

# Is the End of Educational Hypergamy the End of Status Hypergamy? Evidence from Sweden

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## Abstract

The reversal of the gender gap in higher education has been a major social transformation: women now outnumber men in higher education in nearly all OECD countries. Patterns of assortative mating have also changed as highly educated women increasingly form relationships with men who have less education (hypogamous unions). In this article, we draw on rich register data from Sweden to ask whether the emergence of hypogamous unions signals the emergence of a new female status dominance in unions. We also consider how the status distribution in these unions compares to homogamous (both highly educated) or hypergamous (he highly educated) unions. We use Swedish register data and study couples who have their first child together. We refer to a multi-dimensional view of status and use indicators of social class background, income, and occupational prestige. We find that in hypogamous unions, women tend to have a higher social class background and occupational prestige, but lower income than their partners. The income gap between partners is not simply a consequence of the gender wage gap, but driven by selection into different union types. Men and women who form hypogamous unions are negatively selected in terms of their income.

## Introduction

In recent decades women have increased their representation in education and employment, and accessed power and status positions traditionally reserved for men. The emergence of new opportunities for women has been especially pronounced in higher education: whereas women were previously the minority, they now make up the majority of all students in nearly all wealthier countries (Schofer and Meyer, 2005; KC *et al.*, 2010).

In the past, highly educated women were more likely to remain single than women with lower levels of education. In recent decades, highly educated women

have become more likely to form relationships and to have children than previously. Women's education, income, and employment have become positively associated with partnership formation in countries including the United States, Canada, and Sweden (Goldscheider, Turcotte and Kopp, 2001; Goldstein and Kenney, 2001; Sweeney, 2002; Blossfeld, 2009; Torr, 2011).

As women increasingly access higher education, it becomes difficult or impossible for all women to find a partner with higher or equal education (Domański and Przybysz, 2007; Esteve, García-Román and Permanyer, 2012; Grow and Van Bavel, 2015; Esteve *et al.*, 2016;

De Hauw, Grow and Van Bavel, 2017). Across the United States and most European countries, the prevalence of educational hypogamy (women ‘partnering down’) now exceeds that of educational hypergamy (men ‘partnering down’) (Esteve *et al.*, 2016; De Hauw, Grow and Van Bavel, 2017). The shift away from hypergamy has been described as a part of the broader reconfiguration of gender relationships taking place in the public and the private spheres, characterized by Goldscheider, Bernhardt and Lappegård (2015) as *the gender revolution*.

The unprecedented trend of declining educational hypergamy could be a signifier of the emergence of new forms of partnership in which female status dominance in relationships becomes more commonplace. For example, the decline in hypergamy and the rise in hypogamy have been linked to a rise in female main earners in European households (Van Bavel and Klesment, 2017). On the aggregate level, female educational hypogamy could be a progressive trend that signals the increasing ability of women to occupy status dominant positions within the home. However, the degree to which hypogamous unions are ones where women hold greater resources relative to their partners requires further exploration. In the United States, women who have an educational advantage in their marriage still tend to earn less than their husbands do (Qian, 2017). The emergence of female educational hypogamy may just be a sign of *the stalled gender revolution*, wherein women remain hypergamous according to other forms of status, and where female-breadwinner households tend to have lower status compared to other households (England, 2010).

In this study, we examine inequality within childbearing unions where at least one partner has completed a post-secondary degree. Using Swedish register data, we take a long-term perspective and study all couples where at least one member was born in the years 1950–1952, 1960–1962, 1970–1972, and 1980–1982. We study couples where only the female partner is highly educated and compare them to couples where both partners are highly educated, and couples where only the male partner is highly educated. We examine inequality in men and women’s status along three dimensions: we measure social origin, occupational prestige, and income in the year prior to the birth of the first child. This is a major strength of the study, as we address the fact that individuals belong to several status groups at the same time, and that their patterns of assortative mating can reveal the relevance of different status markers for social stratification (Kalmijn, 1991). The markers of status considered are linked to access to economic resources

(income, social class) as well as social resources (education, occupational prestige). Data constraints mean that we only consider couples who have children together, though we measure status prior to the birth of the child, a point when within-couple income inequalities widen drastically (Angelov, Johansson and Lindahl, 2016).

We examine inequalities between men and women *within* unions using multinomial logistic models to compare the likelihood that the partner with the higher education also tends to have a higher social class background, higher occupational prestige, or higher income. We also address the question of selection into different union forms via a simulation analysis on income inequalities within unions. The simulations enable us to compare observed matches to a counterfactual scenario in which random matching would have occurred within the observed educational categories. Finally, we compare absolute levels of status between the educationally hypogamous, hypergamous, and homogamous unions. This analysis helps us assess the extent to which unions where women ‘partner down’ in education are those where both partners are relatively advantaged or disadvantaged.

## Theoretical Background

### Relative Status and Power in Families and Society

Status distinctions are often linked to beliefs about the social esteem and competence (Ridgeway, 1991). Status is also linked to resources (such as money), and can thus be directly related to the strength of an individual’s bargaining position, according to the *relative resources theory* (Blood and Wolfe, 1960). Findings show that women with higher resources likely have a stronger bargaining position in terms of housework (for Sweden: Evertsson and Nermo, 2004, 2007; see also Kan, 2008 for the UK). To the extent that women tend to have lower status than their partners, they are likely to have less power within their households. Importantly, the emergence of unions where women have higher status might thus imply the emergence of unions where women have greater power: due either to the greater importance of their contributions to the household or due to perceptions of their greater competence or social value.

This study is about couples who have their first child together. The power balance within such unions is important because it shapes negotiation dynamics regarding both matters of daily life, such as childcare and housework responsibilities, and larger life decisions such as the transition to marriage, further childbearing, staying in or leaving the workforce, choice of residential

location, and union dissolution. Childbearing creates a disequilibrium within couples which generates much implicit and explicit negotiation, which may or may not lead to greater inequality and less gender egalitarianism in couples after they have a child (Dribe and Stanfors, 2009; Angelov, Johansson and Lindahl, 2016; Kaufman, Bernhardt and Goldscheider, 2017; DeRose *et al.*, 2019). We measure status inequalities before the first child is born, addressing the ‘starting point’ for any future developments in couples’ status inequality.

