The College Admissions Contribution to the Labor Market Beauty Premium

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Beautiful people earn more. Surprisingly, this premium is larger for men than for women and is independent of the degree of customer contact. Overlooked is the possibility that beauty can influence college admissions. We explore this potential academic contributor to the labor market beauty earnings premium by sampling 1,800 social media profiles of alumni from universities ranked from 1 to 200 in China and the US. Chinese universities use only standardized test scores for admissions. In contrast, US universities use also grades and extracurricular activities, which are not necessarily beauty-blind. Consistent with beauty-blind admissions, alumni's beauty is uncorrelated with the rank of the college attended in China. In the US, White men from high-ranked colleges are better-looking. The correlation is insignificant for White men who attended tech colleges and is highest for those who attended private colleges. White women and minorities of either gender are not better-looking at high-ranked colleges. Our evidence suggests a college admissions contribution to the labor market beauty premium for White men but not for White women, minorities of either gender, White men who attended a technical college in the US, or alumni of either gender in China. We discuss how the prevalent college admissions preference for athletes can explain our findings.

Keywords: beauty premium, labor market discrimination, college admissions, college athletics

JEL Codes: J71, I24, Z22

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1 Introduction

Beautiful people earn more. Such is the conclusion of a burgeoning literature initiated by Hamermesh and Biddle (1994). Surprisingly, beauty seems to matter more for men than for women, and in most jobs, instead of being limited to those with extensive dealings with customers who might indulge a taste for beauty. (See A-Table 1 in the Appendix for a summary of the beauty premium for men and women across studies.) To explain these unexpected findings, several authors have proposed employer discrimination through the channel of human resource managers as a potential cause. However, overlooked is the possibility that part of the labor market beauty premium originates prior to the labor market, specifically in the college admissions process, within which the discretion of teachers, guidance counselors, and admissions officers to discriminate, are comparable to that of human resource managers. In fact, colleges seem to do precisely that when seeking talent in "leadership, performing arts, or athletics", all factors that can be influenced by popularity, and hence, potentially by facial beauty among high school students (Stevens 2020).[1] In the case of the election of high school students to leadership positions, beauty may be the crucial factor considering that the voting public (Berggren, Jordahl, and Poutvaara 2010) and even Ph.D. economists (Hamermesh 2006) exhibit a bias for beauty in the election of their leaders.

We test for this potential college admissions contribution to the labor market beauty premium by testing for an association between the beauty of alumni and the rank of the college attended. With regards to the surprising stylized facts of the labor market beauty premium—if it were to originate in the labor market—a college admissions contribution may be independent of customer contact, and in addition, be larger for men than for women, if colleges tend to use criteria that are more selective of traditional male beauty, e.g., athletic ability, than of female beauty.

We do this by sampling 1,800 online social media profiles across a wide range of universities (ranked 1−200) in China and the US. Given that US universities use extracurricular activities and grades in the decision to admit students (Green, Jaschik, and Lederman 2011), we hypothesize that

[1] According to a recent New York Times article (Cain 2017), 'Harvard's application informs students that its mission is "to educate our students to be citizens and citizen-leaders for society." Yale's website advises applicants that it seeks "the leaders of their generation". On Princeton's site, "leadership activities" are first among equals on a list of characteristics for would-be students to showcase. Even Wesleyan, known for its artistic culture, was found by one study to evaluate applicants based on leadership potential…Whatever the colleges' intentions, the pressure to lead now defines and constricts our children's adolescence….It seemed no activity or accomplishment meant squat unless it was somehow connected to leadership.'
https://www.nytimes.com/2017/03/24/opinion/sunday/not-leadership-material-good-the-world-needs-followers.html?_r=1

the beauty rank of alumni is positively associated with the rank of the university they attended. In contrast, Chinese universities use standardized test scores almost exclusively to admit students (Bai and Chi 2014; H. Li et al. 2012; Yang 2014). [2] Despite the shortcomings of such an admissions system in terms of the stress it imposes on students (Cai et al. 2019), standardized tests are beauty-blind. This procedural beauty blindness, however, still leaves open the possibility that beauty is correlated with academic ability. However, a recent large sample study of twins finds no relationship between facial attractiveness and intelligence (Mitchem et al. 2015). Hence, we expect a weaker or possibly no association between the beauty rank of alumni and the rank of the university they attended in China.

Our hypothesis for China is confirmed; the facial beauty of Chinese alumni of either gender is uncorrelated with the rank of the college they attended. Our hypothesis for the US is confirmed only for White men (74 percent of our male sample). The rank of the college attended increases only on their beauty rank.

We further test the hypothesis that reliance on standardized tests diminishes the association between the beauty rank of alumni and the rank of the college attended by checking for variation in the magnitude of the correlation that we find for White men across different types of colleges. We separate our sample of White men according to whether they attended private, public, or technical colleges. Compared to public colleges, private colleges can rely less on standardized tests and more on discretionary criteria because they are less regulated. As expected, the association between facial beauty and the rank of the college attended is stronger for private colleges. On the other hand, technical colleges should attach more weight to technical ability as indicated by standardized test scores than non-technical colleges.[3] Accordingly, we find that the association between beauty and the rank of the college attended is insignificant for the alumni of technical colleges. Thus, the reliance on standardized tests appears to suppress the correlation between the beauty of White men and the rank of their alma mater, whereas discretion in admissions criteria increases it.

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[2] Several top-tier universities in China admit some outstanding students, e.g., winners of international mathematics competitions, through special channels that involve the university's own admissions exams, followed by oral exam type interviews. However, details on the policies for specific universities are not publicly available.

[3] A former director of admissions at Dartmouth, an elite private college, revealed that it was very difficult to choose from among the many academically well-qualified candidates of the two thousand applications she read per year (Sabky 2017). In her view, personal essays by the candidate and letters of recommendation from illustrious mentors are generally uninformative. Rather, she must resort to idiosyncratic signals such as "inappropriate email addresses", behavior on a campus visit, or an unusual recommender—in the case of the article--the janitor of the student's high school. Additionally, she sometimes gives these signals greater priority than standardized test scores in her admissions decision. See: https://www.nytimes.com/2017/04/04/opinion/check-this-box-if-youre-a-good-person.html?mtrref=query.nytimes.com&assetType=opinion

Our finding that the beauty of both genders in China, White women, non-White minorities of both genders in the US, and White men in tech colleges, is not associated with the rank of their college supports prior evidence that beauty is uncorrelated with intelligence. Our contribution to this literature on the association between intelligence and beauty is to provide evidence against an association between beauty and general academic ability, as measured by standardized test scores in China. Our results, moreover, suggest that facial beauty is not increasing on socioeconomic background, which is likely to contribute to students' ability to prepare for these tests. Additionally, for our sample of US White women and non-White minorities of both genders, we provide evidence that beauty is not necessarily associated with non-academic criteria, e.g., leadership qualities and athletic ability, which US colleges use for admitting students.

We conjecture that some non-academic factor(s) interacted with characteristics related to the beauty of White men is driving the correlation we find for them. This conjecture is further supported by the fact that there is little evidence of important differences in the distribution of mental ability across most tasks between men and women (Rippon 2019). We discuss how college admissions preferences for athletes and leadership qualities may, as a byproduct within the context of sex-specific biological and institutional factors, result in better-looking White men being admitted at a higher rate to high-ranked colleges.

We check for the simple association between the rank of the college attended and post-graduation wages to get a sense of the potential economic importance of the college admissions contribution to the labor market beauty premium for White men. For this sample of subjects, a one percentage point increase in beauty rank corresponds to a half rank increase in the rank of the college attended. This correspondence translates into a roughly three percent decrease in salary 10 years after college registration for a 10 percent decrease in beauty rank.

The association between beauty and earnings for White men that we find is of a similar magnitude to that previously found for the labor market beauty premium, which ranges from 5-20 percent for the coarser measure of below, at, or above average looks (See A-Table 1.). In principle, it is possible for the variation in the beauty of White men to be of comparable magnitude because, while these previous studies of the labor market beauty premium do control for years of education, they do not control for the rank of the college attended among those who graduated from college.

