Anticipated Gender Discrimination and College Major Choice

Louis-Pierre Lepage* Xiaomeng Li† Basit Zafar‡

September 2024

Abstract

We study whether gender differences in major choice result from anticipated labor market discrimination in certain fields. First, we document two novel facts using administrative transcript records from a large Midwestern university: women are less likely to study STEM, but 1) those who do are positively selected on ability and 2) obtain higher grades conditional on ability. Second, we show that these facts are consistent with a model in which women anticipate to face more labor market discrimination conditional on graduating in STEM, leading them to invest more to signal their ability when they choose those majors. Third, we directly investigate anticipated discrimination using a student survey which includes a vignette and a counterfactual choice experiment. The survey uncovers striking patterns of anticipated labor market discrimination by women, particularly in STEM, business, and economics, both in terms of economic outcomes like wages as well as negative workplace conditions. Anticipated discrimination predicts course taking and intended major choice for women but not men, who anticipate little discrimination overall.

*Stockholm University. Email: louis-pierre.lepage@sofi.su.se
†University of Michigan. Email: lixiaom@umich.edu
‡University of Michigan and NBER. Email: basitak@gmail.com

There is substantial evidence of persistent gender inequality in the labor market (Goldin, 2014; Blau and Kahn, 2017). The literature attributes a large share of these disparities to women and men choosing different education fields and occupations, as well as to labor market discrimination. In particular, women are less likely to major in STEM fields, which typically lead to higher-paying jobs,[1] and more likely to face labor market discrimination when they do.[2] Conceptually, these two findings from the literature should intrinsically be linked. Labor market outcomes are largely determined by pre-market investments like education, so if women anticipate that they would face labor market discrimination in STEM when choosing their field, then it could distort their education decisions, in turn shaping gender inequality in the labor market. In practice, very little work in economics links the two, with both strands of the literature largely evolving in parallel and recent surveys on college major choice not mentioning discrimination as a potential contributor to gender differences (Patnaik, Wiswall and Zafar, 2020).

This paper helps fill the gap by studying whether and to what extent anticipated gender discrimination distorts college major choice. We begin by documenting some novel empirical facts on gender differences across majors using administrative transcript records from a large selective public university in the Midwest. We find that women are relatively less likely to major in STEM, business, and economics (STEM/BE) across the entire ability distribution, but that the "missing mass" of women is substantially smaller near the top.[3] That is, women in STEM/BE are particularly positively-selected on ability.[4] We also find that, conditional on majoring in STEM/BE, women obtain higher grades across the entire ability distribution,

[1]Some proposed mechanisms to explain gender gaps in college major choice and occupational sorting include differences in (subjective) earnings expectations, confidence and competitiveness, preferences over non-wage amenities, and a lack of representation itself. See for example Niederle and Vesterlund (2007); Fernandez and Friedrich (2011); Zafar (2013); Pan (2015); Wiswall and Zafar (2021).

[2]See Goldin and Rouse (2000); Bertrand and Duflo (2017); Sarsons (2017), and Benson, Li and Shue (2024) for work on gender discrimination and Reuben, Sapienza and Zingales (2014); Bohren, Imas and Rosenberg (2019); Kessler, Low and Sullivan (2019); Kessler, Low and Shan (2023); Exley et al. (2024) for work on discrimination in STEM fields more particularly.

[3]As detailed below, we proxy the notion of ability using standardized college entry test scores, taken as a measure of capacity and preparedness which should be taken as given by students after college enrollment, at the time of choosing their major.

[4]Lubczyk and Moser (2024) similarly document that female scientists are positively selected, which they argue arises from distortions they face into entering STEM/BE and science. Our findings indicate that female students anticipate such distortions, namely labor market discrimination, contributing to them sorting away from STEM/BE through their education choices, before labor market entry.

but that the difference is again smaller near the top. In addition, the difference increases sharply in STEM/BE relative to other majors once students declare their major, usually in their second or third year, suggesting that it is partly driven by major choice.

We then show that these facts are consistent with a theoretical framework of major choice in which women anticipate to face (more) labor market discrimination if they graduate in STEM/BE. Following a standard signaling model, students decide how much effort to invest into observable signals of ability (e.g. grades), which can potentially help them overcome discrimination, but we add a second channel: students also decide *where* (in which major) to invest. The model captures the notion that discrimination can distort both which major is chosen as well as the quantity and quality of education acquired within a major, combining features from previous models in the literature (Lang and Manove, 2011; Lepage, 2024).

Next, we present explicit evidence of anticipated discrimination using a survey administered to first and second year students at the same university. The survey included both vignette experiments to elicit respondent beliefs about hypothetical student profiles as well as a counterfactual choice experiment eliciting respondents' own expectations about graduating in different types of majors. The survey uncovers striking patterns of anticipated discrimination, almost exclusively by women, and particularly in STEM/BE.

First, using the vignette experiment, we find that respondents are less likely to recommend female students to pursue STEM/BE and that STEM/BE is expected to be harder for female students to succeed in, conditional on subject interest and ability. When asked why they made different recommendations for certain student profiles, a large share of respondents invoked disadvantages and discrimination towards women in STEM/BE in the absence of any prompt or priming regarding gender or discrimination, showing that these concerns were already present among students. Directly inquiring about expectations of discrimination faced by different profiles confirms that female students are anticipated to face labor market discrimination, particularly in STEM/BE. Students anticipate that some of it can be overcome through working hard and excelling, which they expect is more likely for high-ability students, though substantial anticipated discrimination remains across the ability distribution.

Second, we use the counterfactual choice experiment to describe the type(s) of discrimination and differential treatment that students anticipate. While men generally disagree with the notion that they will face discrimination whether they major in STEM/BE or

other fields, women anticipate discrimination in both major categories, but especially in STEM/BE. They anticipate discrimination while studying, but more so in the labor market. Focusing on key economic outcomes, most women expect that, if they were to major in STEM/BE, they would be paid less than an equally-qualified candidate for the same work and be less likely to receive a job offer in the first place. On average, women expect a large gap of 10% in both pay and the likelihood of receiving job offers. While these expected gaps are not directly comparable to estimates from the literature, they appear substantially larger than observed within-field wage gaps and callback differentials from correspondence studies (Bertrand and Mullainathan, 2004; Blau and Kahn, 2017).[5] Whether accurate or not, beliefs about labor market discrimination matter at the time of choosing a major, stressing the importance of studying anticipated discrimination. Considering workplace conditions instead, women expect that their competence would frequently be underestimated or questioned and that they would occasionally face hostility, worse treatment, and sexual harassment if they majored in STEM/BE. The expected frequency of these outcomes is smaller in other fields but remains elevated, painting a bleak picture of the conditions women expect to face in the workplace.

Third, we test whether anticipated discrimination predicts students' intended major choice. Using an individual-level index measure of anticipated discrimination, we show that a one standard-deviation increase in anticipated discrimination decreases the stated probability of women majoring in STEM/BE by approximately 15%. We find that anticipated discrimination relating to both worse economic outcomes and workplace conditions contribute to this decrease. In contrast, there is little relationship between anticipated discrimination and intended major choice for men or for women in other fields or men across all fields.[6] Linking to real outcomes in the university transcript data, we also find that anticipated discrimination lowers the share of STEM/BE courses taken by women after enrolling.

Discussions of gender discrimination in the labor market are widespread in both the public[7] and academic discourse, so it may come as little surprise that students are exposed

[5] Haaland and Roth (2023) finds that individuals hold inaccurate beliefs about the extent of racial discrimination in the labor market and often overestimate it. Inaccurate beliefs in our context may be particularly damaging since they inform education choices.

[6] The lack of response by women to anticipated discrimination in other fields likely reflects the fact that the vast majority of women who anticipate discrimination in these fields still anticipate more discrimination in STEM/BE.

[7] See Gould, Jessica and Kathleen (2016); Hill (2017) for examples of popular discourse on the gender pay

to these concerns. In fact, over two-thirds of women in our survey report having been exposed to information suggesting that STEM/BE would be less suitable or more difficult for them because of their gender. Yet, this paper is one of very few to explicitly document that women internalize these concerns and take them into account when making life-changing human capital decisions (while men do not). Accordingly, our results relate to growing evidence that uncertainty and subjective expectations play key roles in determining education decisions and thus economic inequality (Patnaik, Wiswall and Zafar, 2020).

We mainly contribute to the literature on discrimination, education, and gender inequality. The discrimination literature often posits that agents are aware of discrimination they will face in the future and adapt to it at earlier stages (Arrow, 1973; Lundberg and Startz, 1983; Coate and Loury, 1993). Testing this has proven challenging since it typically requires data on human capital investments before labor market entry combined with data on labor market discrimination. Some work in the context of race provides evidence that patterns of schooling decisions and wages are consistent with anticipated discrimination (Lang and Manove, 2011; Batistich et al., 2022). Other evidence largely comes from the lab, for example documenting that some groups alter their behavior when faced with the prospect of discrimination (Zussman, 2013; Alston, 2019; Charness et al., 2020; Exley and Kessler, 2022; Gagnon, Bosmans and Riedl, 2022; Kudashvili and Lergetporer, 2022). We instead directly gather data on subjective beliefs about anticipated gender discrimination and relate these beliefs to real-life education decisions. To the best of our knowledge, the only papers following a similar approach are Ugalde (2022) and Exley et al. (2024), which provide suggestive survey evidence that concerns of discrimination influence how female students perceive and react to their grades. In contrast, we focus explicitly on the role of anticipated discrimination in shaping gender differences in major choice, often discussed as a key driver of gender inequality.

We contribute to the education literature by studying a seldom-considered factor driving gender disparities in educational outcomes. We provide direct evidence that students consider expected labor market outcomes when making education decisions and that women and men expect different market conditions, leading to different choices. By abstracting from

gap and differential employer treatment towards women. Worker surveys also indicate high proportions of women having faced gender discrimination in the workplace (Funk and Parker, 2018; Pew Research Center, 2018).

expectations of discrimination, previous work likely overstates the importance of preferences versus (perceived) labor market opportunities in driving gender differences in education choices (Zafar, 2013; Wiswall and Zafar, 2018). Recent work documents that students attach high value to educational and career satisfaction when choosing a field and that this contributes to the gender gap in male-dominated fields (Hansen et al., 2024). Our findings highlight that this likely operates in part through women expecting discrimination in those fields, both while in university and once in the workplace, relating to evidence that individuals have a high willingness to pay to avoid hostility and harassment (Folke and Rickne, 2022; Collis and Van Effenterre, 2024).

Our results have important implications for understanding gender inequality. They show that the range of decisions and outcomes distorted by discrimination may be broader than often considered.[8] For example, it is well known that the gender wage gap typically shrinks substantially after controlling for field of study or occupation. The appropriateness of controlling for these hinges on why men and women choose different fields and occupations in the first place.[9] This paper makes clear that it is partly endogenous to discrimination, relating to a literature on inequality and "bad" controls (Neal and Johnson, 1996; Neal, 2004). Similarly, grade differences across gender may also be endogenous to discrimination and should be interpreted with caution (Carlana, 2019; Exley et al., 2024).

1 Analysis of Administrative Records

1.1 Data

We analyze administrative transcript records for 39,650 undergraduate students first enrolled between fall 2013 and fall 2020. The university is a large 4-year public university which had slightly over 30,000 on-campus undergraduate students in fall 2020, 50.4 percent of which were female. Students admitted in fall 2020 had a 3.9 GPA and a 1,490 SAT score on average. The data consist of student-term transcripts including grades, courses, and majors declared,

[8] Similarly, the literature on gender differences in bargaining and negotiating documents that gender disparities arise in part from women anticipating backlash. See Recalde and Vesterlund (2022) for a review.

[9] For example, previous work has argued that differences in education fields could constitute both a cause and a consequence of gender inequality if they arise from social norms or gender stereotypes (Bertrand, 2020).

as well as admission information including residency, SAT/ACT scores, and demographic characteristics. See column 1 of Table 1 for summary statistics on the student population.

Around 20% of students first declare a major in their first year, 40% in their second year, and by the end of the third year, around 90% of students have declared a major. After having declared, students can switch their major and there is no specific deadline for doing so. As such, there is substantial time for students to settle on their eventual major, although certain major transitions may require substantial work in terms of prerequisites. Throughout this section, we use information on final majors declared by students (the major they end up graduating in) since we are interested in expectations relating to graduating with a given major for the labor market.

For consistency with the survey, we focus on two broad categories of majors. One contains STEM, business, and economics (STEM/BE), while the other contains all remaining majors (non-STEM/BE), namely humanities and other social sciences. Both categories represent a large share of total enrollment, with 58% of students in STEM/BE and 42% in non-STEM/BE. In terms of gender composition, they differ substantially: the female share is 41% in STEM/BE and 68% in non-STEM/BE. Gender composition could also differ substantially for individual majors within these categories, but the simple dichotomy is useful to keep the survey parsimonious and likely to be salient to students in terms of gender and labor market implications. Indeed, the same categories were used and shown to yield meaningful gender associations in Exley et al. (2024).

In our analysis, we study gender differences in major choice and achievement across the ability distribution. To do so, we proxy ability using standardized college entry test scores (SAT and/or ACT), taken as a measure of capacity and preparedness for college at the time of enrollment.[10] We do not assume that these scores necessarily capture a student's true underlying ability in the absence of potential bias or discrimination, including at stages before college.[11] Still, the scores are suitable for our purpose since they, along with the skills they represent, should be taken as given by students when entering college and choosing a major.

[10]The reporting of college entry test scores like the SAT or the ACT were mandatory for admission during the period covered by the transcript records.

[11]If anticipated discrimination or gender stereotypes distort behavior before college, as suggested by survey evidence below and previous work (Cvencek, Meltzoff and Greenwald, 2011), our findings likely represent a lower bound on their role in influencing major choice and gender inequality.

1.2 Empirical facts

We begin by plotting gender differences in the propensity to major into STEM/BE versus non-STEM/BE across the ability distribution in panel (a) of Figure 1. We use overall standardized test scores split into deciles, although results are similar when using math test scores (Appendix Figure A1).[12] Women are less likely to select STEM/BE than other majors compared to men, consistent with previous evidence.[13] The share of men graduating in STEM/BE relative to other majors is 40-45 percentage points higher than for women on average, but the "missing mass" of women is not evenly-distributed across the ability distribution. It is smaller at higher ability and larger for middle and lower ability; the gender differential is around 35 percentage points in the top quartile and 50 percentage points in the bottom quartile. Notice that the gender difference also appears smaller in the first ability decile in particular, which we omit from the fitted line given model predictions which we turn to in the next section.

Next, we plot gender differences in university grades across the ability distribution for both categories of majors in panel (b). Women obtain higher average grades across the ability distribution for both major categories. In STEM/BE, the difference is smallest near the top of the ability distribution, representing the opposite pattern as that documented in panel (a). Combining the two findings indicates that women closer to the bottom and middle of the ability distribution are especially less likely to major in STEM/BE, but that those who do obtain particularly high grades relative to men of the same ability level. To isolate whether these grade differences are driven in part by major choice, we investigate how differentials evolve before and after students declare their major. Panel (c) shows that women's grade advantage grows sharply in STEM/BE and shrinks in other majors after students declare their major and Appendix Table A1 presents the results in regression form with major fixed effects.

Factors unrelated to discrimination could contribute to these patterns. For example, women may be less willing to engage in competition or have lower preferences for monetary returns, which may be more important in STEM/BE and could differ by ability, although

[12] ACT scores were converted to SAT-equivalent scores to ensure comparability. For students who reported both SAT and ACT scores, we use the average of both their SAT and (converted) ACT score.

[13] Appendix Figure A2 plots the relative propensity to major in STEM/BE for men and women separately, showing that it increases with ability for both, but more steeply for women.

we are not aware of evidence on the latter. Accordingly, we do not claim that these facts are definitive evidence of anticipated discrimination, but our model in the next section makes clear that they are predicted by it and our student survey documents that they are consistent with beliefs of anticipated discrimination held by students.

2 Model of college major choice and anticipated discrimination

We present a model in which students choose a major and a major-specific level of investment into signaling their ability through grades. The model is similar to Lang and Manove (2011) which studies the decision to invest into education to signal ability across race. We instead study major choice across gender and introduce a second dimension beyond signaling: sorting. That is, discrimination in the labor market may not only distort how much students invest into signaling, but also in which major.

2.1 Baseline model

Students have ability a drawn from $[\underline{a}, \overline{a}]$ and preference for major O, t_O drawn from $[\underline{t}, \overline{t}]$. This preference captures components unrelated to ability or productivity concerns, for example interest in the major's course content. Both a and t are privately observed by students and independently drawn. Students choose one of two majors denoted by $\{0, 1\}$ and a level of investment $i = I(a)$, namely effort into grades, which for now is not major-specific. A student's investment cost is $c(a, i) > 0$ and assumed to be twice continuously differentiable.[14]

The choice of a major itself does not influence a student's productivity in the labor market, but their level of investment does.[15] In particular, worker productivity P is normally distributed and given by

[14] We also assume $c_i(a, i) > 0$, $c_a(a, i) < 0$, $c_{ia}(a, i) < 0$, $c_{aa}(a, i) < 0$, and $c_{ii}(a, i) > 0$.

[15] We assume that the return to productivity (e.g. salary) and investment cost (e.g. course difficulty) are the same across majors. Since we are interested in gender differences, this simplification has no impact on predictions unless returns or costs differ by gender, which we discuss in the next subsection.

$$f(a,i) + \varepsilon \text{ with } \varepsilon \sim N(0, \sigma_\varepsilon^2). \tag{1}$$

At hiring, employers observe i and a noisy signal of productivity $s = P + \mu$ with $\mu \sim N(0, \sigma_\mu^2)$.[16] Workers have no outside option and we focus attention on separating equilibria, such that employers can infer a worker's ability from observing their investment. Still, as in Lang and Manove (2011), we assume that neither the worker nor the employer can perfectly deduce productivity from ability and investment. Productivity also depends on a random element (for example match-specific), implying that expected productivity increases in a and i, but that firms still always put nonzero weight on s in their assessment of a worker.

From an employer's perspective, a worker's expected productivity can be expressed as

$$E_{\mu,\varepsilon}[P|i,s] = \gamma f(a,i) + (1-\gamma)\hat{f}(i) \tag{2}$$

where $\hat{f}(i) = f(A(i), i)$ is the equilibrium inference of an employer about $f(a,i)$ after observing i with $I^{-1}(i) = A(i)$ and $\gamma = \frac{\sigma_\varepsilon^2}{\sigma_\varepsilon^2 + \sigma_\mu^2}$ is the weight employers attach to signal s.

A worker's investment decision corresponds to $max_i[E_{\mu,\varepsilon}[P|i,s] - c(a,i)]$. We remain agnostic on the final outcome of interest for the worker, but our setup could allow to study several outcomes which increase with expected productivity, namely the wage or likelihood of being hired. Deriving the first-order condition and imposing that $\hat{f}(i) = f(a,i)$ and $A(i) = a$ in a separating equilibrium yields

$$f_i(a,i) + (1-\gamma) f_a(a,i) A'(i) = c_i(a,i). \tag{3}$$

Equation (3) characterizes optimal investment $I^*(a)$. In a separating equilibrium, $I^*(\underline{a})$ must be efficient and unaffected by signaling, so $f_i(a,i) = c_i(a,i)$ defines $I^*(\underline{a})$. Since $(1-\gamma) f_a(a,i) A'(i) \geq 0$ and given continuity and concavity conditions, all other ability types invest more than $\underline{a}$ and $I^*(a)$ is strictly increasing in a.

[16] We assume that $f(\cdot)$ is twice continuously differentiable and that $f_a(a,i) > 0$, $f_i(a,i) > 0$, $f_{aa}(a,i) < 0$, $f_{ii}(a,i) < 0$, and $f_{ia}(a,i) > 0$.

Conditional on $I^*(a)$, students select major 0 if and only if

$$E_{\mu,\varepsilon}[P|I^*,s] - c(a,I^*) + t_0 > E_{\mu,\varepsilon}[P|I^*,s] - c(a,I^*) + t_1. \tag{4}$$

Since $I^*(a)$ does not vary across majors thus far, students simply select major 0 when $t_0 > t_1$.

2.2 Labor market discrimination

Now suppose that students belong to group $g = \{M, F\}$. Both groups have the same ability distribution, same preferences, and face the same conditions in major $O = 1$.[17] Group F faces discrimination in major $O = 0$.

