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RETURNS TO BEAUTY OVER THE LIFE COURSE

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Returns to Beauty over the Life Course

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Abstract:

This paper analyzes returns to facial beauty over the life course with respect to four outcomes: Socioeconomic status (SES), marital success, spouse's SES, and health. I use data from the Wisconsin Longitudinal Study which, based on high school yearbook photos, has collected data on respondents' facial attractiveness as well as data on SES, marital, and health outcomes from their mid-20s to their mid-60s. I find that beauty has lasting positive returns for women since more beautiful women have higher SES throughout their working life, have a higher probability of being married at age 25, and marry high-SES husbands. I find no effects of beauty on health and, in general, no returns to beauty for men.

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Introduction

Social stratification research shows that socioeconomic success depends on many factors such as family background, IQ, and personality traits. A recent literature in labor economics has furthermore shown that physical traits such as a height (e.g., Persico et al. 2004; Sargent and Branchflower 1994) and, in particular, facial beauty (e.g., Biddle and Hamermesh 1998; Hamermesh and Biddle 1994; Mobius and Rosenblat 2006) are positively correlated with labor market outcomes. This finding supplements existing psychological evidence suggesting that, compared to less beautiful people, beautiful people are, or are perceived to be, more confident, extrovert, healthy, happy, intelligent, and popular (e.g., Feingold 1992; Langlois et al. 2000).

Studies on returns to beauty in labor economics focus on earnings returns (e.g., Biddle and Hamermesh 1998; Hamermesh 2006; Hamermesh and Biddle 1994; Hamermesh et al. 2002; Mobius and Rosenblat 2006). However, other types of returns to beauty also exist. Studies in psychology show that beautiful people have more marital success than less-beautiful people, are healthier, more self-confident, and socially popular (for reviews see Eagly et al. 1991; Feingold 1992; Langlois et al. 2000). Consequently, there is now compelling empirical evidence that beauty affects several important socioeconomic and social outcomes.

Almost all studies which analyze returns to beauty use either “snapshot” cross-sectional data or “single shot” experimental data (Hamermesh and Biddle 1994 use a short panel). Consequently, these studies cannot determine whether returns to beauty persist over the life course or whether beauty matters more in some life stages than in others. This paper is the first to provide empirical evidence on the returns to beauty over a long period of individuals’ lives, as well as returns across several outcome dimensions (socioeconomic, marital, and health). Providing evidence on the returns to beauty over the life course is substantively important for at least two reasons.

First, there is little evidence on whether beauty matters in the long run. Psychological evidence indicates that individuals maintain their relative position in the distribution of beauty throughout their life (Adams 1977; Hatfield and Sprecher 1986). Thus, if individuals maintain a beauty advantage or disadvantage over the life

course it is likely that there should be measurable long-term returns to beauty. Furthermore, returns to beauty in the labor or marriage market might be accumulative in the sense that early beauty advantages (for example, with regard to the first job or partner) increase over the life course. For example, Biddle and Hamermesh (1998) find that among lawyers the effect of beauty on earnings increases over the career, and Frieze et al. (1991) find that more beautiful female MBA graduates have higher earnings growth ten years after graduation than less-beautiful graduates.

Second, studying returns to beauty over the life course might help to distinguish between biological and psychological/social explanations of why beauty matters. With cross-sectional or experimental "snapshot" data it is often difficult to determine whether observed correlations between beauty and outcomes are best explained by biological or psychological/social theories (Langlois et al. 2000). However, with longitudinal data and repeated measurements of socioeconomic and social outcomes it is easier to make this distinction because, for example, biology would be hypothesized to be more important in some life stages than in others. If beauty is a proxy for good genes, health, and fecundity, beautiful individuals should be particularly attractive in the marriage market when they are young (Buss 1998). However, at mid-life when reproduction is completed, beauty should matter less for marital outcomes. By contrast, if beauty matters principally because it represents a socially desirable trait or if beautiful individuals have enduring positive psychological characteristics (confidence, social skills, etc.) there is no reason to expect that the effect of beauty on marriage outcomes should decrease over the life course.

The paper analyzes returns to beauty in a sample of US respondents from the Wisconsin Longitudinal Study (WLS). The WLS is unique in two regards: It has collected data on respondents' facial beauty in their late teens and it has followed respondents over a large part of their lives. My principal focus is on returns to beauty from the mid-20s to the mid-60s, i.e., the period during which the WLS respondents formed families and were active in the labor market. In addition to being the first paper to analyze returns to beauty over the life course, the paper makes three contributions to the existing literature.

First, unlike most studies I analyze returns to beauty over the life course across several outcome dimensions. These dimensions are 1) labor market success (income, socioeconomic status), 2) marital outcomes, 3) spouse's labor market success (income, socioeconomic status), and 4) subjective and objective health. All outcome variables are measured two or three times over respondents' life course.

Second, in the WLS sample each respondent's facial beauty is rated by two panels consisting of, respectively, six men and six women. This design allows me to study if the gender of the raters affects my estimates of the returns to beauty in different domains. For example, from a biological perspective one would expect women's rating of men's beauty to be a better predictor of men's marital success than men's rating of men's beauty (and vice versa). The average correlation in beauty ratings in the male and female rating panels (irrespective of the gender of the respondent being rated) is around .70 in the WLS sample, thereby suggesting that some systematic gender differences in beauty ratings exist.

Third, the WLS data has more measures of respondents' early skills and productivity (IQ, education) and family background than most previous studies. Hamermesh and Biddle (1994) argue that it is important to control for these traits, which might be correlated with beauty, because individuals from more advantaged families are better able to invest in beauty-enhancing products (see Hamermesh et al. 2002). There is some evidence of this type of effect in the WLS data since women (but not men) from advantaged socioeconomic backgrounds score significantly higher beauty ratings than women from less advantaged backgrounds (results not shown).

