences in choices even between those who intend to study in the

[4]Attending a college in a city different from hometown is more costly for students than attending a college in hometown and families can have less control on their kids if they leave the hometown. Therefore parents usually prefer that their kids stay in their hometown to attend a local college for not only financial reasons but also to keep their kids close to them.

[5]Table 4 shows the summary statistics

same field. The aim of this section is to elaborate the potential effect of differences in willingness to fail on the field choice and the focus is on the last choice that is assumed to be reservation university program.

It is well reported that there are significant gender differences in major choices where girls are more likely to choose literature and human sciences whereas boys tend to choose engineering and natural sciences. In order to disentangle the differences driven by the differences in willingness to fail to be assigned, the first choice will be used as a control. The main challenge in a logistic setup is the huge choice set. Each student makes her list of choices under the constraint that the list can include up to 24 choices from 10.617 programs provided by 147 universities. In order to reasonably narrow down the choice set to a feasible set for each applicant, initially I created a choice set of fields rather than university programs. The question that this setup can answer is whether girls tend to choose relatively lower profile fields as their last choice controlling for the first choice.

The choice set of 18 fields is as following: Agricultural Sciences, Communication Sciences, Dentist and Pharmacy, Economics-Business, Economics-Administration, Engineering, Architecture, Health School, Literature and Social Sciences, Law School, Medical School, Open Education, Pre-College Programs, Religion, Natural Sciences, Tourism, Vocational Schools, Education. Finally "no placement" is also included as an alternative. It is reasonable to state that Dentist-Pharmacy, Economics-Business, Engineering, Law School and Medical School have potentially higher returns in the labor market among the alternatives and these alternatives are defined as "Higher Profile Fields". These fields can be also considered as fields that are characterized by a higher probability of dropping out as it requires more effort to graduate because of the difficulty level of classes.

As a first stage, it is aimed to investigate if there is a gender difference in the probability of choosing at least one of those higher profile alternatives as their last three choices. All the reasons mentioned above might drive a gender difference in school choice. In order to control for these factors while the effect of differences in willingness to take of risk of being unassigned on field choice is investigated, I constrained my analysis for those who choose at least one of those high profile fields in their top three choices. The estima-

tion results for probability of choosing at least one higher profile field in their last three choices for this sample are reported in Table 13. All specifications such as simple OLS, high school, high school type, and high school background fixed effects estimations are reported in these table respectively and the coefficient of gender is positive, significant and robust to all specifications suggesting that male applicants who choose higher profile fields as one of their top three choices are more likely to choose higher profile fields also as one of their last three options. In other words, female applicants tend to choose lower profile programs as their last choices since they might find those programs less risky than higher profile programs and more secure to guarantee their assignment.

As a further step, multinomial logistic model is used for the first, last, and placement choices controlling for gender, test scores and retaking status where the choice set is the same as described above. I calculated predicted probabilities for each alternative and obtained following graphs where it is possible to see differences in predicted probabilities for male and female applicants. The graphs below shows the predicted probabilities of choosing Law School, Medical School, Pre-College and Vocational College programs as the first and last option and compare by gender.

As for the vocational school, girls are more likely than boys to choose as their last option, while they are equally likely to choose as the first option. As for the pre-college, girls are less likely than boys to choose as the first choice while they are equally likely to choose as their last option. Pre-college and vocational college programs can be assumed to be the least advantageous degrees in terms of labor market outcomes and these findings state that girls are willing to choose these programs as their last option more than boys. As for the law school, girls are equally likely with boys to choose as first option, while they are less likely to choose as the last option. As for the medical school, girls are less likely to choose as the last option, while more likely to choose as the first option. Since the highest profile programs such as law school and medical school have higher cutoff scores it's relatively riskier to choose them as the last option. Therefore, these findings are also consistent with the findings of previous section as girls tend to choose lower profile programs that are relatively safer as their last option controlling for their first option.

5.2 Ranking Programs

In this section, I use a rank-ordered conditional logit model to estimate how applicants weigh different university program characteristics and how this varies across gender. Rank-ordered logistic model is also known the exploded logit model. Exploded refers to a logit model that incorporates multiple-ranked choices for each person but not just the first choice (McFadden and Train (2000), Train (2003)).

