

Status Hypergamy in Sweden: What Role Does Health Play?

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Introduction

Researchers have long been interested in partner status heterogamy. For most of the 20th century men had higher educational attainment, higher labor force participation, and higher incomes than women, and this gender equality was also evident in partnerships; men typically had higher level of education, higher occupational status, and a higher income than their wives. However, the latter decades of the 20th century, and the 21st century up to now, have witnessed remarkable secular changes in female educational attainment, and labor force participation. On average women from more recent cohorts have higher educational attainment than men. However, normative expectations exert a powerful influence, and in most countries women retain a preference for men who have higher levels of educational attainment than themselves (i.e. heterogamous unions) (Neyt et al., 2019), or at least equal levels of education (i.e. homogamous unions) and are reluctant to partner down (i.e. hypogamous unions). Patterns by income are remarkably similar. Although there is extensive research on partner status heterogamy, remarkably little research considers whether alternative characteristics of partners, such as health, may play a compensating role for lower educational attainment or lower income. This is somewhat puzzling given that factors such as physical health and physical attractiveness play an important role in partner selection. In this study we use Swedish population register data to examine the extent to which several dimensions of physical health and cognitive ability may play a role in compensating for lower socioeconomic status in a partnership.

Women commonly report that good health is amongst the most important traits that they look for in a partner, even ranking physical health above physical attractiveness and socioeconomic status (Buss & Barnes, 1986). Recent evidence from Sweden indicates that there is a strong correlation between physical health and fertility outcomes: for example, men who were obese in early adulthood (ages 18–20) were approximately twice as likely to be childless at the end of the typical childbearing ages (i.e. 40+) as men who were in the ‘normal’ BMI category, and men who were overweight or underweight were also more likely to be childless, and had lower fertility (Barclay & Kolk, 2020). Similar results have been reported using data from the United States (Lee et al., 2023). Other measures of physical and cognitive health have also been found to be correlated with fertility outcomes in Sweden: men with lower physical fitness in early adulthood had lower overall fertility, and were more likely to be childless, than men in the highest decile of the physical fitness measure (Barclay & Kolk, 2020), and other research has indicated that higher cognitive ability is positively associated with fertility, and negatively associated with childlessness, in Sweden (Kolk & Barclay, 2019).

While the research cited above indicates that men who score lower on measures of physical health are more likely to be childless, and less likely to find a partner more generally, they tell us little about how physical health interacts with education and socioeconomic resources when it comes to those men who do successfully form a partnership. This question is relatively under investigated; one study, based on data from an online dating platform, suggests that ‘attribute

trade-offs' (e.g. income compensating for lower height, or vice versa) does occur: the authors report that men who are 5 feet 6 inches tall (i.e. 167.6cm) need to earn US\$175,000 more than men who are 6 feet tall (i.e. 182.9cm) to be equally successfully on the dating website (Hitsch et al., 2006). This study was based on data from 2003, when online dating was much less prevalent and users were more selected, meaning that the generalizability is unclear even for the United States. Other work, using the Wisconsin Longitudinal Study, has found little evidence of an association between physical attractiveness and the socioeconomic characteristics of the partner (Jæger, 2011). Examining this research question using population-level data for a country outside the United States may be informative for developing a deeper understanding about whether male partner health plays any role in the partner matching process in relation to the relative education and income levels of the men and women in these partnerships.

Data

In this study we use Swedish administrative register data to study whether and how male health compensates for lower education or income. All individuals living in Sweden have a unique personal identification number (PIN) that allows linkages across administrative registers. In this study I draw particularly upon the educational registers, the tax registers, and the Swedish military conscription register. Sweden had universal military conscription for most of the twentieth century, in which all men were obliged to spend 1 year with the military, typically at ages 18–20. To assess eligibility, and more importantly to assign people to suitable branches and jobs within the military, all men in Sweden had to participate in a 1–2 day examination before the beginning of their conscription. All Swedish men were required by law to attend these tests. As part of these examinations, men were subject to a variety of different assessments in order to gauge their suitability for the armed forces, and to determine their assignment. Among the data that were collected were height, weight, a measure of physical fitness based on a stationary bike test, and a cognitive ability. We have access to this military conscription data for men born 1965–1979. We therefore study men and women in childbearing partnerships where the men are drawn from this range of birth cohorts; however, we do not restrict the sample according to the birth cohorts of the female partners.

