Do Looks Matter for an Academic Career in Economics?

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Abstract

We document appearance effects in the economics profession. Using unique data on PhD graduates from top economics departments in the United States we test whether more attractive individuals are more likely to succeed. We find robust evidence that appearance matters for job outcomes. Attractive individuals are more likely to study at higher ranked PhD institutions, are more likely to find themselves in private sector jobs than in government jobs or in academia. Within academia, attractive PhD graduates are more likely to be placed at higher ranking institutions. More surprisingly, appearance also predicts research productivity on the job. Papers written by attractive individuals are cited more often. All these effects are not only statistically significant but are also substantial in magnitude.

JEL classification: J16, J71, I23, M51

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1 Introduction

Appearance bias in the labor market has been widely documented in the literature. Attractive individuals generally land better jobs and make more money than plain-looking ones Hamermesh (2011). Less is known, however, about the role of appearance in the academic labor market. Since the main criterion for hiring and promotions of scholars is research productivity, we would expect that what matters is brains, not looks. However, literature has established that some aspects of individuals' performance may depend on their attractiveness. In this paper, we study empirically whether academic scholars' success depends on their looks, using the field of economics as our laboratory.

To explore the role of appearance in the academic labor market, we construct a data set of 752 individuals who graduated from ten of the top economics departments in the United States between 2002 and 2006. The data include their publications and placement outcomes, as well as a measure of how attractive they are, as ranked by 241 independent anonymous evaluators. We investigate whether the graduates' placement and success in finding a higher-ranked academic job and in publishing papers depend on how attractive they are rated. Our hypothesis is that appearance does matter, even in the academic labor market, reflecting both the demand for attractive individuals and the positive effects of this demand on individuals' self esteem, confidence, and therefore success.

We find that appearance matters for individuals' academic success in persistent ways. First we observe that among the students in top PhD programs women are more attractive than men, suggesting that attractive women are more likely to get selected into these elite programs. For subsequent career outcomes we find that attractive individuals are more successful than plain looking individuals. They are more likely to be placed in higher-ranking PhD institutions, and upon graduating, they are more likely to be find jobs in the private sector than jobs in academia or the public sector. Within academia, attractive-looking PhD graduates are also more likely to be placed at higher-ranking institutions for the first job as well as subsequent jobs. Appearance doesn't only predict job placement but, more surprisingly, it also predicts actual research productivity on the job. More attractive economists are cited more overall and per publication. All these effects are rather substantial in magnitude, with one standard deviation increase in attractiveness score

increasing the probability of an above-median outcome of job placement and citation count by 7-9 percentage points, depending on the outcome considered.

Why would appearance matter for academic economists' success? Beauty matters in the labor market both because good looks are appreciated by co-workers, bosses and customers Biddle and Hamermesh (1998); Todorov et al. (2005); Babin et al. (2020). Moreover, because being beautiful attracts positive feedback and fosters positive interactions with others Jackson et al. (1995); Langlois et al. (2000), it boosts an individual's confidence and charisma and hence effectiveness in every aspect needing human interaction Thornton and Ryckman (1991); Mobius and Rosenblat (2006); Judge et al. (2009). Better-looking people are therefore more likely to be hired and, when hired, to get higher wages Hamermesh and Biddle (1994); Bóo et al. (2013). With academic careers, appearance may work in similar ways. Colleagues and students may demand good looks either because they enjoy and value looks, because they believe the attractive person is a better scholar Dion et al. (1972), or because the attractive person actually is an effective teacher and scholar.

While attractiveness has been linked to higher income Hamermesh and Biddle (1994); Langlois et al. (2000); Harper (2000); Judge et al. (2009), it has been harder to provide evidence on actual higher productivity of attractive individuals. Using data on academic publications, we are able to move beyond the apparent employer preference for attractiveness to show that attractiveness also produces higher measurable outcomes. More attractive economists publish papers which have more citations. While we cannot test for specific mechanisms of this effect, the literature suggests the following possibilities. Attractive economists may be invited to more conferences, because they present their work more convincingly, or because they are sought after as co-authors. The higher productivity of attractive scholars could potentially explain why they succeed in landing good jobs, as the hiring committees may expect their future productivity to be high. More likely, however, looks make an impression on colleagues both when making hiring choices and when choosing their co-authors or paying attention to paper presentation.

In Section 2 we describe our data, in Section 3 we present our empirical approach and results, and in Section 4 we offer some concluding thoughts.

2 Data

Our data set contains information on all graduating students from ten of the top economics departments in the United States over the years 2002 to 2006.[1] For each graduate student we observe race, gender, graduation year, dissertation field, and the student's career path upon graduation and up to fifteen years after graduation. Career data include the number and quality (impact) of publications, tenure status, institution, and the institution's rank. Appearance data include the average attractiveness ratings of individuals' 2011 online photographs, as ranked by a random sample of 241 evaluators.

2.1 Graduate student data

Data for PhD students who graduated from ten of the top economics departments in the United States were collected based on each institution's library catalogue of dissertations for the years 2002-2006. Whenever library data were unavailable, we collected the data from ProQuest's dissertation database. From the dissertations' titles we extracted data on the field of research.[2] Overall, our sample includes 986 PhD graduates, but the regression sample varies based on data availability for each outcome. The number of observations for each regression type is summarized in table **??**.

Data on job placement are based on an institution's placement records and an online search of CVs. For publication history we obtained the cumulative number of publications and citations for each individual in each year in our data set from Harzing's "Publish or Perish" engine, which itself is based on Google Scholar search.[3] Ranking of economics departments was taken from RePEc (2017), with a rank of 1 indicating the most highly ranked department based on faculty's impact-adjusted pages published in top 50 journals.[4]

The descriptive statistics for our sample are presented in Appendix Table A2. Our analysis

[1] Choice of universities was dictated by data availability, and includes Berkeley, Chicago, Harvard, MIT, NYU, Northwestern, Penn, Princeton, UCLA, and Yale.

[2] Fields were coded using JEL classification into the fields of Econometrics, Micro/Theory, Macro, International, Public, Labor, IO, Devel/Growth, Finance and Other.

[3] Publication data was extracted during 2017.

[4] Ranking data was extracted during September of 2019. In the RePEc (2017) data, institutions ranked below the top 5 percent were aggregated into percentiles. All institutions within a percentile bin were given the average rank they would get if ranked by order.

sample consists of all students who graduated with a PhD in economics from ten of the top institutions from 2002 to 2006 for which we could find online photographs. There are 752 individuals of which 183 are women.[5] Asians constitute 17 percent of our sample.[6] As for the distribution of PhD graduates across economic fields, men were significantly more likely to specialize in theory and finance, and women were significantly more likely to specialize in industrial organization. Our tests, however, show that there are no differences in the importance of appearance across fields.

The average RePEc (2017) rank of the PhD institution of our graduates is 16.7. Of the 636 graduates for which we have the first job, 75 percent were working in academia, 15 percent in a government or a public sector institution, and 10 percent in the private sector. Of those working in academia, the rank of the institution appears in the RePEc (2017) data for 388 individuals. The average rank of these first job institutions was 148.2. For the last observed (academic) job recorded in our data (in 2017), the average rank was 171.3, with some 90 observations lost between the time of first job and last observed job. Overall, in 2017 (11 to 15 years after graduating), the average number of citations was 2103, and the average number of publications was 78, with no statistical difference between citations or publication between women and men.

2.2 Appearance ratings

After collecting the photographs, we relied on online evaluators to provide appearance rankings. We adjusted raw rankings to account for heterogeneity of evaluators. We also analyze heterogeneity in the quality of the photographs to determine which confounding factors we need to control for in our regressions.

2.2.1 Method

Photographs of the individuals in our sample were collected online in 2011 with the total of 752 photographs collected. Individuals were rated for how attractive they were based on these pho-

[5]The share of women in our sample is the same as the share of women among all graduates in those ten of the top economics department during those years, regardles of the availability of the photograph.