The setting of rank-ordered conditional logit model is very similar to a conditional logit model where the coefficients are obtained for the attributes of the alternatives. In this rank-ordered model, the choice set is assumed to be the university programs that are already chosen and coefficients are mapped from the ranking of the alternatives. Using this method, I obtained the coefficients for university programs such as tuition status, distance from high school city, instruction language, if public or private university, if the university is in a big city etc.

The advantage of using this method is double-fold compared to a conditional logit model: First of all, huge choice set in our setting that consists of more than 10 thousands university programs is not feasible for a logistic regression. Second, as conditional logit model allows to analyze only one choice from a choice set, one would loose an important part of the data as most of the applicants make more than one choice while rank-ordered logistic regression use all the information about the programs that are chosen by applicants mapping the coefficients from their ranking.

I run rank-ordered conditional logit model separately for the sample of girls and boys. Although the effect of gender is not identified, it is still possible to draw some general conclusions from the results reported in Table 14. As the effect of gender is not identified, comparing the levels of the coefficients for different attributes of university programs for girls and boys does not provide any significant information about how differently they weigh the attributes of university programs. Coefficients of some attributes (such as if the university is in a big city, if in a different city than high school city, capacity of the program, if a night school [6], scholarship status) are significantly different from zero having the same sign for both female and male applicants. On the other hand, some coefficients are different in terms of the statistical significance for girls and boys. First of all, the co-

[6]Night schools are usually the same as normal programs but only difference is the classes are scheduled in the evening and the tuition is relatively more expensive than the normal programs.

efficient of the difference between cutoff score of program and applicant's test score which measures how likely that applicant could be assigned to that program is significantly different from zero for female applicants while male applicants are not as much concerned about the likelihood of assignment when they make their choice. Another difference is observed for the coefficient of foreign language attribute. While the coefficient is positive and significant for male applicants, it seems that female applicants do not necessarily prefer university programs where the instruction language is a foreign language [7]. Finally coefficients of dummy variables for fields that university program belongs differ in terms of significance across gender. As it is described above there are 18 main fields where some of them higher profile programs as they have potentially higher returns at labor market. In this analysis education field is taken as a base field as this field has programs that are both in quantitative and qualitative categories therefore it is relatively more comparable to all fields as an alternative. The coefficients for Agricultural Sciences, Communication Sciences, Dentist and Pharmacy, Architecture, Law School, Literature and Social Sciences, Open Education, Natural Sciences, and Tourism fields are significant and has the same sign for both boys and girls. The coefficients of following fields are insignificant for girls and positive and significant for boys: Economics-Business, Economics-Administration, Engineering, Health School, Medical School, Pre-College Programs, Vocational Schools. Boys give more weight to programs that are higher profile than education such as Economics, Engineering, Medical School. They also tend to prefer pre-college programs or vocational schools rather than eduction.

One might think that these differences in coefficients for the fields might be driven by the differences in high school backgrounds [8] and comparative advantages across gender. However rank-order logistic setup takes the chosen alternatives as the choice set and maps coefficients from the ranking. Therefore, this feature of the model is crucial also to avoid potential confounding factors. Yet, even if these differences are assumed to be driven by differences in high school backgrounds, girls do not tend to prefer higher profile fields in equally weighted categories (such as Economics, Business) with respect to education. They might prefer education field as it is less challenging for graduation and it is also perceived as the most convenient job for a female in the society even though it usually

[7] Usually English language

[8] Girls are more likely to choose qualitative or equally weighted backgrounds while boys tend to choose quantitative backgrounds

provides a very modest wage at labor market. These results are also in line with the findings in the previous sections that suggests lower willingness to take the risk of being unassigned and thus lower reservation university program.

6 Conclusion

Despite the reversing gender gaps in education outcomes where girls on average perform better at high school and university entrance test, the placement outcomes do not seem to reflect these improvements at university level. The gender gap is also still significant when we look at the general statistics about university degrees hold by men and women. In order to understand the forces driving these gaps, potential gender differences that might affect the school choice and retaking decision. According to my findings, girls are more likely to avoid failing to be placed and tend to target lower cutoff score programs that are safer to guarantee the placement. With respect to boys, girls are also more likely to choose lower profile schools as their last option controlling for the first options. Finally they tend to be more concerned about university program characteristics such as admission probability rather that foreign language as instruction language which might be an asset when they look for a job after their graduation. They tend to also prefer low profile programs that are not only safer to guarantee their assignment but also less likely for drop out as their classes are relatively easier. These characteristics that girls weigh more when they make their choices can be classified as characteristics that matter during the university education while other characteristics such as instruction language, quality of the school, and field will provide important advantages in the labor market.