The link between status and power within unions is undoubtedly complex. Status does not always translate into power for women: gender hierarchies have been shown to mitigate women’s status advantages in some contexts (England and Kilbourne, 1990; Agarwal, 1997; Bittman *et al.*, 2003; Tichenor, 2005). Nevertheless, understanding relative status within unions is an important step towards furthering our knowledge of negotiation and decision-making within families.

In addition to the effects within families, the emergence of female hypogamy is a significant phenomenon if it serves to dismantle norms linking power and gender more broadly. If families where mothers have status dominance become prevalent, and especially if these unions are not disadvantaged in terms of resources and status compared to other union forms, such a trend would signal a decoupling of power from gender in the sphere of family life. Previous research has noted the significance of the emergence of the trend of educational hypogamy and described its salience for the gender revolution (Goldscheider, Bernhardt and Lappegård, 2015; Qian, 2017; Klesment and Van Bavel, 2017). In the United States, educationally hypogamous couples were previously more likely to divorce than other couples, but this trend has faded (Schwartz and Han, 2014)—which points to a shift in the nature of educationally hypogamous couples and the need for additional study of these couples.

### Multiple Dimensions of Status

We base our study in the Weberian notion of status, where society is stratified by multiple dimensions of status, which are imperfectly correlated. Such *status inconsistencies* are characteristic of modern societies: prestigious occupations can be held by individuals outside the most prestigious social groups (such as white men from well-off families) (Hughes, 1945). Social reality is complex and no one measure of status (e.g. income) is definitive. Indeed, the conflicting expectations and identities people have based on conflicting personal attributes (e.g. high education but low income) arguably

have consequences for individual well-being (Hornung, 1977; Zhang, 2007). Couples may match explicitly or implicitly on different forms of status. As we measure the status of individuals in childbearing unions prior to the birth of the couple’s first child, we capture assortative mating rather than the consequences of family life on the partners’ relative status.

Given the complex nature of status, studies of assortative mating have emphasized the importance of measuring status along multiple dimensions (Kalmijn, 1991). In this study, we consider three different status forms which reflect resources that individuals possess and which they contribute to their joint household: social class of origin, occupational prestige, and income. Given the complex nature of individuals’ perception of status, it is beyond the scope of this study to theorize on the mechanisms which link these different forms of status to power within unions. We offer a motivation for the different status variables, and offer the results in this article as a first step to further theorizing.

The first social status measure examined in this study is socio-economic class of origin. Social class homogamy remains a strong factor in partnership formation in contemporary societies, and class homogamy is high even in the Nordics (e.g. Mäenpää and Jalovaara, 2015). Social class is tied to a number of different forms of resources that individuals may access through their family: social networks which create personal and career opportunities, access to financial support, values, and personal experiences throughout the life course (see Kalmijn, 1998 and Blossfeld, 2009 for reviews). Within a union, a class advantage may thus often translate into a resource advantage, based on the prestige connotations of certain class backgrounds, or on resources available through families.

The second status measure examined in this study is occupational prestige, which captures the social standing of an individual based on the type of job they have. This measure is based on the social desirability of occupations and is a measure of social rewards to working in an occupation which may be similar to, but may also compensate for, income (Treiman, 1977). Individuals with high occupational prestige tend to have higher social capital and may thus access resources via the exclusive social networks and social respect that their occupations command. In the year 2000, women and men in Sweden had similar occupational prestige, and occupational prestige was to some extent independent from income, especially for women (Magnusson, 2008). This measure is thus significant to study as a complement to income, because it may reflect status advantages beyond income as perceived by the individual or society,

such as access to professional networks and a perception of professional and social worth.

Income is the third measure of status examined in this study. Men's income has always mattered, and women's income increasingly matters, for union formation (Oppenheimer, 1988; Buss *et al.*, 2001; Sweeney, 2002; Sweeney and Cancian, 2004). Relative income contributions are likely to be related to relative power due to the reliance of the household on the resources contributed by each individual. Due to the recognized importance of income for people's lives, several studies have documented trends in income inequality within unions (Vitali and Arpino, 2016; Klesment and Van Bavel, 2017; Van Bavel and Klesment, 2017; Qian, 2017).

Women in Sweden, as in other countries, have lower wages than men (14 per cent lower in 2011). This wage gap has been consistent since the 1980s (Boye *et al.*, 2017) and is larger among the highly educated (Evertsson *et al.*, 2007, 2009). Despite the gender wage gap, research based on US data on relative earnings in couples suggests that unions where the woman earns more than the man are still less common than could be expected given the reversal of gender inequality in education (Raley, Mattingly and Bianchi, 2006; Bertrand, Kamenica and Pan, 2015)—and that even when women 'marry down' in terms of education, they tend to marry men who earn more than them (Qian, 2017). In addition to studying observed couple inequalities in income, we address the gender wage gap with a simulation analysis which is explained below.

### Educational Hypogamy and Relative Status

Above we have described multiple dimensions of status within unions. The primary interest of this study is relative status in educationally hypogamous unions (where only she has the higher education). Women are increasingly (over-)represented in universities, and they are much less likely to 'partner up' in terms of education (Domański and Przybyś, 2007; Esteve, García-Román and Permanyer, 2012; Grow and Van Bavel, 2015; Esteve *et al.*, 2016). Educational homogamy has become increasingly common throughout the 20th century, and it has also become much more common for women to 'partner down' in terms of education (Blossfeld, 2009; Schwartz, 2013). In Sweden (as we show below), highly educated women have been 'partnering down' for decades—making it an excellent test case. How should the rise of female educational hypogamy be understood?

