JOINING THE OLD BOYS' CLUB: WOMEN'S RETURNS TO MAJORING IN TECHNOLOGY AND ENGINEERING*

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Abstract. Women continue to be underrepresented in the high-earnings fields of Technology and Engineering (TE). This article investigates the consequences for women of majoring in TE as opposed to in humanities, arts, and social science (HASS). We combine administrative records on college application and enrollment to data on labor earnings, marriage and fertility, and exploit discontinuities in admission generated by Chile's centralized college application system. We find that enrollment in TE as opposed to in HASS increases men's earnings and employment by 81% and 30% by ages 29 to 38, but has no effect on women. In contrast, majoring in other high-earnings fields such as business or health with higher female participation improves labor market outcomes for both men and women. We explore three explanations for this result. First, women who enroll in TE are less likely than men to get a degree in TE. Second, enrollment in TE increases men's, but not women's access to jobs in masculine industries such as mining and construction, as well as in higher-paying and more distant firms. Third, childbearing appears to be more costly for women in TE than in HASS. In addition, we find little evidence of positive marriage market returns for women of majoring in TE. *JEL Codes: I26, J16, J12, J13, J24, J31, J62, J71*

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1 Introduction

Women's role in economic life has changed dramatically over the last century. In the United States, the rate of female labor force participation more than doubled between 1920 and 2019.[1] Over the same period, women went from representing a small fraction of total college graduates to outnumbering men beginning in the 1980s (e.g., Goldin, 2021). As a result, women progressively incorporated into fields and occupations once exclusively reserved for men. For instance, women were first admitted to Harvard Medicine School in 1945 and to Harvard Law School in 1950, but they quickly increased their numbers to become half of the medicine and law students in the United States today.

One notable exception to this general trend are the fields of technology and engineering (TE) which remain heavily dominated by men (Kahn and Ginther, 2017). In the United States, 21.6% of Bachelor degrees in TE granted in 2018-19 were conferred to women.[2] In Chile, the focus of our paper, women represent roughly one fourth of first year students in these fields, with very little variation over the last decades (see Figure 1). Not only are there few women who major in TE, but also few that work in occupations where TE graduates are more heavily employed. This underrepresentation of women in TE is perceived by many as problematic, partly because these fields miss out on women's contribution, and partly because women may be missing economic opportunities.[3] Accordingly, a growing number of public and private initiatives seek to encourage women's participation in these fields.

[1] It rose from 23.3% in 1920 (Killingsworth and Heckman, 1986) to 57.4% in 2019 (BLS, 2021). Both figures consider female population of ages 14 and over.

[2] Source: NCES (2020). Considers Bachelors' degrees conferred in communication technologies, computer and information sciences, engineering, engineering technologies and engineering-related fields.

[3] A number of papers have documented that differences in men and women's choices of college major (Sloane et al., 2019), occupation, and industry (Blau and Kahn, 2017; Groshen, 1991; Macpherson and Hirsch, 1995; Altonji and Blank, 1999; Blau et al., 2009) explain a significant part of the gender wage gap in an accounting sense.

Do women benefit from pursuing college majors in TE? Descriptive evidence for the United States typically show that college graduates with majors in TE earn higher wages than graduates from other majors (e.g., Altonji et al., 2012, 2016). Our data for Chile reveal that men and women who enrolled in TE earn considerably higher wages at ages 30 to 38 than those who enrolled in fields such as social sciences or humanities and arts. These differences remain after conditioning on math scores in college admission tests (see Figure 2). Observational differences in earnings across fields may reflect differences in the causal effects of pursuing these fields, but could also be the result of pre-existing differences in potential earnings of individuals choosing different fields. Causal evidence on the economic returns to different fields of study is scarce, but highly suggestive of a positive return to TE majors (Kirkeboen et al., 2016; Hastings et al., 2013). However, to answer the question that opened this paragraph, we need causal estimates by gender, an issue that has received little attention in the literature.

There are good reasons to expect the effects of majoring in TE to be different for men and women. Research has shown that women who pursue college majors in TE fields are more likely to switch majors or drop out than comparable men (e.g., Astorne-Figari and Speer, 2019). Once in the labor market, female graduates from TE majors may also struggle to advance their careers. Because of the gender composition of TE graduates, the firms demanding their skills tend to employ a larger fraction of men. Women may not seek jobs in these firms if they expect there to prevail exclusionary gender stereotypes and norms. Also, managers in these firms may be reluctant to hire women if they believe that doing so will lower male workers' morale, group cohesiveness or productivity (e.g., Goldin, 2014a; Akerlof and Kranton, 2000). Women who are willing and manage to enter these male-dominated firms are also likely to face problems. Recent research shows that women employed at firms managed by men negotiate worse wage bargains and are promoted less frequently (e.g., Biasi and Sarsons, 2022; Cullen and Perez-Truglia, 2021; Casarico

and Lattanzio, 2019; Sato and Ando, 2017). Finally, women's career progression may be stalled due to their preference for family-friendly, flexible jobs, which may be particularly costly to obtain in male-dominated firms (Goldin, 2014b; Goldin and Katz, 2016). All these difficulties may limit women's ability to fully exploit the potential of a career in TE, making the field less profitable for them.

In this paper we study the causal effects on women's outcomes of pursuing college majors in TE as opposed to majors in the fields of humanities, arts and social science (HASS). We use Chilean administrative records on application to higher education, earnings marriage and fertility, and exploit discontinuities originated in the country's centralized college application system.[4] Students in Chile apply to specific majors in specific college institutions (we refer to a major-college combination as a *program*.) For a subset of students applying to programs in both HASS and TE, admission into one or the other depends on whether their admission scores are above or below unpredictable admission cutoffs. Under the assumption that potential outcomes change smoothly across these cutoffs, we can interpret discontinuities in observed outcomes as causal effects of being admitted to TE as opposed to HASS.

Our results reveal contrasting stories for men and women. Enrollment into TE as opposed to HASS increases yearly earnings by 81% ($ 10,109[5]) for men who have been out of high school between 11 and 20 years (i.e., predicted ages of 29 to 38.) However, we find no evidence of positive returns for women in the same cohorts. We report that the positive returns to TE fields for men are primarily driven by effects at the top of the earnings distribution. Enrolling in TE increases by 10 percentage points (p.p.) the probability of men earning above $40,000 a year, but does not affect this probability for women. This is consistent with the hypothesis of a *glass ceiling*

[4] In this we follow Zimmerman (2019) and Kirkeboen et al. (2016) among others.

[5] All figures are in 2019 USD.

preventing women from reaching the top of the earnings distribution (Bertrand, 2018). Gender differences in returns to TE fields are also a consequence of effects on the extensive margin of employment. Enrollment in TE as opposed to HASS results in a 30% increase in men's employment and a (statistically insignificant) 5% reduction in women's employment.

The absence of positive returns for women does not seem to generalize to other high-earnings fields where women have higher rates of enrollment. We report that the returns to pursuing programs in business, a typically gender-balanced field, are positive for women, although slightly smaller than for men. We also find positive returns for both men and women to pursuing programs in the female-dominated field of health. This contrasts is consistent with the idea that career progression is more difficult in male-dominated environments such as TE.

We explore several possible explanations for the gender differences in the returns to TE. First, we find gender differences (although statistically insignificant) in major persistence in TE. While 47% of men who enroll in TE induced by a marginal admission offer end up graduating from TE, only 35% of women do. This is consistent with previous studies showing that women may have a harder time graduating from TE than men.[6] Second, we show that enrollment in TE has different effects on men and women's type of employment. Although we are unable to observe occupations, we have information on the firms in which individuals get jobs. For men, enrolling in TE as opposed to HASS increases the probability of employment in stereotypically masculine industries such as mining and construction, an effect that is absent for women. Enrollment in TE also increases the probability of getting jobs in larger and higher-paying firms, as well as in firms with less female co-workers and less women in senior positions, but these effects are only observed

[6] Available studies suggest that this is not due to differences in preparation (Arcidiacono et al., 2012; Astorne-Figari and Speer, 2019, 2018; Kugler et al., 2017; Ost, 2010; Price, 2010), but could rather be a consequence of differences in competitiveness (Astorne-Figari and Speer, 2019; Buser et al., 2014; Fischer, 2017), gender composition of faculty and students (Carrell et al., 2010; Griffith, 2010; Hoffmann and Oreopoulos, 2009; Kugler et al., 2017; Rask and Bailey, 2002), future labor market considerations (Bronson, 2014; Gemici and Wiswall, 2014; Zafar, 2013), or gender differences in preferences for grades (Kugler et al., 2017; Rask and Bailey, 2002; Rask and Tiefenthaler, 2008).

for men. Similarly, we find a positive effect for men, but not for women, on the probability of employment in firms located outside their home region or province. All of this suggests that the large economic rewards men obtain from majoring in TE may materialize through them gaining access to certain types of jobs (i.e., more masculine, higher-paying and more distant). The absence of returns to TE for women might then be a result of them being either unable or unwilling to take those jobs.

The third explanation we explore relates to childbearing. We begin by showing that enrollment in TE does not affect fertility rates or timing for neither men or women. Still, childbearing may play a role if the birth of a child affects women's career progression differently in TE and HASS. Consistent with this, we show that, although statistically zero on average, the returns to TE for women decrease over time as they become more likely to have children. Moreover, we provide evidence that the returns to TE are positive for women without children and negative for women with children.[7] Finally, we complement these results by implementing an event-study in the spirit of Kleven et al. (2019b). Consistent with our previous results, this analysis reveals that, following the birth of a first child, women who enrolled in TE see their incomes penalized by $\simeq$30% relative to their male equivalents. This *child penalty* is larger than those we estimate for women in HASS, business and health, which are closer to 20%. These results are in line with Bertrand et al. (2010), who show that career dynamics for male and female MBAs tend to diverge after motherhood.

Even absent any returns in the labor market, women may still benefit from enrolling in TE if it results in positive returns on the marriage market (Goldin, 1992, 2006). Although we observe individuals a bit early (i.e., when they are 30 to 38 years old), 54% of them show up as married in our dataset.[8] We find no evidence that enrollment in TE vs. HASS affects the probability or timing

[7] Although this last analysis cannot be strictly interpreted as causal, as fertility itself might be affected by enrollment in TE, our finding of no effects on women's age at first birth makes us more confident about this result.

[8] We classify two individuals as married if they are legally married or if they had a child together. Unfortunately

of marriage. Moreover, consistent with the results in Kirkebøen et al. (2021), we find that men and women who enroll in TE are more likely (5 p.p. and 14 p.p.) to partner with someone from their same program. Finally, we find no evidence that enrollment in TE affects the *quality* of women's partners in terms of either test scores or earnings.

We complement our causal findings with data from a survey that we designed and administered to 3,815 college graduates in Chile. A few results are worth highlighting. First, women in TE (but not in HASS) have a worse academic performance than men and are less satisfied with their chosen profession. Second, women in general are less likely to hold managerial positions than men and, in line with our causal findings, this difference is much more pronounced in TE than in other fields such as HASS. Fourth, regardless of field, women tend to have a stronger preference for job attributes such as work flexibility, shorter commuting times, having a fixed salary, contributing to society and having female coworkers. However, women in TE appear to be almost as career-oriented as men in TE. In particular, men and women in TE have a similar preference for jobs that offer opportunities to advance to positions of greater responsibility and have similar willingness to make sacrifices in order to reach those positions. Fifth, women in TE are much more likely than women in other fields – and significantly more likely than men – to report having felt discriminated against. Forty-eight percent of women in TE agree that their gender has played against them in job searching (28% in HASS). Moreover, women in TE report having felt discriminated against in terms of promotion (65%), earnings (76%), and development opportunities (57%). These figures are significantly smaller for women in other disciplines and much smaller for men in TE.

Our paper contributes to the literature studying heterogeneous returns to higher education.

we can only get information on earnings, admission test scores and enrollment for 76% of partners in our sample (i.e., those who signed up to take the admission test in or after 1999.)

Several papers have shown that returns to college vary depending on college selectivity (e.g., Dale and Krueger, 2002; Black and Smith, 2004, 2006; Hoekstra, 2009; Saavedra, 2009; Öckert, 2010). Other papers report significant variation in returns to different fields of study (See Altonji et al., 2016, for a detailed review of this literature). These papers document high returns to pursuing majors in TE as opposed to other fields. The literature also shows that the returns to specific college alternatives may be different for different individuals. In particular, Zimmerman (2019) shows that gaining access to elite, business-focused programs in Chile increases the probability of reaching leadership positions and top earnings, but only for men from elite private high schools. Our paper continues this line of research by showing that the returns from pursuing a major in the male-dominated fields of TE are driven by men, with no effects on women.

