Elite Schools and Opting In: Effects of College Selectivity on Career and Family Outcomes*

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Abstract

Using College and Beyond data and a variant on Dale and Krueger's (2002) matched-applicant approach, this paper revisits the question of how attending an elite college affects later-life outcomes. We expand the scope along two dimensions: we examine new outcomes related to labor force participation, human capital, and family formation and we do not restrict the sample to full-time full-year workers. For men, our findings echo those in Dale and Krueger (2002): controlling for selection eliminates the positive relationship between college selectivity and earnings. We also find no statistically significant effects on men's educational attainment or family outcomes. The results are quite different for women: we find effects on both career and family outcomes. Attending a school with a 100-point higher average SAT score increases women's probability of advanced degree attainment by 5 percentage points and earnings by 14 percent, while reducing their likelihood of marriage by 4 percentage points. The effect of college selectivity on own earnings is significantly larger for married than for single women. Among married women, selective college attendance significantly increases spousal education.

Keywords: College selectivity; Returns to schooling; Marriage market; Female labor supply; Advanced degree attainment

JEL Codes: I23, I26, J12, J16, J22

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1 Introduction

Although attending an elite college is strongly associated with higher earnings, Dale and Krueger (2002, henceforth DK) and Dale and Krueger (2014) demonstrate that this association is eliminated after controlling for the non-random selection of individuals into such colleges. Using data from the Mellon Foundation's College and Beyond survey, which is unique in its broad coverage of students enrolled at selective and highly-selective US institutions of higher education, DK finds no effect of college selectivity on later-life earnings in models that account for students' high school characteristics and college applications and acceptances. Yet competition for admission to the nation's elite universities remains intense, and several schools now boast acceptance rates in the single digits. The perceived importance of attending an elite school is reflected in the growth of the college counseling and tutoring industry, where top-end consultants and tutors charge as much as $1,000 an hour to boost students' admissions prospects.[1] The value placed on attending particular selective schools is also reflected in the 2019 college admissions scandal and the 2018 lawsuit brought by Students for Fair Admissions against Harvard University, as well as the various Supreme Court cases involving affirmative action in college admissions: Regents of the University of California v. Bakke (1978), Gratz v. Bollinger (2003), Grutter v. Bollinger (2003), and the two Fisher v. University of Texas cases (2013, 2016).[2]

There are several ways to reconcile the high value that students (and their parents) place on attending an elite school with the negligible labor market effects in DK. One is that many people persist in the belief that the labor market benefits are sizable. They may be mistaken: unaware of the DK study and incorrectly drawing inference from the raw correlations. Or they may hesitate to rely on the DK results because of limitations inherent in the methodology or because of evidence from less selective institutions in the US that tends to show significant career benefits to attending a higher quality college for marginal students (e.g., Hoekstra 2009; S. Zimmerman 2014; Goodman, Hurwitz, and Smith 2017). They may think the DK results for students enrolled in college in 1976 no longer apply to more recent cohorts, despite the persistence in the 1989 cohort in Dale and Krueger (2014). Or they may accept the DK results overall, but focus on the benefits found for subpopulations such as minority and economically disadvantaged students (Dale and Krueger 2014, Table 8). A second path to reconciliation is possible if the benefits to students from attending an elite college are not concentrated in the labor market, but in the marriage market instead. Economists have measured marriage market returns to schooling and the impact of college attendance on marital outcomes, but the focus has been on quantity (years of schooling) rather than quality (e.g., Chiappori, Iyigun, and Weiss 2009; Ge 2011; Attanasio and Kaufmann 2017; Chiappori, Salanié, and Weiss 2017; Chiappori, Dias, and Meghir 2018).[3] Because the value of increased schooling could easily extend to the quality margin, it is possible that attending an elite US college affects family outcomes, even without any career benefits. A third possibility is that the prestige or the social network effect of

1. See, e.g., <www.wsj.com/articles/the-legitimate-world-of-high-end-college-admissions-11552506381>.

2. Extensive coverage of the scandal can be found, e.g., at <www.nytimes.com/news-event/college-admissions-scandal>.

3. The related literature on assortative mating by education has similarly focused on quantity rather than quality (e.g., Mare 1991; Pencavel 1998).

having high-achieving peers can induce parents or children to value elite schooling as a status indicator that is difficult (and expensive) to obtain. In that case, demand for admissions may be high even for students who are unlikely to experience any improvements in their career or family prospects.

Motivated by this ambiguity, we re-examine the impact of attending an elite college by drawing on the same remarkable College and Beyond data source and matched-applicant identification approach developed in DK and then significantly expanding the scope of inquiry.[4] Our primary contribution is the examination of novel outcomes related to labor force participation, education, and family formation. These outcomes are particularly interesting for the cohort of women attending colleges in 1970s, who were among the first in the US to attempt at a large scale to balance career and family activities at the same time (Goldin 2004). To study these new outcomes, we naturally remove the restriction limiting the DK sample to full-time full-year workers. This increases the sample size for our matched-applicant model by 41.9% overall and our sample of women by 88.7% (going from Column 3 to Column 1 in Table 4). Expanding the sample enables us to estimate heterogenous effects by gender. Because our analysis is based on an enlarged sample that includes part-time workers and non-workers, we begin by first re-estimating the effects of elite college attendance on log-earnings. We find statistically significant returns to college selectivity for women but not for men.[5]

For our novel outcomes, we find a positive effect of school selectivity on women's labor force participation, though not on the full-time full-year margin, as well as positive effects on their educational attainment, and a negative effect on their marriage rates.[6] School selectivity also affects matching within the marriage market, conditional on marriage, as it increases women's likelihood of having a more educated spouse. Because we also find an increase in women's own schooling, it is possible that part of the marriage market effect is from additional years of schooling, which has been previously shown to affect marriage rates and spousal quality (Lefgren and McIntyre 2006; Ge 2011; Lafortune 2013; Bruze 2015).[7] We find no statistically significant effects on any of these novel outcomes for men.

We empirically explore the interplay between family and career outcomes for women and find patterns in the data suggestive of two mechanisms by which family formation contributes to the overall earnings effect. First, the lower rates of family formation for women who attend more selective schools are directly associated with higher earnings levels. Second, conditional on starting a family, having attended a selective school appears to mitigate the career penalty from family formation; elite schooling increases earnings more for married than for unmarried women.

4. In DK, the main "matched applicant" model matches and compares individuals to others in their cohort who applied to, were accepted at, and were rejected from similar colleges, but who attended colleges that were more or less selective. DK also reports estimates from a "basic" model with individual background controls and from a "self-revelation" model that controls for applications but not for offers of admission. Dale and Krueger (2014) confirms the main findings from the self-revelation model using linked administrative data on career earnings from the Social Security Administration. For robustness, we also report estimates from the basic and self-revelation models in this paper.

5. Autor et al. (2016) also find gender differences in the returns to school quality in K12 education. Footnote 12 of DK describes their female sample of full-time full-year workers as being "too small to draw precise estimates from."

6. In this paper, "marriage" includes both legal marriage as well as "marriage-like relationships," such as same-sex cohabiting couples who were unable to marry legally in the US during the sample period. The survey questions do not distinguish between these two types of relationships and refer to partner or spouse rather than husband or wife.

7. Lafortune (2013) and Ge (2011) also consider the natural implication of these effects in analyzing how marriage market conditions and expectations, respectively, affect educational investment.

In addition to these new results, we also provide new evidence in support of the DK identification approach on our expanded sample. The idea behind the identification approach – that students' application choices and colleges' acceptance and rejection decisions absorb the major omitted variables that could relate college selectivity to later-life outcomes – is reasonable. Variations on it have been applied elsewhere (e.g., Arcidiacono, Aucejo, and Hotz 2016) and it was highlighted in a popular econometrics textbook (Angrist and Pischke 2014). Angrist and Pischke (2017) presents the paper as an illustration of the modern econometric paradigm, arguing that, although conditioning on student observed characteristics, as well as information about college applications and acceptances, "does not turn college attendance into a randomized trial, it provides a compelling source of control for the major forces confounding causal inference" (Angrist and Pischke 2017, p. 131).

Nevertheless, because the variation is not based on experimental assignment, but is instead based on the decisions of human actors, it is conceivable that college selectivity, conditional on applications and acceptances, is still related to unobserved factors that affect later-life outcomes. In particular, it has been argued that students who attend less selective colleges within their choice set are making an "odd choice" (Hoxby 2009, p. 115), which suggests they differ along other unmeasured dimensions as well. We explore this concern empirically in our data in Section 4.2 and find some reassurance: about 30% of students in our matched applicant sample elected to attend a university that is less selective than the most selective school at which they were admitted.

DK discusses these concerns as well and presents evidence that any bias coming from non-random college choice in the matching models is likely to cause an overstatement of the value of college selectivity and would therefore leave the conclusions of the analysis unchanged. However, our main results differ from those in DK in that we find positive effects for women, and particularly for those who are less strongly attached to the labor force. This context raises new concerns about omitted variables related to career ambition and family goals that may be related to both college choice and to later outcomes. For example, young women's rising expectations of future employment have likely contributed to their increasing rates of college attendance (Goldin, Katz, and Kuziemko 2006). We find some initial reassurance from the evidence in Section 4.2 that shows similar selection into college selectivity, conditional on acceptances, between men and women and also between women with different eventual levels of labor force participation. We find further reassurance in Section 5.2, where we consider maternal employment as a proxy for female career orientation. We show that, while maternal employment is strongly related to female earnings, it is not predictive of college selectivity itself for women in our sample. As a result, controlling for maternal employment leaves our main estimates unchanged. For men, maternal employment is related to neither earnings nor school choice. Though not definitive, these results provide support for the value of applying the DK approach on our extended sample.

Because our sample is limited to individuals who attended selective and highly-selective US schools, with school-average SAT scores in 1978 ranging from 1020 to 1370, it provides a rare view of a subpopulation of particular interest that is hard to capture using other sources (Goldin 2006).[8] The results in this paper may therefore not translate to the general population of college students in 1976. This may be particularly true for the women in our sample and the novel outcomes we consider. Female graduates of elite private universities in the US have lower average labor force participation than those from other institutions (Hersch 2013) and there are strong negative associations between family formation and subsequent labor supply and earnings for those women (Goldin 2006; Goldin and Katz 2008; Bertrand, Goldin, and Katz 2010; Herr and Wolfram 2012; Hersch 2013). These patterns indicate a lower baseline level of labor force attachment in the group of women on the margin of attending elite schools, possibly because of greater parental or spousal resources. This implies that the women in our sample have more capacity than average to increase their labor supply, particularly after family formation.

Our study contributes to the economics literature on the impact of college quality on career outcomes, which tends to find positive earnings effects employing a variety of estimation approaches. In particular, several recent studies have employed regression discontinuity (RD) designs to compare outcomes for students who were narrowly accepted at, or rejected from, more selective institutions or degree programs.[9] The RD studies of US colleges are limited to public schools and typically focus on a single state (e.g., Florida, Georgia, Massachusetts; Hoekstra 2009; S. Zimmerman 2014; Cohodes and Goodman 2014; Goodman, Hurwitz, and Smith 2017). These schools are generally less selective than the schools in our sample because the RD approach exploits the use of admissions thresholds based on applicant GPA or test scores. Elite US colleges instead tend to use "holistic" assessment, which is "the consideration of many student characteristics, including ones that can only be measured very subjectively, in a fashion that cannot be readily summarized by a formula" (Hoxby 2009, p. 115). In addition to focusing on less selective institutions, the RD studies estimate a local average treatment effect on students who are marginally accepted to the more selective program, and therefore focus on the lowest-ability students at the more selective schools. By contrast, individuals in our sample had average SAT scores of 1144 in 1976 and over 40% of them were ranked in the top 10% of their high school classes. While the existing literature on the impact of college quality generally studies less selective colleges and lower-achieving students, we extend the scope of the analysis to elite US colleges and high-achieving students in this paper.

Our focus is on higher education, but our results closely relate to the literature on school quality that is concerned

8. The National Longitudinal Survey of the High School Class of 1972 (NLS-72) covers a similar time period and also has information about college applications and later-life outcomes, but the sample is smaller and was not focused on more selective schools. DK present robustness checks using NLS-72 data on 1985 earnings, but the small sample size prevents them from obtaining precise estimates, even in the self-revelation model. If we apply a matched-applicant approach and focus on more selective and elite institutions like those found in the College and Beyond survey (by limiting the NLS-72 sample to schools with an average SAT score of 1020 or above), the observation count drops even further, to only 113 women and 167 men (including those with zero earnings in 1985).

9. Studies employing OLS, matching or quasi-experiment approach include Loury and Garman (1995), Brewer, Eide, and Ehrenberg (1999), Chevalier and Conlon (2003), Black and Smith (2004, 2006), Long (2008, 2010), Andrews, Li, and Lovenheim (2016), and Walker and Zhu (2018). Studies employing RD designs include Hoekstra (2009), Hastings, Neilson, and Zimmerman (2013), S. Zimmerman (2014), Kirkeboen, Leuven, and Mogstad (2016), Goodman, Hurwitz, and Smith (2017), S. Zimmerman (2019), Jia and Li (2019), and Sekhri (2020). Cohodes and Goodman (2014) exploits an RD in financial aid eligibility and Canaan and Mouganie (2018) does the same for passing a high school exit examination. Chetty et al. (2020)'s comprehensive analysis of inter-generational income mobility for students at different colleges includes the most selective institutions, but the paper is explicitly not aiming to estimate the treatment effect of different colleges on students, net of endogenous selection.

with effects in K12 education (e.g., Cullen, Jacob, and Levitt 2006; Jackson 2010; Hanushek and Woessmann 2012; Pop-Eleches and Urquiola 2013; Abdulkadiroğlu, Angrist, and Pathak 2014; Deming et al. 2014; Clark and Del Bono 2016). Our findings also relate to the literature on the effects of education quantity, which tends to find substantively and statistically significant benefits to additional years of schooling (Mincer 1974; Angrist and Krueger 1991; Card 1993, 1999; Ashenfelter and Krueger 1994; Kane and Rouse 1995; Duflo 2001; Oreopoulos 2006; Heckman, Humphries, and Veramendi 2018) and college graduation (for a recent review, see Barrow and Malamud 2015).

Another contribution of this study is to examine the impact of college selectivity on novel outcomes related to labor force participation, education and family formation. Much of the literature following DK is focused on wage effects, and limits the analysis to male workers (e.g., Black and Smith 2006; Hoekstra 2009) or full-time workers (e.g., Long 2008; Dale and Krueger 2014). Only a few studies of college quality have used broader samples to study other outcomes such as educational attainment (Black, Daniel, and Smith 2005; Goodman, Hurwitz, and Smith 2017), marriage and fertility (Black, Daniel, and Smith 2005; Long 2010; Clark and Del Bono 2016), and spousal quality (Kaufmann, Messner, and Solis 2013). We study the effects of college selectivity on all of these career and family outcomes, including earnings, labor force participation, educational attainment, marriage, fertility and spousal quality, in a coherent empirical framework, which also enables us to analyze the interrelationships between these different outcomes.

The remainder of the paper is organized as follows. Section 2 outlines our theoretical framework, Section 3 details our empirical strategy, and Section 4 discusses the data. Section 5 presents our results. Section 6 concludes.