The paper proceeds as follows. In the next section I present biological, psychological, and social explanations of why beauty might lead to favorable outcomes. These theories all predict that beauty has a positive impact on outcomes in different social and socioeconomic domains, although the causal mechanisms invoked to explain these outcomes differ. In section 3 I present the Wisconsin Longitudinal Study (WLS) and the beauty measures and other variables used in the analysis. Section 4 describes the methodological framework. Section 5 presents the empirical results, and section 6 concludes.

Theoretical Background

Theories in biology, psychology, and social sciences (mostly economics and sociology) argue that there should be a positive effect of beauty on individual outcomes. This section, first, presents the central theoretical explanations of why beauty should affect socioeconomic, marital, and health outcomes and, second, derives hypotheses based on these theories to explain returns to beauty over the life course across the four outcome domains under study.

Biological Explanations

The central hypothesis in biological fitness-related theories is that physical beauty is a proxy for innate fitness, health, quality, and reproductive value; all of which traits that are important for survival (e.g., Barber 1995; Thornhill and Gangestad 1993). Because beautiful people possess inherent productive traits or "good genes" they are successful with regard to, for example, mate selection, reproduction, and labor market outcomes. According to these theories beautiful people develop better skills and are more productive because, in order to maximize their reproductive success, parents invest disproportionally in their beautiful (and thus healthier and more productive) children. Biological fitness-related theories assume that standards for evaluating beauty are invariant across individuals and cultures; i.e., that beauty is not "in the eye of the beholder" but is a universally recognizable trait. This assumption is strongly supported by existing psychological evidence (see Buss 1998; Langlois et al. 1991, 2000).

Psychological Explanations

Psychological explanations of why beauty matters assume, due to successful social interactions with others, that beautiful individuals develop certain psychological and personality traits which help them to get ahead. The most influential explanation is the "what is beautiful is good" stereotype which suggests that beautiful individuals are perceived by others as possessing inherent positive traits such as being intelligent, popular, sociable, and healthy (Dion et al. 1972; Feingold 1992; Langlois et al. 2000).[1] Because of this social stereotype beautiful people develop personality traits such as high self-confidence and other social skills

which are subsequently rewarded in the marriage and labor market. Consequently, according to psychological explanations beautiful individuals internalize positive evaluations from their social environments and develop productive psychological traits and skills.

Social Explanations

Psychological explanations hypothesize that beautiful individuals internalize outside reactions and develop psychological traits that are rewarded. By contrast, social explanations argue that the beauty premium arises from preferential treatment of beautiful individuals by others; i.e., that beauty is rewarded by the "outside" world. From this perspective beauty is a form of social status or, in the terminology of Bourdieu (1986), a form of "capital" (Mulford et al. 1998; Webster and Driskell 1983). For example, according to Expectancy Theory people unconsciously form expectations about others based on their attractiveness. And because beautiful individuals are perceived in a more positive way than less-beautiful individuals, for example by being ascribed a range of positive (but possible false) traits (intelligence, sociability, good health, etc.), they are treated in a favorable way in social interactions with others. Consequently, social explanations suggest that beauty represents a form of social status which is rewarded.

Returns to Beauty over the Life Course

Biological and psychological/social theories all hypothesize that beauty has a positive impact on individual outcomes. However, the theories differ with regard to the importance they assign to beauty in different outcome dimensions, whether the beauty premium is hypothesized to persist over the life course, and whether gender differences should exist. Table 1 summarizes expectations from the different theories with respect to the four outcome dimensions considered in this paper: Socioeconomic status, marital outcomes, spouse's socioeconomic status, and health. I have explicated the different theoretical expectations to be better able to distinguish between biological explanations and psychological/social explanations in the empirical analysis. Note, however, that in the table I have merged the psychological and social explanations because, in the present analysis, I cannot distinguish empirically between these two theoretical explanations.[2]

Table 1: Summary of Hypotheses of Returns to Beauty over the Life Course

Socioeconomic Status

According to biological explanations beauty is a proxy for innate fitness and productivity. As a consequence, beautiful people should receive positive returns in the labor market throughout their career because they possess extra productive skills. Psychological and social explanations also hypothesize long-term positive returns to beauty in the labor market, but here the argument is that beautiful individuals have better psychological skills or are positively discriminated against, for example by being perceived by others as more intelligent or skilled (Feingold 1992; Mobius and Rosenblat 2006). Some studies suggest that beauty returns to earnings (especially for women) might increase over the life course (Biddle and Hamermesh 1998; Frieze et al. 1991). This result is compatible with the psychological/social explanation if beautiful people change psychological traits over the life course (for example, by becoming more self-confident) or improve their ability to manipulate positive social discrimination to their advantage. The result is not compatible with the biological explanation in which the extra productive skills implied by beauty are time invariant. Consequently, increasing returns to beauty in the labor over the life course can only be attributed to the psychological/social explanation.

I also expect gender differences in the socioeconomic returns to beauty and gender differences among beauty raters. First, if women are discriminated against in the labor market on the basis of ascriptive characteristics such as beauty, their returns to beauty (compared to returns to human capital) should be higher than returns for men. This expectation fits results from previous research suggesting that beauty generally matters more for women than for men (e.g., Hatfield and Sprecher 1986; Jackson 1992). Second, I expect men's beauty ratings to be a better predictor of returns to beauty in the labor market than women's ratings because men are more often in managerial positions in which they have direct control over others' socioeconomic success (for example by negotiating pay rises and promotions).