[6]Since there are only eight black individuals in our sample, the effect of being black was never significant in any model.

tographs by 241 U.S.-based workers of Amazon Mechanical Turk (AMT), an online marketplace for online workers.[7] Each evaluator was referred to a password-protected site, where the person provided their personal details such as age, gender, country of primary citizenship, and years of education. Each evaluator was then asked to rate the appearance of 50 individuals in our sample based on the photographs. The question asked about each individual photographed was: "On a scale of 1 to 10 (1 - not at all, 10 - very much), do you find this person attractive?" The names of photographed individuals were removed from the data after the merge with academic performance information, so that even the researchers do not know what ranking a specific individual received.

Summary statistics on evaluators are presented in Appendix Table A3. Half of the evaluators were women, the mean age was 33, and they had on average 15 years of education. Each of the AMT evaluators rated 50 photographs. On average, each photograph in the sample was viewed and rated by 14 evaluators.

The ratings for each photograph were averaged across evaluators to produce the raw attractiveness score of the photographed individual. To capture the extent to which there was agreement on the appearance rating of each graduate, we also recorded the standard deviation of the ratings for each individual photographed. Evaluators tend to have idiosyncratic benchmarks when rating individuals' photographs and may vary in their tendency to give high or low ratings. For example, a rating of 1 given by a tough evaluator may be more equivalent to a rating of 3 given by a more lenient one. To standardize the appearance ratings across evaluators, we rescaled each evaluator's ratings into a percentile ranking based on that evaluator's distribution of ratings. Since each evaluator rated 50 photographs, which were randomly and independently chosen from the sample, we assume each evaluator viewed photographs that were similarly distributed in terms of their appearance. The standardized appearance score for each individual in our sample was constructed as the average of the standardized ratings. For the rest of the analysis, we use this standardized score.[8]

[7] Individuals were also rated for how intelligent they appeared based on these photographs. We asked for both impressions, since it was not clear *a priori* which dimension of appearance is most relevant for hiring, promotions, and overall academic success. Here we only report the results for attractiveness, because we did not uncover robust patterns for the effects of "looking intelligent" ranking.

[8] In the robustness analysis we show that when we use raw scores instead, the results are qualitatively the same but are less precisely estimated.

2.2.2 The ratings

Appendix Table A4 presents summary statistics for the attractiveness ratings. The mean standardized attractiveness score for all graduates is 0.5 by construction. We see that men received on average a lower attractiveness score than women, with women rated 0.14 higher than men, which is 0.85 standard deviations higher. Both female and male evaluators gave higher attractiveness scores to women relative to men. The difference in the attractiveness ratings between female and male evaluators were not statistically significant. However, female evaluators were more in agreement about their ratings than male evaluators (as reflected by the lower standard deviation among women's ratings compared with men's ratings, 0.23 versus 0.21). This result was driven by the ratings of women's photographs rather than men's.

The raw attractiveness scores are presented at the bottom of Appendix Table A4, and Figure 1 depicts the raw distribution of attractiveness for men and women. It can be seen that the whole distribution of attractiveness for women is shifted to the right relative to men's attractiveness distribution.[9] Given the established finding that in the general population that men are judged to be on average as attractive or good-looking as women (Hamermesh, 2011), this implies a selection of women in PhD economics programs such that they are on average better-looking than both on average in the population and relative to men in these programs.

2.2.3 The Characteristics of Photographs

A concern might arise that a spurious correlation between the attractiveness of an individual and her academic success is driven by the quality of the photograph. This would be the case if higher ranked institutions produce better photographs which are taken professionally for the best appearance. If this were the case, the relationship between the rank of the institution and the attractiveness of their employees would be the result of reversed causality, and not because attractive individuals land better jobs. It is also possible that attractiveness as reflected by a photograph can be manipulated by individuals (by dressing in business attire, by choosing a professional photographer or by smiling), and the individuals or schools that manipulate the quality of photographs are a

[9] This is also true for the standardized attractiveness score we use throughout.

non-random subsample of our population. Another possibility is that more meticulous people have both better photographs and better papers. Therefore, we might find systematic differences between individuals based on their assessed attractiveness when, in fact, it is their ability or school quality that determines the quality of photographs.

Previous research has shown that the quality of photograph or the degree of primping has little influence on perceived beauty Hamermesh et al. (2002). However, to fully address this concern, we investigate the role of the quality of the photograph. All photographs were rated for their size, background setting (home/leisure, office, or highly professional), dress code, and whether the individual in the photograph was smiling or not. The descriptive statistics are found in Appendix Table A5. The size of the photographs wasn't uniform, with 11% being large, and 4% being smaller than usual. Some 56% of pictures had the photographed person smiling in them, with the fraction of women smiling at 71%, significantly higher than the 51% of men. Of all pictures 32% were taken at home, 34% were taken professionally. In 72% of the photos the individual was dressed for business.

We first test whether appearance rating depends on the characteristics of the photographs. To do so, we ran an OLS regression model predicting the attractiveness score based on the photograph characteristics (see Appendix Table A6). A large photo increases the attractiveness score for men (by 0.05). Smiling increases the attractiveness score of women (by 0.05).[10] Having the photo taken at home is associated with a higher attractiveness score for men.

Because characteristics of the photograph may be correlated, we conducted a factor analysis of the 6 photograph characteristics: large photo, small photo, photo taken at home, photo professionally taken, subject in business attire, subject smiling. This analysis revealed that the six items loaded on three distinct dimensions: professional photo, subject smiling, large photo (see Appendix Table A7). In all regression models we control for these three photograph quality factors.

[10]Smiling has been found to be associated with a higher perception of beauty Reis et al. (1990); O'Doherty et al. (2003).

3 Empirical Analysis

We are now ready to investigate whether attractiveness scores affect academic success at each stage of the career we can measure. We first present our empirical approach and the results. We then discuss the magnitudes of the effects and the interpretation of the findings. Finally, we test for heterogeneous effects and conduct robustness tests.

3.1 Empirical approach

Most of our dependent variables are ranks or counts. Therefore, it is unreasonable to assume that any explanatory variable will have a linear effect on the dependent variable. For this reason, our main approach is ordered logit.[11] Specifically, we estimate the following regression:

$$Pr\left(Y_i = k\right) = Pr\left(z_{k-1} < \mathbf{X_i'}\beta < z_k\right) = \frac{1}{1 + e^{-z_k + \mathbf{X_i'}\beta}} - \frac{1}{1 + e^{-z_{k-1} + \mathbf{X_i'}\beta}}, \tag{1}$$

where k is a given outcome value, z_k is the set of estimated cutoffs of the latent variable, $\mathbf{X_i'}$ is the matrix of explanatory variables, and β is the coefficient that is assumed to be the same across cutoffs. Since we only observe ten PhD institutions, we use the ranking of these institutions as our outcomes. For first and last observed job rankings, which have many values, we instead compute deciles in their distributions and use deciles as our outcome variables. Similarly, since citation counts can take on many values, we compute deciles of the number of citations to use as our outcome variable.

The only variable that is not ordered is the type of the first job. For this regression, we estimated a multinomial logit model with outcomes $j = \{private, academia, government\}$:

$$Pr\left(Y_i = j\right) = \frac{e^{\mathbf{X_i'}\beta_j}}{\sum_{n=j}^{J} e^{\mathbf{X_i'}\beta_n}}, \tag{2}$$

where J is the number of outcomes and coefficients β_j vary by outcome.

[11] This approach is less parametric than using, for example, log-linear regression, in that it does not require a functional form for the effect of a latent variable on the outcome, due to estimated cut-off constants. Our results are robust to using OLS instead of ordered logit.