Couple Data

I study childbearing couples where it is the first childbearing relationship for both the woman and the man in the relationship. I condition on men being born in Sweden because most missing values in the conscription data are attributable to immigration. I also condition on both the woman and man not emigrating from Sweden during my observation window (up to 2018), or dying before 2018, in order to be confident that I observe as much as possible of the potential childbearing and partnering period of the life course for both partners.

Measure of Education

We use seven categories for education, based on highest educational attainment by 2012: primary (<9 years), primary (9 years), secondary (10–11 years), secondary (12 years), tertiary (13–15 years), tertiary, but not including postgraduate qualifications (15+ years), and postgraduate qualifications (approximately 16–20 years).

Measure of Income

The measure of income that I use takes into account gross salary, income from business activities, and work-related remuneration such as sickness benefit. After adjusting for the consumer price index measure of inflation provided by Statistics Sweden, I sum up the total income earned between the ages of 18 and the year prior to the birth of the first child as a measure of cumulative income.

Measures of Health and Cognitive Ability

The measure for physical fitness is based upon a measure of maximal working capacity, measured in watts (fysisk arbetsförmåga i watt). The distribution of the raw score in watts can be seen in Figure A3 in the Appendix. Maximal working capacity is measured as the maximum resistance attained in watts when riding on a stationary bike during a time period of 5–10 minutes and is correlated at approximately 0.9 with maximal oxygen uptake (VO₂max) (Patton et al., 1982). We split this measure into deciles. Height is measured in centimeters and we split the measure into deciles. BMI is calculated as weight (kg) divided by height (cm) squared, and we split the BMI measure into ten categories in order to examine whether there is variation within categories, e.g. within the ‘normal’ BMI category. Cognitive ability measurement is based on a battery of four tests that measured logical, spatial, verbal and technical abilities. Each of these subtests was first evaluated on a normalized nine-point (stanine) scale. The subtest scores were summed to obtain an overall score and transformed onto a stanine (nine-level) scale with a mean of 5 and a standard deviation of 2.

Methods

To study the relationship between the health measures and educational heterogamy, I run four multinomial logit models of the following form, substituting in the four different male health measures:

$$\ln(P(\text{couple_edu} = k) / P(\text{couple_edu} = 1)) = \beta_0 + \beta_1 \text{Male_health_attribute} + \beta_2 \text{Female_cumulative_income} + \beta_3 \text{Male_cumulative_income} + \beta_4 \text{Male_birthyear} + \beta_5 \text{Female_birthyear}$$

where *couple_edu*, the outcome variable, refers to a three category variables where 1=the woman has higher education than the man (hypogamy), 2=the woman and man have the same level of education (homogamy), and 3=the woman has less education than the man (hypergamy); *Male_health_attribute* refers to the male health measure, *Female_cumulative_income* refers to a continuous measure of cumulative income up to the year before the child was born for the woman, *Male_cumulative_income* refers to a continuous measure of cumulative income up to the year before the child was born for the man, and the final two covariates adjust for the birth years of the man (1965, 1966, ..., 1978, 1979) and woman (1947, 1948, ... 1997, 1998) using individual-year dummy variables. I generate predicted probabilities from these multinomial models.

To study the relationship between the health measures and whether the woman earns more than the man, I run four logistic regression models of the following form, substituting in the four different male health measures:

$$\ln(P(\text{couple_income2_bin} = 1) / P(\text{couple_income2_bin} = 0)) = \beta_0 + \beta_1 \text{Male_health_attribute} + \beta_2 \text{Female_education} + \beta_3 \text{Male_education} + \beta_4 \text{Male_birthyear} + \beta_5 \text{Female_birthyear}$$

where the outcome is a binary variable for whether the woman earns more than the man (=1), or vice versa (=0), *Female_education* refers to a 7-category variable for the level of educational

attainment achieved by the woman by the year of birth of the child, and *Male education* refers to a 7-category variable for the level of educational attainment achieved by the man by the year of birth of the child. I also generate predicted probabilities from these models.