2 Theoretical Effects of College Selectivity

Before turning to estimation, it is useful to outline the ways in which attending a more selective college can affect a person's post-collegiate career and family prospects. This section presents four channels for the effects and then discusses how interactions between career and family can complicate the analysis.

The first channel is that a person attending a more selective college may accrue more human capital there than they would have accrued at a less selective institution. The pace of learning may be faster, leading to more skill accumulation by graduation. This could be because selectivity is predictive of instructional quality, because classes at more selective schools are aimed at more academically capable students, and therefore cover more challenging material, or because students in selective schools have access to more stimulating extra-curricular activities and to more accomplished and renowned faculty members.[10] These advantages can improve labor market outcomes immediately upon graduation, and they may also improve graduate school admissions prospects, leading to additional human capital

10. In this paper, we interpret college selectivity as a proxy variable for the (latent) college quality. College selectivity obviously only captures one dimension of the college quality and is likely subject to measurement error. As noted by Black and Smith (2006), using any single proxy variable for college quality to estimate the effects of college quality may result in attenuation bias. The extent of the bias depends on the extent of measurement error in the measure of college quality.

accumulation through more years of schooling. Second, regardless of what students learn in college, the fact of having attended a more selective school is a signal that conveys favorable information to potential employers and spouses (Arcidiacono, Bayer, and Hizmo 2010; Lang and Siniver 2011; MacLeod and Urquiola 2015; MacLeod et al. 2017). Third, the type of college a young person attends can shape his or her ambitions and expectations about the future. Fourth, attending a more selective college places a student in a social and professional network that is, on average, drawn from peers with higher test scores than those at less selective schools. These higher-ability peers may also contribute to the first three channels: improving educational outcomes for other students (Sacerdote 2001; D. Zimmerman 2003), raising the signal value attached to attending a particular school, and establishing higher norms and expectations for academic and career achievement.

If students do in fact acquire more human capital in more selective colleges, that should increase their productivity in the labor market, which should lead to higher wage offers. The lack of any earnings benefit from attending a more selective college on full-time workers in DK suggests a limited role for positive peer effects in human capital formation, but leaves open the possibility of beneficial effects elsewhere. Attending a more selective college could increase individuals' productivity in household production (such as child-rearing or household management), which would improve the quality of their marriage offers. The signaling effect operates similarly. If the signal is positive, it will lead to better offers, and to worse offers if negative. The difference between the first and second effects is that the first relates to the changes in the individual students themselves, while the second is about others' expectations and beliefs about them.

The social network effect of having higher-achieving peers is perhaps more ambiguous. Conditional on actual human capital and school prestige, having better peers translates into lower access costs to an improved professional network and marriage pool. The higher quality of this pool is evident, for example, in the strong positive correlation between school selectivity and wages, without controlling for selection. This access would tend to improve the distributions of offers of both types. But having a better peer group also means that the set of closest competitors in those social and professional markets are also of a higher caliber. This less favorable relative comparison could eliminate the benefit of greater access to the stronger pool. Membership in the more elite group could also increase the cost of accessing weaker pools. It is therefore possible for the network aspect on its own to have a negative effect on the distributions of offers, particularly for lower-ability students who are marginally accepted at more selective schools.[11]

After considering the separate effects on marital and career outcomes, it is important to emphasize the potential interactions between the two. Higher male wages are generally thought to improve their marriage prospects, but the effect is less clear for women. A woman who finds work that is remunerative and more personally satisfying may want to maintain her participation in the labor market after marriage. This increases the household's budget and some of

11. Some of these marginal students may be "overmatched" and derive far less educational value than the average matriculant does from attending a high quality institution (Dillon and Smith 2017, 2020).

that can be transferred to the spouse. Offsetting this improvement is the fact that a woman who is attached to her career may be less willing to specialize in domestic production within marriage and to sacrifice her own career progression to help her partner advance.[12] Men and women might also want to conform to traditional gender norms within their relationships in which the dominant earner (or at least majority earner, Bertrand, Kamenica, and Pan 2015) is male. For whatever reason, high career ambition may be perceived as an unattractive trait in a potential wife (Bursztyn, Fujiwara, and Pallais 2017). Preference estimates from an online dating platform indicate that, while men and women both value income positively, women place twice as much weight on it than men do (Hitsch, Hortaçsu, and Ariely 2010).

Finally, in addition to shifting the distribution of wage and marriage offers, college selectivity can also affect the thresholds that individuals apply in accepting or rejecting such offers. This can play out through interactions between the two markets, where a better offer distribution in one market raises the threshold for accepting an offer in the other one. For example, a woman who anticipates substantially higher wage offers will have a higher utility outside a marriage and may subsequently set a higher threshold for utility that she requires within marriage to accept an offer. Conversely, a woman who gains access to more unearned (spousal) income through marriage may set a higher wage threshold to accept a job offer. Moving these participation thresholds can shift average outcomes among market participants (workers or married people), even if the offer distributions are unchanged.

3 Empirical Strategy

Our empirical analysis is based on the "matched applicant" model developed in DK. The model applies a "selection on observables" approach to address the non-random assignment of individuals to colleges.

Formally, we model outcomes after college using the DK notation and specification:

$$Y_i = \beta_0 + \beta_1 SAT_j + \beta_2 X_{1i} + \underbrace{\beta_3 X_{2i} + \varepsilon_i}_{u_i}, \tag{1}$$

where Y_i is the outcome of interest for individual i, who attended school j, which has an average SAT score of SAT_j. SAT_j is our explanatory variable of interest; it is meant to capture school selectivity.[13] We include observed characteristics of the individual in the vector X_{1i}, but we are not able to observe everything that affects outcomes. In particular, we model the error term u_i as a sum of two components that are not observed in the data: X_{2i}, which is

12. For example, they may be less willing to act as a "trailing" spouse who relocates for her spouse's new job or who passes up job opportunities to stay near her partner's work (Burke and Miller 2018).

13. Following DK, we treat selectivity as synonymous with school quality and interpret the coefficients on the average SAT score variable as estimates of the effect of school selectivity and quality. As discussed by DK and Black and Smith (2006), average SAT scores in the data are measured with error since the data are self-reported by colleges, and the average SAT score variable may not be a good proxy for school quality. Therefore, our estimates (and those in DK) are presumably biased toward zero due to measurement error in the explanatory variable and constitute lower bounds on the parameters of interest.

information known to the student and to the admissions officers at colleges at the time of college applications and ε_i, which is a random shock that is uncorrelated with SAT_j, X_{1i}, and X_{2i}.

The variables included in X_{2i} include personal traits such as ambition, confidence and drive, as well as other skills, talents and life experiences that are not reflected in test scores and grades. The problem with estimating the model without data on the variables in X_{2i} is that those variables are likely to be correlated with college applications as well as admissions decisions. They may therefore plausibly be correlated with school characteristics such as selectivity, which would bias the estimate of β_1. If, for example, the unmeasured factors that predict higher earnings are also positively correlated with admission to an elite university, then we should expect the estimated effect of school selectivity to be biased upward. A similar logic applies to our other outcomes of interest, but the direction of the bias is less clear. If women who are more career-oriented are more likely to attend selective schools, then the estimated effects of selectivity in the model above that does not account for selection would be biased upward for labor supply and earnings, but could be biased downward for marriage and children. Because students can anticipate these admission decisions when they decide where to submit their applications, information about their ability (and perceived chances of admission) as well as (unconstrained) preferences will be incorporated into their application choices.

The innovation in DK is to match students who applied to, were accepted to, and were rejected from similar colleges. The regression model can then account for variation in elements of X_{2i} that drive selection concerns by using a set of indicator variables representing each of the groups of students as proxies for X_{2i}. Our matching procedure diverges from the one in DK along one key dimension: we impose the additional restriction that individuals must be matched to others of their same gender.

Let g_i be individual i's gender, and $g_i \in G$, where $G = \{female, male\}$ is a finite set with 2 elements. Let a_i and r_i denote the set of acceptances and rejections individual i receives, and $a_i \in A$, $r_i \in R$. A is the finite set of all possible acceptances with a cardinality of N, and similarly R is the finite set of all possible rejections with a cardinality of M. Let Φ be the Cartesian product of the sets G, A, and R, and Φ^k be the kth element in Φ. For our matched applicant sample, we first drop the individuals who apply to only one school. Then we exclude those whose gender, school acceptance and rejection sets do not coincide with any other individual in the sample, that is, we exclude i, if for all $i' \neq i$, $\{g_i, a_i, r_i\} \neq \{g_{i'}, a_{i'}, r_{i'}\}$. We estimate the following specification on the matched applicant sample:

$$Y_i = \beta_0 + \beta_1 SAT_j + \beta_2 X_{1i} + \sum_{k=1}^{2\times N\times M} D_i^k + \varepsilon_i, \tag{2}$$

where

$$D_i^k = \begin{cases} 1 & \text{if} \quad \{g_i, a_i, r_i\} = \{g_{i'}, a_{i'}, r_{i'}\} \text{ for } i' \neq i, \text{ and } \{g_i, a_i, r_i\} = \Phi^k, \\ 0 & \text{otherwise,} \end{cases}$$

and all other variables are the same as those in Equation (1). The indicator variables D_i^k correspond to the groups of individuals with the same gender, school acceptances and rejections. Note that students with the same acceptances and rejections also have the same applications. In practice, matching based on the exact set of schools is too demanding of the data. Instead, acceptances and rejections in each individual's a_i and r_i are characterized by schools' average SAT scores, and we treat schools as comparable if their average SAT scores are in the same fixed 25 point intervals.

This approach does not explicitly model the application and admission decisions; nor does it attempt to identify or parameterize effects of the different components of X_{2i} in Equation (1). Instead, it accounts for the application and admissions decisions in a highly flexible way that uses information about the selectivity level of each of the colleges that students applied to and were accepted at or rejected from. The critical assumption is therefore that, conditional on applications and acceptances, students' enrollment decisions are uncorrelated with the error term.

This assumption will be violated if the choice to attend a more or less selective school, within the set of admission offers, is correlated with unmeasured student characteristics that themselves are predictive of our outcomes of interest. We control for parental income, but are not able to directly account for differences in financial aid offers. These issues are discussed at length in DK, who argue that the bias from omitted variables related to college choice is more likely to cause them to overstate than to understate the impact of college selectivity on earnings and would therefore leave the qualitative conclusions of their analysis unchanged.

While this may be true for their sample, it is worthwhile to reconsider the issue of bias in light of the expanded scope of the present analysis. This is particularly important because we include in our sample individuals who are less strongly attached to the labor market, and because we are interested in labor force participation as well as family-related outcomes. These considerations present another dimension of potential bias that was less relevant for the DK analysis. Specifically, women who attend less selective schools from within their choice set may do so because they expect academic and labor market outcomes to be less important to them later in life, possibly because they value family formation and investments more. Clearly, controlling for SAT scores and class rank, as well as college applications and admissions, goes some distance in addressing that concern. In Section 5.2, we test for remaining bias by using information on maternal employment when the individual was in high school as a proxy for career orientation.

In addition to the matching model, DK also presents estimates from a related "self-revelation" model that relies on the notion that students have a good understanding of their own ability levels, which they reveal through their college application destinations. For example, it is possible that students with higher academic ability (conditional on SAT scores and high school GPA, which we can observe in our data) apply to colleges with higher average SAT scores. This can be addressed in the regression model by controlling for the average SAT score of the colleges to which the student applied. One limitation of this approach relative to the matching model is that it ignores information coming from colleges about acceptances and rejections. These decisions clearly affect which schools students attend, and they may be correlated with later-life outcomes, even after conditioning on application decisions. The second major difference between the two models is that information about applications is accounted for more flexibly in the matched-applicant model with fixed effects for groups of students whose applications were all to similar schools; this incorporates information about the full distribution of reported applications, rather than just the mean across schools. A recent paper by Mountjoy and Hickman (2020) discusses how even rich controls have some bias. We therefore focus on the matching model in this paper, but we also report estimates from variations on the self-revelation model on the sample of matched-applicants in the Appendix.[14]

4 College and Beyond Data

Our main data source is the College and Beyond survey, which has been previously described and analyzed in DK, as well as Bowen and Bok (1998), Goldin (2006), Small and Winship (2007), and Groen and White (2004). The dataset combines rich self-reported survey information on students who attended one of 34 US colleges and universities in 1951, 1976, and 1989 with administrative student records from those schools and supplemental information from the Higher Education Research Institute and the College Entrance Examination Board. The sample response rate in the College and Beyond survey was approximately 80%. The included schools are all selective or highly-selective institutions that award bachelor's degrees, with school-average SAT scores in 1978 ranging from 1020 to 1370.[15] The institutional administrative data includes SAT scores and GPA and was collected for every matriculant at the 30 private colleges and a subsample of the entering cohorts at the four public universities.[16]

Because we are interested in middle-career outcomes, we focus on the 1976 college entering cohort, who were in their late 30s in 1996–1997 at the time of their survey. Members of the 1951 cohort were in their mid-60s and 1989 cohort members were only in their mid-20s when surveyed. In historical context, the women of this cohort are at the forefront of the fifth cohort of twentieth century American female college graduates described in Goldin (2004); this cohort was the first to aspire to achieving "career and family" at the same time.

4.1 Sample Restrictions

The original sample in the College and Beyond survey has 23,570 observations. Following DK, we exclude 1,061 individuals who attended four historically black colleges and universities.[17] We also exclude individuals with missing

14. It is possible to estimate the self-revelation model on a larger sample that includes unmatched applicants, but we prefer to maintain the sample definition for better comparability of results and greater similarity in the college application and admissions profiles of individuals in the sample. The matched and unmatched applicants do not appear to differ substantially, but unmatched applicants are more likely to have submitted only a single college application and to attend a public university.

15. The list of 30 schools from the College and Beyond survey (excluding four historically black colleges and universities) considered in DK and our study is presented in Appendix Table 1 in DK.

16. At public universities, data were collected for all minority students, all varsity letter winners, all students with a combined SAT score of 1350 or higher, and a random sample of other students. We follow the literature and account for the non-random sampling procedure by using weights in our descriptive statistics and regression models.

17. The historically black colleges and universities (HBCUs) in our sample had significantly lower school-average SAT scores (ranging from 710 to 880) than the remaining sample (ranging from 1020 to 1370) and approximately 80% of records from students who attended those institutions are missing data on individual SAT scores. Students attending HBCUs also had much larger differences between the school-average SAT score at the school they attended and the most selective one to which they applied or were accepted. As a result, including the HBCUs in the overall sample

college application information, and individuals with missing income information.[18] These restrictions leave us with 9,917 women and 9,738 men in what we call our full sample.

The College and Beyond survey collected data on, among other things, annual earnings in 1995, occupation, demographics, education, some spousal characteristics, and satisfaction measures. Respondent and household earnings are reported in ten intervals.[19] Following DK, we assign log earnings for respondents and households equal to the log of the relevant interval midpoint and use the 1990 Census to calculate average log earnings for 36–38 year old college graduates who earn more than $200,000 for earnings in the highest category.[20] This process means that respondents and households cannot have $0 in earnings, and we therefore consider individuals with earnings above $1,000 (i.e., in the second earnings interval or higher) to be labor force participants. We define spousal earnings as the difference between household earnings and respondent earnings, meaning that spousal earnings can equal $0.