3.2 Results

We begin by testing whether the rank of the PhD granting institution is associated with attractiveness. This is important for two reasons: first, the results will tell us whether attractiveness might be a factor in graduate admissions and PhD completion probability (although we cannot distinguish between these two because we only observe graduation data); second, it will tell us whether we need to control for the rank of the PhD institution in other regressions. Next, we test whether attractiveness plays a role in the type of the first job individuals land after graduation: academic, government, or private sector. We then zero in on the ranking of academic institutions and test whether the ranking of the first job as well as the ranking of the last observed job are affected by attractiveness. Finally, we test whether quality and quantity of publications, together reflected by citation count, are related to authors' attractiveness scores.

PhD Institution. Table 1 reports our results for the effect of attractiveness on the ranking of the PhD institution. Remember that the best institution is ranked 1 and note that we report regression results as odds ratios, with the lack of the effect represented by a coefficient of 1. In the binary specification with no control variables, and the only explanatory variable being attractiveness score (column (1)), we find a strong and significant effect: more attractive individuals get their PhDs from better ranked schools. The effects remains effectively unchanged if we include indicators for cohort (year of graduation, column(2)), or for characteristics of the photographs (column (3)).

This finding could be driven by two factors: either more attractive individuals are more likely to be accepted into higher ranked schools, or, once accepted, more attractive individuals are more likely to complete the program, or both. Since we don't observe PhD program admissions, but only graduations, we cannot disentangle these two effects. Since the ranking of the PhD program is likely to be important to the development of academic careers, and it is correlated with attractiveness score, we will control for the ranking of the PhD program in all our subsequent regressions to isolate the direct effect of the attractiveness score.

First job. We first test whether graduates' appearance predicts which sector job they will land, i.e., whether they will work in the private sector, academia, or the government (including international organizations). The results are reported in Table 2 as odds ratios. In the first column we don't control for photo quality factors, in the second we do. The omitted category in the regression is "private sector." Thus, coefficients on attractiveness below 1 indicate that graduates with lower attractiveness scores are much more likely to end up in either academia or government jobs, compared to the private sector. This result echoes Biddle and Hamermesh (1998) who document the selection of attractive-looking law graduates into the private sector. This suggests that attractiveness has more value in the private sector, either because in the private sector there are end consumers who care about appearance, or because regulation mitigates the attractiveness premium in the public sector or academia. Note that there is no statistically significant difference in terms of the effect of attractiveness between academic and government jobs.

Interestingly, the rank of PhD institution does not have an effect (the odds ratio is quite precisely 1), suggesting that the distribution of first job type is quite uniform for graduates of all the PhD institutions we considered.[12]

We now focus on academic careers and test for the effect of attractiveness on the ranking of the first academic job. The results are reported in Table 3. As before, lower rank is associated with a higher quality institution and in this case we group institution ranks into deciles. We control for cohort indicators in all regressions. In the first column, we test whether the rank of the PhD institution predicts the rank of the first academic job, and find that there is, indeed, a positive and statistically significant, but rather small, effect. Thus, we continue to control for the rank of the PhD institution. We add the attractiveness score in column (2) and find that higher score is strongly associated with better quality institution, including when we control for the picture quality (column (3)).

Putting the two sets of results together we have to acknowledge a possibility of a selection problem in the effects of attractiveness on the ranking of the first academic job. For PhD students in top PhD programs in economics, private sector jobs are usually not a top priority, especially for

[12]Since we focused on top schools, we do not believe that this particular result generalizes to overall population.

the best students — most students consider academic positions as their first choice and the reason they enrolled in these programs in the first place. Students with lower quality CVs likely have a choice between lower-ranked academic offers (if any) and private sector jobs. Among those, more attractive students are likely to see higher quality private sector jobs for reasons discussed in the literature. As a result, less attractive students with lower quality CVs are more likely to end up in lower-ranked academic positions than more attractive students. This would result in the positive association between attractiveness and quality of the first academic job that we find in Table 3. This is not, however, a problem for the rest of our analysis once we control for the rank of the first academic job.

Later jobs. Why would graduates' appearance be relevant for the hiring outcome? If appearance and productivity are related but ability is not fully observed, or if employers care about both appearance and ability, then appearance would turn out to be significant in predicting employment outcomes. To distinguish between these two possibilities, we can use the insights provided by Altonji and Pierret (2001). If the coefficient on appearance falls over time, we can infer that appearance initially serves as a signal of productivity, and that its importance as a signal declines over time as more information of true productivity and actual publications is revealed. Thus, observing a declining coefficient on attractiveness over time can provide evidence for statistical discrimination.

To test whether the effect of appearance becomes weaker with time and information, we look at the ranking of the job held by individual in 2017, when we completed our data collection, conditional on the first job. The results are reported in Table 4.

In column (1) we include the rank of the PhD institution and rank of the first job and find that both have a positive and statistically significant effect, but rather small in magnitude. In columns (2) we add the attractiveness score, and continue to control for the rank of the PhD and first job institution. In column (3) we add the picture quality factors. We see that attractiveness continues to be an important factor, with coefficient only slightly smaller (and not statistically different) than we observed for the effect on the ranking of the first job. More attractive individuals end up with higher ranked academic positions, even conditional on the ranking of their PhD program and the ranking of their first job. Thus, we do not observe a decline in the importance of attractiveness

for hiring and promotions in economic departments. Thus we find little evidence for statistical discrimination.[13]

Finally we want to know whether the effect of appearance on the ranking of the last observed job remains even after we control for the productivity and quality of the individual's research output. We use the 2017 publication and citation data to proxy for these mostly unobserved traits.[14] We show that the effect of appearance on the ranking of the last observed job remains unchanged even after controlling for this future appearance productivity. We report the results in Table A8 in the Appendix, but note that because it is possible citations are determined by appearance, our coefficient on appearance might be biased in these set of results.

Publications and citations. We now turn to analyze the effect of appearance on actual research productivity. The main measure of output for academics is their publications and citations. In fact, economists are evaluated and promoted based on the quality of their publications. (Heckman and Moktan, 2020). Thus, we compute deciles for the number of publications and the number of citations for each individual. Using these deciles as our dependent variables, we estimate an ordered logit model, as for job ranking. In these regressions we control for the rank of the PhD institution and the rank of the first job, since both of these are predetermined at a time we collected publications and citations data (in 2017).

We find no effect of attractiveness on the total number of publications.[15] However, we do find that attractiveness predicts the quality of publications, as measured by the number of citations. These results are reported in Table 5. In the first column we show that the rankings of PhD institutions and first jobs have small negative effects on the number of citations: that is, better quality (lower rank number) institutions are associated with more publications, as expected. In columns (2) and (3) we show that the total number of citations is strongly associated with attractiveness, whether or not we control for the picture quality factors.

[13] We cannot rule out, however, that the reason is that we don't observe people for long enough: the number of years from first job hiring to last observed job (8 on average) might not be enough for alternative information about true productivity to be revealed.

[14] The 2017 publication and citation data was only partially available to the hiring committee when candidates were hired by their 2017 institutions. Hence this data is only a proxy for the future productivity.

[15] These results are not reported but are available from the authors upon request.

The total number of citations is composed of the number of publications and the citation count for each paper. We already established that the simple number of publications is not associated with attractiveness. Thus, in columns (4) and (5) we add, as a control variable, the total number of publications. Essentially, these regressions estimate the effect of attractiveness on quality, or popularity, of an average paper. We find a very strong effect of attractiveness, and conclude that there is strong evidence that average citations per paper are significantly higher for more attractive individuals.

3.3 Discussion of the results

Why might it be the case, given that economics publications usually do not include authors' photos, and are supposedly cited for their impact and influence alone? There are many potential mechanisms discussed in the literature. Attractiveness has been found to be related to a individual characteristics that are developed through a process of expectancy confirmation Darley and Fazio (1980); Langlois (1986); Langlois et al. (2000). In this process, stereotypes regarding attractive people being more competent than less attractive people generate expectations that lead to consistently differential judgment and treatment Jackson et al. (1995). These expectations are internalized and the differential treatment causes development of differential behavior, traits, and self-views Judge et al. (2009). Thus, attractive people become more confident and therefore might be more likely to solicit constructive comments, and, as a result, may produce higher quality papers that are cited more. Due to higher confidence, they might be more likely to submit their papers to conferences and therefore their papers will get higher exposures. They might also be more charismatic when presenting their papers and therefore provide better marketing for their papers and, as "good presenters," might be more likely to be invited to seminars and future conferences.