Results

The results in Figures 1 to 4 show the predicted probability that a given relationship will be hypogamous (woman has higher educational attainment than man), homogamous (woman has same level of educational attainment as man), or hypergamous (woman has lower educational attainment than man) in relation to the four health measures used. Overall, there is little evidence that woman trade-off lower education attainment in their partner in exchange for better health; to the contrary, the results rather suggest that woman who have a child with a partner who has lower educational attainment than themselves also tend to be with a partner who has worse health.

For example, it seems that women who partner ‘down’ in terms of education (hypogamy) are more likely to have partners with lower cognitive ability scores, and lower physical fitness, and there is some suggestive evidence that this is potentially true for height and less favorable BMI categories as well. Furthermore, women who form a childbearing partnership with a man with higher levels of education than themselves tend to be partnering with a man who is more physically fit, and has higher cognitive ability, and perhaps is less likely to be overweight or obese. These results therefore suggest that lower education tends to cluster with relatively worse health. The results for cumulative income (shown in Figures A1 to A4 in the Appendix) are a little different, but generally support the conclusion that women with greater incomes than the man are pairing with a man who also has worse health (with the intriguing potential exception of obese men).

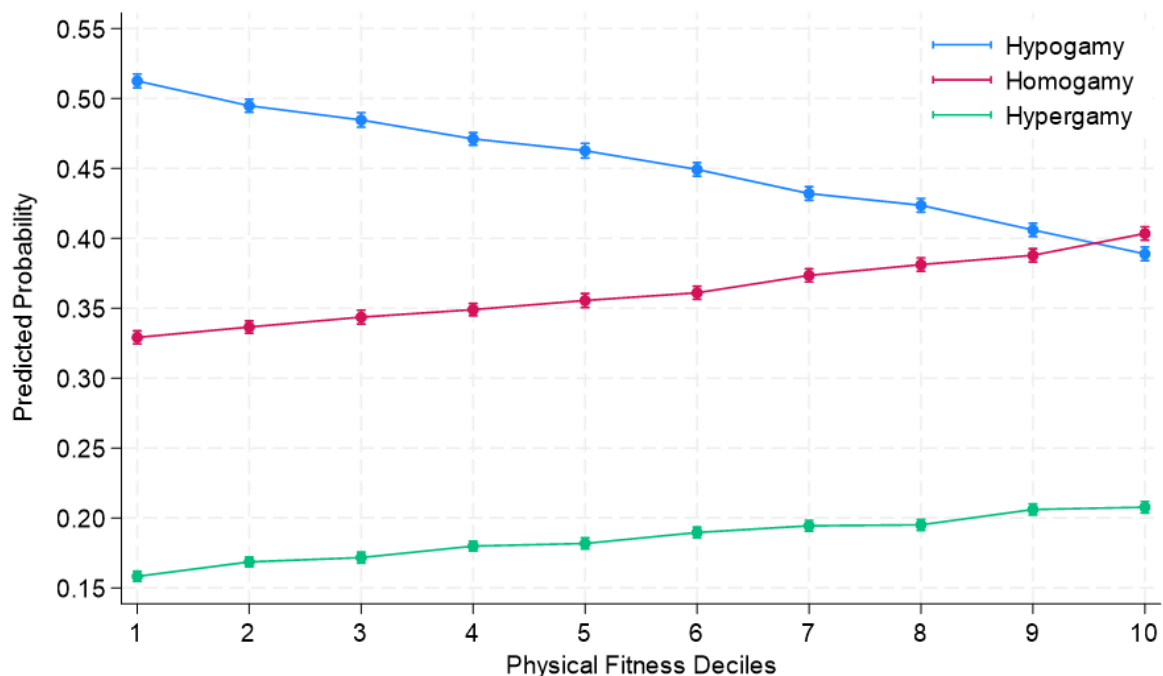


Figure 1. The predicted probability that a childbearing relationship is hypogamous (woman has higher educational attainment than man), homogamous (woman has same level of educational attainment as man), or hypergamous (woman has lower educational attainment than man) in relation to deciles of male physical fitness in Sweden.