Table 1: Summary statistics: Individual Characteristics by Gender

	Female	Male	All sample
High school GPA	76.53	72.03	73.63
StdDev	11.21	11.58	11.65
Test Score Equally Weighted 1	212.55	206.03	208.34
StdDev	35.90	42.80	40.60
Test Score Equally Weighted 2	153.68	145.22	148.22
StdDev	83.63	86.58	85.64
Test Score Quantitative 1	188.20	188.75	188.55
StdDev	38.71	45.26	43.04
Test Score Qualitative 1	219.11	209.58	212.96
StdDev	34.24	42.05	39.72
Test Score Quantitative 2	111.46	106.15	108.04
StdDev	98.32	100.30	99.63
Test Score Qualitative 2	111.57	96.25	101.69
StdDev	101.90	101.46	101.87
birth year	1988.23	1987.68	1987.88
StdDev	2.55	2.99	2.85
If Placed	0.63	0.62	0.62
StdDev	0.48	0.49	0.49
Number of Trials	3.02	3.44	3.29
StdDev	2.33	2.77	2.63
OSS exam retake	0.78	0.84	0.82
StdDev	0.41	0.37	0.38
If previously placed in a uni	0.24	0.32	0.29
StdDev	0.43	0.47	0.46

Table 2: Mean gender differences in Predicted Probabilities of Placement in Categories: Females w.r.t. Males

	Mean difference wrt males	P-value
Probability of No Placement	-0.0125	0.0000
Probability of Placement in FL Category	0.0121	0.0000
Probability of Placement in EW1 Category	0.0204	0.0000
Probability of Placement in EW2 Category	0.0232	0.0000
Probability of Placement in QT1 Category	-0.0575	0.0000
Probability of Placement in QT2 Category	-0.0107	0.0000
Probability of Placement in QL1 Category	0.0231	0.0000
Probability of Placement in QL2 Category	0.0018	0.0000

Table 3: Summary statistics: Choices by Gender

	Female	Male	All sample
Satisfy threshold but no list submitted	0.09	0.11	0.10
StdDev	0.29	0.31	0.30
If all preferences are in same category	0.49	0.55	0.53
StdDev	0.50	0.50	0.50
Number of categories	1.58	1.41	1.47
StdDev	1.01	1.00	1.00
24 prefs submitted	0.30	0.34	0.32
StdDev	0.46	0.47	0.47
Number of Choices	14.46	14.18	14.28
StdDev	8.90	9.44	9.25

Table 4: Mean gender differences in Family and Individual Characteristics: Females w.r.t. Males

	Mean difference wrt males	P-value
if working	-0.1450	0.0000
index	0.4891	0.0000
Private Tutoring	0.0698	0.0000
Mother education not reported	-0.0038	0.0000
Mother No School	-0.1212	0.0000
Mother Primary School	0.0397	0.0000
Mother Middle School	0.0066	0.0000
Mother High School	0.0509	0.0000
Mother College or beyond	0.0279	0.0000
Father education not reported	-0.0083	0.0000
Father No School	-0.0403	0.0000
Father Primary School	-0.0253	0.0000
Father Middle School	0.0202	0.0000
Father High School	0.0245	0.0000
Father College or beyond	0.0293	0.0000