Our finding of a direct impact of appearance on academic productivity, as measured by citations, may rationalize our finding of the effects of appearance on hiring and promotion decisions. However, it is important to acknowledge that this is not the only possibility. In fact, it is possible that there is an appearance bias in both hiring committee decisions and in editorial decisions, which would lead to the observationally equivalent results. Unfortunately, our data do not allow

to disentangle these effects.

To evaluate magnitudes of the effect of attractiveness on career outcomes, we plot distribution of predicted probabilities evaluated at means of all variables vs. predicted probabilities evaluated at mean plus one standard deviation of attractiveness and means of other variables. For all regression samples, mean attractiveness is around 0.5 and standard deviation is around 0.17, thus we compute predicted probabilities for attractiveness values of 0.5 and 0.67.[16] The results are reported in Figure 2.

We can see that one standard deviation increase in attractiveness increases the probability of being at the top-three PhD programs, with combined increase of probability from 36 to 40 percent, while reducing probability of being in the lowest three of our list of PhD programs, with combined decrease of probability from 25 to 22 percent.

In terms of the type of the first job, we find that one standard deviation increase in attractiveness increases the probability that the first job is in the private sector from 9.5 to 13.5 percent, while reducing the probability of getting first job in the government from 14.5 to 13.2 percent, leaving the probability of first job in academia only marginally lower (from 76 to 73 percent). Among those in academia, one standard deviation increase in attractiveness improves the probability of getting a first job in an above-median ranked institution from 52 to 59 percent, with corresponding decline in the probability of getting a first job in an below-median ranked institution. The same effect for the last observed job is an increase from 47 to 54 percent. We can also see that the better ranked is the institution, the larger is the impact of increased attractiveness. These effects are not overwhelmingly large, but they are quite substantial in magnitude.

Finally, a one standard deviation increase in attractiveness corresponds with the the probability of citation count being in the top 4 percentiles increasing from 0.4 to 0.49, which is quite large.

[16] Since sample varies for regressions evaluating different outcomes, we compute exact mean and standard deviation of each regression sample, but differences are negligible.

3.4 Robustness Tests and Heterogeneity Analysis

We conduct a number of robustness tests for our findings. Here we briefly discuss their results; all the tables are in the Appendix.

First, we conduct a test to establish that our results are not driven by reverse causality resulting from the quality of the photographs, which might be correlated with the rank of the institution where the photograph was taken. Since the last observed job was recorded in 2017, and photos were collected in 2011, the ranking of the institution in which a photo was taken is predetermined in the regressions for the last observed job. Thus, in Table A9 we control for the ranking of the institution in which the photo was taken. This should alleviate most concerns about the reverse causality. We find that the effect of attractiveness is not affected by this control and that, instead, the rank of the first job is no longer significant.[17]

We test whether out results are driven by the exact empirical specification we chose. Our approach is to re-estimate our key regressions using a different specification, for example, OLS and Ordered Probit models. We find that our results are robust to these specification changes (Table A10, Table A11).

Next, we test whether specific sub-samples drive our results. It is possible that there is a relationship between attractiveness and the choice of specific field in economics and that academic success varies by field. It has been shown, for instance, that citation counts vary across economic fields Anauati et al. (2016). To test for the possibility that our results are driven by specific fields, we include field fixed effects in our regressions. We find that the results are not affected by this addition (Table A12).

Another possibility is that a specific demographic is driving our results. In terms of race, as Figure **??** shows, Asian individuals tend to have different distributions of attractiveness scores when rated by the U.S. nationals.[18] To test whether this biases our result, we omit Asians from our sample and re-estimate our key regressions. We find that the effects remain the same for the

[17] Figure A1 in the Appendix shows that the ranking of the first job and the ranking of the institution that took the photo are nearly perfectly correlated.

[18] Data on race were extracted from the photographs by visual examination. For our purposes, this is a relevant measure because this is how a person's race is perceived by potential employers and colleagues. According to the photographs, there are only 8 Black individuals in our dataset and 130 Asians.

non-Asian sample (Table A13). In another specification test we estimate the regressions models on the full sample, but include an interaction term between attractiveness and an indicator for "Asian." The interaction terms is not statistically significant (results available upon request).

In terms of gender, we find that including gender indicator in our regressions does not alter the results and the indicator is almost never statistically significant. However, it is possible that the effects of all explanatory variables, including attractiveness, are different for men and women. To test for this possibility, we split the sample into men and women and re-estimate our key regressions. The results are reported in Tables A14 and A15. There are substantially fewer women then men in the sample, and therefore the effects are less precisely estimated for women. In each table, we gather key regression for each stage of the career. We find that our control variables are not significantly different across the two samples, with the exception of some of the photo quality factors. We do, however, find substantial differences in the effects of attractiveness. For the ranking of the PhD institution and the first job, we find that attractiveness matters only for men. For women, the effect of attractiveness is substantially smaller and is not statistically significant. The story is reversed for the last observed job and the number of citations: the effect of attractiveness is much larger for women than for men. In fact, for the last observed job, attractiveness score for men is not statistically significant.

Next, we test whether our treatment of survey responses has an important effect. In our main analysis, because each respondent only rated a subset of the photos, we standardized all responses across survey respondents so that each respondent mean and standard deviation are the same, effectively removing respondents' fixed effects. To test whether this adjustment is important, we re-estimate our results with raw average attractiveness score across all respondents (Table A16). Note that coefficients are expected to change because of the different scale of adjusted and unadjusted variables. Qualitatively the effects are the same, but are less precisely estimated due to noise introduced by raters' fixed effects.

Finally, we explore whether the set of evaluators giving the appearance ratings matters for the results we obtained. We want to know whether the results depend on the gender of the evaluators and whether they are robust to excluding unreliable evaluators.

Although the share of women graduates in economics is growing, men are still the majority of faculty. In 2015, 81% of tenured or tenure-track faculty were men McElroy (2016). Men make up a majority of the population assessing, responding to, and creating the environment in which appearance is valued. Hence, we might expect appearance scores constructed only from men's ratings to have a larger effect on outcomes than overall or women-only ratings. We find this prediction regarding the difference between male and female evaluators to be only partly true in our data.

We estimated models using appearance scores given only by male or only by female evaluators.[19] For the PhD regression, we find that males' assessment of appearance is significant in predicting the rank of the PhD institution, while females' assessment is not. However, for the job ranks and citations we find no significant difference between the effect of males' evaluations and the effect of female's evaluations of appearance (Table A17 and Table A18).

Our last set of tests discards ratings given by unreliable evaluators. We define reliable evaluators using a variation on Cronbach's α (Cronbach, 1951). An evaluator is reliable if the sum of square distance of each of his normalized rating from the mean rating by others is small. In this way, we identify 19 out of 241 evaluators as unreliable. The results when using only reliable evaluators is practically identical to the results when using all evaluators (Table A19).

Overall, we find that our results are robust to empirical specification, additional controls, and definitions of the measures.

4 Conclusion

This paper explores the role of scholars' appearance on their hiring and publication success, and finds that appearance matters. Attractiveness is related to educational achievements, to hiring, and to publication outcomes. In particular, more attractive individuals are more likely to graduate from better ranked PhD institutions and are more likely to go to the private sector after completing their PhDs. Among those going into academia, more attractive individuals are more likely to get jobs

[19] Recall that our evaluator sample has 52% women.

at higher-ranked institutions, and have better publication records. The differences are substantial in magnitude.