We contribute to the literature on the labor market beauty premium by providing evidence that suggests a college admissions contribution to the labor market beauty earnings premium for men

in the US, who are mostly White. This college admissions contribution may help explain the surprisingly greater labor market beauty premium for men in the US, and why it does not vary across jobs according to exposure to customers. Our evidence suggests that the labor market beauty premium for men and women in China (Deng, Li, and Zhou 2019; Gu and Ji 2019; Hamermesh, Meng, and Zhang 2002; Ling, Luo, and She 2019; Maurer-Fazio and Lei 2015; Peng, Wang, and Ying 2019) and women and non-Whites of both genders in the US may arise after college. Our results, additionally, suggest the potential importance of controlling not only for the years of education in future studies of the labor market beauty premium but also for the rank of the college attended, particularly for men in the US.

Section 2 reviews a few of the many studies on the labor market beauty premium as well as the small number of studies on the potential effect of beauty in the educational context. Section 3 elaborates on the procedure we followed for the collection and rating of photos from social media profiles. Section 4 formulates the hypotheses that we tested. Section 5 shows our results. Section 6 summarizes our results and discusses potential confounders and how admissions preferences for athletes or students with high school leadership experience may lead to the correlation we find between the beauty of White men and the rank of the college attended.

2 Review of labor market studies on the labor market beauty premium

Many empirical studies have demonstrated a robust labor market beauty premium for workers around the world and in various sectors beginning with the seminal study of Hamermesh and Biddle (1994). The theories of labor market discrimination by facial beauty parallel those of other forms of labor market discrimination, e.g., by race. These fall under two broad categories: a) taste-based discrimination (Becker 1971), where the discriminated characteristic, in this case, beauty, enters directly into the utility function, and b) productivity-based or statistical discrimination (Arrow 1973), where the observable characteristic, also beauty, is correlated with unobservable characteristics that influence productivity. As an example of taste-based discrimination, fashion magazines may hire only beautiful models because purchasers of fashion magazines have a higher willingness to pay images of better-looking workers.. As an example of statistical discrimination, employers may discriminate by hiring good-looking people because beauty signals good social skills, which are not as immediately observable as beauty. Employers may value such skills because they either increase customer satisfaction or the productivity of other workers.

Alternatively, consumers can use beauty to infer other characteristics, e.g., competence in doctors because of a possible statistical association between beauty and cognitive and non-cognitive skills.

Since the inception of the literature, a notable and surprisingly larger beauty premium/plainness penalty has been found for men than for women (Borland and Leigh 2014; Doorley and Sierminska 2015; Hamermesh and Biddle 1994; Harper 2000; Mocan and Tekin 2010). Moreover, the importance of looks as revealed through employer surveys on the amount of interaction with customers show little explanatory power for the cross-sectional beauty premium (Doorley and Sierminska 2015; Hamermesh and Biddle 1994). See A-Table 1 in the Appendix. While the constancy of the beauty premium across jobs can be explained by employer discrimination, that would not seem to predict a larger premium for men than for women.

These unexpected findings highlight other potential problems in identifying the source of the labor market beauty premium. Other factors can increase a person's ability to make themselves more beautiful, which, in turn, increases their wages. For example, intelligence, which is generally associated with productivity in most jobs, can potentially increase the skill with which flattering clothes (which has been shown to add to the income of women (Hamermesh, Meng, and Zhang 2002)) are chosen. Alternatively, intelligence can free up more time from other tasks with which to choose these clothes. Intelligence can, additionally, increase confidence, which may enhance the impression a person makes, e.g., if confidence in one's ability makes one smile more easily, and if smiling enhances attractiveness. Accordingly, more intelligent workers can appear more attractive, thereby earning higher wages, although they are not necessarily more physically attractive. Customers may not derive utility from the exceptional intelligence of those workers. Instead, these customers may derive utility from the friendliness of more confident workers, e.g., in a restaurant host/hostess.

Aside from intelligence, a myriad of other factors related to productivity including health and family income can conceivably contribute to both the beauty of workers and their wages. Thus, important difficult-to-control-for confounders for both taste-based and statistical discrimination for the labor market beauty premium exist. In addition to the identification problems, the gender difference in significance might also be due to out-selection from the labor market into the marriage market by attractiveness, which again, is difficult to control for in empirical studies of the labor market.

To minimize the effects of statistical discrimination and out-selection, several researchers in the beauty premium literature used CV correspondence studies of employers. These correspondence studies are widely used to explore ethnic and gender discrimination (Bertrand and Mullainathan 2004). Such studies with employers can decrease the effects of these confounders through random assignment of beauty to the characteristics associated with beauty, e.g., intelligence, which is signaled by education in the CVs. Confirming prior empirical findings of a beauty premium, a CV correspondence study in Argentina finds that distorted photos of real people designed to make them ugly were much less likely to obtain a callback (López Bóo, Rossi, and Urzúa 2013). Except for the pronounced premium for better-looking women in office support, receptionist, and customer service jobs, the authors ascertained roughly the same positive premium for both genders across jobs, irrespective of the degree of customer contact.

A significant beauty premium across many occupations was observed in China (Gu and Ji 2019; C. Li et al. 2020; Peng, Wang, and Ying 2019), including in areas such as software engineering, which has minimal customer contact (Maurer-Fazio and Lei 2015). A correspondence study in Israel using resumes with randomized photos of applicants with varying beauty shows that only better-looking men were more likely to receive a callback to a job application, whereas women suffered a beauty penalty in terms of callback rates, and even in jobs which, as the authors point out, beauty plays no obvious role: accounts management, budgeting, industrial engineering, and computer programming (Ruffle and Shtudiner 2015).

However, despite the many positive findings on labor market discrimination by facial beauty, the existing literature has largely ignored the possibility that the beauty premium may begin before entry into the labor market.[4] (See Nault, Pitesa, and Thau (2020) for a comprehensive review of the literatures on the labor market beauty premium in economics and management.) Identifying the source of the beauty premium is important both to better understand labor market discrimination and to better target antidiscrimination regulations based on personal appearance. Such legislation has already been enacted in some states and proposed elsewhere (Hamermesh 2011).

[4] Many studies exist on the correlates of beauty in educational settings in the psychology literature. Physically attractive students receive higher grades in high school and college (French et al. 2009). Attractive individuals are consistently perceived or judged more favorably than the unattractive in several dimensions, including intelligence, academic potential, grades, confidence, extroversion, and various social skills (Jackson, Hunter, and Hodge 1995; Mobius and Rosenblat 2006; Ritts, Patterson, and Tubbs 1992). These studies suggest that beauty is believed to be correlated with these traits. However, they do not control for these traits in their identification of beliefs.

A number of studies in economics are available regarding the relationship between performance in the academic setting and beauty. Grade point average is predicted by physical attractiveness for grade school students of both genders in England (Hansen 2016) and female but not for male students upon entering high school (French et al. 2009). However, the association between attractiveness and grade point average becomes negative for males and insignificant for females when personality and grooming are controlled for (French et al. 2009). In the US, facial attractiveness in high school can account for the attractiveness wage premium for workers up to the mid-30s (Scholz and Sicinski 2015). Within an elite women's liberal arts college in the US, a negative correlation was found between beauty and academic productivity-related traits, as measured by the SAT score (Deryugina and Shurchkov 2015). For alumni within the somewhat unique context of Barea college, the beauty wage premium for alumni has been shown to exist only for jobs where attractiveness is plausibly a productive characteristic (Stinebrickner, Stinebrickner, and Sullivan 2019). Among academics, better-looking Ph.Ds. have better placement records and are more likely to be promoted to associate professor (Y. Liu, Lu, and Veenstra 2019). A substantial beauty premium was found for lecturers in face-to-face classes for women but not for men (Jobu Babin et al. 2020). No correlation was found between beauty and productivity-related traits among lawyers who graduated from one law school (Biddle and Hamermesh 1998) and among experimental subjects (Mobius and Rosenblat 2006).

