

Small Business Economics

Peer-reviewed and accepted version

Female Self-Employment: Prevalence and Performance Effects of Having a High-Income Spouse

Carl Magnus Bjuggren and Magnus Henrekson

Published version: <https://doi.org/10.1007/s11187-021-00526-0>

This is an author-produced version of the peer-reviewed and accepted paper. The contents in this version are identical to the published article but does not include the final proof corrections or pagination. [License information](#).

Female Self-Employment: Prevalence and Performance Effects of Having a High-Income Spouse

Carl Magnus Bjuggren* and Magnus Henrekson**

April 21, 2021

Abstract. Little is known about self-employment as a career choice for women who marry a high-income spouse. Using rich Swedish register data, we show that Swedish women who are married to a high-income spouse are, on average, highly educated and more likely to pursue self-employment than those married to a spouse in the middle of the income distribution. Our results indicate that the likelihood of entering self-employment increases by 128–176 percent for women who marry a spouse in the top of the income distribution, and the shift into self-employment is associated with a lower income. This can be interpreted as a career choice that produces a more flexible work schedule in return for lower income. In a Nordic welfare state, where work is the norm for women, self-employment offers a way to avoid the stay-at-home stigma. It allows one to stay in the workforce while enjoying approval from society and being in control of one's work schedule and personal demands.

JEL Codes: J16, J12, J13, J22, L26.

Keywords: Career choice, Entrepreneurship, Marriage, Self-employment, Women.

* Assistant Professor, Department of Economics, University of Memphis, Memphis, TN 38152, United States, and the Research Institute of Industrial Economics (IFN) Box 55665, SE-102 15, Stockholm, Sweden. cmbjggrn@memphis.edu.

** (Corresponding author) Professor and Senior Research Fellow, Research Institute of Industrial Economics (IFN), Box 55665, SE-102 15, Stockholm, Sweden. magnus.henrekson@ifn.se. We are grateful to Niclas Berggren, Johan Egebark, Niklas Elert, Björn Tyrefors, Niklas Kaunitz, Johan P. Larsson, Martin Olsson, Jason Saving, Daniel Waldenström, and the participants at the EALE Annual Conference 2017, the 2018 Public Choice Society Meetings, and the seminars at the University of Memphis, and the Research Institute of Industrial Economics (IFN) for their valuable comments and suggestions. Financial support from the Swedish Research Council for Health, Working Life and Welfare (Forte) grant number 2014–2740, the Jan Wallander and Tom Hedelius Foundation, and the Marianne and Marcus Wallenberg Foundation is gratefully acknowledged. We thank Olga Pugatsova and Charlotta Olofsson for their excellent research assistance, Petter Danielsson for assistance with data on employment rates for women, and Louise Ringström for inspiration.

1. Introduction

Female entrepreneurship is growing faster than any other category of entrepreneurship (Cardella et al. 2020, Parker 2018). As governments and businesses attempt to increase female labor force participation with a variety of policies, it is important to understand the complexity surrounding women's employment decisions, including the decision to become self-employed. More women are pursuing higher education than ever before, and women constitute the majority in virtually every area except computer science, engineering, and technology (OECD 2016a). However, not all of the highly educated women will end up participating in the job market. A proportion will drop their career after getting married to assume prime responsibility for their children, while the husband pursues his career. This traditional division of gender roles appears to be more pronounced at the top of the income distribution. In the U.S., 70 percent of women married into the top 1 percent are not employed (Yavorsky et al. 2020). Furthermore, in 2012, about 20 percent of all married stay-at-home mothers in the U.S. had a bachelor's degree or more (Cohn et al. 2014).

When women decide to leave the labor market, it may be harmful to both society and the economy. Leaving a portion of highly educated individuals out of employment will hamper the economy's potential growth rate. This may also be harmful for society's efforts to create a system with equal rights, responsibilities and opportunities. In this paper, we highlight a potential mechanism where highly educated women are abandoning potential careers in return for a more family-friendly work schedule. The norm in Sweden is for women to work for pay and being a stay-at-home mother is therefore associated with social disapproval. One way to avoid the social costs of disapproval while being in control of one's work schedule and personal demands is to become self-employed.

Amidst growing inequality, research has increasingly focused on the very top of the income distribution (Piketty and Saez 2006, Atkinson et al. 2011, Bengtsson and Waldenström 2018). In the U.S., the top 1 percent holds more than one fifth of total wealth (Piketty and Saez 2006). Recent studies indicate that gender equality has stalled in the top 1 percent (Yavorsky et al. 2019). However, little is known about self-employment as a career choice for women who marry a spouse in the top 1 percent of the income distribution. We show that Swedish women who are married to high-income men are, on average, highly educated and more likely to pursue self-employment than

those married to a spouse in the middle of the income distribution. Using a difference-in-differences (DiD) setting, we compare the likelihood of self-employment before and after marriage for Swedish women who marry into the top 1, 0.5 and 0.1 percent to those who marry a spouse in the middle of the income distribution (20–80th percentile). The likelihood of entering self-employment increases by 128–176 percent for women who marry a spouse in the top of the income distribution. We proceed by comparing the results for women, to that of men who marry a high-income spouse. We find that the effect of marrying a high-income spouse on self-employment is larger for women.