### Emergence of female status dominance

The emergence of educationally hypogamous unions has been theorized as a step towards gender equality in

union formation, where women have an equal likelihood to be the status-dominant partner in the union (Esteve, García-Román and Permanyer, 2012). We could expect that women who have a higher education than their partner also have higher status in other dimensions, as education is positively, although not perfectly, correlated with other measures of status.

Social class background continues to be a predictor of higher educational attainment in Sweden, even though class inequalities have narrowed over time (Jonsson and Erikson, 2000). Additionally, jobs which require higher education tend to have a higher prestige score than jobs which do not. Likewise, college graduates typically out-earn those without a degree (Björklund *et al.*, 2010). In recent literature, female hypogamous unions have been linked to the emergence of 'female breadwinners' (Wang, Parker and Taylor, 2013; Esteve *et al.*, 2016; Klesment and Van Bavel, 2017). Due to the association between education and other status variables, women who 'partner down' in education may not be able to find partners with higher status in other dimensions.

Female status dominance could also be driven by a change in preferences. Women who 'partner down' in terms of education have shown their willingness to cross a status boundary (whether they choose to partner down or enter the relationship due to constraints in the partner market). These women may generally be more open to less traditional relationship power dynamics. Moreover, if women with higher degrees have better employment prospects, they may be able to select partners based on non-economic characteristics, such as physical appearance or willingness to contribute with housework (Press, 2004).

If the rise of educational hypogamy points to a re-ordering in gender norms regarding relative status, we would expect highly educated women to have higher status (in terms of social class, occupational prestige, and/or income) than their male partners. Furthermore, if the rise of educational hypogamy points to a rising gender symmetry in union formation, we would that women who 'partner down' in education are similar in status characteristics to men who 'partner down'.

### Persistence of female status hypergamy

An alternative possibility is that female educational hypogamy does not imply the re-ordering of the gendered power order in unions, but continued hypergamy across other status dimensions. Women may 'partner down' in education but choose men who compensate with other forms of status, e.g. class background, income, or occupational prestige (Blossfeld and Timm, 2003).

Such compensation could arise by several mechanisms. First, partnership patterns may be reflecting patterns of preference for one form of status over another (Kalmijn, 1991). For example, highly educated women's preferences for higher education in potential partners might be weaker than their preferences for other forms of social, economic, and cultural status. Second, higher status in other dimensions could bring the same types of resources as education. For example, a higher class background could provide exposure to academic networks and cultural capital similar to that afforded by higher education. Finally, women could use their education as a resource during the partner search to attract a partner who has relatively higher status along other dimensions, and thus maintain traditional gender norms for female hypogamy.

Such a compensation effect could be seen in terms of income, as is suggested by a study using US census data (Qian, 2017). As in other countries, economic returns to higher education in Sweden are heterogeneous, and women are particularly likely to complete vocationally oriented degrees in fields with relatively modest salaries, such as pre-school pedagogy or nursing, which indicates a continuing gender wage gap (Gerber and Cheung, 2008; Prix, 2013). Among women with higher education in Sweden, those who 'partner down' in education tend to have relatively low pay (Chudnovskaya, 2017). Additional research from Sweden shows that educational hypogamy for both men and women is associated with lower wage growth after union formation, and that selection into these union types largely explains this trend (Dribe and Nystedt, 2013). In the European context for the post-recession period, Vitali and Arpino (2016) have shown how the rise of female breadwinners is associated with levels of male unemployment. Their study suggests that educational hypogamy and its link to women's relative income in households may suggest an economic response rather than a broader normative shift about women's relative status in unions.

If the female status hypogamy norm persists in Sweden, we would expect highly educated women (whether they partner with a man who has equal or lower education) to have lower status (in terms of social class, occupational prestige, and/or income) than their male partners. Furthermore, we would expect hypogamous unions by education to be more disadvantaged in terms of other status markers (e.g. income, occupational prestige), compared with other unions involving highly educated women (i.e. homogamous unions).

## Research Design and Data

We consider three types of unions: hypogamous unions (she post-secondary, he secondary or lower), hypergamous unions (he post-secondary, she secondary or lower), and homogamous unions (both post-secondary). Our primary focus is on understanding the emerging trend of female educational hypogamy. Unions where the woman has a secondary education and the man has a primary are less common, and differ in social meaning from unions with at least one post-secondary educated partner.<sup>1</sup> We include only childbearing unions as these are a consistent comparison group in a society where the prevalence, timing, and social meaning of marriage have transformed radically over the last decades. We study only first-order unions to reduce complexity in comparing first unions to higher-order unions. We are not able to observe cohabiting unions without children, hence status differences within such unions are not addressed in this article. Men in the study are on average aged 32, and women are aged 30–31. Population sizes and other descriptive statistics are shown in Table 1.

Our education measure refers to *graduation* with a post-secondary degree, rather than enrolment. We use all forms of post-secondary education, including shorter vocational degrees (e.g. for teaching and nursing), shorter general degrees (bachelor's degrees of 3 years), longer vocational degrees (e.g. medicine and architecture), and longer general degrees (master's degrees of 4–5 years). We included all forms of post-secondary education to capture the entire highly educated population.<sup>2</sup>