Table 5: Test Scores Estimations

	EW1	EW2	QT1	QT2	QL1	QL2	DIL
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male	-1.7874	-4.9489	2.4886	-2.5708	-3.3442	-7.1213	-.1644
	(.7101)**	(1.3512)***	(.6685)***	(1.5316)*	(.7334)***	(1.3907)***	(.5620)
OSS exam retake	-7.2335	-8.8411	-9.1662	-17.9702	-6.0463	14.0180	-4.2305
	(1.1874)***	(1.9284)***	(1.1340)***	(1.9650)***	(1.2194)***	(1.7685)***	(.9605)***
Second Takers	1.6517	4.2069	3.2122	7.4438	1.0424	-10.8565	-.2853
	(.7686)**	(1.4422)***	(.7337)***	(1.6057)***	(.7892)	(1.4537)***	(.4713)
Attending private tutoring	12.7303	10.5301	12.0013	13.7456	11.3827	5.1804	.9199
	(.9477)***	(1.6882)***	(.8656)***	(1.6796)***	(.9742)***	(1.6165)***	(.5466)*
if working	-12.7221	-8.7088	-12.0334	-12.0978	-11.9378	.3777	-1.0238
	(.9310)***	(1.6982)***	(.8435)***	(1.7295)***	(.9829)***	(1.7071)	(.5330)*
Parents-Education-Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	9983	9983	9983	9983	9983	9983	9983
F statistic	48.5261	20.6486	50.3434	29.093	41.3836	8.4212	3.1325

Table 6: Retaking Status Estimations for All Sample

	OLS1	OLS2	HSTFE	HSBG	Probit
	(1)	(2)	(3)	(4)	(5)
Male	.0321	.0350	.0233	.0422	.1425
	(.0088)***	(.0088)***	(.0101)**	(.0089)***	(.0385)***
High school GPA	.2256	.1823	.1843	.1788	.6137
	(.0340)***	(.0363)***	(.0360)***	(.0327)***	(.1251)***
Attending private tutoring	-.0724	-.0703	-.0188	-.0624	-.3878
	(.0087)***	(.0077)***	(.0061)***	(.0075)***	(.0348)***
if working	.0740	.0690	.0555	.0615	.3632
	(.0072)***	(.0067)***	(.0067)***	(.0077)***	(.0353)***
All-Test-Scores	Yes	Yes	Yes	Yes	Yes
All-Test-Scores-Powers	No	Yes	Yes	Yes	Yes
All-High-School-GPA-Powers	No	Yes	Yes	Yes	Yes
Parents-Education-Controls	Yes	Yes	Yes	Yes	Yes
Obs.	9983	9983	9983	9983	9983
F statistic	68.4677	.	.	32.4183	

Table 7: Retaking Status Estimations for Selected Sample	OLS1	OLS2	HSTFE	HSBG	Probit
	(1)	(2)	(3)	(4)	(5)
Male	.0308	.0344	.0214	.0409	.1401
	(.0091)***	(.0092)***	(.0098)**	(.0089)***	(.0393)***
High school GPA	.1670	.1261	.1084	.1286	.4694
	(.0340)***	(.0332)***	(.0339)***	(.0349)***	(.1205)***
Attending private tutoring	-.0781	-.0741	-.0196	-.0644	-.4216
	(.0101)***	(.0084)***	(.0070)***	(.0076)***	(.0404)***
if working	.0739	.0674	.0529	.0599	.3669
	(.0079)***	(.0072)***	(.0070)***	(.0080)***	(.0401)***
All-Test-Scores	Yes	Yes	Yes	Yes	Yes
All-Test-Scores-Powers	No	Yes	Yes	Yes	Yes
All-High-School-GPA-Powers	No	Yes	Yes	Yes	Yes
Parents-Education-Controls	Yes	Yes	Yes	Yes	Yes
Obs.	9386	9386	9386	9386	9386
F statistic	58.3155	.	.	30.925	

Table 8: Cutoff Scores Estimations

	Outcome	First	Last
	(1)	(2)	(3)
Male	1.7996	3.9779	3.7077
	(.9596)*	(1.2314)***	(1.1157)***
Attending private tutoring	.7921	.6092	1.1586
	(.8804)	(1.0667)	(1.1580)
OSS exam retake	3.8187	-2.8078	-.9265
	(1.4918)**	(1.0407)***	(1.3950)
if working	-1.9217	-1.4131	-2.0198
	(1.2453)	(1.5172)	(1.0979)*
All-High-School-GPAs	Yes	Yes	Yes
All-Test-Scores	Yes	Yes	Yes
Categories	Yes	Yes	Yes
Obs.	6184	8677	8676
F statistic	198.1781	138.8079	90.3914