Following the statistical discrimination literature, we introduce discrimination by assuming that the direct signal of productivity that employers observe about group F is noisier than the one they observe about group M, $\sigma^2_{\mu,F,0} \geq \sigma^2_{\mu,M,0}$ leading to $\gamma_{F,0}(i) \leq \gamma_{M,0}(i)$. It implies that employers put less weight on that signal and more weight on inferred ability from the investment decision for group F, incentivizing the group to invest into signaling.[18] One motivation for this assumption is that women remain heavily underrepresented in STEM jobs, such that employers presumably have less familiarity with assessing female candidates.

Similarly to Lang and Manove (2011), we also introduce the notion that students may be able to overcome discrimination if $\sigma^2_\mu(i)$ decreases with ability. For high enough ability (investment), assume that employers perfectly observe productivity from observing the worker's productivity signal and don't rely on the investment signal.[19] That is, $\sigma^2_\mu(i) = 0$ and therefore $\gamma(i) = 1$ for $i \geq \bar{i}$. Define a^c as the cutoff ability level beyond which $I^*(a) > \bar{i}$.

Major and investment decisions for group M are unchanged from the baseline model. For group F with $a = \underline{a}$ or $a \geq a^c$, the optimal investment decision is characterized by

[17] Allowing for group differences in ability across majors, for example because of gaps that arise before college, could generate group differences in major choice. Yet, it would not generate differences conditional on ability and therefore have little impact on model predictions.

[18] Consistent with evidence on gender stereotypes in STEM/BE, similar predictions could follow from instead assuming that signals are equally-noisy, but that employers underestimate the average productivity of group F for jobs relating to major 0 conditional on the direct signal they observe.

[19] The assumption that discrimination completely disappears beyond a certain ability level is not necessary, but simplifies exposition.

$f_i(a,i) = c_i(a,i)$, so discrimination does not distort investment decisions. For group F with $a \in (\underline{a}, a^c)$, the optimal investment decision is characterized by

$$f_i(a,i) + (1-\gamma(i)_{g,O}) f_a(a,i) A^{'}(i) = c_i(a,i). \tag{5}$$

Since $\gamma_{F,0}(i) \leq \gamma_{M,0}(i) = \gamma_{F,1}(i)$, these students invest more in major 0 than major 1 (and invest more in major 0 than group M does), $I^*_{F,0} > I^*$ for $a \in (\underline{a}, a^c)$.

For $a = \underline{a}$ or $a \geq a^c$, students select a major according to Equation (4). For $a \in (\underline{a}, a^c)$, students select major 0 if and only if

$$E_{\mu,\varepsilon}[P_{F,0}|(I^*_{F,0}, s)] - c(a, I^*_{F,0}) + t_0 > E_{\mu,\varepsilon}[P|(I^*, s)] - c(a, I^*) + t_1. \tag{6}$$

Additional investment yields higher (inferred) productivity, but also higher investment costs in major 0 for these students. Given assumptions on decreasing returns to i for $f(\cdot)$ yet increasing returns to i for $c(\cdot)$, the expected return to major 0 is lower. Group F students are thus less likely to select major 0 and those who do have higher levels of investment conditional on ability, especially in the middle and bottom (excluding the very bottom) of the ability distribution.

Lastly, since group F in major 0 invests weakly more for a given ability level, employers' equilibrium inference of their ability from a given level of investment is lower than for group M. That is, $E_{\mu,\varepsilon}[P_{F,0}|(i,s)] \leq E_{\mu,\varepsilon}[P_{M,0}|(i,s)]$. Given our focus on education decisions, we do not emphasize this prediction, but it has interesting implications for labor market inequality. Women may have lower ability than men in STEM/BE *conditional on grades* given their additional signaling effort, highlighting potential nuances when studying labor market returns to grades and qualifications across gender.

2.3 Summary

To summarize, the model generates the following predictions, consistent with the transcript analysis:

Prediction 1. There are fewer women in STEM/BE. The "missing mass" is larger in the

middle and bottom (excluding the very bottom) of the ability distribution.

Prediction 2. Women in STEM/BE obtain higher grades than men for a given ability level. The difference is higher in the middle and bottom (excluding the very bottom) of the ability distribution.

The model predicts clear trend breaks and steeper ability gradients when treating the bottom ability decile discontinuously, consistent with Figure 1. Further, while the model is static, if we were to consider that newly-enrolled students may be uncertain about their major choice, then declaring a major in STEM/BE (non-STEM/BE) should lead women to increase (decrease) their grades relative to men if it confirms that they will major in STEM/BE (non-STEM/BE) and therefore (not) face discrimination, also consistent with Figure 1.

The model abstracts from several factors that could contribute to the patterns we document and the transcript analysis does not allow us to explicitly distinguish between anticipated discrimination and these other factors, providing one motivation for the student survey to which we now turn.

3 Student survey

3.1 Survey design

We fielded a survey early in winter 2024 with first and second-year students, in the beginning of their second and fourth semester at the university. The survey was administered online on Qualtrics and sent to a random sample of students. Every respondent who completed the survey received a $20 Amazon gift card, a potential bonus of $1 based on their answers to a subset of questions, and entered in a random drawing for 1 of 25 $75 Amazon gift cards. A total of 2,133 students completed the survey, corresponding to a response rate of approximately 16%. Table 1 compares the survey sample to the corresponding population in the transcript data. As common with student surveys, female, lower-income, and high-achieving students are slightly over-represented. See Appendix C for the survey questionnaire.

The survey was designed to answer three sets of questions. Do students anticipate gender discrimination in university and/or the labor market based on the major they select? What

type(s) of discrimination do students anticipate? Does anticipated discrimination affect major choice? To that effect, it included both vignette and counterfactual choice experiments. The vignette questions elicit expectations about conditions that otherwise-similar male and female students would face in different major categories. The counterfactual choice questions elicit respondents' own expectations about graduating and having a career in different major categories. Additional questions about respondent characteristics, such as self-perceived ability and interest in a major's course content, allow us to explore heterogeneity and contextualize anticipated discrimination relative to other factors affecting major choice.

The vignettes were designed as follows. We created six different student profiles which differed only in terms of gender (male or female name) and stated ability level (bottom 20%, median, top 20%). Across all profiles, we explicitly held constant seniority (first year), level of interest in both major categories, (self-perceived) degree of preparedness for studying both major categories, and intended employment status (working full-time). We randomly selected three profiles to show each respondent. For simplicity, each respondent was shown profiles from two (out of the three) ability levels. To focus on comparisons between top students versus students lower in the ability distribution, each respondent was shown one or two profiles with ability in the top 20% and the remaining one or two profiles with either bottom 20% or median ability.[20]

3.2 Beliefs and intentions regarding the two major categories

Women were relatively less likely to intend majoring in STEM/BE than men, consistent with the transcript analysis. As shown in Figure 2, a majority of both male and female respondents intend to major in STEM/BE, but the fraction is relatively much higher for men, leading to a differential of 35 percentage points.[21] Respondents anticipated much of this gap. The true ratio of women to men graduating at the university in 2022 was 41% in

[20]This assignment rule implies that participants were sometimes faced with two identical profiles apart from gender signaled through the name. These comparisons may have seemed less natural or somewhat leading to respondents. We present results using both within and between-subject variation in our analysis, although our conclusions are qualitatively similar when only using between-subject variation.

[21]The fraction of respondents who report being more likely to major in STEM/BE is higher than the share of students at the university who majored in STEM/BE in 2022. This discrepancy is likely due to three reasons. First, the share of students majoring in STEM/BE at the university has increased steadily over the last decade. Second, female students switch out of STEM/BE more frequently while in university (Figure B1). Third, students in STEM/BE appear to have been somewhat more likely to answer the survey.

STEM/BE and 68% in non-STEM/BE, while respondents believed those ratios to be 43% and 61%.[22] The gap in intentions to major in STEM/BE also seems to grow with time in university. When asked what their intentions were at enrollment, women (men) reported that they used to be relatively more (less) likely to major in STEM/BE (Figure B1).

As shown in Table 2, students expect higher salaries in STEM/BE, but women anticipate lower salaries in both major categories (14% less in STEM/BE and 7% less in non-STEM/BE). Students also expect a higher likelihood of finding a good job within six months of graduating if they major in STEM/BE, with relatively little gender difference. Expectations regarding work-life balance are more similar across major categories, with women still expecting better balance in non-STEM/BE. Students expect that they would have to study more hours per week in STEM/BE to do well, with a slightly more pronounced differential for women. Interestingly, men expect that they would be ranked around 34th out of 100 in terms of ability were they to select either major category. In contrast, women expect to have lower ability than men, especially in STEM/BE. This self-assessed ability gap is larger than the gender gap in SAT scores, consistent with previous evidence on gender differences in confidence (Möbius et al., 2022). Lastly, women report being more interested in non-STEM/BE subject content, while the opposite is true for men.

3.3 Evidence from the vignette experiment

When the vignette experiment began, no mention of discrimination had been made in the survey and only one question with a gender component had been asked several pages before, namely regarding the relative fraction of male and female students in STEM/BE versus other majors. The vignette experiment similarly began without introducing the notion of discrimination or making mentions of gender, first asking respondents which major category would be the best choice for a given hypothetical student and which category would be harder for that student to succeed in.

Figure 3 shows that differences arise based on the profile's signaled gender even holding constant interest, ability, and preparedness. 50% of respondents reported a higher likelihood that STEM/BE would be the best choice for male compared to female profiles, versus 43%

[22] For half of respondents, these questions were incentivized ($0.5 per answer within 1 percentage point of the true ratio), but we find very little difference in belief accuracy across the two halves (p-value = 0.81 for the null that incentivized and non-incentized respondents have the same accuracy).

who reported the opposite and 7% who reported the same likelihood for male and female profiles. Moreover, 40% of respondents reported that STEM/BE would be relatively harder for female profiles to succeed in than male profiles, versus 34% who reported the opposite and 24% who reported no difference for male and female profiles. These patterns are similar across survey respondent gender (Figure B3).[23] In addition, when respondents reported a different likelihood that STEM/BE would be the best choice for male and female profiles, we asked them to explain their answer using a text box. Strikingly, over 60% of respondents who reported that STEM/BE would less likely to be the best choice for female profiles explicitly referred to some notion of discrimination or differential treatment against women in STEM/BE in their answer.

The evidence so far thus indicates that, in the absence of priming or prompts about gender discrimination, 1) students expect STEM/BE to be male-dominated and other majors to be female-dominated, 2) students make different recommendations for men and women to study STEM/BE relative to other majors, 3) these different recommendations are in part fueled by discrimination anticipated against women in STEM/BE relative to other majors. This makes clear that concerns of gender discrimination across major categories were already present among students before we explicitly introduced discrimination in the survey, highlighting that our key findings are unlikely to arise from priming or experimenter-demand effects.

Next, we explicitly introduced the notion of anticipated discrimination in the survey to elicit beliefs about which profiles are expected to face labor market discrimination and in which major category they are expected to face (more of) it.[24] First, we asked respondents about the extent to which concerns about anticipated discrimination influenced their previous recommendation for these hypothetical students to major in STEM/BE versus non-STEM/BE. Respondents reported that these concerns were much more important for female profiles, with a somewhat smaller gender differential for higher-ability profiles (Figure B2). Then, Panel (a) of Figure 4 shows that, at the extensive margin, female profiles are much

[23] **Potentially add footnote on female respondents anticipating more discrimination against female profiles yet being more likely to recommend them to go to STEM/BE as some kind of "encouragement effect".**

[24] We introduced discrimination as follows: "In the media and public discourse, it is sometimes discussed that some students may face additional barriers or disadvantages in certain career paths, for example because of how they are perceived or treated given stereotypes associated with their gender [...] {Name 1}, {Name 2}, and {Name 3} are concerned about potential discrimination they may face depending on the major they select."

more likely to be expected to face workplace discrimination because of their gender (86% versus 31%). Panel (b) shows that, when asked whether discrimination would be more likely to arise in STEM/BE, 77% of the 86% of respondents who had indicated that female profiles would face discrimination indicated that it would be (versus 3% of 31% for male profiles). Moving up along the ability distribution is not expected to be enough to eliminate most discrimination at the extensive margin, although there is a modest statistically significant decrease in the likelihood that a female profile with top 20% ability would be expected to face discrimination compared to a bottom 20% profile. In contrast, panel (c) shows that, at the intensive margin, students are expected to be able to partly overcome discrimination if they work hard and excel, especially male profiles. There is a sizable ability gradient, especially for female profiles (79% for top 20%ability versus 72% for bottom 20%), and we can reject that the ability gradient is the same across gender ($p \leq 0.001$). Once again, these patterns are similar across survey respondent gender, although female respondents expect relatively more discrimination against female profiles than male respondents do (Figure B4).

Summarizing these results in light of the theoretical framework and transcript analysis, the vignette evidence supports the following conclusions. First, STEM/BE is expected to be harder for women to succeed in, conditional on ability, specifically because they are anticipated to face discrimination. Second, students are expected to be able to overcome some discrimination if they invest into working hard and excelling. Third, discrimination is expected to differ along the ability distribution, with high-ability women expected to be more likely to overcome discrimination. Still, discrimination against women in STEM/BE in particular is expected to remain at all ability levels.

3.4 Evidence from the counterfactual choice experiment

Figure 5 shows that women were much more likely to agree with the notion that they would face discrimination while in university or in the workplace, especially conditional on majoring in STEM/BE. Women anticipate facing more discrimination in the workplace than in university and while they generally agreed that they would face barriers in university for STEM/BE, tended to answer "neither agree nor disagree" for non-STEM/BE. In sharp contrast, men tended to disagree with the notion that they would face discrimination for either major category. We also asked respondents to recall their expectations at the time

of enrolling in university rather than taking the survey. The results shown in Figure B5 suggest that anticipated discrimination by women, particularly in STEM/BE, grows while in university.

We now turn to the specific type(s) of discrimination anticipated by students. We begin with the two most important outcomes in the discrimination literature: wages and employment. We asked respondents whether they expect to be differentially likely to get a job offer or paid differently for the same work as a similarly-qualified candidate of another gender. The results are shown in Figure 6.

Panel (a) indicates that 60% of women expect to be less likely to receive an offer for a STEM/BE job they apply to than a similarly-qualified men, while less than 10% expect to be more likely to receive an offer. In contrast, a plurality of women expect to be similarly likely to receive an offer for non-STEM/BE jobs and a plurality of men expect the same in both major categories. We asked respondents who expected an advantage or disadvantage how much of a difference they expected, allowing us to construct estimates of expected offer differentials in panel b (respondents who expected no difference were assigned a value of 0). Women expect to be 11% (3%) less likely to receive an offer for a STEM/BE (non-STEM/BE) job, while men expect a near-zero difference. Panels c and d present corresponding evidence regarding pay. Over 70% of women expect to be paid less than a similarly-qualified man *for the same work* in STEM/BE, while over 75% of men expect similar pay. In non-STEM/BE, the share of women who expect similar and less pay are similar at 40-45%, while the vast majority of men again expect similar pay. Women expect a 10% (6%) wage gap in STEM/BE (other fields). Directionally, men also expect to be paid more, but expect much smaller gaps of 3% and 1%.

Comparing these estimates to those from the literature is challenging given differences between contexts and the difficulty of obtaining definitive measures of discrimination. For example, over a third of women in male-dominated workplaces report having faced discrimination, suggesting that perceptions of discrimination may also be widespread in the labor market (Pew Research Center, 2018). Still, correspondence studies often find little gender difference in call-back rates (Bertrand and Mullainathan, 2004; Bertrand and Duflo, 2023) and while 10% is a commonly-discussed figure for the gender wage gap, it is typically substantially smaller when restricting to similarly-qualified workers doing similar work (Blau and Kahn, 2017). Accordingly, it is plausible that students have inaccurate beliefs about

the extent of labor market discrimination and the fact that men and women clearly disagree indicates that at least one of them over or under-estimates it.[25] These inaccurate beliefs are particularly important in our setting, because they inform education decisions as shown in the next section. Our survey suggests that there may be scope for decreasing gender inequality by correcting expectations about gender gaps, although designing a relevant individual-level information intervention appears particularly difficult. More broadly, our findings suggest that, in spite of various industry claims regarding efforts to increase female representation in STEM (Forbes, 2017; FDM Group, 2023; Google Inc., 2023), women clearly expect to be disadvantaged for these positions, potentially affecting not only major choice, but job search and application behavior.

Beyond economic outcomes, students' major decisions likely also depend on expectations regarding other workplace conditions (Folke and Rickne, 2022; Collis and Van Effenterre, 2024). These could represent differential treatment without translating to gaps in economic outcomes or underlying causes of gaps in economic outcomes studied above. Panel (e) of Figure 6 plots the frequency with which students expect to have their competence underestimated or questioned because of their gender, to face hostility or worse treatment because of their gender, and to face sexual harassment. Men expect to very rarely face any of these situations across both major categories. In sharp contrast, women expect to be underestimated frequently in STEM/BE and occasionally in non-STEM/BE, to face worse treatment slightly more than occasionally in STEM/BE and somewhat less than occasionally in non-STEM/BE, and to face sexual harassment occasionally in STEM/BE and slightly less than occasionally in non-STEM/BE. Differences across major categories for women are statistically significant for all three outcomes and sizable for the first two. Still, perhaps most striking is the frequency with which women anticipate to face negative workplace conditions in either major category, suggesting that these conditions are not expected to be avoidable through selecting a broad major category, but perhaps sorting to certain firms or workplaces within major.

[25] Figure B6 shows that qualitatively, both male and female respondents anticipate women to face more labor market discrimination than men, especially in STEM/BE, although female respondents anticipate more discrimination against women than male respondents do.

3.5 Does anticipated discrimination predict behavior?

We now test whether anticipated discrimination predicts behavior, namely intended major choice and course taking. We construct standardized indices of anticipated discrimination separately by gender and major category, combining answers regarding either economic outcomes (wage and job offer), workplace conditions (underestimation of competence and workplace hostility) or both together, along with the overall extent to which students expect to face discrimination because of their gender.[26] We investigate the role of sexual harassment separately, given that it may represent a distinct type of negative workplace condition.

Table B1 summarizes the overall index values by respondent gender and major category, before standardization so that values can be compared across columns. Higher values indicate stronger anticipated discrimination. The values are consistent with women anticipating discrimination, particularly in STEM/BE, while men anticipate to face positive discrimination, again particularly in STEM/BE. Additional rows separating respondents by whether they have above/below median interest in the subject content or self-reported ability for the major category show a similar pattern throughout, though anticipated discrimination appears slightly lower for those with high interest/ability. In particular, these patterns are not consistent with anticipated discrimination being largely concentrated to a specific subset of female students who may have little interest and ability in STEM/BE in the first place. In Figures B7-B8, we explicitly test for an ability gradient in anticipated discrimination and in the expected likelihood of overcoming discrimination. Similar to the evidence from the vignette experiment and consistent with the transcript evidence, women of all ability levels anticipate to face discrimination in STEM/BE, but higher-ability women expect to face less of it.

Recall that respondents' stated likelihood of majoring in STEM/BE and non-STEM/BE were elicited near the beginning of the survey, before questions relating to gender or discrimination. Table 3 shows how these state likelihoods relate to the anticipated discrimination

[26]The "economic outcomes" index includes standardized measures of the expected gender gap in job offers and pay for students who expect to be less or equally likely to receive a job offer or to be paid less or equally. The "workplace conditions" index includes standardized measures of the frequency of being underestimated or facing worse treatment. The overall index includes those four standardized measures, along with the standardized measure of how strongly the respondent agrees that they will face additional barriers or disadvantages in the workplace because of their gender. The overall index is further standardized to have a mean of 0 and a standard deviation of 1.

indexes. In panel (a), there is clear evidence that STEM/BE anticipated discrimination indexes decrease the probability of women intending to go into STEM/BE, while having little impact for men. The interaction terms between a respondent being female and the index are all statistically significant and substantial in magnitude, corresponding to decreases of 8-14% in the intention of female students to major in STEM/BE for a one standard deviation increase in the indexes. Namely, both worse expected outcomes and workplace conditions contribute to fewer women intending to major in STEM/BE. Adding controls for respondent ability (standardized test scores or self-assessed in Table B2) and interest in STEM/BE course content, hours of study, and non-monetary job benefits has a limited impact on results.[27] In non-STEM/BE, interaction terms between female respondent and the indexes are smaller in magnitude and statistically non-significant, with or without controls. This is likely due to the fact that most women who expect discrimination in non-STEM/BE expect at least as much in STEM/BE, so switching away from non-STEM/BE is not a way for them to escape discrimination.

