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# Everything is sex: theoretical extensions and empirical tests of the Maestripieri hypothesis for the beauty premium*

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**Abstract**

**Purpose** – I test three different theories of the "beauty premium," why more physically attractive workers earned more than less physically attractive workers.

**Design/methodology/approach** – I analyze two prospectively longitudinal datasets with nationally representative samples: National Longitudinal Study of Adolescent to Adult Health in the US (Study 1) and National Child Development Study in the UK (Study 2).

**Findings** – Analyses support the evolutionary psychological hypothesis that the beauty premium stems from individuals' desire for sexual contact.

**Originality/value** – This is the first attempt to put three different hypotheses for the beauty premium with prospectively longitudinal data with large, nationally representative samples.

**Keywords** Savanna Principle, Savanna-IQ Interaction Hypothesis, Social surrogacy, The bridesmaids effect

**Paper type** Research paper

Social scientists have long known that physically attractive individuals often receive preferential treatment from others. People attribute desirable qualities – such as intelligence, competence, and sociability – to physically attractive individuals, following the aphorism "What is beautiful is good" (Dion *et al.*, 1972). Physically attractive workers tend to earn more and achieve higher status than less physically attractive workers (Hamermesh, 2011; Hamermesh and Biddle, 1994; Harper, 2000; Hosoda *et al.*, 2003). Physically attractive individuals are also preferred as exchange partners and often receive favorable outcomes (Farrelly *et al.*, 2007; Mulford *et al.*, 1998; Zaatari *et al.*, 2009). At the same time, some scholars posit sexually dimorphic effects of physical attractiveness on positive economic outcomes (Johnson *et al.*, 2014; Lee *et al.*, 2015). While there appears little doubt that physically attractive individuals receive a host of economic and social benefits in every sphere of life, there is no consensus as to *why* this "beauty premium" exists.

Maestripieri *et al.* (2017a) discuss three major explanations of the beauty premium. *Economic* theories posit that the beauty premium results from the taste-based discrimination, whereby employers or coworkers have a preference for hiring more physically attractive applicants. *Social psychological* theories suggest that the beauty premium stems from stereotypes people hold about physically attractive individuals' personality, intelligence, trustworthiness, professional competence or productivity, whether such stereotypes are empirically accurate or not. *Evolutionary psychological* theories aver that the beauty premium reflects people's implicit and explicit mating motives, where people confer economic and social benefits to physically attractive individuals in an attempt to impress and attract them as potential mates. Maestripieri *et al.* (2017a) point out that economic theories are merely descriptive, not explanatory, because they do not explain where such taste or preference for physically attractive individuals comes from (Kanazawa, 2001), and that the evidence for the stereotype-based social psychological explanations for the beauty premium is weak or

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nonexistent. Maestripieri *et al*. (2017a) conclude that the available evidence is most consistent with the evolutionary psychological theories that physically attractive individuals receive economic and social benefits because others would want to mate with them.

In this paper, I first offer theoretical extensions to Maestripieri *et al*.'s (2017a) explanation for the beauty premium, by incorporating recent evolutionary psychological theories of the nature and evolutionary limitations of the human brain, and the effect of general intelligence on such evolutionary limitations. While most theories of attractiveness advantage in the labor market are "supply-side" explanations, seeking origins of the beauty premia in the characteristics of the workers, the theory presented herein is one of the first "demand-side" theories of beauty premium, locating its origins in the characteristics of the employers and managers (Nault *et al*., 2020; Shapir and Shtudiner, 2022). I then present empirical support for Maestripieri *et al*.'s (2017a) evolutionary psychological theory of the beauty premium with prospectively longitudinal data with nationally representative samples from the United States (Study 1) and the United Kingdom (Study 2).

**The nature and evolutionary limitations of the human brain**

One of the fundamental observations in evolutionary psychology is that the human brain is evolutionarily designed for and adapted to the conditions of the ancestral environment, not necessarily those of the current environment (Crawford, 1993; Symons, 1990; Tooby and Cosmides, 1990). Known variously as the Savanna Principle (Kanazawa, 2004a), the evolutionary legacy hypothesis (Burnham and Johnson (2005, pp. 130–131) or the mismatch hypothesis (Hagen and Hammerstein (2006, pp. 341–343), this observation suggests that the human brain is predisposed to respond to the current environment as if it were still the evolutionary environment, roughly, the African savanna during the Pleistocene Epoch, 2.6 M–12 K years ago, when our ancestors lived as hunter-gatherers. The Savanna Principle further contends that, due to its evolutionary design and limitations, the human brain has difficulty comprehending and dealing with entities and situations that did not exist in the ancestral environment (Kanazawa, 2004a).

For example, there were no realistic images of human beings – other than other human beings – in the ancestral environment, and photographs, TV, movies, videos, and DVDs are all evolutionarily novel. As a result, the human brain is predisposed to react to such realistic images of other human beings as if they were real human beings, and they respond to friendly characters they see on TV and movies as if they were real friends (Kanazawa, 2002). This finding has led to the birth of a new subfield of social psychology called social surrogacy (Bond, 2021; Derrick *et al*., 2009; Gabriel *et al*., 2018). Studies in social surrogacy show that individuals form satisfactory parasocial relationships with characters they see on TV, movies and the internet, because their brains fail to realize that they are not their real friends in flesh and blood.

Our ancestors during human evolutionary history did not interview job applicants as potential hires, did not deliberate and decide on the fate of criminal defendants as jurors, did not fill out student evaluation forms at the end of the semester, did not play economic games in university research laboratories as experimental subjects, did not evaluate the job performance of subordinates for possible raise and promotion, nor do anything else for which social scientists have uncovered the operation of the beauty premium in the current environment. For the most part, our ancestors hunted and gathered, every day, day in and day out, and the primary context in which our ancestors evaluated members of the opposite sex was mating. When genetically unrelated men and women encountered each other in the ancestral environment, they mostly evaluated each other as potential mates. If the human brain has difficulty comprehending and dealing with entities and situations that did not exist in the ancestral environment, as the Savanna Principle contends, then it follows that the human brain has difficulty with evaluating and judging members of the opposite sex in contexts *other than* mating. The fundamental observation in evolutionary psychology suggests that the human brain would respond to any situation in which men and women have to evaluate each other in any context in the current environment primarily as if it were a mating context, as it almost

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always was in the ancestral environment. The Savanna Principle therefore explains *why* the Maestripieri hypothesis for the beauty premium may be true.

However, comprehensive meta-analyses of studies on beauty stereotypes show that humans evaluate physically attractive members *of the same sex* positively as well (Eagly *et al*., 1991; Feingold, 1992; Jackson *et al*., 1995; Langlois *et al*., 2000), although the effect of the beauty premium is smaller for same-sex targets than for opposite-sex targets (Maestripieri *et al*., 2017a). If the underlying motive of biased perception and evaluation that results in the beauty premium is mating, why do men evaluate physically attractive men positively and why do women evaluate physical attractive women positively?