We also speak to a growing literature investigating the difficulties women face when navigating male-dominated environments (e.g., Dahl et al., 2018; Biasi and Sarsons, 2022; Cullen and Perez-Truglia, 2021; Casarico and Lattanzio, 2019). Our results suggests that, in the case of TE, these difficulties may be such that women may be unable to achieve their full potential in these fields. Moreover, to the extent that women anticipate the difficulties they might find in these male-dominated environments, they may ultimately avoid pursuing programs in TE, thus further reinforcing the problem.[9] From a policy point of view, this means that promoting and supporting the entry and progression of female TE graduates in high-paying jobs where women are a minority may help breaking this cycle.

[9]The self-reinforcing nature of occupational segregation by gender has been studied by Pan (2015).

2 Institutional Setting

2.1 Gender gaps in Chile

Chile is a middle-income OECD member country, with per capita GDP equal to about $25,000 after adjusting for purchasing power parity. This is among the highest in Latin America and close to Eastern European States (World Bank, 2018). In terms of gender equality, considerable progress has been made in the last twenty years, but there is still a long way to go. Employment rates for women aged 25 to 54 rose from about 45% in 2000 to about 65% in 2018. Comparatively, employment rates for women in this age group are 73% in the United States, 65% in Colombia, 63% in Brazil, and 54% in Mexico. At the same time, the gender wage gap, defined as the difference between median earnings of men and women relative to median earnings of men, is 12.5%, compared to 18.2% in the United States, 5.8% in Colombia, and 14% in Mexico (OECD, 2018).

Chile has made considerable progress in recent years towards gender parity in educational attainment. Thirty-seven percent of women between 25 and 34 years old had obtained a tertiary degree in 2018, compared to 30% of men. This number is below that of the United States, where 54% of women had completed postsecondary education in 2018, but above that of other Latin-American countries such as Brazil (23%), Colombia (33%), and Mexico (24%) (OECD, 2018). However, as is true in most other countries, women are underrepresented in certain fields. In particular, women represented 27% of first year students in TE fields in 2017 (see Figure 1). If we consider Bachelor's degrees in TE conferred in 2019, women received 22.6% of them, very similar to the 21.6% observed in the United States in the same year.[10]

[10]Source for Chile: authors' construction based on administrative records (see section 3). Considers majors in the following categories: industry and production, information technology, engineering and afine professions. Source for the United States: see footnote 2.

In terms of career advancements for women, the country lags behind more developed economies. Employed women in Chile are about 50% less likely than men to hold a managerial position and hold just 8% of seats on boards of the largest publicly listed companies. In contrast, employed women in the United States are about 25% less likely than men to hold a managerial position and hold 22% of seats on boards of the largest publicly listed companies (OECD, 2018). In 2013, women in Chile held 16% of seats in Congress, comparable to female political representation in other Latin American countries such as Brazil, Colombia, and Mexico. After a political reform that established gender quotas for candidates to Congress, women increased their representation to 23.4% of seats in 2017 and to 32.7% in 2022, placing Chile above the OECD average (31.6%).

People in Chile hold traditional views of gender roles. According to the World Value Survey from 2012, 18% of Chileans agree that when jobs are scarce men should have more right to a job than a women, 34% agree that if a woman earns more money than her husband this can cause problems, 36% agree that children suffer when a mother works for pay, and 20% agree that a university education is more important for a boy than for a girl. People in Chile are also reluctant to see women as leaders: 27% agree that men make better political leaders than women, and 18% agree that men make better business executives than women. These numbers are similar to what is observed in other Latin American countries such as Argentina, Brazil, Colombia, Mexico and Peru, but they reflect much more sexist views than those of people in the U.S (see Appendix Table A.1).

Our interpretation of these numbers is that Chile is halfway between other Latin American countries and higher-income countries like the United States in terms of the place of women in the economy and politics, but closer to Latin America in terms of cultural views on gender.

2.2 College Admission in Chile

The Chilean postsecondary education sector consists of 60 universities that offer college degrees and 122 institutions that offer technical degrees. College degrees typically take 5 years to complete. Of the total number of universities, 25 participate in a centralized admission system called SUA (for *Sistema Único de Admisión*, or Unified System of Admission).[11] Universities that do not participate in this admission system are predominantly private and typically serve lower-scoring students. The 25 universities that participate in SUA are all non-profit, but can be public, private, or private-parochial. These universities span a wide range of selectivity levels.

Students applying to these 25 institutions must take an SAT-like standardized test called PSU (for *Prueba de Selección Universitaria* or University Selection Test.) Students sign up online to take the PSU during their senior year of high school and everyone must take the test on the same day in November. There is only one chance to take the test each year. All students take exams in mathematics and language and they can choose whether to take optional tests in science and history. Test scores and high school GPA are scaled to a distribution with a range of 150 to 850 and a mean and median of 500.

After taking the PSU and being informed of their test scores, students submit their applications to the system using an online platform. As in many other postsecondary education systems, students in Chile apply directly to specific majors within postsecondary institutions (we refer to the combination of a major and a college as a *program*). As a reference, students applying in 2017 could choose from a total number of 1,477 programs in institutions participating in the centralized admission system. Each year, institutions must define ex-ante the weights each program will assign to the different sections of the PSU as well as to high school GPA when ranking candidates.

[11] Eight additional institutions joined the system in 2012, but our paper focuses on earlier admission processes.

Let s_i^ι be the score obtained by student i in PSU section ι (e.g., math, language, history, science or high school GPA). The program-specific weighted score of student i applying to program j is computed as:[12]

$$s_{ij} = \sum_{\forall \iota} s_i^\iota \cdot \alpha_j^\iota,$$

where α_j^ι is the weight given to PSU section ι in program j, with $\sum_{\forall \iota} \alpha_j^\iota = 1$ for any program j. Because α_j^ι can vary across programs, the same student may have different weighted scores for different programs. The weights are public information and thus applicants can know beforehand their weighted scores for each available program.

In their applications, students submit a list with up to eight programs ranked from most to least preferred. Students have an incentive to rank programs correctly, meaning that they should not list a less-preferred choice over a more-preferred choice. However, they may incorporate admission probabilities when deciding which options to list, as they are capped at eight options.

Once students submit their applications, the system takes their rankings of alternatives, their program-specific scores, and the number of available seats by program, and implements a *deferred acceptance* assignment algorithm (Gale and Shapley, 1962) to determine which students are offered admission to each program. The algorithm generates program-specific admission cutoffs such that (i) each student is offered admission to their highest-ranked program for which their program-specific weighted score is equal to or above the program-specific admission cutoff (if any), and (ii) the number of students assigned to each program is equal to or less than the number of available seats for that program. In our data, we will identify program j's admission cutoff, denoted by c_j,

[12] Even though some variables change from year to year, we omit time subscripts for now and introduce them later in the paper when it becomes necessary.

as the minimum weighted score among students who were offered admission to that program j.

$$c_j = \min_i \quad s_{ij}$$
$$s.t. \quad i \text{ is offered admission to } j$$

While students apply with some knowledge of where they might be admitted, cutoff scores vary unpredictably from year to year due primarily to shocks in demand. Students' inability to precisely predict cutoff scores is consistent with the imprecise control condition required for unbiased regression discontinuity estimation (Lee and Lemieux, 2010).

The admission process has two rounds. During the first round, students receive at most one admission offer and decide whether to enroll, remain in the waitlist for a more-preferred program from which they were rejected, or withdraw from the application process. The seats that remain empty after the first round are then allocated in a second round of offers.[13] These offers are generated following the same mechanism as the first round. In March of the following year, enrolled students begin their studies in their program. If students want to change to a different program they usually need to wait an entire year and participate in the next admission process on equal terms with other applicants.

[13]Our regression discontinuity strategy will be based on the admission cutoffs generated in the first round. Applicants who are re-assigned in the second round will thus be considered as non-compliers.

3 Data and Sample Construction

3.1 Data

This study uses a dataset that brings together administrative records on education, earnings, fertility, and marriage. To do this, we digitized hard copies of published test score results stored in a local newspaper (*El Mercurio*) for all students taking the standardized admission test from 1999 to 2007 and merged this information with educational, earnings, marriage and fertility data (see Appendix B for more details on data construction). We chose to focus on students who graduated from high school between 1999 and 2007 because these were the oldest cohorts for whom we could gather complete higher education application records. These students were between 30 and 38 years old in 2019, which is the last time we observe them. For each individual we retain their first observed application.

Educational records for these students include: socioeconomic information that students provide when signing up for the standardized admission test, their performance on the standardized college admission test, high school GPA, the application they submitted to the centralized system of admission, and whether they enrolled in any university participating in the centralized system of admission between 2000 and 2017.

Because enrollment records for the 2000 to 2017 period are only available for institutions participating in the centralized system of admission, we complement this information with more recent administrative records that capture enrollment and graduation for all higher institutions in the country. This allows us to analyze, for example, the probability that a student enrolls or graduates from a program in a given field from any institution. These records, however, are only available for the 2007 to 2017 period, which is why when looking at these outcomes we focus on students

graduating from high school between 2003 and 2007.

In our analysis we group programs using OECD's field categories with a few adjustments. Table 1 describes the 9 categories that we analyze and examples of programs contained in each category. We choose to build a separate category for business, which is typically classified under social sciences, because we believe it differs considerably from other programs in this field. We also choose to build a separate category for architecture, which is typically categorized under TE. Finally, we leave aside the services field as it contains very few and diverse programs, and add programs in journalism, which are under services, to the social science field.[14] Although there is some variance across programs, in general, programs under our TE category are male-dominated and have high average annual earnings and programs under our HASS category are either gender balanced or female-dominated and have low average annual earnings. Programs in our health and business category also have high earnings, but tend to be more female-dominated. Finally, programs in science are diverse in terms of gender composition and average annual earnings (see Appendix Figure C.1).

Earnings records are obtained from the unemployment insurance records of Chile's Ministry of Labor for the period between 2002 and 2019, which keeps track of the monetary contributions to the individual unemployment insurance account of each worker. We complement this data with records from the public-sector for the 2018-2019 period. Our data covers almost the entire formal sector, but it excludes the self-employed which represent approximately 15% of individuals in our sample.[15] Because we only have data on the public sector for the 2018-2019 period, our main

[14]Other small adjustments include excluding programs in industrial design, food engineering and agroindustrial engineering from the TE category, as these are rather low-earnings female-dominated programs; excluding programs in social work from the health category and including them in the HASS category which is consistent with their cine-unesco classification; excluding programs in occupational therapy that are typically classified as health but that tend to have low earnings; excluding programs in advertising and accounting that are typically classified as business but that tend to have low earnings; and excluding programs in Law from the HASS category, as these programs take too long to complete and data on earnings is misleading.

[15]The data also excludes workers with training contracts, workers under the age of 18, those in domestic service,

specification focuses on average annual earnings in this period, when individuals in our sample are between 29 and 38 years old. Earnings records from the unemployment insurance are capped at roughly $5,000 a month. In our sample, about 2% of monthly earnings for men and women in the control group are at this cap in 2018-2019. Accessing a program in TE increases the probability of being at the cap by 6 p.p. for men, and has no effect on the probability of being at this cap for women. To deal with capped earnings, we follow Card et al. (2013) and use a series of Tobit models —fit separately by year, gender, and exam score decile —to stochastically impute the upper tail of the wage distribution. These Tobit models for a given year include worker's average earnings and topcoding rate in all other years. Using the estimated parameters from these models, we replace each censored wage value with a random draw from the upper tail of the appropriate conditional wage distribution.[16] In Appendix Table E.1 we show that our main results remain very similar without this imputation, consistent with the relatively low censoring rates.

Fertility and marriage records were obtained from the civil registration system in 2018. For each individual in our dataset, we were able to obtain marriage records and birth records for each of their offspring. We list two individuals as partners if they married or if they have a child that was registered at the National Service with both of them as parents. For each individual in our data we identify one partner, that is either his or her husband if he married after he applied or the parent of his or her first child if he is single and had the child after he applied. We identified a partner for 54% of individuals in our sample. However, we were only able to get information on partners' earnings, test scores and college enrollment if they signed up to take the PSU in or after

and pensioners. However, people in our sample should not be under these categories. Table D.1 in the Appendix uses data from the Chilean household survey for 2017 (Casen, 2017) to characterize the percentage of individuals aged 29 to 38 who graduated from each field and who are unemployed, working in the private sector, working in the public sector, or self-employed.