Marital Outcomes

Biological explanations hypothesize that men prefer attractive women to less attractive women because beauty is an indicator of reproductive quality. By contrast, women prefer men who have strong "providing" skills, i.e., men who have high human capital but who are not necessarily beautiful. As a consequence, beauty should matter for marital success for women but not for men. Furthermore, beauty should be particularly important for women in youth when reproduction takes place but should not be important in mid-life or later when reproduction is completed or is no longer possible. By contrast, according to psychological/social theories beauty signals desirable traits and social status and it should have an enduring positive effect on marital success both for men and women. Consequently, because individuals maintain their relative position in the distribution of beauty throughout life the positive effect of beauty on marital success should persist over the life course. I also expect men's beauty ratings to be a better predictor of women's marital success than women's ratings and vice versa. The reason why is that men constitute the principal marriage market for women and vice versa for women.

Spouse's Socioeconomic Status

In addition to affecting the likelihood of being married, beauty might also affect the quality of the spouse. According to biological explanations beautiful and productive individuals are more likely to marry each other because this type of union maximizes the quality of their offspring (Buss 1998). Assortative mating preferences thus mean that women who are beautiful prefer highly productive husbands because each partner contributes different but equally valuable traits to the union. Some evidence supports this hypothesis since Hamermesh and Biddle (1994) find that less attractive women are likely to marry men with low human capital. This beauty premium does not exist for men because women are hypothesized to select mates based on human capital and not on beauty. By contrast, psychological and social explanations predict that beauty is a form of capital that can be exchanged for other forms of capital. Furthermore, because both men and women valorize beauty these theories predict that both genders should benefit from beauty in terms of obtaining higher-quality spouses.

As was also the case for marital outcomes, I expect men's ratings of women's beauty to be a better predictor of the socioeconomic status of their husbands than women's beauty ratings of women (because men comprise the target group for women's marital pursuits). According to psychological/social explanations this effect should also apply to women's ratings of men's beauty because women are the principal target group for men's beauty.

Health Outcomes

Biological explanations predict that attractive individuals are healthier than less-attractive individuals. As a consequence, beautiful individuals, both men and women, should have better objective health status throughout life. According to psychological/social explanations beauty is not linked to biological health and there should not be a health return to beauty. Possibly, there might be an indirect effect of beauty on subjective health status if beautiful individuals evaluate their health relative to similarly-aged but less-beautiful peers, or on objective health if beautiful individuals are more likely to be married and live healthier lives (due to higher pooled incomes, peer influence, and social and psychological stability) (e.g., Murray 2000; Waite 1995). Finally, I do not expect that the gender of the beauty raters matter for health outcomes.

Data and Variables

Data

I use data from the Wisconsin Longitudinal Study (WLS). The WLS is a longitudinal study of a representative sample of 10,317 men and women who graduated from Wisconsin high schools in 1957. Interviews with the respondents or their parents have been carried out in 1957, 1964, 1975, 1992/1993, and 2004. Response rates have remained remarkably high throughout the study period (see Hauser and Sewell 1985; Warren et al. 2002).

I use the WLS for two reasons. First, the WLS has collected data on respondents' socioeconomic and social position from their late teens and until their mid-60s. This extremely long observational period allows me to analyze the effect of beauty on labor market, marital, and health outcomes over a large part of respondents'

life course. Second, the WLS has recently collected data on facial attractiveness for a random sample of the WLS respondents. The attractiveness rating is based on respondents' pictures in their high school yearbook at around age 17-18. My analysis sample consists of WLS respondents with valid attractiveness ratings. This sample consists of 2,359 respondents of which 1,302 respondents are women and 1,057 respondents are men.

Table 2. Descriptive Statistics for Analysis Sample

Variables

Outcomes

I analyze the effect of beauty over the life course on four sets of outcomes: (1) income and socioeconomic status (SES); (2) marital status; (3) spouse's income and SES; and (4) subjective and objective health status. For some of these outcomes I use data from two time points over respondents' life course and for some dimensions I use data from three time points. Table 2 shows descriptive statistics.

Respondents' *income* is the log of total yearly income in hundreds of US dollars and is observed at approximately age 35 and 54. Respondents' *SES* is measured by Duncan's (1961) SEI scale and is observed at age 25, 35, and 54. *Marital status* is measured by a dummy variable for being married and is observed at age 25, 35, and 54. *Spouse's* (log) *income* and *SES* is measured in the same way as respondents' income and SES. Information on spouse's income is available at age 35 and 54, while information on spouse's SES is available at age 25, 35, and 54 for women and at age 35 and 54 for men. Finally, I use three variables to measure health outcomes. All health outcomes are observed at age 54 and 65. The first variable is an indicator of *subjective health* in which respondents were asked to rate their present health using a five-point scale with the values (1) very poor, (2) poor, (3) fair, (4) good, and (5) excellent. The second variable is an aggregate scale which summarizes the number of physical *health symptoms* experienced by the respondent within the past six months.[3] The third variable is an aggregate scale which summarizes the number of *illnesses* experienced by the respondent within the past six months.[4]

Beauty Rating

My beauty measure refers to the WLS respondents' facial attractiveness. Ratings of facial attractiveness were collected in 2004 for a random subsample of the WLS respondents from their 1957 high school yearbook picture. Each picture was rated by a panel of six male and six female judges of age 63-91 (mean = 78.5) who were participants of the Madison Senior Scholars Program. Most previous studies also use pictures of respondents' faces and panels to rate attractiveness (e.g., Biddle and Hamermesh 1998; Mobius and Rosenblat 2006; see also Langlois et al. 2000), while some studies use interviewers to rate attractiveness (e.g., Hamermesh and Biddle 1994). The rating scale used in the WLS had 11 points with end points labeled as "not at all attractive" (= 1) and "extremely attractive" (= 11). I use three different measurements of respondents' beauty: (1) the average rating across the male and female panels (the "mixed" raters); (2) the average rating across the male panel; and (3) the average rating across the female panel. In the public release version of the WLS all beauty measures are standardized and bottom and top coded at -3 and 3.