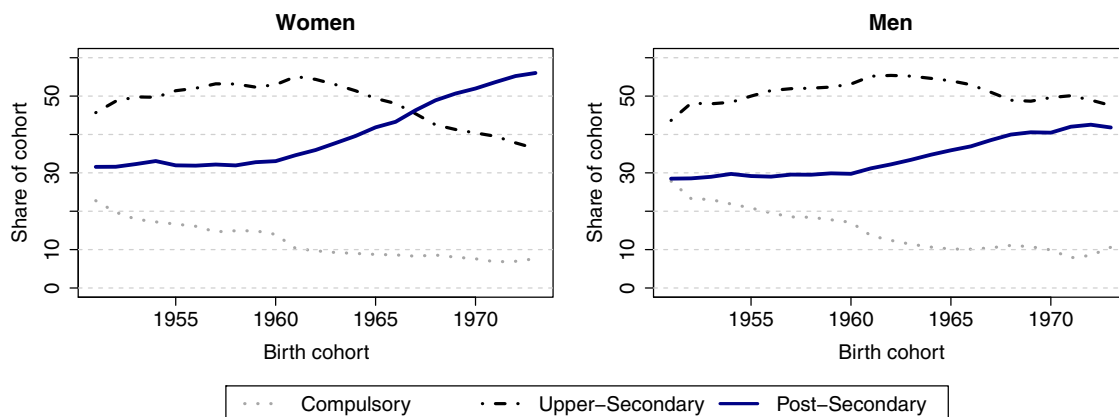
This study includes men and women who were born across several decades. We include couples where at least one partner was born in the years 1950–1952, 1960–1962, 1970–1972, and 1980–1982. This coverage of different cohorts allows us to capture the educational expansion of 1977, where women shifted from being the minority to the majority in higher education (see Figure 1 for trends in educational attainment for men and women), as well as other social changes over the last decades. For our regression results, we pool data across all cohorts and include cohort controls. For our simulation analysis, we focus on the 1970–1972 cohort as this cohort is the first in our analysis to witness hypogamy as the modal union type among highly educated women.

*Status variables.* We use individual records from administrative register data to identify our study population. We restrict the sample to individuals whose complete educational and partnership histories are known by excluding those who immigrated to Sweden after age 15, those who migrated away from Sweden, as



**Table 1.** Population size, characteristics, missing and omitted values

	Men				Women			
Cohort	50–52	60–62	70–72	80–82	50–52	60–62	70–72	80–82
Study N								
All unions	21,015	27,278	38,640	17,615	17,776	29,357	39,300	25,983
Both Tertiary	6,073	7,775	12,405	5,223	5,048	8,302	12,169	8,104
Man only tertiary	7,178	5,992	7,591	3,469	7,168	5,812	6,881	4,404
Woman only tertiary	7,764	13,511	18,644	8,923	5,560	15,243	20,250	13,475
Mean values								
Mean age at first child	32.3	32.0	32.5	29.1	29.7	29.9	31.0	28.7
Both tertiary	32.9	32.9	32.9	29.4	30.6	30.6	31.6	29.1
Man only tertiary	31.2	32.7	32.9	29.2	28.1	29.3	30.7	28.3
Woman only tertiary	32.6	31.2	32	28.8	30.9	29.7	30.7	28.5
Income (100s SEK)	669	1,348	2,089	2,187	477	927	1,599	1,879
(SD)	1,642	4,064	2,173	1,250	1,658	1,045	1,226	976
Income partner	495	1,052	1,682	1,881	455	1,131	1,996	2,347
(SD)	526	780	1,644	907	428	1,062	3,373	1,957
SIOPS	53	49	50	48	53	50	51	51
(SD)	13	13	13	14	11	11	11	12
SIOPS partner	51	50	52	50	55	49	49	47
(SD)	11	11	11	12	13	13	12	13
SEI	35	36	39	40	35	36	40	40
(SD)	16	16	15	15	16	16	15	15
SEI partner	34	36	39	40	36	35	39	40
(SD)	16	16	15	15	16	16	15	15
Missing and omitted values								
SEI (per cent)	18	8	14	12	20	9	14	13
SEI partner (per cent)	23	12	16	15	23	13	17	16
Income (per cent)	0	0	0	0	0	0	0	0
Income partner (per cent)	1	1	1	1	2	1	1	1
SIOPS (per cent)	10	10	7	4	22	12	9	4
SIOPS partner (per cent)	16	14	11	10	19	12	21	23

**Figure 1.** Educational expansion in Sweden. *Notes:* Cohort trends in highest educational level attained by age 35 for Swedish-born men and women. Calculations from Swedish administrative registers.

well as those who did not survive until age 40. We use the multigenerational register to link individuals to the person with whom they had their first child.

Data on *social class of origin* come from censuses conducted every 5 years from 1960 to 1990. We use data from censuses where the individuals are aged between 10 and 20, and extract occupational and educational information about their parents. We code the occupation and education indicators using SEI (Socioekonomisk Indelning, see [Supplementary data S1](#)). SEI makes a 3-fold distinction between white-collar workers, blue-collar workers, and employers and managers, with additional divisions based on years of education ([Statistics Sweden, 1982](#)).

We exclude some groups from our analysis of relative status when it is not possible to classify these groups in relation to others: farmers, the self-employed, those out of the workforce or retired. We omit individuals where information on both parents is missing/excluded, though this is a sizeable share of all unions in the older cohorts (see [Table 1](#)). We use the dominance principle to label an individual's class background when SEI for both parents is available.

Our measure of *disposable income* includes post-tax income from work or social benefits. This measures the financial contribution men and women make to their household. Income is measured two calendar years prior to the year of birth of the couple's first child. Income information is nearly complete for all the cohorts studied (see [Table 1](#) for information). Women's income levels determine the level of compensation they get when on parental leave, and thus couples have an incentive to make sure the woman's income is as high as possible in the year prior to the birth of the child.

To measure *occupational prestige*, we find individual occupational codes for the years prior to or immediately following the birth of the couple's first child. For unions formed before 1996, we find the occupation in census data (available in 1985 and 1990). From 1996, occupations are found in a register which captures all public sector employers and large companies (500+ employees), and a rotating yearly sample of smaller employers. For unions formed after 1996, we search the 6 years prior to and following the year of union formation for an occupational record—this extended search allows for better coverage of workers from small companies, and sensitivity analyses show that the wide time window doesn't bias the results.