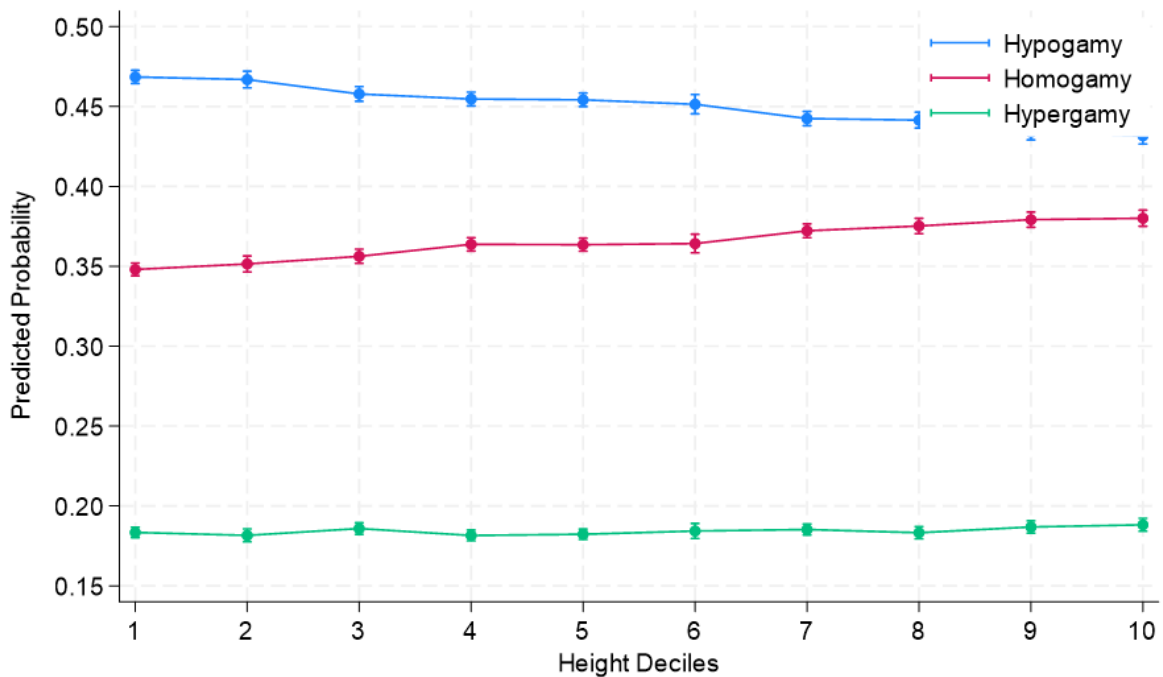


Figure 2. The predicted probability that a childbearing relationship is hypogamous (woman has higher educational attainment than man), homogamous (woman has same level of educational attainment as man), or hypergamous (woman has lower educational attainment than man) in relation to deciles of male height in Sweden.