Controls

I include a range of control variables. These variables are included to control for respondents' human capital and family background, both of which might be correlated with beauty. All analyses are carried out separately for men and women. Table 2 shows descriptive statistics.

First, I control for the respondents' IQ. To measure IQ I use the respondent's score on the Henmon-Nelson Test of Mental Ability carried out in 1957 at approximate age 18 (see Warren et al. 2002: 440-41 for more information on this test). Second, I control for respondents' educational attainment measured by years of completed schooling. Third, I control for number of children (biological, adopted, step, foster, etc.) at age 25, 35, 54, and 65. In addition to these individual-level variables I also control for several family background characteristics. These family background characteristics are parents' total income in US dollars in 1957 (at around age 18), mother and father's years of completed schooling, father's SES, family type (with a dummy variable for being brought up in a single parent household), and number of siblings. In addition, in the models for spouse's income and SES I also control for spouse's education and the following family

background variables: years of completed schooling and SES of the head of the spouse's household (usually the father), family type (again with a dummy variable for being brought up in a single parent household), and number of siblings.

Methods

The objective of the empirical analysis is to estimate the effect of beauty on a range of different outcomes measured at different stages over the life course. In the empirical setup *y* designates a particular outcome for individual *i* (*i* = 1,…,*n*) at age *a* (*a* ≈ 25, 35, 54, 65).[5] In the WLS the outcome *y* is observed only for subset of *a*; i.e., the different outcomes are observed at some ages only. However, for all outcomes I have at least two observations of *y*.

I estimate Seemingly Unrelated Regression (SUR) models for each outcome. In all cases I estimate separate models for men and women. For some outcomes *y* is observed at two points over the life course and for other outcomes *y* is observed at three points. In the case of three time points the SUR model is

$$y_{1i} = \beta_1 b_i + \delta_1 x_i + \varepsilon_1, \qquad \varepsilon_1 \sim N(0, \sigma_1)$$

$$y_{2i} = \beta_2 b_i + \delta_2 x_i + \varepsilon_2, \qquad \varepsilon_2 \sim N(0, \sigma_2)$$

$$y_{3i} = \beta_3 b_i + \delta_3 x_i + \varepsilon_3, \qquad \varepsilon_3 \sim N(0, \sigma_3).$$

Here, *y* is the outcome, *b* is beauty with regression coefficients β, *x* is a vector of individual and family-background characteristics with regression coefficients δ, and ε is a random error term which captures the effect of unobserved variables. Note that *b* appears in three different versions: 1) the mixed-gender panel rating, 2) the male panel rating, and 3) the female panel rating. The error terms are assumed to be normally distributed with mean 0 and variance σ. Some of the *x* variables such as marital status and number of children vary over time whereas other variables such as family background and IQ do not. The principal objective of the analysis is to estimate the effect of beauty on the outcome at different ages, i.e., β.

The SUR model allows for dependence between the different equations through correlated error terms. Dependence between the error terms captures the impact of unobserved variables (for example, personality traits or innate skills) that affect *y* at several stages over the life course. By assuming multivariate normal distributions for the error terms their joint variance-covariance matrix can be expressed as

$$\Sigma = \begin{pmatrix} \sigma_1 & & \\ \rho_{12} & \sigma_2 & \\ \rho_{13} & \rho_{23} & \sigma_3 \end{pmatrix},$$

where the off-diagonal elements ρ capture the correlation between the error terms in each equation. The different equations in the SUR model are estimated jointly by maximum likelihood. My empirical analysis shows that the error terms are significantly correlated in almost all models, thereby suggesting that the unobserved individual attributes that affect *y* are correlated over the life course.

In most cases, for example income, SES, and psychological well-being, the outcome *y* is continuous and I use a standard linear specification of the SUR model. However, in the case of marital status the outcome is binary and the subjective health outcome is an ordered categorical variable. Here, I estimate binary and ordered probit SUR models (see Cappellari and Jenkins 2003). In these cases the variance of the error terms is normalized to 1, but the interpretation of the correlation between the error terms is the same as in the continuous case.

A second issue concerns sample selection. Some outcomes are only observed for a subset of the WLS respondents. For example, income and SES is only observed for respondents who are active in the labor market and spouse's income and SES is only observed for married respondents. Generally, labor market participation and marriage rates are high in the WLS. However, especially among women labor market participation might be selective and, in general, this is also likely to be the case for marital status. To

counteract potential selection bias in some of the models I also estimate Heckman (1976, 1979) sample selection correction terms (Inverse Mills' Ratios or IMR) and include these IMR terms in the models where selection might be a problem (the models for women's income and SES and the models for both men and women's spouse's income and SES). I calculate the IMR manually on the basis of probit models in which dummy variables for being active in the labor market and being married at different ages are the dependent variables. All selection models also include exclusion restrictions in the selection models to ensure non-parametric identification of the IMR, and the standard errors in the outcome models are adjusted to account for the inclusion of the IMR. The sample selection models are described in more detail in Appendix A. However, as I explain in the Appendix I am not able to fully address potential sample selection problems because it is difficult to find useful exclusion restrictions in the WLS data.

Results

The results section is divided into four parts which present results for each of the outcome dimensions: income/SES, marital status, spouse's income/SES, and health. All analyses are carried out separately for men and women.