The survey also collected information on other schools that individuals applied to, along with self-reported acceptances or rejections from those schools.[21] Following DK, we use this information, together with data on school average SAT scores, to match students with others who applied to, were accepted at, and were rejected from similar schools whose average SAT scores are within 25 point interval.[22] Table A1 in our Appendix is reproduced from DK to illustrate the matching process for a hypothetical group of students. We deviate from the matching procedure in DK by matching students also based on their gender. From our full sample of 19,655 observations, 6,906 students are dropped because they apply to only one school, and an additional 4,737 are dropped because their school set does not coincide with others' school sets for the same sex. These restrictions leave a total of 8,012 observations in our matched sample (4,049 women and 3,963 men). In this matched sample, we have 804 matched groups for women and 822 matched groups for men. These groups correspond to the indicator variables in our estimation Equation (2).

The additional restriction on matching students based on gender does not alter our results, as we demonstrate below, but it is necessary for the analyses that follow in which we estimate our models separately on male and female students. Although this restriction reduces the sample size for estimation, it also increases the similarity within groups of matched applicants. Our matched sample includes 40.8% of individuals from the full sample (40.8% of women and

only increases the matched-applicant sample by a modest amount (121 women and 90 men). The main results of the paper are largely unchanged on the expanded sample that includes HBCU matriculants, as shown in Appendix Table A9.

18. This eliminates 2,172 individuals with missing college application information, 679 with missing income information, and 3 with missing sex information from our sample. These restrictions leave us with 19,655 observations. Missing income information is uncommon (about 3% of observations) in the data, but we nevertheless confirmed that it was not related to school selectivity in the matched applicant models estimated on male, female or combined samples that were expanded to include people with missing income.

19. They are: less than $1,000; $1,000–$9,999; $10,000–$19,999; $20,000–$29,999; $30,000–$49,999; $50,000–$74,999; $75,000–$99,999; $100,000–$149,999; $150,000–$199,999; and more than $200,000.

20. In an unreported robustness check, we confirmed that our earnings estimates are unchanged if we account for top coding in the 1990 Census differently. As DK note, income data from the 1990 Census are top coded, meaning that our assigned highest earnings value may still be too low. We therefore multiplied the top coded components of income in the CPS by 1.5 and re-calculated the average value for our highest bin using college graduates who earn more than $200,000. We then re-estimated our log earnings models using this alternative variable and found the same results, suggesting little influence of the Census top coding process on our main findings.

21. Data on self-reported college applications, acceptances and rejections may be subject to measurement error. One could compare survey reports of applications, acceptances and rejections with administrative data from the SAT or ACT on where students sent their scores and administrative data from different schools on acceptances and rejections to understand the nature and extend of these measurement errors, but this exercise is beyond the scope of this paper.

22. Results are similar if we use Barron's College Selectivity groups to form matched-applicant groups instead.

40.7% of men). Another major shift from DK is that we remove the requirement of working full-time and full-year at the time of the survey. Our reasons for removing the restriction are that: (1) we examine novel outcomes other than earnings, such as education, marriage, and spousal characteristics, for which there is no clear reason to restrict the sample based on employment status, (2) we study males and females separately, and (3) we estimate earnings models that include effects driven by changes in labor force participation and work hours.

Data from the College Entrance Examination Board include information from the Student Descriptive Questionnaire, such as high school class rank and parental income, and supplementary data on parental occupation and parental education are obtained from a questionnaire of college freshmen administered by the Higher Education Research Institute and the Cooperative Institutional Research Program. Parental income is self-reported by students when they take the SAT and is missing for 55.4% of the sample.[23] We follow the DK process to predict log parental income. Specifically, we regress log parental income on mother's and father's education and occupation for the subset of students with available family income data, and then use the coefficients from this regression to obtain predicted log parental income for all students in the sample.

In Table 1, we report summary statistics for our estimation sample of matched applicants, along with the respective values for the same variables published in DK for their sample of full-time full-year workers for comparison. It is perhaps not surprising that our sample is more female (50.8% compared to 38.5%), and has lower reported log-earnings (10.5 versus 11.1) than the DK sample; it also has slightly lower SAT scores. Like DK's, our sample is primarily white and non-Hispanic.[24] Within our sample, women had, on average, lower earnings and labor force participation in their late 30s. They also had slightly lower SAT scores and were less likely to be college athletes. The college completion rate was 85.0% for women and 85.9% for men in our sample, and the difference is not statistically significant ($p = 0.283$). For completeness, we also report summary statistics on the full sample in Appendix Table A2.

4.2 College Choice in the Matched Applicant Sample

Having defined the matched applicant sample, we now examine the variation within it regarding college attendance decisions, conditional on admissions offers, that underlies our estimation approach.

We first examine the frequency with which individuals decide to attend a less selective school over a more selective option. These choices are a necessary source of variation for our empirical approach. Furthermore, if they occur only very rarely in the data, such choices could signal something else unusual about the students who make them (Hoxby 2009). That is not what we find: 29.3% of men and women in the sample (27.8% of women and 30.9% of men) attended a college other than the most selective one to which they were admitted (see Table 2). The similarity in rates between men and women further indicates that the selection into less selective schools within the matched set is not

23. We can match 23,570 observations between the Institutional and Survey files, in which 13,046 observations either do not take the SAT test or do not report parental income when they take the test.

24. Our main estimates are qualitatively unchanged, but larger in magnitude, if we restrict our sample to white non-Hispanic individuals.

being driven by something particular to one gender.

Furthermore, the share of students who chose to attend a less selective school exceeds the share that was forced to attend one, by being rejected from the most selective college to which they applied. The share of students rejected from their most selective school is only 20.2% overall (but significantly higher for men, at 23.9% than for women, at 16.6%, possibly indicating greater risk taking or confidence on the part of male students). Table 2 provides some indication of the idiosyncratic nature of college admissions decisions (coming from student-college match specific values) in the fact that nearly 6% of students were rejected at a school with a lower average SAT score than a school that accepted them. As a result, the share of students rejected from any school is somewhat larger than the share rejected from their most selective school.

Table 2 also provides information on other aspects of application and school choice patterns by gender and presents differences between women and men in the last column. In particular, men sent more applications than women on average but received fewer acceptances. The average SAT scores of schools that men applied to and received acceptance from are higher than those for women. The SAT range of applications is higher for men, but their SAT range of acceptances is lower. In our matched sample, all students applied to at least one out-of-state school. Men were more likely to attend an out-of-state school conditional on being accepted by an in-state school. Women were more likely to attend an in-state school conditional on being accepted by an out-of-state school, but the difference is not statistically significant. These gender differences indicate that men were more likely to take risks in their college applications. They suggest that our sex-specific approach to creating groups for the matched applicant model may be helpful in creating closer comparison groups. Finally, Table 2 shows that women were much more likely to apply to at least one single-sex school. Our sample includes both male and female single-sex schools, but women outnumber men in our sample drawn from single-sex schools. In our empirical analysis, we confirmed that the non-random choice to attend a single-sex college is not driving our results.

The fact that a significant share of the sample includes people who attended a less selective school within their choice set indicates that, just as students are not being admitted to schools based on test scores alone, they are also not deciding on schools based on selectivity alone. This is consistent with the framework in Hoxby (2018) that distinguishes between "vertical" and "horizontal" dimensions of product differentiation among colleges.[25] To the extent that school selectivity is a proxy for quality that is valued favorably by all students, it should be considered a vertical component, and we should expect that students will opt for more selective schools, when all else is equal. But all else is rarely equal, and the idiosyncratic horizontal dimensions can offset the vertical differences at times. There is evidence of this phenomenon in the self-reported preference ordering of colleges from students in our sample. As shown in Table 2, only 61% of students listed as their top choice the most selective school to which they applied.

25. Horizontal dimensions can include, e.g., amenities related to physical facilities and available activities (Jacob, McCall, and Stange 2018; Hoxby 2018) or to sports culture or success (Pope and Pope 2009).

Because the horizontal component is more likely to dominate when the gap in the vertical dimension (the difference in average SAT scores between the two schools being compared) is smaller, we next examine the extent of the drops in school selectivity that students are choosing and confirm that smaller drops are more frequent. In Figure 1, we plot histograms for the difference in school average SAT score between the most selective school to which the student was admitted and the school at which the student enrolled, separately for men and women and overall. To better display the range of scores among students who drop down in selectivity, we also show figures without the mass point at 0 for students who attend their most selective school. The figures are generally similar for men and women, with the frequencies tending to decline for larger score differences and few students dropping more than 200 points. The average SAT score range across schools accepted at is 111.8 points, with a standard deviation of 88 points, for students in our matched sample. Appendix Figure A1 shows similar figures for women with different levels of labor force participation later in life, suggesting that the choice to drop down in selectivity is not related to future employment expectations. Appendix Figure A2 shows the distributions relative to the SAT score at the most selective application, rather than acceptance.

5 Estimated Effects of College Selectivity

This section presents results from our estimation of the effects of college selectivity on career and family outcomes at ages 38–39 for men and women in the 1976 college-entering cohort of the College and Beyond survey. We start with annual earnings and proceed to consider labor force participation and then educational, occupational and family outcomes. We also explore heterogeneous effects of selectivity based on educational attainment and family status.

5.1 Earnings and Labor Force Participation

The starting point for our analysis of the relationship between school selectivity and log-earnings is the basic regression model used in DK, which includes controls for the individual characteristics of sex, race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. Our explanatory variable of interest is the average SAT score at the college the individual attended; higher average scores indicate more selective institutions. We report coefficient estimates for this variable in Table 3, with Panel A showing results for the pooled sample of men and women, Panel B showing women only and Panel C showing men only. The full set of estimates from each of these samples are in Appendix Tables A3, A4, and A5, respectively.[26] As noted previously, all regressions include weights to adjust for the sampling procedure used for students at the four public universities. Following DK, we cluster standard errors at the school-of-matriculation level.

26. There is no *Female* estimate in the matching models because the variable is collinear with the group fixed effects.

Estimates from the basic regression model (Column 1) show a substantively and statistically significant return to attending a more selective college across the panels. The coefficients associate 100-point increases in school average SAT scores with 13.4% higher earnings in the pooled sample, 18.9% higher earnings for women, and 7.8% for men. However, employing the matching model (Column 2) yields estimates of 7.1% overall and 13.9% for women and a statistically insignificant 1.1% increase for men.[27] In Column 1 of Appendix Table A6, we present the estimated effects of school selectivity on log earnings using the self-revelation model. The estimated coefficients on earnings reduce to 4.7% overall, 8.4% for women and a statistically insignificant 0.9% for men. The smaller point estimates in the self-revelation model appear to be the result of the less flexible control for applications, rather than the omission of information about acceptances and rejections. This is shown in the results from an alternative version of the matched-applicant model that groups students based only on their applications.[28] In that model, the estimated effect of a 100-point increase in school-average SAT score is associated with a 15% increase in log-earnings (Column 1, Appendix Table A7). The point estimates in this column from the alternative matching model are larger than those from the main model for each sub-group; this suggests that applications to selective colleges are more likely to be accepted from students with higher future earnings.

In addition to our main analysis of school selectivity based on test scores, we also followed DK and separately explored the effects of colleges' net tuition cost on our range of outcomes. Like DK, we find a positive log-earnings effects. The 9% estimate for women is not statistically significant, but the smaller 6% estimate for men is more precisely estimated and statistically significant at the 10% level.[29]

Our larger estimates for women than for men, together with the divergence between our estimates and those in DK for full-time full-year workers, suggest that labor force engagement (participation or work hours) is a key part of the

27. Using different data sets that cover different colleges and different entering cohorts and employing different identification strategies, Hoekstra (2009) finds a strong positive earnings effect of college quality for white men but overall no effect for white women, whereas Dillon and Smith (2020) finds no detectable differences between the effects of college quality on men and women. Because of the focus and sampling of the College and Beyond survey, we follow DK in only estimating linear effects of own and school-average SAT scores. If we expand the model to include quadratic terms for these SAT variables, the second-order term is positive and significant for own SAT score, but small and insignificant for school average SAT. At the sample mean values, the marginal effect of a 100-point in increase in school average SAT in the quadratic model is an increase in women's earnings of 14.3%.

28. We use similar notations as before and let p_i denote the set of applications individual i has, and $p_i \in P$. P is the finite set of all possible applications with a cardinality of S. Let Φ' be the Cartesian product of the sets G and P, and Φ'^k be the kth element in Φ'. For the alternative matched sample, we first drop the individuals who apply to only one school. Then we exclude those whose gender and school application set do not coincide with any other individual in the sample, that is, we exclude i, if for all $i' \neq i$, $\{g_i, p_i\} \neq \{g_{i'}, p_{i'}\}$. We estimate the following specification on the alternative matched sample:

$$Y_i = \beta_0 + \beta_1 SAT_j + \beta_2 X_{1i} + \sum_{k=1}^{2\times S} D_i'^k + \varepsilon_i,$$

where

$$D_i'^k = \begin{cases} 1 & \text{if} \quad \{g_i, p_i\} = \{g_{i'}, p_{i'}\} \text{ for } i' \neq i, \text{ and } \{g_i, p_i\} = \Phi'^k, \\ 0 & \text{otherwise,} \end{cases}$$

and all other variables are the same as before. The indicator variables $D_i'^k$ correspond to the groups of individuals with the same gender and school applications. Again we treat schools as comparable if their average SAT scores are in the same fixed 25 point intervals in our estimation.

29. We use DK's calculation of net tuition for each of the College and Beyond schools, but we do not have any information on financial aid in our data. The effects of net tuition on our other outcomes, explored in this section and in Sections 5.3, 5.4, and 5.5 mirror those of school average SAT score more closely: we find significant increases in women's advanced degree attainment and spousal education and a significant decrease in their chances of marrying, but no effects on these outcomes for men.

explanation for the increased earnings we observe. We therefore consider two measures of engagement as outcomes in the next two columns of Table 3.

First we consider the extensive margin using an indicator equal to one if the individual reports positive earnings. Because the lowest earnings bin available in the College and Beyond data is up to $1,000, this effectively means that we apply an income threshold of $1,000 to define labor force participation. On the participation margin, we find statistically significant effects of selectivity for women, but not for men or in the pooled sample (Column 3). For women, attending a school with a 100-point higher average SAT score increases the probability of working by 2.3 percentage points (2.8%). This increase in participation may come from either increased labor supply or labor demand. An example of the demand effect would be if graduates of elite schools have better access to work options that they find personally meaningful or that offer more appealing schedules.

We next consider a more demanding measure of labor market engagement that is an indicator for responding "yes" to the survey question: "Were you working full-time for pay or profit during all of 1995?" This is the question that DK use to restrict their sample to full-time full-year workers. We treat it as an outcome variable in Column 4 using the sample that includes part-time workers as well as non-workers. The point estimates for this outcome are small (< 0.005) and statistically insignificant across the panels, suggesting that elite college attendance is more important for shifting women into part-time work from non-employment than for shifting them from part-time to full-time work. The matched-applicant model estimates indicate that the increase in women's labor force attachment is coming from the more weakly attached workers. The basic model estimates for for these two female labor force participation outcomes (reported in Columns 1 and 2 of Appendix Table A8) point to significant 2.5 and 2.7 percentage point increases, but the self-revelation model estimates (in Columns 2 and 3 of Appendix Table A6) are smaller (0.014 and 0.012) and not significantly different from zero. The alternative matching model that flexibly accounts for applications (but not acceptances) in Appendix Table A7 is closer to the main model, with a 2.5 percentage point increase in participation for women that is significant at the 10% level.