Why would graduates' appearance be relevant for the hiring outcomes and, perhaps more surprisingly, number of citations? Stinebrickner et al. (2019) provides evidence that the beauty wage premium for college graduates appears only in jobs where attractiveness is likely to affect productivity, with large premiums existing with jobs that require interpersonal interaction. Even though much academic work is conducted individually, appearance may influence success because labor market outcomes depend on human interactions. Hiring, academic publications, and citation counts are likely to be affected by the success with which a paper was presented in seminars and conferences. Moreover, good appearance might increase a person's chances of being invited as a co-author.

Are hiring committees simply using appearance as a proxy for future academic productivity? They might in fact be correct in predicting the success of a candidate based on her looks. However, hiring committees are probably not engaged in such reasoning. More likely, they are affected by good appearance for the same reason looks affect publications and citations. That is, looks are valuable in the academic market.

There are a few possible explanations for why looks are valuable. Employers may have a taste for looks, which is independent of their assessment of and value for the candidates' talent and productivity Becker (2010). Or, appearance and productivity may be inherently correlated: Good appearance gets you hired and published, either because you are a better communicator or because people perceive you as such. Our analysis does not distinguish between these explanations, but it does suggest human interaction is needed for the appearance effect to take place. The nature of the academic job requires human interactions, and humans care about appearance. In this way, academia is not so different from other industries.

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Figure 1. Distribution of attractiveness of men and women

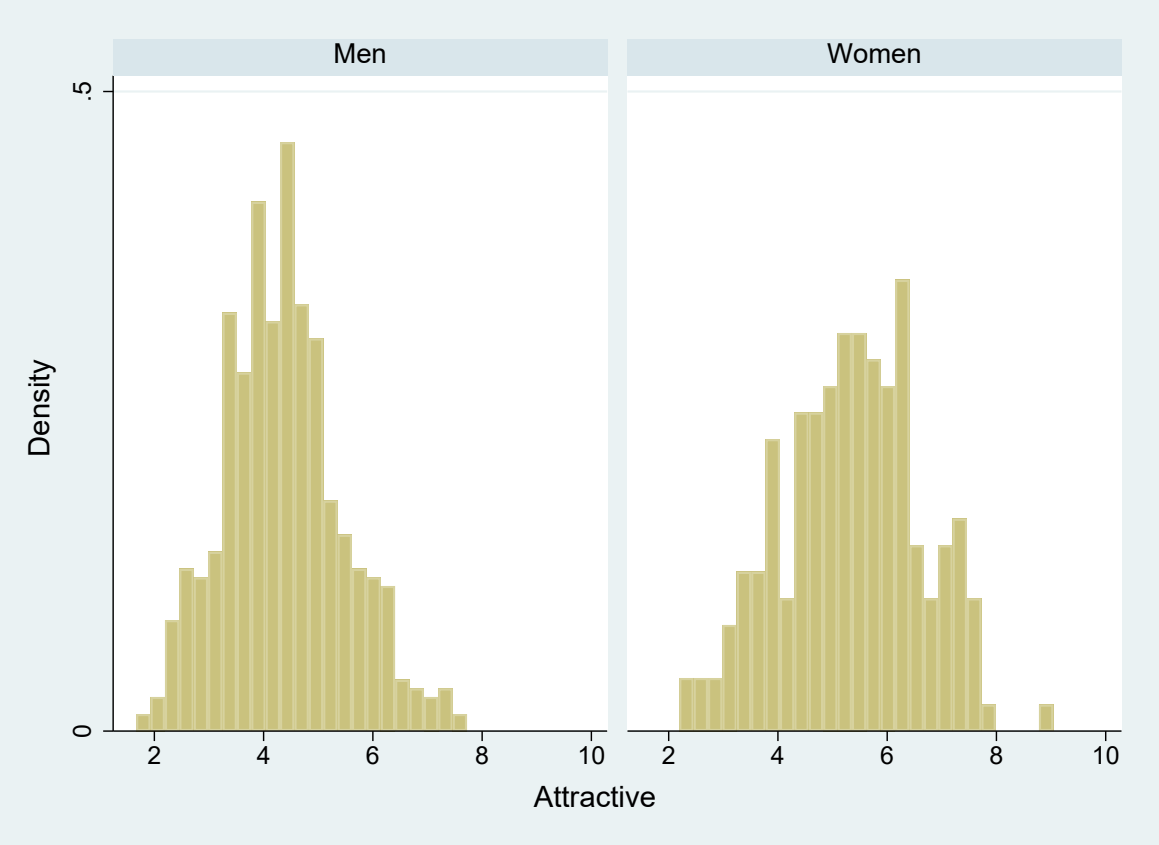

Figure 2. Distribution of predicted probabilities across outcomes

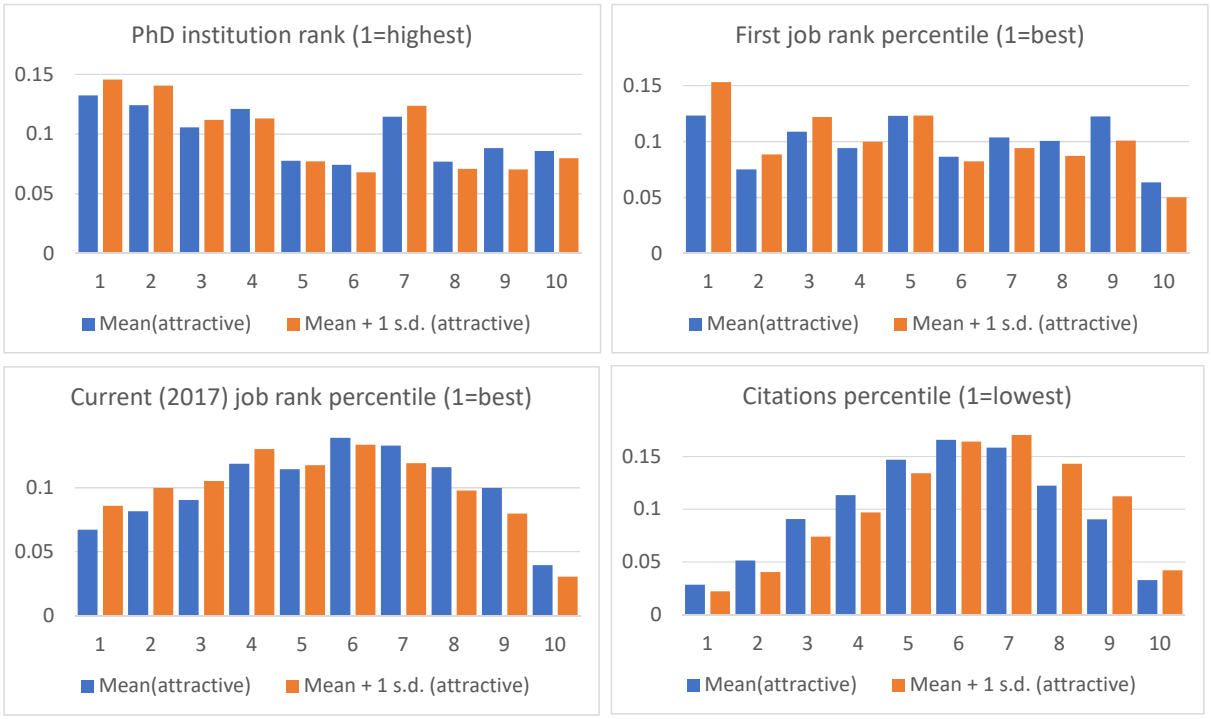

Table 1. Effect of attractiveness on PhD institution rank: ordered logit

	(1)	(2)	(3)
Attractiveness score	0.445**	0.440**	0.440**
	(0.163)	(0.164)	(0.164)
Professional photo factor			0.948
			(0.079)
Smiling on the photo factor			0.906
			(0.155)
Large photo factor			1.079
			(0.383)
Cohort dummies	No	Yes	Yes
Observatons	752	752	752
Pseudo R^2	0.001	0.002	0.002

Notes: Dependent variable is the rank of PhD institution with best institution ranked 1. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table 2. Effect of attractiveness on the type of first job: multinomial logit

	(1)	(2)
Job type is "academic"		
Attractiveness score	0.173**	0.179**
	(0.133)	(0.137)
Rank of PhD institution	1.004	1.004
	(0.010)	(0.010)
Constant term	17.01***	17.47***
	(8.151)	(8.386)
Job type is "government"		
Attractiveness score	0.081***	0.097**
	(0.076)	(0.091)
Rank of PhD institution	1.003	1.004
	(0.012)	(0.013)
Constant term	5.128***	4.627***
	(2.915)	(2.630)
Photo quality factors	No	Yes
Observations	636	636
Pseudo R^2	0.008	0.031

Notes: Dependent variable is type of first job. Omitted category is "private." Coefficients are reported in exponential form with 1 indicating no effect. Standard errors are in parentheses.