[16]Individuals who take the test more than once are assigned their last score. For individuals who are only observed in one year, we set the mean log wage in other years to the sample mean, and the fraction of censored wages in other years equal to the sample mean, and include a dummy in the model for those who are observed only once.

1999, which is the case for roughly 72% of partners.

We complement administrative data with a survey that we designed and administered. The survey collected information about completed program, educational outcomes, preferences for different job characteristics, actual job characteristics, life and job satisfaction, and individuals' perception regarding the extent to which cultural barriers and discrimination have hindered their career development. The survey was sent by email by 14 of the 25 institutions participating in the centralized system of admission to former students who enrolled between 2000 and 2008. We were able to collect information for 3,815 individuals.

3.2 Sample Construction

Our purpose is to build a sample of applicants on margins of admission involving programs in TE and HASS, and whose assignment into one or the other depend on their weighted scores being above or below an exogenous cutoff. To fix ideas, consider an applicant i who applied to program j and whose weighted score for this program is s_{ij}. We need first to determine whether the admission cutoff for j, c_j is relevant for i's admission. As several papers have pointed out, it may not be (e.g., Abdulkadiroğlu et al., 2014). Suppose for instance that j is a very selective program, and that our applicant ranked it below a less selective program k. For this applicant, crossing j's admission cutoff does not affect assignment to j, because the less selective but preferred program k is within reach when $s_{ij} = c_j$. In this case, including i's application to j in our dataset would reduce the strength of our first stage, thus lowering statistical power and increasing the risk of weak instruments bias.

To deal with this issue we follow in spirit Dustan (2018), and eliminate from our sample any application to a program j by student i if there exists a program k such that both:

i) i ranks k above j, and

ii) k is *relatively less selective* than j from i's perspective, were relative selectivity is defined as follows:

Definition 1 *(Relative Selectivity) Let* $\phi_{il} = \frac{c_l - s_{il}}{\sqrt{\sum_{\forall t}(\alpha_l^t)^2}} = \frac{c_l - \sum_{\forall t} s_i^t \alpha_l^t}{\sqrt{\sum_{\forall t}(\alpha_l^t)^2}}$ *be the euclidean distance between i's vector of scores,* $(s_i^t)_{\forall t}$*, and the admission frontier for l defined as* $C_l = \{(s^t)_{\forall t} : \sum_{\forall t} s^t \alpha_l = c_l\}$*. Then program k is said to be relatively more selective from i's perspective than program* $j \neq k$ *if and only if* $\phi_{ik} > \phi_{ij}$*.*[17]

Approximately 55% of the applications in our data survive the elimination process described by i) and ii). We further restrict our sample and exclude applications to programs that are not oversubscribed, since admission cutoffs are not relevant for admission into these programs. In practice, we consider a program to be oversubscribed if at least one of its applicants ends up being assigned to a less preferred program. Finally, given our regression discontinuity strategy, we will focus on applications that are sufficiently close to an admission margin (more details in Section 4.)

To simplify subsequent discussions, we introduce some additional terms. Consider an applicant i near the margin of admission to program j. We refer to program j as the *target program* for this applicant. Further suppose that, upon failing to qualify for admission in j, this student will be offered admission into program k, also included in the application, but ranked below j. This second program will referred to as the *fallback program*. Finally, we will say that both the target program and the fallback program are *cutoff programs* for applicant i.

[17] It is easy to check that for the special case where programs j and k assign the same weights to each section of the test, relative selectivity of j and k depends exclusively on the comparison of admission cutoffs c_j and c_k. When this is not the case, our definition of relative selectivity takes into account the scores of the applicant. For a student with a high score in math and a low score in language, a program that gives a high weight to the math section will be relatively less selective than a program that gives more weight to the language section. In contrast, for a student that does better in language and worse in math, the opposite will be the case.

The sample for our main analyses will include two groups of applicants: i) those with a target program in a TE field and a fallback program in a HASS field, and ii) those with a target program in a HASS field and a fallback program in a TE field. These two groups will be pooled together in order to improve statistical power. All applications in our sample will thus include two cutoff programs, one in TE and one in HASS. In some cases we will be interested in comparing HASS with other fields such as Business and Health. For these analyses we will proceed analogously, selecting students with target and fallback programs in the relevant fields.

3.3 Sample Description

Our main sample includes 5,476 applicants. Naturally, our main sample is not representative of the population of applicants to higher education. First, we are considering students with weighted scores near an admission cutoff, making our results local in nature (Lee and Lemieux, 2010). However, the fact that relevant admission cutoffs are different for different applicants may make this less problematic. Second, applicants in our sample are on the margin of admission to oversubscribed programs. Since these programs are by definition more selective, we would expect applicants in our sample to be academically and socially advantaged relative to the population of applicants. Third, we consider applicants to programs in both TE and HASS. Approximately 60% of programs listed by applicants are followed in their preferences by another program in the same field of study. In particular, 63.5% of applicants who list a program in TE have a next-best program in TE, and 80.9% of those applying to a program in HASS have a next-best program in HASS. However, although applying to programs in different fields is rare, listing programs in both HASS and TE is not particularly uncommon. For instance, of those who listed programs in HASS, 4.4% applied next to a program in TE, 5.8% to a program in Business, 0.9% to a program in Health and 8.1% to a program in Science. Similarly, among applicants to programs in TE, 5.1% applied next

to a program in HASS, 7.5% to a program in Business, 1.4% to a program in Health and 22.5% to a program in Science (see Appendix Table F.1). Importantly, our sample may be particularly relevant if we were considering policies that intervene the admission process such as gender quotas in TE. Applicants near a margin of admission involving both TE and HASS are precisely those who might switch fields if such a policy were to be implemented.

Table 2 presents summary statistics for the individuals in our sample and shows how they compare to the general population of high school graduates who signed up for the standardized admission test in 1999-2007. Of those students who signed up to take the PSU, 53% are women and 43% live in the capital. Their households are composed of 4.5 individuals on average, 1.3 of whom work. Sixty seven percent of households are headed by the father. A little over 25% of these students have a mother with a tertiary education and one-third have fathers with a tertiary education. Two-thirds of them have a father that works full time, but only a third have a mother that works full time. Students have an average GPA of 5.6 (on a scale from 1 to 7), and score in the 47th percentile on the math and language PSU. In 2018-2019, students had annual earnings of $12,967 for almost 7 months of work. This figure includes zeros for individuals who are not working and implies an annual wage of $23,666 for those who work year round. Fertility records indicate that 62% of them had a child by 2018.

As expected, the sample of students used in the analysis has a higher socioeconomic status and is more academically advantaged. These students have more educated parents, higher high school GPAs and perform much better in the language and math sections of the PSU. In terms of income, they report average annual earnings of $15,143 in 2018-2019, 16.8% above the average for all applicants. They are also less likely to have children (48% vs. 62%). Conditional on having children, they tend to have them at an older age (27.4 vs. 25.7 years old).

4 Empirical Strategy

The college admission process generates unpredictable admission cutoffs for all programs. The admission outcome of applicants in our sample depends on which side of these cutoffs their weighted scores end up falling. For applicants with a target program in TE and a fallback program in HASS, marginally crossing the admission cutoff for the TE program increases the probability of assignment to TE from 0 to 1, and decreases the probability of assignment to HASS from 1 to 0. Conversely, for applicants with a target program in HASS and a fallback program in TE, crossing the admission cutoff for the former increases from 0 to 1 the probability of admission to HASS and reduces from 1 to 0 the probability of admission to TE.

In practice, we define the *running variable* for applicant i to program j in year t, r_{ijt} as follows:

$$r_{ijt} = \begin{cases} s_{ijt} - c_{jt} & \text{if } j \in TE \\ c_{jt} - s_{ijt} & \text{if } j \in HASS, \end{cases}$$

where s_{ijt} is the weighted score of i for program j in year t, and c_{jt} is the admission cutoff for program j in year t. With this definition, student i is offered admission to a program in TE if $r_{ijt} \geq 0$, and to a program in HASS if $r_{ijt} < 0$. If $P_{ijt}(r)$ is the conditional probability that applicant i is offered admission into j in year t given $r_{ijt} = r$, then this function jumps discontinuously from zero to one at $r = 0$. For $r > 0$, however, this function may be decreasing in r since higher scores may allow this applicant to access more preferred programs.

Our empirical strategy rests on the assumption that applicants with r_{ijt} just above zero have observable and unobservable baseline characteristics that are comparable in expectation to those of applicants with r_{ijt} just below zero. Under this assumption, we are able to identify the causal

effect of an admission offer to TE as opposed HASS by comparing the observed outcomes of applicants marginally assigned to TE to those of applicants marginally assigned to HASS.

Our reduced-form results are based on the following standard regression discontinuity specification:

$$y_{igjt} = \pi_{1g}\, r_{ijt} + \pi_{2g} \cdot (r_{ijt} \times Z_{ijt}) + \tau_g\, Z_{ijt} + \mu_{gj} + \eta_{gt} + \varepsilon_{igjt} \tag{1}$$

where y_{igjt} is the outcome of interest for student i of gender g in margin j (i.e., a combination of a target program and a fallback program, one of them in TE and the other in HASS), applying for admission in year t. The running variable r_{ijt} determines whether i is assigned into TE (i.e., $r_{ijt} \geq 0$) or HASS (i.e., $r_{ijt} < 0$), and $Z_{ijt} \equiv \mathbb{1}(r_{ijt} \geq 0)$ is a cutoff-crossing indicator.

The specification includes fixed effects at the gender-by-margin level (μ_{gj}), as well as at the gender-by-cohort level (η_{gt}). The slope parameters π_{1g} and π_{2g} are allowed to vary by gender. Our parameter of interest, τ_g, estimates the effect on applicants of gender g of a marginal admission offer into a program in TE as opposed to a program in HASS. The model is estimated by ordinary least squares, using a uniform kernel around the cutoff, with a bandwidth of $h = 40$.[18] We cluster standard errors at the individual level.[19] Appendix E shows that our main results remain quantitatively and qualitatively similar when using alternative bandwidths or alternative fixed effects.

Our main results are based on the following structural specification:

[18]Optimal bandwidths suggested by Calonico et al. (2014) are 33 for men and 40 for women when we consider earnings in 2018-2019 as our outcome of interest.

[19]The same individual may be within a distance of h to more than one admission cutoff in their listed programs.

$$y_{igjt} = \delta_{1g}\, r_{ijt} + \delta_{2g} \cdot (r_{ijt} \times Z_{ijt}) + \beta_g\, d_{ijt} + \xi_{gj} + \zeta_{gt} + \epsilon_{igjt} \tag{2}$$

where d_{ijt} is a binary indicator taking the value 1 if the individual enrolls in the TE cutoff program j in or after year t. This model is estimated by two stages least squares, using the cutoff-crossing indicator Z_{ijt} as the instrument for d_{ijt}, and a uniform kernel with bandwidth $h = 40$. The purpose of this structural model is to estimate the effects of actual enrollment in TE, as opposed to just receiving an admission offer to TE. The exclusion restriction requires an admission offer made to the TE cutoff program to affect outcomes only via its effect on the probability of enrollment in that program. Because of imperfect compliance, our estimates of β_g will capture local average treatment effects, i.e., the average effect of ever enrolling in the TE cutoff program among applicants of gender g who enroll in the TE cutoff program only upon receiving an admission offer to it (Imbens and Angrist, 1994).[20]

In some cases we will be interested in studying how effects evolve over time. In such cases, we estimate the following specification:

$$y_{igjta} = \delta_{1g}\, r_{ijt} + \delta_{2g} \cdot (r_{ijt} \times Z_{ijt}) + \beta_{ga}\, d_{ijt} + \xi_{gj} + \zeta_{gt} + \rho_{ga} + \epsilon_{igjta}, \tag{3}$$

where y_{igjta} is our outcome of interest, subscripts j, g, j, t preserve their meaning and a indicates that the outcome is observed a years after high school graduation. The specification adds fixed effects at the gender-by-a level and allows the parameter of interest, β_{ga} to vary by both, gender and a. However, to gain efficiency, we impose that slope parameters and fixed effects remain constant across different values of a. Appendix E shows that results of this type remain qualitatively

[20] Non-compliance may arise from i) applicants who do not accept an admission offer to the TE cutoff program, or ii) applicants who, despite having received an admission offer to the HASS cutoff program, end up enrolling in the TE cutoff program after the second round of admission or after re-applying in a subsequent year.

similar if we allow the slope and fixed effects to vary with a.