There are a couple of possibilities to account for the existence of the beauty premium within the sexes. First, as Maestripieri *et al*. (2017a, 2017b) themselves suggest, the neural and neuroendocrine mechanisms that have evolved for the purpose of biased evaluation in favor of attractive opposite-sex individuals for mating purposes could be so strong and engrained, due to their enormous selective benefits, that they are also activated in other contexts involving same-sex individuals. This could happen if the fitness costs of turning off such neural and neuroendocrine mechanisms selectively when encountering same-sex individuals were greater than the cost of their "wasted" activation in irrelevant contexts (Mulford *et al*., 1998). This explanation for the beauty premium toward same-sex individuals has the added benefit of being able to explain why adults are biased in favor of physically attractive children and why children are biased in favor of physically attractive adults, neither of which involves explicit mating motives (Maestripieri *et al*., 2017a, p. 15; 2017b, pp. 41–42).

Buunk and Massar (2014) offer a second potential explanation for the existence of the beauty premium toward same-sex individuals, especially among men. They show that, while men and women prefer the company of less attractive same-sex others *in general*, they might prefer the company of physically attractive same-sex others *in mating contexts*. This is because they can then engage in mating *collaboration*, and attract members of the opposite sex. Preferentially associating with physically attractive same-sex others will be beneficial in mating contexts because they can then share the mating success of the physically attractive associates and potentially mate with those who were not chosen by their physically attractive associates. A specific modern manifestation of this process may be the fact that many men and women meet their future spouses at their friends' weddings. The fruit of mating collaboration may thus be aptly called "the bridesmaids effect." A man would want to be close friends with a physically attractive man because he may get to meet his friend's mate's equally attractive friends, because women, too, associate with physically attractive women for the same reason.

I hasten to add, however, that there are other evolutionary but non-mating explanations for the existence of the beauty premium within the sexes. For example, laboratory experiments have shown that individuals trust physically attractive strangers in economic transactions more than physically unattractive strangers, even when the former are in reality less trustworthy than the latter (Wilson and Eckel, 2006; Pandey and Zayas, 2021). Although the ultimate, evolutionary reason that people attribute higher levels of trustworthiness to physically attractive others is not known, such higher level of trust can potentially explain the existence of beauty premium within the sexes.

## How general intelligence moderates the evolutionary limitations on the human brain

While the evolutionary constraints on the human brain posited by the Savanna Principle are universal, they do not operate equally strongly among all humans. What we today call general intelligence likely evolved originally as a domain-specific psychological adaptation to solve evolutionarily novel problems (Kanazawa, 2004b). More intelligent individuals are better able than less intelligent individuals to solve evolutionarily novel problems that our ancestors did not routinely encounter throughout human evolutionary history. However, more intelligent individuals do not have an advantage over less intelligent individuals in solving evolutionarily familiar problems that our ancestors encountered routinely and repeatedly, such as mating,

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parenting, and alliance formation (Kanazawa, 2004b). The Savanna-IQ Interaction Hypothesis (Kanazawa, 2010a, b) therefore proposes that the evolutionary constraints on the human brain posited by the Savanna Principle operate more strongly among less intelligent individuals than among more intelligent individuals. It suggests that more intelligent individuals are better able to recognize and comprehend evolutionarily novel entities and situations for what they truly are than less intelligent individuals are.

For example, and returning to the example of "TV friends" discussed earlier, a later study shows that the human tendency to become more satisfied with friendships by watching more TV, initially thought to be universal, is in fact limited to individuals below average in general intelligence (Kanazawa, 2006). In other words, more intelligent individuals are able to recognize that the realistic images of friendly characters that they routinely see on TV are *not* their real friends, and their satisfaction with friendships therefore does not fluctuate as a function of how much they watch TV. This finding may explain why less intelligent individuals are more likely to watch and enjoy TV than more intelligent individuals are, because it requires suspension of disbelief in order truly to enjoy TV and movies. People cannot truly enjoy TV and movies if they correctly understood that the friendly characters that they see on the screen are Hollywood actors who are paid millions of dollars to enact scripted roles that are written by screenwriters.

The Savanna-IQ Interaction Hypothesis therefore suggests that more intelligent individuals in the current environment are more likely than less intelligent individuals are to recognize explicitly that most situations in which they have to evaluate and judge opposite-sex individuals do *not* involve potential mating. In other words, more intelligent individuals are better able than less intelligent individuals to recognize their evolutionarily given biases explicitly and overrule them consciously, in favor of criteria that are more relevant in the current situation of employment or promotion. If so, the Hypothesis suggests that more intelligent individuals are less likely to be biased in favor of physically attractive individuals and are thus less likely to confer beauty premia on such individuals.

### *Empirical strategy*

In what follows, I will test the hypothesis, derived from the Maestripieri hypothesis for the beauty premium and the Savanna-IQ Interaction Hypothesis, that more intelligent individuals are more likely correctly to recognize that most circumstances in which men and women evaluate each other in the current environment are not mating contexts and are thus less likely to confer economic and social benefits to physically attractive others. I will test the hypothesis in two separate studies with prospectively longitudinal data with nationally representative samples in the United States (Study 1) and the United Kingdom (Study 2). In both studies, I will use personal earnings as a measure of economic benefit potentially subject to the beauty premium.

In order to test the hypothesis with earnings as the dependent variable, I would ideally need to measure the personal earnings and physical attractiveness of workers and the general intelligence of their immediate superiors, who are in a position to evaluate the performance of the workers, and give raises, promotions, bonuses, and other economic benefits. To the best of my knowledge, there are no publicly available survey data with large, nationally representative samples that contain all such variables. Further, I would need to measure the general intelligence of *every single superior* that workers have had in their entire working careers, because the superior who gave the workers their first raise/promotion/bonus may be different from the superior who gave them their second raise/promotion/bonus, who in turn may be different from the superior who gave them their third raise/promotion/bonus, etc. The necessary dataset would therefore be enormously large and unwieldy.