In order to shed some light on the type of self-employment that is being pursued, we proceed by analyzing self-employment income after marriage. We show that the combination of marrying a spouse in the top 1, 0,5 and 0,1 percent and entering self-employment is associated with a decrease in the woman's income by as much as 17–19 percent. This indicates that the business is practiced at a modest scale. The rich administrative data from Sweden allow us to investigate the effects of marrying a spouse in the top of the income distribution while controlling for number of children, education, age, and geographic location.

We focus on Sweden and its particular labor market that has a high representation of women. Sweden ranks the fourth highest in terms of gender equality according to World Economic Forum (2016). The employment rate for women aged 25–54, was 85.9 percent in 2016 (for women born in Sweden it was 89.3 percent), which was the highest rate in the European Union (Figure 1). By comparison, the average rate was 77.1 percent for OECD countries and 77.9 percent for the U.S. (OECD 2017a).

Our study contributes to the understanding of female entrepreneurship, women's employment decisions and labor force participation. We show that the women who marry a spouse in the top percent appear to be sacrificing higher pay and advancement in career for a flexible work schedule and family time. Our results suggest that self-employment at a modest scale is yet another explanation for less career-oriented female labor force participation.

2. Theoretical considerations and related literature

2.1 Related literature – a brief survey

The idea that women might use self-employment and entrepreneurship as a means of balancing family and career has been the subject of several previous studies (Boden 1999; Connelly 1992; Constant 2006; Du Rietz and Henrekson 2000; Hundley 2000; Lombard 2001; Macpherson 1988; Patrick et al. 2016; Wellington 2006). Parker (2018) refers to this idea as the flexibility hypothesis. The flexibility hypothesis is supported by data from the national labor and population surveys in the U.S. (Wellington 2006). However, in some European countries the evidence is more ambiguous. While self-employed women in Spain are found to spend more time at home, there is no difference in time devoted to child care (Gimenez-Nadal et al. 2012). One potential explanation is the role of government policies. Family-friendly policies, such as subsidized childcare and paid parental leave, may reduce the work-family trade-off. Thébaud (2015) argues that family-friendly policies reduce the quantity but increase the quality of female entrepreneurship. In contrast with this argument, and in alignment with the flexibility hypothesis, our study highlights the importance of recognizing self-employment as a potential career choice for women that increases flexibility. In addition, we add to this literature by suggesting that self-employment provides a means of balancing family and career varies greatly with the spouse's income.

Our results add to the existing literature on the effect of marriage and/or self-employment on women's earnings (Becker 1985; Boschini et al. 2017; Marshall and Flaig 2014; Simon and Way 2016). Little is known about how marriage into the top 1 percent influences female entrepreneurship. Yavorsky et al. (2019) demonstrate that marriage to a man with good income prospects confers the highest likelihood of attaining top 1 percent status in the U.S. They also demonstrate that female self-employment can be a way to attain top 1 percent status in a minority of households. However, the study does not investigate female self-employment decisions before and after marriage. In particular, it does not analyze whether marriage into the top 1 percent affects self-employment decisions.

By using Swedish data, we are analyzing a Nordic welfare state with extensive family-friendly policies in place. Government policies have been shown to affect women's employment decisions

and labor force participation. Blau and Kahn (2013) found that U.S. women's labor force participation has decreased relative to other OECD countries. A sizeable part of the difference between the U.S. and other OECD countries could be explained by family-friendly policies such as part-time work entitlements and parental leave. However, U.S. women were found to be more likely to hold full-time jobs and to work as managers or professionals. Blau and Kahn (2013) argue that, while family-friendly policies increase female labor force participation by making it easier for women to combine work and family, it might reduce their participation in high-level jobs that require full-time commitments. Similar conclusions were drawn by Henrekson and Stenkula (2009) in their study of women in executive positions across different types of welfare states. Childbirth has been shown to limit women's career progression, and female executives are less likely to advance to the level of CEO and less likely to become high-income earners (Keloharju et al. 2019). Our results add to this literature by showing that self-employment is a potential career path that offers work flexibility in a Nordic welfare state.

We find that the women marrying into the top of the income distribution are highly educated. Our results relate to the research on MBA graduates by Bertrand et al. (2010), who found that female MBAs were more likely to have husbands with higher earnings than female PhDs and MDs, allowing them to be less career oriented and allocate more of their time to taking care of children. Both male and female MBA graduates were found to have similar earnings at the onset of their careers, but a noticeable gender gap quickly emerged over time. Motherhood is put forward as a main cause for career interruption which adversely affects earnings. In addition, MBA mothers were found to seek out jobs that were less career oriented allowing for a more flexible work schedule, including part time work and self-employment. In a similar vein, Wiswall and Zafar (2018), used data on high-ability undergraduate students from NYU and found that women have a higher willingness-to-pay for work flexibility and for reduced probability of job dismissal.