To our knowledge, our study is the first to test for the association between beauty and the rank of the college attended. We also point to a potentially new channel for the labor market beauty premium: the preferential admissions policies that colleges offer to athletes rather than from customer or employer taste-based or statistical discrimination.

3 The Measurement of Beauty and Empirical Specifications

We randomly selected 30 universities in China and the US ranked from 1 to 200. Each selected college has similar rankings in at least two commonly used ranking systems: the U.S. News & World Report Ranking[5] and the Academic Ranking of World Universities for the US [6] and the Chinese University Alumni Alliance Ranking [7] and the Wu Shulian's Chinese University

[5] http://colleges.usnews.rankingsandreviews.com/best-colleges/rankings/national-universities/data

[6] http://www.shanghairanking.com/rankings/arwu/2015

[7] http://www.cuaa.net/cur/2015/index_700

Rankings[8] for China. The rankings for US colleges are shown in the A-Table 2 and those for China in A-Table 3 in the Appendix.

We randomly sampled 30 profiles (15 for each gender) for each college on Facebook. In the US, 72 percent of college students have a profile on Facebook.[9] We used the social media site Renren in China, which had a reported membership of 280 million in 2013.[10] In both services, users can create profiles for free with photos, other images, list of personal interests, accounts of memorable life events, contact information, and other personal information, such as educational background and employment status. Registration on the two social media sites requires filling in: name, gender, and email address or phone number. In addition, Renren requires a birth date and educational information (either high school or college). The educational information of a Renren account can be "verified" by a college IP or email address. Such verification is indicated in the profile. We used only such verified accounts. Facebook requires an email address from the college in order to be listed as an alumnus.

After registration, users can add other users as "friends" with whom they can share their profile content. Users can, moreover, join common-interest user groups which are organized by workplace, college, or other categories. Users determine who can browse their pages or receive their updates with their privacy settings. On both websites, users can make their profile "public," (anyone with a membership can see their profile) or "open to friends" (only "friends" can see their profile), or "private" (only the user themselves can view their profile). Both websites allow users to search for public profiles with specific educational backgrounds.[11] We selected only such public profiles for our study. Each selected profile was that of a student who graduated from the college as an undergraduate in 2012. The profile photo must be a clear color front-view photo without any

[8] http://edu.qq.com/zt2013/2013wsl/

[9] http://www.pewinternet.org/2015/08/19/the-demographics-of-social-media-users/

[10] Renren is the Facebook analog for college students in China, as Facebook is blocked by the Chinese Government.

[11] We are not aware of legal restrictions on the non-commercial use of user-created content uploaded to social media websites in China or the US. In the United States, the "fair use" exemption to the US copyright law for educational purposes applies to our usage. Facebook also has terms of use that effectively make uploaded user-created content public domain. For example, see, "publish content or information using the Public setting" in https://www.facebook.com/legal/terms.

Chinese universities, similar to their European counterparts, do not have IRBs to approve the ethics of experiments. However, to the best of our understanding, our harvesting and confidential rating of publicly available profile pictures fall under the "minimal risk" exemption from IRB approval. "Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests." See for example http://humansubjects.stanford.edu/hrpp/Chapter9.html. Indeed, since these beauty ratings are kept confidentially by us for research purposes only, we do not perceive any possible reputational or other harm to those who were rated.

head covering. Other people and the backgrounds in the photos were cropped to highlight the face of the subject.

Search engines generally employ confidential proprietary algorithms to enhance the efficiency of searches. To avoid any unobserved influences from such algorithms on our results, we selected the profile photo based on random numbers from 1 to 200 generated prior to our searches. We refer to these numbers as the 'display rank'. Hence, if we drew a number 67, we would select the 67^{th} profile in the search engine results and that profile photo would have a display rank of 67. We drew two sets of random numbers, where the second is used in cases where the profile indicated by the first number did not have the required information or photo quality. We refer to the first number drawn as the 'original' display rank.

We paid raters (5 RMB/100 pairs in China and 0.75 USD/100 pairs in the US) to evaluate all profile photos using a proprietary beauty rating program that we developed, which they could access through a standard web browser.[12] The software program aggregates the ratings for each photo into a continuous number, $Rating_i$, between 0 (least attractive) and 1(most attractive) using the well-established Bradley–Terry model for aggregating binary comparisons into a percentile (Bradley and Terry 1952). For each photo, $Rating_i$ represents the percent of other photos that reviewers on average found less attractive than subject i.

The rating program matched each photo randomly with 10 other photos of the same gender in the same country. 4,500 photo pairs are generated for each gender in each country. We used multiple raters to rate the same photo. In the US, each photo was rated approximately 12−37 times by US raters, with a mean of 22 times. In China, each photo was rated approximately 12−28 times, with a mean of 20 times. Such rating frequencies are comparable to other studies (Deryugina and Shurchkov 2015). The final rating for each photo is based on the average rating of all raters of that photo. In total, 90 Chinese raters (60 male) rated all 900 Chinese photos, and 103 US raters (49 males, 86 White) rated all 900 US photos. The Chinese raters were graduate students recruited from the Peking University HSBC School of Business through a mass email. The US raters were recruited through Amazon Mechanical Turk, a project-based employment service offered by Amazon.

[12] At the time of writing, the exchange rate was 1 USD for 6.5 RMB. Given the few minutes it takes to rate all 100 photos, our payment was relatively high for both Mechanical Turk and China. A high wage was set to attract sufficient numbers of raters in a short time span.

We hired an additional 27 US raters to categorize the race (White, Black, Hispanic, and Asian) and age ranges (age categories: 23−26 and 27 or older) of all US photos. Chinese students are almost always of the Han majority and within the 23−26 age range because they rarely take time off before college.[13] Each US rater was asked to categorize 100 US photos. Each US photo was categorized once by three different US raters. The final race and age categories of the US photos were determined by the majority of ratings, i.e., two or three out of three. The results of the race and age categorization for the US sample are shown in Table 1.

[Insert Table 1]

We followed the methodology of Ong, Yang, and Zhang (2020) and asked raters to decide only which of a pair of photos is better-looking instead of asking raters for a numerical rating within a certain range of numbers, as is standard in the field. Such a binary judgment may be easier and more precise than assigning a number to indicate how good-looking someone is according to a numerical scale. Numerical beauty ratings can cluster around specific numbers, e.g., 6 or 7 out of 7. A given subject may not be consistent in their beauty ratings across many photos because of fatigue, lapses in memory, or because their subjective reference benchmark level of beauty changes as they rate photos. In contrast, binary decisions require discerning only the minimal difference in beauty between two photos in side-by-side comparisons. Subjects do not need to strain their memory to maintain the consistency of the ratings for photos with subjects of similar beauty if these photos happen to have many other intervening photos. The binary decision, furthermore, avoids potential scale differences across individuals, genders, and countries (e.g., where Chinese female raters choose higher numbers than American male raters), which can add noise to the data.

To deal with these sources of noise, prior studies coarsen their 1-7 scale data into three categories: below, at, or above average beauty. However, this coarsening may sacrifice the precision we exploit to test our hypotheses. Lastly, our reliance on the binary choices of raters means that our beauty ranking is a relative ranking within the sample, not a potentially out-of-sample/absolute ranking against unobserved subjective prototypes of beauty that the subject has in mind and uses as a benchmark.

Table 2 shows the summary statics for our sample. We find that White men (0.52) and women (0.52) have higher ratings than non-Whites (0.43, 0.45). This finding that White men are better

[13] The Han race constitutes 91 percent of the population of China (Wang 2011). The Chinese Government has affirmative action policies in place to increase the share of minorities, which suggests that the share of Hans is likely even higher among university students.

looking may be due to a within-race preference found in prior studies (Hitsch, Hortaçsu, and Ariely 2010). Among our Amazon Mechanical Turk raters, 83 percent are White. However, this across-race beauty bias should not affect the within-race beauty correlation in our main results.