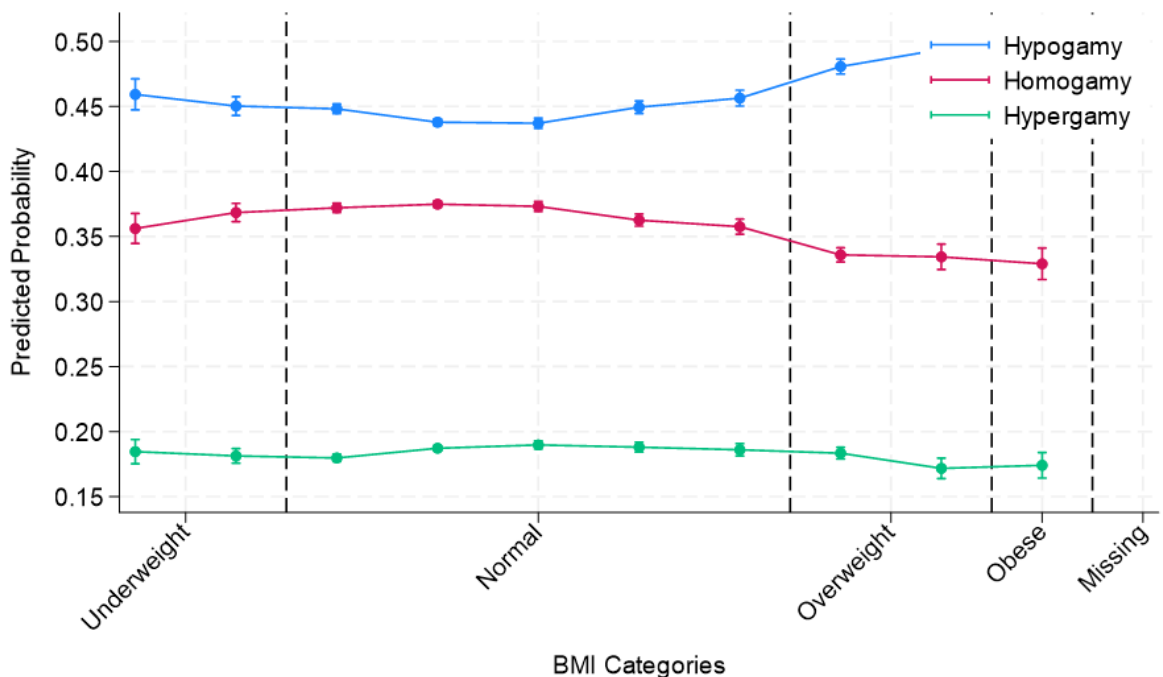


Figure 3. The predicted probability that a childbearing relationship is hypogamous (woman has higher educational attainment than man), homogamous (woman has same level of educational attainment as man), or hypergamous (woman has lower educational attainment than man) in relation to male BMI in Sweden.