These estimates suggest that increases in labor force participation contribute to the overall effects on earnings, but do not rule out further effects on earnings conditional on participation. We examine this in Table 4 by limiting the sample in Column 2 to individuals with positive earnings and in Column 3 to those working full-time and full-year. Column 1 repeats the matching model estimates from Column 2 of Table 3 for comparison. For the overall sample, as well as for female workers, the consistent pattern is that these sample restrictions reduce the magnitude of the estimated effects of school selectivity on earnings. Although the point estimates remain positive, they are much smaller (going from 0.139 to 0.006 for women) and not statistically significant on the restricted samples. They may, however, be biased downward, particularly in Column 2, because of changing sample selection. If marginal women induced to participate in the labor force by attending a more selective college had lower than average offered wages for their institution, their participation would lower average earnings for that group.

Though not definitive proof against an effect on hourly wage rates, these results are certainly consistent with the finding in DK that school selectivity does not significantly improve earnings for full-time full-year workers, either male or female. But the comparison to DK is not complete. Although the sample restriction in Column 3 matches that in DK, the matching method differs in that we restrict matches to people with the same gender. This affects both the composition of the groups and the total sample size, because individuals who only have opposite-sex matches are dropped in our scheme. To assess the practical importance of our alternative matching approach, we report an estimate in Column 4 of Table 4 that uses the DK sample restrictions and matching method on the pooled sample. The point estimate is essentially unchanged between the two columns that differ only in the matching method: 0.018 (standard error of 0.028) in Column 3 and 0.019 (standard error of 0.020) in Column 4.

Taken together, the estimates in Tables 3 and 4 suggest that attending a more selective school has a substantively strong and statistically significant impact on earnings for women, possibly by inducing them to increase their labor force participation.

5.2 College Choice and Labor Force Attachment

In this section, we consider whether our estimates for female career outcomes in particular may be biased under the DK matching approach. The concern is that the college choice decision differs fundamentally between male and female students, because all men plan to participate fully in the labor force as adults but not all women do. Because one of the major private benefits from college attendance is the improvement in expected earnings, the possibility that women vary in their expected participation rates (in terms of expected hours or years of work) complicates the calculation for them. It could be that women who are more career oriented are the ones that value college selectivity more, because of the perceived investment value, and therefore attend the more selective schools within their choice sets. If those adolescent expectations also map to work decisions for women in their late-30s, then the estimates from the matching model for the effects of school selectivity on earnings and labor force participation would both be biased upward for women, but not for men.

The main conceptual weakness with this challenge is that it ignores the fact that the matching model (and even the self-revelation model) is based on comparisons among women who applied to the same schools. If young people applying to colleges only considered the potential impact on their own earnings as the benefit, then it is unclear why women who are not planning to work would even consider, and make the investment of applying to, elite schools in the first place. Rather, it is more likely that there are other benefits associated with school selectivity, even among women who are less career-oriented. Those could be related to personal growth and development or to marriage market considerations, which we consider in Section 5.4.

We nevertheless consider it worthwhile to examine the empirical importance of the concern that women with greater anticipated labor force participation are the ones who systematically choose more selective schools from among their offers of admission. We do this by using data on maternal employment during the individual's senior year of high school as a proxy for the individual's own anticipated labor force attachment after college. The results in Table 5 provide some reassurance (full results from the model are in Appendix Table A10). In Columns 1 and 3 of Table 5, we include maternal employment during senior year of high school as an additional control in our matching model that examines the effect of college selectivity on log earnings for women and men, respectively. The coefficients on maternal employment confirm that, as expected, maternal employment is a statistically significant predictor of earnings for women (Column 1) but not for men (Column 3). But including that variable as an additional control in the earnings model has a minimal impact on our main coefficient of interest on school average SAT score, which goes from 0.139 (Table 3, Column 2) to 0.135 (Table 5, Column 1) for women with no change in significance and remains at a statistically insignificant 0.011 (Table 3, Column 2 and Table 5, Column 3) for men. Columns 2 and 4 of Table 5 use school average SAT score as an outcome variable to investigate whether maternal employment affects school choice. We find that maternal employment is *not* a statistically significant predictor of school selectivity in our matched-applicant model for women (Column 2) or men (Column 4).

A second reason for concern about non-random college choice for women in particular is the prominence of single-sex colleges for women in the sample, attended by 17.2% of women in the matched sample.[30] Because the decision to attend an all-female college may be correlated with social or career preferences and also with school selectivity, we conduct a robustness check on our log-earnings model that adds an indicator for attending one of the four all-female schools in the sample. The estimated effect of school-average SAT score is unchanged in magnitude (0.139) and significance ($p < 0.10$).

The results in this section provide a stronger empirical foundation for our application of the matched-applicant model to study men and women separately and, in the following sections, to examine outcomes related to schooling, family formation and spousal quality.

5.3 Educational and Occupational Outcomes

Table 6 reports estimated effects of school selectivity on educational attainment, for women (Panel A) and for men (Panel B). Within the sample of selective and highly selective institutions included in the College and Beyond survey, we find no statistically significant effects of school selectivity on the likelihood of earning a bachelor's degree: the point estimates are small and negative (Column 1). This result may not apply across the full spectrum of 4-year college quality, where on-time graduation rates vary from under 10% to over 85% (Hoxby and Turner 2015) and

30. Our sample includes both male and female single-sex schools. Women outnumber men in our sample drawn from single-sex schools, while men outnumber women slightly in other schools.

differing norms about on-time graduation may affect student behavior (Bowen, Chingos, and McPherson 2009).[31] For the students in our sample, the more meaningful margin appears to be advanced degree attainment. For this outcome, we find sizable and significant positive effects for women but not for men. A 100-point increase in school average SAT scores increases women's probability of earning an advanced degree by 4.8 percentage points (or 9.4%; Column 2). This pattern is also present in the self-revelation model (Appendix Table A6, Column 4) and the alternative matching model (Appendix Table A7; Column 4). The basic model yields significant increases for both sexes, but significantly larger effects for women (Appendix Table A8, Column 3).

In the remaining columns of Table 6, we explore how the estimated effects of school selectivity on earnings are mediated by changes in educational attainment.[32] We do this by adding variables to our basic matching model: an indicator for educational attainment (either college or advanced degree) and an interaction term between that indicator variable and the school-average SAT score. A caveat is in order regarding these additional regressions, which is that the educational variables are themselves the result of choices made after college enrollment. As such, our identification of the effects of schooling in these models is much weaker than the matched-applicant model's identification of the effect of school selectivity. They should therefore be interpreted cautiously, in the spirit of exploring heterogeneous effects and not as resulting from a fully-specified model of years of schooling.

With that caveat in mind, we can consider the estimates. The estimated earnings effects of graduating from college are negative and statistically insignificant, while the interaction terms between graduation and school selectivity are positive and insignificant (Column 3). Column 4 similarly shows no statistically significant level effects or interactions from higher degree attainment, but for women, the signs are reversed from Column 3. Column 5 of the table includes both education variables and interaction terms in the same model and also finds no effects. The absence of statistically significant interaction terms means that the effects of selectivity on those with higher and lower levels of educational attainment are not statistically distinguishable from one another. Nevertheless, the interactions do show varying significance of selectivity across education groups. For women, the models show that selectivity significantly increases earnings for women who graduate from college but do not earn an advanced degree ($p < 0.05$ in Column 3 and $p < 0.10$ in Column 5). There are no statistically significant effects of college selectivity on men, irrespective of education, or on female college dropouts or advanced degree holders.

Taken together, the results in Table 6 provide only limited support for educational attainment serving as a major channel for the earnings effects we observe. We do find increases in graduate degree attainment for women, but the relationship between that greater level of attainment and earnings is not precisely estimated in our data. The interaction effects suggest, if anything, that earning an advanced degree is a substitute for attending a less prestigious

31. A recent study by Dillon and Smith (2020) considers a broader spectrum of college quality and finds that college quality strongly improves degree completion.

32. Black, Daniel, and Smith (2005) also compare the estimated effects of college quality on wages in specifications excluding and including years of schooling among covariates.

undergraduate institution.

Although the higher rates of advanced degree attainment do not directly account for the increased earnings experienced by women who attend more selective schools, they hint at other differences in the nature of undergraduate education, possibly related to field of study or occupational training.

We examine this possibility empirically using our matched applicant model to estimate the effects of college selectivity on undergraduate major field of study and occupational field. The estimates are reported in Table 7, with each entry reporting the estimated impact of school average SAT score in a separate regression. The first two columns examine college major choice. We consider three categories of majors that were offered at all of the schools in the College and Beyond sample – STEM (science, technology, engineering or mathematics), social science, and humanities – as well as undergraduate business majors, which were not offered at all schools, and all other majors. The next sets of columns examine field of advanced degree study (including those without any degree in the sample), and then occupational field. These columns include additional categories for legal and health professions. Summary statistics for these outcome variables are reported in Appendix Table A11.

The estimates in Table 7 indicate some shifts in field of concentration for both male and female students. For undergraduate major, both men and women are more likely to major in the social sciences at more selective schools. Men are less likely to concentrate in STEM fields at the undergraduate or graduate level and men and women are both about 3.5 percentage points less likely to work in STEM occupations.[33] Women are significantly more likely to work in health and legal occupations and to obtain advanced degrees in the law or humanities. The estimates for men are negative for health and positive for law, but neither is significant at conventional levels.

Table 8 considers if these changes in field of study or work can account for the increases in advanced degree attainment or log-earnings that we find for women. This could happen if careers in health and law were relatively high-paying alternatives for women. The estimates in Table 7 could also potentially contribute to the lack of an earnings benefit for men if STEM fields were more lucrative for them than other fields of study or work. Before estimating models with additional controls for field of study or occupation, we first examined average salaries within our sample for men and women in different fields in Figure A3. It turns out that STEM fields were not higher-paying for men, either as an undergraduate major or as an occupation, but law and health were indeed among the highest-paying occupations for women in our sample. Nevertheless, adding these controls to the models for advanced degree attainment (columns 1 and 2 of Table 8) or log-earnings (columns 3-6 of the table), leave the main effects of school selectivity intact.

33. To examine if college selectivity influences STEM major availability, we collected information on student major from the full sample in the College & Beyond survey. We consider seven STEM majors including biology, engineering, computer science, math, physics, chemistry and earth sciences. We find that majority of the schools in our sample (19 out of 30) had some students enrolled in all STEM majors. A number of schools had no students enrolled in engineering or computer science, but there appears to be no systematic relationship between school selectivity and STEM major availability.

5.4 Marriage and Children

This section examines two key dimensions of family status: marriage and children. The results are presented in Table 9 using a structure that mirrors that of Table 6.

We first treat the family status indicators as outcomes in regression models. For marriage (and marriage-like relationships), we find a striking effect for women: attending a college with a 100-point higher school-average SAT score reduces the chances of being married in their late 30s by 3.9 percentage points (Column 1).[34] The marriage rate among women in our sample is 0.742 (Table 1), which means that the estimated effect is equivalent to a 5.3% decrease in the share married or to a 15.1% increase in the share unmarried. A similar 4.2 percentage point decline ($p < 0.01$) is estimated in the self-revelation model (Appendix Table A6, Column 5) while a smaller 3.0 percentage point decline ($p < 0.10$) is found in the alternative matching model (Appendix Table A7, Column 5) and a 3.3 percentage point decline is found in the basic model (Appendix Table A8, Column 4). For men, the point estimate is positive and not statistically significant. The coefficient estimates in Column 2 for having any children point in the same direction – a lower likelihood of being a mother and a higher one of being a father – but they are not statistically significant.[35]

This finding that elite school attendance lowers marriage (and possibly motherhood) rates for women in particular strongly indicates that family factors are an important part of the story for why earnings increase with school selectivity. The importance of family factors is also suggested by the fact that the earnings effects are related to variation in labor force participation and that the impact is only felt for women, who traditionally bear the career costs of marriage and children (e.g., Loughran and Zissimopoulos 2009; Miller 2011; Kleven, Landais, and Søgaard 2019).

We explore this channel more directly in the next columns of Table 9, by adding indicators for being married (Columns 3 and 5) and having children (Columns 4 and 5) to the log-earnings model. These coefficients are consistently large, negative and statistically significant, which confirms that the general pattern of a negative relationship between family formation and earnings for women is also present in our sample. That result is useful for supporting the hypothesized mechanism, though the estimates should not be interpreted as identifying the causal effect of marriage or fertility. This is because those are clearly choices that can be related to labor market expectations and realizations, for example, if women with better careers decide to forgo marriage and children.

The last columns of the table also explore heterogeneous effects of school selectivity on log-earnings based on family status, by including interaction terms between the family status indicator variables and the measure of school selectivity. Here we find statistically significant interaction terms that show significantly greater earnings benefits from school selectivity on married women (Columns 3 and 5) and women with children (Column 4). In fact, the estimated

34. Marital status is measured at the time of the survey in Table 9. The survey also has questions on whether the respondent is "never married" or "divorced." We have used indicators for divorced or never married as outcomes to examine how college selectivity affects these two alternative marital outcomes. We find that the decrease in marriage shown in Table 9 is more likely to be driven by never marrying than by higher divorce among women who attended more selective colleges.

35. If we use number of children as an outcome instead, we find similar results. Attending a more selective college reduces number of children for women and increases number of children for men, but neither effect is statistically significant.

effects of selectivity on earnings of women in the omitted group, who are unmarried (Column 3), childless (Column 4) or both (Column 5) are either very small (0.009) or negative and not statistically significant. The lack of an effect for single women can be interpreted as consistent with the results for men, for full-time full-year workers, and in the original DK paper. By contrast, the effects are all significantly different from zero ($p < 0.05$) for married women in Column 3 (the sum of the baseline effect and the married interaction term), women with children in Column 4 (baseline effect and children interaction) and for married women with children in Column 5 (baseline plus married interaction plus children interaction).

These results support the importance of changes in family status as a key driver for the earnings gains experienced by elite college women, but they also likely understate its importance. The reason is that our measures are point-in-time snapshots of status; as such, they fail to capture timing effects. If women at elite schools are also more likely to delay marriage and motherhood, for example from their early twenties to their mid-twenties or even to their thirties, the delay itself could have lasting effects on labor force participation, work hours, and earnings in later years (Miller 2011; Bailey, Hershbein, and Miller 2012; Miller 2013). The higher rate of advanced degree attainment found in Section 5.3 certainly suggests the possibility of delayed family formation.

Our finding in this section that attending a more selective school lowers marriage rates for women but not for men, in addition to contributing to our understanding of the correlates of the earnings effects, is also independently interesting for showing marriage market responses to college selectivity. As discussed in Section 2, the interpretation of the effect on marriage rates is complicated by the fact that attending a more selective school can affect the set of marriage offers available to a woman (a demand for wives effect) or the minimum quality threshold that she sets for accepting an offer (a supply of wives effect). The decline in total marriages could be consistent with lower demand, for example, if attending an elite school makes a woman less appealing to prospective spouses. It could also be consistent with women's greater utility outside of marriage lowering supply. We are not able to observe marriage offers or their acceptances or rejections. Nevertheless, we can use information on realized matches to infer something about whether supply or demand effects predominate. We do this in the next section where we examine spousal characteristics as our outcomes of interest.