We also directly asked respondents whether they would change their major intentions if they did not anticipate any discrimination in either major category. Since they have taken 1-3 semesters of courses, switching majors from non-STEM/BE to STEM/BE would be particularly difficult, so this reflects a lower bound on the extent to which eliminating anticipated discrimination would decrease the STEM/BE gender gap. Nevertheless, over 10% of respondents still reported that it would change their intended major choice, the majority of which were women who anticipate more discrimination in STEM/BE. Using these answers, we compute a counterfactual distribution of intended major and compare it to the real distribution presented in Figure 2. The counterfactual distribution has more women and slightly fewer men in STEM/BE, decreasing the gender gap by 12%.

Linking survey responses to the administrative records, we can also test whether anticipated discrimination affects course taking of students in their first year. In particular, students who take fewer STEM/BE courses in their first year will be less likely to eventually major in STEM/BE. Table B3 shows that women who anticipate discrimination in STEM/BE take 10% fewer STEM/BE courses in their first year, while again there is little

[27] Controlling for the respondent's stated importance of having peers of the same gender in their workplace also has little impact on the results, as shown in Table B2. We do not include this control in the main analysis given that it could itself be influenced by anticipated discrimination.

evidence of responses to discrimination by men.

4 Conclusion

This paper shows that anticipated gender discrimination in the labor market distorts college students' major choice and contributes to the gender gap in STEM/BE fields. We first presented novel empirical facts on major choice and grades using administrative transcript records. We then presented a theoretical framework which rationalizes these facts through female students anticipating discrimination in STEM/BE. Next, we presented results from a student survey which supports key components of the theoretical framework and the interpretation of the transcript analysis facts as arising from anticipated discrimination.

In particular, women expect to face discrimination in university and the workplace, particularly if they major in STEM/BE, while men anticipate little discrimination regardless of their major choice. Women anticipate discrimination in terms of economic outcomes, namely lower pay and employment opportunities, as well as in terms of negative workplace conditions, including being underestimated, facing more hostile treatment, and facing sexual harassment. We show that anticipated discrimination decreases the share of women intending to major in STEM/BE, but does not predict intentions for men.

Our findings suggest several avenues for future work. A key question is how beliefs about anticipated discrimination are formed and how they evolve over time. Mitigating gender inequality may require coordinated efforts targeting both subjective perceptions as well as actual discrimination. Improving labor market conditions for women may have a limited impact on gender differences in education and sorting if improvements are slowly internalized by younger generations. Interventions at different periods of the life cycle may be necessary, both before and during college as well as in the labor market.[28] For example, over half and two-thirds of women in our survey indicated having had a negative experience or having been exposed to negative information discouraging them from studying STEM/BE (Figure B9). Furthermore, anticipated discrimination increases over time in university for women intending to major in STEM/BE (Figure B5). Understanding these patterns as well as how they match up with realized experiences in the labor market would be key to design

[28] Cvencek, Meltzoff and Greenwald (2011) documents that children express the stereotype that mathematics is for boys, not for girls, as early as in the second grade.

effective policy interventions.

Another area for future research is to better understand how women perceive the relationship between achievement, success, and discrimination. We present some evidence that less discrimination is expected for high-ability women, but even success and high ability are not expected to overcome the bulk of discrimination women face. Understanding circumstances that make women persevere with the intent of overcoming discrimination versus shy away from trying would also be valuable, relating to the literature on bargaining, confidence, and competitiveness (Niederle and Vesterlund, 2007; Biasi and Sarsons, 2022; Roussille, 2024).

References

Alston, Mackenzie. 2019. "The (Perceived) Cost of Being Female: An Experimental Investigation of Strategic Responses to Discrimination." *Working Paper*.

Arrow, Kenneth J. 1973. "The theory of discrimination." In *Discrimination in labor markets*. 3–33. Princeton University Press.

Batistich, Mary Kate, Timothy N Bond, Sebastian Linde, and Kevin J Mumford. 2022. "Statistical Discrimination and Optimal Mismatch in College Major Selection."

Benson, Alan, Danielle Li, and Kelly Shue. 2024. "Potential and the Gender Promotions Gap." *Available at SSRN*.

Bertrand, Marianne. 2020. "Gender in the twenty-first century." Vol. 110, 1–24, American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203.

Bertrand, Marianne, and Esther Duflo. 2017. "Field experiments on discrimination." *Handbook of economic field experiments*, 1: 309–393.

Bertrand, Marianne, and Esther Duflo. 2023. "Field Experiments: Correspondence Studies." *Handbook on Economics of Discrimination and Affirmative Action*, 151–234.

Bertrand, Marianne, and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *American Economic Review*, 94(4): 991–1013.

Biasi, Barbara, and Heather Sarsons. 2022. "Flexible wages, bargaining, and the gender gap." *The Quarterly Journal of Economics*, 137(1): 215–266.

Blau, Francine D, and Lawrence M Kahn. 2017. "The gender wage gap: Extent, trends, and explanations." *Journal of economic literature*, 55(3): 789–865.

Bohren, J Aislinn, Alex Imas, and Michael Rosenberg. 2019. "The dynamics of discrimination: Theory and evidence." *American economic review*, 109(10): 3395–3436.

Carlana, Michela. 2019. "Implicit stereotypes: Evidence from teachers' gender bias." *The Quarterly Journal of Economics*, 134(3): 1163–1224.

Charness, Gary, Ramón Cobo-Reyes, Simone Meraglia, and Ángela Sánchez. 2020. "Anticipated discrimination, choices, and performance: Experimental evidence." *European Economic Review*, 127: 103473.

Coate, Stephen, and Glenn C Loury. 1993. "Will affirmative-action policies eliminate negative stereotypes?" *The American Economic Review*, 1220–1240.

Collis, Manuela, and Clémentine Van Effenterre. 2024. "Workplace Hostility."

Cvencek, Dario, Andrew N Meltzoff, and Anthony G Greenwald. 2011. "Math–gender stereotypes in elementary school children." *Child development*, 82(3): 766–779.

Exley, Christine L., and Judd B. Kessler. 2022. "The Gender Gap in Self-Promotion." *The Quarterly Journal of Economics*, 137(3): 1345–1381.

Exley, Christine, Raymond Fisman, Judd Kessler, Louis-Pierre Lepage, Xiaomeng Li, Corinne Low, Xiaoyue Shan, Mattie Toma, and Basit Zafar. 2024. "Information-Optional Policies and the Gender Concealment Gap." *Working Paper*.

FDM Group. 2023. "Attract, Engage, Retain Women in Tech." Accessed: 2024-07-11.

Fernandez, Roberto M, and Colette Friedrich. 2011. "Gender sorting at the application interface." *Industrial Relations: A Journal of Economy and Society*, 50(4): 591–609.

Folke, Olle, and Johanna Rickne. 2022. "Sexual harassment and gender inequality in the labor market." *The Quarterly Journal of Economics*, 137(4): 2163–2212.

Forbes. 2017. "Seeking Women: 40 Companies That Have Set Gender Diversity Targets." Accessed: 2024-07-11.

Funk, Cary, and Kim Parker. 2018. "Women and men in STEM often at odds over workplace equity."

Gagnon, Nickolas, Kristof Bosmans, and Arno Riedl. 2022. "The Effect of Gender Discrimination on Labor Supply." *Available at SSRN 3519540*.

Goldin, Claudia. 2014. "A grand gender convergence: Its last chapter." *American economic review*, 104(4): 1091–1119.

Goldin, Claudia, and Cecilia Rouse. 2000. "Orchestrating impartiality: The impact of" blind" auditions on female musicians." *American economic review*, 90(4): 715–741.

Google Inc. 2023. "Google 2023 Diversity Annual Report." Accessed: 2024-07-11.

Gould, Elise, Schieder Jessica, and Geier Kathleen. 2016. "What is the gender pay gap and is it real?" *Economic Policy Institute*.

Haaland, Ingar, and Christopher Roth. 2023. "Beliefs about racial discrimination and support for pro-black policies." *Review of Economics and Statistics*, 105(1): 40–53.

Hansen, Anne Toft, Michael A Kuhn, Sally Sadoff, and Helene Willadsen. 2024. "Gender Differences in Choice of Educational Field: Evidence from a Large-Scale Survey Experiment."

Hill, Anita. 2017. "Class Actions Could Fight Discrimination in Tech." *The New York Times*.

Kessler, Judd B, Corinne Low, and Colin D Sullivan. 2019. "Incentivized Resume Rating: Eliciting Employer Preferences without Deception." *The American Economic Review*, 109(11): 3713–44.

Kessler, Judd, Corinne Low, and Xiaoyue Shan. 2023. "Lowering the Playing Field: Discrimination through Sequential Spillover Effects." *Working Paper*.

Kudashvili, Nikoloz, and Philipp Lergetporer. 2022. "Minorities' strategic response to discrimination: Experimental evidence." *Journal of Public Economics*, 208: 104630.

Lang, Kevin, and Michael Manove. 2011. "Education and labor market discrimination." *American Economic Review*, 101(4): 1467–96.

Lepage, Louis-Pierre. 2024. "Experience-based Discrimination." *American Economic Journal: Applied Economics*, Forthcoming.

Lubczyk, Moritz, and Petra Moser. 2024. "The Ms. Allocation of Talent."

Lundberg, Shelly J, and Richard Startz. 1983. "Private discrimination and social intervention in competitive labor market." *The American Economic Review*, 73(3): 340–347.

Möbius, Markus M, Muriel Niederle, Paul Niehaus, and Tanya S Rosenblat. 2022. "Managing self-confidence: Theory and experimental evidence." *Management Science*, 68(11): 7793–7817.

Neal, Derek. 2004. "The measured black-white wage gap among women is too small." *Journal of political Economy*, 112(S1): S1–S28.

Neal, Derek A, and William R Johnson. 1996. "The role of premarket factors in black-white wage differences." *Journal of political Economy*, 104(5): 869–895.

Niederle, Muriel, and Lise Vesterlund. 2007. "Do women shy away from competition? Do men compete too much?" *The quarterly journal of economics*, 122(3): 1067–1101.

Pan, Jessica. 2015. "Gender segregation in occupations: The role of tipping and social interactions." *Journal of Labor Economics*, 33(2): 365–408.

Patnaik, Arpita, Matthew Wiswall, and Basit Zafar. 2020. *College Majors 1.* Routledge.

Pew Research Center. 2018. "Women in Majority-Male Workplaces Report Higher Rates of Gender Discrimination." Accessed: 2024-07-11.

Recalde, María P, and Lise Vesterlund. 2022. "Gender differences in negotiation and policy for equalizing outcomes." In *Bargaining: Current Research and Future Directions*. 455–475. Springer.

Reuben, Ernesto, Paola Sapienza, and Luigi Zingales. 2014. "How stereotypes impair women's careers in science." *Proceedings of the National Academy of Sciences*, 111(12): 4403–4408.

Roussille, Nina. 2024. "The role of the ask gap in gender pay inequality." *The Quarterly Journal of Economics*, Accepted.

Sarsons, Heather. 2017. "Interpreting signals in the labor market: evidence from medical referrals."

Ugalde, Paola. 2022. "Gender, Grade Sensitivity, and Major Choice."

Wiswall, Matthew, and Basit Zafar. 2018. "Preference for the Workplace, Investment in Human Capital, and Gender." *The Quarterly Journal of Economics*, 133(1): 457–507.

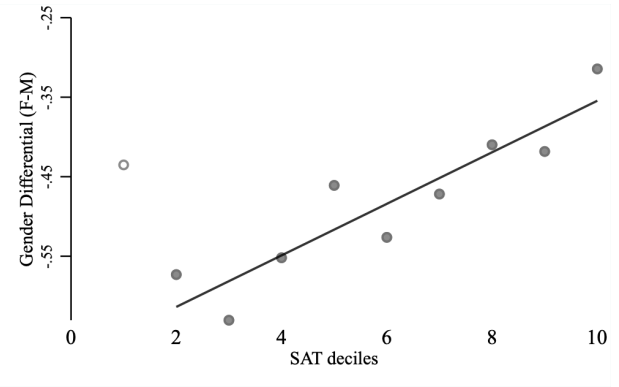
Wiswall, Matthew, and Basit Zafar. 2021. "Human capital investments and expectations about career and family." *Journal of Political Economy*, 129(5): 1361–1424.

Zafar, Basit. 2013. "College major choice and the gender gap." *Journal of Human Resources*, 48(3): 545–595.

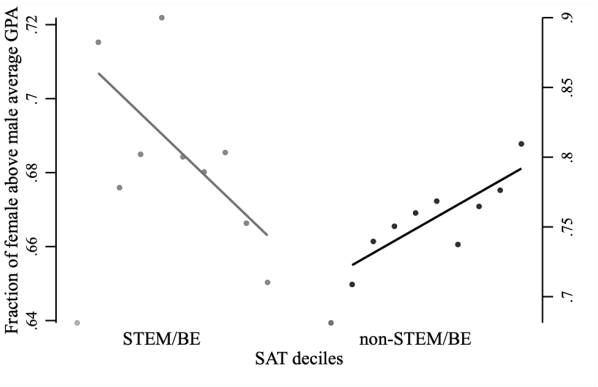
Zussman, Asaf. 2013. "Ethnic discrimination: Lessons from the Israeli online market for used cars." *The Economic Journal*, 123(572): F433–F468.

Figure 1: Evidence from transcript records

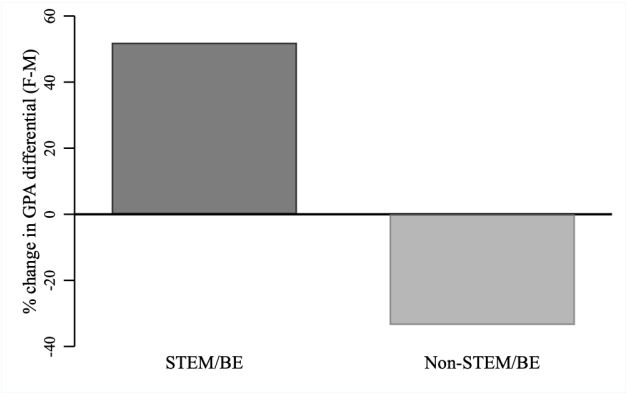
(a) Relative propensity to major in STEM/BE



(b) Grades across major and ability

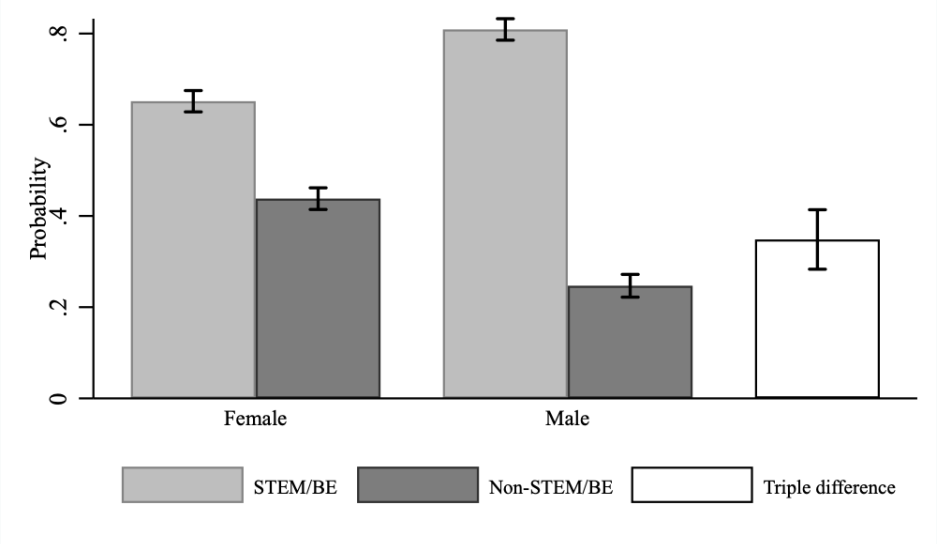


(c) Impact of declaring a major on grades



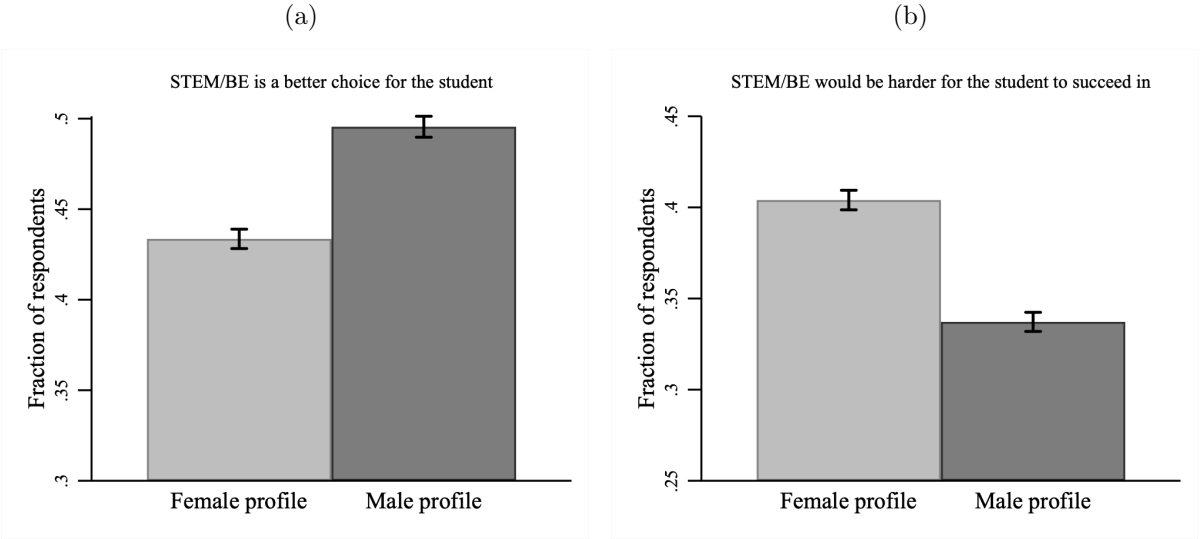
Notes: Panel (a) plots the gender difference in the probability of majoring in STEM/BE versus other majors across SAT deciles. Panel (b) plots the fraction of female students with a final cumulative GPA above the average final cumulative GPA of male students in STEM/BE (left Y-axis) and other majors (right Y-axis) across SAT deciles. Panel (c) plots the difference in GPAs of female versus male students between the term before they declare a major and the term after which they have declared a major in STEM/BE or non-STEM/BE. This figure is based on the records of 39,650 undergraduate students first enrolled between fall 2013 and fall 2020.

Figure 2: Intended major by gender



Notes: This figure reports the probability that survey respondents intend to major in STEM/BE and non-STEM/BE by gender. The rightmost bar corresponds to the gender gap (Male - Female) in the probability of majoring in STEM/BE relative to non-STEM/BE. Probabilities for each respondent need not add up to 1 since students can have more than one major, but in practice they are very close to 1 for most respondents. The corresponding survey question is: "What do you think is the percent chance (or chances out of 100) that you will graduate with a major in [STEM/BE OR non-STEM/BE]?".

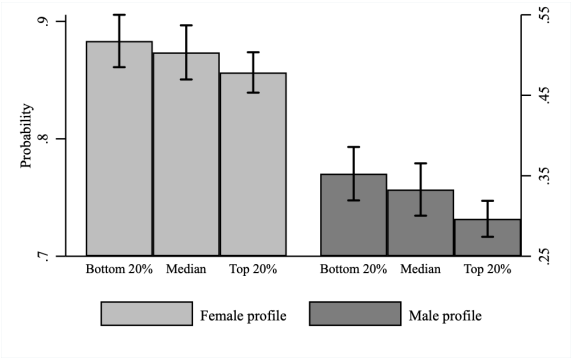
Figure 3: Major fit and career difficulty across gender in the vignette experiment



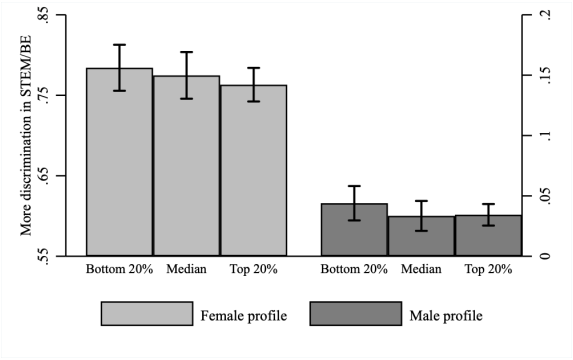
Notes: On the left panel (a), the two bars show the fraction of respondents who assign a higher probability of STEM/BE being the best major choice for a hypothetical female (male) than male (female) profile. On the right panel (b), the two bars show the fraction of respondents who reported that it would be harder for female (male) profiles to have a successful career in STEM/BE than non-STEM/BE relative to male (female) profiles. The figure is computed from between-respondent profile comparisons. We compared answers across profile gender between 100 randomly-matched pairs of respondents who were shown profiles of the same two ability levels and we repeated the process 100 times. Corresponding survey questions are: "To what extent do you think that majoring in STEM/BE (as opposed to non-STEM/BE) would be the best choice for each student? [Answer ranges from 0 to 100.]" and "In which major category would it be more difficult for [name] to have a successful career? [Answer ranges from -3 (non-STEM/BE) to 3 (STEM/BE).]".