5 Empirical Results

5.1 Regression Discontinuity Validation

We begin by presenting standard tests of the validity of our RD strategy. First, we perform balancing checks to examine whether individuals just above and just below the cutoff are similar in terms of their baseline observable characteristics. We focus on a set of socioeconomic variables, including family size, parents' education, and parents' work status. Large and significant discontinuities in the conditional means of these variables at the cutoff could be taken as an indication that potential earnings of individuals may also be discontinuous at the cutoff, thus violating the identification assumptions.

Figure 3 summarizes results for men and women in our sample. The figure plots the estimated discontinuities at the cutoff and their 95% confidence intervals. These coefficients are separately estimated for men and women from a specification analogous to (1), where the baseline characteristic is used as the dependent variable. We do not find statistically significant jumps at the cutoff for the covariates, except for a difference in the probability of having a mother with primary education for men, and the number of individuals in the household who work and probability of having the father as the head of household for women. An F-test for each sample rejects that these estimates are jointly significant.

Manipulation of PSU scores is highly implausible, not only because of the institutional setting, but also because students do not know ex-ante what the cutoff score will be for a given program. Still, to check for any signs of manipulation, we test for a discontinuity in the density of the stan-

dardized weighted score around the cutoff. We do this by implementing the test suggested by Cattaneo et al. (2018), the results of which are presented in Figure 4 for men and women in our sample. As expected, we do not detect discontinuities in the distribution of the running variable.

5.2 Compliance with program assignment

We continue by showing evidence of the relevance of admission cutoffs for enrollment. Throughout we will say that an individual *ever enrolled* in program j if they enrolled in j sometime between his application year and 2017.

The way in which we built our sample and running variable implies that applicants with $r_{ijt} < 0$ are offered admission to their cutoff HASS program, whereas applicants with $r_{ijt} \geq 0$ are offered admission to their cutoff TE program. With this in mind, we begin by studying how crossing the admission cutoff affects men and women' probabilities of (i) ever enrolling in the cutoff TE program, and (ii) ever enrolling in the cutoff HASS program. Figure 5 plots these probabilities as functions of the running variable. We can draw two conclusions from these plots. First, there is imperfect compliance with program assignment. Not everyone enrolls in the cutoff program where they are offered admission. Applicants may decide not to accept the offer and, either enroll in a program offered at an institution that does not participate in the centralized admission system, or wait an entire year and re-apply to another program. Second, and most importantly, the discontinuities at the admission threshold imply that a marginal admission into the TE cutoff program increases by 50 to 60 p.p. the probability of enrollment in that program and reduces by a similar ammount the probability of enrollment into the HASS cutoff program for both men and women. These results demonstrate that crossing admission offers causally affect applicants' enrollment outcomes.

As discussed in Section 4, our 2SLS estimates of equation (2) identify the average effect of enrolling in the TE cutoff program among compliers. A complier in our setting is someone who enrolls in the cutoff TE program if their running variable falls to the right of the cutoff, but not otherwise. Our previous result indicates that 50 to 60% of applicants in our sample are compliers in this sense. However, upon receiving an admission offer to the HASS cutoff program, a fraction of these compliers may end up enrolling in a program that is neither the TE cutoff program nor the HASS cutoff program. We estimate that this type of compliers represent about 4% of all compliers.[21] Considering this, we can reasonably interpret our 2SLS estimates as the causal effect for compliers of enrolling in the TE cutoff program as opposed to the HASS cutoff program.

5.3 Effects of enrollment in TE on earnings and employment

We now turn to our main results. We begin by studying the effect of accessing a program in a TE field as opposed to a program in a HASS field on individuals' earnings. Figure 6 offers a visual display of our results on annual earnings in 2018-2019, when individuals in our sample have been out of high school for 11 to 20 years. Earnings are unconditional on employment status and, thus, the observed discontinuities combine effects in both the extensive and intensive margins. To reduce noise, we residualize earnings using fixed effects by margin and cohort. The figure reveals a large and positive discontinuity at the cutoff for men and no evidence of a discontinuity for women. That is, an admission offer to a TE program, as opposed to HASS, has a positive effect on annual earnings for men but not for women.

These results are in line with the results presented in Table 3. The table reports estimates of

[21] For applicants with a target program in TE and a fallback program in HASS, crossing the cutoff increases the probability of enrolling in the TE program by 67% and decreases the probability of enrolling in HASS by 61%. This means that $100 \times \frac{.67-.61}{.67} = 9\%$ of compliers do not enroll in the HASS fallback program when $r_{ijt} < 0$. For applicants with a target program in HASS and a fallback program in TE, the corresponding fraction is just 1.6%. We get our estimate of 4% by computing a weighted average of both estimates, with weights equal to the fraction of the sample of each type of applicant.

the effects of enrolling in the TE cutoff program on men and women's outcomes (as well as their difference). We also report estimates of the mean outcomes for men and women who enroll in the HASS cutoff program.[22] Column 1 includes as the outcome a binary indicator for whether the individual shows positive earnings at least one month in the 2018-2019 period. For men and women in HASS, the probabilities of having positive earnings at least one month in this period are 68% and 75%, respectively. Enrolling in TE increases this probability by 14 p.p. for men, but does not affect this probability for women. In column 2, we show results for annual earnings averaged through 2018-2019, including zero earnings. Men and women in HASS earn $12,542 and $14,022, which implies annual earnings of about $18,500 for men and women who worked at least one month. Enrollment in the TE cutoff program increase the earnings of men by $10,109, which represents an 81% increase relative to earnings in HASS. In contrast, our estimates of this effect for women are very close to zero and statistically insignificant. We can reject the hypothesis of this effect being above $4,800 with 95% of confidence. Moreover, the returns to pursuing a major in TE are $10,059 higher for men than for women, a difference that is significant at the 1% level.

Interestingly, we find that the positive effect of enrollment in TE on men's earnings are to a large extent the result of an increase in the probability of reaching earnings at the top of the earnings distribution. Columns 3-6 of Table 3 show how enrollment in the TE cutoff program affects the probability of 2018-2019 annual earnings being above $15,000, $30,000, and $40,000 (i.e, approximately the 50th, 80th, and 90th percentiles of the 2019 income distribution). While men and women in HASS have similar probabilities (4.3% and 4.8%) of having earnings above $40,000, enrollment in TE increases this probability by about 10 p.p. for men, but does not seem to affect it for women. These findings are consistent with the idea of there being a "glass ceiling" preventing women from reaching top positions in the economy (see Bertrand, 2017 for a review on this issue).

[22] To obtain these estimates we average over all the estimated fixed effects for men and women, respectively.

Figure 7 shows model estimates for the evolution of mean earnings over the life cycle for male and female compliers who, induced by a marginal admission offer, enrolled in a HASS field (blue lines), or in a TE field (red lines). The coefficients are estimated using the specification of equation (3). We observe outcomes for our full sample (completing high school between 1999 and 2007) up to 12 years after high school graduation, but only get to observe outcomes 20 years after high school graduation for individuals who completed high school in 1999. Because we loose observations with each additional year, our estimates become noisier over time. To get estimates for each year after high school we need to use data on earnings from 2010-2017 for which we have incomplete records for public sector employees. For this reason, mean earnings might look slightly different than in our previous results. Still, results from the figure are consistent with our previous findings. The plots show that earnings for both men and women tend to grow steadily over time in both TE and HASS fields. They also show that the effects of enrollment in TE, corresponding to the difference between the red and the blue lines, is positive and stable over time for men. For women, instead, we observe a small positive effect of enrolling in TE when women have been 13 years out of high school, but this effect tends to dissipate over time. These results suggest that while there may be a positive effect of enrolling in TE on earnings for women at the outset of their careers, returns are smaller than those of men and tend to decrease over time. Appendix E shows that these results remain qualitatively unchanged if we run separate regressions for each number of years since high school graduation.

Enrolling in a TE program can also affect the extensive margin of employment. We already saw a positive effect on the probability of having positive earnings in at least one month during 2018-2019. Table 4 shows results for several employment-related outcomes. Column 1 shows that even though women who enrolled in HASS are on average employed more months a year than men who enrolled in HASS (7.48 vs. 6.19 months a year), enrollment into TE increases male em-

ployment by 1.9 months a year (30%) and reduces female employment by 0.34 months a year (-5%, statistically insignificant). Consistent with this, we find positive effects for men and (statistically insignificant) negative effects for women on the probability of working at least one month in a year, as well as on the probability of them working every month of the year (columns 2 and 3). Columns 4 and 5 show that the positive effect on male employment is concentrated on jobs with permanent contracts.[23] Even though men in HASS fields are less likely to have a permanent contract than women in HASS fields (43% vs. 53%,) men in TE fields are considerably more likely to have a permanent contract (60% vs. 48%.) As shown in columns 6 and 7, these effects accumulate over time and, by 2019, men in TE fields have accumulated 16.5 additional months of experience and have had 1.5 additional employers relative to men in HASS. Instead, enrollment in TE does not affect accumulated experience or the number of employers for women.

Our results stand in contrast to observational earnings comparisons between students enrolled in TE and HASS. If we consider all enrollees in TE and HASS, we find that, after conditioning on ability (i.e. math and language test scores and high school GPA), earnings are $7,437 higher for men and $4,824 for women in TE compared to men and women in HASS. Figure 2 shows that, for men, the difference in earnings between TE and HASS is positive and nearly constant along the ability distribution. For women, this difference is also positive and increases with ability.[24] Nonetheless, our casual estimates for women show null returns to TE even if we allow for heterogeneous effects along the ability distribution (see Appendix Figure G.1). This suggests that selection bias is more of a problem among women than men applying to TE, which is consistent with TE being a particularly rare choice for women but not for men.

[23]The probability of having a permanent or fixed-term are dummy variables that equal one if the worker has a permanent or fixed contract. An individual may have both a permanent contract and fixed term contract in a given year.

[24]Figure 2 shows that earnings in TE are higher than earnings in HASS for women whose math test scores are above the 80th percentile. However, approximately 80% of women who enroll in TE have a math test score above the 80th percentile.

Our estimates of the effect of enrolling in TE as opposed to HASS combine effects for i) applicants with a target program in TE and a fallback program in HASS, and ii) applicants with a target program in HASS and a fallback program in TE. For the first group, an admission offer to TE also means an admission offer to a more preferred and more selective program. Conversely, for applicants who rank HASS above TE, an admission offer to TE means admission to a less preferred and less selective program. In Table 5, we show estimates of the effects of enrolling in TE on annual earnings and months worked in a year, separately for both groups (columns 1-4). In addition, columns 5-10 show separate estimates depending on whether the TE cutoff program is offered at an institution that is more selective, similarly selective, or less selective than the institution where the HASS cutoff program is offered. Although these results are noisily estimated, they suggest that it is field of study rather than program selectivity or enrollment in a more or less preferred program what drives our results.

5.4 Gender differences in program choices and ability

Part of the gender differences in returns to TE fields may be due to the fact that men and women apply to different programs in TE and HASS fields. For instance, among applicants who rank a program in TE as their first choice, women might be more likely to rank a program in sociology second, while men might be more likely to rank a program in acting second. If earnings in sociology are higher than in acting, we would expect to see lower average returns for women than for men. Although this would not affect the validity of our estimates, it might affect their interpretation.

To see if this is driving our results, we re-estimate the earnings model using the same 2SLS specification, but re-weighting the data in such a way that the distribution of women's applications looks the same as the distribution of men's applications and viceversa. Specifically, when

using the distribution of male applicants we weight women's observations by n_j^m/n_j^f and when using the distribution of female applicants we weight men's observations by n_j^f/n_j^m, where n_j^g is the number of gender g applicants in margin j. We focus only on programs in the common support of male and female applications, that is, programs with applicants of both genders. The results of this analysis, shown in Appendix Table E.4, are very similar to the unweighted analysis, suggesting that our results are not driven by gender differences in application patterns.

Alternatively, our results may be due to differences in the ability of male and female applicants. Two applicants in the same margin of admission and with the same composite test score might still differ in terms of their test scores on individual sections of the test, or in terms of their high school GPAs. In fact, female students in our sample have slightly higher GPAs, and slightly lower math and language test scores than men. To test for this possibility, we re-estimate our main regressions allowing for heterogeneous effects by high school GPA, math test score, and language test score. The results are shown in Appendix Table E.5. Although our estimates show some evidence of effect heterogeneity by ability, accounting for this heterogeneity does not explain the gender differences we observe in the returns to enrolling in TE as opposed to HASS.