5.5 Spousal Characteristics

In this section, we focus on married individuals and test whether attending a more selective college affects characteristics of their spouses. We consider three measures related to spousal quality: a human capital measure of having an advanced degree, a labor force participation measure of having positive earnings, and a composite measure of log-earnings. We observe information on spousal education directly in the survey. We calculate the latter two measures using a working definition of spousal earnings as the difference between household earnings and own earnings reported in the survey. We measure effects separately for women and men.

The results of our analysis for women are in Columns 1 to 3 of Table 10. A 100-point increase in school-average SAT scores increases the likelihood that a woman's spouse has an advanced degree by 8.0 percentage points (or 13.4% of the sample mean; Column 1), but has no statistically significant effects on their spousal labor market participation (Column 2) or earnings (Column 3). The significant improvement in spousal education (also present in the basic model in Column 5, Appendix Table A8, the self-revelation model in Column 6, Appendix Table A6, and the alternative matching model in Column 6, Appendix Table A7) and positive point estimates for the other outcomes indicate an improvement in spousal quality among married women for those who attend elite colleges. This implies that the declining marriage rate for those women is more likely due to them setting higher bar for potential spouses rather than to their experiencing a worsening of marriage prospects.

The point estimate on spousal earnings is 0.043, with a standard error of 0.031, so we are not able to rule out moderately-sized effects in either direction. If present, changes in spousal earnings could also contribute to the effects on women's own earnings and labor force participation that we report in Table 3. In particular, drops in spousal earnings could increase women's labor supply because of income effects (if leisure is normal). It is possible that for some couples, increases in spousal earnings would increase women's earnings as well, for example, if women were intentionally suppressing their earnings to avoid surpassing their spouses (Bertrand, Kamenica, and Pan 2015), but this would apply to very few couples in our sample. Instead, we conclude that the lack of any statistically significant negative effect on spousal earnings suggests that changes in unearned income within marriage are not the driving force behind married women's increased earnings (Table 10).

Although the earnings impact is only present for women (Table 3), there are at least a couple of reasons to imagine that men might also experience marriage market benefits from elite college attendance. First, potential spouses might value elite education as a trait in a husband, for its signal value of earnings potential or because of prestige or other direct benefits unrelated to earnings. This could apply to potential spouses, irrespective of their own educational background. Second, the social network effects described in Section 2 could make it more likely that men who attend elite colleges marry others who do as well. Those individuals have significantly higher earnings than do other college graduates, on average, and the unconditional difference is what is relevant here; it does not matter to the man if his spouses' earnings are higher because of innate ability, ambition, or human capital acquired in college. At the same time, the fact that women's earnings and labor force participation are significantly lower than men's implies that the marriage market effects on spousal earnings will be more important for women than for men.

Results for men are reported in the remaining columns of Table 10. We find no support for the hypothesis that elite college attendance improves spousal quality for men. The point estimates are negative and statistically insignificant.[36] In sum, our analysis finds no meaningful effects of attending a more selective school on men's career or

36. Results in Table 10 should be interpreted with caution. Spousal characteristics are only observed for those who are married, and marital

family outcomes. By contrast, we find substantively and statistically significant effects on women's career and family outcomes.

6 Conclusions

Using data from the 1976 college-entering cohort of the College and Beyond survey and an extension of the matched-applicant model in the influential DK study, we examine the effects of college selectivity on a range of previously unexplored career and family outcomes by DK. We start with the same log-earnings outcome as DK, using an expanded sample that includes part-time and partial-year workers as well as non-workers. This increases the sample size sufficiently to be able to estimate separate models for men and women. We find important earnings effects of attending a more selective school for women, but not for men. We then examine several novel outcomes related to labor force participation, human capital accumulation, and family status; on these dimensions, as well, we find substantively and statistically significant effects for women but not for men.

The pattern of estimates for women indicates that elite college attendance increased women's labor force participation and earnings in their late thirties. Attending a more selective college also lowered women's marriage rates while improving their spousal characteristics, possibly because it made them set higher thresholds for accepting marriage offers. These results argue against applying a causal interpretation to the popular descriptions of women with elite educations "opting out" of the paid labor force to devote more time to their families (e.g., Belkin 2003). Women who attend highly selective schools do not all persist in the labor market after marriage and childbearing, but these departures are not induced by their choice of college. In fact, married women with children are the group whose earnings were improved the most by attending a more selective college.

At the same time that we find this range of new effects on women's career and family outcomes, we also confirm and support the original result of DK of no earnings effect of college selectivity on full-time full-year workers. Also consistent with DK, we find no earnings effects for men, none for women after conditioning on their work hours, and none for single or childless women. These differences highlight the importance of gender and family status as sources of heterogeneous effects of college choice among high-achieving students who started college in the mid-1970s. For female students in that cohort, the choice of which college to attend affected a wide range of later-life outcomes.

The finding in this paper of no educational or family status effects for male students, together with the lack of any career benefit, suggests that the value of elite college attendance for them is either limited to certain subpopulations or related to other outcomes. While this paper focuses on the effects of college selectivity on career and family outcomes, the College and Beyond survey also has various questions on subjective wellbeing, including health and

status itself may be affected by college selectivity as shown in Table 9. Furthermore, attending a more selective college is correlated with spousal characteristics for two reasons: cross-productivity between couples and assortative mating. Our analysis does not intend to empirically disentangle the two effects.

satisfaction measures. How college selectivity affects these other outcomes remains an important topic for future research. Although we do find significant effects for women, and these may explain some of the value of elite schooling to them, even those effects appear to entail trade-offs (higher earnings but less leisure, less marriage but higher spousal education) and are not as unambiguously beneficial as higher wage rates would have been alone. This suggests the possibility that students or their parents may value elite colleges partly because of a desire for prestige and status. We are unable to explore the conspicuous consumption motive directly in this paper, and believe it is another promising avenue for future research.

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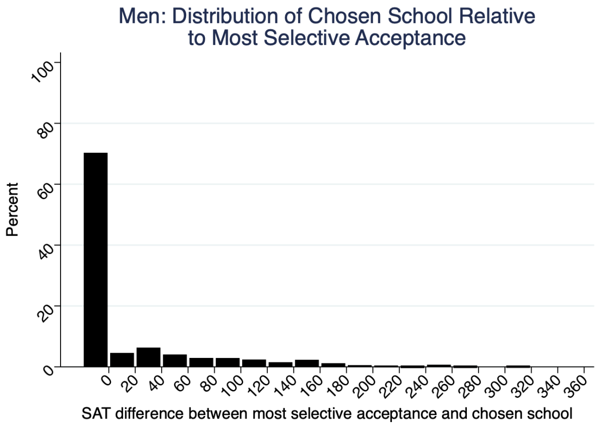
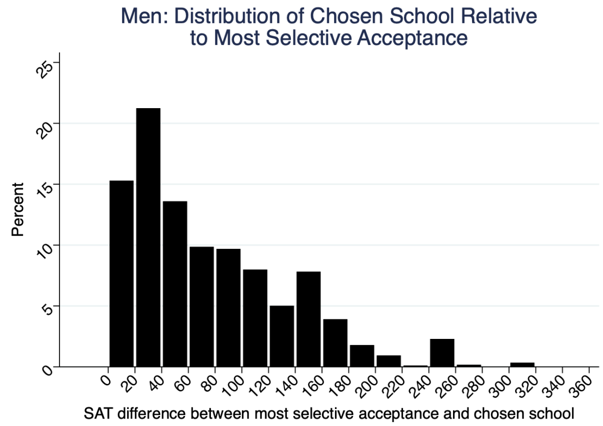
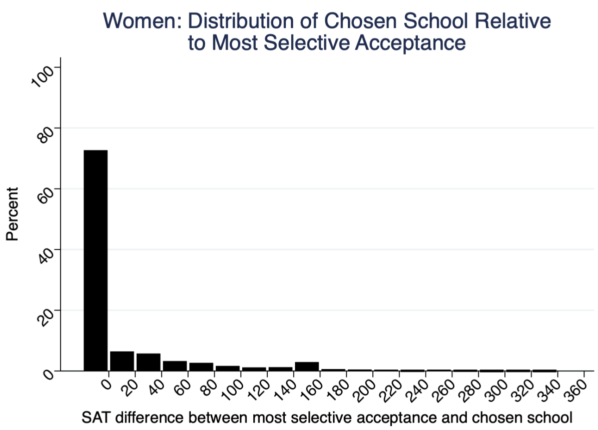
Figure 1: SAT Difference of Chosen School Relative to Most Selective Acceptance



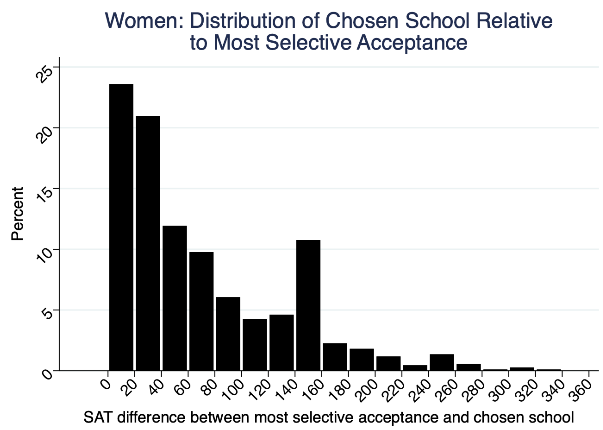
(a) Men



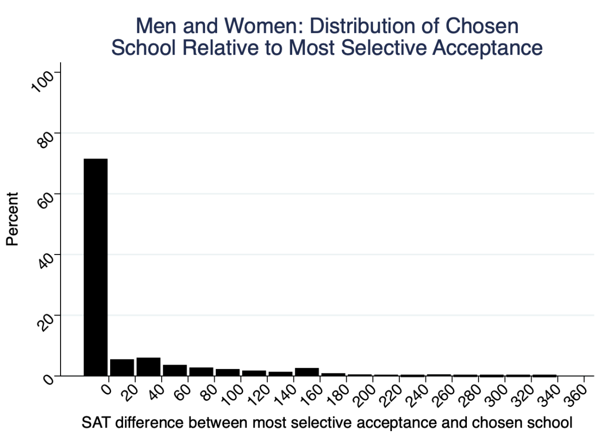
(b) Men (Excluding Zero)



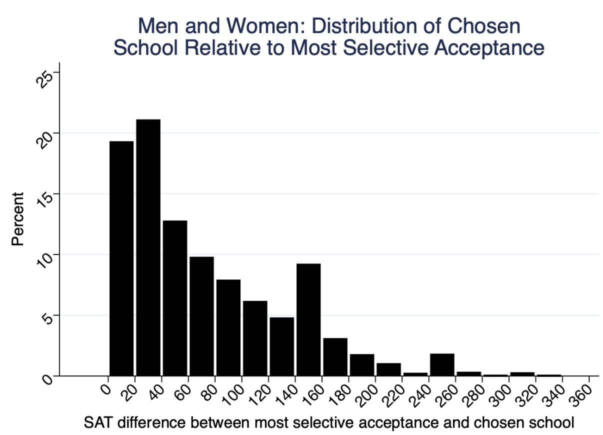
(c) Women



(d) Women (Excluding Zero)



(e) Men and Women



(f) Men and Women (Excluding Zero)

Notes: The data come from the College and Beyond survey for the 1976 college entering cohort. The figure plots the difference between the school-average SAT score at the most selective school the student was accepted to minus the school-average SAT score at the school the student chose. The left-most bars in Panels (a), (c), and (e) show the mass of students at exactly 0, whereas the other bars are grouped into 20-point intervals.

Table 1: Summary Statistics of the College and Beyond Survey: 1976 College Entering Cohort

Panel A: 1976 Characteristics

	DK statistics	All	Women	Men
Female	0.385	0.508	1.000	0.000
	(0.487)	(0.500)	(0.000)	(0.000)
Black	0.050	0.042	0.050	0.035
	(0.219)	(0.201)	(0.217)	(0.183)
Hispanic	0.014	0.012	0.012	0.012
	(0.117)	(0.107)	(0.107)	(0.107)
Asian	0.027	0.022	0.022	0.022
	(0.163)	(0.147)	(0.145)	(0.148)
Other race	0.003	0.003	0.003	0.002
	(0.057)	(0.052)	(0.054)	(0.050)
Predicted log(parental income)	9.997	9.928	9.941	9.915
	(0.349)	(0.298)	(0.299)	(0.296)
Own SAT/100	11.875	11.439	11.170	11.717
	(1.632)	(2.649)	(2.717)	(2.547)
School average SAT/100	11.812	11.784	11.762	11.807
	(0.943)	(0.938)	(0.942)	(0.932)
High school top 10 percent	0.427	0.405	0.392	0.419
	(0.495)	(0.491)	(0.488)	(0.493)
High school rank missing	0.355	0.380	0.403	0.355
	(0.478)	(0.485)	(0.491)	(0.479)
College athlete	0.085	0.083	0.060	0.107
	(0.279)	(0.276)	(0.238)	(0.309)
N	6,335	8,012	4,049	3,963

Panel B: 1995 Characteristics

	DK statistics	All	Women	Men
Log(annual earnings)	11.148	10.504	9.836	11.192
	(0.737)	(1.593)	(1.834)	(0.866)
Full-time, full-year worker		0.750	0.579	0.927
		(0.433)	(0.494)	(0.261)
		[8,012]	[4,049]	[3,963]
Earnings > $1,000		0.911	0.831	0.992
		(0.285)	(0.374)	(0.087)
Graduated college	0.862	0.855	0.850	0.859
	(0.345)	(0.352)	(0.357)	(0.348)
Earned advanced degree	0.573	0.545	0.508	0.582
	(0.495)	(0.498)	(0.500)	(0.493)
Any children		0.704	0.703	0.705
		(0.457)	(0.457)	(0.456)
Married		0.759	0.742	0.777
		(0.428)	(0.438)	(0.416)
N	6,335	8,012	4,049	3,963
Conditional on being married:				
Spousal advanced degree		0.507	0.597	0.419
		(0.500)	(0.491)	(0.493)
		[6,009]	[2,954]	[3,055]
Spousal earnings > $1,000		0.692	0.922	0.469
		(0.462)	(0.269)	(0.499)
		[5,965]	[2,914]	[3,051]
Log(spousal earnings)		10.976	11.140	10.662
		(0.707)	(0.705)	(0.597)
		[4,102]	[2,674]	[1,428]

Notes: All statistics are from the matched-applicant sample and outcomes are reported for the year 1995. Standard deviations are in parentheses, and number of observations are in brackets when it differs from the matched-applicant sample. Means are weighted to reflect sampling procedures at public universities. Spousal earnings are defined as the difference between household earnings and respondent earnings, hence the loss in sample size due to zeros. Means and standard deviations from Dale and Krueger's (2002) sample are copied from their Table II and are reported when available. Dale and Krueger's (2002) sample includes both men and women and includes only full-year full-time workers. Our sample also includes part-time workers and non-workers.