Table 9: Risk Taking Estimations: Different Specifications I

	OLS	HSTFE	HSBG	HSFE	Probit
	(1)	(2)	(3)	(4)	(5)
Male	.0422	.0441	.0419	.0373	.1206
	(.0104)***	(.0098)***	(.0115)***	(.0201)*	(.0296)***
High school GPA	.0019	.0030	.0028	.0021	.0052
	(.0005)***	(.0005)***	(.0005)***	(.0010)**	(.0014)***
Private Tutoring	.0381	.0268	.0359	.0290	.1082
	(.0101)***	(.0102)***	(.0122)***	(.0202)	(.0292)***
OSS exam retake	-.1373	-.1116	-.1447	-.1219	-.3765
	(.0205)***	(.0203)***	(.0156)***	(.0332)***	(.0546)***
Number of Trials	.0152	.0154	.0143	.0093	.0429
	(.0019)***	(.0019)***	(.0026)***	(.0034)***	(.0055)***
if working	-.0304	-.0339	-.0371	-.0278	-.0894
	(.0120)**	(.0122)***	(.0128)***	(.0207)	(.0346)***
index	-.0071	-.0065	-.0066	-.0045	-.0204
	(.0046)	(.0043)	(.0040)*	(.0085)	(.0133)
All-Test-Scores	Yes	Yes	Yes	Yes	Yes
Parents-Education-Controls	Yes	Yes	Yes	Yes	Yes
Obs.	8496	8496	8496	8496	8496
F statistic	77.2294	40.5058	12.4557	9.4434	

Table 10: Risk Taking Estimations: Different Specifications II

	I	II	III	IV
	(1)	(2)	(3)	(4)
Male	.0427	.0384	.0556	.0842
	(.0116)***	(.0201)*	(.0279)**	(.0266)***
High school GPA	-.0677	-.0456	.0002	-.0616
	(.0407)*	(.0491)	(.0012)	(.0823)
Private Tutoring	.0323	.0238	.0944	.0590
	(.0123)***	(.0194)	(.0447)**	(.0422)
OSS exam retake	-.1740	-.1393		
	(.0156)***	(.0315)***		
Number of Trials	.0132	.0093		
	(.0026)***	(.0034)***		
if working	-.0365	-.0290	-.0243	-.0440
	(.0128)***	(.0214)	(.0400)	(.0387)
index	-.0067	-.0065	-.0176	-.0162
	(.0039)*	(.0082)	(.0113)	(.0111)
All-Test-Scores	Yes	Yes	Yes	Yes
All-Test-Scores-Powers	Yes	Yes	No	Yes
High-School-GPA-Powers	Yes	Yes	No	Yes
Parents-Education-Controls	Yes	Yes	Yes	Yes
Obs.	8496	8496	1564	1564
F statistic	18.7316	25.6919	4.8301	16.2612

Table 11: Risk Taking and Targeting Estimations: Different Measures

	Safe Choices	Diff-to-End	1st Choice	Diff-to-Top
	(1)	(2)	(3)	(4)
Male	-.4900	6.8058	10.5753	6.0439
	(.1972)**	(1.6140)***	(2.4984)***	(2.4575)**
High school GPA	-.0540	.3609	1.2408	.4707
	(.0083)***	(.0839)***	(.1594)***	(.1480)***
Private Tutoring	-.1888	1.9921	6.5632	8.9252
	(.1804)	(1.8476)	(4.4970)	(4.6017)*
OSS exam retake	.4870	-10.0412	-.2952	.1792
	(.2612)*	(2.5180)***	(3.7396)	(5.0417)
if working	-.1857	-8.3258	-10.4781	-5.5822
	(.2219)	(1.8621)***	(2.5210)***	(2.9825)*
index	.0261	-.9550	-.2585	.0456
	(.0848)	(.7252)	(1.2065)	(1.1037)
All-Test-Scores	Yes	Yes	Yes	Yes
Parents-Education-Controls	Yes	Yes	Yes	Yes
Obs.	8496	8496	7527	7527
F statistic	26.4141	11.2292	127.9698	10.5798