5.5 Contrast with other fields

In this section, we present evidence suggesting that our finding of large gender differences in the returns to TE fields does not generalize to other high-earnings fields with higher proportions of female enrollment such as business or health.

Table 6 shows estimates of the returns to enrolling into programs in business (columns 1-3) and health (columns 4-6), leaving HASS as our counterfactual category. We estimate that enrollment in a business program increases men's earnings by $9,982, representing a 54% increase relative to

earnings in HASS ($18,609). For women, we estimate a slightly smaller, but still positive effect of $5,008, representing a 27% increase relative to earnings in HASS ($18,750). In the case of health, we estimate positive effects that are larger for women ($3,702) than for men ($2,092). These effects represent increases of 24% and 11% relative to earnings in HASS ($15,594 for women and $18,804 for men). These results suggest that there is something different about the male-dominated field of TE that makes it unprofitable for women despite being profitable for men.

5.6 Explaining gender differences in returns to TE

5.6.1 Differences in graduation patterns

Heterogeneous returns to TE for men and women could be a result of differences in graduation outcomes. Both men and women can have a hard time persisting in TE fields. Only a fraction of students who enroll in college expecting to major in a TE field actually finish one. This is not only due to students dropping out, but also to students switching from TE to non-TE fields.[25] While true for both genders, dropping out of TE has been shown to be particularly common among women. Prior studies suggest that this is not due to differences in preparation (Arcidiacono et al., 2012; Astorne-Figari and Speer, 2018, 2019; Kugler et al., 2017; Ost, 2010; Price, 2010)[26], but rather a consequence of differences in competitiveness (Astorne-Figari and Speer, 2019; Buser et al., 2014; Fischer, 2017); gender composition of faculty and students (Carrell et al., 2010; Griffith, 2010; Hoffmann and Oreopoulos, 2009; Kugler et al., 2017; Rask and Bailey, 2002); future labor market considerations (Bronson, 2014; Gemici and Wiswall, 2014; Zafar, 2013); and gender differ-

[25] The literature has focused on the broader category of STEM, which also includes sciences and mathematics. Graduation from STEM fields has been studied among others by Arcidiacono et al. (2016); Astorne-Figari and Speer (2019, 2018); Fischer (2017); Griffith (2010); Kugler et al. (2017); Ost (2010); Price (2010); Rask (2010); Stinebrickner and Stinebrickner (2013).

[26] An exception is Griffith (2010) who finds that differences in preparation can explain a large portion of the gender difference in STEM attrition.

ences in preferences for grades (Kugler et al., 2017; Rask and Bailey, 2002; Rask and Tiefenthaler, 2008).

In this section we investigate whether gender differences in graduation rates from TE can help explaining our main results. We look at the effects of accessing a program in TE on (i) the probability of earning any university degree, (ii) the probability of graduating from any university program on-time (i.e., within 6 years of high school graduation), (iii) number of years enrolled in a college program, (iv) the probability of graduating from any program in a TE field, (iii) the probability of graduating from the cutoff TE program, and (vi) number of years enrolled in a TE program. Because graduation outcomes are only available as of 2007, our analysis considers cohorts who graduated from high school between 2003 and 2007, who should not have graduated from a university prior to 2007.

The results of this analysis are shown in Table 7. Although noisily estimated, these results show no significant effect of enrolling in a program in TE on the probability of completing any college program or the probability of graduating on-time. In terms of the total time spent in higher education, we observe a reduction of 1.52 years for men and a statistically insignificant reduction of of 0.1 years for women. Enrolling in TE also has a strong effect on the probability of graduating from a TE program. While only 4% of male compliers who initially enrolled in a HASS program end up graduating from a TE program, 47% of those who enroll in the cutoff TE program obtain a degree in TE. Estimates are smaller, but still strong for women. While 6% of women initially enrolling in HASS end up graduating from a TE program, this fraction increases to 35% for those who enrolled in TE. Although gender differences in the probability of graduating from a TE program are not statistically significant, these results indicate that women may spend a lower number of years enrolled in TE and are less likely to graduate from these programs than men. In contrast to TE, students who enroll in health and business have a higher probability of

graduating from those fields, with only minor differences by gender (see Appendix Tables H.1 and H.2).

5.6.2 Firm and sector of employment

We now investigate how enrollment in a TE program induces men and women to sort into different firms and sectors of the economy. Figure 8 shows model estimates of the probabilities of employment at each of 17 sectors for male and female compliers who, upon receiving a marginal admission offer, enrolled in i) a HASS field (blue bars), or ii) a TE field (red dots). Red lines show 95% confidence intervals around the point estimates for TE. The plots also show the percentage of employees in each sector who are women (grey x's). The results indicate that men who enroll in HASS are primarily employed in the public sector (14%); education (11%); construction (10%); professional activities and administrative services (8%); manufacturing (4%); and commerce (4%). Enrolling in TE increases the probability of men working in male-dominated sectors such as construction (by 10 p.p.) and mining (by 3 p.p.) where roughly 10% of workers are women, as well as their probability of working in more gendered balanced sectors such as professional activities and administrative services (by 7 p.p) and commerce (by 5 p.p.). Women who enroll in HASS are also heavily employed in the public sector (15%); education (17%); professional activities and administrative services (9%); manufacturing (5%); and commerce (7%), but are much less likely than men to be employed in the construction sector (5%). Enrolling in TE increases women's probability of working in professional activities and administrative services (by 6 p.p.), but in contrast to men it does not affect their probability of joining the male-dominated construction or mining sectors, or the commerce sector.

Figures 9 and 10 further look at the characteristics of firms where individuals end up employed. In each case, we take the firms that employed individuals in our sample and divide them

into quartiles of the corresponding characteristic. The left-hand plots in Figure 9 show that enrollment in TE makes men less likely to get jobs in small firms (first quartile of firm size), and more likely to get jobs in larger firms (second and third quartiles). In contrast, enrollment in TE does not appear to make women more likely to get jobs in smaller or larger firms. The center plots of the figure show that enrollment in TE makes men more likely to get jobs in firms in the highest quartile of average wages (average annual wages above $23,819). For women this effect is also positive, but smaller and statistically insignificant. Finally, the right-hand plots show how enrollment in TE affects men and women's probabilities of employment in firms located in a different region or province from their hometowns (i.e., the province where they lived when they applied to higher education). Men and women in HASS have similar probabilities of ending up employed in a different province ($\simeq$ 20%) or region ($\simeq$ 25-30%) as their hometowns. Enrollment in TE increases men's probability of working in a different province by 13 p.p. and in a different province by 11 p.p. Instead, enrollment in TE does not affect women's probability of working further away from home. This results is consistent with studies showing that women are less willing than men to work away from home (e.g., Le Barbanchon et al., 2021).

Figure 10 shows the effects of enrollment in TE on men and women's probabilities of working in firms with different proportions of women among their workers and leaders.[27] Men in HASS are more likely to work in male-dominated firms than women in HASS, with 37% of men working in a firm where less than a third of employees are women (bottom 50% of firms) compared to 24% of women. Additionally, 35% of men in HASS work in firms with less than one fourth of women among their leaders, compared to 28% of women. This segregation by gender appears to intensify with enrollment in TE. Men and women who enroll in TE increase the probability of working at firms with less than a third of female employees by 18 p.p. and 6 p.p. respectively (the effect is

[27] We take the five highest earners of a firm as a proxy of leadership. If a firm has less than five workers we take them all as the highest earners.

statistically significant for men only.) Similarly, we find that enrollment in TE increases by 14 p.p. the probability of working at firms with less than one fourth of women among their leaders, but there is no evidence of such an effect for women.

5.6.3 Fertility and the marriage market

Pursuing a program in a TE field could have effects on fertility or marriage market outcomes. On the one hand, it changes the characteristics of peers at an age where many partnerships are formed. On the other hand, it may make an individual more attractive as a partner, either because it is taken as a sign of quality or because of higher expected earnings. Any effect on fertility or marriage market outcomes could in turn have an effect on earnings, particularly for women, as their earnings are likely to be more affected by childbearing and their spouse's wage.

Figure 11 shows model estimates of (i) the probability of having children and (ii) the total number of children, as functions of the number of years since high school graduation. These probabilities are shown for male and female compliers who, induced by a marginal admission offer, enroll either in a program in HASS (blue line) or in a program in TE (red line). From this plot we conclude that fertility trends of men and women in TE fields are statistically indistinguishable from those of men and women in HASS fields. Regardless of gender and field of enrollment, the probability of having a child goes up from nearly zero when individuals have been out of high school for a year to 55-70% when they have been out for 19 years. Appendix H further shows that enrolling in health or business as opposed to HASS also has no effect on women's fertility choices.

Table 8 studies effects of enrollment in TE on marriage market outcomes. Roughly half of individuals in our sample have a child and a third are married by 2018. Enrolling in TE does not affect either of these probabilities (Columns 1 and 2).[28] Using this information we identify two individ-

[28] Appendix Figure I.1 also shows there is no effect on timing of marriage.

uals as partners if they married or if they have a child that was registered with both of them as parents. About half of individuals in our sample have a partner under this definition and, consistent with our previous findings, enrolling in TE does not affect the probability of having a partner (Column 3). Unfortunately, we can only get information on partners' earnings, admission test scores and enrollment if they happen to be in our records (i.e. if they signed up for the standardized admission test in or after 1999). Table 8 column 4 shows that we can gather information on partners for 38% of men and women who enroll in HASS. Enrolling in TE increases the probability that we get information on a partner by 7 p.p. for men, but decreases this probability by 9 p.p. for women, but these estimates are not statistically significant. Columns 5-9 focus on the characteristics of partners for whom we could get information. This analysis cannot be strictly interpreted as causal since enrolling in TE may affect whether someone has a partner for whom we can collect information. Caveats aside, columns 4-5 show that students, and particularly women, who enroll in TE partner up with individuals with lower math and language test score percentiles than students who enroll in HASS (although these differences are not significant). Also, while there are no major effects in partners' earnings for men, women who enroll in TE have lower-earning partners than women who enroll in HASS (column 9).[29]

As an alternative, we could study marriage market returns by asking whether enrollment in TE increases the probability of partnering with someone with a degree in TE. Since graduates from TE are typically well paid, we could take this as an indication of a positive return on the marriage market. Unfortunately we only have enrollment and graduation records for the whole system as of 2007, which prevents us from seeing whether an individual's partner ever graduated or enrolled in TE. However, we do have complete records (as of 2000) for the centralized system of admission. This allows us to look at effects on the probability of having a partner that ever enrolled in the

[29]We only have information on partners' earnings up to 2017, which is why our measure of annual earnings uses the average annual earnings of partners in 2016-2017. This measure does not include earnings from the public sector.

cutoff TE program. Column 7 of Table 8 shows that enrolling in the TE cutoff program increases the probability of having a partner who enrolled in the same program by 5 p.p. for men and 14 p.p. for women. However, we also find that enrolling in TE does not affect the probability of partnering with someone who ever enrolled in a TE program that is not the TE cutoff program (column 8). That is, although enrollment into a TE program increases the chances of partnering someone in that program, it does not increase the probability of partnering someone in a different TE program. These results are in line with the findings of Kirkebøen et al. (2021) who, using data from Norway, find that enrolling in given major increases the likelihood of marrying someone in the same field, but only if both attend the same college institution.

Our results on marriage must be interpreted with caution, as we are unable to obtain educational and earnings records for every partner in our sample. That said, a conservative interpretation of our results suggests that enrollment in TE is unlikely to resut in large positive returns for women on the marriage market.

5.6.4 Child penalty

Differential returns to TE for men and women could be related to childbearing. Children pose a significant cost on the careers of women, something that has been documented by numerous studies.[30] More importantly for our purposes, these costs can vary across different occupations. For instance, Goldin (2014b) argues that women with children find it particularly hard to advance their careers in fields that disproportionally reward individuals who work long hours or work particular schedules.