In the face of this empirical and practical difficulty, I will introduce and rely on a simplifying assumption. Workers are typically sorted into different occupations by intelligence, that is, there are "high-IQ" and "low-IQ" occupations (Dawis, 1994; Gottfredson, 1997, pp. 88–89, Figure 1; Wolfram, 2023, Figure 2). Thus workers within a

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given occupation more or less share similar levels of general intelligence. Between-occupation variance in general intelligence is far greater than within-occupation variance; 25–33% of the total population variance in general intelligence is within occupations, and 67–75% is between occupations (Gottfredson, 1997, p. 90; Hauser, 2010, p. 100). Hence, I assume that workers are very roughly similar to their superiors in general intelligence. Within each occupation, all workers are judged and evaluated by other members of their own occupation (their immediate superiors); factory workers are evaluated by factory foremen, not by tenured professors and deans, and untenured assistant professors are evaluated by tenured professors and deans, not by factory foremen. Given these assumptions and observations, the hypothesis that more intelligent individuals are less likely to confer economic and social benefits to physically attractive others can translate into the hypothesis that *more intelligent individuals are less likely to be subject to the beauty premium than less intelligent individuals are.* Given the sorting of individuals into different occupations by intelligence (Dawis, 1994; Gottfredson, 1997; Wolfram, 2023), whereby workers – superiors and subordinates alike – share more or less similar levels of intelligence, if more intelligent superiors are less likely to confer economic benefits to physically attractive subordinates, then more intelligent subordinates (in the "high-IQ" occupations) should be less likely to be subject to the beauty premium than less intelligent subordinates (in the "low-IQ" occupations) are. The Savanna-IQ Interaction Hypothesis, applied to the Maestripieri hypothesis for the beauty premium, therefore suggests that more intelligent individuals are expected to be less likely to be subject to the beauty premium than less intelligent individuals are.

In the face of the empirical and practical difficulty, where it is very difficult, if not impossible, to obtain high-quality data that contain measures of *both* earnings and physical attractiveness of workers *and* general intelligence of *all* of their superiors that they have had *throughout their careers*, in what follows, I will test the hypothesis that less intelligent individuals are more likely to be subject to the beauty premium than more intelligent individuals are. It is important to emphasize at the outset that there is no reason to expect general intelligence to play any role in the operation of taste-based discrimination posited as the mechanism for the beauty premium in economic theories, or in the operation of stereotype-based biases and differential treatment proposed as the mechanism for the beauty premium in social psychological theories (although there is evidence that more intelligent children are less likely to resort to heuristics and more likely to engage in analytic reasoning (Kokis *et al*., 2002) and stereotypes may be thought of as a form of heuristics). If the hypothesis derived from the Savanna-IQ Interaction Hypothesis above is supported by the empirical data, and if the data highlight the importance of general intelligence in the operation of the beauty premium, it would uniquely support Maestripieri's (2017a) evolutionary psychological hypothesis for the beauty premium against the economic and social psychological theories.

It is known from longitudinal data that general intelligence is very stable over the life course. For example, Deary *et al*.'s (2004) analyses of the Scottish Mental Surveys of 1932 and 1947 show that general intelligence measured at age 11 and age 80 were correlated at $r = 0.66$. Every factory foreman was once a factory worker; every department chair and every dean was once an untenured assistant professor. Barring some truly extraordinary and exceptional circumstances, factor foremen have *never* been untenured assistant professors, and department chairs and deans have *never* been factory workers. So I believe there is good justification for the underlying assumptions for my empirical strategy, although, of course, there are many exceptions to the general pattern, and my assumptions are not *always* true in *every* individual case.

## Study 1: the United States

### *Data*

National Longitudinal Study of Adolescent to Adult Health (Add Health) is a prospectively longitudinal study of a nationally representative sample of American youths, initially sampled

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when they were in junior high and high school in 1994–1995 (Wave I, $n = 20{,}745$, mean age = 15.6) and reinterviewed in 1996 (Wave II, $n = 14{,}738$, mean age = 16.2), in 2001–2002 (Wave III, $n = 15{,}197$, mean age = 22.0), in 2008–2009 (Wave IV, $n = 15{,}701$, mean age = 29.1), and in 2016–2018 (Wave V, $n = 12{,}300$, mean age = 38.0). See additional details of sampling and study design at http://www.cpc.unc.edu/projects/addhealth/design. Certified researchers may obtain replication data and materials from the Carolina Population Center by contacting addhealth_contracts@unc.edu and signing a limited, one-year, no-fee contract for replication purposes only.

*Dependent variable: earnings*

At ages 22, 29, and 38, Add Health asked its respondents to indicate their gross personal earnings from all sources in the previous calendar year. I took the natural log of the gross earnings in $1 K in order to normalize their distributions.

*Independent variable: physical attractiveness*

At the conclusion of the in-home interview at ages 16, 17, 22, and 29, the Add Health interviewer rated the respondent's physical attractiveness on a five-point scale (1 = very unattractive, 2 = unattractive, 3 = about average, 4 = attractive, 5 = very attractive). Previous analyses of the Add Health data have shown that the measure of physical attractiveness was very reliable. Mean interrater agreement (Rwg) was 0.7861 ($SD = 0.2371$); it was significantly higher for male respondents (0.8090) than for female respondents (0.7661) ($t(10{,}038) = -8.841$, $p < 0.001$) (Kanazawa and Still, 2018, p. 252). Other studies also show high interrater agreement of judgment of physical attractiveness (Ruffle and Shtudiner, 2015). I subjected the four independent ratings of physical attractiveness to principal component analysis to extract the latent measure of physical attractiveness. The principal component analysis extracted only one component, and the four measures had reasonably high loadings on it: Age 16 = 0.680; age 17 = 0.706, age 22 = 0.588; age 29 = 0.514). I used the extracted principal component for physical attractiveness as the main independent variable. It has a mean of 0 and a standard deviation of 1.

*Moderator: general intelligence*

Add Health measured respondents' intelligence with the Peabody Picture Vocabulary Test at ages 16 and 22, and with working memory tests (word recall and backward digit span) at age 29. I subjected the standard IQ scores at three different ages to a principal component analysis. It extracted only one principal component, with reasonably high loadings: Age 16 = 0.854, age 22 = 0.834, age 29 = 0.628. I used the extracted principal component for general intelligence in the standard IQ metric (with a mean of 100 and a standard deviation of 15) as the moderator. See the online supplementary material for greater details of how the measure of general intelligence was constructed.

*Control variables*

In my multiple regression analysis, I controlled for the respondent's sex (0 = female, 1 = male), age (in chronological years), race (with three dummies for black, Asian, and Native American at ages 22 and 29, and with four dummies for black, Asian, Native American, and Pacific Islander at age 38, with white as the reference category at all ages); Hispanicity (1 if Hispanic; 0 otherwise), and education (as years of formal schooling at age 22, on a 13-point ordinal scale from 1 = 8th grade or less to 13 = completed a post-baccalaureate professional education at age 29, and on a 16-point ordinal scale from 1 = 8th grade or less to 16 = completed a post-baccalaureate professional degree at age 38). In all regression analyses, I used the control variable measured at the same time as the dependent variable or at the most recent past available.