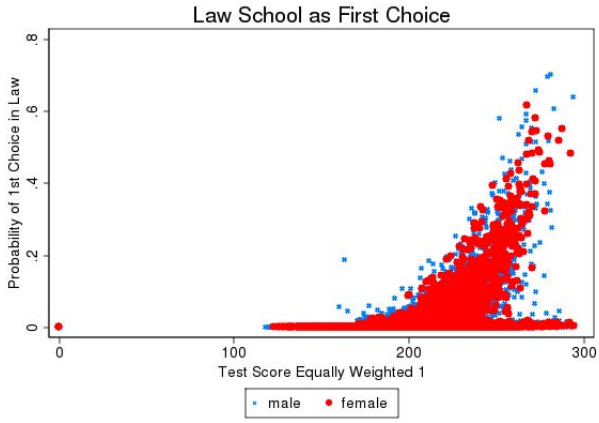
Table 12: Risk Taking Estimations: Only Three Big Cities

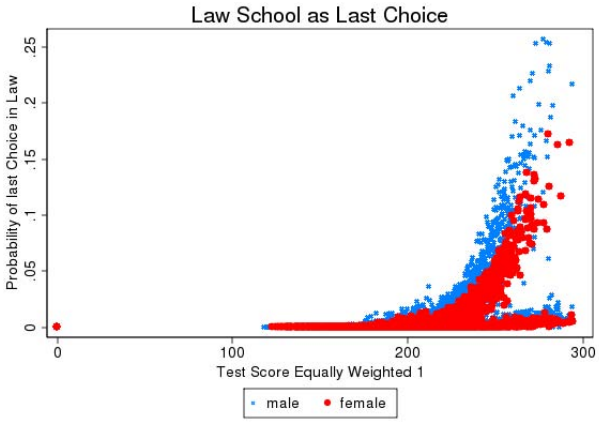
	I	II	III	IV	V
	(1)	(2)	(3)	(4)	(5)
cinsiyet	.0230	-.2083	3.9033	11.8535	10.4134
	(.0135)*	(.1284)	(1.7080)**	(4.4637)***	(3.3351)***
q12d	.0087	-.2403	1.0911	14.5677	16.7876
	(.0161)	(.0304)***	(2.9296)	(3.1748)***	(3.4277)***
retake	-.0458	.4446	-12.3880	-5.8877	-6.8827
	(.0214)**	(.1592)***	(.1361)***	(2.5222)**	(4.3482)
d-work	-.0015	-.2302	-4.5765	-8.8653	-6.0660
	(.0207)	(.2328)	(2.9546)	(4.0060)**	(4.4778)
avail-index	-.0124	.0097	-.2886	-1.8132	-1.1558
	(.0060)**	(.0632)	(.5975)	(.5733)***	(.6793)*
All-HS-GPAs	Yes	Yes	Yes	Yes	Yes
All-Test-Scores	Yes	Yes	Yes	Yes	Yes
Parents-Education-Controls	Yes	Yes	Yes	Yes	Yes
e(N)	2946	2946	2946	2636	2636
e(F)	.	.	.	.	.

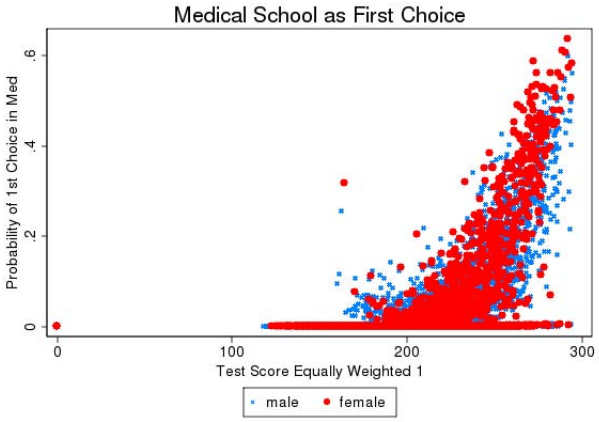
Table 13: Differences in Differences: First 3 Choices vs Last 3 Choices