Table 2: Summary Statistics on College Admissions and Choices

	All	Women	Men	Difference between women and men
Attended a less selective school than the most selective school accepted at	0.293	0.278	0.309	-0.031***
	(0.455)	(0.448)	(0.462)	(0.010)
Rejected from most selective school applied to	0.202	0.166	0.239	-0.073***
	(0.401)	(0.372)	(0.426)	(0.009)
Rejected from less selective school than one admitted to	0.059	0.058	0.061	-0.003
	(0.236)	(0.234)	(0.239)	(0.005)
Rejected from at least one school	0.251	0.219	0.285	-0.067***
	(0.434)	(0.413)	(0.452)	(0.010)
First choice school was most selective application	0.613	0.632	0.594	0.037***
	(0.487)	(0.482)	(0.491)	(0.011)
Number of applications	2.536	2.507	2.565	-0.057***
	(0.680)	(0.648)	(0.710)	(0.015)
Number of acceptances	2.228	2.252	2.203	0.049***
	(0.717)	(0.696)	(0.737)	(0.016)
Average SAT/100 of schools applied to	11.545	11.466	11.626	-0.160***
	(1.001)	(0.998)	(0.998)	(0.022)
Average SAT/100 of schools accepted to	11.461	11.406	11.518	-0.112***
	(0.964)	(0.968)	(0.957)	(0.022)
SAT range of applications	131.874	129.262	134.567	-5.305***
	(81.320)	(81.149)	(81.419)	(1.816)
SAT range of acceptances	111.788	113.675	109.842	3.833*
	(87.989)	(88.263)	(87.674)	(1.966)
Attended out-of-state school conditional on being accepted in-state	0.180	0.172	0.188	-0.016*
	(0.384)	(0.377)	(0.391)	(0.009)
Attended in-state school conditional on being accepted out-of-state	0.142	0.145	0.139	0.006
	(0.349)	(0.352)	(0.346)	(0.008)
Applied to at least one single-sex school	0.103	0.197	0.006	0.190***
	(0.304)	(0.398)	(0.080)	(0.006)
Observations	8,012	4,049	3,963	

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. All statistics are from the matched-applicant sample. Standard deviations are in parentheses. Means are weighted to reflect sampling procedures at public universities.

Table 3: Effects of College Selectivity on Career Outcomes

	Outcome: ln(earnings)		Outcome: earnings > \$1,000	Outcome: FTFY worker
Panel A: Men and Women	(1) Basic model	(2) Matching model	(3) Matching model	(4) Matching model
School-average SAT score/100	0.134***	0.071*	0.009	0.001
	(0.016)	(0.041)	(0.006)	(0.010)
Adjusted R^2	0.196	0.208	0.099	0.171
N	8,012	8,012	8,012	8,012
Panel B: Women	(1) Basic model	(2) Matching model	(3) Matching model	(4) Matching model
School-average SAT score/100	0.189***	0.139*	0.023**	0.004
	(0.029)	(0.069)	(0.011)	(0.022)
Adjusted R^2	0.029	0.046	0.032	0.021
N	4,049	4,049	4,049	4,049
Panel C: Men	(1) Basic model	(2) Matching model	(3) Matching model	(4) Matching model
School-average SAT score/100	0.078***	0.011	-0.004	-0.002
	(0.016)	(0.033)	(0.003)	(0.008)
Adjusted R^2	0.026	0.047	0.026	0.030
N	3,963	3,963	3,963	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are sex (basic and self-revelation models in Panel A only), race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. The basic model includes no additional selection controls, the self-revelation model additionally controls for the average SAT score of the colleges to which the student applied and indicator variables for the number of additional applications submitted, and the matching model replaces the self-revelation selection controls with a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table 4: Earnings Effects for Alternative Samples and Matching Rule

Panel A: Men and Women

	(1) Matching model	(2) Matching model on earners above $1,000	(3) Matching model on FTFY sample	(4) FTFY workers with DK matches
School-average SAT score/100	0.071*	0.037	0.018	0.019
	(0.041)	(0.027)	(0.028)	(0.020)
Adjusted R^2	0.208	0.176	0.128	0.118
N	8,012	7,309	5,647	6,200

Panel B: Women

	(1) Matching model	(2) Matching model on earners above $1,000	(3) Matching model on FTFY sample
School-average SAT score/100	0.139*	0.046	0.006
	(0.069)	(0.048)	(0.043)
Adjusted R^2	0.046	0.042	0.074
N	4,049	3,381	2,146

Panel C: Men

	(1) Matching model	(2) Matching model on earners above $1,000	(3) Matching model on FTFY sample
School-average SAT score/100	0.011	0.033	0.026
	(0.033)	(0.029)	(0.031)
Adjusted R^2	0.047	0.056	0.056
N	3,963	3,928	3,501

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Samples using the FTFY worker outcome are further conditioned on having positive earnings at all. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models and all outcomes are log 1995 earnings. The matching model controls for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table 5: College Selectivity and Maternal Labor Supply

	Women		Men	
	(1)	(2)	(3)	(4)
	Outcome: ln(earnings)	Outcome: school-average SAT/100	Outcome: ln(earnings)	Outcome: school-average SAT/100
School-average SAT score/100	0.135*		0.011	
	(0.068)		(0.032)	
Mother worked during senior year HS	0.276***	0.011	-0.053	-0.005
	(0.087)	(0.010)	(0.043)	(0.013)
Adjusted R^2	0.051	0.815	0.047	0.789
N	4,049	4,049	3,963	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table 6: Decomposing the Effects of College Selectivity on Earnings Using Education

Panel A: Women

	(1)	(2)	(3)	(4)	(5)
	Outcome: graduated	Outcome: has advanced degree	Outcome: ln(earnings)		
School-average SAT score/100	-0.006	0.048***	0.021	0.159*	0.096
	(0.009)	(0.015)	(0.094)	(0.080)	(0.128)
Graduated × School-average SAT score/100			0.140		0.081
			(0.095)		(0.122)
Graduated			-1.626		-1.018
			(1.154)		(1.485)
Advanced degree × School-average SAT score/100				-0.088	-0.096
				(0.092)	(0.085)
Has advanced degree				1.597	1.693
				(1.097)	(1.000)
P-value of marginal effect of college selectivity[a]			0.022	0.331	0.057
Adjusted R^2	0.094	0.087	0.051	0.071	0.068
N	4,049	4,049	4,049	4,049	4,049

Panel B: Men

	(1)	(2)	(3)	(4)	(5)
	Outcome: graduated	Outcome: has advanced degree	Outcome: ln(earnings)		
School-average SAT score/100	-0.004	-0.005	-0.060	0.003	-0.043
	(0.007)	(0.018)	(0.071)	(0.030)	(0.072)
Graduated × School-average SAT score/100			0.051		0.039
			(0.072)		(0.067)
Graduated			-0.175		-0.090
			(0.831)		(0.755)
Advanced degree × School-average SAT score/100				-0.001	0.014
				(0.037)	(0.036)
Has advanced degree				0.285	0.046
				(0.449)	(0.443)
P-value of marginal effect of college selectivity[a]			0.778	0.959	0.904
Adjusted R^2	0.027	0.081	0.072	0.068	0.085
N	3,963	3,963	3,963	3,963	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

a: The p-value in column 3 tests whether (School-average SAT/100) + (Graduated × School-average SAT/100) is statistically different from zero, which is the marginal effect of college selectivity on earnings among individuals who graduated. The p-value in column 4 tests whether (School-average SAT/100) + (Advanced degree × School-average SAT/100) is statistically different from zero, which is the marginal effect of college selectivity on earnings among individuals who earned an advanced degree. The p-value in column 5 again tests whether (School-average SAT/100) + (Graduated × School-average SAT/100) is statistically different from zero, which is the marginal effect of college selectivity on earnings among individuals who graduated but did not earn an advanced degree.

Table 7: Effects of College Selectivity on Educational and Occupational Fields

	College major		Advanced Degree Field		Occupation	
	(1) Women	(2) Men	(3) Women	(4) Men	(5) Women	(6) Men
STEM	-0.021	-0.096**	-0.016	-0.052**	-0.035***	-0.032**
	(0.018)	(0.036)	(0.014)	(0.019)	(0.010)	(0.015)
Social science	0.039*	0.081***	0.020	-0.005	0.014	-0.011
	(0.022)	(0.027)	(0.012)	(0.008)	(0.014)	(0.011)
Humanities	-0.032	-0.024*	0.028***	-0.002	0.009	0.010
	(0.028)	(0.014)	(0.011)	(0.008)	(0.010)	(0.008)
Business	-0.026	0.035	-0.024	0.006	-0.028	0.023
	(0.017)	(0.028)	(0.022)	(0.016)	(0.018)	(0.021)
Health			0.014	-0.004	0.027*	-0.010
			(0.010)	(0.007)	(0.015)	(0.010)
Law			0.021*	0.029	0.020*	0.016
			(0.011)	(0.019)	(0.011)	(0.015)
Other	0.012	-0.007	-0.015	-0.002	-0.007	0.003
	(0.011)	(0.005)	(0.012)	(0.006)	(0.009)	(0.015)
N	4,049	3,963	4,049	3,963	4,049	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models, and each coefficient is the coefficient on school-average SAT score from a separate regression. The matching model controls for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table 8: Effects of College Selectivity on Earnings with Major and Occupation Field Controls

	Outcome: has advanced degree		Outcome: ln(earnings)			
	(1) Women	(2) Men	(3) Women	(4) Men	(5) Women	(6) Men
School-average SAT score/100	0.049***	0.001	0.128*	0.000	0.124*	-0.001
	(0.015)	(0.016)	(0.068)	(0.032)	(0.066)	(0.029)
Major field controls	✓	✓	✓	✓		
Occupation controls					✓	✓
Adjusted R^2	0.101	0.102	0.049	0.088	0.065	0.166
N	4,049	3,963	4,049	3,963	4,049	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table 9: Decomposing the Effects of College Selectivity on Earnings Using Family Status

Panel A: Women

	(1) Outcome: married	(2) Outcome: any children	(3) Outcome: ln(earnings)	(4)	(5)
School-average SAT score/100	-0.039**	-0.024	-0.023	0.009	-0.054
	(0.019)	(0.018)	(0.072)	(0.070)	(0.071)
Married × School-average SAT score/100			0.179***		0.141*
			(0.051)		(0.073)
Married			-3.039***		-2.084**
			(0.580)		(0.877)
Any children × School-average SAT score/100				0.168**	0.093
				(0.066)	(0.080)
Any children				-3.025***	-1.894*
				(0.766)	(0.935)
P-value of marginal effect of college selectivity[a]			0.048	0.023	0.028
Adjusted R^2	0.021	0.017	0.095	0.113	0.119
N	4,049	4,049	4,049	4,049	4,049

Panel B: Men

	(1) Outcome: married	(2) Outcome: any children	(3) Outcome: ln(earnings)	(4)	(5)
School-average SAT score/100	0.022	0.021	-0.011	-0.040	-0.019
	(0.017)	(0.020)	(0.041)	(0.040)	(0.038)
Married × School-average SAT score/100			0.017		-0.051
			(0.035)		(0.065)
Married			0.235		0.827
			(0.396)		(0.747)
Any children × School-average SAT score/100				0.062*	0.085
				(0.030)	(0.060)
Any children				-0.294	-0.686
				(0.343)	(0.688)
P-value of marginal effect of college selectivity[a]			0.857	0.490	0.630
Adjusted R^2	0.016	0.016	0.089	0.099	0.106
N	3,963	3,963	3,963	3,963	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

a: The p-value in column 3 tests whether (School-average SAT/100) + (Married × School-average SAT/100) is statistically different from zero, which is the marginal effect of college selectivity on earnings among married individuals. The p-value in column 4 tests whether (School-average SAT/100) + (Any children × School-average SAT/100) is statistically different from zero, which is the marginal effect of college selectivity on earnings among individuals with children. The p-value in column 5 tests whether (School-average SAT/100) + (Married × School-average SAT/100) + (Any children × School-average SAT/100) is statistically different from zero, which is the marginal effect of college selectivity on earnings among married individuals with children.

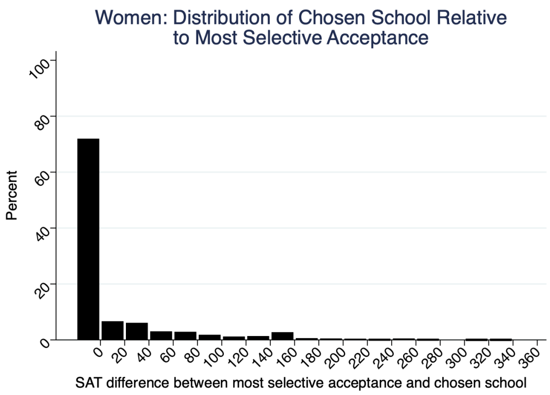
Table 10: Effects of College Selectivity on Spousal Characteristics

	Married Women			Married Men		
	(1) Outcome: spouse has advanced degree	(2) Outcome: spousal earnings > $1,000	(3) Outcome: spouse's ln(earnings)	(4) Outcome: spouse has advanced degree	(5) Outcome: spousal earnings > $1,000	(6) Outcome: spouse's ln(earnings)
School-average SAT score/100	0.080***	0.008	0.043	-0.005	-0.000	-0.074
	(0.017)	(0.011)	(0.031)	(0.023)	(0.015)	(0.044)
Adjusted R^2	0.082	0.002	0.047	0.066	-0.004	0.061
N	2,954	2,914	2,674	3,055	3,051	1,428

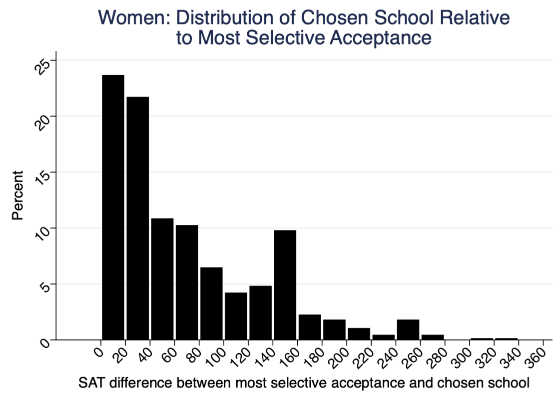
Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Spousal earnings are defined as the difference between household earnings and respondent earnings, and the sample for this variable is limited to observations with positive values. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. Other control variables included in all regressions, but whose coefficients are not reported, are race, ethnicity, SAT score, high school class rank, (predicted log of) parental income and an indicator for being an athlete in college. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

A Appendix: Additional Figures and Tables

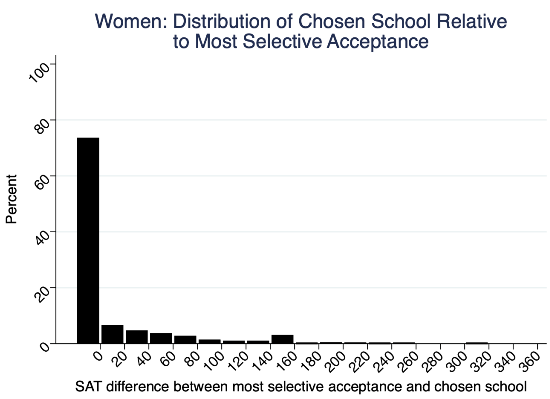
Figure A1: SAT Difference Between Chosen School and Most Selective Acceptance for Women with Different Labor Supply