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*Results*

Descriptive statistics for all the key variables are presented in Table S1 in the online supplementary material. Table 1, Columns (1–3), show the result of the multiple regression analysis, when the dependent variable (earnings in natural logs) was measured at age 22, separately for respondents below (Column (1)) and above (Column (2)) the mean general intelligence. Column (1) shows that, among the Add Health respondents whose general intelligence was below the sample mean, more physically attractive individuals earned significantly more than those who were less physically attractive ($b = 0.479$, $p < 0.001$, standardized coefficient $= 0.091$). In sharp contrast, Column (2) shows that, among the Add Health respondents whose general intelligence was above the sample mean, the respondent's physical attractiveness was not at all associated with the earnings ($b = 0.086$, $p = 0.162$, standardized coefficient $= 0.020$). Column (3) shows that, among the full sample, the interaction effect between physical attractiveness and general intelligence was significantly negative ($b = -0.326$, $p < 0.001$, standardized coefficient $= -0.067$), indicating that the effect of physical attractiveness on earnings became significantly weaker as the general intelligence increased. The results for age 22 therefore strongly supported the hypothesis.

Table 1, Columns (4–5), show that the effect of physical attractiveness on earnings at age 29 was significantly positive, both among those below the mean in general intelligence ($b = 0.193$, $p = 0.002$, standardized coefficient $= 0.047$) and among those above the mean in general intelligence ($b = 0.136$, $p = 0.007$, standardized coefficient $= 0.039$), although, as predicted, the coefficient was slightly larger among the former. Thus, even though the results do not support the prediction in terms of (differences in) statistical significance, it is nonetheless consistent with the prediction in terms of the magnitude of the statistical associations. However, the predicted negative interaction effect in Column (6) did not reach statistical significance ($b = -0.064$, $p = 0.100$, standardized coefficient $= -0.017$).

Table 1, Columns (7–8), show that, once again, the effect of physical attractiveness on earnings at age 38 was significantly positive, both among those below the mean in general intelligence ($b = 0.144$, $p < 0.001$, standardized coefficient $= 0.124$) and among those above the mean in general intelligence ($b = 0.104$, $p < 0.001$, standardized coefficient $= 0.094$). However, Column (9), shows that the predicted negative interaction effect between intelligence and physical attractiveness was highly statistically significant ($b = -0.048$, $p < 0.001$, standardized coefficient $= -0.041$), indicating that, consistent with the hypothesis, the beauty premium was statistically significantly greater among the less intelligent than among the more intelligent. The results for age 38 therefore also strongly supported the hypothesis.

As a robustness check, I divided the Add Health sample into IQ tertiles, rather than halves below and above the mean. The results of the robustness check are presented in Table S3 in online supplementary materials. The main results from Table 1 were largely replicated in the robustness check, and there were frequently monotonic association between IQ tertiles and the strength of association between physical attractiveness and earnings, where the association was stronger in the first tertile than in the second tertile, which in turn was stronger than in the third tertile.

Critics might argue that the significantly greater positive association between physical attractiveness and earnings among the less intelligent than among the more intelligent does not uniquely support the Savanna-IQ Interaction Hypothesis extension of the Maestripieri hypothesis [1]. They might argue that intelligence is a measure of worker productivity, and the results above merely show that physical attractiveness is more strongly associated with earnings among less productive workers than among more productive workers, because less productive workers have less to offer employers than more productive workers do. Suppose, for simplicity, that the value of a worker to an employer is a function only of physical attractiveness and productivity. Further suppose that the value of physical attractiveness to an employer is independent of productivity. More physically attractive workers are worth 25 points more to the employer than less physically attractive workers are; high-IQ workers are worth 125 points and low-IQ workers are worth 100 points. Then, for low-IQ workers, the "beauty premium" is 25%, whereas, for high-IQ workers, it is 20%. The critics might argue that this is an alternative interpretation of the results presented above, which has nothing to do

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**Table 1.** Associations between physical attractiveness and earnings
National Longitudinal Study of Adolescent to Adult Health in the United States

| | Earnings measured at | | | | | |
|---|---|---|---|---|---|---|
| | Age 22 | | | Age 29 | | |
| | (1) Below-average IQ | (2) Above-average IQ | (3) Full sample | (4) Below-average IQ | (5) Above-average IQ | (6) Full sample |
| Physical attractiveness | 0.479*** | 0.086 | 0.266*** | 0.193** | 0.136** | 0.163*** |
| | (0.084) | (0.062) | (0.051) | (0.063) | (0.050) | (0.040) |
| | *0.091* | *0.020* | *0.056* | *0.047* | *0.039* | *0.043* |
| Intelligence | | | 0.531*** | | | 0.225*** |
| | | | (0.060) | | | (0.047) |
| | | | *0.110* | | | *0.059* |
| Interaction | | | −0.326*** | | | −0.064 |
| | | | (0.050) | | | (0.039) |
| | | | *−0.067* | | | *−0.017* |
| Sex | 1.255*** | 0.548*** | 0.859*** | 1.648*** | 1.382*** | 1.492*** |
| | (0.165) | (0.123) | (0.100) | (0.124) | (0.101) | (0.079) |
| | *0.119* | *0.065* | *0.090* | *0.202* | *0.197* | *0.197* |
| Race | | | | | | |
| Black | −1.030*** | −0.498** | −0.642*** | 0.393** | 0.280 | 0.408*** |
| | (0.185) | (0.186) | (0.130) | (0.138) | (0.152) | (0.102) |
| | *−0.092* | *−0.039* | *−0.056* | *0.046* | *0.026* | *0.045* |
| Asian | −0.769* | −1.036*** | −0.779*** | 0.549* | 0.116 | 0.377* |
| | (0.316) | (0.243) | (0.196) | (0.233) | (0.200) | (0.153) |
| | *−0.039* | *−0.062* | *−0.042* | *0.036* | *0.008* | *0.026* |
| Native American | 0.043 | 0.415 | 0.280 | −0.401 | −0.338 | −0.363* |
| | (0.329) | (0.307) | (0.223) | (0.247) | (0.253) | (0.175) |
| | *0.002* | *0.019* | *0.013* | *−0.025* | *−0.019* | *−0.021* |
| Hispanic | −0.432* | −0.530** | −0.317* | 0.599*** | 0.433** | 0.566*** |
| | (0.214) | (0.198) | (0.145) | (0.160) | (0.162) | (0.113) |
| | *−0.034* | *−0.039* | *−0.024* | *0.060* | *0.038* | *0.054* |
| Age | 0.216*** | 0.244*** | 0.244*** | 0.004 | 0.001 | 0.006 |
| | (0.048) | (0.040) | (0.031) | (0.036) | (0.031) | (0.024) |
| | *0.071* | *0.092* | *0.085* | *0.002* | *0.001* | *0.003* |
| Education | 0.243*** | −0.008 | 0.049 | 0.353*** | 0.152*** | 0.223*** |
| | (0.048) | (0.034) | (0.029) | (0.031) | (0.024) | (0.020) |
| | *0.080* | *−0.004* | *0.020* | *0.178* | *0.089* | *0.130* |
| Constant | −8.321 | −4.779 | −6.076 | −0.899 | 0.806 | −0.055 |
| | (1.140) | (0.849) | (0.690) | (1.054) | (0.908) | (0.691) |
| $R^2$ | 0.041 | 0.019 | 0.049 | 0.072 | 0.045 | 0.064 |
| Number of cases | 4,067 | 4,804 | 8,871 | 4,197 | 4,894 | 9,091 |