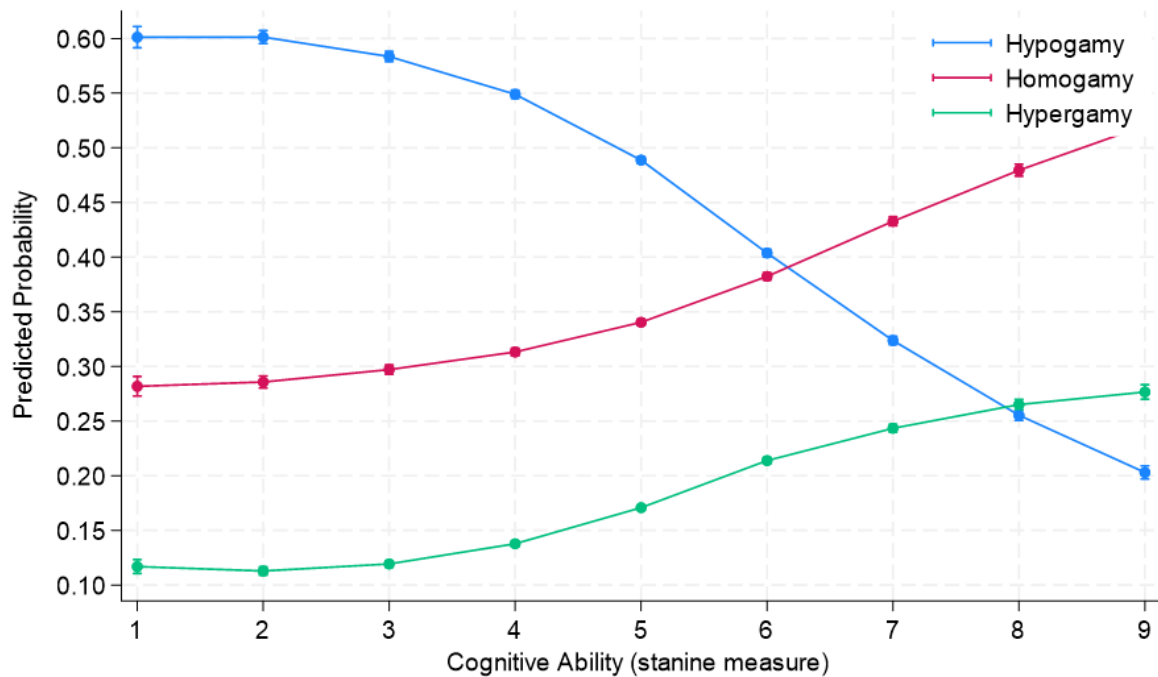


Figure 4. The predicted probability that a childbearing relationship is hypogamous (woman has higher educational attainment than man), homogamous (woman has same level of educational attainment as man), or hypergamous (woman has lower educational attainment than man) in relation to male cognitive ability in Sweden.

Plans for Future Work Before EPC 2024

- I have focused on childbearing partnerships, but I will extend this work to look at marital partnerships (with or without childbearing) to check whether the patterns are consistent.
- I intend to examine whether the interaction between female status, male status, and male health influences relationship dissolution or not by examining time to cohabitation dissolution and, in married couples, time to divorce, using event-history analysis.

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Appendix

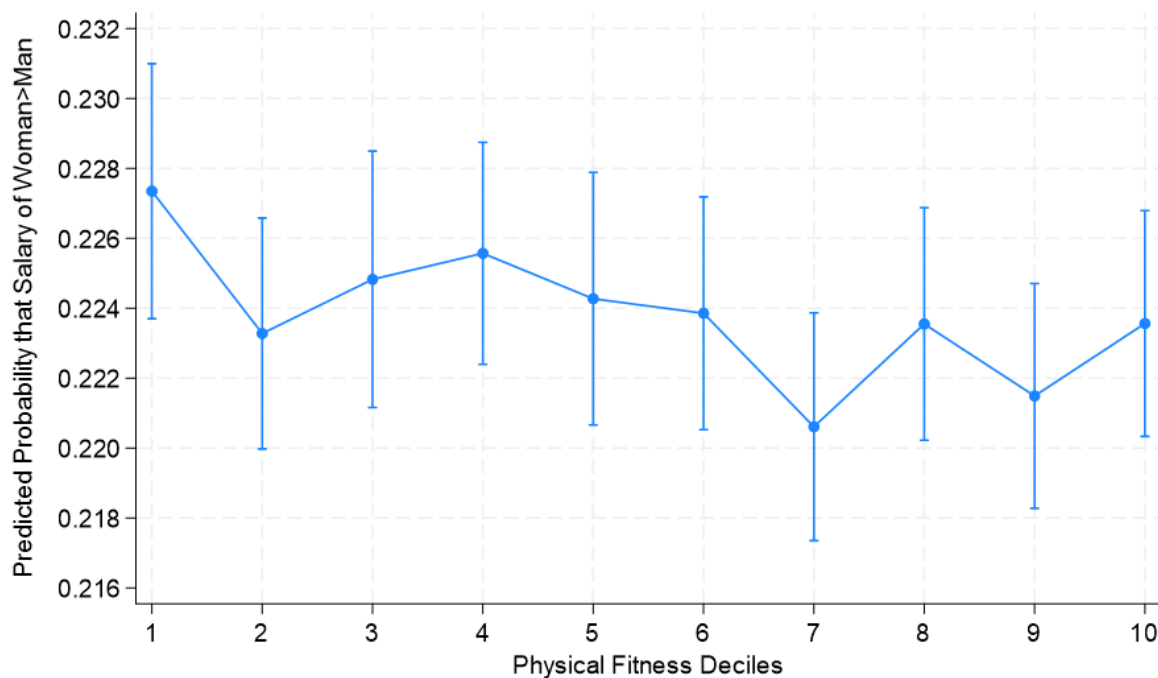


Figure A1. The predicted probability that women in childbearing relationships have higher cumulative incomes relative to the man in the childbearing relationship in relation to deciles of male physical fitness in Sweden.