Occupations in the Swedish registers are coded using a scheme similar to International Standard Classification of Occupations ([ISCO](#)), and these codes are then converted into the Standard International

Occupational Prestige Scale (SIOPS) occupational prestige scale ([Treiman, 1977](#)). This measure is not available for the 1950–1952 cohorts, as job codes are too aggregated prior to the 1985 census to translate into SIOPS codes. The SIOPS scale aims to capture social stratification for each job, including aspects such as social approval and deference. SIOPS values for individuals in the study range from 17 to 78, with health professionals at 63 point and sales workers at 31 points. A substantial share of the data on occupations are missing due to the sampling of small companies, but this data does not appear to bias the results (see [Table 1](#) and imputation analysis in [Supplementary data S2](#)). Results shown in the article include imputed data.

In the first stage of the analysis, we perform three multinomial logistic regression models to analyse the relationship between inequality in education within the union (as the independent variable) and inequality in the other status variables (as the dependent variables). These models include a variable for education within the union (hypogamous, hypergamous, or homogamous). We also include a control for the cohort group, as we pool data across all cohorts in each model. There are three discrete outcomes to the model: that she has the higher status, that he has the higher status, or that the partners have an equal status. The likelihood that the couple has an equal status is the reference category, so the coefficients produced by the model are the likelihood that she/he has the higher status compared to this reference category. We run three separate models for each of the status outcomes we are interested in: M1 for social class background, M2 for occupational prestige, and M3 for disposable income.<sup>3</sup> We present the results of the multinomial logistic model as relative risk ratios. For ease of interpretation, we also show the predicted probability of the woman having a higher status, the man having a higher status, or the partners having equal status, generated using Stata's *margins* command.

To supplement the multivariate analysis, and address our results for income inequality, we include a simulation analysis. The aim of the simulation analysis is to show whether the gender gap in wages can explain the observed pattern of women's share of couples' income. The method is to compare the share of household income contributed by women among the actual Swedish couples we observed (restricted to the 1970–1972 cohort group) to that of couples which are randomly drawn from the population. Simulation analyses are an increasingly popular tool in the study of assortative mating. Similar simulation analyses have been used in the study of couples' income inequality ([Binder and Lam, 2018](#)), and to examine the strength of preferences for partners'

height (Stulp *et al.*, 2013; Sohn, 2015). The counterfactual logic of the simulation approach in this article is comparable to that of Agent-Based Models (Grow and Van Bavel, 2015; Grow, Schnor and Van Bavel, 2017).

We perform three separate simulation analyses: for hypogamous, hypergamous, and homogamous couples. For each analysis, we need  $N$  women of a specific education level, and  $N$  men of a specific education level: for example, for hypogamous couples we need 20,250 women with a post-secondary degree and men with less than a post-secondary degree. To create such a simulated population of couples, we start with the entire Swedish population and select  $N$  women, who have the relevant educational level, are age 26–29 (born in 1971–1974), and are childless in the year 2000. This age range is chosen to capture men and women who are close to the average age of childbearing for these cohorts, though we experiment with different age ranges in sensitivity analyses (see online [Supplementary data S4](#)). We then select  $N$  men, who have the relevant educational level, are age 29–32 (born in 1968–1971), and are also childless in the year 2000. We find each man and woman's income in the year 2000. We then use a random sort process to pair the men and women with each other into  $N$  couples, calculate each couple's 'total household income', calculate the woman's share of that household income, and plot the distribution of this share among all  $N$  couples.

We repeat this simulation process 100 times (drawing a population of women, of men, and randomly matching them). We thus create a visual probability band of how much women would contribute to the household income if couples were randomly matched based on education and a small age difference (reflecting standard age differences in Sweden). We then juxtapose the distribution of women's contributions to the household income among the *simulated* couples and the *observed* couples. As a result, we gain information about the extent to which observed trends of women's income contributions are driven by the gender wage gap. To address the sensitivity of the simulation results to the details of the simulation procedure, we have performed multiple sensitivity analyses, which are included in the [Supplementary data S4–S6](#).

## Results

**Figure 1** shows the scope of educational expansion in Sweden. Fewer than 15 per cent of men and women born in 1940 completed a post-secondary education by age 35. Among men and women born in the 1970s, that percentage has risen to more than 40 per cent (for men)

and 50 per cent (for women). Patterns of educational assortative mating have changed in tandem with educational expansion, as can be seen in the population description in **Table 1**. Among the 1950s cohorts, hypergamous unions were the most common. Starting from the 1960 birth cohort, hypogamous unions have become common and indeed, the modal union type among unions involving women with a post-secondary education. Among couples with at least one highly educated partner, half of all couples consist of a highly educated woman with a lower-educated male partner. Understanding status inequalities within educationally hypogamous unions is thus of crucial importance.

## Multinomial Logistic Regression Models

Do women who have an educational advantage have other status advantages in the union? **Table 2** shows the results of three multinomial logistic regression models. In all models, the reference outcome is that the partners have a similar level of status (social class, occupational prestige, or income), and the two outcomes are that she will have a higher status than him, or that he will have the higher status than her. We ran three separate models: M1 for social class, M2 for occupational prestige, and M3 for income. The models included a control for the cohort group as well as the educational composition of the couple. The coefficients are presented as relative risk ratios in the tables, and we also present the results of these regressions as a series of predicted probability plots, for easier interpretation (**Figure 2**).

**Figure 2** has three panels, each showing predicted probability results for each multinomial logistic model. Within each panel, there are three sets of predicted probabilities: for couples where *he* is the only one with higher education (on the left), couples where *both* partners have a higher education (in the middle), and couples where *she* is the only one with higher education (on the right). Within each educational combination, there are three predicted probability coefficients: the downward triangle predicting the probability that *he* (the male partner) has a higher social class of origin than his female partner, the upward triangle showing the probability that *she* (the female partner) has a higher social class of origin, and the square showing the probability that both partners come from the same social class.