| | Earnings measured at | | |
|---|---|---|---|
| | Age 38 | | |
| | (7) Below-average IQ | (8) Above-average IQ | (9) Full sample |
| Physical attractiveness | 0.144*** | 0.104*** | 0.125*** |
| | (0.020) | (0.017) | (0.013) |
| | *0.124* | *0.094* | *0.109* |

(*continued*)

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**Table 1.** Continued

| | Earnings measured at Age 38 | | |
|---|---|---|---|
| | (7) Below-average IQ | (8) Above-average IQ | (9) Full sample |
| Intelligence | | | 0.095*** |
| | | | (0.016) |
| | | | *0.082* |
| Interaction | | | −0.048*** |
| | | | (0.013) |
| | | | *−0.041* |
| Sex | 0.532*** | 0.573*** | 0.551*** |
| | (0.041) | (0.034) | (0.026) |
| | *0.225* | *0.262* | *0.238* |
| Race | | | |
| Black | −0.293*** | −0.051 | −0.163*** |
| | (0.046) | (0.054) | (0.035) |
| | *−0.118* | *−0.014* | *−0.056* |
| Asian | 0.120 | 0.189* | 0.181** |
| | (0.092) | (0.076) | (0.059) |
| | *0.023* | *0.038* | *0.035* |
| Native American | −0.114 | −0.050 | −0.055 |
| | (0.195) | (0.209) | (0.142) |
| | *−0.010* | *−0.004* | *−0.004* |
| Pacific Islander | 0.088 | 0.388 | 0.216 |
| | (0.188) | (0.250) | (0.149) |
| | *0.008* | *0.023* | *0.016* |
| Hispanic | 0.169** | 0.181** | 0.217*** |
| | (0.056) | (0.063) | (0.042) |
| | *0.055* | *0.043* | *0.060* |
| Age | 0.000 | 0.016 | 0.010 |
| | (0.011) | (0.010) | (0.007) |
| | *0.001* | *0.025* | *0.016* |
| Education | 0.127*** | 0.107*** | 0.110*** |
| | (0.006) | (0.006) | (0.004) |
| | *0.356* | *0.298* | *0.326* |
| Constant | 2.250 | 1.869 | 2.019 |
| | (0.407) | (0.367) | (0.272) |
| $R^2$ | 0.200 | 0.154 | 0.215 |
| Number of cases | 2,808 | 3,800 | 6,608 |

**Note(s):** Main entries are unstandardized regression coefficients.
(Numbers in parentheses are standard errors.)
*Numbers in italics are standardized regression coefficients.*
$^{*}p < 0.05$ $^{**}p < 0.01$ $^{***}p < 0.001$
**Source(s):** Table created by the author

with the Savanna-IQ Interaction Hypothesis and how general intelligence moderates the evolutionary constraints on the human brain.

If this alternative interpretation is correct, then it should hold equally for other measures of worker productivity. Age and job tenure are two measures of worker productivity completely orthogonal to general intelligence. Workers typically become more productive, and thus worth more to the employer, as they become older and as their tenure on the current job increases. However, additional analyses of the Add Health data show that the results for age and job tenure

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as measures of worker productivity are completely different from the results presented above with regard to general intelligence. Physical attractiveness was equally strongly associated with earnings among workers below and above the mean age, and among workers below and above the mean job tenure measured in months. As a result, the physical attractiveness x age and physical attractiveness x job tenure interaction terms were never statistically significant. It therefore appears that general intelligence in the above analyses of the Add Health data is not a mere proxy for worker productivity, and there appears to be something distinct going on with general intelligence, as the Savanna-IQ Interaction Hypothesis would predict.

*Discussion*

The analyses of Add Health data largely supported the hypothesis that more intelligent individuals are less likely to be subject to the beauty premium than less intelligent individuals are. At age 22, Add Health respondents below average in general intelligence were subject to the beauty premium, where more physically attractive workers earned more than less physically attractive workers did, even net of sex, race, age, and education, whereas those above average in general intelligence were not subject to the beauty premium. The interaction effect between physical attractiveness and general intelligence on earnings was statistically significantly negative, indicating that the more intelligent Add Health respondents were, the less important their physical attractiveness was for their earnings. The results for age 22 therefore supported the hypothesis perfectly.

At age 29, both Add Health respondents below and above average in general intelligence were subject to the beauty premium, but the coefficient for physical attractiveness was larger for the former than the latter. However, the interaction term in the regression with the full sample did not reach statistical significance. At age 38, once again, both those below and above average in general intelligence were subject to the beauty premium, but the coefficient for physical attractiveness was statistically significantly larger, as predicted, for the former than for the latter. So the analyses of the Add Health data supported the hypotheses completely, except at age 29.

## Study 2: the United Kingdom

*Data*

The National Child Development Study (NCDS) is a large, ongoing, and prospectively longitudinal study that has followed a *population* (not a sample) of British respondents since birth for over 60 years. The study included *all* babies ($n$ = 17,419) born in Great Britain (England, Wales, and Scotland) during one week (03–09 March 1958). The respondents were subsequently reinterviewed in 1965 (Sweep 1 at age 7; $n$ = 15,496), 1969 (Sweep 2 at age 11; $n$ = 18,285), 1974 (Sweep 3 at age 16; $n$ = 14,469), 1981 (Sweep 4 at age 23; $n$ = 12, 537), 1991 (Sweep 5 at age 33; $n$ = 11,469), 1999–2000 (Sweep 6 at age 41–42; $n$ = 11,419), 2004–2005 (Sweep 7 at age 46–47; $n$ = 9,534), 2008–2009 (Sweep 8 at age 50–51; $n$ = 9,790), and 2013 (Sweep 9 at age 55; $n$ = 9,137). Virtually all (97.8%) of the NCDS respondents were Caucasian. See additional details of sampling and study design at https://ncds.info/. The Centre for Longitudinal Studies (CLS) of University College London now conducts NCDS and the data are publicly and freely available to registered users of the UK Data Service (https://ukdataservice.ac.uk/).