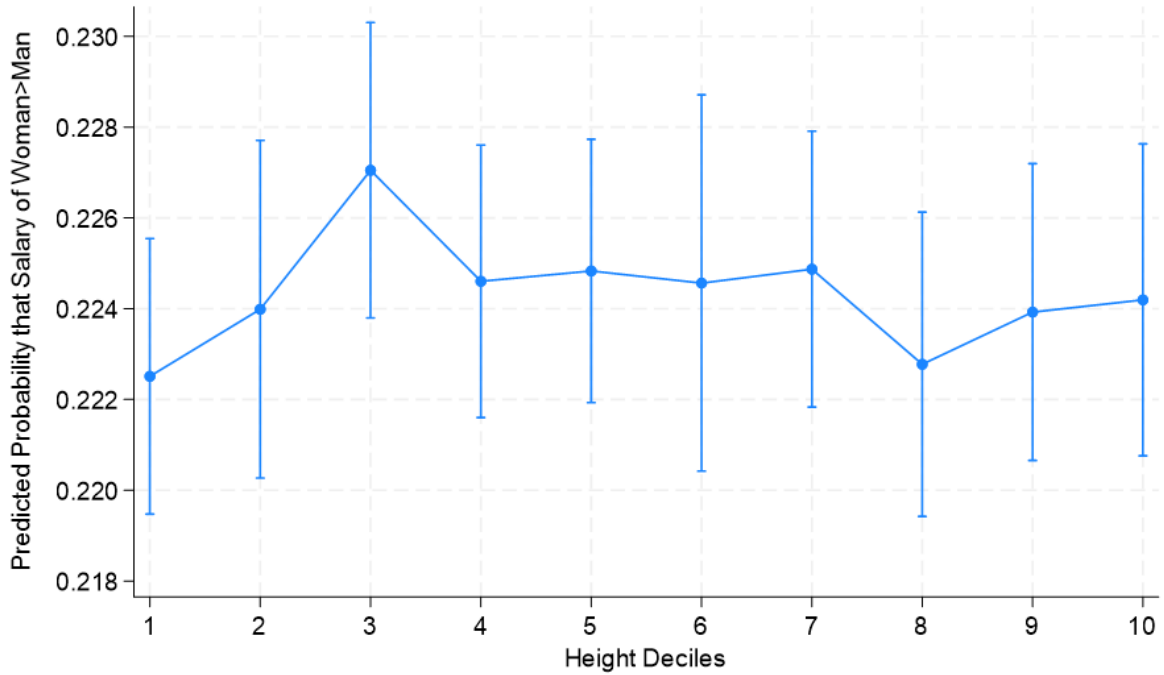


Figure A2. The predicted probability that women in childbearing relationships have higher cumulative incomes relative to the man in the childbearing relationship in relation to deciles of male height in Sweden.