[Insert Table 2]

Before we study the association of beauty rank with college rank, we first analyze the effect of other factors on the beauty ratings of subjects by regressing $Rating_i$ on the display rank of profile i and the dummy variable, $Original_i$, which takes on the value of 1 if the original display rank was used to harvest the profile or 0 if the display rank was a redrawn random number. This regression specification is

$$Rating_i = \alpha + \beta_1(Display\ Rank_i) + \beta_2(Original_i) + \varepsilon_i \qquad \text{Eq. (1)}$$

Here, instead of using the actual display rank ranging from 1-200, we use the percentile display rank (display rank/200) to avoid unnecessary decimals. For the US photos, we include an age category dummy and race dummies (based on the age attributed by a separate group of raters).

The results of this regression are shown in the Table 3. As with the summary statistics, we find that non-White men and women are less attractive than White.

[Insert Table 3]

We find this difference to be insignificant for Black and Hispanic men but significant for Black women (-0.18) and Asian men (-0.16) and women (-0.09). Furthermore, we find in column (2) that women who are judged older (-0.05) are less attractive.

The insignificant and zero coefficient for display rank in columns (1)-(3) indicate that Facebook does not rank profiles by factors that are correlated with attractiveness, e.g., popularity for either men or women. The insignificance for the coefficient for Chinese men suggests that Renren, as well, does not rank men by correlates of beauty. However, the negative and significant coefficient (-0.144) for display rank in columns (5) for Chinese women indicates that profiles that were further down the page in the search engine results of Renren are less attractive. A one percent increase in display rank (movement down the page) corresponds to a 0.14 percent decrease in attractiveness rank. We proceed next to specify hypotheses between the college and beauty ranks.

4 Hypotheses

As discussed earlier, US universities use extracurricular activities and grades in the decision to admit students. The actual performance in extracurricular activities, e.g., in leadership or sports

contests, or subjective judgments of teachers for grades, e.g., in non-mathematical subjects, may be correlated with the beauty of the student. Therefore, we hypothesize that the beauty rank of alumni is positively associated with the rank of the university attended in the US. The widespread use of ostensibly beauty blind standardized tests in Chinese universities to admit students, along with the lack of correlation between facial attractiveness and intelligence in a large sample twin study, suggest a weaker or possibly no association between the beauty rank of alumni and the rank of the university attended in China.

Therefore, we make the following hypotheses:

Hypothesis I. The beauty rank of alumni of neither gender in China is significantly associated with the rank of the college attended.

Hypothesis II. The beauty rank of alumni of both genders in the US is significantly associated with the rank of the college attended.

We also expect the association between facial beauty and the rank of the college attended is stronger for private colleges, which are less regulated, as compared to public colleges. On the other hand, technical colleges should attach more weight to technical ability, as indicated by standardized test scores, than non-technical colleges. Hence, we expect that.

Hypothesis III. The beauty rank of alumni of private colleges in the US is more strongly associated with the rank of the college attended than those of public and technical colleges.

For the regression specifications, we invert the rating by taking the negative value of it for a more intuitive exposition. In this inverted form, smaller numerical values of beauty rank denote more beautiful individuals (now "higher" beauty rank), just as smaller numerical values of college rank denote greater prestige ("higher" college rank). Thus, we can avoid inconveniencing our readers with the task of interpreting a negative sign for our main findings.

For our main results, we estimate the association of $Beauty\ Rank_i$ with $LCollege\ Rank_i$,

$$LCollege\ Rank_i = \alpha + \beta_1(Beauty\ Rank_i) + \beta_2(Display\ Rank_i) + \beta_3(Original_i) + \varepsilon_i \quad \text{Eq. (2)}$$

where $LCollege\ Rank_i$ is the *log* of the rank of the college that subject i attended. Again, as in the previous regression, we include an age category and race dummies for the US photos.

We choose the *log* of the college rank because we expect that the effect of beauty on rank attended will be stronger in high-ranked than low-ranked schools, especially among private

schools. The pool of applicants available to high-ranked colleges is larger than that available to low-ranked colleges. Elite colleges may also expend greater effort and resources into recruiting suitable students than non-elite colleges (Stevens 2020). In this case, for example, a 1 percentile rank increase in beauty rank may correspond to a college rank increase of 0.5 percentile rank for a low ranked college but a 1 percentile rank increase for higher-ranked colleges.[14] Both effects would create increasing returns to selectivity by the correlates of beauty that increase on the rank of the college, which the *log* of the college rank would partially offset.[15] However, except for the insignificance of the coefficient for beauty rank when the sample is restricted to private colleges in Table 6, all our main results below are qualitatively nearly identical when we use college rank without taking the *log*. The significance of beauty rank with the non-log specification returns when we drop either the top or the bottom private colleges. This contrast between the insignificance of beauty rank for the private college sample as a whole and the significance for either subsample is consistent with the conjectured increasing returns relationship between beauty rank and the rank of the college attended.

5 Results

Table 4 displays the association of the beauty rank with the *log* college rank.

[Insert Table 4]

Columns (1)-(2) show that the coefficients for men (0.05) and women (-0.07) in China are close to zero and not significant. Column (3) indicates that they are not significantly different from each other.

Observation I. The beauty rank of alumni of either gender in China has no economically or statistically significant association with the rank of the college attended.

Column (4) reveals that the coefficient for men (0.64) in the US is significant and positive, while column (5) reveals that the coefficient for women is small (-0.02) and not significantly different from zero. Column (6) indicates that the coefficient for women is not significantly different from

[14] For example, the relationship between college rank and beauty rank may be: college rank=$\alpha+\beta\ln$(beauty rank).

[15] By using the *log* of the college rank, we create a linear relationship: college rank=$\gamma+\delta$(beauty rank).

the men's. This lack of significance is most likely because the standard error for the coefficient of women's beauty rank is large.

Observation II. The rank of the college attended increases on the beauty rank of male but not female alumni in the US.

Translating these results back to the original non-*log* college rank, in the case of US men, the constant of 3.82 implies that when the beauty rank is highest (i.e., 0), the college rank is $e^{3.82} = 47$. When the beauty rank is lowest (i.e., 100), the college rank is $e^{3.82+0.75} = 97$. The difference is 50 ranks. Hence, for a one rank increase in beauty rank, there is, on average, a 0.5 rank increase in the rank of the college attended.

White men and women make up the largest part (660/900 = 73 percent) of the sample. To check for racial differences, we separate the sample by White and non-White in Table 5.

[Insert Table 5]

Column (1) of Table 5 reveals that the coefficient for beauty rank is not significant for non-White men and is significant for White men (0.75). Column (3) reveals that the difference between White and non-White men is insignificant. This lack of significance is most likely due to the large standard error for the non-White men revealed in column (1). Columns (4) and (5) show that the rank of the college attended by non-White and White women does not increase with their beauty rank.

Observation III. The rank of the college attended increases on the beauty rank of White male alumni but not White female or non-White alumni of either gender in the US.

Figure 1 displays the plot of the *log*-rank of the college attended against the beauty rank of alumni for White men and women.

[Insert Figure 1]

The right panel shows that the men's beauty rank monotonically increases on the rank of the college attended, whereas the left panel shows that of women is not monotonic.

We hypothesize that the correlates of beauty might affect admissions in the US through the exercise of discretion as to the merits signaled by extracurricular activities. According to this hypothesis, we should find a greater association between the beauty and the college ranks for alumni who attended private colleges, which have greater discretion in the interpretation of such

non-academic criteria because they are less regulated. To test this hypothesis, we redo the previous regressions by comparing results with and without private colleges (namely, Harvard, Columbia, Penn, Massachusetts Institute of Technology, New York University, Boston University, Stevens Institute of Technology, Illinois Institute of Technology, and New Jersey Institute of Technology) in Table 6.

[Insert Table 6]

The coefficient for beauty rank increases from 0.31 in column (1) for public colleges to 1.72 in column (2) for private colleges, suggesting that an incremental increase in the beauty rank is associated with a greater increase in the rank of the college attended among alumni of private colleges. This greater association is confirmed in column (5) with the positive coefficient for the interaction of the private dummy variable and beauty rank (1.43) for the full sample of both private and public colleges.