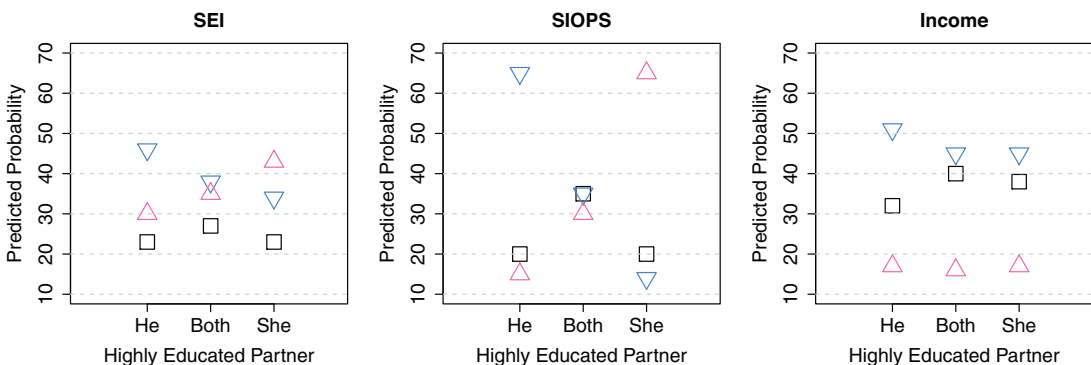
As we can see from **Figure 2**, for social class and occupational prestige, the partner with a higher education is also the one with the status advantage. In unions where the man has the higher education, he is the most likely to have the higher social class background or occupational prestige—and vice versa. In unions where



**Table 2.** Results from multinomial logistic regressions

	Class (M1)	Occupation (M2)	Income (M3)
	RRR [95% CI]	RRR [95% CI]	RRR [95% CI]
Relative risk ratios: outcome—he higher status than she (compared to equal status)			
Highly educated partner			
Both	Ref	Ref	Ref
Only he	1.39 [1.34–1.44]	3.12 [2.99–3.26]	1.41 [1.37–1.45]
Only she	1.06 [1.03–1.09]	0.88 [0.85–0.91]	1.06 [1.04–1.08]
Cohort group			
1950–1952	Ref	(NA)	Ref
1960–1962	0.95 [0.92–0.99]	Ref	1.16 [1.13–1.20]
1970–1972	1.04 [1.00–1.08]	1.13 [1.10–1.18]	1.29 [1.25–1.33]
1980–1982	1.29 [1.24–1.35]	1.29 [1.23–1.34]	1.29 [1.25–1.33]
Intercept	1.35 [1.30–1.40]	1.42 [1.38–1.47]	0.94 [0.91–0.96]
Relative risk ratios: outcome—she higher status than he (compared to equal status)			
Highly educated partner			
Both	Ref	Ref	Ref
Only he	1.02 [0.98–1.05]	0.96 [0.92–1.01]	1.31 [1.27–1.36]
Only she	1.47 [1.42–1.51]	4.10 [3.96–4.23]	1.17 [1.14–1.21]
Cohort group			
1950–1952	Ref	(NA)	Ref
1960–1962	0.94 [0.91–0.98]	Ref	0.76 [0.73–0.79]
1970–1972	1.03 [0.99–1.07]	1.27 [1.24–1.32]	0.92 [0.89–0.96]
1980–1982	1.23 [1.18–1.29]	1.49 [1.43–1.55]	1.07 [1.03–1.11]
Intercept	1.25 [1.20–1.30]	1.08 [1.04–1.12]	0.42 [0.41–0.44]

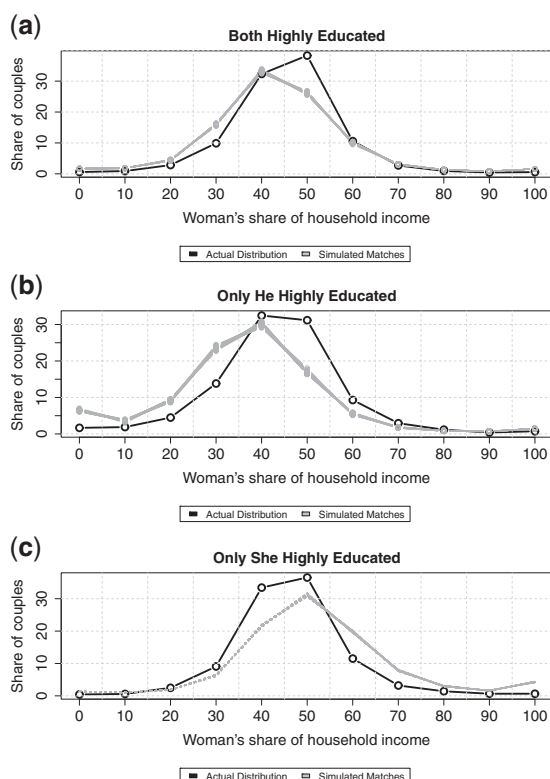
Notes: Results shown are relative risk ratios (RRRs).



**Figure 2.** Predicted probabilities from multinomial logistic regression of relative status—social class (SEI), occupational prestige (SIOPS), and income—by educational combination within unions. Notes: For SEI and SIOPS, equal means men and women have the same value. For income, ‘equal’ refers to the woman contributing 45–55 per cent of the household income.

both partners have a higher education, men tend to be more likely to come from a higher social class background, or to have a higher occupational prestige than their female partner. Thus, only women in hypogamous unions tend to have a higher status than their partners.

For income, the results look different: in every union type, men are the most likely to be the main earners. The second most likely outcome is for men and women to be ‘almost equal’ (for women contribute 45–55 per cent of the household income). Women in hypogamous



**Figure 3.** Observed versus simulated share of women's income for couples born around 1970, for different couple educational combinations.

unions have only a 1 per cent higher predicted probability of being the main earner than women in homogamous or hypergamous unions (15 per cent compared to 14 per cent).

The results of the regression show that the association between education and other forms of status isn't simple. Women who have a higher education than their partner tend to also have a higher occupational prestige and to come from a higher social class than their partners—and thus to have the advantages associated with these status markers. Nevertheless, women still earn less than their male partners, even when they have an educational advantage.