*Dependent variable: earnings*

Throughout adulthood, at ages 33, 42, 47, 51, and 55, NCDS measured the respondent's net annual pay from current job. I took the natural log of the net annual pay in 1 K GBP in order to normalize their distributions.

*Independent variable: physical attractiveness*

At ages 7 and 11, the teacher of each NCDS respondent was asked to describe the child's physical appearance, by choosing up to three adjectives from a highly eclectic list of five: "attractive," "unattractive or not attractive," "looks underfed or undernourished," "abnormal

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feature," and "scruffy or slovenly and dirty." A respondent was coded as attractive = 1 if he or she was described as "attractive" at *both* age 7 *and* age 11 by two different teachers, 0 otherwise. I use this binary measure of physical attractiveness as the independent variable. A total of 62.0% of all NCDS respondents were coded as attractive.

Zebrowitz, Olson and Hoffman's (1993) analysis of the longitudinal data from the Intergenerational Studies of Development and Aging shows that individuals' relative physical attractiveness remains very stable across the life course. Their structural equation model suggests that physical attractiveness in childhood (measured between the ages of 9 and 10) is significantly positively correlated with physical attractiveness at puberty (measured between the ages of 12 and 13 for girls and 14 and 15 for boys) ($r = 0.70$ for boys, $r = 0.79$ for girls), and physical attractiveness at puberty is significantly positively correlated with physical attractiveness in adolescence (measured between the ages of 17 and 18) ($r = 0.72$ for boys, $r = 0.70$ for girls). This suggests that physical attractiveness in childhood is correlated with physical attractiveness in adolescence at $r = 0.504$ for boys and $r = 0.553$ for girls.

*Moderator: general intelligence*

NCDS has probably the strongest measure of childhood general intelligence of all large-scale surveys. The respondents took multiple intelligence tests at ages 7, 11, and 16. At 7, the respondents took four cognitive tests: Copying Designs Test, Draw-a-Man Test, Southgate Group Reading Test, and Problem Arithmetic Test. At 11, they took five cognitive tests: Verbal General Ability Test, Nonverbal General Ability Test, Reading Comprehension Test, Mathematical Test, and Copying Designs Test. At 16, they took two cognitive tests: Reading Comprehension Test, and Mathematics Comprehension Test. I performed a principal component analysis at each age to compute the general intelligence score for each age. All cognitive test scores at each age extracted only one principal component, with reasonably high loadings (age 7: Copying Designs = 0.671, Draw-a-Man = 0.696, Southgate Group Reading = 0.780, and Problem Arithmetic = 0.762; age 11: Verbal General Ability = 0.920, Nonverbal General Ability = 0.885, Reading Comprehension = 0.864, Mathematical = 0.903, and Copying Designs = 0.486; age 16: Reading Comprehension = 0.909, and Mathematics Comprehension = 0.909). The general intelligence scores at each age were then converted into the standard IQ metric, with a mean of 100 and a standard deviation of 15. I then performed a second-order principal component analysis with the IQ scores at three different ages to compute the overall childhood general intelligence score. The three IQ scores extracted only one principal component with very high loadings (age 7 = 0.867; age 11 = 0.947; age 16 = 0.919). I used the childhood general intelligence score in the standard IQ metric (with a mean of 100 and a standard deviation of 15) as the moderator. See the online supplementary material for greater details of how the measure of general intelligence was constructed.

*Control variables*

In my multiple regression analyses, I controlled for the respondent's sex (0 = female, 1 = male), and education (0 = No qualification; 1 = CSE 2–5/NVQ 1; 2 = O levels/NVQ 2; 3 = A levels/NVQ 3; 4 = Higher qualification/NVQ 4; 5 = Degree/NVQ 5–6). Note that both age and race were constants in NCDS.

*Results*

Descriptive statistics for all the key variables are presented in Table S2 in the online supplementary material. Table 2, Column (1), shows that, when the NCDS respondents were 33, those who were below average in general intelligence were subject to the beauty premium, as, net of sex and education, more physically attractive workers earned more than less physically attractive workers ($b = 0.769$, $p = 0.020$, standardized coefficient = 0.062). In sharp contrast, Table 2, Column (2), shows that those who were above average in general

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**Table 2.** Associations between physical attractiveness and earnings
National Child Development Study in the United Kingdom

| | Earnings measured at Age 33 (1) Below-average IQ | (2) Above-average IQ | (3) Full sample | Age 42 (4) Below-average IQ | (5) Above-average IQ | (6) Full sample |
|---|---|---|---|---|---|---|
| Physical attractiveness | 0.769* | 0.612 | 3.900** | 1.408*** | 0.710** | 6.363*** |
| | (0.329) | (0.326) | (1.472) | (0.305) | (0.275) | (1.326) |
| | *0.062* | *0.042* | *0.301* | *0.127* | *0.059* | *0.570* |
| Intelligence | | | 0.064*** | | | 0.065*** |
| | | | (0.013) | | | (0.011) |
| | | | *0.156* | | | *0.184* |
| Interaction | | | −0.034* | | | −0.054*** |
| | | | (0.015) | | | (0.013) |
| | | | *−0.280* | | | *−0.524* |
| Sex | 3.250*** | 4.157*** | 3.747*** | 2.227*** | 2.517*** | 2.413*** |
| | (0.326) | (0.258) | (0.203) | (0.298) | (0.217) | (0.177) |
| | *0.256* | *0.357* | *0.308* | *0.199* | *0.262* | *0.233* |
| Education | 0.968*** | 0.305** | 0.324*** | 0.588*** | 0.147 | 0.183* |
| | (0.145) | (0.103) | (0.093) | (0.133) | (0.086) | (0.081) |
| | *0.177* | *0.066* | *0.077* | *0.122* | *0.039* | *0.051* |
| Constant | −5.262 | −3.983 | −10.429 | −2.973 | −1.332 | −8.322 |
| | (0.313) | (0.416) | (1.157) | (0.295) | (0.348) | (1.036) |
| $R^2$ | 0.104 | 0.135 | 0.134 | 0.075 | 0.074 | 0.091 |
| Number of cases | 1,375 | 1,778 | 3,153 | 1,313 | 1,832 | 3,145 |