In this section we study the extent to which the absence of returns to TE for women could be a

[30]See for instance: Waldfogel (1998); Lundberg and Rose (2000); Sigle-Rushton and Waldfogel (2007b,a); Correll et al. (2007); Paull (2008); Bertrand et al. (2010); Wilde et al. (2010); Daniel et al. (2013); Fitzenberger et al. (2013); Goldin (2014b); Adda et al. (2017); Angelov et al. (2016); Goldin and Katz (2016); Kleven et al. (2019b,a).

consequence of the difficulties for women of making a career in TE compatible with childbearing. We begin by providing evidence on the child penalty for individuals who enrolled in either TE, HASS, business or health. Following Kleven et al. (2019b), Figure 12 uses an event study around the birth of the first child to estimate the impact of children on the earnings of mothers and fathers who enrolled in TE, HASS, business or health in 2000-2008. We consider individuals who have their first child at least 7 years after graduating from high school and who are observed at least once before and once after birth.[31] The estimates in Figure 12 come from the following event study specification which is run separately for men and women in each field of study:

$$y_{ist}^{g} = \sum_{j \neq -1} \alpha_j^g \cdot \mathbb{1}(t = j) + \sum_k \beta_k^g \cdot \mathbb{1}(age_{is} = k] + \sum_y \gamma_y^g \cdot \mathbb{1}(y = s) + \varepsilon_{ist}^g \tag{4}$$

where y_{ist}^{g} is the outcome for individual i of gender g observed in year s and at event time t. For each parent in the data, event time t is indexed relative to the year of birth of the first child. The first term on the right-hand side includes event time dummies, the second term includes age dummies (to control for life-cycle trends), and the third term includes year dummies (to control for time trends). We omit the event time dummy at $t = -1$, implying that the event time coefficients measure the impact of children relative to the year just before the birth of the first child. We are able to identify the effects of all three sets of dummies because, conditional on age and year, there is variation in event time driven by variation in the age at which individuals have their first children.[32] We convert the estimated level effects into percentages by calculating $P_t^g \equiv \hat{\alpha}_t^g / E[\tilde{y}_{ist}^g | t]$ where $\tilde{y}_{ist}^g$ is the predicted outcome when omitting the contribution of the event dummies.

Consistent with results from Kleven et al. (2019b), Figure 12 confirms the existence of a child

[31] Every individual in our data is observed for 18 years (between 2002 and 2019). Individuals are observed up to 16 years before and 12 years after the birth of their first child.

[32] Kleven et al. (2019b) lay out the identification assumptions underlying this approach, compare its results to alternative approaches in the literature, and provide evidence of its ability to identify the causal effect of parenthood.

penalty for women. Across fields of study, the earnings of men and women evolve similarly before parenthood —after adjusting for lifecycle and time trends— but diverge sharply after parenthood. Women experience a large drop in earnings after the birth of the first child, while men are essentially unaffected. Despite these similarities, the graphs reveal differences across individuals who enroll in TE and other fields. Three years after the birth of the first child women in TE show penalties of 30% compared to penalties of 20% or less for women in HASS, business or health. While these differences cannot be attributed directly to the field of study, as women who enroll in TE differ from those who enroll in other fields, they indicate that child penalties are stronger for women in TE.[33]

We complement the last findings with estimates from our regression discontinuity specification of the differential returns to enrolling in a TE field for women with and without children. Although the decision to have children is endogenous, the fact that we don't observe major differences in the probability of having children for individuals enrolling in TE and HASS makes us more confident about this analysis. These results are shown in Table 9. Consistent with there being a larger child penalty for women in TE fields, we estimate positive and significant (at the 10% level) effects on the earnings of women without children ($7,564), but negative effects for women with children (-$5,004). The estimated returns of TE for men with no children are similar those of women with no children ($6,378). For men with children, however, we estimate large positive returns to TE ($14,070).

[33]Figure 12 does not show point estimates for women on the year the child is born because we are unable to separate earnings from maternity leave benefits and these estimates are misleading.

5.6.5 *Survey evidence*

In this section, we present results from the survey we administered to former college students. The survey gathered information on individual variables that we are not able to observe in our administrative data such as college performance, satisfaction with the chosen profession, preferences for job attributes, actual job characteristics and perceived discrimination. The richness of this information may be helpful to interpret our causal results. However, we must be careful not to interpret any comparison of means across individuals in different fields as evidence of causal effects. Moreover, we must take into account that, although our survey respondents (1,526 men and 2289 women) are similar to our administrative sample in terms of their age and probability of having children, they attended more selective institutions. While 38% of survey respondents attended one of the two most selective institutions (Universidad Catlica or Universidad de Chile), just 9% of individuals in our administrative sample attended one of these elite institutions (see Appendix Tables J.1 and J.2). Female respondents who graduated from TE are also different from analogous women in our administrative sample in that they report higher earnings (35,000 a year for those employed) and are more likely to work in male-dominated industries such as mining and construction (see Appendix Table J.3).

To compensate for the lack of administrative information on college performance, we asked individuals whether their college graduation ranking was above average, average, or below average. As shown in Table 10, female respondents who majored in TE are considerably less likely than men who majored in TE to report having graduated with a ranking above average (38 vs. 50%). This result is consistent with the literature as well as with our previous finding of women being less likely than men to graduate from a TE program. Hence, our evidence suggests that women may not only have a harder time than men graduating from TE, but, conditional on graduating,

they could have lower academic performance. Table 10 also reports on respondents' satisfaction with their chosen profession. The results suggest that women in TE are less satisfied than men in TE. While 43% of men in TE strongly agree that "their profession motivates and excites them", 54% strongly agree that "they chose a profession according to their abilities and aptitudes", and 53% strongly agree that "their profession has allowed them to develop professionally", just 31%, 47%, and 41% of women in TE strongly agree with these statements. These differences are stronger than those we observe between men and women in other fields such as HASS or business.

Table 11 offers a description of our respondents' employment status, preferences for job attributes, and actual job attributes. In terms of employment status, 78% of individuals in the survey sample work for a company, 13% are self-employed and 9% are unemployed. These rates are in line with those observed in a nationally representative survey (see Appendix D.) Interestingly, although these rates present some variation across fields of study, they are similar for male and female respondents in the same field. This is also true of the distribution of men and women across sectors, as shown in Appendix Table J.3. Despite male and female respondents in the same field of study having similar employment status and working in similar industries, we observe some gender differences that are worth highlighting. As we might expect, we observe that men earn higher wages and work longer hours than women. These differences are relatively similar across fields. Moreover, we see that women in the fields of TE and health are considerably less likely than men to hold management positions, a difference not observed in other fields such as HASS or business.

Our survey also asks individuals about their preferences for different job attributes. The answers, reported in Table 11, reveal that female respondents have a stronger preference than male respondents for being able to work where and when they want (52 vs. 48%), having a fixed salary (55 vs. 40%), having a balance between work and other areas of life (86 vs. 77%), being a help to

others or useful to society (72 vs. 57%), having a job that involves contact with other people (45 vs. 31%), having a job close to home (41 vs. 33%), and having same-sex co-workers (20 vs. 4%). Instead, men have a stronger preference than women for making a lot of money (19 vs. 16%) and having the opportunity to advance to positions of greater responsibility (46 vs. 38%). Gender differences in preferences for job attributes have been documented by several papers (see Cortes and Pan, 2018 for a review of this literature).[34] The results from our survey are novel in that they show the importance to women of having same-sex coworkers, and in showing how preferences vary across fields of study. Interestingly, our results suggest that, although the preferences of women in TE are similar to those of women in other fields in many respects, they have a lower preference than women in other fields for having a fixed salary, being a help to others or useful to society, and having a job that involves contact with other people. At the same time, they have a stronger preference for having the opportunity to advance to positions of greater responsibility.

Gender differences in preferences for job attributes could help explaining differences in the returns to pursuing a program in TE if women were to sort into jobs with their preferred attributes and if those attributes were particularly costly to obtain in TE (in terms of forgone salary). Nonetheless, data from our survey shows that women in TE are not more likely than men in TE to hold a job that offers schedule and location flexibility (33 vs. 39%), better work-life balance (33 vs. 32%), a shorter commuting time (34 vs. 35%), where they can help others or be useful to society (38 vs. 35%), or where they have a lot of contact with other people (37 vs. 34%) (see Table 11). The fact that women do not have access to more flexible employments, despite having a a higher preference for job flexibility, is consistent with other studies reporting that women are less

[34]The literature has found women tend to be more risk averse and less competitive than men (see surveys by Marianne, 2011 and Azmat and Petrongolo, 2014), that they assign a greater value than men to working with people and being helpful to society (Fortin, 2008; Grove et al., 2011; Pinker, 2009; Pischke and Lordan, 2021), and to having workplace flexibility, particularly after childbirth (Flabbi and Moro, 2012; Wiswall and Zafar, 2018; Pertold-Gebicka et al., 2016; Herr and Wolfram, 2012; Cha, 2013; Wasserman, 2015; Cortes and Pan, 2016).

likely than men to have a more flexible schedule, work from home often, or have a non-traditional employment arrangement (Mas and Pallais, 2020). While women may demand more flexibility, schedule and location flexibility are often accompanied in the market by less desirable attributes like long work hours.

Finally, Table 12 shows men and women's perceived barriers and discrimination in their careers. In particular, we find that family barriers are present across occupations, with 42% of women agreeing that "taking care of my family has hindered my professional development", compared to 18% of men; and 55% agreeing that "Having more responsibilities at work has had a negative effect on my family life", compared to 43% of men. Moreover, survey responses suggest that discrimination against women is more of a problem in TE than in other fields. Among women in TE, 48% agree or strongly agree that "their gender has played against them in the job searching process", compared to 28% of women in HASS and 8% of men in TE. When asked whether they have ever felt discriminated against in promotion, opportunities to influence decision making, earnings, job evaluation, development opportunities, or task assignment, women are consistently more likely than men to report having felt discriminated against. However, discrimination appears to be particularly strong against women in TE, especially with respect to promotion, earnings and development opportunities. Sixty-five percent of women in TE have felt discrimination in promotion, compared to 52% of women in HASS and 36% of men in TE; 77% of women in TE have felt discrimination in earnings, compared to 64% of women in HASS and 49% of men in TE; and 57% of women in TE have felt discrimination in development opportunities, compared to 47% of women in HASS and 40% of men in TE. Women in business and health are no more likely to report having felt discriminated against than women in HASS. The high prevalence of discrimination against women in TE may be an important factor behind their limited access to managerial positions. In fact, fifty-two percent of women in TE agree that they are "willing to

make sacrifices in order to reach high-level positions", which is close to the 56% of men in TE and compares favorably with the 36% of women in HASS who agree with this statement.

6 Conclusion

Exploiting an institutional setting that generates quasi-random assignment of applicants into different fields of study, we have shown that enrollment into the high-earnings, male-dominated fields of technology and engineering increases employment and earnings for men but not for women. We explore three potential explanations for this result. First, we report that women are less likely than men to graduate from TE. Our survey also reveals that, conditional on graduating, women tend to show worse academic performance. Second, men and women in TE sort into different types of jobs. In particular, enrollment in TE makes men more likely to get jobs at higher-paying, male-dominated, and more distant firms, but these effects are absent for women. Similarly, our survey shows that women in TE are considerably less likely than men in TE to reach management positions, likely due to discrimination. Finally, childbearing appears to be particularly costly for women in TE.

A common theme across these explanations is that women face many difficulties when navigating male-dominated environments. These difficulties may be such that women are unable to achieve their full potential in TE, ultimately making these fields unprofitable for them. Moreover, in anticipation of these difficulties, women may refrain altogether from pursuing majors in TE, further reinforcing the problem. From a policy perspective, our results caution against policies that incentivize women's participation in TE while disregarding their subsequent academic and labor market trajectories. Instead, policy should aim at counteracting the difficulties encountered by women trying to advance their careers in male-dominated environments, thus helping to break

the cycle of low female participation in TE and low returns to TE for women.

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Table 1: Example Programs in each Field of Study

Category	Field of study	Example programs
Technology & Engineering	Engineering & Industry & Technology	Engineering, Construction, Computing
Humanities, Arts & Social Science	Education	Pedagogy
	Humanities & Arts	History, Design, Art, Translation and Interpretation, Language, Philosophy, Cinematography, Acting, Music
	Social Science	Psychology, Journalism, Sociology, Geography Anthropology, Political Science, Social Work, Public Administration
	Architecture	Architecture
Others	Health	Medicine, Nursing, Nutrition, Chemistry and Pharmacy, Obstetrics, Kinesiology, Dentistry, Medical Technology, Phonoaudiology
	Business	Business & Administration
	Agronomy	Veterinary, Agronomy, Forest Engineering
	Science	Biology, Biochemistry, Physics, Astronomy, Geology, Math, Statistics, Chemistry

Notes:Table 1 shows example programs in each field of study. Our main results estimate the effects of enrollment in programs in the first category (TE) when the counterfactual is a program in the second category (HASS).