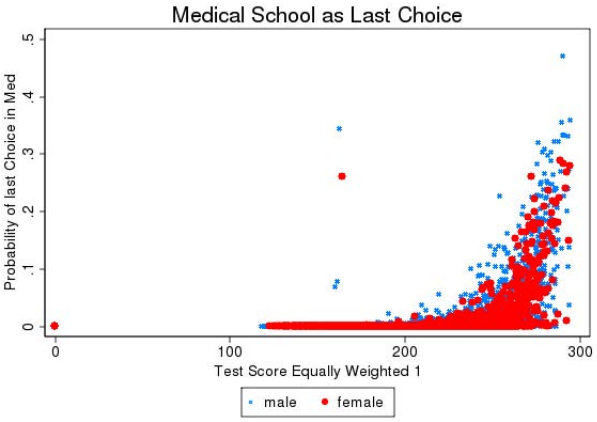
	HSFE1	HSTFE	HSBG	OLS
	(1)	(2)	(3)	(4)
Male	.1521	.1539	.1646	.1689
	(.0318)***	(.0172)***	(.0161)***	(.0166)***
Attending private tutoring	.0473	.0113	.0100	.0092
	(.0605)	(.0314)	(.0309)	(.0316)
Number of Trials	-.0029	.0023	.0004	.0074
	(.0127)	(.0074)	(.0077)	(.0072)
OSS exam retake	-.0461	-.0911	-.1119	-.1334
	(.0621)	(.0275)***	(.0277)***	(.0269)***
If previously placed in a uni	-.0118	-.0210	-.0015	-.0074
	(.0780)	(.0333)	(.0335)	(.0330)
if working	-.0006	-.0435	-.0446	-.0511
	(.0506)	(.0194)**	(.0205)**	(.0194)***
All-Test-Scores	Yes	Yes	Yes	Yes
All-HS-GPAs	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Obs.	2994	2994	2994	2994
F statistic	10.1752	57.259	61.9706	120.3351

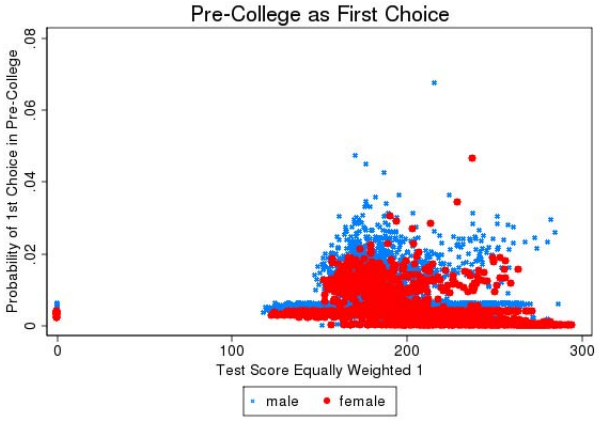
Table 14: Rank Ordered Logit Estimation	Girls	Boys
	(1)	(2)
Probability	-.0008 (.0003)***	-.00004 (.0002)
If University is in a Big City	.3632 (.0276)***	.4811 (.0191)***
If University is in a Different City	-.1208 (.0472)**	-.2104 (.0373)***
Capacity	.0012 (.0002)***	.0006 (.0001)***
Foreign Language	-.0652 (.0679)	.1855 (.0396)***
Night School	-.1988 (.0218)***	-.2424 (.0151)***
Private No Scholarship	-25.5283 (.1966)***	-25.5988 (.1550)***
Private with Scholarship	-25.8926 (.2379)***	-26.0476 (.1996)***
Agriculture	.0231 (.0701)	.0229 (.0477)
Communication	-.4255 (.1133)***	-.5246 (.1064)***
Dentist-Pharmacy	.8426 (.0791)***	1.0305 (.0799)***
Econ-Bus	.0065 (.0514)	.2291 (.0500)***
Administration	.0764 (.1127)	.1812 (.0817)**
Engineering	.0708 (.0581)	.1794 (.0397)***
Architecture	1.1623 (.2139)***	1.3151 (.2166)***
Health	-.1018 (.0634)	.0997 (.0583)*
Law	-.2567 (.0724)***	.0541 (.0653)
Literature	.2917 (.0594)***	.5216 (.0657)***
Medical School	.1193 (.1032)	.4508 (.0657)***
Open Educ	-.1911 (.3529)	.6080 (.4439)
Pre-College	.1250 (.3163)	.6117 (.2039)***
Religion	.1888 (.1039)*	.2022 (.0863)**
Tourism	.2589 (.0589)***	.4310 (.0453)***
Science	.1772 (.2033)	.7425 (.1658)***
e(N)	30181	57276
e(F)		