| | Earnings measured at Age 47 (7) Below-average IQ | (8) Above-average IQ | (9) Full sample | Age 51 (10) Below-average IQ | (11) Above-average IQ | (12) Full sample |
|---|---|---|---|---|---|---|
| Physical attractiveness | 1.093** | 0.414 | 4.730** | 0.908* | 0.853** | 4.248** |
| | (0.355) | (0.298) | (1.529) | (0.352) | (0.297) | (1.509) |
| | *0.099* | *0.036* | *0.429* | *0.079* | *0.071* | *0.373* |
| Intelligence | | | 0.059*** | | | 0.061*** |
| | | | (0.013) | | | (0.013) |
| | | | *0.165* | | | *0.168* |
| Interaction | | | −0.041** | | | −0.035* |
| | | | (0.015) | | | (0.015) |
| | | | *−0.398* | | | *−0.330* |
| Sex | 1.936*** | 1.938*** | 1.940*** | 1.779*** | 1.545*** | 1.644*** |
| | (0.356) | (0.238) | (0.201) | (0.347) | (0.233) | (0.196) |
| | *0.170* | *0.208* | *0.189* | *0.154* | *0.162* | *0.157* |
| Education | 0.638*** | 0.244** | 0.276** | 0.736*** | 0.211* | 0.253** |
| | (0.155) | (0.093) | (0.089) | (0.151) | (0.091) | (0.087) |
| | *0.131* | *0.068* | *0.078* | *0.149* | *0.057* | *0.070* |
| Constant | −2.449 | −0.663 | −7.153 | −2.494 | −0.744 | −7.327 |
| | (0.349) | (0.377) | (1.210) | (0.349) | (0.375) | (1.203) |
| $R^2$ | 0.059 | 0.051 | 0.074 | 0.057 | 0.036 | 0.066 |
| Number of cases | 983 | 1,470 | 2,453 | 1,060 | 1,618 | 2,678 |

(*continued*)

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**Table 2.** Continued

| | Earnings measured at Age 55 | | |
|---|---|---|---|
| | (13) Below-average IQ | (14) Above-average IQ | (15) Full sample |
| Physical attractiveness | 0.809 | 0.987* | 2.941 |
| | (0.427) | (0.392) | (1.971) |
| | *0.063* | *0.064* | *0.213* |
| Intelligence | | | 0.037* |
| | | | (0.017) |
| | | | *0.082* |
| Interaction | | | −0.021 |
| | | | (0.019) |
| | | | *−0.164* |
| Sex | 1.744*** | 1.217*** | 1.404*** |
| | (0.419) | (0.310) | (0.249) |
| | *0.135* | *0.100* | *0.112* |
| Education | 0.705*** | 0.290* | 0.319** |
| | (0.186) | (0.122) | (0.112) |
| | *0.126* | *0.061* | *0.072* |
| Constant | −3.522 | −2.377 | −6.291 |
| | (0.435) | (0.502) | (1.576) |
| $R^2$ | 0.042 | 0.018 | 0.034 |
| Number of cases | 915 | 1,538 | 2,453 |

**Note(s):** Main entries are unstandardized regression coefficients.
(Numbers in parentheses are standard errors.)
*Numbers in italics are standardized regression coefficients*.
$^*p < 0.05$ $^{**}p < 0.01$ $^{***}p < 0.001$
**Source(s):** Table created by the author

intelligence were *not* subject to the beauty premium, as physical attractiveness was not associated with their earnings ($b = 0.612$, $p = 0.060$, standardized coefficient = 0.042). Table 2, Column (3), shows that the interaction effect between general intelligence and physical attractiveness on earnings was significantly negative ($b = -0.034$, $p = 0.023$, standardized coefficient = −0.280). Thus the results for age 33 supported the hypothesis perfectly.

Table 2, Column (4–5), show that, at age 42, both those below and above average in general intelligence were subject to the beauty premium, but the effect of physical attractiveness on earnings was twice as large for the former as for the latter (below: $b = 1.408$, $p < 0.001$, standardized coefficient = 0.127; above: $b = 0.710$, $p < 0.001$, standardized coefficient = 0.059). As a result, as Column (6) shows, the interaction effect between general intelligence and physical attractiveness in the full sample was very large and statistically significantly negative ($b = -0.054$, $p < 0.001$, standardized coefficient = −0.524), as predicted. The results for age 42 once again supported the hypothesis perfectly.

Table 2, Columns (7–9), show that the results for age 47 mirror those for age 33. They show that those below average in general intelligence were subject to the beauty premium ($b = 1.093$, $p = 0.002$, standardized coefficient = 0.099) but those above average in general intelligence were not ($b = 0.414$, $p = 0.165$, standardized coefficient = 0.036). As a result, the interaction effect between general intelligence and physical attractiveness was statistically significantly negative ($b = -0.041$, $p = 0.008$, standardized coefficient = −0.398).

Table 2, Columns (10–12), show that the results for age 51 mirror those for age 42. They show that, while both those below and above average in general intelligence were subject

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to the beauty premium (below: $b = 0.908$, $p = 0.010$, standardized coefficient = 0.079; above: $b = 0.853$, $p = 0.004$, standardized coefficient = 0.071), the effect of physical attractiveness on earnings was larger for the former than for the latter. As a result, the interaction effect between general intelligence and physical attractiveness in the full sample was statistically significantly negative ($b = -0.035$, $p = 0.021$, standardized coefficient = −0.330), as predicted.

Finally, Table 2, Columns (13–15), show that the results for age 55 uniquely did not support the hypothesis. Those below average in general intelligence were not subject to the beauty premium ($b = 0.809$, $p = 0.058$, standardized coefficient = 0.063), while those above were ($b = 0.987$, $p = 0.012$, standardized coefficient = 0.064). The interaction effect between general intelligence and physical attractiveness in the full sample, while negative as predicted, was not at all statistically significant ($b = -0.021$, $p = 0.284$, standardized coefficient = −0.164).

As in Study 1, I divided the full NCDS sample into IQ tertiles as a robustness check. The results are presented in Table S4 in the online supplementary materials. The main findings from Table 2 were largely replicated in the robustness check, whereby, once again, there was often a monotonic association between IQ tertiles and the strength of the association between physical attractiveness and earnings. The association was usually stronger in the first tertile than in the second tertile, which in turn was often stronger than in the third tertile.

Once again, additional analyses show that general intelligence is not a mere proxy for worker productivity. Age is constant in the NCDS data, but job tenure on the current job is available for ages 33, 42, and 47. At all ages, physical attractiveness was equally strongly associated with earnings among workers below and above the mean in job tenure measured in months. As a result, the physical attractiveness x job tenure interaction term was never statistically significant, except for age 47, when it was *statistically significantly positive* ($p = 0.024$). Physical attractiveness was *more* (rather than less) strongly associated with earnings among more productive workers (with above-mean job tenure) than among less productive workers (with below-mean job tenure). This is the opposite of what one would expect if general intelligence was a mere proxy for worker productivity and physical attractiveness was merely more important among less productive workers. The additional analyses of the NCDS data once again suggest that general intelligence is not a mere proxy for worker productivity, and there appears to be something distinct going on with general intelligence, as the Savanna-IQ Interaction Hypothesis would predict.