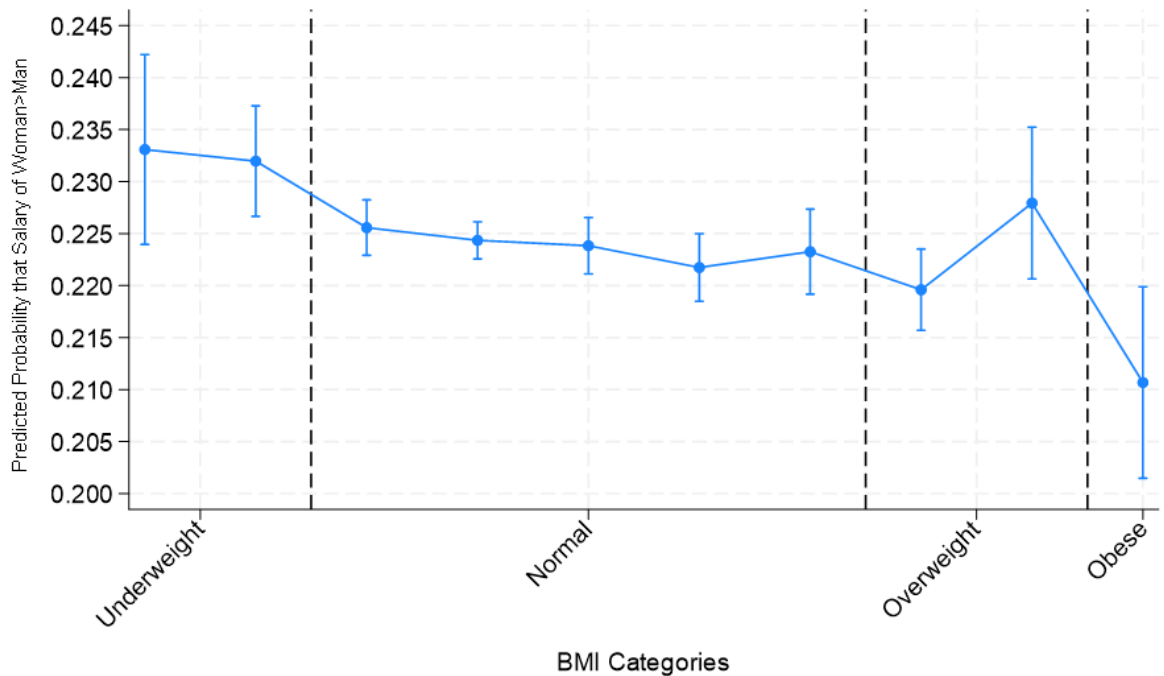


Figure A3. The predicted probability that women in childbearing relationships have higher cumulative incomes relative to the man in the childbearing relationship in relation to deciles of male BMI in Sweden.

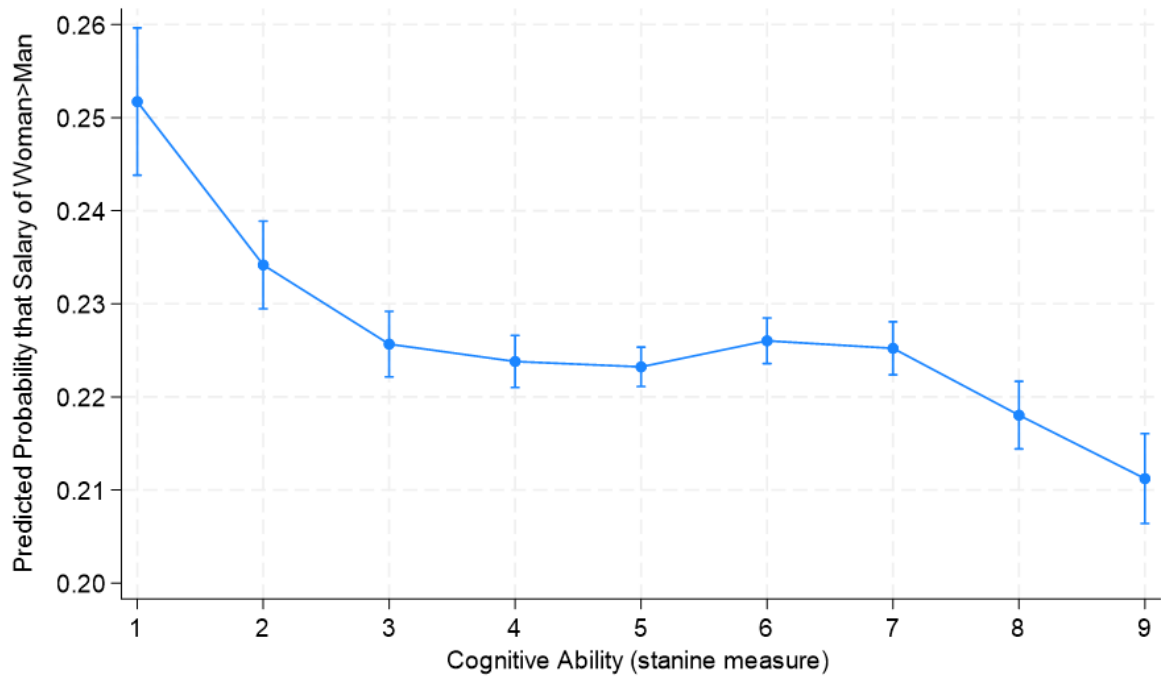


Figure A4. The predicted probability that women in childbearing relationships have higher cumulative incomes relative to the man in the childbearing relationship in relation to deciles of male cognitive ability in Sweden.