This finding of a higher slope for the regression of the *log* of college rank on beauty rank, along with a lower intercept for private as compared to public colleges, is consistent with the possibility we raised in the hypothesis formulation section that private colleges can themselves be more heterogeneous than public colleges in terms of how much the correlates of beauty affect the chance of admissions of White men. As mentioned, a potential reason for the greater level of heterogeneity among private as compared to public colleges is, high-ranked private colleges might use their greater resources and discretion in order to reject more otherwise similarly qualified students based on non-academic criteria, whereas low-ranked private colleges may use their greater discretion to admit more marginal candidates (Stevens 2020). We discuss below how the favoritism shown to recruited athletes in the admissions process, which increases with the prestige of the college (Bowen and Levin 2011), may, in particular, engender a correlation between the beauty of White male alumni and the rank of the college attended.

To test the hypothesis that high-ranked private colleges are more selective than low-ranked private colleges in terms of beauty (or its correlates), we drop subjects from the top-four private colleges from our sample: Harvard, Columbia, Penn, MIT, that are ‘top-10’ in column (3), while leaving in the bottom-five private colleges in the sample. The coefficient of beauty rank decreases from 1.72 in column (2) of Table 5 to 0.23 in column (3) of Table 6. If we drop subjects from the bottom-four ranked private colleges in our sample: Boston University, Stevens, Illinois Institute of Technology, and New Jersey Institute of Technology in column (4), the coefficient increases to

0.78. These results are consistent with the possibility that beauty or its correlates may have a much larger effect on admissions to the top private colleges than to the low-ranked private colleges.

Columns (6-8) exhibit results for technical colleges, which may rely less than non-technical colleges on discretion and more on standardized tests. This conjecture is confirmed by the contrast between the significant coefficient for beauty rank (0.87) in column (6), which drops subjects from technical colleges, and the insignificant coefficient for beauty rank (0.07) in column (7), which contains data of subjects only from technical colleges. However, the insignificance of the interaction between technology and beauty rank in column (8) does not give further support.

Observation IV. The positive correlation between the beauty rank of White male alumni and the college they attended is stronger among those who attended private colleges and weaker (to the point of insignificance) among those who attended technical colleges.

These findings of no significant correlation between the beauty rank of alumni and the rank of the college attended for either gender in China, White women, and non-White minorities of both genders, and White men in tech colleges in the US, suggest that the correlation we find for White men is due to non-academic factors in the admissions process specific to White men.

To get a rough sense of the potential impact of the correlates of beauty rank on salary, we perform a simple regression of the median and the expected salary (not broken down by race or gender) on the rank of the college attended in Table 7. (See A-Table 4 for the salary data.)

[Insert Table 7]

Columns (1) and (2) show the mean and median salaries in 2011 for those who enrolled in 2001 in the US. Columns (1) and (2) reveals that for the US (starting from the highest-ranking university), an incremental decrease in college rank for a student enrolled in 2001 decreases their mean salary by approximately 374 USD and median salary by approximately 471 USD per year, respectively, in 2011. Thus, a percentage point decrease in beauty rank corresponds to a decrease of 0.3 percent in mean (50/100·(-374/72,991)) and median (50/100·(-471/78,546)) salaries 6 years later. This association, and therefore, the potential effect of beauty, is sizeable when compared to prior studies, which use the coarser ratings of below, at, or above average looks. Our findings suggest that a 33-percentage point increase in beauty rating would result in an approximately 10 percent increase in salary 6 years after graduation.

6 Discussion and Conclusion

We find the facial beauty rank of alumni of either gender has no economically or statistically significant association with the rank of the college they attended in China (Observation I). The rank of the college attended increases on the beauty rank of male alumni but not female alumni in the US (Observation II). When the US sample is broken down by race, we find that the rank of the college attended increases on the beauty rank of White male alumni only. The college rank of White female alumni and non-White alumni of either gender are not significantly associated with their beauty rank (Observation III). The association of the college rank and the beauty rank for White male alumni is strongest for alumni of high-ranked private colleges, which are presumably less regulated. In contrast, the rank of the college attended by White male alumni from technical colleges has no significant association with their beauty rank (Observation IV). The correlation between the rank of the college attended and the beauty rank for White male alumni implies that an increase in beauty rank of 33 percent is associated with a 10 percent higher salary 10 years after registration for college. This is within the 5-20 percent range for men (who are mostly White) with above-average looks (within the above, at, or below-average looks framework) found in previous studies (A-Table 1).

Importantly for interpreting these results, our finding in China suggests that college rank is not statistically significantly associated with beauty rank. This outcome suggests that academic ability, at least as measured by standardized tests, is not associated with beauty. Our finding that the beauty of White women and non-Whites of either gender is not correlated with the rank of the college they attended in the US suggests, moreover, that academic ability in general, not only as measured by standardized tests, but also including that measured by grades and letters of recommendation, is also not necessarily associated with beauty. This lack of correlation for White women and non-Whites of either gender suggests that the significant correlation we find for White men is the result of non-academic factors which might specifically benefit White men in the admissions process.

An important question for the validity of our positive results for White men in the US is whether there was self-selection into social media by facial beauty. It is beyond the scope of this study to address this question directly. However, we have several benchmark groups to help alleviate this concern. If men tend to self-select into social media by facial beauty and the rank of their college, we would expect that they also would in China. Similarly, we would also expect such self-selection for White women, non-White minorities, and White men at technical colleges in the US. But, the

beauty rank of members of these groups does not exhibit a significant correlation with the rank of the college they attended. We know of no basis to suggest that only White men who attended non-technical colleges in the US would self-select according to their beauty on social media. Hence, the possibility that our results for White men are driven by self-selection seems implausible, or at least, less plausible than other alternatives, which we discuss below.

Another potential issue with our data is reverse causality. We use the photos of graduates from 2012. These photos could have been taken in 2012, or even later, and likely much later than the year in which the admissions decision was made. Consequently, the rank of the college attended can potentially affect the beauty rank if the college rank increases salary, and salary increases beauty by rendering better grooming and clothing more affordable. But, if the direction of causality were reversed, we should find, again, a similar association between the college and beauty ranks in China, where graduates of high-ranked colleges earn comparably higher salaries, or for White women, non-White minorities, and White men in technical colleges in the US. However, we find no such association for members of these other groups.

Favoritism to athletes and the beauty of White men

As to why better-looking White men, in particular, may be favored in the admissions process, a correspondence study in Israel offers a potential clue. Ruffle and Shtudiner (2015) find a beauty premium for men only, and surprisingly, a beauty penalty for women. Notably, this beauty penalty was driven by firms using in-house HR personnel, who they also find, are almost always young women. The authors infer that the bias against hiring more beautiful women is driven by female sexual jealousy. Such a bias could also exist in the admissions process among high-ranked colleges.

The potential favoritism of teachers or admissions officers and alumni who interview candidates for better-looking male students can help explain our findings for men, especially if the interviewers tend to be female and White themselves, given a same-race bias among women (Hitsch, Hortaçsu, and Ariely 2010).[16] This possibility of teacher or admissions interviewer bias for better-looking men is especially important for elite colleges, like Harvard, that rely heavily upon interviews in the admissions process, particularly for athletes (Arcidiacono, Kinsler, and

[16] See http://data.worldbank.org/indicator/SE.PRM.TCHR.FE.ZS

Ransom 2022). However, there is no need to posit a pervasive self-serving taste-based discrimination on the part of the people involved in the admissions process to explain our results.

It is widely known and often openly acknowledged that colleges favor admitting athletes, especially those recruited for varsity teams. For example, in one survey, 28 percent of four-year college admissions directors in the US acknowledged using lower standards to admit athletes (Green, Jaschik, and Lederman 2011). Colleges favor high-ability athletes recruited for their varsity teams because such athletes bring positive attention to their college by helping to win intercollege sports competitions. Such attention increases alumni donations (Anderson 2017; Meer and Rosen 2009b), the number (McCormick and Tinsley 1987) and quality of applicants (Pope and Pope 2009, 2014; Tucker and Amato 2006), and allows the university to charge a higher tuition (Alexander and Kern 2009). Moreover, given that HR managers at elite firms favor athletic applicants (Rivera 2011, 2016), colleges can improve their placement, as well as further increase alumni donations, by similarly favoring athletic applicants in their admissions decisions.