Table 2: Descriptive Statistics

	All			Sample		
	All	*Male*	*Female*	*All*	*Male*	*Female*
	(1)	(2)	(3)	(4)	(5)	(6)
Socioeconomic Characteristics						
Female	0.527	0.000	1.000	0.452	0.000	1.000
	(0.499)	(0.000)	(0.000)	(0.498)	(0.000)	(0.000)
Lives in the capital	0.427	0.433	0.422	0.328	0.324	0.332
	(0.495)	(0.495)	(0.494)	(0.469)	(0.468)	(0.471)
Total HH members	4.533	4.477	4.583	4.509	4.503	4.516
	(1.793)	(1.801)	(1.784)	(1.598)	(1.581)	(1.619)
Total HH members work	1.292	1.320	1.268	1.263	1.276	1.247
	(0.772)	(0.792)	(0.752)	(0.697)	(0.702)	(0.690)
Head of HH father	0.673	0.691	0.656	0.716	0.732	0.697
	(0.469)	(0.462)	(0.475)	(0.451)	(0.443)	(0.460)
Head of HH mother	0.234	0.224	0.243	0.223	0.211	0.237
	(0.423)	(0.417)	(0.429)	(0.416)	(0.408)	(0.425)
Mother primary ed	0.232	0.213	0.249	0.132	0.145	0.117
	(0.422)	(0.409)	(0.432)	(0.339)	(0.353)	(0.321)
Mother secondary ed	0.501	0.511	0.492	0.509	0.506	0.513
	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)
Mother tertiary ed	0.267	0.276	0.258	0.359	0.348	0.371
	(0.442)	(0.447)	(0.438)	(0.480)	(0.477)	(0.483)
Father primary ed	0.219	0.200	0.236	0.127	0.128	0.125
	(0.413)	(0.400)	(0.425)	(0.332)	(0.334)	(0.331)
Father secondary ed	0.457	0.461	0.453	0.433	0.438	0.428
	(0.498)	(0.498)	(0.498)	(0.496)	(0.496)	(0.495)
Father tertiary ed	0.324	0.339	0.311	0.440	0.434	0.447
	(0.468)	(0.473)	(0.463)	(0.496)	(0.496)	(0.497)
Father works full-time	0.681	0.704	0.661	0.696	0.704	0.686
	(0.466)	(0.457)	(0.473)	(0.460)	(0.457)	(0.464)
Father works part-time	0.127	0.116	0.136	0.125	0.116	0.135
	(0.333)	(0.320)	(0.343)	(0.330)	(0.320)	(0.342)
Mother works full-time	0.336	0.346	0.328	0.356	0.361	0.349
	(0.472)	(0.476)	(0.469)	(0.479)	(0.480)	(0.477)
Mother works part-time	0.062	0.061	0.063	0.058	0.055	0.062
	(0.241)	(0.239)	(0.242)	(0.234)	(0.228)	(0.242)
Academic Performance						
GPA	5.628	5.554	5.693	5.901	5.833	5.984
	(0.501)	(0.500)	(0.492)	(0.404)	(0.410)	(0.380)
Language Score Percentile	46.689	47.972	45.549	68.052	69.208	66.651
	(28.984)	(29.341)	(28.616)	(19.707)	(19.589)	(19.763)
Math Score Percentile	46.629	51.088	42.668	73.283	76.364	69.545
	(28.965)	(29.125)	(28.238)	(17.849)	(16.952)	(18.196)
Earnings & Employment						
Months worked a year (2018-2019)	6.575	7.087	6.242	6.575	6.651	6.481
	(5.469)	(5.339)	(5.514)	(5.469)	(5.424)	(5.524)
Annual earnings (2018-2019)	12,967	15,001	11,158	15,143	16,275	13,770
	(17,018)	(19,497)	(14,219)	(17,812)	(19,799)	(14,940)
Fertility						
Has children	0.615	0.563	0.662	0.479	0.447	0.517
	(0.487)	(0.496)	(0.473)	(0.500)	(0.497)	(0.500)
N of children	0.932	0.818	1.034	0.732	0.679	0.796
	(1.005)	(0.983)	(1.013)	(0.914)	(0.901)	(0.927)
Age at first birth	25.745	26.583	25.141	27.412	27.712	27.094
	(4.921)	(4.843)	(4.888)	(5.010)	(4.941)	(5.065)
Obs	1,360,283	643,848	716,435	5,476	3,002	2,474

Notes: Table 2 shows descriptive statistics for applicants in our sample of analysis (columns 4-5) and for everyone who signed up for taking the admission test between 1999 and 2007 (columns 1-3.)

Table 3: Effects of Enrollment in TE on Earnings in 2018-2019

	Works at least one month in 2018-2019	Annual earnings:				
		Average	$0 < I \leq 15k$	$15k < I \leq 30k$	$30k < I \leq 40k$	$I > 40k$
	(1)	(2)	(3)	(4)	(5)	(6)
Enrolls - TE						
Men	0.141**	10,109***	−0.064	0.064	0.040	0.102***
	(0.059)	(2,490)	(0.060)	(0.054)	(0.037)	(0.036)
Women	−0.017	51	−0.033	−0.060	0.062	0.015
	(0.072)	(2,405)	(0.075)	(0.072)	(0.042)	(0.037)
Men-Women	0.158*	10,059***	−0.030	0.124	−0.022	0.087*
	(0.093)	(3,470)	(0.097)	(0.090)	(0.056)	(0.052)
Mean - HASS						
Men	0.678	12,542	0.335	0.233	0.066	0.043
Women	0.751	14,022	0.336	0.302	0.064	0.048
N Clusters	5,476	5,476	5,476	5,476	5,476	5,476

Notes: Table 3 shows 2SLS estimates of the effects of enrolling in the TE cutoff program on men and women's outcomes. Column 1 shows effects on the probability of having positive earnings at least one month in the 2018-2019 period. Column 2 shows effects on average annual earnings in 2018-2019. Columns 3-6 show effects on the probability of earnings falling in different ranges (columns 2-6). Earnings are unconditional on employment status and the effects therefore include both the extensive and intensive margin. Cutoff-crossing indicators interacted with gender are used as instruments. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Effects of Enrollment in TE on Employment in 2018-2019

	No. of months worked in a year	Works at least one month of the year	Worked every month of the year	Has a permanent contract	Has a fixed-term contract	No. of months of experience 2002-2019	No. of employers 2002-2019
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Enrolls - TE							
Men	1.85***	0.14**	0.19***	0.17***	−0.04	16.52***	1.45*
	(0.67)	(0.06)	(0.06)	(0.06)	(0.06)	(6.01)	(0.89)
Women	−0.34	−0.03	−0.01	−0.05	0.00	3.35	0.44
	(0.85)	(0.07)	(0.07)	(0.08)	(0.06)	(7.40)	(1.00)
Men-Women	2.19**	0.17*	0.20**	0.22**	−0.04	13.16	1.01
	(1.08)	(0.09)	(0.10)	(0.10)	(0.08)	(9.54)	(1.34)
Mean - HASS							
Men	6.19	0.63	0.35	0.43	0.34	59.39	9.74
Women	7.48	0.71	0.49	0.53	0.30	62.62	9.42
N Clusters	5,476	5,476	5,476	5,476	5,476	5,476	5,476

Notes: Table 4 shows 2SLS estimates of the effects of enrolling in the TE cutoff program on men and women's outcomes. Columns 1-5 show effects on the number of months worked, the probability of working at least one month a year, the probability of working every month, the probability of having a permanent contract, and the probability of having a fixed term contract in 2018-2019. Columns 6-7 show effects on the total number of months worked and total number of employers between 2002 and 2019. Cutoff-crossing indicators interacted with gender are used as instruments. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Effects of Enrollment in TE when TE is more or less preferred (selective) than HASS

	TE ranked above HASS		TE ranked below HASS		TE at a more selective college		TE at a similarly selective college		TE at a less selective college	
	Annual earnings (1)	No. of months worked in a year (2)	Annual earnings (3)	No. of months worked in a year (4)	Annual earnings (5)	No. of months worked in a year (6)	Annual earnings (7)	No. of months worked in a year (8)	Annual earnings (9)	No. of months worked in a year (10)
Enrolls - TE										
Men	10,519**	2.498**	9,441***	1.364	13,077**	1.783	11,072***	2.383***	9,672**	2.201**
	(4,243)	(1.132)	(3,167)	(0.843)	(5,508)	(1.438)	(3,002)	(0.849)	(4,833)	(1.097)
Women	−900	−1255	1,777	0.793	5,425	−0.367	−3,426	−0.113	508	−0.366
	(2,972)	(1.114)	(3,620)	(1.235)	(3,403)	(1.311)	(3,672)	(1.156)	(6,637)	(2.162)
Men-Women	11,420**	3.752**	7,663	0.571	7,652	2.150	14,498***	2.496*	9,165	2568
	(5,201)	(1.592)	(4,831)	(1.494)	(6,567)	(1.964)	(4,715)	(1.430)	(8,080)	(2.418)
Mean - HASS										
Men	10,835	5.595	13,141	6.441	10,085	5.902	10,015	5.837	15,658	6.265
Women	15,786	8.397	12,814	6.878	12,168	7.353	14,625	7.114	13,586	7.553
N Clusters	1,947	1,947	3,865	3,865	1,659	1,659	3,139	3,139	1,329	1,329

Notes: Table 5 shows 2SLS estimates for men and women of the effects of enrolling in the TE cutoff program on the number of months worked and on annual earnings in 2018-2019, for different sub-samples of applicants. Columns 1-2 consider applicants with a target program in TE and a fallback program in HASS. Columns 3-4 consider applicants with a target program in HASS and a fallback program in TE. Columns 5-10 divide the sample depending on whether the TE cutoff program is offered at a more selective, similarly selective, or less selective college as the HASS cutoff program. Earnings are unconditional on employment status and the effects therefore include both the extensive and intensive margin. Cutoff-crossing indicators interacted with gender are used as instruments. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Effects of Enrollment in Health or Business

	Business vs. HASS			Health vs. HASS		
	Annual earnings (1)	Works at least one month of the year (2)	No. of months worked in a year (3)	Annual earnings (4)	Works at least one month of the year (5)	No. of months worked in a year (6)
Enrolls						
Men	9,982**	0.11	1.48	2,092	−0.01	−0.23
	(4,828)	(0.08)	(0.92)	(4,867)	(0.10)	(1.19)
Women	5,008*	−0.06	−0.55	3,702**	0.05	0.56
	(3,013)	(0.06)	(0.72)	(1,633)	(0.04)	(0.51)
Men-Women	4,974	0.17*	2.02*	−1,610	−0.06	−0.79
	(5,678)	(0.10)	(1.16)	(5,130)	(0.11)	(1.30)
Mean - HASS						
Men	18,609	0.64	6.52	18,804	0.75	7.83
Women	18,750	0.77	8.15	15,594	0.72	7.67
N Clusters	4,040	4,040	4,040	6,098	6,098	6,098

Notes: Table 6 shows 2SLS estimates for men and women of the effects of enrollment into a program in business (columns 1-3) and health (columns (4-5) on annual earnings, the probability of working for at least one month of the year, and the number of months worked in the 2018-2019 period. Earnings are unconditional on employment status and the effects therefore include both the extensive and intensive margin. Cutoff-crossing indicators interacted with gender are used as instruments. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Effects of Enrollment in TE on College Graduation

	College graduation	On-time college graduation	No. of years enrolled in college	Graduation from TE	Graduation from TE cutoff program	No. of years enrolled in TE
	(1)	(2)	(3)	(4)	(5)	(6)
Enrolls - TE						
Men	−0.02	−0.06	−1.52***	0.43***	0.38***	3.15***
	(0.10)	(0.09)	(0.58)	(0.07)	(0.06)	(0.50)
Women	0.08	−0.16	−0.10	0.29***	0.33***	2.74***
	(0.16)	(0.15)	(0.84)	(0.10)	(0.07)	(0.70)
Men-Women	−0.10	0.10	−1.42	0.14	0.05	0.41
	(0.18)	(0.18)	(1.02)	(0.12)	(0.09)	(0.86)
Mean - HASS						
Men	0.58	0.27	5.60	0.04	-0.01	0.87
Women	0.66	0.34	5.40	0.06	0.00	0.45
N Clusters	2,453	2,453	2,453	2,453	2,453	2,453