Figure 4: Anticipated discrimination in the vignette experiment

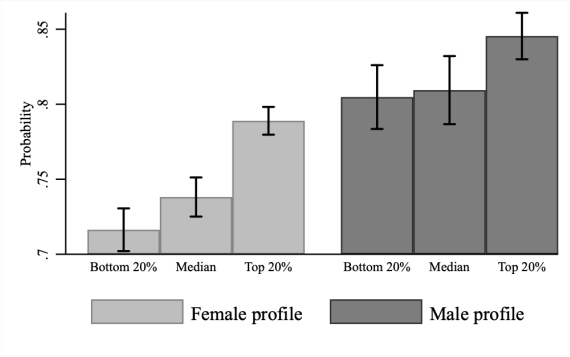
(a) Likelihood of discrimination



(b) Stronger discrimination is in STEM/BE

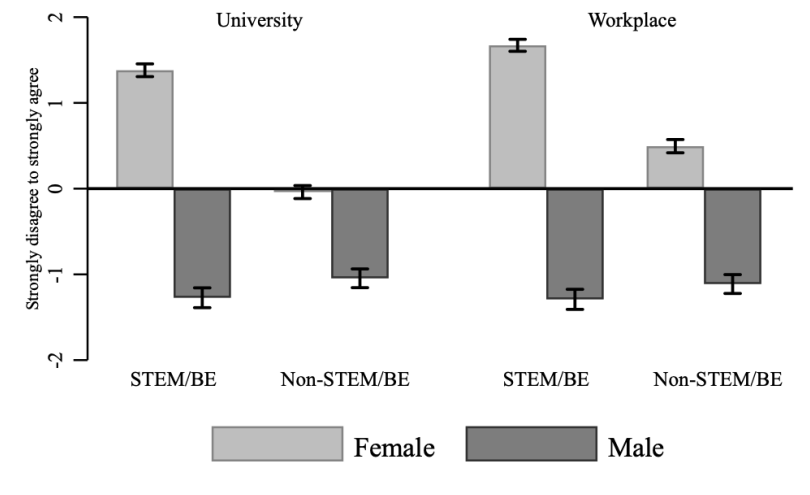


(c) Likelihood of overcoming discrimination



Notes: Panel (a) displays the fraction of respondents who answered "Yes" (1) rather than "No" (0) for female (left Y-axis) and male profiles (right Y-axis) to the following question: "Do you think there is at least one category of majors in which [names] are likely to face additional barriers or disadvantages because of their gender?". Panel (b) displays the fraction of respondents who indicated that discrimination against female (left Y-axis) and male profiles (right Y-axis) would be more likely in STEM/BE (1) rather than non-STEM/BE (0). The question was only asked to respondents who answered "Yes" to the question from Panel (a) and was asked as follows: "In which major category would [names] be more likely to face additional barriers or disadvantages?". Panel (c) shows the reported likelihood across respondents that a student profile could overcome discrimination, based on the following question: "How likely do you think it is that [names] could overcome these additional barriers or disadvantages by working hard and excelling?" [1-100].

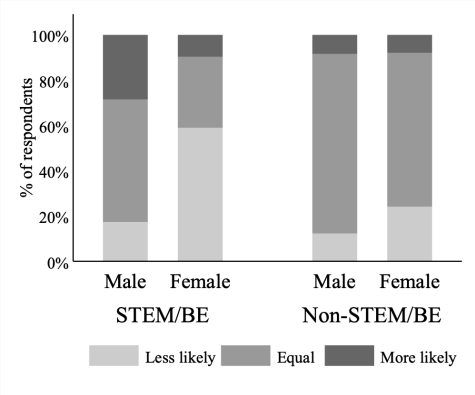
Figure 5: Anticipated discrimination in university and the workplace



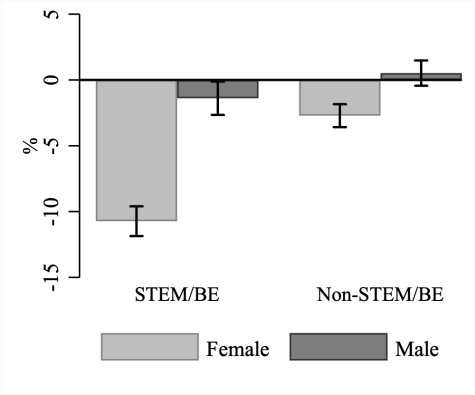
Notes: This figure plots anticipated discrimination in university and the workplace based on respondents' hypothetical major choice and gender. The answer scale ranged from strongly disagree (-3) to strongly agree (3). The corresponding question was: "While pursuing your degree, you will face additional barriers or disadvantages in university because of your gender" and "In the workplace, you will face barriers or disadvantages because of your gender."

Figure 6: Economic discrimination and negative workplace conditions

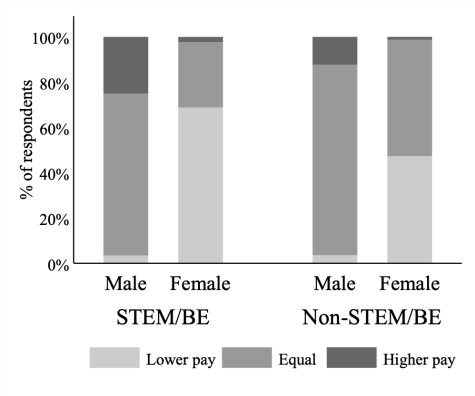
(a) Relative likelihood of getting an offer



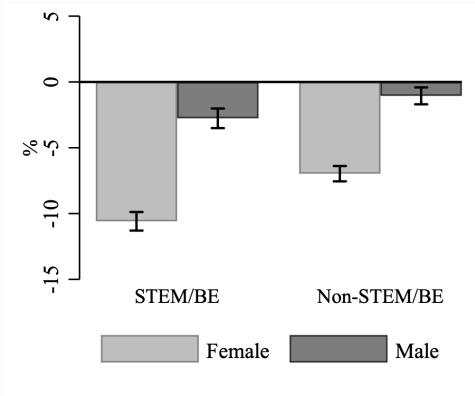
(b) Expected gender gap in job offers



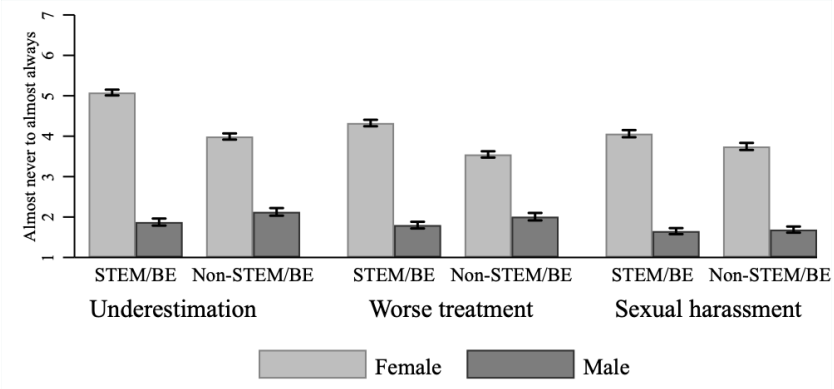
(c) Relative pay



(d) Expected gender pay gap



(e) Frequency of negative workplace conditions



Notes: Panels (a) and (c) display the fraction of respondents who expect to be less/equally/more likely to receive a job offer than a similarly-qualified applicant of another gender and to be paid less/equally/more for the same work than a similarly-qualified applicant of another gender, by respondent hypothetical major choice and gender. The corresponding survey questions were: "Do you expect to be [more or less likely to receive an offer for a job you apply to/paid more or less for doing the same work] than a similarly-qualified graduate of the opposite gender?". Panels (b) and (d) display the expected gender gaps in job offers and pay. When respondents expected equal outcomes in terms of job offers or pay, we assigned an expected gap of 0. When they expected different outcomes, the gap was calculated based on the following survey questions: "You said that you think you [are more/less likely to receive an offer/ expect to be paid more/less] in [STEM/BE or non-STEM/BE] than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect.". Panel (e) reports responses to the following questions by hypothetical major choice and respondent gender: "How frequently do you expect that the following situations will arise at your workplace: [Your competence will be underestimated or questioned because of your gender/You will face hostility or worse treatment because of your gender/You will face sexual harassment]? Please answer on a scale of 1-7, where 1 means almost never and 7 means almost always.".

Table 1: Summary statistics for the transcript records and comparison with the survey sample

	Transcript		Survey population		Survey sample	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Age	22.22	(0.68)	18.87	(1.20)	18.75	(1.08)
Female	0.51	(0.50)	0.56	(0.50)	0.62	(0.49)
White	0.72	(0.45)	0.63	(0.48)	0.63	(0.48)
URM	0.09	(0.29)	0.24	(0.43)	0.20	(0.40)
International	0.04	(0.20)	0.06	(0.23)	0.06	(0.23)
GPA	3.49	(0.41)	3.55	(0.51)	3.63	(0.40)
SAT	1,425	(96)	1,402	(134)	1,415	(127)
Household income less than $99,000	0.22	(0.41)	0.26	(0.44)	0.30	(0.46)
Household income more than $100,000	0.54	(0.50)	0.51	(0.50)	0.48	(0.50)
Observations	39,650		13,705		2,133	

Notes: Column 1 corresponds to our transcript analysis sample, including all students who initially enrolled between fall 2013 and fall 2020 and subsequently earned a degree. Column 2 corresponds to the survey population of all current freshmen and sophomores, while column 3 corresponds to the survey sample. "URM" represents U.S. citizens or U.S. permanent residents who have self-identified as belonging to specific race/ethnicity categories, including Hispanic, Native American, Black or African American, Native Hawaiian, or Other Pacific Islander. The "International" indicator denotes whether the student is an international student. GPA refers to the cumulative GPA at graduation for the transcript population and the cumulative GPA at the start of Winter 2024 for columns 2 and 3.

Table 2: Respondent expectations about majors and careers

	STEM/BE			Non-STEM/BE		
	Female	Male	P-value	Female	Male	P-value
Find a good job within 6 months of graduation (%)	73.43	74.95	0.07	54.96	53.42	0.10
	(18.27)	(18.82)		(20.05)	(21.51)	
Full-time work annual salary at age 30 ($1,000)	108.80	126.86	0.00	70.53	75.98	0.01
	(73.92)	(97.54)		(50.60)	(41.90)	
The career provides good non-monetary benefits (%)	63.54	66.79	0.00	67.28	66.02	0.12
	(21.15)	(20.51)		(17.81)	(17.95)	
Weekly studying hours in order to do well	26.46	24.83	0.01	17.41	16.41	0.03
	(13.81)	(12.87)		(10.26)	(10.52)	
Rank in terms of ability (1=best, 100=worst)	44.08	33.63	0.00	37.40	34.58	0.01
	(25.38)	(25.03)		(23.21)	24.54)	
Interesting subject content (%)	67.78	75.34	0.00	73.38	64.26	0.00
	(24.98)	(21.53)		(20.76)	(23.63)	

Notes: This table summarizes expectations regarding studying and having a career across major categories, split by respondent gender. The corresponding survey questions were: "If you were to graduate in each of these major categories [STEM/BE or non-STEM/BE], what do you think is the percent chance that you could find a good job within 6 months of graduating?", "If you were to graduate in each of these major categories [STEM/BE or non-STEM/BE], what do you think would be your annual salary if you worked full-time at age 30?", "How likely are the following to happen if you major in each category [STEM/BE or non-STEM/BE]: (1) the career will provide good non-monetary benefits (working conditions, schedule flexibility, etc.) and allow for a good work-life balance; (2) the subject content related to courses and careers will be interesting.", "If you were to major in each of these categories [STEM/BE or non-STEM/BE], what is the average number of hours that you think you would have to spend studying per week in order to do well in the major?", "If you were to graduate in each of these major categories [STEM/BE or non-STEM/BE], where do you think you would rank in terms of ability among graduates of that major category (1=best, 100=lowest)?".

Table 3: Anticipated discrimination and intended major

Panel (A): STEM/BE								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-18.575***	-11.999***	-19.544***	-10.661***	-12.616***	-7.505***	-11.875***	-7.264***
	(4.102)	(3.890)	(2.688)	(2.634)	(2.934)	(2.779)	(2.665)	(2.542)
Overall index	2.527	4.337						
	(3.230)	(3.029)						
Female × Overall index	-9.615***	-8.388**						
	(3.576)	(3.429)						
Economic outcomes index			3.167	3.810				
			(2.706)	(2.663)				
Female × Economic outcomes index			-9.497***	-7.979***				
			(2.943)	(2.948)				
Workplace conditions index					0.338	2.803		
					(2.218)	(2.048)		
Female × Workplace conditions index					-6.105**	-5.695**		
					(2.758)	(2.647)		
Sexual harrassment							-2.261	1.553
							(2.334)	(2.182)
Female × Sexual harrassment							-1.774	-2.440
							(2.660)	(2.533)
Controls		Yes		Yes		Yes		Yes
Observations	1,599	963	1,606	966	2,047	1,259	2,054	1,262
Outcome mean	69.885	76.299	69.877	76.373	71.348	77.609	71.337	77.662
Panel (B): Non-STEM/BE								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	17.372***	6.825**	20.656***	9.506***	14.792***	5.753**	13.891***	6.186**
	(2.473)	(2.737)	(2.025)	(2.324)	(2.279)	(2.502)	(2.512)	(2.736)
Overall index	1.548	2.667						
	(2.120)	(2.291)						
Female × Overall index	2.570	2.690						
	(2.467)	(2.728)						
Economic outcomes index			-2.345	0.358				
			(2.126)	(2.551)				
Female × Economic outcomes index			2.545	2.701				
			(2.373)	(2.881)				
Workplace conditions index					3.145*	3.056*		
					(1.759)	(1.848)		
Female × Workplace conditions index					2.044	0.903		
					(2.209)	(2.410)		
Sexual harrassment							5.071**	2.534
							(2.227)	(2.333)
Female × Sexual harrassment							-2.003	-0.115
							(2.552)	(2.739)
Controls		Yes		Yes		Yes		Yes
Observations	1,914	1,173	1,940	1,183	2,028	1,252	2,050	1,261
Outcome mean	36.774	29.529	36.769	29.507	36.298	29.415	36.277	29.360

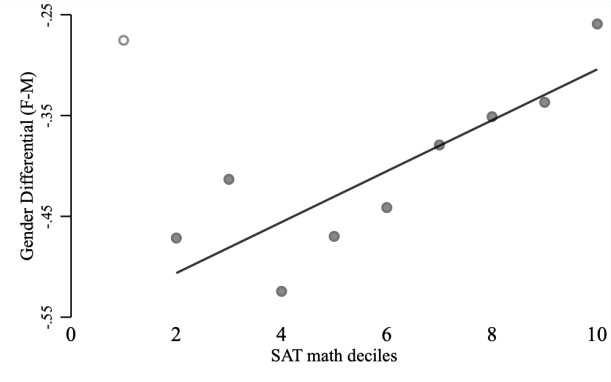
Notes: This table presents estimates from an OLS regression of the probability of majoring in STEM/BE in Panel (a) and non-STEM/BE in panel (b). The variable "Female" is a binary indicator with a value of one (zero) when the student self-identifies as female (male) in the survey. The Economic outcomes index includes standardized measures of the expected gender gap in job offers and pay for students who expect to be less or equally likely to receive a job offer or to be paid less or equally. The workplace conditions index includes standardized measures of the frequency of being underestimated or facing worse treatment. The Overall index includes those four standardized measures, along with a standardized measure of how strongly the respondent agrees that they will face additional barriers or disadvantages in the workplace because of their gender. The overall index is further standardized to have a mean of 0 and a standard deviation of 1. When indicated, controls include respondents' responses regarding the likelihood of the career providing good non-monetary benefits, weekly studying hours in order to do well, SAT score, and interest in the subject content in STEM/BE for panel (a) and non-STEM/BE for panel (b). See notes from Table 2, Figure 5, and Figure 6 for corresponding survey questions. Standard errors are reported in parentheses, and ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

A Additional transcript evidence

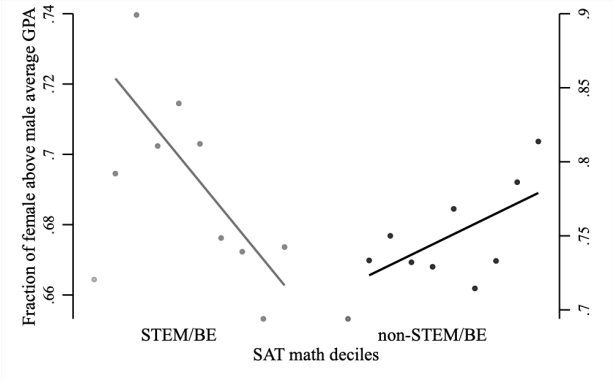
A.1 Figures

Figure A1: Evidence from transcript records using SAT Math scores

(a) Relative propensity to major in STEM/BE

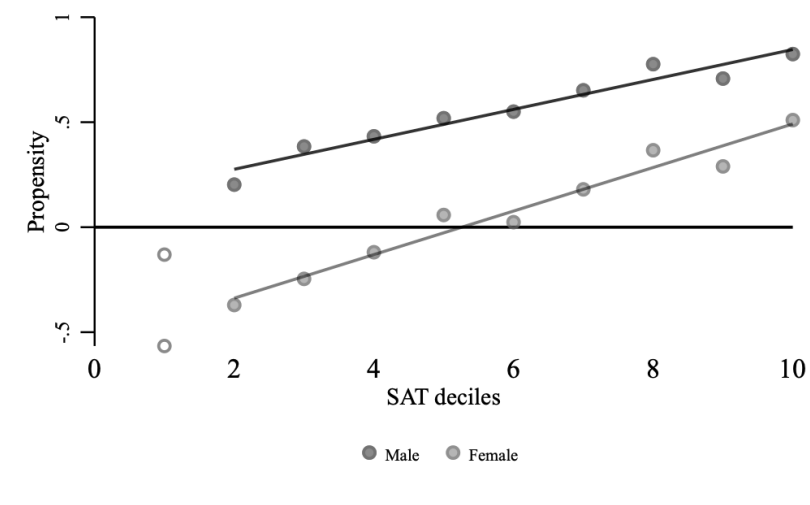


(b) Grades across major and ability



Notes: Panel (a) plots the gender difference in the probability of majoring in STEM/BE versus other majors across SAT math deciles. Panel (b) plots the fraction of female students with a final cumulative GPA above the average final cumulative GPA of male students in STEM/BE (left Y-axis) and other majors (right Y-axis) across SAT math deciles. This figure is based on the records of 39,650 undergraduate students first enrolled between fall 2013 and fall 2020.

Figure A2: Relative propensity to major in STEM/BE, separately by gender



Notes: This figure plots the probability of majoring in STEM/BE versus other majors across SAT deciles by gender. This figure is based on the records of 39,650 undergraduate students first enrolled between fall 2013 and fall 2020.