In the case of Harvard, recruited athletes are admitted with drastically lower academic standards. Such lower standards result in an admissions rate of 86 percent for recruited athletes, which is over 14 times higher than for students who are not recruited athletes. As a consequence, recruited athletes make up over 10 percent of the admitted class though they are only 1 percent of the applicant pool. Importantly for explaining our findings, 70 percent of admitted recruited athletes at Harvard are White (Arcidiacono, Kinsler, and Ransom 2022). Harvard is not an exception. Bowen and Levin (2011) find that the admissions advantage enjoyed by recruited athletes is common and increases with the prestige of the college.

We do not know the degree of favoritism shown to nonrecruited athletes in college admissions. However, most college applications in the US ask applicants to report their participation in sports, often with the explicit understanding that such participation is viewed favorably (Stevens 2020).

The favoritism colleges show towards athletes can help explain why we find that White men are better-looking in high-ranked colleges in the US. One key factor that connects athletic ability and male beauty is prenatal exposure to androgens, e.g., testosterone. The second-to-fourth digit length ratio (2D:4D) has been proposed as a measure of prenatal exposure to androgens. A low 2D:4D ratio is associated with a large body size (Klimek et al. 2014), greater lean body mass (Schroeder et al. 2012), a more dominant personality (Neave et al. 2003), a greater propensity for risk-taking

(Apicella, Carré, and Dreber 2015), and a higher level of facial masculinity (Pound, Penton-Voak, and Surridge 2009).

Larger size, leaner body mass, greater risk-taking, and a more domineering personality likely confer advantages in competitive sports. Hence, it has been found that a low 2D:4D ratio is a predictor of athletic prowess and success in highly competitive sports (Coates, Gurnell, and Rustichini 2009; Hönekopp and Schuster 2010), including within the college varsity sports setting (Giffin et al. 2012).

Thus, men at higher-ranked colleges may be better looking as a byproduct of a preference for athletes in general, and recruited athletes specifically, because a preference for athletes selects for traditionally masculine features, which are regarded as beautiful for men, and which are concomitant to athletic ability in males. Such selection for athletic ability would select for male beauty even without any intention to do so through in-person interviews or by way of pictures in college applications.

Though the digit ratio of competitive female athletes is also lower than non-athletes (Giffin et al. 2012; Hönekopp and Schuster 2010), there is little evidence to suggest that prenatal testosterone also contributes to the female facial attractiveness that we measure. In general, we are unaware of any association between traditional female facial attractiveness and athletic ability. Hence, given the connection between male athletic ability and male beauty induced by male androgens, the preference colleges show towards athletes can help explain our finding that only males are better-looking at high-ranked colleges in the US.

As to why only White males rather than minority males are affected by the favoritism towards athletes, we note that attendees of private high schools are advantaged as compared to attendees of public high schools by an admissions preference for athletes. Private schools are likely to have a similar range of varsity sports as elite colleges. Their similar range of sports allows greater scope to demonstrate athletic excellence (Arcidiacono, Kinsler, and Ransom 2022; Golden 2007). White students from rich families are the majority at elite private high schools. Thus, the preference for athletes may advantage specifically White male athletes, who are more likely than racial minorities to attend private high schools.

In addition to selection for better-looking men through the preference for athletes, universities may also implicitly select for better-looking men when they ostensibly select for applicants with demonstrated leadership experience. Leadership contests among high school students may well be

little more than popularity contests, and beauty increases popularity (Gu and Ji 2019). Moreover, male beauty from a high level of prenatal exposure to androgens may specifically be an advantage in such contests. These features of male beauty: athletic ability, height, a large lean body, facial masculinity, and a daring and domineering personality, may complement the stereotypically masculine traits of leaders in the West, and thereby, contribute to the charisma and confidence expected of leaders, especially among adolescents (Mobius and Rosenblat 2006). Hence, the admissions preference colleges give for leadership experience may further advantage good-looking men against other men and against women.

White students from rich families may also be over-represented among applying students showing high leadership experience. These attendees of private high schools are advantaged compared to attendees of public high schools. Private high schools are smaller than public high schools. The smaller size of private high schools increases the rate of leadership experience for their attendees (Arcidiacono, Kinsler, and Ransom 2022). Athletic White males, in particular, may benefit from the preference for students with high school leadership experience, if such males are more likely to win leadership contests against other males and against females because of a possible association between male athletic qualities and stereotypical leadership qualities.

The effect of a college admissions preference for athletes and leaders may be further accentuated among applicants to top private colleges. These colleges tend to rely more on softer, more subjective, and difficult-to -verify criteria revealed in their admissions essays because of their large pool of otherwise academically qualified applicants. Such essays open the way for embellishing athletic achievements and leadership roles.[17] Indeed, lying in college applications about non-academic and difficult-to-verify factors is not unusual, especially among applicants who can afford to hire private admissions college consultants (Golden 2007). For example, a significant fraction of White applicants admitted to lying about their race to increase their odds of acceptance at prestigious colleges (Intelligent 2022). Hence, in the absence of verification, admissions officers may rely upon stereotypical athletic looks, as revealed during interviews, to judge their credibility, just as laboratory subjects may use a stereotypical accountant-look to gauge the probity of questionable accounting practices (Klein and Shtudiner 2020). Therefore, men with stereotypical athletic looks would be more likely to be admitted with such claims.

[17] Indeed, it is well known that colleges do not endeavor to verify such claims (Stevens 2020).

The preference for athletes may have begun as an incidental ploy by colleges in the 1930s to attract tuition payments for the offspring and donations from rich White male industrialists (Stevens 2020). However, the children of wealthy athletic alumni likely inherit their athletic ability as well as their earning ability and wealth. Colleges may, then, have an incentive to perpetuate the labor market advantage for children of wealthy athletic parents if favoritism in the admissions process for such alumni leads to reciprocity in terms of alumni donations (Golden 2007; Meer and Rosen 2009a). Thus, the widespread preference for legacy admissions from alumni may lock in and perpetuate the labor market advantage of athletic ability (Rivera 2016).

In summary, we do not find a significant correlation between the beauty rank of alumni and the rank of the college they graduated from for Chinese students of either gender, White women, and non-White minorities of either gender, or for White men who graduated from technical colleges. In light of the previous finding that intelligence is not correlated with beauty, our finding would, furthermore, suggest that beauty is not correlated with academic ability, as measured by college ranking. We do find a significant positive correlation between the beauty of White men and the rank of the college they attended, if they attended non-technical public or private colleges, with the strongest correlation for those who attended private colleges.

The contrast in the association between facial beauty and college rank between White men who attended non-technical colleges and others suggests some non-academic factor(s) may be causing the association between the beauty of alumni and college attended for White men. We suggest that the factor may be the favoritism colleges show in the admissions process towards athletes or leaders of high school clubs, given the coincidence of, a) athletic ability and traditional images of male beauty (e.g., in Greek statues), b) the advantage that athletic men may have in high school leadership contests, and c) differences in athletic and leadership opportunities across private and public high schools. Our evidence suggests that the labor market beauty premium for men and women in China and White women and non-White minorities of either gender in the West originates in the labor market, while that of White men may have a college admissions contribution.