Table 3: Effect of Beauty on Log of Personal Income and Socioeconomic Status

Beauty and Socioeconomic Status

Table 3 shows estimates of the effect of beauty on the log of personal income at age 35 and 54 and on SES at age 25, 35, and 54. The table reports estimates using three different operational definitions of beauty: 1) the mixed panel rating, 2) the male panel rating, and 3) the female panel rating. Estimates for the male and female panel ratings are only shown if the mixed panel ratings yielded significant results (in no cases were the male/female panel ratings significant while the mixed panel rating was not significant). Where applicable, the table also reports sample selection corrected estimates of the mixed panel beauty rating. All models also control for the respondent's IQ, education, marital status, number of children and the following family background variables: number of siblings, parents' income, father's education, mother's education,

father's SES, and family type (models for spouse's income and SES also control for spouse's education and family background, see notes to Table 5). Finally, the table also reports the correlations between the error terms in the SUR models.

Contrary to expectations from both biological and psychological/social explanations, Table 3 shows that beauty does not have any significant effect on respondents' incomes at age 35 and 54. This result is in contrast with Hamermesh and Biddle (1994), Biddle and Hamermesh (1998) and Hamermesh et al. (2002) who all report significant and (albeit relatively small) positive effects of beauty on earnings. Since it is unlikely that there is more measurement error in the income data in the WLS compared to the datasets used by Hamermesh and others, one possible explanation of my non-significant effects might be that I include more measures of respondents' human capital and family background (which might be correlated with beauty) than previous studies. Another explanation might be that the WLS sample, consisting of high school graduates only, exhibits less variation in earnings than a nationally representative sample.[6]

Among women I do, however, find a significant effect of beauty on SES both at age 25, 35, and 54. This results, which remains unaltered when I correct for sample selection, suggests that, net of IQ, education and other controls, beauty is rewarded in the labor market by leading to more prestigious (although not better paid) jobs. Quantitatively, the effect of a one standard deviation increase in beauty on SES is equivalent to the effect of an increase in educational attainment by about one-third (age 35) to two-thirds (age 54) of a year of schooling. The positive effect of beauty on SES for women can be explained both by biological and psychological theories. However, my finding that the effect appears to increase over the life course suggests that a psychological/social explanation: beautiful women gradually develop self-confidence and improve their ability to capitalize on positive social discrimination in the labor market is more plausible than a biological "fixed premium" explanation. Furthermore, as expected I find that at age 35 and 54 the male panel's beauty rating is a stronger predictor of women's SES (both in terms of significance and effect size) than the female panel's rating; a result which supports the notion that men – being more likely than women to be SES "promoters" – reward women's beauty. For men, I find only a marginally significant ($p < .10$)

positive effect of beauty on SES at age 35 and 54. In summary, my results then indicate that only women experience a labor market return to beauty.

Table 4: Effect of Beauty on Marital Status. Probit estimates

Beauty and Marital Outcomes

Table 4 shows estimates of the effect of beauty on the probability of being married at age 25, 35, and 54. I find that the only significant effect of beauty is for women at age 25 but that this effect does not persist over the life course (see also Hamermesh and Biddle 1994). Contrary to expectations, this result is the same irrespective of the gender of the rating panel. Beauty does not matter for men. My finding for women is consistent with the biological explanation that men prefer beautiful women when they are young because beauty is an indicator of reproductive quality.[7] This result, however, does not fit psychological/social theories claiming that the effect of beauty should persist over the life course because beauty is a form of social status.

Table 5: Effect of Beauty on Log of Spouse's Personal Income and Socioeconomic Status

Beauty and Spouse Quality

Table 5 shows estimates of the effect of beauty on spouse's income and SES at age 25, 35, and 54. The theoretical expectation from biological theories is that, in addition to having a higher probability of being married, beautiful women are also able to attract higher-quality spouses. The theoretical prediction from psychological/social theories is that both men and women benefit from beauty because it is a form of capital that can be exchanged for other forms of capital, for example a spouse with high socioeconomic status. Table 5 shows that both for men and women beauty does not have any effect on spouse's income. However, for women there is a significant positive effect of beauty on husbands' SES which appears to increase over the life course. Quantitatively, the effect of a one standard deviation increase in women's beauty on their husbands' SES is equivalent to the effect of about one year of extra schooling for women at age 35 and 1.9

years of schooling at age 54. Consequently, women who have less education can compensate by being more beautiful with respect to the likelihood of marrying a high-SES husband. This effect remains when I control for selection into marriage and suggests that beautiful women marry "winners" whose socioeconomic potential increases over the life course.[8] The fact that I do not find any effect of beauty for men accords with the biological explanation.

Table 6: Effect of Beauty on Health Outcomes

Beauty and Health

Table 6 shows the effect of beauty on subjective and objective health. Information on health status is only available at age 54 and 65. However, it is likely that health differences which can be attributed to beauty become apparent only later in life. The table shows that both for men and women there are no noticeable effects of beauty on subjective health. I find a weakly significant ($p < .10$) positive effect of beauty on men's rating of their subjective health at age 54.[9] This overall result contradicts the biological explanation claiming that beauty is an indicator of innate health. By contrast, I find a negative effect of beauty on the number of health symptoms and illnesses reported by women at age 54. This result suggests that beautiful women are healthier than less-beautiful women at middle age. It is, however, counterintuitive that I do not find this effect at age 65.

Is It Worse to be Unattractive than Good to be Beautiful?