A.2 Tables

Table A1: Student GPAs before and after major declaration

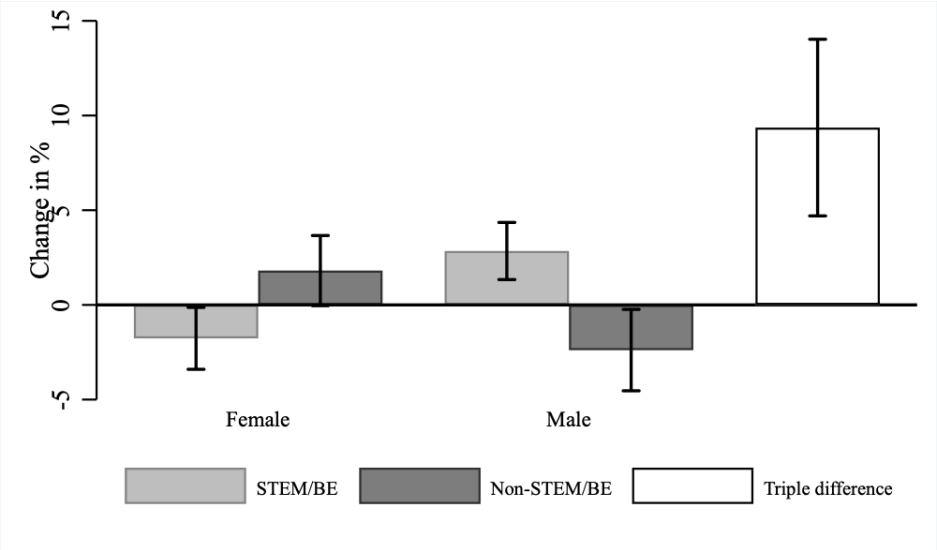
	STEM/BE	Non-STEM/BE
	(1)	(2)
Female	0.017**	0.139***
	(0.008)	(0.011)
After declaration	0.077***	0.227***
	(0.005)	(0.010)
Female × After declaration	0.025***	-0.061***
	(0.008)	(0.012)
Major FE	Yes	Yes
Observations	44,785	27,518
Outcome mean	3.389	3.472

Notes: This table presents estimates of students' GPA by gender and whether they have declared their major. The variable "Female" is a binary indicator with a value of one (zero) when the student self-identifies as female (male) in the survey. The variable "After declaration" is a binary indicator with a value of one (zero) in the term before (during) which students declare a major in STEM/BE or non-STEM/BE. Major FEs are indicators for each college major, encompassing fields such as Engineering, Humanities, Natural Science, and Social Science. Clustered standard errors at the individual level are reported in parentheses, and ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

B Additional survey evidence

B.1 Figures

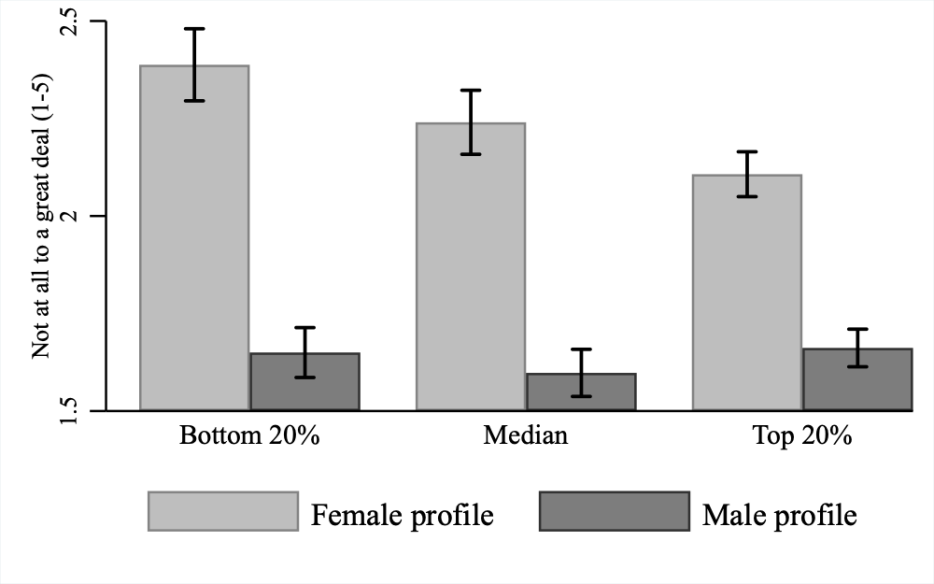
Figure B1: Changes in intended major since enrollment



Notes: This figure illustrates the changes in reported probability that survey respondents will major in STEM/BE and non-STEM/BE by gender since their enrollment. The rightmost bar corresponds to the gender gap (Male - Female) in the change in probability of majoring in STEM/BE relative to non-STEM/BE. The survey asked respondents how they would have answered the following question just before starting university: "What do you think is the percent chance (or chances out of 100) that you will graduate with a major in [STEM/BE OR non-STEM/BE]?". Probabilities for each respondent need not add up to 1 since students can have more than one major, but in practice they are very close to 1 for most respondents.

B.1.1 Evidence from the vignette experiment

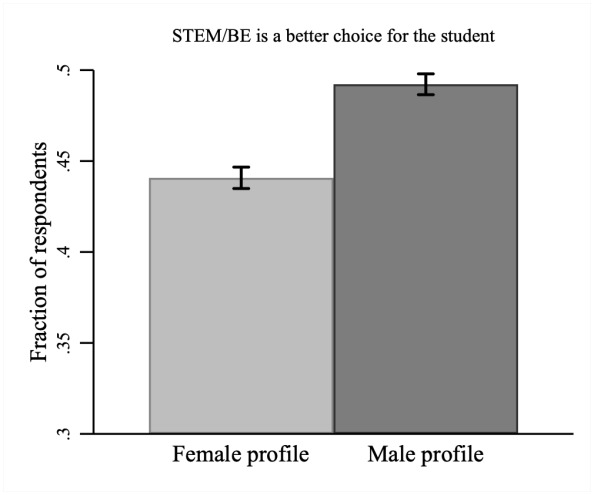
Figure B2: Concerns about discrimination when making major recommendations



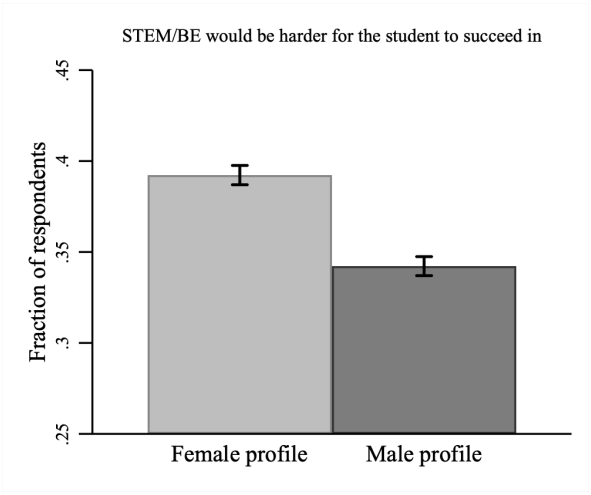
Notes: This figure shows the importance of respondents' concerns about discrimination when making major recommendations for hypothetical student profiles, based on the following survey question: "How much did concerns of discrimination or differential treatment factor into your previous answer about whether majoring in STEM/BE or non-STEM/BE would be the best choice for the student?" [1-5].

Figure B3: Major fit and career difficulty across gender, by respondent gender

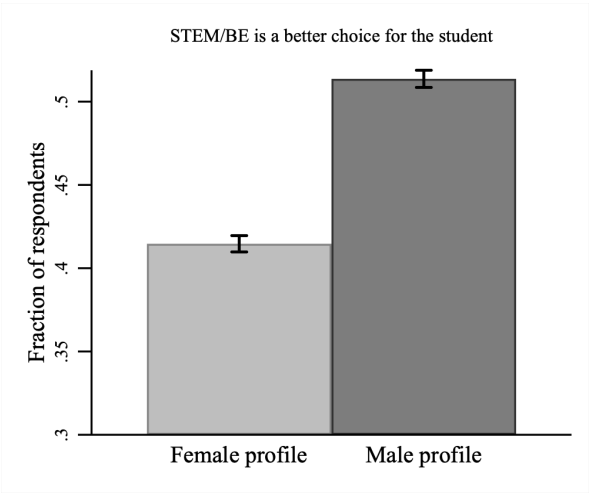
(a) Female respondents



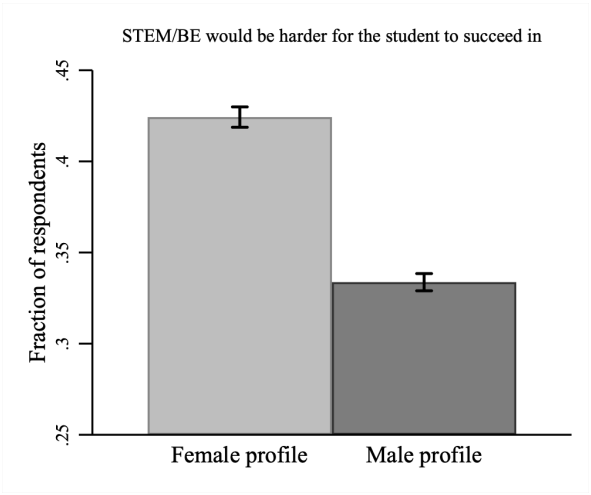
(b) Female respondents



(c) Male respondents



(d) Male respondents

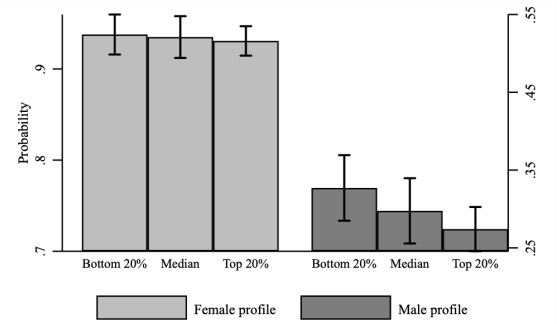


Notes: In panel (a)/(c), the two bars show the fraction of female/male respondents who assign a higher probability of STEM/BE being the best major choice for a hypothetical female (male) than male (female) profile. In panel (b)/(d), the two bars show the fraction of female/male respondents who reported that it would be harder for female (male) profiles to have a successful career in STEM/BE than non-STEM/BE relative to male (female) profiles. The figure is computed from between-respondent profile comparisons. We compared answers across profile gender between 80 randomly-matched pairs of respondents who were shown profiles of the same two ability levels and we repeated the process 100 times. Corresponding survey questions are: "To what extent do you think that majoring in STEM/BE (as opposed to non-STEM/BE) would be the best choice for each student? [Answer ranges from 0 to 100.]" and "In which major category would it be more difficult for [name] to have a successful career? [Answer ranges from -3 (non-STEM/BE) to 3 (STEM/BE).]".

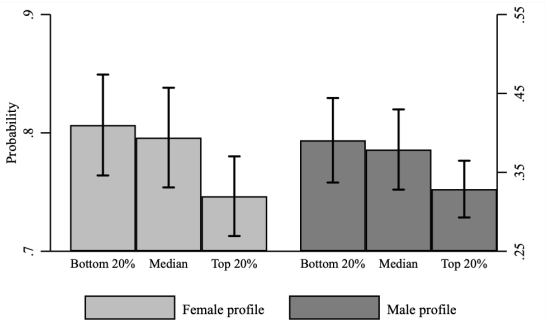
Figure B4: Anticipated discrimination in the vignette experiment, by respondent gender

(a) Likelihood of discrimination

(a.1) Female respondents

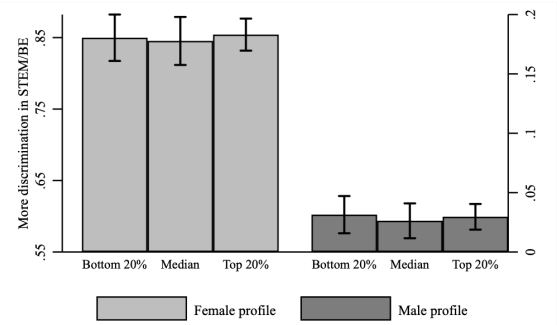


(a.2) Male respondents

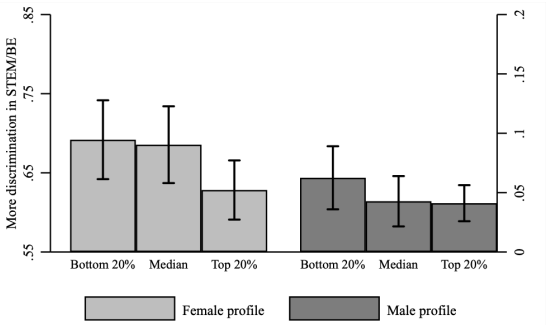


(b) Stronger discrimination is in STEM/BE

(b.1) Female respondents

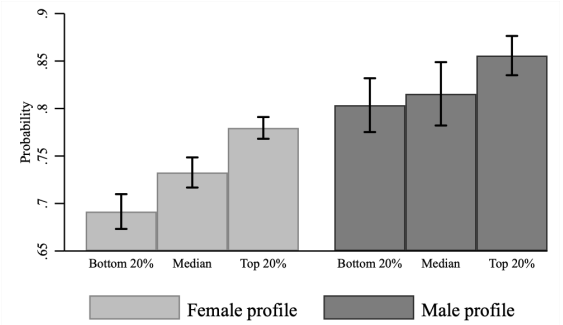


(b.2) Male respondents

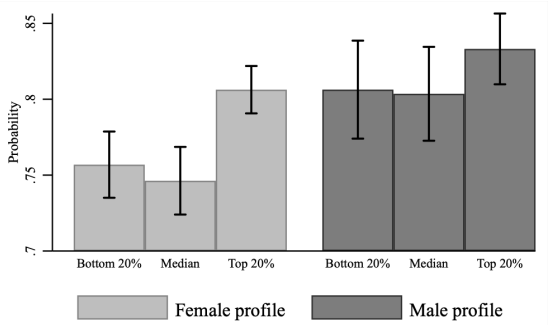


(c) Likelihood of overcoming discrimination

(c.1) Female respondents



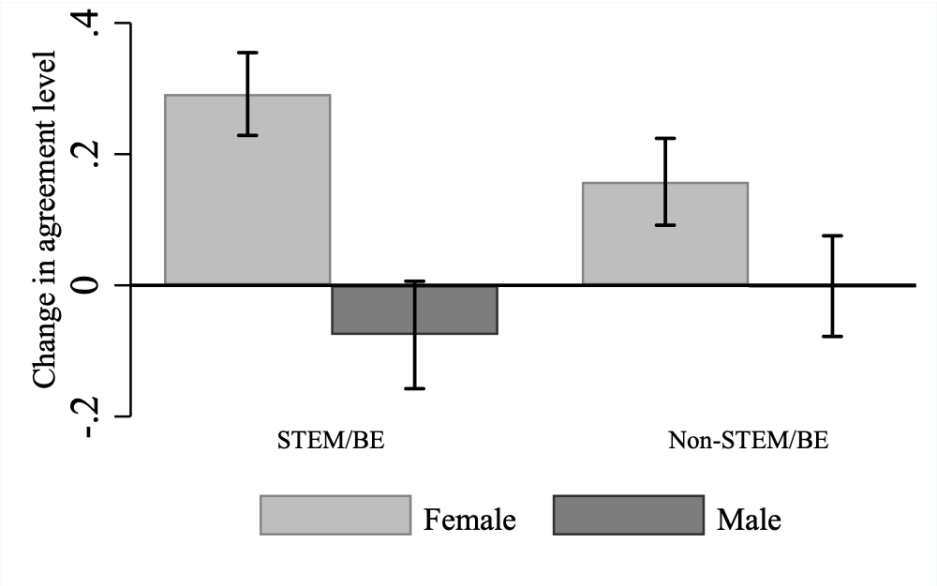
(c.2) Male respondents



Notes: Panel (a) displays the fraction of respondents who answered "Yes" (1) rather than "No" (0) for female (left Y-axis) and male profiles (right Y-axis) to the following question: "Do you think there is at least one category of majors in which [names] are likely to face additional barriers or disadvantages because of their gender?". Panel (b) displays the fraction of respondents who indicated that discrimination against female (left Y-axis) and male profiles (right Y-axis) would be more likely in STEM/BE (1) rather than non-STEM/BE (0). The question was only asked to respondents who answered "Yes" to the question from Panel (a) and was asked as follows: "In which major category would [names] be more likely to face additional barriers or disadvantages?". Panel (c) shows the reported likelihood across respondents that a student profile could overcome discrimination, based on the following question: "How likely do you think it is that [names] could overcome these additional barriers or disadvantages by working hard and excelling?" [1-100].

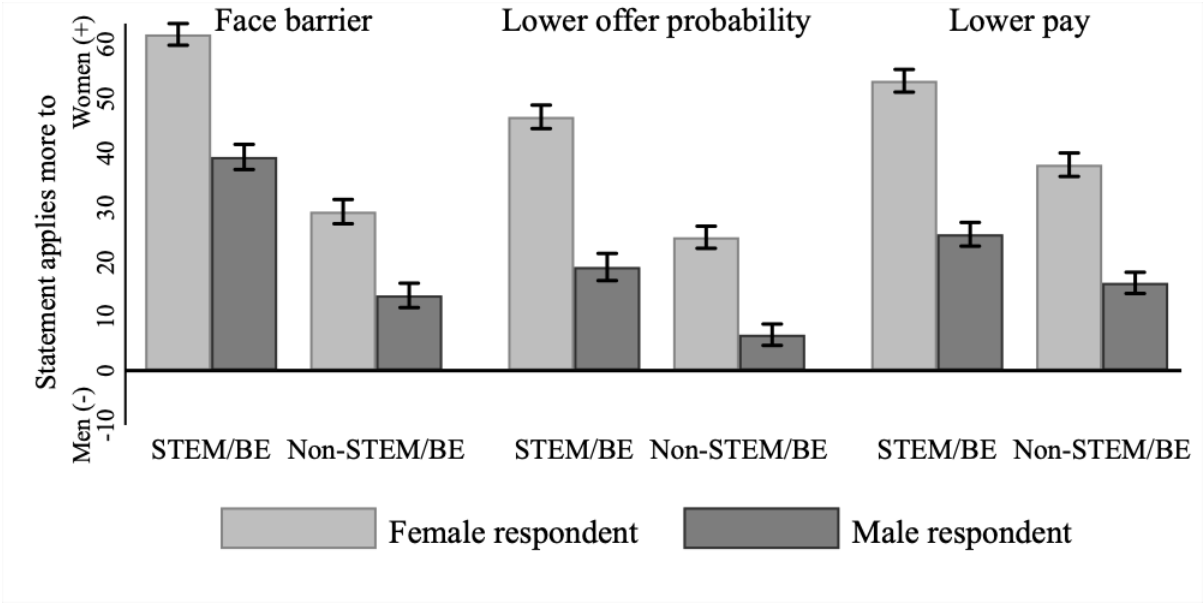
B.1.2 Evidence from the counterfactual choice experiment

Figure B5: Changes in labor market anticipated discrimination since enrollment



Notes: This figure plots the extent to which anticipated discrimination in the workplace changed since enrollment, differentiated by hypothetical major category and respondent gender. Participants were asked to indicate their agreement level with the following statements now and just before starting university: "In the workplace, you will face barriers or disadvantages because of your gender." The answer scale ranged from strongly disagree (-3) to strongly agree (3).

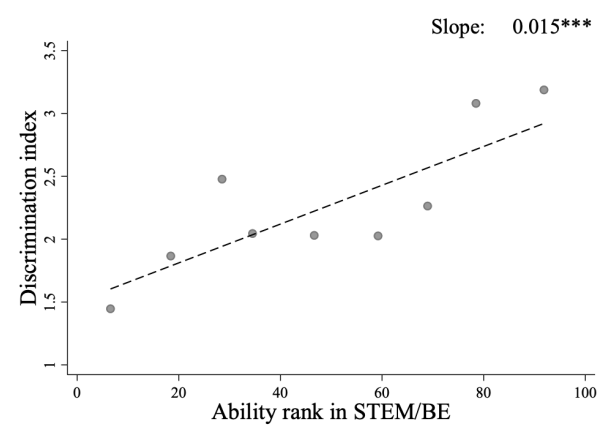
Figure B6: Which gender is expected to face more discrimination



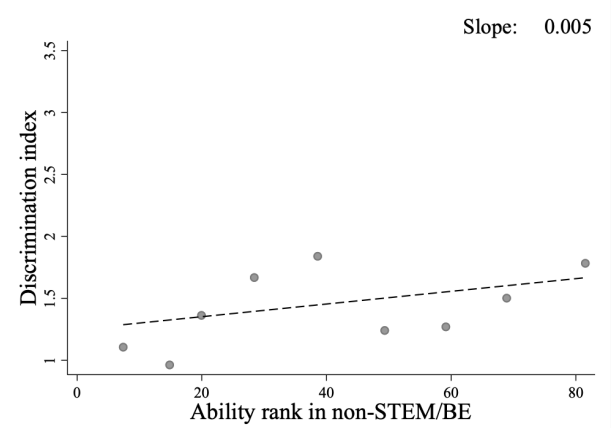
Notes: This figure shows whether respondents anticipate more labor market discrimination against women or men, by major category. Responses are on a scale from -100 to 100, where 100 indicates the statement is much more likely to apply to women, 0 indicates it is equally likely to apply to both, and -100 indicates it is much more likely to apply to men. The corresponding statements are: "They face additional barriers or disadvantages in the workplace because of their gender; They are less likely to receive a job offer compared to a similarly-qualified applicant of the opposite gender; They are paid less for doing the same work than a similarly-qualified worker of the opposite gender."