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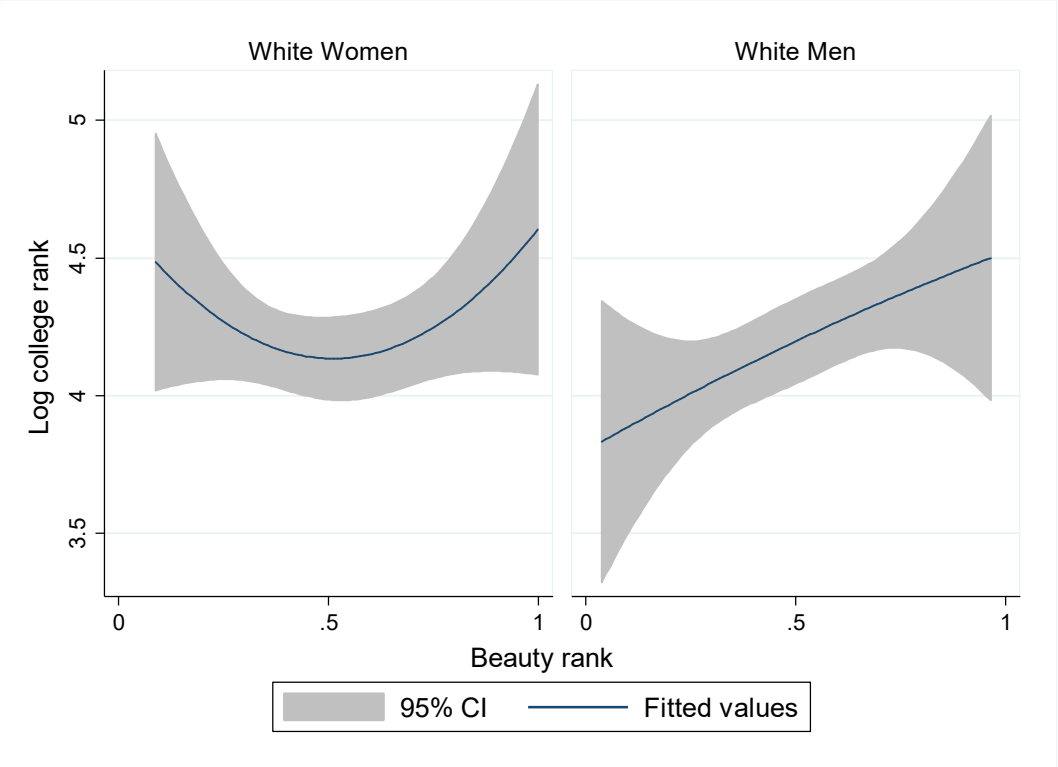
Figures

FIGURE 1: COLLEGE RANK VS. BEAUTY RANK FOR US WHITE WOMEN (LEFT PANEL) AND WHITE MEN (RIGHT PANEL)



Notes: These lines are quadratic best fit lines of *log* college rank and beauty rank for each gender.

8 Tables

TABLE 1: RACE AND AGE CATEGORIZATIONS FOR THE US SAMPLE

	Number of observations		
	Women	Men	Total
Race:			
White	329	331	660
Black	27	24	51
Hispanic	35	46	81
Asian	49	39	88
Unknown	10	10	20
Total	450	450	900
Age range:			
23−26	308	248	556
27 or older	142	202	344
Total	450	450	900

TABLE 2: SUMMARY STATISTICS OF PHOTO RATINGS

Rating	Obs	Mean	Std.Dev.	Min	Max
China Men	450	0.50	0.19	0	0.95
China Women	450	0.50	0.22	0	1
US Men:	450	0.50	0.20	0.05	1
White	331	0.52	0.20	0.05	1
Non-White	119	0.43	0.19	0.09	0.89
US Women:	450	0.50	0.20	0	0.95
White	329	0.52	0.20	0	.95
Non-White	121	0.45	0.19	0.04	0.93

Notes: Ratings are between 0 and 1, where the rating denotes the percentile of other photos that are less attractive. The max is not always 1 and the min is not always 0 because of ties in the ratings of the most and least attractive, respectively.

TABLE 3: REGRESSION OF RATINGS ON CHARACTERISTICS

	Beauty Rating					
	(1) US Men	(2) US Women	(3) US	(4) China Men	(5) China Women	(6) China
Older than 27	-0.004	-0.053***	-0.027**			
	(0.019)	(0.020)	(0.014)			
Black	-0.039	-0.176***	-0.112***			
	(0.042)	(0.039)	(0.029)			
Hispanic	-0.037	0.011	-0.021			
	(0.031)	(0.035)	(0.023)			
Asian	-0.161***	-0.086***	-0.117***			
	(0.034)	(0.030)	(0.022)			
Display rank	0.006	-0.007	0.001	0.001	-0.144***	-0.072***
	(0.033)	(0.032)	(0.023)	(0.031)	(0.034)	(0.023)
Original random	-0.008	-0.030	-0.020	0.010	-0.019	-0.003
	(0.019)	(0.019)	(0.013)	(0.021)	(0.023)	(0.015)
Constant	0.521***	0.553***	0.538***	0.497***	0.577***	0.537***
	(0.022)	(0.020)	(0.015)	(0.018)	(0.020)	(0.014)
Observations	450	450	900	450	450	900
R-squared	0.052	0.074	0.048	0.001	0.040	0.011

Notes: Subject's beauty rating, $0 \leq Rating_i \leq 1$, where a lower number indicates greater attractiveness, is the dependent variable. 'Older than 27' is a dummy variable that equals 1, if the subject is older than age 27, and 0, if the subject is between 23-26. Chinese subjects are always between 23-26 years of age in our sample. Black, Hispanic, and Asian are dummy variables that equal 1 if the subject is one of those races. 'Display rank' is the percentile rank of the subject in the search results. A higher rank number indicates a lower position on the search page. 'Original random' takes on the value of 1 if the display rank number is based on the first draw and 0 if based on the second draw. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 4: REGRESSION RESULTS FOR CHINA AND US

	College Rank					
	(1) China Men	(2) China Women	(3) China	(4) US Men	(5) US Women	(6) US
Beauty rank	0.05	-0.07	-0.03	0.64**	-0.02	-0.07
	(0.31)	(0.27)	(0.27)	(0.28)	(0.24)	(0.24)
Gender			0.00			-0.02
			(0.08)			(0.08)
Gender*Beauty rank			0.06			0.63*
			(0.41)			(0.36)
Observations	450	450	900	450	450	900
R-squared	0.01	0.01	0.01	0.06	0.04	0.03

Notes: The dependent variable , $College\ Rank_i$, is the *log* of the rank of the college that subject i attended. A lower number for the college rank implies greater prestige. Beauty rank is the subject's beauty rank, $0 \leq Beauty\ Rank_i \leq 1$, where a lower number indicates greater attractiveness. Gender is a dummy variable that equals 1 if the subject is male and 0 if the subject is female. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 5: REGRESSION RESULTS FOR THE US

	College rank					
	(1) Non-White Men	(2) White Men	(3) US Men	(4) Non-White Women	(5) White Women	(6) US Women
Beauty rank	0.20	0.75**	0.76**	-0.09	0.04	0.10
	(0.66)	(0.29)	(0.29)	(0.60)	(0.25)	(0.25)
Non-White			-0.25			-0.14
			(0.38)			(0.28)
Non-White*Beauty rank			-0.40			-0.49
			(0.74)			(0.67)
Observations	119	331	450	121	329	450
R-squared	0.03	0.03	0.06	0.08	0.02	0.0

Notes: The dependent variable is $College\ Rank_i$, which is the *log* of the rank of the college (1-200) that subject i attended. A lower number for the college rank implies greater prestige. Beauty rank is the subject's beauty rank, $0 \leq Beauty\ Rank_i \leq 1$, where a lower number indicates greater attractiveness. 'Non-White' is a dummy variable that takes on the value 1 if the subject is not White and 0 if the subject is White. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 6: REGRESSION RESULTS FOR THE US WHITE MEN

	College Rank							
	(1) Public	(2) Private	(3) Drop Top Private	(4) Drop Bot Private	(5) Public vs Private	(6) Non-Tech	(7) Tech	(8) Tech vs Non-Tech
Beauty rank	0.31**	1.72**	0.23*	0.78***	0.31**	0.87***	0.07	0.87***
	(0.13)	(0.77)	(0.13)	(0.29)	(0.14)	(0.32)	(0.61)	(0.32)
Private					-1.73***			
					(0.16)			
Private*Beauty rank					1.43*			
					(0.76)			
Tech								-0.08
								(0.15)
Tech*Beauty rank								-0.71
								(0.69)
Observations	256	75	283	319	331	265	66	331
R-squared	0.06	0.08	0.06	0.03	0.51	0.03	0.04	0.03