Notes: Table 7 shows 2SLS estimates for men and women of the effects of enrollment into a TE program on several graduation outcomes. Because graduation outcomes are only available as of 2007, our analysis considers cohorts who graduated from high school in 2003-2007 (as opposed to 1999-2007), and who should not have graduated from a university degree prior to 2007. Cutoff-crossing indicators interacted with gender are used as instruments. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Effects of Enrollment in TE on Partner's Characteristics and Outcomes

	Has a child	Married	Has a partner (married or parent of child)	Has a Partner with information in our sample	Partner's math score percentile	Partner's language score percentile	Partner enrolled in TE cutoff program	Partner enrolled in other TE program	Partner's annual earnings
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Enrolls - TE									
Men	0.02	−0.01	0.00	0.07	−2.56	−7.59	0.05**	−0.01	38
	(0.06)	(0.06)	(0.06)	(0.06)	(7.10)	(7.06)	(0.02)	(0.04)	(3,367)
Women	−0.00	−0.04	−0.02	−0.09	−14.32	−10.13	0.14**	−0.08	−14,910***
	(0.08)	(0.07)	(0.07)	(0.08)	(9.66)	(8.78)	(0.06)	(0.09)	(5,555)
Men-Women	0.02	0.03	0.02	0.17*	11.75	2.54	−0.09	0.07	14,948**
	(0.10)	(0.09)	(0.10)	(0.10)	(11.94)	(11.24)	(0.07)	(0.10)	(6,461)
Mean - HASS									
Men	0.46	0.30	0.50	0.38	44.65	47.04	-0.00	0.05	10,465
Women	0.51	0.33	0.55	0.38	59.47	54.96	0.05	0.15	19,222
N Clusters	5,471	5,471	5,471	5,471	1,656	1,656	1,656	1,656	1,656

Notes: Table 8shows 2SLS estimates for men and women of the effects of enrollment into a TE program on the probability of having a child, being married, having a partner (we list two individuals as partners if they married or if they have a child that was registered with both of them as parents), having a partner for whom we can gather information, partner's math and language test score percentiles, the probability of having a partner who enrolled in the TE cutoff program or in other TE program, and partner's annual earning's in 2016-2017. Cutoff-crossing indicators interacted with gender are used as instruments. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Effect of Enrollment in TE for Men and Women with and without Children

	Annual earnings	Works at least one month a year	Months worked a year
	(1)	(2)	(3)
Men			
Ever Enrolls			
No Children	6,378**	0.11	1.51*
	(2,963)	(0.08)	(0.87)
Children	14,070***	0.17**	2.19**
	(3,611)	(0.07)	(0.88)
Difference	−7,692	−0.07	−0.68
	(4,356)	(0.10)	(1.13)
Baseline Mean			
No Children	10,771	0.61	5.77
Children	11,929	0.60	5.79
Women			
Ever Enrolls			
No Children	7,564*	0.11	1.71
	(3,912)	(0.11)	(1.29)
Children	−5,004*	−0.11	−1.68*
	(2,675)	(0.08)	(0.98)
Difference	12,568	0.22	3.39
	(4,411)	(0.13)	(1.47)
Baseline Mean			
No Children	12,078	0.67	6.91
Children	12,619	0.68	7.01
N Clusters	5,476	5,476	5,476

Notes: Table 9 shows 2SLS estimates for men and women with and without children of the effects of enrollment into a TE program on annual earnings, the probability of working at least one month of the year, and the number of months worked in a year for the 2018-2019 period. Earnings are unconditional on employment status and the effects therefore include both the extensive and intensive margin. We use as instruments cutoff-crossing indicators interacted with gender and dummy variables for having children. *Enrolls - TE* shows estimated effects for men and women, as well as the difference between both of these estimates. *Mean- HASS* shows baseline estimates for men and women who, induced by a marginal admission offer, enrolled in the HASS cutoff program. Standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Survey: College academic performance and satisfaction with profession, job and life

	Men					Women				
	ALL (1)	HASS (2)	TE (3)	Business (4)	Health (5)	ALL (6)	HASS (7)	TE (8)	Business (9)	Health (10)
Graduation ranking										
Above average	0.43	0.41	0.50	0.40	0.40	0.39	0.39	0.38	0.40	0.38
Average	0.50	0.52	0.46	0.46	0.53	0.57	0.56	0.59	0.53	0.59
Below Average	0.07	0.06	0.05	0.14	0.07	0.04	0.05	0.04	0.07	0.03
I chose a profession that motivates and excites me										
% Strongly Agree	0.41	0.48	0.43	0.26	0.46	0.46	0.51	0.31	0.31	0.54
I chose a profession according to my abilities and aptitudes										
% Strongly Agree	0.47	0.45	0.54	0.43	0.46	0.46	0.49	0.47	0.42	0.49
My profession has allowed me to develop professionally										
% Strongly Agree	0.49	0.43	0.53	0.51	0.51	0.45	0.43	0.41	0.48	0.54
Job satisfaction										
Mean (1 to 10)	7.42	7.20	7.35	7.71	7.42	7.24	7.19	7.40	7.36	7.31
Life Satisfaction										
Mean (1 to 10)	7.80	7.54	7.94	8.03	7.76	7.82	7.70	8.03	7.97	7.93
Observations	1,526	349	377	252	167	2,289	1,020	188	289	405

Notes: Table 10 shows information on college academic performance as well as on satisfaction with profession, job and life. These dimensions are presented for men and women who pursued a career in HASS, TE, business and health. The data comes from a survey that we designed and administered. The survey was sent by email by 14 of the 25 institutions participating in the centralized system of admission to former students who enrolled between 2000 and 2008.

Table 11: Survey: Employment, Preferences and Job Characteristics

	Men					Women				
	All (1)	HASS (2)	TE (3)	Business (4)	Health (5)	All (6)	HASS (7)	TE (8)	Business (9)	Health (10)
Employment status										
Dependent	0.79	0.76	0.84	0.76	0.78	0.78	0.76	0.82	0.80	0.84
Self-employed	0.13	0.17	0.09	0.10	0.17	0.13	0.16	0.07	0.09	0.11
Does not work	0.08	0.07	0.07	0.15	0.05	0.09	0.08	0.10	0.12	0.05
Observations	1,526	349	377	252	167	2,289	1,020	188	289	405
Main work										
Self-employed	0.12	0.17	0.09	0.09	0.11	0.12	0.14	0.05	0.09	0.10
Management position	0.28	0.21	0.46	0.30	0.19	0.21	0.19	0.34	0.35	0.11
Profesional without people in charge	0.45	0.50	0.34	0.48	0.45	0.50	0.54	0.42	0.47	0.44
Profesional with people in charge	0.15	0.13	0.11	0.13	0.25	0.17	0.14	0.19	0.09	0.35
Observations	1,405	323	350	215	159	2,082	940	169	255	385
Employment characteristics										
Hours per work day	8.89	8.75	9.11	8.79	9.30	8.55	8.38	8.76	8.56	8.90
Earnings	2,773	1,943	3,367	2,927	2,983	2,124	1,706	2,969	2,715	2,362
Observations	1,405	323	350	215	159	2,082	940	169	255	385
Preferences when looking for a job (% Strongly Agree)										
Being able to work where and when I want while	0.48	0.47	0.48	0.48	0.53	0.52	0.51	0.56	0.56	0.51
Have a fixed salary	0.40	0.50	0.32	0.29	0.49	0.55	0.58	0.46	0.45	0.60
Balance between work and other areas of my life	0.77	0.74	0.76	0.77	0.83	0.86	0.86	0.81	0.83	0.90
The opportunity to be a help to others or be useful to society	0.57	0.69	0.50	0.55	0.61	0.72	0.77	0.62	0.62	0.76
Make a lot of money	0.19	0.17	0.21	0.16	0.20	0.16	0.16	0.15	0.14	0.18
Have a job that involves contact with other people	0.31	0.35	0.26	0.34	0.31	0.45	0.50	0.35	0.39	0.50
Have a job close to my home	0.33	0.35	0.30	0.27	0.43	0.41	0.41	0.40	0.39	0.44
Have opportunities to advance to positions of greater responsibility	0.46	0.38	0.55	0.51	0.42	0.38	0.34	0.51	0.46	0.29
Having same sex coworkers (% Agree or Strongly Agree)	0.04	0.05	0.03	0.06	0.05	0.20	0.21	0.20	0.24	0.13
Observations	1,526	349	377	252	167	2,289	1,020	188	289	405
Job characteristics (% Strongly Agree)										
My job allows me to work where and when I want	0.34	0.30	0.39	0.38	0.19	0.28	0.27	0.33	0.36	0.17
I have a fixed salary	0.52	0.53	0.54	0.53	0.53	0.57	0.57	0.67	0.60	0.50
I can balance between work and other areas of my life	0.33	0.27	0.32	0.44	0.31	0.29	0.28	0.33	0.33	0.25
I can help others or be useful to society	0.43	0.50	0.35	0.42	0.63	0.56	0.61	0.38	0.40	0.71
My job allows me to make a lot of money	0.12	0.05	0.13	0.13	0.18	0.07	0.04	0.08	0.08	0.11
My job involves a lot of contact with other people	0.41	0.51	0.34	0.33	0.55	0.53	0.59	0.37	0.36	0.71
I have a job close to my home	0.35	0.33	0.35	0.34	0.38	0.37	0.38	0.34	0.34	0.38
I have opportunities to advance to positions of greater responsibility	0.18	0.14	0.20	0.19	0.18	0.13	0.12	0.17	0.18	0.13
Observations	1,405	323	350	215	159	2,082	940	169	255	385
Female coworkers										
Less than 40% women coworkers	0.32	0.14	0.53	0.29	0.13	0.15	0.07	0.47	0.23	0.06
Less than 40% women in senior positions	0.51	0.37	0.71	0.53	0.23	0.42	0.32	0.71	0.55	0.30
Observations	1,405	323	350	215	159	2,082	940	169	255	385

Notes: Table 11 shows information on employment status, employment characteristics, preferences for different job attributes and actual job attributes for men and women who pursued a career in HASS, TE, business and health. The data comes from a survey that we designed and administered. The survey was sent by email by 14 of the 25 institutions participating in the centralized system of admission to former students who enrolled between 2000 and 2008.

Table 12: Survey: Gender, Discrimination and Career Development

	Men					Women				
	All (1)	HASS (2)	TE (3)	Business (4)	Health (5)	All (6)	HASS (7)	TE (8)	Business (9)	Health (10)
Gender, family and work (% Agree or Strongly Agree)										
I believe that in general, my gender has played against me in the job searching	0.07	0.09	0.08	0.06	0.11	0.34	0.28	0.48	0.47	0.18
Taking care of my family has hindered my professional development	0.18	0.19	0.16	0.15	0.28	0.42	0.43	0.45	0.34	0.41
Having more responsibilities at work has had a negative effect on my family life	0.43	0.46	0.46	0.38	0.50	0.55	0.55	0.52	0.52	0.58
I am willing to make sacrifices in order to reach high-level positions.	0.51	0.45	0.56	0.59	0.42	0.40	0.36	0.52	0.53	0.31
Observations	1,526	349	377	252	167	2,289	1,020	188	289	405
Felt discrimination sometimes, frequently or always in:										
Promotion at work	0.37	0.42	0.36	0.30	0.37	0.54	0.52	0.65	0.54	0.49
Opportunities to influence decision making	0.48	0.58	0.40	0.44	0.50	0.66	0.67	0.71	0.61	0.60
Earnings	0.46	0.48	0.49	0.41	0.41	0.62	0.64	0.77	0.68	0.44
Job evaluations	0.33	0.40	0.31	0.23	0.35	0.41	0.40	0.42	0.37	0.36
Development opportunities	0.38	0.40	0.40	0.35	0.39	0.50	0.47	0.57	0.52	0.48
Task assignment	0.41	0.45	0.38	0.35	0.47	0.57	0.58	0.57	0.56	0.49
Observations	1,526	349	377	252	167	2,289	1,020	188	289	405

Notes: Table 12 shows responses on issues related to gender, discrimination and career development for men and women who pursued a career in HASS, TE, business and health. The data comes from a survey that we designed and administered. The survey was sent by email by 14 of the 25 institutions participating in the centralized system of admission to former students who enrolled between 2000 and 2008.