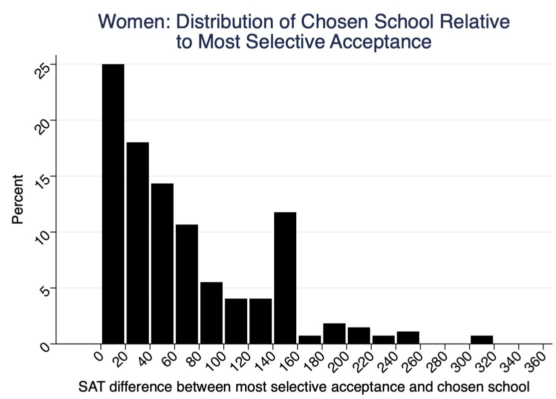
(a) Women, FTFY Workers



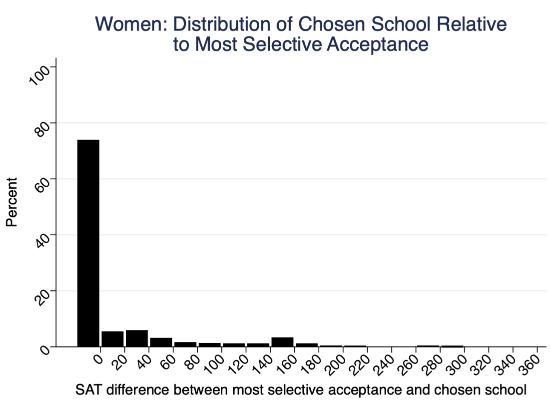
(b) Women, FTFY Workers (Excluding Zero)



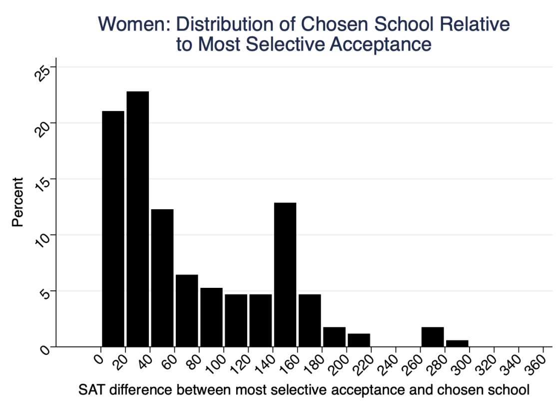
(c) Women, Part Time Workers



(d) Women, Part Time Workers (Excluding Zero)



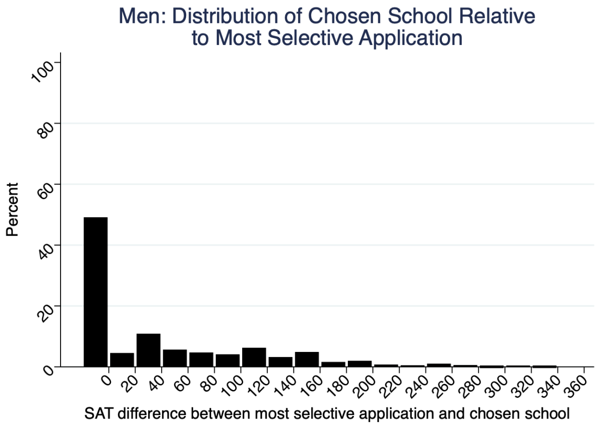
(e) Women, Non-Workers



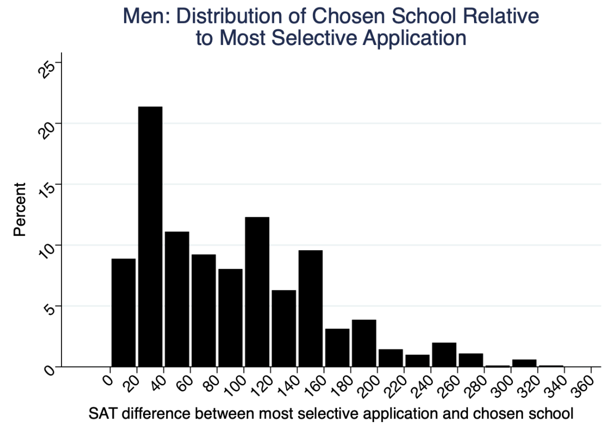
(f) Women, Non-Workers (Excluding Zero)

Notes: The data come from the College and Beyond survey for the 1976 college entering cohort. The figure plots the difference between the school-average SAT score at the most selective school the student was accepted at minus the school-average SAT score at the school the student chose. The left-most bars in Panels (a), (c), and (e) show the mass of students at exactly 0, whereas the other bars are grouped into 20-point intervals.

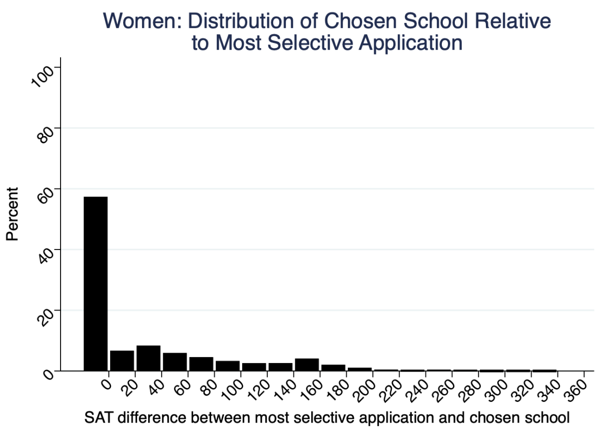
Figure A2: SAT Difference of Chosen School Relative to Most Selective Application



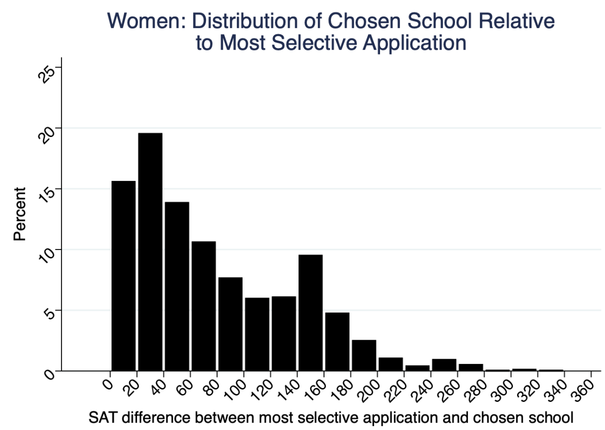
(a) Men



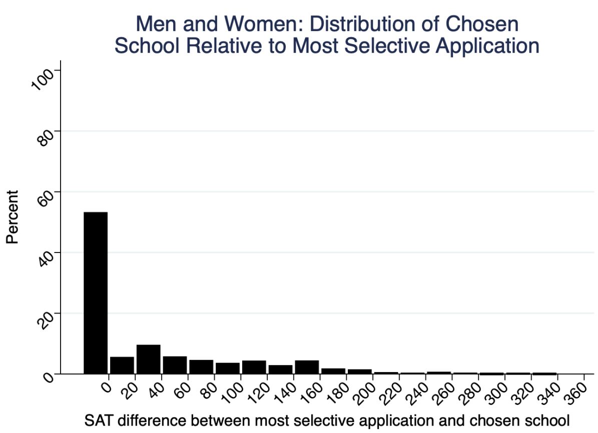
(b) Men (Excluding Zero)



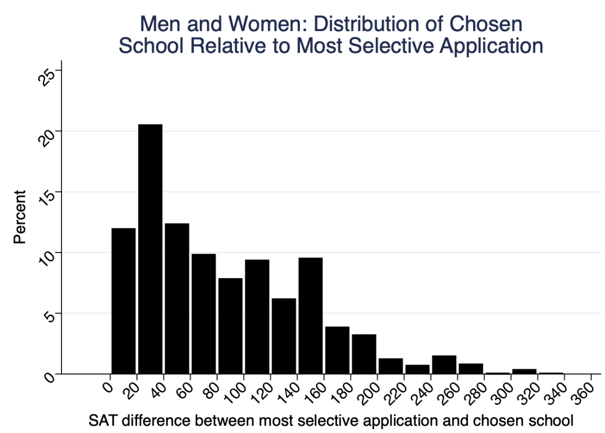
(c) Women



(d) Women (Excluding Zero)



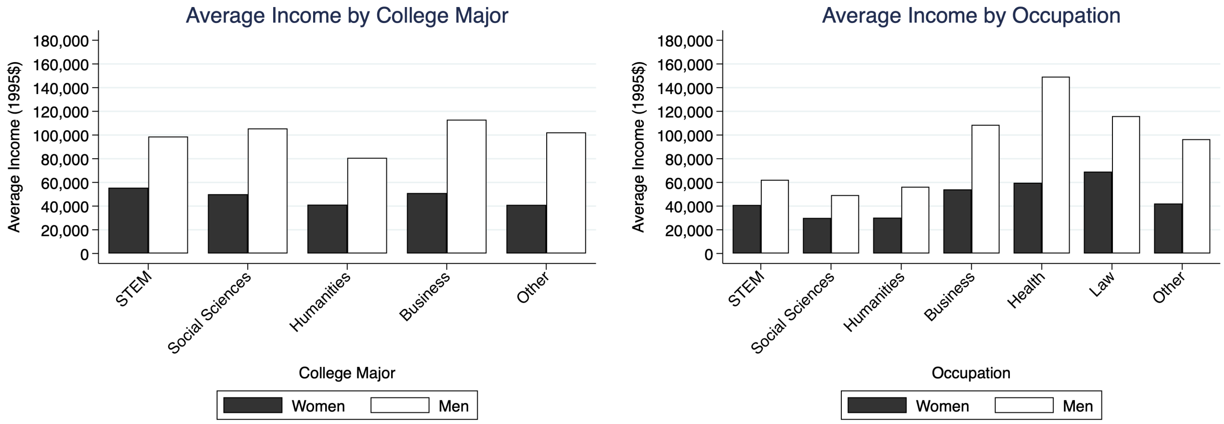
(e) Men and Women



(f) Men and Women (Excluding Zero)

Notes: The data come from the College and Beyond survey for the 1976 college entering cohort. The figure plots the difference between the school-average SAT score at the most selective school the student applied to minus the school-average SAT score at the school the student chose. The left-most bars in Panels (a), (c), and (e) show the mass of students at exactly 0, whereas the other bars are grouped into 20-point intervals.

Figure A3: Average Income by College Major and Occupation



(a) Average Income by College Major

(b) Average Income by Occupation

Notes: The data come from the College and Beyond survey for the 1976 college entering cohort. The figure plots the average reported income for individuals in the matched applicant sample within each college major or occupation field.

Table A1: Illustration of Matched-Applicant Group Construction

		Student applications to college							
		Application 1		Application 2		Application 3		Application 4	
Student	Matched-applicant group	School average SAT	School admissions decision	School average SAT	School admissions decision	School average SAT	School admissions decision	School average SAT	School admissions decision
Student A	1	1280	Reject	1226	Accept*	1215	Accept	na	na
Student B	1	1280	Reject	1226	Accept	1215	Accept*	na	na
Student C	2	1360	Accept	1310	Reject	1270	Accept*	1155	Accept
Student D	2	1355	Accept	1316	Reject	1270	Accept*	1160	Accept
Student E	2	1370	Accept*	1316	Reject	1260	Accept	1150	Accept
Student F	Excluded	1180	Accept*	na	na	na	na	na	na
Student G	Excluded	1180	Accept*	na	na	na	na	na	na
Student H	3	1360	Accept	1308	Accept*	1260	Accept	1160	Accept
Student I	3	1370	Accept*	1311	Accept	1255	Accept	1155	Accept
Student J	3	1350	Accept	1316	Accept*	1265	Accept	1155	Accept
Student K	4	1245	Reject	1217	Reject	1180	Accept*	na	na
Student L	4	1235	Reject	1209	Reject	1180	Accept*	na	na
Student M	5	1140	Accept	1055	Accept*	na	na	na	na
Student N	5	1145	Accept*	1060	Accept	na	na	na	na
Student O	No match	1370	Reject	1038	Accept*	na	na	na	na

Notes: This table is reproduced from Dale and Krueger (2002), Table I.
* Denotes school attended.
na = did not report submitting application.
The data shown on this table represent hypothetical students. Students F and G would be excluded from the matched-applicant subsample because they applied to only one school (the school they attended). Student O would be excluded because no other student applied to an equivalent set of institutions.

Table A2: Summary Statistics for the Full Sample of the College and Beyond Survey: 1976 College Entering Cohort

Panel A: 1976 Characteristics

	DK statistics	All	Women	Men
Female	0.392	0.507	1.000	0.000
	(0.488)	(0.500)	(0.000)	(0.000)
Black	0.050	0.042	0.051	0.034
	(0.218)	(0.202)	(0.219)	(0.182)
Hispanic	0.013	0.011	0.010	0.011
	(0.115)	(0.102)	(0.101)	(0.103)
Asian	0.023	0.020	0.019	0.022
	(0.150)	(0.140)	(0.135)	(0.145)
Other race	0.003	0.003	0.004	0.003
	(0.059)	(0.059)	(0.059)	(0.056)
Predicted log(parental income)	9.984	9.919	9.928	9.909
	(0.353)	(0.302)	(0.303)	(0.300)
Own SAT/100	11.672	11.170	10.933	11.414
	(1.634)	(2.795)	(2.824)	(2.744)
School average SAT/100	11.655	11.642	11.632	11.653
	(0.943)	(0.941)	(0.948)	(0.934)
High school top 10 percent	0.418	0.395	0.393	0.397
	(0.493)	(0.489)	(0.488)	(0.489)
High school rank missing	0.356	0.388	0.398	0.377
	(0.479)	(0.487)	(0.489)	(0.485)
College athlete	0.078	0.079	0.060	0.099
	(0.268)	(0.270)	(0.237)	(0.298)
N	14,238	19,655	9,917	9,738

Panel B: 1995 Characteristics

	DK statistics	All	Women	Men
Log(annual earnings)	11.096	10.475	9.818	11.152
	(0.747)	(1.580)	(1.819)	(0.872)
Full-time, full-year worker		0.753	0.585	0.927
		(0.431)	(0.493)	(0.260)
Earnings > $1,000		0.911	0.833	0.992
		(0.285)	(0.373)	(0.089)
Graduated college	0.839	0.837	0.834	0.840
	(0.367)	(0.370)	(0.372)	(0.367)
Earned advanced degree	0.542	0.515	0.482	0.549
	(0.498)	(0.500)	(0.500)	(0.498)
Any children		0.699	0.696	0.701
		(0.459)	(0.460)	(0.458)
Married		0.756	0.741	0.772
		(0.429)	(0.438)	(0.419)
N	14,238	19,655	9,917	9,738
Conditional on being married:				
Spousal advanced degree		0.487	0.572	0.403
		(0.500)	(0.495)	(0.490)
		[14,695]	[7,234]	[7,460]
Spousal earnings > $1,000		0.696	0.923	0.475
		(0.460)	(0.267)	(0.499)
		[14,603]	[7,144]	[7,458]
Log(spousal earnings)		10.940	11.101	10.635
		(0.709)	(0.710)	(0.599)
		[10,093]	[6,566]	[3,527]

Notes: All statistics are from the full sample and outcomes are reported for the year 1995. Standard deviations are in parentheses, and number of observations are in braces when it differs from the matched-applicant sample. Means are weighted to reflect sampling procedures at public universities. Spousal earnings are defined as the difference between household earnings and respondent earnings, hence the loss in sample size due to zeros. Means and standard deviations from Dale and Krueger's (2002) sample are copied from their Table II and are reported when available. Dale and Krueger's (2002) sample includes both men and women and includes only full-year full-time workers. Our sample also includes part-time workers and non-workers.