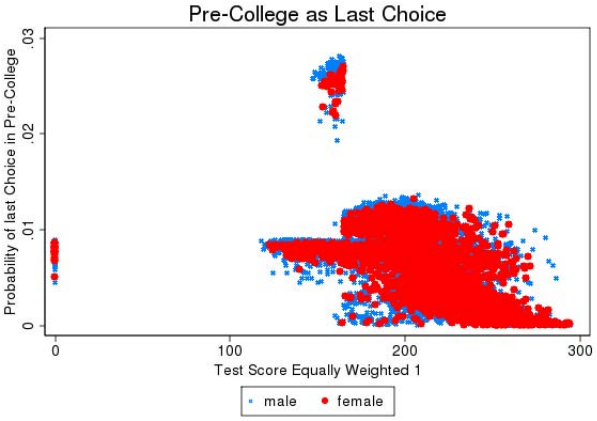

Law School as First Choice
Probability of 1st Choice in Law
0
.2
.4
.6
.8
0
100
200
300
Test Score Equally Weighted 1
male
female

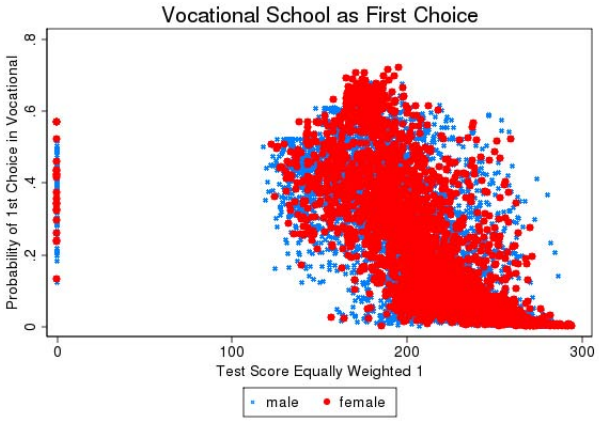

Law School as Last Choice
Probability of last Choice in Law
0
.05
.1
.15
.2
.25
0
100
200
300
Test Score Equally Weighted 1
male
female

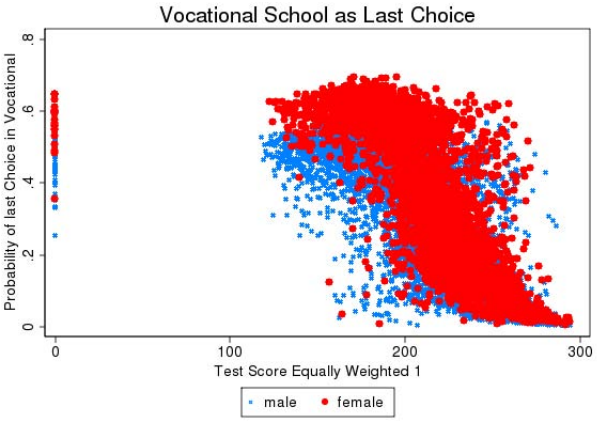

Medical School as First Choice
Probability of 1st Choice in Med
0
.2
.4
.6
0
100
200
300
Test Score Equally Weighted 1
male
female


Medical School as Last Choice
Probability of last Choice in Med
0
.1
.2
.3
.4
.5
0
100
200
300
Test Score Equally Weighted 1
male
female


Pre-College as First Choice
Probability of 1st Choice in Pre-College
0
.02
.04
.06
.08
0
100
200
300
Test Score Equally Weighted 1
male
female


Pre-College as Last Choice
Probability of last Choice in Pre-College
0
.01
.02
.03
0
100
200
300
Test Score Equally Weighted 1
male
female


Vocational School as First Choice
Probability of 1st Choice in Vocational
0
.2
.4
.6
.8
0
100
200
300
Test Score Equally Weighted 1
male
female


Vocational School as Last Choice
Probability of last Choice in Vocational
0
.2
.4
.6
.8
0
100
200
300
Test Score Equally Weighted 1
male
female

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