One alternative interpretation of the findings above is that more intellectually demanding occupations and professions require more specific abilities, and thus performance and pay are more closely related in such occupations and professions [2]. In such occupations, hiring and promoting someone on extraneous grounds unrelated to capability and skills would be a disastrous business decision, whereas it is less so among less intellectually demanding occupations. Thus, hiring and promoting supermarket cashiers or shelf stockers on an extraneous criterion like physical attractiveness would be less damaging to the employers than doing the same in hiring corporate lawyers or neurosurgeons.

This reasoning suggests that the correlation between intelligence and earnings will increase steadily as the level of required skills on the occupation increases. Additional analyses of the NCDS data show that this is not the case, however. As Table S5 in online supplement shows, at no age is there a monotonically increasing association between the requisite skill level, measured by the social class of the current occupation, and the association between intelligence and earnings. It therefore appears that the reason there is less beauty premium among more intelligent workers is not because their occupations demand more precise skills and capabilities. (Information on the skill levels/social class of current occupation is not available for the Add Health data.)

*Discussion*

The analyses of the NCDS data uniformly supported the hypothesis that more intelligent individuals are less likely to be subject to the beauty premium than the less intelligent

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individuals are at all ages *except* at age 55. For all earlier sweeps, the results showed either that the beauty premium was operative only among the workers who were below average in general intelligence but not among those who were above average in general intelligence, or that the effect of physical attractiveness on earnings was statistically significantly greater among less intelligent workers than among more intelligent workers, or both. It is not clear why the life-long pattern supportive of the hypothesis ceased at the last sweep of NCDS, when the respondents were 55 years old.

## General discussion

Maestripieri *et al.* (2017a) propose an evolutionary psychological theory of the beauty premium, whereby individuals confer economic and social benefits to physically attractive others with an explicit/conscious or implicit/unconscious motive to mate with them. Theoretical extensions of the Maestripieri hypothesis, based on recent work in evolutionary psychology, suggests that more intelligent individuals are less likely to be subject to the beauty premium in their workplace than less intelligent individuals are, because the former's more intelligent superiors are more likely accurately to recognize that job evaluations in modern organizations are not arenas or means for mating. The analyses of the Add Health data in the United States (Study 1) and the NCDS data in the United Kingdom (Study 2) largely supported the Maestripieri hypothesis. Throughout their lives, more intelligent Add Health respondents were less likely to be subject to the beauty premium (except at age 29), and more intelligent NCDS respondents were less likely to be subject to the beauty premium (except at age 55).

The importance of general intelligence, and its moderation of the effect of physical attractiveness on earnings, uniquely support Maestripieri's evolutionary psychological hypothesis, as opposed to its rival theories in economics and social psychology. There is no theoretical reason to expect the strength of taste-based discrimination to fluctuate with general intelligence. Nor do we expect more intelligent individuals to be less likely to hold or act on stereotypes, especially since past studies show that most stereotypes are empirically accurate (Jussim, 2012; Langlois *et al.*, 2000; Lee *et al.*, 1995). The significant role played by general intelligence in the operation of the beauty premium in both the Add Health and the NCDS data therefore strongly and uniquely supports Maestripieri *et al.*'s (2017a) evolutionary psychological hypothesis.

Past studies show that individuals in some presumably high-IQ occupations, such as lawyers (Biddle and Hammermesh, 1998), MBAs (Frieze *et al.*, 1991), and accountants (Shapir and Shtudiner, 2022), are also subject to the beauty premium. How could such findings be reconciled with the present finding that it is mostly individuals below average in general intelligence who are subject to the beauty premium?

In both of the studies above, I used the respondents' general intelligence as a proxy for their superiors' general intelligence. I did so with the simplifying assumption – based on the demonstrated empirical pattern (Dawis, 1994; Gottfredson, 1997, pp. 88–89, Figure 1) – that there are "high-IQ" and "low-IQ" occupations, and occupants of a given occupation – superiors and subordinates alike – share similar levels of general intelligence on average. I made a further assumption that it was the superiors in the workers' own occupations who make decisions about raises, promotions, and bonuses that determine workers' earnings.

While these assumptions are probably true in most cases, it may not be true in all cases. In particular, some workers' earnings may be determined, partly or even largely, by the decisions made by clients. Workers may be paid by the number of clients/cases they acquire/handle, or superiors may be required to compensate the employees as a function of the number of clients and cases they have. And their clients may not necessarily share the same level of general intelligence as the professionals who handle their cases. Lawyers, business consultants (MBAs), and accountants may be prime examples of such occupations whose remuneration may be largely determined by the decisions and behavior of their clients who may not share their average levels of general intelligence. If clients who may have lower levels of general

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intelligence preferentially choose more physically attractive lawyers, business consultants, and accountants with whom to do business, then the earnings of such high-IQ professionals may be subject to the beauty premium in defiance of the general pattern found in the studies above with the population data, which by definition include *all* occupations and professions in the United States and the United Kingdom.

Nobody determines their own earnings; otherwise, everyone would be a billionaire. The key theoretical argument presented above is that what influences workers' earnings is not their own general intelligence, but the intelligence of those who determine their earnings (raises, promotions, bonuses, etc.). In most cases, it is their superiors, but, in others, it may be their clients. The theoretical prediction is that the general intelligence of those who determine the workers' earnings in turn determines whether the workers will be subject to the beauty premium.

This points to one of the major limitations of the current studies. I only had measures of the respondent' own levels of general intelligence, and I had no information about their superiors' level of general intelligence or who determines the respondents' earnings in their particular occupations and professions. The sorting of workers into "high-IQ" and "low-IQ" occupations is never perfect, and sometimes it is not other members of their own occupation (their superiors) who determine the workers' earnings. In order to test the Maestripieri hypothesis for the beauty premium and how general intelligence modifies its operation more precisely, future studies should measure the general intelligence of those who are in a position to determine the workers' earnings, be they the superiors or the clients.

Immediate implications follow from the current theoretical extensions of the Maestripieri hypothesis, if true. If one's goal was to eliminate unfair economic advantages that more physically attractive workers receive, then one solution might be to emphasize explicitly the evolutionarily novel nature of the employer-employee relationships in the modern workplace, especially in the low-IQ occupations. Laws and company policies could mandate that managers in such occupations be fully aware of the prohibition of sexual relationships in the workplace between superordinates and subordinates. Anything to highlight the fact that formal work and employment relationships are strictly outside the mating context should reduce the unfair economic advantages currently enjoyed by more physically attractive workers. The same consideration may also suggest that the beauty premium might have abated in recent years, after 2017, in the post-#MeToo era.

## Notes

1. I thank David de Meza and Abraham P. Buunk for independently making this point.
2. I thank Ian D. Stephen for making this point.

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## Supplementary material

The supplementary material for this article can be found online.

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