Some studies have found that the premium for being beautiful with respect to, for example labor market outcomes and social stereotyping, is smaller than the penalty for being unattractive (Griffin and Langlois 2006; Hamermesh and Biddle 1994). In other words, it might be worse to be ugly than good to be beautiful. This proposition suggests that the effect of beauty is asymmetrical. Following Hamermesh and Biddle (1994), I create dummy variables for having above-mean and below-mean beauty (by gender) and use these variables as my beauty measures instead of the continuous beauty variable. I then rerun all the SUR models with, respectively, the dummy for above-mean and the dummy for below-mean beauty to test whether the

positive effect of having good looks is different from the negative effect of having bad looks. The results from these analyses (not reported) indicate that there is no asymmetry in the effect of beauty on the different outcomes; i.e., the negative effect of below-mean beauty is approximately equivalent to the positive effect of above-mean beauty. Furthermore, the beauty dummies are not significant in any of the analyses in which the continuous beauty measure was not significant, and vice versa.

Conclusion

Beauty is one among several factors that are believed to affect socioeconomic and social outcomes. Existing research finds that individuals maintain their relative position in the distribution of beauty over the life course – a fact which would suggest that long-term returns to beauty should exist. This paper has sought to empirically identify returns to beauty over the life course in four outcome domains: Socioeconomic status (SES), marital success, spouse's socioeconomic success, and health. Theories in different disciplines: biology, psychology, and sociology all predict that beauty leads to favorable outcomes, but because most previous empirical studies have used either cross-sectional or experimental "snapshot" data they are not informative about whether beauty matters over the entire life course. Furthermore, because the different theories predict that beauty should affect long-term outcomes in some domains but not in others, studying returns to beauty to beauty over the life course offers a new way to distinguish between biological and psychological/social explanations of why beauty matters.

My empirical results show that beauty affects women's long-term SES, marital success, and the socioeconomic "quality" of their husbands. Beauty does not matter for men's outcomes. These results are in line with previous research suggesting that, in general, beauty matters more for women than for men. Among women, my results suggests that beauty leads to upward social mobility because, compared to less-beautiful women, more beautiful women (1) have higher SES throughout their labor market careers (but not higher income), (2) are more likely to marry early, and (3) marry husbands with high SES throughout their labor market careers (but not higher income). I also analyze whether, as suggested in some previous research, it is more hurtful to bad-looking than beneficial to be good-looking. I find no evidence that this is the case.

The overall conclusion from this study is that for women beauty has an independent and persisting effect over the life course on socioeconomic and social outcomes. This result supports the hypothesis that beauty, like IQ, family background, and personality, constitutes yet another source of social stratification that affects individuals' (and in particular women's) life chances. Yet, the effects of beauty remain poorly understood, and future research should analyze whether beauty also matters in other national or social contexts and with regard to other outcome types.

My findings do not provide unequivocal support for either the biological or the psychological/sociological explanation of why beauty matters. Some findings were consistent with both explanations, while others were consistent with only one explanation. This result suggests that both types of explanations may be relevant for explaining returns to beauty empirically. Future research should develop more refined hypotheses which will allow us to distinguish between the competing explanations of why beauty matters.

Finally, several limitations in the present analysis should be acknowledged. First, the WLS respondents, all of whom are high school graduates and most are white, are not representative of similarly-aged US cohorts. Consequently, it remains unknowns if my results generalize to the US population. Also, because the socioeconomic variation in the WLS sample is smaller than in the total US population, it is also likely that the "beauty variation" in the sample is smaller. This may lead to underestimation of the effect of beauty on individual outcomes. Second, measurement error in the beauty variables is a potential source of bias. The WLS is well-constructed in the sense that it uses multiple beauty raters and allows me to include gender-specific beauty ratings in the analysis. However, idiosyncrasies in beauty ratings exist, and it would have been advantageous to have data on the individual raters' assessment of each respondent (thereby giving 12 beauty observations of each WLS respondents) to deal more effectively with measurement error.

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Appendix A: Sample Selection Corrections

Information on income and SES and spouse's income and SES is only available in the WLS for respondents who are active in the labor market and who are married. Selection bias in my estimates of the effect of beauty on these outcomes might occur if respondents (in particular women) select themselves out of the labor market or stay unmarried (both men and women) based on unobserved characteristics.

In some of the SUR models for respondent's income and SES and spouse's income and SES I also include Heckman selection correction terms, Inverse Mills' Ratios (IMR), to account for selection out of the labor market and into marriage (Heckman 1976, 1979). I calculate the IMRs manually based on probit models of the likelihood of being active in the labor market at age 25, 35, and 54 (women) and being married at age 23, 35, and 54 (men and women). All models include exclusion restriction variables that only appear in the selection models (and not in the outcome models) to ensure non-parametric identification of the selection models, and the standard errors in the outcome models are adjusted to account for the inclusion of the IMR. In one case, the probability of men being married at age 54, it was not possible to find a significant exclusion restriction variable.

The exclusion restriction variables were selected broadly from the WLS dataset and pertain mostly to health status, having marriage plans at age 17, and early occupational ambitions (they are described in Table A1). These variables were found to have significant effects on labor market and marital status net of the other variables in the selection models. It should be kept in mind that these variables were included on pragmatic rather than on theoretical grounds and that my sample selection corrections are only indicative of potential selection problems. As a consequence, the sample selection corrected estimates of the effect of beauty on income and SES might still be biased. Table A1 shows the effect of the exclusion restrictions on the probability of being active in the labor market and married in the selection equations. The table shows that the exclusion restrictions are significant net of the other variables in the selection model.