Figure B7: Anticipated discrimination and ability

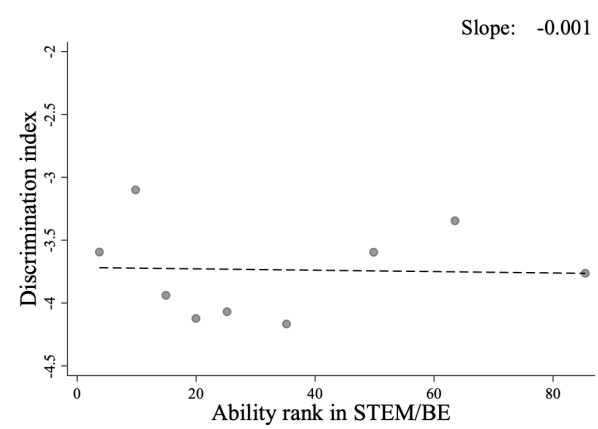
(a) Female respondents



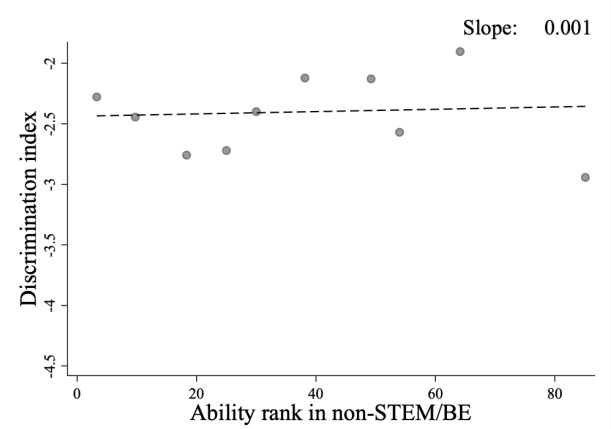
(b) Female respondents



(c) Male respondents

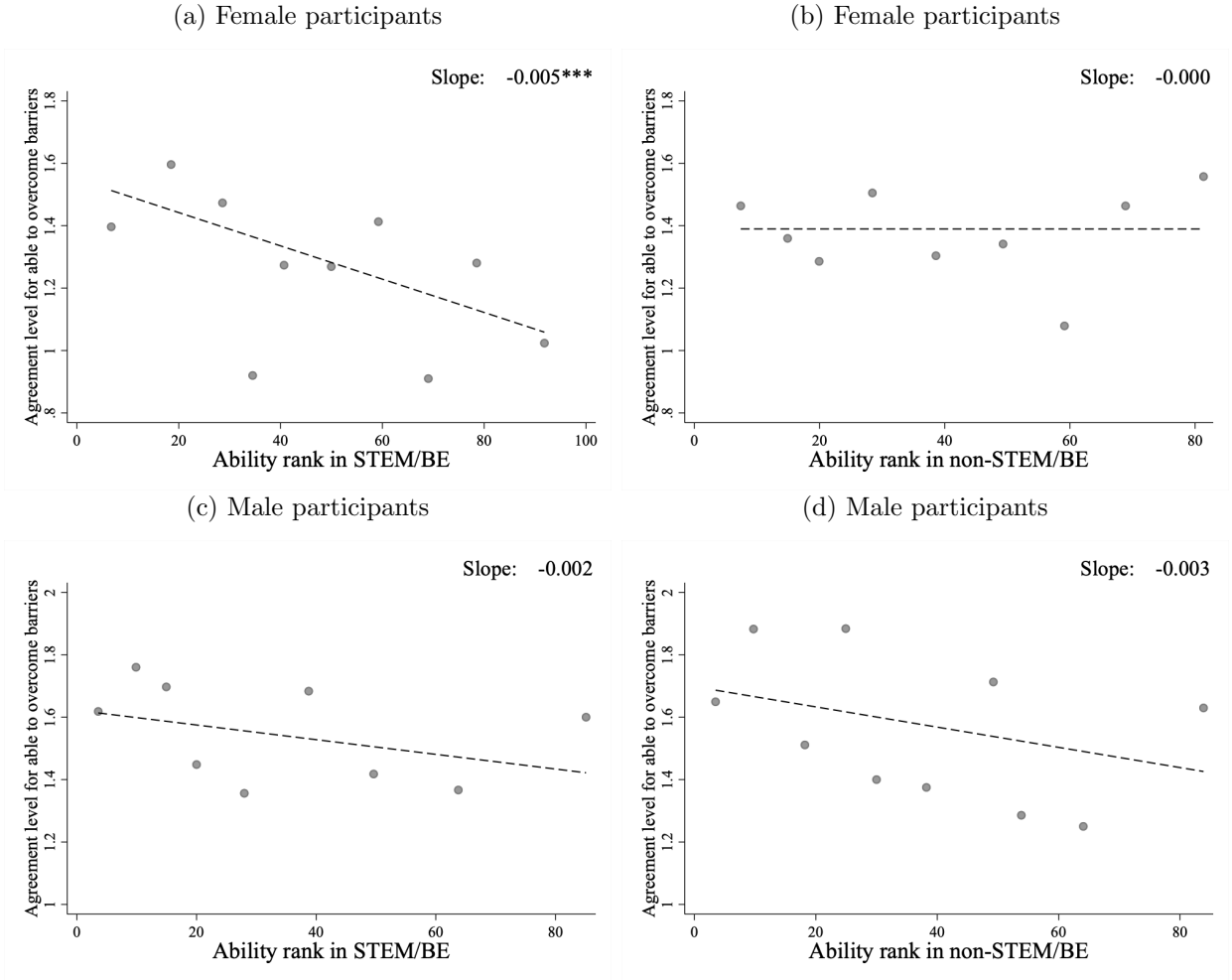


(d) Male respondents



Notes: This figure plots the anticipated discrimination index of respondents in STEM/BE and non-STEM/BE against their perceived ability in the two major categories, by respondent gender. See footnote 26 for a description of the anticipated discrimination index and Table 2 as well as Figures 5 and 6 for corresponding survey questions.

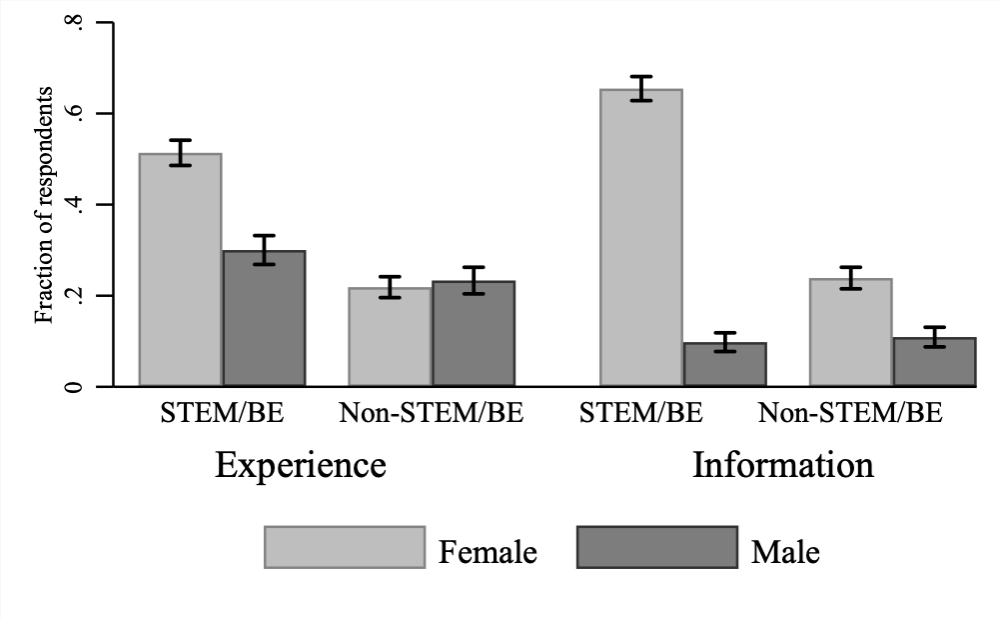
Figure B8: Overcoming discrimination and ability



Notes: This figure plots the extent to which respondents expected being able to overcome discrimination in STEM/BE and non-STEM/BE against their perceived ability in both major categories, by respondent gender. The corresponding survey question for overcoming discrimination is: "If you face additional barriers or disadvantages in school or the workplace, you will be able to overcome them if you work hard enough and excel [-3 (Strongly disagree) to 3 (Strongly agree)]." See footnote 26 for a description of the anticipated discrimination index and Table 2 as well as Figures 5 and 6 for other corresponding survey questions.

B.1.3 Other evidence

Figure B9: Had negative experiences or exposed to negative information



Notes: This figure plots the fraction of respondents who reported having had negative experiences or having been exposed to negative information, differentiated by hypothetical major category and respondent gender. Participants were asked to indicate yes or no to the following statements: "Have you ever had any unpleasant and/or negative experiences in courses or activities which discouraged you from studying that major category? Have you been exposed to information suggesting that studying in the major category or working in related fields would be less suitable or more difficult because of your gender?"

B.2 Tables

Table B1: Summary of anticipated discrimination index

	STEM/BE		Non-STEM/BE	
	Female	Male	Female	Male
Overall	2.188	-3.735	1.442	-2.404
By subject interest				
High	1.941	-3.960	1.469	-2.636
Low	2.379	-3.436	1.409	-2.278
By ability				
High	2.039	-3.816	1.341	-2.524
Low	2.328	-3.562	1.542	-2.257

Notes: This table summarizes the anticipated discrimination index by gender and hypothetical major choice and further by respondent interest in the subject and perceived ability. High (low) subject interest is restricted to respondents who report interest in STEM/BE or non-STEM/BE at a value above (below) the median level. High (low) ability is restricted to respondents who report perceived rank in STEM/BE or non-STEM/BE at a value below (above) the median level. See footnote 26 for a description of the anticipated discrimination index and Table 2 as well as Figures 5 and 6 for corresponding survey questions.

Table B2: Anticipated discrimination and intended major

	Perceived ability		**Preference for peers' gender**	
	STEM/BE	Non-STEM/BE	STEM/BE	Non-STEM/BE
	(1)	(2)	(3)	(4)
Female	-15.774***	12.423***	-12.546***	7.105**
	(3.430)	(2.400)	(3.940)	(2.799)
Overall index	5.989**	2.224	4.256	2.710
	(2.694)	(2.024)	(3.030)	(2.294)
Female × Overall index	-8.506***	1.530	-8.486**	2.692
	(2.980)	(2.353)	(3.431)	(2.729)
Controls	Yes	Yes	Yes	Yes
Observations	1,599	1,914	963	1,173
Outcome mean	69.885	36.774	76.299	29.529

Notes: This table presents estimates from an OLS regression of the probability of majoring in STEM/BE (columns 1 and 3) and non-STEM/BE (columns 2 and 4). The variable "Female" is a binary indicator, taking the value of one if the student self-identifies as female and zero if male. Control variables differ from those in Table 3: columns 1 and 2 control for ability using perceived rank instead of SAT scores, while columns 3 and 4 further control for peer preferences. See the notes from Table 3 for additional details. Standard errors are reported in parentheses, and ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table B3: Anticipated discrimination and STEM/BE courses

	Fraction of first term STEM/BE courses							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.226***	-0.213***	-0.222***	-0.197***	-0.174***	-0.152***	-0.167***	-0.149***
	(0.030)	(0.030)	(0.020)	(0.020)	(0.024)	(0.022)	(0.021)	(0.020)
Overall index	0.018	0.034						
	(0.024)	(0.023)						
Female × Overall index	-0.057**	-0.053**						
	(0.028)	(0.026)						
Economic outcomes index			0.009	0.027				
			(0.020)	(0.020)				
Female × Economic outcomes index			-0.048**	-0.052**				
			(0.023)	(0.022)				
Workplace conditions index					0.000	0.006		
					(0.018)	(0.016)		
Female × Workplace conditions index					-0.024	-0.011		
					(0.023)	(0.021)		
Sexual harrassment							-0.010	0.004
							(0.018)	(0.017)
Female × Sexual harrassment							-0.016	-0.014
							(0.021)	(0.020)
Controls		Yes		Yes		Yes		Yes
Observations	1,539	1,539	1,546	1,546	1,973	1,973	1,980	1,980
Outcome mean	0.505	0.505	0.505	0.505	0.520	0.520	0.520	0.520

Notes: This table presents estimates from an OLS regression of the fraction of STEM/BE courses taken by our survey respondents in their first term at the university. See Table 3 for additional details.

C - Student survey

Anticipated discrimination and major choice - 2024

Start of Block: Intro

consent Please indicate your agreement to participate in this research study:

- Yes (1)
- No (2)

Skip To: End of Survey If Please indicate your agreement to participate in this research study: = No

End of Block: Intro

Start of Block: Screening

Timing1 Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

JS

Qscreening .Skin #Logo { display:none; } Which school year are you in currently?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (4)

Display This Question:

If Which school year are you in currently? = Junior

Or Which school year are you in currently? = Senior

Qscreen_end Thank you for your interest. You are not eligible to take the survey. Only freshmen or sophomores are supposed to take the survey.

Skip To: End of Survey If Thank you for your interest. You are not eligible to take the survey. Only freshmen or sophomores... Displayed

End of Block: Screening

Start of Block: Demo

Timing_demo Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

JS X→

Q1.2 .Skin #Logo { display:none; } What is your country of birth?

▼ Afghanistan (1) ... Other (1358)

Q1.3 Please state the gender with which you identify.

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)
- ○ Prefer to self-describe (5) _____

Page Break

Q1.4 .Skin #Logo { display:none; } What is your cumulative grade point average (GPA)? Please round up to the nearest tenth.

0 1 1 2 2 3 3 4

() 

Q1.5 .Skin #Logo { display:none; } When do you expect to graduate from the university? (1)

▼ WINTER 2025 (1) ... Before WINTER 2025 (10)

Q1.6 What were your scores on the SAT? (Please enter a number between 200 and 800. Please skip this question if you did not take the SAT.)

- Verbal (1) _____
- Math (2) _____

Q1.7 What was your composite score on the ACT? (Please enter a number between 1 and 36. Round up your score to the nearest integer. Please skip this question if this is not applicable to you.)

- Overall (1) _____
- Math (2) _____

*

Q1.81 What was your rank in your high school graduating class? Please write a number between 1 and 100, where 1 means you ranked in the top 1%. Note that 100 means the lowest rank. If your school did not rank graduating classes then please estimate your ranking as best you can.

- (2) _____

Page Break

Q1.9 .Skin #Logo { display:none; } Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Please select a number between 1 and 7 where 1 means “absolutely unwilling to take risks” and 7 means “fully prepared to take risks”.

1 2 3 4 5 6 7



Page Break

percent_intro .Skin #Logo { display:none; } In some of the following questions, you will be asked about the PERCENT CHANCE of something happening. The percent chance must be a number between 0 and 100.

Numbers like 2 or 5% indicate "almost no chance".
Numbers like 19% or so may mean "not much chance".
Numbers like 47 or 55% chance may be a "pretty even chance".
Numbers like 82% or so indicates a "very good chance".
Numbers like 95 or 98% mean "almost certain".

The percent chance can also be thought of as the number of chances out of 100.

Q1.10 How likely is it that you will pursue a post-bachelor's degree (such as a MD, PhD, Masters, etc.) at some point after graduating from X?

0 10 20 30 40 50 60 70 80 90 100



End of Block: Demo

Start of Block: Graduating

Timing_grad Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

JS

stembe_intro .Skin #Logo { display:none; } In this survey, we will ask you about majors in STEM, Business, and Economics (STEM/BE) fields versus majors in other fields (Non-STEM/BE).

By **STEM/BE** fields, we mean majors in "Science, Technology, Engineering, and Math" OR in Business and Economics.
By **Non-STEM/BE** fields, we mean all other majors, many of which are in the humanities, arts, public health, other social sciences, etc.

Here is a list of the ten most popular majors for these two major categories:

STEM/BE	**Non-STEM/BE**
Computer Science	Business Administration
Economics	
Mechanical Engineering	
Biopsychology, Cognition, and Neuroscience	
Neuroscience	
Industrial & Operations Engineering	
Chemical Engineering	
Aerospace Engineering	
Biomolecular Science	Psychology
Political Science	
Nursing	
International Studies	
Communication	
English	
Sport Management	
History	
Public Policy	
Art and Design	

Click here to see a full list of majors in each category, classified according to the university guidelines.

Q2.1 What do you think is the percent chance (or chances out of 100) that you will graduate with a major in **STEM/BE**?

0 10 20 30 40 50 60 70 80 90 100

()



Q2.1b What do you think is the percent chance (or chances out of 100) that you will graduate with a minor in **STEM/BE**?

0 10 20 30 40 50 60 70 80 90 100

() 

Display This Question:

If What do you think is the percent chance (or chances out of 100) that you will graduate with a maj... [ ] > 0

Q2.1.1 .Skin #Logo { display:none; } If you were to graduate with a major in **STEM/BE**, what do you think is the most likely major in **STEM/BE** that you think you would graduate with?

Display This Question:

If If you were to graduate with a major in STEM/BE, what do you think is the most likely major in ST... Displayed

Q2.1.1.1 Top major choice.
(1)

▼ Actuarial Mathematics (1) ... Structural Biology Track (47)

Q2.2 What do you think is the percent chance (or chances out of 100) that you will graduate with a major in **non-STEM/BE**?

0 10 20 30 40 50 60 70 80 90 100

() 

Q2.2b What do you think is the percent chance (or chances out of 100) that you will graduate with a minor in **non-STEM/BE**?

0 10 20 30 40 50 60 70 80 90 100

()	

Display This Question:

If What do you think is the percent chance (or chances out of 100) that you will graduate with a maj... [ ] > 0

Q2.2.1 If you were to graduate with a major in **non-STEM/BE**, what do you think is the most likely major in **non-STEM/BE** that you think you would graduate with?

Display This Question:

If If you were to graduate with a major in non-STEM/BE, what do you think is the most likely major i... Displayed

Q2.2.1.1 Top major choice.
(1)

▼ Afroamerican and African Studies (1) ... Women's and Gender Studies (87)

Q877 **We would like to know how these percent chances have changed since enrolling into UM.**

Q878 Just before starting university, the percent chance (or chances out of 100) that you thought you would graduate with a major in **STEM/BE** was

	0	10	20	30	40	50	60	70	80	90	100
()											

Q879 Just before starting university, the percent chance (or chances out of 100) that you thought you would graduate with a major in **non-STEM/BE** was

0	10	20	30	40	50	60	70	80	90	100

()



End of Block: Graduating

Start of Block: incentivized_female_ratio

JS

Q456 Please answer carefully. For each of the following two questions, if your answer is within 2 points of the true proportion, you will receive an additional $0.5.

Q2.3.1 Of all the university bachelor's students who graduated with a major in **STEM/BE** in the last two years, what proportion (out of 100) do you think were **women**?

0 10 20 30 40 50 60 70 80 90 100

()



Q2.3b.1 Of all the university bachelor's students who graduated with a major in **non-STEM/BE** in the last two years, what proportion (out of 100) do you think were **women**?

0 10 20 30 40 50 60 70 80 90 100

()



End of Block: incentivized_female_ratio

Start of Block: nonincentivized_female_ratio

JS

Q2.3.2 .Skin #Logo { display:none; } Of all the university bachelor's students who graduated with a major in **STEM/BE** in the last two years, what proportion (out of 100) do you think were **women**?

0 10 20 30 40 50 60 70 80 90 100

()



Q2.3b.2 Of all the university bachelor's students who graduated with a major in **non-STEM/BE** in the last two years, what proportion (out of 100) do you think were **women**?

0 10 20 30 40 50 60 70 80 90 100

() 

End of Block: nonincentivized_female_ratio

Start of Block: stem_interest

JS

Q2.4 .Skin #Logo { display:none; } Do you have close friends or immediate family members who have majored or are planning to major in **STEM/BE**? Please select all that apply.

- ☐ Yes, at least one close friend (6)
- ☐ Yes, at least one immediate family member (7)
- ☐ Neither (8)

Q2.4b Do you have close friends or immediate family members who have majored or are planning to major in **non-STEM/BE**? Please select all that apply.

- ☐ Yes, at least one close friend (8)
- ☐ Yes, at least one immediate family member (9)
- ☐ Neither (10)

Q2.5 Have you ever researched or looked up information about any of the following? Please select all that apply.

- ☐ Studying in STEM/BE (1)
- ☐ Studying in non-STEM/BE (2)
- ☐ Working in a career related to STEM/BE (3)
- ☐ Working in a career related to non-STEM/BE (4)
- ☐ None (5)

Page Break

Qattention .Skin #Logo { display:none; } To show that you read our questions carefully, please choose both “Very strongly interested” and “Not at all interested” as your answer in the next question.

How interested are you in sports?