### Addressing the Gender Wage Gap

It's possible that the persistence of male income dominance is due to the gender gap in wages in the Swedish population. To explore this possibility, we performed a simulation analysis using the 1970–1972 cohort as an example group. The simulation is presented in Figure 3. We compare the income distribution observed in the study population (represented by the black line) to 100

simulated populations (represented by the grey band). The simulation represents the income inequality within couples that would occur if couples were randomly matched, and thus captures what we would expect based on the population-level gender wage gap. Figure 3 shows that the woman's share of household income among the study population differs from that within the simulated population.

Panel (a) in Figure 3 compares the observed and expected distributions in educationally homogamous couples. In the observed distribution (black line), it is most common for women to contribute 45–55 per cent of the household income (this is the peak of the distribution). In contrast, the peak of the predicted distribution is at 35–45 per cent. Thus, couples where both partners have a higher education are *more equal* in income than would be expected based on highly educated men and women's incomes.

Panel (b) in the figure shows that hypergamous couples follow the same pattern: they are *more equal* than would be randomly predicted. Though the peak of the distribution is the same in the simulated and observed populations (35–45 per cent), among the observed couples in our study, there are more women earning 45–55 per cent of the household income, and fewer women earning <35 per cent of the household income, than predicted by the simulation.

For unions where highly educated women 'partner down' (panel (c)), we see that these unions are also *more equal*—but in a different way. While the peak of the predicted distribution remains the same (women earn 45–55 per cent of the household income), the simulation predicts a much greater prevalence of households where women are the dominant earner. All unions are *more equal* than would randomly be expected: but educationally hypogamous unions are *less* female income-dominant than would be expected, while educationally homogamous and hypergamous unions are *less* male income-dominant than would be expected based on the population income distribution. We performed some statistical tests on the differences between the predicted and observed distributions (see Table 3). These tests show that the differences observed are statistically significant.

The regression analysis showed that women who 'partner down' in education tend to earn less than their male partners—and the simulation analysis suggests that this pattern isn't a mechanical consequence of the earnings gap between men and women. Our simulation analysis suggests that high-earning highly educated women are unlikely to partner down in terms of education. We explore the sensitivity of these simulation results to

**Table 3.** Statistical tests of difference between simulated and observed distributions of women's contribution to household income

	Mean share of income by woman		Welch two-tailed T-test			Kolmagorov–Smirnov Test	
	Observed couples	Simulated couples	T	DF	P-value	D	P-value
Highly educated partner							
Only she	0.46	0.52	43.014	41,535	<2.2e–16	0.19983	<2.2e–16
Only he	0.43	0.38	30.337	24,582	<2.2e–16	0.22435	<2.2e–16
Both	0.46	0.44	9.694	20,990	<2.2e–16	0.10920	<2.2e–16

**Table 4.** Mean and standard deviation (in parentheses) for SEI, SIOPS, and disposable yearly income, for men and women from cohort 1970–1972, by union type (statistics for other cohort groups are substantively similar)

	Woman H.Edu.	Man H.Edu.	Both H.Edu.
SEI mean (SD), by union type			
Women	44 (21)	44 (22)	47 (19)
Men	43 (23)	46 (20)	48 (19)
SIOPS mean (SD), by union type			
Women	52 (9)	44 (13)	55 (10)
Men	43 (11)	54 (10)	56 (10)
Income mean (SD), by union type			
Women	156,100 (142,200)	155,900 (104,900)	181,200 (166,000)
Men	185,400 (321,300)	218,700 (300,800)	225,200 (195,100)

Note: Income units are SEK (10 SEK roughly 1 EUR).

alternative specifications. [Supplementary data S4](#) examines the sensitivity of our results to the selection of birth cohorts, [Supplementary data S5](#) to the restriction on childless men and women, and [Supplementary data S6](#) examines different matching rules. Our findings are robust to these different decisions and show substantively similar results to those shown in [Figure 3](#).

[Table 4](#) shows the status attributes of men and women, presented as the mean and SD for measures of social class, occupational prestige, and disposable income, across union types by education.

[Table 4](#) highlights how women in hypogamous unions are relatively disadvantaged compared to highly educated women in homogamous unions. Women in hypogamous unions have slightly lower social class background and occupational prestige, and their average disposable income is 86 per cent of the educationally homogamously partnered women. Thus, part of the explanation for why women who 'partner down' in education tend not to out-earn their male partners is that these women are themselves negatively selected on income.

[Table 4](#) also suggests that there is no 'gender re-ordering'. Women who 'partner down' in education have lower status than men who 'partner down'. Overall, the simulation analysis combined with the results in [Table 3](#) suggest that hypogamous unions are

disadvantaged compared homogamous couples, but also compared with hypergamous unions.<sup>4</sup>

## Discussion

Women have closed or reversed the gender gap in post-secondary education in most European countries ([Van Bavel, 2012](#)). Following this reversal, an unprecedented pattern of female educational hypogamy has emerged in several countries ([Domański and Przybysz, 2007](#); [Mäenpää and Jalovaara, 2015](#)). We ask whether the decline of educational hypergamy implies a decline in other forms of status hypergamy. Sweden provides an excellent test case for such a question because female educational hypogamy has been widespread starting with cohorts born in the 1960s.

We built on a Weberian multi-dimensional notion of status and argued that we need to consider multiple forms of status to advance our understanding of within-couple inequalities. We used administrative register data to examine three dimensions of status: social class background, occupational prestige, and income. We compared the relative status of men and women within and between unions. We found that gender inequalities differ for different status dimensions.

Our regression models showed that for social class background and occupational prestige, the partner who has the higher education also tends to outrank the other partner in terms of social class, and especially in terms of occupational prestige. Thus, unions where women ‘partner down’ in terms of education also tend to be unions where women have higher social class, and often unions where they have higher occupational prestige. It’s worth noting however that these average status differences, as shown in our last step (Table 4), are not very large.