Table A1: Selection Corrections

Notes

1. In their experimental study Mobius and Rosenblat (2006) find that beautiful people are perceived by others as being more intelligent or productive even when they are not. Feingold's (1992) review study shows similar results and considers other outcome dimensions.
2. The WLS has also collected data on a range of psychological dimensions (personality traits, depression, and well-being) which would allow me to analyze psychological outcomes. However, data on these outcomes were first collected when respondents were in their 50s and are less useful in this paper.
3. The possible symptoms are lack of energy, chest pain, trouble sleeping, fatigue/exhaustion, headaches, visual problems, dizziness/faintness, numbness, ringing in the ears, nausea, vomited, upset stomach, constipation, diarrhea, urination problems, aching muscles, stiff/swollen joints, back pain/strain, chest pain, shortness of breath, excess sweating, respiratory problems, and skin problems.
4. The possible illnesses are anemia, asthma, arthritis/rheumatism, bronchitis/emphysema, cancer, chronic liver trouble, diabetes, serious back trouble, heart trouble, high blood pressure, circulation problems, kidney or bladder problems, ulcer, allergies, multiple sclerosis, colitis, and other.
5. In my WLS sample 78 percent of the respondents are born in 1939 which makes 25, 35, 54, and 65 the ages at which their outcomes y are observed. The remaining 16 percent of the WLS sample are born in 1938, 4 percent in 1940, and 2 percent in 1937.
6. Hamermesh and Biddle (1994) suggest that beauty matters more for income in some occupations than in others. I have also run the models stratified by whether respondents work in blue collar (craftsmen, laborers, farmers, etc.) or white collar (management, clerical work, sales, etc.) occupations. These analyses did not show any significant effects of beauty on income.
7. Additional analyses not presented show that for women beauty has a negative effect on age at first marriage and age at first birth; i.e., beautiful women marry sooner and become mothers earlier than less-beautiful women. I find no effects of beauty for men.
8. Beautiful women might self-select out of the labor market by marrying high-income husbands who can provide for them. However, additional analyses not presented here show that neither at age 25, 35, and 54 is there any relationship between women's beauty and their probability of being active in the labor force.
9. The WLS also includes other subjective health measures. For example, respondents were asked at age 54 and 65 to (1) rate their appearance compared to other people of similar sex and age, (2) rate their appearance

compared to ten years ago and (3) rate their health compared to ten years ago. Additional analyses not reported show that both for men and women beauty does not have any effect on these alternative health measures.

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Table 1: Summary of Hypotheses of Returns to Beauty over the Life Course

Outcome: Explanation:	Socioeconomic Status	Marital Outcomes	Spouse's Socioeconomic Status	Health Outcomes
Biology	Positive and persisting	Positive effect in youth for women, no effect later; No effect for men	Positive effect for women due to assortative mating; No effect for men	Positive and persisting
Psychology/social	Positive, possibly increasing	Positive and persisting	Positive and persisting	No effect on objective health; possible effect on subjective health
Gender of beauty rater	Men's rating more important	Opposite gender rating more important than same gender rating	Opposite gender rating more important	No difference

Table 2. Descriptive Statistics for Analysis Sample

Age	25	35	54	65
Outcomes				
Log income	-	3.202 (2.140)	8.834 (3.589)	-
Socioeconomic status	46.286 (20.291)	48.046 (22.979)	50.060 (22.696)	-
Married	.760 (.427)	.897 (.304)	.838 (.369)	-
Log spouse's income	-	3.087 (2.248)	8.135 (4.089)	-
Spouse's socioeconomic Status	42.792 (24.377)*	47.910 (24.172)	47.966 (23.696)	
Subjective health	-	-	4.178 (.654)	4.011 (.678)
Number of symptoms	-	-	4.229 (3.386)	8.631 (5.031)
Number of illnesses	-	-	1.107 (1.355)	1.888 (1.892)
Beauty Measures				
Mixed raters	.0093 (1.2038)			
Male raters	-.00009 (1.3377)			
Female raters	.017 (1.212)			
Controls				
IQ	100.844 (14.494)			
Years of schooling	13.609 (2.219)			
Number of children	1.227 (1.224)	2.773 (1.427)	2.956 (1.658)	3.023 (1.679)
Number of siblings	3.346 (2.544)			
Parental income	61.441 (60.048)			
Father's years of schooling	9.646 (3.354)			
Mother's years of schooling	9.950 (3.495)			
Father's Socioeconomic status	32.101 (20.660)			
Broken family	.093 (.299)			
Spouse's Characteristics:				
Spouse's years of schooling	11.730 (4.638)			
Years of schooling for head of household	10.477 (5.005)			
Socioeconomic status for head of household	33.218 (22.834)			
Number of siblings	3.281 (2.691)			
Broken family	.097 (.295)			

Notes: N = 2,359, * Women only.

Table 3: Effect of Beauty on Log of Personal Income and Socioeconomic Status

	Log Personal Income				Socioeconomic Status					
	Women		Men		Women			Men		
App. Age:	35	54	35	54	25	35	54	25	35	54
Beauty:										
Mixed raters	-.048 (.049)	-.103 (.100)	.015 (.031)	.090 (.078)	.869* (.416)	1.035† (.588)	1.617*** (.495)	.240 (.590)	.891† (.540)	.901†c (.550)
Male raters					.724†b (.380)	1.144* (.535)	1.460*** (.451)	-.094 (.521)	.671 (.487)	.500 (.498)
Female raters					.735† (.403)	.589 (.568)	1.222* (.488)	.700 (.601)	.802 (.545)	1.000 (.556)†
Sample selection correction[a]	-.049 (.049)	-.078 (.101)			.849* (.433)	1.027† (.574)	1.636** (.516)			
ρ_{12}	.179*** (.030)		.101** (.034)		.287*** (.044)			.407*** (.034)		
ρ_{13}					.235*** (.036)			.299*** (.035)		
ρ_{23}					.393*** (.032)			.568*** (.023)		
Model Log-Likelihood	-4,811		-3,331		-10,375			-10,215		
N	1,023		850		1,112			926		

Notes: † $p < .10$, * $p < .05$, ** $p < .01$, ***, $p < .001$. All models also control for individual variables: IQ, education, marital status, and number of children and family background variables: Number of siblings, parents' income, father's education, mother's education, father's SES, and family type. [a] Inverse Mills' Ratio not significant in any model, [b] $p = .057$, [c] $p = .101$.