Notes: The dependent variable is $College\ Rank_i$, the *log* of the rank of the college (1-200) that subject i attended. A lower number for the college rank implies greater prestige. Beauty rank is the subject's beauty rank, $0 \leq Beauty\ Rank_i \leq 1$, where a lower number indicates greater attractiveness. Private is a dummy variable that takes on the value 1 if the subject attended a private college and zero otherwise. Tech is a dummy variable that takes on the value 1 if the subject attended a technical college and 0 otherwise. Column (1) uses data only from public colleges. Column (2) uses data only from private colleges. Column (3) drops the top-4 private colleges. Column (4) drops the bottom-4 private colleges. Column (5) uses the full data set for White men and includes the private college dummy along with its interaction with beauty rank. Column (6) uses data only from non-technical colleges. Column (7) uses data only from technical colleges. Column (8) uses the full data set for White men and includes the technical college dummy along with its interaction with beauty rank. The control variables include the display rank (the position of the profile in the search result) and the age. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

TABLE 7: REGRESSION RESULTS OF STARTING SALARY ON COLLEGE RANK

	US Salary	
	(1)	(2)
	Mean	Median
Rank	-374.58***	-471.07***
	(107.36)	(130.14)
$Rank^2$	1.30**	1.65**
	(0.56)	(0.67)
Constant	72,991.31***	78,546.71***
	(3,903.65)	(5,173.70)
Observations	30	30
R-squared	0.46	0.50

Notes: The mean and median salary data in dollars is the salary of alumni in 2011 who enrolled in 2001 listed in A-Table 4. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

9 Appendix

A-TABLE 1: EFFECT OF BEAUTY ON WAGES ACROSS COUNTRIES*

Country	Paper	Gender	Occupation	Wage effect		Notes
				Above average looks (%)	Below-average looks (%)	
Canada & US	Hamermesh & Biddle (1994)	Men	General	5.4	-8.9	Stacked estimates
		Women		3.9	-5.5	
US	Mocan & Tekin (2010)	Men	General	10.8	-7	
		Women		4.5	-7	
United Kingdom	Harper (2000)	Men	General	Not significant	-14.9	
		Women		Not significant	-10.9	
Netherland	Pfann et al. (Pfann et al. 2000)	Both	Advertising Firm	18000 DFL increase in wage with average beauty changes from 10th to 90th percentile (assuming a 7.5% effect on wages averaging 150000 DFL per year)		Wage effect inferred from extraneous estimates
China (Shanghai)	Hamermesh et al. (2002)	Men	General	-	-	
		Women		17.9	-	
Brazil	Sachsida et al. (Loureiro, Sachsida, and de Mendonça 2011)	Men	Salesmen	Not significant	Not significant	
		Women		9	Not significant	
Germany	Doorley & Sierminska (2012)	Men	General	14	-	
		Women		20	-	
Luxembourg	Doorley & Sierminska (2012)	Men	General	-3	-	
		Women		10	-	
Australia in 1984	Borland & Leigh (2014)	Men	General	11.6	Not significant	
		Women		Not significant	Not significant	
Australia in 2009	Borland & Leigh (2014)	Men	General	Not significant	-12.9	
		Women		Not significant	Not significant	

* Reproduced from Liu and Sierminska (X. Liu and Sierminska 2015).

A-TABLE 2: US UNIVERSITIES

Name	State	US News rank
Harvard University	MA	2
Columbia University	NY	4
University of Pennsylvania	PA	8
Massachusetts Institute of Technology	MA	7
New York University	NY	32
Georgia Institute of Technology	GA	35
University of California-Davis	CA	38
Boston University	MA	42
University of Florida	FL	48
University of Texas–Austin	TX	53
University of Georgia	GA	62
University of Iowa	IA	71
University of Massachusetts-Amherst	MA	76
Stevens Institute of Technology	NJ	76
University of Vermont	VT	85
Florida State University	FL	95
University of Missouri	MO	99
University at Buffalo-SUNY	NY	103
University of Tennessee	TN	106
Illinois Institute of Technology	IL	116
University of Arizona	AZ	121
University of Arkansas-Fayetteville	AR	135
Oklahoma State University	OK	145
Texas Tech University	TX	156
San Diego State University	CA	149
New Jersey Institute of Technology	NJ	149
Mississippi State University	MS	156
University of Idaho	ID	166
University of Central Florida	FL	173
Southern Illinois University -Carbondale	IL	189

A-TABLE 3: CHINESE UNIVERSITIES

Name	Province	CUAA rank
Peking University	Beijing	1
Fudan University	Shanghai	3
Nanjing University	Jiangsu	8
Sun Yat-Sen University	Guangdong	14
South China University of Technology	Guangdong	18
Central South University	Hunan	19
Xiamen University	Fujian	22
Hunan University	Hunan	34
Lanzhou University	Gansu	36
Beijing Jiaotong University	Beijing	44
Southwest University	Chongqing	56
Beijing University of Post and Telecommunications	Beijing	61
Hohai University	Jiangsu	72
Donghua University	Shanghai	78
Fuzhou University	Fujian	84
Guangxi University	Guangxi	89
Shanxi University	Shanxi	95
Shenzhen University	Guangdong	105
Hainan University	Hainan	104
Taiyuan University of Technology	Shanxi	105
Jiangsu University	Jiangsu	133
Shanghai Normal University	Shanghai	136
North University of China	Shanxi	151
Qinghai University	Qinghai	139
Huaqiao University	Fujian	160
Guangzhou University	Guangdong	165
Harbin University of Science and Technology	Heilongjiang	167
Changsha University of Science and Technology	Hunan	170
Ji'nan University	Shandong	183
Lanzhou University of Technology	Gansu	190

A-TABLE 4: RANK AND SALARIES FOR US UNIVERSITIES

Name	State	US News rank	Mean salary	Median salary
Harvard University	MA	2	$74,469	$87,200
Columbia University	NY	4	$75,676	$72,900
University of Pennsylvania	PA	8	$68,816	$78,200
Massachusetts Institute of Technology	MA	7	$83,418	$91,600
New York University	NY	32	$60,530	$58,800
Georgia Institute of Technology	GA	35	$43,259	$41,500
University of California-Davis	CA	38	$50,971	$57,100
Boston University	MA	42	$66,818	$67,000
University of Florida	FL	48	$53,141	$51,300
University of Texas–Austin	TX	53	$54,495	$52,800
University of Georgia	GA	62	$52,772	$46,500
University of Iowa	IA	71	$45,999	$48,700
University of Massachusetts-Amherst	MA	76	$51,204	$49,600
Stevens Institute of Technology	NJ	76	$75,347	$82,800
University of Vermont	VT	85	$37,139	$44,000
Florida State University	FL	95	$46,005	$44,000
University of Missouri	MO	99	$46,141	$46,000
University at Buffalo-SUNY	NY	103	$50,187	$49,700
University of Tennessee	TN	106	$42,580	$42,300
Illinois Institute of Technology	IL	116	$69,999	$68,200
University of Arizona	AZ	121	$43,698	$44,400
University of Arkansas-Fayetteville	AR	135	$46,247	$43,600
Oklahoma State University	OK	145	$45,431	$43,400
Texas Tech University	TX	156	$47,291	$46,100
San Diego State University	CA	149	$46,622	$48,700
New Jersey Institute of Technology	NJ	149	$64,065	$65,300
Mississippi State University	MS	156	$42,506	$39,600
University of Idaho	ID	166	$38,390	$39,900
University of Central Florida	FL	173	$46,925	$43,000
Southern Illinois University -Carbondale	IL	189	$42,740	$41,500

Notes: The mean and median salary data is the salary of alumni in 2011 who enrolled in 2001. The mean salary is the expected salary in 2011 calculated by The Economist, using several controls, based on data from the US Department of Education College Scorecard. We collected this data from The Economist magazine's website: *http://www.economist.com/blogs/graphicdetail/2015/10/value-university*