Results for differences in disposable income reveal that for all educational pairings, men tend to out-earn women. It is also common for couples to be ‘almost equal’ in terms of income (for women to earn 45–55 per cent of the household total)—a result mirrored in economics research (Hederos and Stenberg, 2019). However, women who have a higher education than their partners do not have an income advantage. In this way, income differs from occupational prestige and social class.

Our results on income are in line with previous research from the United States (Qian, 2017). In a study of European countries, Klesment and Van Bavel (2017) showed that women in educationally hypogamous unions were more likely to be breadwinners than other women, as do Schwartz and Han (2014) in their study of American marriages. Our study shows that women in hypogamous unions do have a marginally (1 per cent) higher likelihood of out-earning their husbands compared to other women. It is also worth noting that in this study, income was measured in the couple before the birth of the joint child. This is a time when Swedish women’s earnings peak and of the greatest income equality within Swedish families, after which men and women’s incomes tend to diverge by 30 per cent in the first 15 years (Angelov, Johansson and Lindahl, 2016).

It could be the case that the gender wage gap in Sweden drives the within-income inequality in income. We conducted a simulation analysis to address this. In the results presented here, we contrasted the couples born in 1970–1972 with 100 simulations of random couples of similar birth years (1968–1971 for men and 1971–1974 for women) who were randomly matched using educational and income data from the year 2000. We also performed several sensitivity analyses (see Supplementary data S4–S6) to address possible biases in the simulations, the result of which suggest that the simulations are not significantly affected by the choice of birth cohort, restriction on childless men and women, and the matching rules.

Our simulation analysis shows that men and women generally tend to sort into unions where both partners

contribute substantial income to the household. Hypogamous couples were characterized by *lesser* female income dominance than could be randomly expected, and a greater share of women earning 35–45 per cent and 45–55 per cent of the household income than would be randomly expected. If selection into unions was random, we would expect to find a greater share of couples where the woman has higher education *and* higher income than her male partner. This is because among highly educated women, there are many who have relatively high salaries (e.g. those in professional occupations), and among the lower-educated men, there are many who have relatively low salaries (e.g. those in non-skilled occupations). Instead, as the simulation results show, women and men seem to sort into unions in a way that minimizes inequalities. Homogamous or hypergamous couples also have *greater* income equality (women earning 45–55 per cent of the household income) and *lesser* male income dominance than would be randomly expected.

However, men out-earn women in all union types, and our simulation suggests that the gender wage gap cannot be seen as the explanation for this inequality. Additional explanations for the income inequality between men and women are beyond the scope of this article, but one possible explanation could be differences in men and women’s working hours. Such an inequality would likely further widen after the birth of the couples’ child(ren).

As a last step in our analysis, we compare men and women’s status in absolute terms across different union forms. Educationally homogamous couples tend to have the highest income, occupational prestige, and social class background. This is in line with previous research from Sweden, which shows that highly educated women who ‘partner down’ are negatively selected in terms of income and labour market opportunities (Dribe and Nystedt, 2013; Chudnovskaya, 2017), as well as with research from the United States which shows that women in homogamous unions tend to have slightly higher earnings than women in hypogamous unions (Schwartz and Han, 2014).

The rise of educational hypogamy has been heralded as a part of the broader set of changes described as *the gender revolution*. Our closer examination of status inequalities within hypogamous couples lends support to a *stalled gender revolution* perspective. We find that the highly educated women with the highest status pair with highly educated men (who tend to have even higher status than the women). Meanwhile, women who partner down tend to be relatively disadvantaged. The trends we observe could be driven either by preferences (towards egalitarianism or women’s status hypergamy) or by constraints (social norms or partner market structures).

It is important to note that our study included only childbearing unions. The transition to parenthood is a time of many negotiations, including questions of parental leave, housework, career trajectories, and so on. Couples who do not have children together may have different patterns of inequality, and may confront different challenges. We have focused on childbearing couples due to data constraints, but questions of inequalities within childbearing unions are paramount for advancing gender equality in societies. Additionally, our study focused on status differences prior to the birth of the child to address the 'starting point' of inequality within unions, before such inequalities widen after the birth of the child (Angelov, Johansson and Lindahl, 2016). Recent research suggests that developments in within-couple income inequality vary based by the educational combination within the union (Angelov, Johansson and Lindahl, 2016 and Nylin *et al.*, 2019 for Sweden, Qian, 2018 for the United States). Our study provides an important complement to such findings.

This study was an empirical step towards understanding inequalities within couples. We examined only first-order unions, and studying inequalities in higher-order unions remains a topic for future work. Further work is needed to examine the evolution of status inequalities by gender among younger cohorts, to study changes in inequality over time more explicitly, and to theorize on the implications of different forms of status inequalities for within-couple bargaining processes. With register data, although we are able to measure different forms of status, we are unable to identify how educational, income, class, or occupational prestige advantages translate into resources or power within the home. However, our work highlights how status attributes are distributed between men and women in ways that are not always straightforward. We believe that these status dimensions should be studied further to complement studies of within-household inequalities in income, as the social resources and opportunities linked to social class and occupational prestige likely relate to family decision-making.

## Notes

- 1 These unions constitute less than 15% of all first childbearing unions formed in the 1980s, and less than 8% of all childbearing unions formed in the 1990s and 2000s.
- 2 Our sensitivity analyses (e.g. including only degrees which are 3+ years) did not yield substantively different results.

- 3 To take into account the distinction among shorter and longer post-secondary degrees in driving status inequalities within couples, we perform multinomial logistic regressions which take this distinction into account. Results can be seen in the Supplementary data S3.
- 4 Simulation results with occupational prestige (not shown) suggest a similar pattern of disadvantage with regards to that measure of status.

## Supplementary Data

Supplementary data are available at *ESR* online.

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