Table 4: Effect of Beauty on Marital Status. Probit estimates

	Women			Men		
App. Age	25	35	54	25	35	54
Beauty:						
Mixed raters	.106*	-.004	-.009	-.024	.008	-.041
	(.053)	(.058)	(.039)	(.048)	(.065)	(.043)
Male raters	.090†b					
	(.047)					
Female raters	.099†b					
	(.052)					
ρ_{12}	.249†				.219	
	(.144)				(.144)	
ρ_{13}	.259**				.174*	
	(.082)				(.092)	
ρ_{23}	.633***				.477***	
	(.062)				(.095)	
Model Log-Likelihood	-932				-791	
N	1,139				927	

Notes: † $p < .10$, * $p < .05$, ** $p < .01$, ***, $p < .001$. All models also control for individual variables: IQ, education, and number of children, individual family background variables: Number of siblings, parents' income, father's education, mother's education, father's SES, and family type, [b] $p = .059$.

Table 5: Effect of Beauty on Log of Spouse's Personal Income and Socioeconomic Status

	Log of Spouse's Personal Income				Spouse's Socioeconomic Status				
	Women		Men		Women			Men	
App. Age:	35	54	35	54	25	35	54	35	54
Beauty:									
Mixed raters	-.052 (.046)	.101 (.116)	-.002 (.052)	.014 (.124)	-.007 (.012)	10.156* (5.351)	17.162** (5.724)	10.417 (7.392)	8.769 (6.000)
Male raters					.001 (.010)	7.204 (5.020)	13.029* (5.257)		
Female raters					-.011 (.011)	8.596† (5.206)	14.269* (5.647)		
Sample selection correction	-.057 (.055)	.120 (.112)	-.008 (.052)	.005 (.126)	.014[a] (.012)	8.029** (5.676)	16.784** (5.924)	9.790[a] (7.454)	8.305 (7.521)
ρ_{12}	.161*** (.041)		.203*** (.037)		.006 (.032)			.370*** (.048)	
ρ_{13}					-.001 (.032)				
ρ_{23}					.555*** (.032)				
Model Log-Likelihood	-4,004		-3,646		-13,141			-7,239	
N	1,028		866		1,139			778	

Notes: † $p < .10$, * $p < .05$, ** $p < .01$, ***, $p < .001$. All models also control for individual variables: IQ, education, marital status, and number of children, individual family background variables: Number of siblings, parents' income, father's education, mother's education, father's SES, and family type; spouse's education and family background variables: Number of siblings, head of household's education, head of household's SES, and family type. [a] IMR significant at $p < .05$.

Table 6: Effect of Beauty on Health Outcomes

	Subjective Health[a]				Number of Health Symptoms				Number of Illnesses			
	Women		Men		Women		Men		Women		Men	
App. Age	54	65	54	65	54	65	54	65	54	65	54	65
Beauty:												
Mixed raters	.042 (.031)	.022 (.031)	.057† (.034)	.043 (.033)	-.230* (.097)	-.041 (.136)	.011 (.087)	.151 (.144)	-.064*(†) (.039)	-.087† (.050)	-.005 (.036)	-.020 (.054)
Male raters					-.156† (.088)	-.073 (.123)			-.070* (.036)	-.041 (.045)		
Female raters					-.234* (.096)	.005 (.134)			-.061 (.039)	-.111* (.050)		
ρ_{12}	.622*** (.030)		.584*** (.037)		.541*** (.024)		.476*** (.029)		.515*** (.024)		.351*** (.035)	
Model Log-Likelihood	-1,704		1,326		-5,405		-4,275		-3,577		-2,842	
N	1,053		868		1,064		885		1,065		884	

Notes: † $p < .10$, * $p < .05$, ** $p < .01$, ***, $p < .001$. All models also control for individual variables: IQ, education, marital status, and number of children and individual family background variables: Number of siblings, parents' income, father's education, mother's education, father's SES, and family type, [a] model is ordered probit.

Table A1: Selection Corrections

Selection variable:	Active in the Labor Market			Married		
Age:	25	35	54	25	35	54[b]
Marginal proportions:						
Women	.713	.588	.735	.826	.887	.821
Men	.855	.920	.883	.679	.909	.858
Exclusion restriction in selection model[a]						
WOMEN						
Dummy for having marriage plans at age 17 (18.2%)	-.382** (.123)			1.226*** (.379)	-.391* (.183)	.008* (.003)
Dummy for having allergies (16.3%)	-.216† (.128)					
Dummy for having bronchitis (3.1%)		.440† (.241)				
Dummy for having back trouble (7.3%)		.330* (.158)				
Dummy for mental illness (3.8%)			-.388† (.232)			
SES for intended occupation at age 17 (mean = 51.1, SD = 16.0)					.012* (.005)	
Number of years smoked regularly at age 54 (mean = 8.4, SD = 12.7)						-.010** (.004)
MEN						
Dummy for having back trouble (7.7%)					-.515* (.234)	
Dummy for having had bronchitis as a child (2.9%)					-.694* (.343)	

Notes: † $p < .10$, * $p < .05$, ** $p < .01$, ***, $p < .001$, [a] All selection models also control for individual variables: Beauty, IQ, education, marital status (models for labor market status only), and number of children and family background variables: Number of siblings, parents' income, father's education, mother's education, father's SES, and family type, [b] It was not possible to find a significant exclusion restriction in the WLS data for being married at age 54 for men.