Table 3. Effect of attractiveness on the rank of first job: ordered logit

	(1)	(2)	(3)
Attractiveness score		0.251***	0.236***
		(0.134)	(0.127)
Rank of PhD institution	1.029***	1.027***	1.028***
	(0.007)	(0.007)	(0.007)
Professional photo factor			1.173
			(0.131)
Smiling on the photo factor			1.113
			(0.280)
Large photo factor			1.298
			(0.612)
Obserbvations	388	388	388
Pseudo R^2	0.011	0.015	0.017

Notes: Dependent variable is the rank of first job institution (academic institutions only). Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table 4. Effect of attractiveness on the rank of last observed job: ordered logit

	(1)	(2)	(3)
Attractiveness score		0.219**	0.219**
		(0.135)	(0.135)
Rank of PhD institution	1.015*	1.014*	1.014*
	(0.008)	(0.008)	(0.008)
Rank of first job institution	1.007***	1.007***	1.007***
	(0.001)	(0.001)	(0.001)
Professional photo factor			0.960
			(0.126)
Smiling on the photo factor			1.094
			(0.320)
Large photo factor			0.565
			(0.296)
Observations	299	299	299
Pseudo R^2	0.089	0.093	0.094

Notes: Dependent variable is deciles of the rank of last observed job institution (academic institutions only). Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table 5. Effect of attractiveness on the number of citations: ordered logit

	(1)	(2)	(3)	(4)
Attractiveness score		2.636*	2.832*	4.661***
		(1.445)	(1.559)	(2.627)
Rank of PhD institution	0.950***	0.950***	0.951***	0.953***
	(0.007)	(0.007)	(0.007)	(0.008)
Rank of first job institution	0.997***	0.997***	0.997***	0.997***
	(0.001)	(0.001)	(0.001)	(0.001)
Professional photo factor			1.140	1.099
			(0.137)	(0.133)
Smiling on the photo factor			0.738	0.836
			(0.192)	(0.218)
Large photo factor			1.213	1.090
			(0.596)	(0.551)
Total number of publications				1.020***
				(0.002)
Observations	354	354	354	354
Pseudo R^2	0.068	0.069	0.071	0.153

Notes: Dependent variable is deciles of the number of citations. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Appendix A Additional Tables and Charts

Figure A1. Rank of first institution and Rank of photo institution, scatter plot

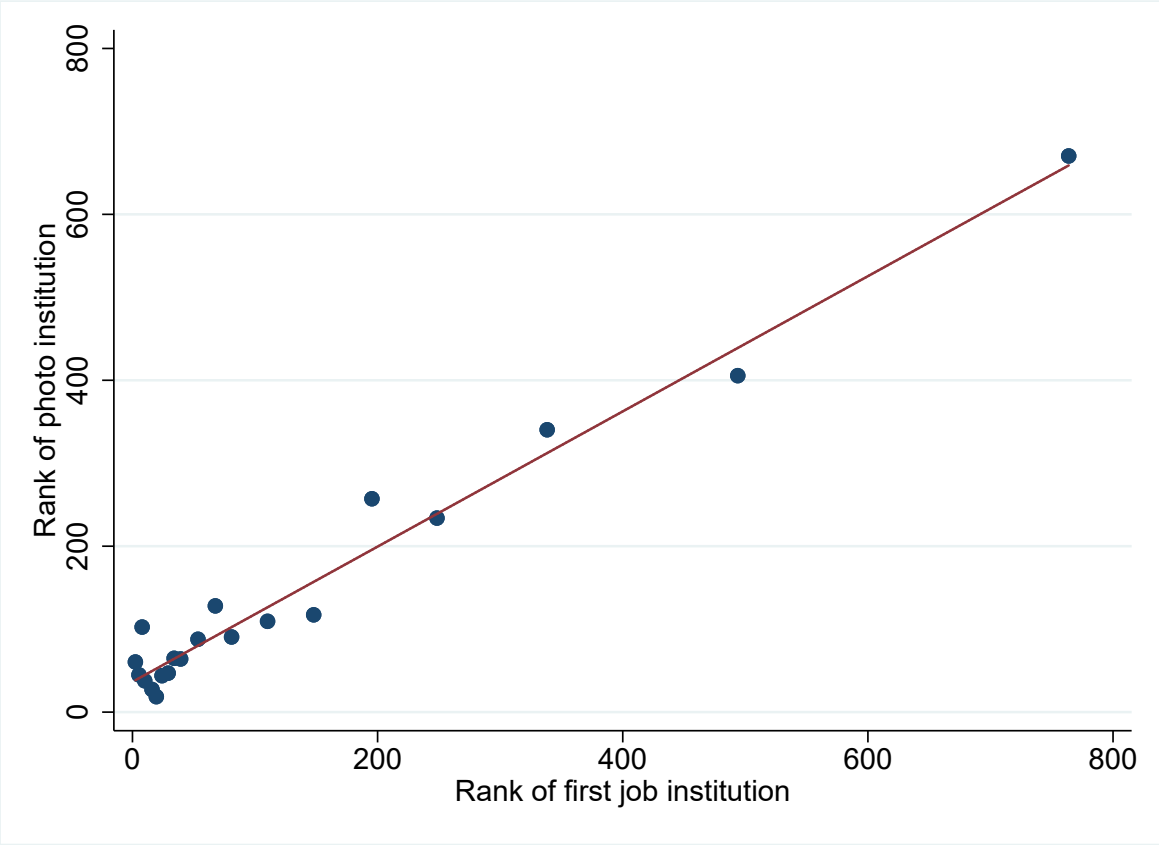

Table A18. Effects of attractiveness (ordered logit): female raters only

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score (female raters)	0.580	0.270***	0.318**	3.359**
	(0.194)	(0.133)	(0.180)	(1.711)
Professional photo factor	0.949	1.151	0.946	1.111
	(0.079)	(0.129)	(0.124)	(0.135)
Smiling on the photo factor	0.894	1.110	1.093	0.845
	(0.153)	(0.279)	(0.320)	(0.221)
Large photo factor	1.094	1.326	0.559	1.099
	(0.389)	(0.628)	(0.293)	(0.555)
Rank of PhD institution		1.028***	1.014*	0.953***
		(0.007)	(0.008)	(0.008)
Rank of first job institution			1.007***	0.997***
			(0.001)	(0.001)
Total number of publications				1.020***
				(0.002)
Observations	752	388	299	354
Pseudo R^2	0.002	0.017	0.093	0.152

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A19. Effects of attractiveness (ordered logit): reliable raters only

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score (reliable)	0.434**	0.253***	0.235**	4.079***
	(0.156)	(0.130)	(0.139)	(2.200)
Professional photo factor	0.946	1.170	0.957	1.099
	(0.079)	(0.131)	(0.126)	(0.133)
Smiling on the photo factor	0.910	1.116	1.096	0.836
	(0.156)	(0.281)	(0.320)	(0.218)
Large photo factor	1.078	1.294	0.562	1.100
	(0.383)	(0.610)	(0.295)	(0.555)
Rank of PhD institution		1.028***	1.014*	0.953***
		(0.007)	(0.008)	(0.008)
Rank of first job institution			1.007***	0.997***
			(0.001)	(0.001)
Total number of publications				1.020***
				(0.002)
Observations	752	388	299	354
Pseudo R^2	0.002	0.017	0.094	0.153