- ☐ Very strongly interested (1)
- ☐ Very interested (2)
- ☐ A little bit interested (3)
- ☐ Almost not interested (4)
- ☐ Not at all interested (5)

End of Block: stem_interest

Start of Block: expectation

JS

Q3.2 .Skin #Logo { display:none; } If you were to graduate in each of these major categories, what do you think is the percent chance that you could **find a good job within 6 months of graduating**?

	0 10 20 30 40 50 60 70 80 90 100
STEM/BE ()	
Non-STEM/BE ()	

JS *

Q3.1 .Skin #Logo { display:none; } If you were to graduate in each of these major categories, what do you think would be **your annual salary** if you worked full-time **at age 30**?

Full-time means working 35 hours or more each week for around 48 weeks each year. When answering, assume a dollar when you are 30 is worth a dollar today, i.e., ignore the effects of inflation.
(Please write your answer in thousands of dollars. For example, if you think your annual salary would be $50,000, write '50'.)

- STEM/BE (1) _____
- Non-STEM/BE (2) _____

Page Break

*

Q3.3 .Skin #Logo { display:none; } If you were to graduate in each of these major categories, where do you think you would **rank in terms of ability** among the university graduates of that major category? Please write a number between 1 and 100, where 1 means the best (i.e., among the top 1%) and 100 means the lowest.

- STEM/BE (1) _____
- Non-STEM/BE (4) _____

Q3.4 If you were to major in each of these categories, what is the **average number of hours** that you think you would have to spend **studying per week** in order to do well in the major?

- STEM/BE (1) _____
- Non-STEM/BE (2) _____

Q3.7 If you were to graduate in each of these major categories, how important do you think it would be for you to **earn high grades and distinguish yourself from others** to have a successful career?

	0 - Absolutely not important	100 - Absolutely Important
STEM/BE ()		
Non-STEM/BE ()		

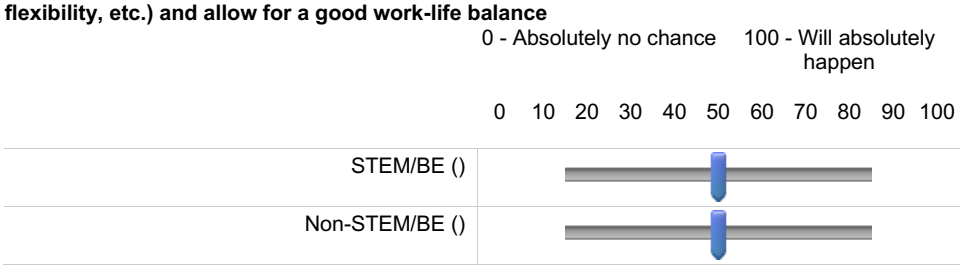
Page Break

Q3.61 .Skin #Logo { display:none; } How likely are the following to happen if you major in each category?

The subject content related to courses and careers will be interesting

	0 - Absolutely no chance	100 - Will absolutely happen
	0 10 20 30 40 50 60 70 80 90 100	
STEM/BE ()		
Non-STEM/BE ()		

Q3.62 **The career will provide good non-monetary benefits (working conditions, schedule flexibility, etc.) and allow for a good work-life balance**



End of Block: expectation

[Sample block]

Start of Block: 2F1M_1H2L

JS

Q458 .Skin #Logo { display:none; } You will next be presented with a hypothetical scenario and asked some questions about it.

Q459 **Jennifer, Mark, and Emma** are in their first year at the university and considering whether to pursue a major in a STEM/BE or non-STEM/BE field. They are all equally interested in pursuing a career in either category of majors and plan to work full-time after graduating.

Jennifer and Mark have both been told that they would rank in the **bottom 20%** of students for either category of majors, based on their performance in high school and college entrance exams. They also both feel that their preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

In contrast, **Emma** has been told that she would rank in the **top 20%** of students for either category of majors, again based on her performance in high school and college entrance exams. She also feels that her preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

Q486 To make sure you understand the key components of this scenario, please answer the following questions.

Q460 Please tell us whether the following statement is True or False.

	True (1)	False (2)
Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. (4)	○	○

Q485 How would the following students rank in each category of majors, based on their performance in high school and college entrance exams?

	Bottom 20% (1)	Top 20% (2)
Jennifer and Mark in STEM/BE (1)	○	○
Jennifer and Mark in non-STEM/BE (2)	○	○
Emma in STEM/BE (3)	○	○
Emma in non-STEM/BE (4)	○	○

Display This Question:

If Please tell us whether the following statement is True or False. : != Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

And How would the following students rank in each category of majors, based on their performance in h... = Jennifer and Mark in STEM/BE [Bottom 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Jennifer and Mark in non-STEM/BE [Bottom 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Emma in STEM/BE [Top 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Emma in non-STEM/BE [Top 20%]

Q461 .Skin #Logo { display:none; } Your answers are **not completely correct**. Please try again.

Jennifer, Mark, and Emma are in their first year at the university and considering whether to pursue a major in a STEM/BE or non-STEM/BE field. They are all equally interested in pursuing a career in either category of majors and plan to work full-time after graduating.

Jennifer and Mark have both been told that they would rank in the **bottom 20%** of students for either category of majors, based on their performance in high school and college entrance exams. They also both feel that their preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

In contrast, **Emma** has been told that she would rank in the **top 20%** of students for either category of majors, again based on her performance in high school and college entrance exams. She also feels that her preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

To make sure you understand the key components of this scenario, please tell us whether the following statement is True or False.

	True (1)	False (2)
Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. (4)	○	○

Display This Question:

If How would the following students rank in each category of majors, based on their performance in h... != Jennifer and Mark in STEM/BE [Bottom 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Jennifer and Mark in non-STEM/BE [Bottom 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Emma in STEM/BE [Top 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Emma in non-STEM/BE [Top 20%]

And If

Please tell us whether the following statement is True or False. : = Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

Q487 .Skin #Logo { display:none; } Your answers are **not completely correct**. Please try again.

Jennifer, Mark, and Emma are in their first year at the university and considering whether to pursue a major in a STEM/BE or non-STEM/BE field. They are all equally interested in pursuing a

career in either category of majors and plan to work full-time after graduating.

Jennifer and Mark have both been told that they would rank in the **bottom 20%** of students for either category of majors, based on their performance in high school and college entrance exams. They also both feel that their preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

In contrast, **Emma** has been told that she would rank in the **top 20%** of students for either category of majors, again based on her performance in high school and college entrance exams. She also feels that her preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

To make sure you understand the key components of this scenario, please tell us how the following students would rank in each category of majors, based on their performance in high school and college entrance exams.

	Bottom 20% (1)	Top 20% (2)
Jennifer and Mark in STEM/BE (1)	○	○
Jennifer and Mark in non-STEM/BE (2)	○	○
Emma in STEM/BE (3)	○	○
Emma in non-STEM/BE (4)	○	○

Display This Question:

If How would the following students rank in each category of majors, based on their performance in h... != Jennifer and Mark in STEM/BE [Bottom 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Jennifer and Mark in non-STEM/BE [Bottom 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Emma in STEM/BE [Top 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Emma in non-STEM/BE [Top 20%]

And If

Please tell us whether the following statement is True or False. : != Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

Q488 .Skin #Logo { display:none; } Your answers are **not completely correct**. Please try again.

Jennifer, Mark, and Emma are in their first year at the university and considering whether to pursue a major in a STEM/BE or non-STEM/BE field. They are all equally interested in pursuing a career in either category of majors and plan to work full-time after graduating.

Jennifer and Mark have both been told that they would rank in the **bottom 20%** of students for either category of majors, based on their performance in high school and college entrance exams. They also both feel that their preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

In contrast, **Emma** has been told that she would rank in the **top 20%** of students for either category of majors, again based on her performance in high school and college entrance exams. She also feels that her preparation so far has been equally suitable for studying in STEM/BE or non-STEM/BE.

To make sure you understand the key components of this scenario, please answer the following questions.

Please tell us whether the following statement is True or False.

	True (1)	False (2)
Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. (4)	○	○

Display This Question:

If How would the following students rank in each category of majors, based on their performance in h... != Jennifer and Mark in STEM/BE [Bottom 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Jennifer and Mark in non-STEM/BE [Bottom 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Emma in STEM/BE [Top 20%]

Or How would the following students rank in each category of majors, based on their performance in h... != Emma in non-STEM/BE [Top 20%]

And If

Please tell us whether the following statement is True or False. : != Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

Q489 How would the following students rank in each category of major, based on their performance in high school and college entrance exams?

	Bottom 20% (1)	Top 20% (2)
Jennifer and Mark in STEM/BE (1)	○	○
Jennifer and Mark in non-STEM/BE (2)	○	○
Emma in STEM/BE (3)	○	○
Emma in non-STEM/BE (4)	○	○

Display This Question:

If Please tell us whether the following statement is True or False. : = Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

And How would the following students rank in each category of majors, based on their performance in h... = Jennifer and Mark in STEM/BE [Bottom 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Jennifer and Mark in non-STEM/BE [Bottom 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Emma in STEM/BE [Top 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Emma in non-STEM/BE [Top 20%]

Or If

Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... : = Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

Or If

Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Jennifer and Mark in STEM/BE [Bottom 20%]

And Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Jennifer and Mark in non-STEM/BE [Bottom 20%]

And Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Emma in STEM/BE [Top 20%]

And Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Emma in non-STEM/BE [Top 20%]

Or If

Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... : = Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [True]

And How would the following students rank in each category of major, based on their performance in hi... = Jennifer and Mark in STEM/BE [Bottom 20%]

And How would the following students rank in each category of major, based on their performance in hi... = Jennifer and Mark in non-STEM/BE [Bottom 20%]

And How would the following students rank in each category of major, based on their performance in hi... = Emma in STEM/BE [Top 20%]

And How would the following students rank in each category of major, based on their performance in hi... = Emma in non-STEM/BE [Top 20%]

Q462 .Skin #Logo { display:none; } Well done! Your answers are **correct**.

Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories: True

Jennifer and Mark would rank in the **bottom 20%** of students in both STEM/BE and non-STEM/BE.

Emma would rank in the **top 20%** of students in both STEM/BE and non-STEM/BE.

Display This Question:

If Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... : = Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [False]

And How would the following students rank in each category of majors, based on their performance in h... = Jennifer and Mark in STEM/BE [Bottom 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Jennifer and Mark in non-STEM/BE [Bottom 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Emma in STEM/BE [Top 20%]

And How would the following students rank in each category of majors, based on their performance in h... = Emma in non-STEM/BE [Top 20%]

Or If

Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Jennifer and Mark in STEM/BE [Top 20%]

Or Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Jennifer and Mark in non-STEM/BE [Top 20%]

Or Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Emma in STEM/BE [Bottom 20%]

Or Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... = Emma in non-STEM/BE [Bottom 20%]

Or If

Your answers are not completely correct. Please try again. Jennifer, Mark, and Emma are in their... : = Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories. [False]

Or How would the following students rank in each category of major, based on their performance in hi... = Jennifer and Mark in STEM/BE [Top 20%]

Or How would the following students rank in each category of major, based on their performance in hi... = Jennifer and Mark in non-STEM/BE [Top 20%]

Or How would the following students rank in each category of major, based on their performance in hi... = Emma in STEM/BE [Bottom 20%]

Or How would the following students rank in each category of major, based on their performance in hi... = Emma in non-STEM/BE [Bottom 20%]

Q463 .Skin #Logo { display:none; } Your answers are **not completely correct**. Please read the following explanations carefully.

Jennifer, Mark, and Emma are equally interested in STEM/BE and non-STEM/BE careers and their preparation so far has focused evenly on both major categories: True

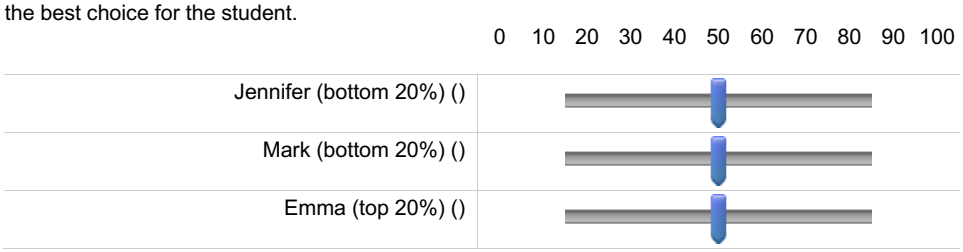
Jennifer and Mark would rank in the **bottom 20%** of students in both STEM/BE and non-STEM/BE.

Emma would rank in the **top 20%** of students in both STEM/BE and non-STEM/BE.

Page Break

Q464 .Skin #Logo { display:none; } Please answer the following questions based on the information you have been given about each student as well as the conditions you believe each student is likely to face when graduating in certain majors. To help you remember each student's potential rank relative to other students in their major, we will indicate (top 20%) or (bottom 20%) next to their name for the rest of this section.

To what extent do you think that majoring in STEM/BE (as opposed to non-STEM/BE) would be the best choice for each student? Note that 0 would mean that you absolutely do not think that majoring in STEM/BE would be the best choice for the student (and so they should definitely major in non-STEM/BE). On the other hand, 100 would mean that you think that majoring in STEM/BE would be the best choice for the student.



Q469 In which major category would it be more difficult for Jennifer, Mark, and Emma to **have a successful career**?

	Much more difficult in non-STEM/BE (5)	Moderately more difficult in non-STEM/BE (7)	Slightly more difficult in non-STEM/BE (4)	Equally difficult (3)	Slightly more difficult in STEM/BE (2)	Moderately more difficult in STEM/BE (6)	Much more difficult in STEM/BE (1)
Jennifer (bottom 20%) (1)	○	○	○	○	○	○	○
Mark (bottom 20%) (2)	○	○	○	○	○	○	○
Emma (top 20%) (3)	○	○	○	○	○	○	○

Q470 In which major category would it be more important for Jennifer, Mark, and Emma to **obtain good grades and distinguish themselves** from others to help their careers?

	Much more important in non-STEM/BE (1)	Moderately more important in non-STEM/BE (6)	Slightly more important in non-STEM/BE (2)	Equally important (3)	Slightly more important in STEM/BE (4)	Moderately more important in STEM/BE (7)	Much more important in STEM/BE (5)
Jennifer (bottom 20%) (1)	○	○	○	○	○	○	○
Mark (bottom 20%) (2)	○	○	○	○	○	○	○
Emma (top 20%) (3)	○	○	○	○	○	○	○

Page Break

Display This Question:

If Please answer the following questions based on the information you have been given about each stu... [Jennifer (bottom 20%)] >= $e{ q://QID464/ChoiceNumericEntryValue/2 + 5}

Or Please answer the following questions based on the information you have been given about each stu... [Jennifer (bottom 20%)] <= $e{ q://QID464/ChoiceNumericEntryValue/2 - 5}

Q466 .Skin #Logo { display:none; } Please briefly explain why you made different recommendations for Jennifer (bottom 20%) compared to Mark (bottom 20%).

_____

Display This Question:

If Please answer the following questions based on the information you have been given about each stu... [Jennifer (bottom 20%)] >= $e{q://QID464/ChoiceNumericEntryValue/3 + 5}

Or Please answer the following questions based on the information you have been given about each stu... [Jennifer (bottom 20%)] <= $e{q://QID464/ChoiceNumericEntryValue/3 -5}

Q467 .Skin #Logo { display:none; } Please briefly explain why you made different recommendations for Emma (top 20%) compared to Jennifer (bottom 20%).

_____

Page Break

Q473 .Skin #Logo { display:none; } In the media and public discourse, it is sometimes discussed that some students may face additional barriers or disadvantages in certain career paths, for example because of how they are perceived or treated given stereotypes associated with their gender. For instance, several majors in STEM/BE are typically considered stereotypically male, in part given the high relative fraction of male students who graduate in them, while several majors in non-STEM/BE are typically considered stereotypically female. Jennifer, Mark, and Emma are concerned about potential discrimination they may face depending on the major they select.

Q662 Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely to face additional barriers or disadvantages because of their gender?

	Yes (1)	No (2)
Jennifer (bottom 20%) (1)	○	○
Mark (bottom 20%) (2)	○	○
Emma (top 20%) (3)	○	○

Q476 How much did concerns of discrimination or differential treatment factor in your previous answer about whether majoring in STEM/BE or non-STEM/BE would be the best choice for Jennifer, Mark, and Emma?

	Not at all (3)	A little (4)	A moderate amount (5)	A lot (6)	A great deal (8)
Jennifer (bottom 20%) (1)	○	○	○	○	○
Mark (bottom 20%) (2)	○	○	○	○	○
Emma (top 20%) (3)	○	○	○	○	○

Display This Question:

If Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely... = Jennifer (bottom 20%) [Yes]

Q474 .Skin #Logo { display:none; } You said that Jennifer would be likely to face additional barriers or disadvantages because of her gender. In which major category would Jennifer be more likely to face additional barriers or disadvantages?

	Much more likely in non-STEM/BE (1)	Moderately more likely in non-STEM/BE (7)	Slightly more likely in non-STEM/BE (2)	Equally likely (3)	Slightly more likely in STEM/BE (4)	Moderately more likely in STEM/BE (6)	Much more likely in STEM/BE (5)
Jennifer (bottom 20%) (1)	○	○	○	○	○	○	○

Display This Question:

If Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely... = Jennifer (bottom 20%) [Yes]

Q475 Now consider STEM/BE and non-STEM/BE majors together. How likely do you think it is that Jennifer could overcome these additional barriers or disadvantages by working hard and excelling?

0 - Absolutely no chance 100 - Will absolutely happen

0 10 20 30 40 50 60 70 80 90 100

Jennifer (bottom 20%) ()	

Display This Question:

If You said that Jennifer would be likely to face additional barriers or disadvantages because of he... = Much more likely in STEM/BE

Or You said that Jennifer would be likely to face additional barriers or disadvantages because of he... = Slightly more likely in STEM/BE

Or You said that Jennifer would be likely to face additional barriers or disadvantages because of he... = Moderately more likely in STEM/BE

Q880 .Skin #Logo { display:none; } In light of Jennifer's concerns and your own views regarding possible barriers and disadvantages due to one's gender in different fields, what would be your overall recommendation?

- ○ Jennifer should avoid choosing STEM/BE, because she is more likely to face additional barriers or disadvantages because of her gender in STEM/BE (1)
- ○ Jennifer should choose STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in STEM/BE (6)

Display This Question:

If In light of Jennifer's concerns and your own views regarding possible barriers and disadvantages... = Jennifer should choose STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in STEM/BE

Q881 Why? Please select all that apply.

- ☐ Because she is likely to be able to overcome additional barriers or disadvantages she faces (1)
- ☐ Because she should not take those additional barriers or disadvantages into consideration for her decision (6)
- ☐ Because even though she may face additional barriers or disadvantages, conditions in STEM/BE may improve for her gender if more students of the same gender choose it (7)

Display This Question:

If You said that Jennifer would be likely to face additional barriers or disadvantages because of he... = Slightly more likely in non-STEM/BE

Or You said that Jennifer would be likely to face additional barriers or disadvantages because of he... = Much more likely in non-STEM/BE

Or You said that Jennifer would be likely to face additional barriers or disadvantages because of he... = Moderately more likely in non-STEM/BE

Q889 .Skin #Logo { display:none; } In light of Jennifer's concerns and your own views regarding possible barriers and disadvantages due to one's gender in different fields, what would be your overall recommendation?

- ○ Jennifer should avoid choosing non-STEM/BE, because she is more likely to face additional barriers or disadvantages because of her gender in non-STEM/BE (1)
- ○ Jennifer should choose non-STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in non-STEM/BE (6)

Display This Question:

If In light of Jennifer's concerns and your own views regarding possible barriers and disadvantages... = Jennifer should choose non-STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in non-STEM/BE

Q890 Why? Please select all that apply.

- ☐ Because she is likely to be able to overcome additional barriers or disadvantages she faces (1)
- ☐ Because she should not take those additional barriers or disadvantages into consideration for her decision (6)
- ☐ Because even though she may face additional barriers or disadvantages, conditions in non-STEM/BE may improve for her gender if more students of the same gender choose it (7)

Display This Question:

If Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely... = Mark (bottom 20%) [Yes]

Q664 .Skin #Logo { display:none; } You said that Mark would be likely to face additional barriers or disadvantages because of his gender. In which major category would Mark be more likely to face additional barriers or disadvantages?

	Much more likely in non-STEM/BE (1)	Moderately more likely in non-STEM/BE (6)	Slightly more likely in non-STEM/BE (2)	Equally likely (3)	Slightly more likely in STEM/BE (4)	Moderately more likely in STEM/BE (7)	Much more likely in STEM/BE (5)
Mark (bottom 20%) (2)	○	○	○	○	○	○	○

Display This Question:

If Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely... = Mark (bottom 20%) [Yes]

Q666 Now consider STEM/BE and non-STEM/BE majors together. How likely do you think it is that Mark could overcome these additional barriers or disadvantages by working hard and excelling?