Table A3: Full Results for Men and Women: Effect of College Selectivity on Career Outcomes

	Outcome: ln(earnings)		Outcome: earnings > $1,000	Outcome: FTFY worker
	(1) Basic model	(2) Matching model	(3) Matching model	(4) Matching model
School-average SAT score/100	0.134***	0.071*	0.009	0.001
	(0.016)	(0.041)	(0.006)	(0.010)
Predicted log(parental income)	-0.068	-0.110	-0.039**	-0.068***
	(0.060)	(0.083)	(0.015)	(0.024)
Own SAT score/100	0.004	-0.011	0.001	-0.004
	(0.014)	(0.020)	(0.003)	(0.005)
Own SAT score missing	0.160	0.077	0.061	0.029
	(0.168)	(0.278)	(0.044)	(0.056)
Black	0.321***	0.368***	0.085***	0.136***
	(0.090)	(0.107)	(0.017)	(0.028)
Hispanic	-0.028	-0.001	-0.010	-0.001
	(0.146)	(0.173)	(0.032)	(0.036)
Asian	0.479***	0.488***	0.061***	0.105***
	(0.091)	(0.107)	(0.015)	(0.025)
Other/missing race	0.086	0.127	0.018	0.185*
	(0.292)	(0.314)	(0.054)	(0.091)
High school top 10 percent	0.188***	0.206***	0.024***	0.033*
	(0.047)	(0.059)	(0.009)	(0.018)
High school rank missing	0.094***	0.091*	0.017**	0.004
	(0.032)	(0.050)	(0.008)	(0.014)
Athlete	0.167***	0.218***	0.024***	0.028**
	(0.042)	(0.037)	(0.008)	(0.012)
Female	-1.347***			
	(0.051)			
Adjusted R^2	0.196	0.208	0.099	0.171
N	8,012	8,012	8,012	8,012

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort of men and women. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. The basic model includes no additional selection controls, the self-revelation model additionally controls for the average SAT score of the colleges to which the student applied and indicator variables for the number of additional applications submitted, and the matching model replaces the self-revelation selection controls with a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table A4: Full Results for Women: Effect of College Selectivity on Career Outcomes

	Outcome: ln(earnings)		Outcome: earnings > \$1,000	Outcome: FTFY worker
	(1) Basic model	(2) Matching model	(3) Matching model	(4) Matching model
School-average SAT score/100	0.189***	0.139*	0.023**	0.004
	(0.029)	(0.069)	(0.011)	(0.022)
Predicted log(parental income)	-0.321***	-0.358**	-0.081***	-0.111**
	(0.105)	(0.139)	(0.027)	(0.041)
Own SAT score/100	0.024	0.006	0.003	-0.003
	(0.024)	(0.035)	(0.006)	(0.008)
Own SAT score missing	0.550**	0.450	0.117	0.100
	(0.238)	(0.397)	(0.076)	(0.093)
Black	0.690***	0.817***	0.141***	0.255***
	(0.120)	(0.145)	(0.024)	(0.039)
Hispanic	-0.194	-0.112	-0.027	0.033
	(0.256)	(0.278)	(0.065)	(0.069)
Asian	0.808***	0.797***	0.108***	0.180***
	(0.123)	(0.141)	(0.024)	(0.040)
Other/missing race	0.621*	0.646	0.064	0.331*
	(0.360)	(0.631)	(0.116)	(0.192)
High school top 10 percent	0.235***	0.262***	0.035**	0.037
	(0.079)	(0.094)	(0.016)	(0.025)
High school rank missing	0.093	0.118	0.028*	-0.014
	(0.074)	(0.089)	(0.016)	(0.021)
Athlete	0.156	0.273***	0.045**	0.031
	(0.101)	(0.072)	(0.018)	(0.032)
Adjusted R^2	0.029	0.046	0.032	0.021
N	4,049	4,049	4,049	4,049

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort of women. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. The basic model includes no additional selection controls, the self-revelation model additionally controls for the average SAT score of the colleges to which the student applied and indicator variables for the number of additional applications submitted, and the matching model replaces the self-revelation selection controls with a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table A5: Full Results for Men: Effect of College Selectivity on Career Outcomes

	Outcome: ln(earnings)		Outcome: earnings > $1,000	Outcome: FTFY worker
	(1) Basic model	(2) Matching model	(3) Matching model	(4) Matching model
School-average SAT score/100	0.078***	0.011	-0.004	-0.002
	(0.016)	(0.033)	(0.003)	(0.008)
Predicted log(parental income)	0.204***	0.156**	0.005	-0.019
	(0.063)	(0.069)	(0.005)	(0.019)
Own SAT score/100	-0.017	-0.031	-0.002	-0.004
	(0.017)	(0.018)	(0.002)	(0.003)
Own SAT score missing	-0.283	-0.421	-0.018	-0.075
	(0.236)	(0.283)	(0.020)	(0.056)
Black	-0.249***	-0.308***	-0.000	-0.042
	(0.056)	(0.073)	(0.010)	(0.029)
Hispanic	0.138	0.131	0.010	-0.025
	(0.169)	(0.176)	(0.008)	(0.041)
Asian	0.188**	0.177*	0.014**	0.026
	(0.086)	(0.087)	(0.007)	(0.018)
Other/missing race	-0.640	-0.580	-0.055	-0.000
	(0.418)	(0.395)	(0.050)	(0.078)
High school top 10 percent	0.145***	0.138**	0.012*	0.025
	(0.038)	(0.053)	(0.006)	(0.020)
High school rank missing	0.101***	0.068	0.005	0.027
	(0.033)	(0.044)	(0.005)	(0.018)
Athlete	0.191***	0.186***	0.011***	0.030**
	(0.039)	(0.043)	(0.004)	(0.013)
Adjusted R^2	0.026	0.047	0.026	0.030
N	3,963	3,963	3,963	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort of men. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. The basic model includes no additional selection controls, the self-revelation model additionally controls for the average SAT score of the colleges to which the student applied and indicator variables for the number of additional applications submitted, and the matching model replaces the self-revelation selection controls with a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table A6: Self-Revelation Model Estimates of the Effect of College Selectivity on Career and Marriage Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Men and Women						
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.047**	0.006	0.004	0.026***	-0.024**	0.023**
	(0.021)	(0.005)	(0.009)	(0.009)	(0.010)	(0.010)
Adjusted R^2	0.198	0.086	0.169	0.087	0.018	0.096
N	8,012	8,012	8,012	8,012	8,012	6,009
Panel B: Women						
	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.084**	0.014	0.012	0.036***	-0.042***	0.024*
	(0.039)	(0.009)	(0.017)	(0.012)	(0.013)	(0.012)
Adjusted R^2	0.031	0.015	0.023	0.091	0.021	0.070
N	4,049	4,049	4,049	4,049	4,049	2,954
Panel C: Men						
	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.009	-0.003	-0.004	0.016	-0.008	0.021
	(0.022)	(0.002)	(0.005)	(0.010)	(0.012)	(0.015)
Adjusted R^2	0.031	0.003	0.001	0.075	0.013	0.064
N	3,963	3,963	3,963	3,963	3,963	3,055

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. All models are self-revelation models, which control for the average SAT score of the colleges to which the student applied and indicator variables for the number of additional applications submitted.

Table A7: Matching Estimates Based on Applications Only

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Men and Women						
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.077**	0.010	0.001	0.035***	-0.008	0.051***
	(0.035)	(0.007)	(0.010)	(0.009)	(0.012)	(0.011)
Adjusted R^2	0.205	0.097	0.173	0.094	0.022	0.100
N	8,012	8,012	8,012	8,012	8,012	6,009
Panel B: Women	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.150**	0.025*	0.006	0.047***	-0.030*	0.076***
	(0.064)	(0.014)	(0.020)	(0.013)	(0.015)	(0.019)
Adjusted R^2	0.041	0.026	0.024	0.093	0.025	0.081
N	4,049	4,049	4,049	4,049	4,049	2,954
Panel C: Men	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.020	-0.003	-0.002	0.025*	0.012	0.027
	(0.030)	(0.003)	(0.006)	(0.013)	(0.013)	(0.017)
Adjusted R^2	0.042	0.010	0.024	0.087	0.017	0.064
N	3,963	3,963	3,963	3,963	3,963	3,055

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort of men and women. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. All models are matching models in which the matching process is based on *applying* to the same set of similar schools, but is not conditional on acceptances or rejections, and are estimated on the original matched-applicant sample.

Table A8: Basic Model Estimates of the Effect of College Selectivity on Career and Marriage Outcomes

	(1)	(2)	(3)	(4)	(5)
Panel A: Men and Women					
	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.011***	0.012*	0.062***	-0.024***	0.068***
	(0.004)	(0.007)	(0.009)	(0.008)	(0.009)
Adjusted R^2	0.086	0.169	0.083	0.017	0.091
N	8,012	8,012	8,012	8,012	6,009
Panel B: Women					
	(1)	(2)	(3)	(4)	(5)
	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.025***	0.027**	0.079***	-0.033***	0.072***
	(0.006)	(0.012)	(0.011)	(0.011)	(0.011)
Adjusted R^2	0.015	0.023	0.087	0.021	0.065
N	4,049	4,049	4,049	4,049	2,954
Panel C: Men					
	(1)	(2)	(3)	(4)	(5)
	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	-0.003*	-0.003	0.045***	-0.016*	0.062***
	(0.002)	(0.003)	(0.009)	(0.009)	(0.011)
Adjusted R^2	0.004	0.002	0.073	0.012	0.058
N	3,963	3,963	3,963	3,963	3,055

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. All models are basic models estimated on the sample of matched applicants, meaning they do not include the dummy variables for sets of matched applicants.

Table A9: Matching Model Estimates Using an Expanded Sample Including HBCUs

Panel A: Men and Women

	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.055	0.008	0.001	0.022*	-0.010	0.035**
	(0.035)	(0.005)	(0.009)	(0.012)	(0.016)	(0.014)
Adjusted R^2	0.205	0.096	0.169	0.088	0.026	0.100
N	8,223	8,223	8,223	8,223	8,223	6,127

Panel B: Women

	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.108*	0.019**	0.006	0.049***	-0.045**	0.085***
	(0.056)	(0.009)	(0.018)	(0.013)	(0.019)	(0.017)
Adjusted R^2	0.044	0.031	0.024	0.084	0.031	0.083
N	4,170	4,170	4,170	4,170	4,170	3,013

Panel C: Men

	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: ln(earnings)	Outcome: earnings > $1,000	Outcome: FTFY worker	Outcome: has advanced degree	Outcome: married	Outcome: spouse has advanced degree
School-average SAT score/100	0.000	-0.004*	-0.004	-0.006	0.025	-0.010
	(0.029)	(0.002)	(0.008)	(0.018)	(0.017)	(0.022)
Adjusted R^2	0.051	0.023	0.029	0.084	0.019	0.068
N	4,053	4,053	4,053	4,053	4,053	3,114

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort and include all schools, including the four historically black colleges and universities (HBCUs). Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table A10: Full Results: Effect of College Selectivity on Career Outcomes with Controls for Maternal Labor Supply

	Women		Men	
	(1) Outcome: ln(earnings)	(2) Outcome: school-average SAT/100	(3) Outcome: ln(earnings)	(4) Outcome: school-average SAT/100
School-average SAT score/100	0.135*		0.011	
	(0.068)		(0.032)	
Mother worked during senior year HS	0.276***	0.011	-0.053	-0.005
	(0.087)	(0.010)	(0.043)	(0.013)
Own SAT score/100	0.005	0.024***	-0.030	0.034***
	(0.035)	(0.007)	(0.018)	(0.010)
Predicted log(parental income)	-0.236*	0.021	0.134*	-0.010
	(0.133)	(0.018)	(0.072)	(0.028)
Own SAT score missing	0.433	0.269**	-0.410	0.457***
	(0.401)	(0.102)	(0.281)	(0.141)
Black	0.776***	0.092**	-0.297***	0.095*
	(0.146)	(0.039)	(0.073)	(0.046)
Hispanic	-0.110	0.248**	0.133	0.045
	(0.287)	(0.095)	(0.174)	(0.101)
Asian	0.786***	-0.008	0.182**	0.036
	(0.140)	(0.032)	(0.088)	(0.038)
Other/missing race	0.664	0.325**	-0.581	-0.136
	(0.604)	(0.143)	(0.390)	(0.204)
High school top 10 percent	0.255***	0.029	0.137**	-0.027
	(0.091)	(0.022)	(0.053)	(0.024)
High school rank missing	0.117	-0.002	0.068	-0.083
	(0.084)	(0.035)	(0.044)	(0.056)
Athlete	0.268***	0.078***	0.187***	0.075**
	(0.072)	(0.023)	(0.043)	(0.029)
Adjusted R^2	0.051	0.815	0.047	0.789
N	4,049	4,049	3,963	3,963

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses and are clustered at the school-of-matriculation level. The data come from the College and Beyond survey for the 1976 college entering cohort of men and women. Estimates are weighted using sampling weights from the College and Beyond survey to reflect sampling procedures at public universities. All models are matching models, which control for selection by including a set of group indicator variables for students who applied to, were accepted at, and were rejected from the same set of similar schools.

Table A11: Summary Statistics on Educational and Occupational Fields

	Women			Men		
	College major	Advanced degree field	Occupation	College major	Advanced degree field	Occupation
STEM	0.190	0.106	0.087	0.339	0.126	0.137
	(0.392)	(0.307)	(0.282)	(0.474)	(0.332)	(0.344)
Social sciences	0.335	0.129	0.141	0.289	0.054	0.075
	(0.472)	(0.335)	(0.348)	(0.453)	(0.226)	(0.263)
Humanities	0.244	0.091	0.088	0.138	0.055	0.048
	(0.430)	(0.287)	(0.283)	(0.345)	(0.228)	(0.214)
Business	0.083	0.164	0.367	0.142	0.199	0.369
	(0.276)	(0.370)	(0.482)	(0.349)	(0.400)	(0.483)
Health		0.058	0.129		0.105	0.098
		(0.234)	(0.335)		(0.307)	(0.298)
Law		0.093	0.071		0.149	0.097
		(0.291)	(0.258)		(0.356)	(0.296)
Other	0.073	0.038	0.117	0.021	0.023	0.176
	(0.261)	(0.190)	(0.321)	(0.142)	(0.151)	(0.381)
Observations	4,049	4,049	4,049	3,963	3,963	3,963

Notes: All statistics are from the matched-applicant sample. Standard deviations are in parentheses. Means are weighted to reflect sampling procedures at public universities. Some college majors and advanced degree fields are missing (for individuals who did not graduate college or did not obtain an advanced degree, respectively), meaning that the means of these variables will not add up to 1 (in columns 1, 2, 4, and 5).