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A2. Descriptive statistics: graduates

	mean	sd	min	max	count
Attractive	0.50	0.17	0.08	0.94	752
Female	0.24	0.43	0.00	1.00	752
Asian	0.17	0.38	0.00	1.00	752
Cohort graduation year	2003.97	1.45	1999.00	2006.00	752
Devel/Growth	0.07	0.26	0.00	1.00	752
Econometrics	0.04	0.20	0.00	1.00	752
Finance	0.11	0.32	0.00	1.00	752
IO	0.07	0.25	0.00	1.00	752
International	0.08	0.27	0.00	1.00	752
Labor	0.13	0.34	0.00	1.00	752
Macro	0.10	0.30	0.00	1.00	752
Micro/Theory	0.21	0.41	0.00	1.00	752
Public	0.04	0.20	0.00	1.00	752
Other	0.14	0.35	0.00	1.00	752
Professional photo factor	-0.00	0.78	-1.34	0.92	752
Smiling photo factor	0.00	0.40	-1.74	0.71	752
Large photo factor	0.00	0.20	-0.55	0.67	752
Attractive (raw score)	4.60	1.21	1.67	8.78	752
Attractive (by reliable raters)	0.50	0.18	0.08	0.98	752
Rank of PhD institution	16.70	13.18	1.00	39.00	752
First job is academic	0.75	0.44	0.00	1.00	636
First job is government	0.15	0.36	0.00	1.00	636
First job is private	0.10	0.31	0.00	1.00	636
Rank of first job	148.19	193.63	1.00	949.00	388
Rank of current (2017) job	171.28	196.45	1.00	949.00	299
Current (2017) job is academic	1.00	0.00	1.00	1.00	299
Citations	2103.51	201.36	0.00	31613.00	299
Publictions	77.62	100.30	1.00	1000.00	299
Rank of photo institution	146.00	193.28	1.00	827.00	278

Table A3. Descriptive statistics: raters

	mean	sd	min	max
Female	0.52	0.50	0	1
Age	33.26	10.89	18	71
Years of education	15.22	2.44	9	20
Photographs rated	50.71	59.75	1	905
N	241			

Table A4. Appearance ratings of Ph.D graduates in top schools, by gender

	All Graduates		Men Graduates		Women Graduates		Men-Women
	mean	sd	mean	sd	mean	sd	difference in means
Attractive	0.50	0.17	0.47	0.16	0.61	0.18	-0.144***
S.D. of attractive rating	0.23	0.05	0.23	0.05	0.22	0.06	0.004
Attractive by female raters	0.50	0.19	0.46	0.18	0.62	0.18	-0.166***
S.D. of attractive by female	0.21	0.07	0.22	0.07	0.20	0.07	0.015***
Attractive by male raters	0.50	0.18	0.47	0.17	0.60	0.20	-0.127***
S.D. of attractive by male	0.23	0.08	0.22	0.08	0.23	0.09	-0.007
Attractive by reliable raters	0.50	0.18	0.46	0.16	0.62	0.18	-0.152***
S.D. of attractive by reliable raters	0.22	0.06	0.22	0.05	0.22	0.06	0.007*
Attractive (raw)	4.60	1.21	4.36	1.09	5.34	1.26	-0.978***
S.D. of attractive (raw)	0.23	0.05	0.23	0.05	0.22	0.06	0.204***
N	752		569		183		

Notes: Last column reports difference in means, with t-test, where * Denotes significance at 10%; ** Denotes significance at 5%; *** Denotes significance at 1%

Table A5. Descriptive statistics: photograph characteristics

	All Photos		Men's Photos		Women's Photos	
	mean	sd	mean	sd	mean	sd
Large photo	0.11	0.31	0.12	0.32	0.08	0.27
Small Photo	0.04	0.20	0.04	0.18	0.05	0.23
Smiling	0.56	0.50	0.51	0.50	0.71	0.45
At home	0.32	0.47	0.33	0.47	0.30	0.46
Professional photo	0.34	0.47	0.35	0.48	0.32	0.47
Business attire	0.72	0.45	0.73	0.44	0.67	0.47
N	752		568		184	

Table A6. Models predicting attractiveness based on photo properties

	(1) All	(2) Men	(3) Women
Woman	0.143***		
	(0.014)		
Large photo	0.050***	0.056***	0.001
	(0.019)	(0.020)	(0.049)
Small photo	0.049	0.066*	0.029
	(0.030)	(0.036)	(0.058)
Smiling	0.015	0.006	0.050*
	(0.012)	(0.013)	(0.029)
At home	0.022	0.029*	0.012
	(0.015)	(0.018)	(0.032)
Business attire	0.000	0.000	-0.005
	(0.014)	(0.017)	(0.029)
Professional photo	0.010	0.002	0.045
	(0.014)	(0.016)	(0.032)
Asian	-0.093***	-0.076***	-0.142***
	(0.015)	(0.017)	(0.032)
Constant	0.443***	0.441***	0.581***
	(0.020)	(0.023)	(0.042)
N	752	568	184
R^2	0.197	0.084	0.142
Adjusted R^2	0.183	0.066	0.087

* denotes significance at 10%; ** denotes significance at 5%; *** denotes significance at 1%.

Table A7. Results from rotated factor analysis: photo characteristics

	Factor1(professional)	Factor2(smiling)	Factor3(large)	Uniqueness
Small photo	0.0282	-0.2760	-0.0829	0.9161
Large photo	-0.0923	0.1223	0.1600	0.9509
Business attire	0.5328	0.0796	-0.0517	0.7071
At home	-0.6810	0.0982	0.0274	0.5258
Professional photo	0.6025	0.0919	0.0435	0.6266
Smiling	-0.0031	0.2501	-0.0392	0.9359

Table A8. Effect of attractiveness on the rank of last observed job: ordered logit, controlling for productivity

	(1)	(2)	(3)
Attractiveness score	0.206**	0.264**	0.243**
	(0.128)	(0.164)	(0.152)
Publications	0.997***		0.998
	(0.001)		(0.001)
Citations		1.000***	1.000***
		(0.000)	(0.000)
Rank of PhD institution	1.012	1.006	1.007
	(0.008)	(0.009)	(0.009)
Rank of first job institution	1.007***	1.007***	1.007***
	(0.001)	(0.001)	(0.001)
Professional photo factor	0.981	0.969	0.971
	(0.130)	(0.129)	(0.130)
Smiling on the photo factor	1.073	1.006	1.011
	(0.313)	(0.295)	(0.297)
Large photo factor	0.665	0.638	0.675
	(0.350)	(0.334)	(0.355)
Observations	299	299	299
Pseudo R^2	0.100	0.106	0.107

Notes: Dependent variable is deciles of the rank of last observed job institution (academic institutions only). Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A9. Effects of attractiveness (ordered logit): controlling for rank of institution where photo was taken

Dependent variable	Current job	Citations
	(1)	(2)
Attractiveness score	0.218**	5.699***
	(0.139)	(3.463)
Rank of PhD institution	1.015*	0.953***
	(0.009)	(0.008)
Rank of first job institution	1.001	0.998**
	(0.001)	(0.001)
Rank of photo-taking institution	1.016***	0.999*
	(0.002)	(0.001)
Professional photo factor	1.035	1.090
	(0.143)	(0.145)
Smiling on the photo factor	1.295	0.805
	(0.381)	(0.224)
Large photo factor	0.652	1.177
	(0.350)	(0.628)
Total number of publications		1.021***
		(0.003)
Observations	278	307
Pseudo R^2	0.223	0.161

Notes: Dependent variables are: deciles of last observed job rank, deciles of the number of citations. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A10. Effects of attractiveness: OLS

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score	-4.960*	-2.243***	-1.638*	1.285*
	(2.822)	(0.852)	(0.840)	(0.708)
Professional photo factor	-0.315	0.250	-0.069	0.103
	(0.624)	(0.183)	(0.187)	(0.152)
Smiling on the photo factor	-0.173	0.114	-0.076	-0.229
	(1.315)	(0.399)	(0.409)	(0.336)
Large photo factor	-0.166	0.439	-0.831	-0.059
	(2.705)	(0.756)	(0.739)	(0.624)
Rank of PhD institution		0.047***	0.025**	-0.061***
		(0.011)	(0.011)	(0.009)
Rank of first job institution			0.008***	-0.004***
			(0.001)	(0.001)
Total number of publications				0.011***
				(0.001)
Constant	7.193	7.150***	5.237***	4.782***
	(13.343)	(1.230)	(0.587)	(0.522)
Observations	752	388	299	354
Pseudo R^2	-0.007	0.052	0.275	0.399

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Cohort dummies included in all regressions but not reported. Standard errors are in parentheses.