	0 - Absolutely no chance	100 - Will absolutely happen
	0 10 20 30 40 50 60 70 80 90 100	
Mark (bottom 20%) ()		

Display This Question:

If You said that Mark would be likely to face additional barriers or disadvantages because of his ge... = Slightly more likely in STEM/BE

Or You said that Mark would be likely to face additional barriers or disadvantages because of his ge... = Much more likely in STEM/BE

Or You said that Mark would be likely to face additional barriers or disadvantages because of his ge... = Moderately more likely in STEM/BE

Q882 In light of Mark's concerns and your own views regarding possible barriers and disadvantages due to one's gender in different fields, what would be your overall recommendation?

- ○ Mark should avoid choosing STEM/BE, because he is more likely to face additional barriers or disadvantages because of his gender in STEM/BE (1)
- ○ Mark should choose STEM/BE even though he is more likely to face additional barriers or disadvantages because of his gender in STEM/BE (6)

Display This Question:

If In light of Mark's concerns and your own views regarding possible barriers and disadvantages due... = Mark should choose STEM/BE even though he is more likely to face additional barriers or disadvantages because of his gender in STEM/BE

Q883 Why? Please select all that apply.

- ☐ Because he is likely to be able to overcome additional barriers or disadvantages he faces (1)
- ☐ Because he should not take those additional barriers or disadvantages into consideration for his decision (6)
- ☐ Because even though he may face additional barriers or disadvantages, conditions in STEM/BE may improve for his gender if more students of the same gender choose it (7)

Display This Question:

If You said that Mark would be likely to face additional barriers or disadvantages because of his ge... = Slightly more likely in non-STEM/BE

Or You said that Mark would be likely to face additional barriers or disadvantages because of his ge... = Much more likely in non-STEM/BE

Or You said that Mark would be likely to face additional barriers or disadvantages because of his ge... = Moderately more likely in non-STEM/BE

Q891 In light of Mark's concerns and your own views regarding possible barriers and disadvantages due to one's gender in different fields, what would be your overall recommendation?

- ○ Mark should avoid choosing non-STEM/BE, because he is more likely to face additional barriers or disadvantages because of his gender in non-STEM/BE (1)
- ○ Mark should choose non-STEM/BE even though he is more likely to face additional barriers or disadvantages because of his gender in non-STEM/BE (6)

Display This Question:

If In light of Mark's concerns and your own views regarding possible barriers and disadvantages due... = Mark should choose non-STEM/BE even though he is more likely to face additional barriers or disadvantages because of his gender in non-STEM/BE

Q892 Why? Please select all that apply.

- ☐ Because he is likely to be able to overcome additional barriers or disadvantages he faces (1)
- ☐ Because he should not take those additional barriers or disadvantages into consideration for his decision (6)
- ☐ Because even though he may face additional barriers or disadvantages, conditions in non-STEM/BE may improve for his gender if more students of the same gender choose it (7)

Display This Question:

If Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely... = Emma (top 20%) [Yes]

Q663 .Skin #Logo { display:none; } You said that Emma would be likely to face additional barriers or disadvantages because of her gender. In which major category would Emma be more likely to face additional barriers or disadvantages?

	Much more likely in non-STEM/BE (1)	Moderately more likely in non-STEM/BE (6)	Slightly more likely in non-STEM/BE (2)	Equally likely (3)	Slightly more likely in STEM/BE (4)	Moderately more likely in STEM/BE (7)	Much more likely in STEM/BE (5)
Emma (top 20%) (3)	○	○	○	○	○	○	○

Display This Question:

If Do you think there is at least one category of majors in which Jennifer, Mark, or Emma are likely... = Emma (top 20%) [Yes]

Q665 Now consider STEM/BE and non-STEM/BE majors together. How likely do you think it is that Emma could overcome these additional barriers or disadvantages by working hard and excelling?

	0 - Absolutely no chance 0 10 20 30 40 50 60 70 80 90 100 - Will absolutely happen
Emma (top 20%) ()	

Display This Question:

If You said that Emma would be likely to face additional barriers or disadvantages because of her ge... = Slightly more likely in STEM/BE

Or You said that Emma would be likely to face additional barriers or disadvantages because of her ge... = Much more likely in STEM/BE

Or You said that Emma would be likely to face additional barriers or disadvantages because of her ge... = Moderately more likely in STEM/BE

Q884 In light of Emma's concerns and your own views regarding possible barriers and disadvantages due to one's gender in different fields, what would be your overall recommendation?

- ○ Emma should avoid choosing STEM/BE, because she is more likely to face additional barriers or disadvantages because of her gender in STEM/BE (1)
- ○ Emma should choose STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in STEM/BE (6)

Display This Question:

If In light of Emma's concerns and your own views regarding possible barriers and disadvantages due... = Emma should choose STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in STEM/BE

Q885 Why? Please select all that apply.

- ☐ Because she is likely to be able to overcome additional barriers or disadvantages she faces (1)
- ☐ Because she should not take those additional barriers or disadvantages into consideration for her decision (6)
- ☐ Because even though she may face additional barriers or disadvantages, conditions in STEM/BE may improve for her gender if more of them choose it (7)

Display This Question:

If You said that Emma would be likely to face additional barriers or disadvantages because of her ge... = Slightly more likely in non-STEM/BE

Or You said that Emma would be likely to face additional barriers or disadvantages because of her ge... = Much more likely in non-STEM/BE

Or You said that Emma would be likely to face additional barriers or disadvantages because of her ge... = Moderately more likely in non-STEM/BE

Q893 In light of Emma's concerns and your own views regarding possible barriers and disadvantages due to one's gender in different fields, what would be your overall recommendation?

- ○ Emma should avoid choosing non-STEM/BE, because she is more likely to face additional barriers or disadvantages because of her gender in non-STEM/BE (1)
- ○ Emma should choose non-STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in non-STEM/BE (6)

Display This Question:

If In light of Emma's concerns and your own views regarding possible barriers and disadvantages due... = Emma should choose non-STEM/BE even though she is more likely to face additional barriers or disadvantages because of her gender in non-STEM/BE

Q894 Why? Please select all that apply.

- ☐ Because she is likely to be able to overcome additional barriers or disadvantages she faces (1)
- ☐ Because she should not take those additional barriers or disadvantages into consideration for her decision (6)
- ☐ Because even though she may face additional barriers or disadvantages, conditions in non-STEM/BE may improve for her gender if more of them choose it (7)

End of Block: 2F1M_1H2L

Start of Block: peer

JS

Q4.1 .Skin #Logo { display:none; } **We will now ask you questions about your own situation.**

Please answer to what extent you agree with the following statement: **It is important to have others of your gender <u>in your classes and in the workplace</u> in order to have people to relate to, develop a sense of belonging, or create a better culture**

	Strongly disagree										Strongly agree
	0	10	20	30	40	50	60	70	80	90	100
()											

End of Block: peer

Start of Block: discrimination

JS

Q6.1.2a .Skin #Logo { display:none; } Please answer to what extent you agree with the following statements.

While pursuing your degree, you will face additional barriers or disadvantages in university because of your gender

	1 - Strongly disagree (45)	(46)	(47)	4 - Neither agree nor disagree (48)	(49)	(50)	7 - Strongly agree (51)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

Q6.1.1a **In the workplace, you will face barriers or disadvantages because of your gender**

	1 - Strongly disagree (22)	(23)	(24)	4 - Neither agree nor disagree (25)	(26)	(27)	7 - Strongly agree (28)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

Display This Question:

If Please answer to what extent you agree with the following statements. While pursuing your degree,... != in STEM/BE [1 - Strongly disagree]

Or In the workplace, you will face barriers or disadvantages because of your gender != in STEM/BE [1 - Strongly disagree]

And If

In the workplace, you will face barriers or disadvantages because of your gender != in non-STEM/BE [1 - Strongly disagree]

Or Please answer to what extent you agree with the following statements. While pursuing your degree,... != in non-STEM/BE [1 - Strongly disagree]

Q6.1.2e **If you face additional barriers or disadvantages in school or the workplace, you will be able to overcome them if you work hard enough and excel**

	1 - Strongly disagree (1)	(2)	(3)	4 - Neither agree nor disagree (4)	(5)	(6)	7 - Strongly agree (7)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

Display This Question:

If Please answer to what extent you agree with the following statements. While pursuing your degree,... != in non-STEM/BE [1 - Strongly disagree]

And Please answer to what extent you agree with the following statements. While pursuing your degree,... = in STEM/BE [1 - Strongly disagree]

And In the workplace, you will face barriers or disadvantages because of your gender = in STEM/BE [1 - Strongly disagree]

Or If

In the workplace, you will face barriers or disadvantages because of your gender != in non-STEM/BE [1 - Strongly disagree]

And In the workplace, you will face barriers or disadvantages because of your gender = in STEM/BE [1 - Strongly disagree]

And Please answer to what extent you agree with the following statements. While pursuing your degree,... = in STEM/BE [1 - Strongly disagree]

Q655 **If you face additional barriers or disadvantages in school or the workplace, you will be able to overcome them if you work hard enough and excel**

	1 - Strongly disagree (1)	(2)	(3)	4 - Neither agree nor disagree (4)	(5)	(6)	7 - Strongly agree (7)
in non-STEM/BE (2)	○	○	○	○	○	○	○

Display This Question:

If Please answer to what extent you agree with the following statements. While pursuing your degree,... != in STEM/BE [1 - Strongly disagree]

And Please answer to what extent you agree with the following statements. While pursuing your degree,... = in non-STEM/BE [1 - Strongly disagree]

And In the workplace, you will face barriers or disadvantages because of your gender = in non-STEM/BE [1 - Strongly disagree]

Or If

In the workplace, you will face barriers or disadvantages because of your gender != in STEM/BE [1 - Strongly disagree]

And In the workplace, you will face barriers or disadvantages because of your gender = in non-STEM/BE [1 - Strongly disagree]

And Please answer to what extent you agree with the following statements. While pursuing your degree,... = in non-STEM/BE [1 - Strongly disagree]

Q654 **If you face additional barriers or disadvantages in school or the workplace, you will be able to overcome them if you work hard enough and excel**

	1 - Strongly disagree (1)	(2)	(3)	4 - Neither agree nor disagree (4)	(5)	(6)	7 - Strongly agree (7)
in STEM/BE (1)	○	○	○	○	○	○	○

Q886 We would like to know how your views may have changed since enrolling at UM. How do you think you would have answered the following question just before starting university?

In the workplace, you will face barriers or disadvantages because of your gender

	1 - Strongly disagree (22)	(23)	(24)	4 - Neither agree nor disagree (25)	(26)	(27)	7 - Strongly agree (28)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

Q887 Earlier, you mentioned that you have a ${Q2.1/ChoiceNumericEntryValue/1} percent chance (or chances out of 100) of graduating with a major in STEM/BE and ${Q2.2/ChoiceNumericEntryValue/1} percent chance of graduating with a major in non-STEM/BE. If you could be confident that you will not have to face additional barriers or disadvantages because of your gender in the workplace for either category of majors, would it change your previous answer?

○ Yes (1)

○ No (2)

Display This Question:

If Earlier, you mentioned that you have a ${q://QID21/ChoiceNumericEntryValue/1} percent chance (or... = Yes

Q888 The percent chance (or chances out of 100) that you would graduate with a major in each of the following category if you did not have to face additional barriers or disadvantages because of your gender is

	0 10 20 30 40 50 60 70 80 90 100
STEM/BE ()	
Non-STEM/BE ()	

Page Break

Q270 .Skin #Logo { display:none; } We will next ask you some questions as they pertain to your career after graduating.

Q6.1.1c Do you expect to be more or less likely to receive an offer for a job you apply to than a similarly-qualified graduate of the opposite gender?

	Less likely (1)	Equally likely (2)	More likely (3)
in STEM/BE (1)	○	○	○
in non-STEM/BE (2)	○	○	○

Display This Question:

If Do you expect to be more or less likely to receive an offer for a job you apply to than a similar... = in STEM/BE [More likely]

JS *

Q859 You said that you think you are more likely to receive an offer in STEM/BE than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would have a 10% higher chance of getting an offer, write 10.

○ in STEM/BE (1) _____

Display This Question:

If Do you expect to be more or less likely to receive an offer for a job you apply to than a similar... = in STEM/BE [Less likely]

JS ✱

Q873 You said that you think you are less likely to receive an offer in STEM/BE than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would have a 10% lower chance of getting an offer, write 10.

○ in STEM/BE (1) _____

Display This Question:

If Do you expect to be more or less likely to receive an offer for a job you apply to than a similar... = in non-STEM/BE [More likely]

JS ✱

Q861 You said that you think you are more likely to receive an offer in non-STEM/BE than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would have a 10% higher chance of getting an offer, write 10.

○ in non-STEM/BE (2) _____

Display This Question:

If Do you expect to be more or less likely to receive an offer for a job you apply to than a similar... = in non-STEM/BE [Less likely]

JS ✱

Q874 You said that you think you are less likely to receive an offer in non-STEM/BE than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would have a 10% lower chance of getting an offer, write 10.

○ in non-STEM/BE (2) _____

Q862 Do you expect to be paid more or less for doing the same work than a similarly-qualified graduate of the opposite gender?

	Less (1)	Same (2)	More (3)
in STEM/BE (1)	○	○	○
in non-STEM/BE (2)	○	○	○

Display This Question:

If Do you expect to be paid more or less for doing the same work than a similarly-qualified graduate... = in STEM/BE [More]

JS ✱

Q863 You said that you expect to be paid more in STEM/BE for doing the same work than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would be paid 10% more, write 10.

○ in STEM/BE (1) _____

Display This Question:

If Do you expect to be paid more or less for doing the same work than a similarly-qualified graduate... = in STEM/BE [Less]

JS ✱

Q875 You said that you expect to be paid less in STEM/BE for doing the same work than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would be paid 10% less, write 10.

○ in STEM/BE (1) _____

Display This Question:

If Do you expect to be paid more or less for doing the same work than a similarly-qualified graduate... = in non-STEM/BE [More]

JS ✱

Q864 You said that you expect to be paid more in non-STEM/BE for doing the same work than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would be paid 10% more, write 10.

○ in non-STEM/BE (2) _____

Display This Question:

If Do you expect to be paid more or less for doing the same work than a similarly-qualified graduate... = in non-STEM/BE [Less]

JS ✱

Q876 You said that you expect to be paid less in STEM/BE for doing the same work than a similarly-qualified graduate of the opposite gender. Please indicate the percent difference you expect. For example, if you think you would be paid 10% less, write 10.

○ in non-STEM/BE (2) _____

Page Break

Q870 .Skin #Logo { display:none; } How frequently do you expect that the following situations will arise at your workplace? Please answer on a 1-7 scale where 1 means almost never and 7 means almost always.

Your competence will be underestimated or questioned because of your gender

	1 - Almost never (1)	(2)	(3)	4 - Occasionally (4)	(5)	(6)	7 - Almost always (7)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

Q871 **You will face hostility or worse treatment because of your gender**

	1 - Almost never (1)	(2)	(3)	4 - Occasionally (4)	(5)	(6)	7 - Almost always (7)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

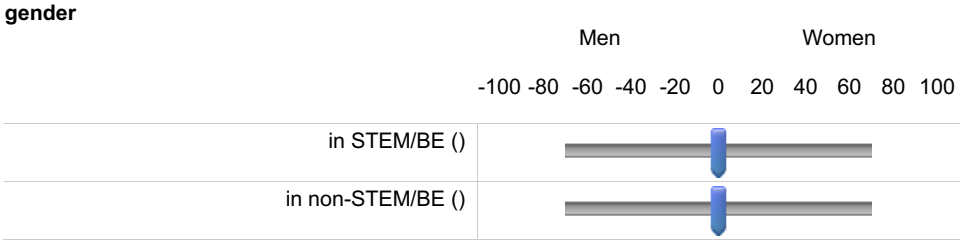
Q872 **You will face sexual harassment**

	1 - Almost never (1)	(2)	(3)	4 - Occasionally (4)	(5)	(6)	7 - Almost always (7)
in STEM/BE (1)	○	○	○	○	○	○	○
in non-STEM/BE (2)	○	○	○	○	○	○	○

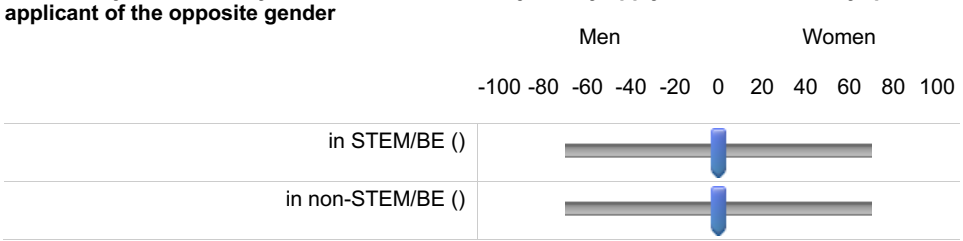
Page Break

Q6.2intro .Skin #Logo { display:none; } We will now ask you a similar set of questions, but about **female graduates compared to male graduates** in general. Please answer on a -100 to 100 scale, where 100 means that you believe the statement is much more likely to apply to women than men, 0 means that you believe the statement is equally likely to apply to women and men, and -100 means that you believe the statement is much more likely to apply to men than women.

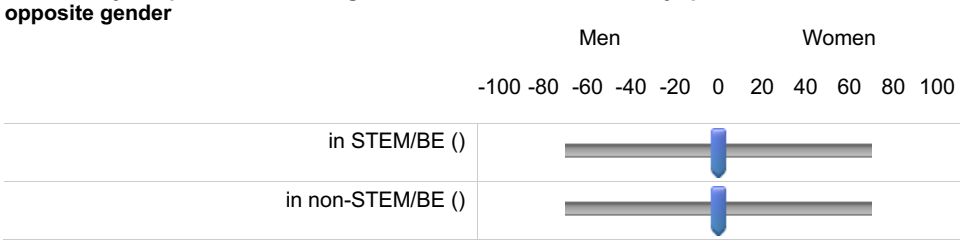
Q6.2.1 **They face additional barriers or disadvantages in the workplace because of their gender**



Q6.2.3 **They are less likely to receive an offer for a job they apply for than a similarly-qualified applicant of the opposite gender**



Q6.2.2 **They are paid less for doing the same work than a similarly-qualified worker of the opposite gender**



End of Block: discrimination

Start of Block: past

JS

Q7.1 .Skin #Logo { display:none; } Have you ever had any unpleasant and/or negative experiences in courses or activities which discouraged you from studying that major category?

	Yes (1)	No (2)
STEM/BE (1)	○	○
Non-STEM/BE (2)	○	○

Q7.2 Have you been exposed to information suggesting that studying in the major category or working in related fields would be less suitable or more difficult because of your gender?

	Yes (1)	No (2)
STEM/BE (1)	○	○
Non-STEM/BE (2)	○	○

Display This Question:

If Have you ever had any unpleasant and/or negative experiences in courses or activities which disco... : = STEM/BE [Yes]

Q7.1a .Skin #Logo { display:none; } Please describe your negative experience in STEM/BE:

_____

Display This Question:

If Have you ever had any unpleasant and/or negative experiences in courses or activities which disco... : = Non-STEM/BE [Yes]

Q7.1b .Skin #Logo { display:none; } Please describe your negative experience in non-STEM/BE:

_____

Display This Question:

If Have you been exposed to information suggesting that studying in the major category or working in... : = STEM/BE [Yes]

Q7.2a .Skin #Logo { display:none; } Please describe the negative information that you have been exposed to about STEM/BE:

_____

Display This Question:

If Have you been exposed to information suggesting that studying in the major category or working in... : = Non-STEM/BE [Yes]

Q7.2b .Skin #Logo { display:none; } Please describe the negative information that you have been exposed to about non-STEM/BE:

_____

Page Break

Qattention2 .Skin #Logo { display:none; } Please indicate how much you agree with the following statements.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I answered all questions the best I could. (3)	○	○	○	○	○
Select the option that is the furthest to the left/top (i.e., the first option). (4)	○	○	○	○	○

Page Break

Q858 .Skin #Logo { display:none; } What do you think the purpose of this survey was?

_____

Page Break

address Please provide your mailing address. Note that this question is optional (the gift card will be emailed to you regardless). We are required to ask this question for legal reasons.

_____

end Thank you for completing our survey. Press the right arrow below to submit your survey.
The study team will contact you within 6 weeks after the end of the survey with information on how to claim your prize.

End of Block: past