Table A11. Effects of attractiveness: Ordered probit models

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score	-0.413*	-0.891***	-0.900**	0.757**
	(0.219)	(0.312)	(0.356)	(0.334)
Professional photo factor	-0.012	0.089	-0.033	0.050
	(0.048)	(0.067)	(0.078)	(0.071)
Smiling on the photo factor	-0.085	0.049	0.005	-0.074
	(0.102)	(0.145)	(0.173)	(0.158)
Large photo factor	0.074	0.171	-0.323	-0.060
	(0.209)	(0.275)	(0.312)	(0.295)
Rank of PhD institution		0.017***	0.009*	-0.029***
		(0.004)	(0.005)	(0.005)
Rank of first job institution			0.004***	-0.002***
			(0.000)	(0.000)
Total number of publications				0.010***
				(0.001)
Observations	752	388	299	354
Pseudo R^2	0.002	0.017	0.086	0.143

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Cohort dummies included in all regressions but not reported. Standard errors are in parentheses.

Table A12. Effects of attractiveness (ordered logit): controlling for fields

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score	0.461**	0.246**	0.255**	3.417**
	(0.175)	(0.135)	(0.162)	(1.998)
Professional photo factor	0.945	1.173	0.990	1.074
	(0.079)	(0.133)	(0.133)	(0.133)
Smiling on the photo factor	0.959	1.013	1.035	0.893
	(0.166)	(0.262)	(0.305)	(0.234)
Large photo factor	0.983	1.318	0.664	0.992
	(0.353)	(0.628)	(0.352)	(0.506)
Rank of PhD institution		1.029***	1.014*	0.953***
		(0.007)	(0.008)	(0.008)
Rank of first job institution			1.007***	0.997***
			(0.001)	(0.001)
Total number of publications				1.020***
				(0.002)
Observations	752	388	299	354
R^2	0.010	0.024	0.102	0.162

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Sample is limited to non-asian. Cohort and field dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A13. Effects of attractiveness (ordered logit): non-Asian

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score	0.470*	0.236***	0.219**	4.661***
	(0.192)	(0.127)	(0.135)	(2.627)
Professional photo factor	0.917	1.173	0.960	1.099
	(0.084)	(0.131)	(0.126)	(0.133)
Smiling on the photo factor	0.988	1.113	1.094	0.836
	(0.183)	(0.280)	(0.320)	(0.218)
Large photo factor	1.103	1.298	0.565	1.090
	(0.431)	(0.612)	(0.296)	(0.551)
Rank of PhD institution		1.028***	1.014*	0.953***
		(0.007)	(0.008)	(0.008)
Rank of first job institution			1.007***	0.997***
			(0.001)	(0.001)
Total number of publications				1.020***
				(0.002)
Observations	623	388	299	354
Pseudo R^2	0.002	0.017	0.094	0.153

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Sample is limited to non-asian. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A14. Effects of attractiveness on men's academic careers

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score	0.395*	0.162**	0.264	4.266*
	(0.190)	(0.120)	(0.214)	(3.206)
Professional photo factor	1.016	1.123	0.923	1.142
	(0.097)	(0.145)	(0.139)	(0.159)
Smiling on the photo factor	0.758	1.251	0.818	1.035
	(0.153)	(0.383)	(0.276)	(0.315)
Large photo factor	1.240	1.046	0.470	1.333
	(0.490)	(0.564)	(0.282)	(0.794)
Rank of PhD institution		1.022***	1.014	0.946***
		(0.008)	(0.010)	(0.009)
Rank of first job institution			1.008***	0.997***
			(0.001)	(0.001)
Total number of publications				1.021***
				(0.003)
Observations	569	283	226	263
Pseudo R^2	0.003	0.014	0.099	0.163

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Sample is limited to men. Ordered logit regressions in all cases. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A15. Effects of attractiveness on women's academic careers

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score	0.662	0.676	0.057**	14.589**
	(0.503)	(0.650)	(0.073)	(15.972)
Professional photo factor	0.672**	1.475	1.125	1.089
	(0.125)	(0.372)	(0.365)	(0.302)
Smiling on the photo factor	1.560	0.805	3.920**	0.662
	(0.529)	(0.405)	(2.730)	(0.370)
Large photo factor	0.458	4.499	4.391	0.402
	(0.400)	(5.019)	(5.879)	(0.445)
Rank of PhD institution		1.049***	1.041**	0.965**
		(0.015)	(0.020)	(0.015)
Rank of first job institution			1.005***	0.998**
			(0.002)	(0.001)
Total number of publications				1.022***
				(0.005)
Observations	183	105	73	91
Pseudo R^2	0.016	0.032	0.133	0.152

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Sample is limited to women. Ordered logit regressions in all cases. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A16. Effects of attractiveness (ordered logit): raw attractiveness score

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Raw attractiveness score	0.895**	0.830**	0.876	1.162*
	(0.048)	(0.065)	(0.077)	(0.095)
Professional photo factor	0.953	1.182	0.971	1.083
	(0.079)	(0.133)	(0.128)	(0.131)
Smiling on the photo factor	0.894	1.096	1.057	0.865
	(0.152)	(0.276)	(0.309)	(0.226)
Large photo factor	1.072	1.257	0.568	1.109
	(0.381)	(0.590)	(0.297)	(0.560)
Rank of PhD institution		1.028***	1.014*	0.953***
		(0.007)	(0.008)	(0.008)
Rank of first job institution			1.007***	0.997***
			(0.001)	(0.001)
Total number of publications				1.020***
				(0.002)
Observations	752	388	299	354
Pseudo R^2	0.002	0.016	0.091	0.150

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Sample is limited to non-asian. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.

Table A17. Effects of attractiveness (ordered logit): male raters only

Dependent variable	PhD inst.	First job	Current job	Citations
	(1)	(2)	(3)	(4)
Attractiveness score (male raters)	0.370***	0.237***	0.231**	5.607***
	(0.130)	(0.119)	(0.132)	(2.990)
Professional photo factor	0.948	1.174	0.955	1.108
	(0.079)	(0.132)	(0.126)	(0.135)
Smiling on the photo factor	0.915	1.107	1.076	0.835
	(0.156)	(0.280)	(0.315)	(0.218)
Large photo factor	1.067	1.266	0.565	1.085
	(0.380)	(0.595)	(0.296)	(0.548)
Rank of PhD institution		1.028***	1.014*	0.954***
		(0.007)	(0.008)	(0.008)
Rank of first job institution			1.007***	0.997***
			(0.001)	(0.001)
Total number of publications				1.020***
				(0.002)
Observations	750	387	298	353
Pseudo R^2	0.003	0.017	0.093	0.157

Notes: Dependent variables are: PhD institution rank, deciles of first job rank, deciles of last observed job rank, deciles of the number of citations. Cohort dummies included in all regressions but not reported. Coefficients are reported in exponential form with 1 indicating no effect. Cutoff estimates are omitted, but available upon request. Standard errors are in parentheses.