Our study also relates to Becker's (1965) theory on household specialization. If one of the partner's human capital and personal traits are highly valued in the marketplace, optimization at the household level may result in the other partner specializing in home production. But if such specialization is met with social disapproval, costs may outweigh benefits. We hypothesize that one way of benefiting from such specialization, while avoiding the costs of social disapproval, is

to enter self-employment and practice it on a modest scale. Our results indicate that depending on their husband's income, women choose a more or less profitable self-employment business profile.

2.2 Income effect and stay-at-home stigma

There are several reasons for entering self-employment. First, an individual may have entrepreneurial ambitions that result in self-employment. The increase in household income from marrying someone in the top of the income distribution may offset some of the risks involved in starting a business and thus encourage individuals to act on their entrepreneurial ambitions. Second, an increase in household income could encourage individuals to pursue their hobbies and extracurricular activities in the form of self-employment. These two reasons for entering self-employment are both a reaction to an increase in household income, and we will refer to the combined effect as the "income effect". Third, fewer opportunities in the regular labor market may result in self-employment as a means of getting an income. But as we will show, the women that marry into the top of the income distribution are highly educated and are therefore likely to have better opportunities in the labor market than the lesser educated. Since we are focusing on women that marry into the top of the income distribution, they are less dependent on getting an income, and it is unlikely that the increase in self-employment after marriage is driven by fewer opportunities in the labor market. Fourth, in some countries self-employment may be used to channel income between spouses in order to reduce the average tax rate on total household income. This is not feasible in Sweden since all individuals are taxed separately, independent of their spouse. Moreover, if that had been practicable, we should have observed a much larger proportion of self-employed women married into the top one percent that declared high incomes since the progressive income tax schedule makes it rational to divide spousal income fairly equally. Fifth, women may enter self-employment in order to avoid the social stigma associated with being a stay-at-home mother.

Sweden has traditionally emphasized female breadwinning as a duty (Sommestad 1997). However, during 1930–1970, Sweden experienced what is sometimes referred to as a "housewife era"; an era of increased patriarchy and a male breadwinning system in which the stay-at-home mother was idealized. This era can in part be attributed to a decline in the agricultural sector and an increase in marriage rates (Edvinsson and Edvinsson 2017). In the late 1960s and the 1970s a number of

institutional changes, such as the ending of joint taxation and the expansion of government-provided childcare, strongly encouraged women's labor force participation. The emerging ideas on gender equality was not seen as compatible with the concept of housewives (Roman 2008). These attitudes persist today as both men and women in Sweden reject the idea of the traditional stay-at-home mother (Hobson 2003). According to the World Value Survey, only 35.3 percent of Swedish respondents agree with the statement "Being a housewife is just as fulfilling as working for pay". In the U.S., 74.5 percent of the respondents agreed with this statement (World Value Survey 2010–2014).

Despite the data showing that Swedish women reject the idea of being a stay-at-home mother, data from Statistics Sweden suggest that Swedish women, but not men, are adjusting their work schedule to accommodate for the care of children. In 2015, 30 percent of Swedish women but only 10 percent of Swedish men worked part-time. For families with three or more children, 33–54 percent of women compared to 7–12 percent of men worked part-time (variation due to the age of the youngest child). In addition, of the total time taken off work to care for sick children, women assumed responsibility 74 percent of the time (Statistics Sweden 2016). In a society where there is a strong norm for women to work, self-employment may be a way for Swedish women to fulfill household and childcare duties.

Given the above reasoning, we are left with two competing explanations for our results, an income effect and avoiding the social stigma associated with being a stay-at-home mother. It is not obvious from our results whether the observed increase in self-employment is due to an income effect or if it is due to the stigma of being a stay-at-home mother, or both. Previous literature has shown that men are in fact more entrepreneurial than women on average (Minniti 2009), and more likely to start firms with good opportunities to grow (Du Rietz and Henrekson 2000; Henrekson and Sanandaji 2014).¹ This would imply that the income effect is greater for men than women. Previous literature has also found that men are more overconfident and less risk averse than women (Barber and Odean 2001). Willingness bear risk is important for the decision to start your own business

¹ According to the Global Entrepreneurship Monitor (2017), men are more likely to be involved in entrepreneurial activities, regardless of a country's economic development. Only in three countries, Indonesia, Brazil, and Malaysia, are women's entrepreneurship rate equal or higher than that of men.

and marrying into the top of the income distribution may substantially reduce financial risk. Gender differences in willingness to bear risk may suggest that the income effect is different for women and men. In particular, if women respond more to a decrease in financial risk, the income effect may be greater for women.

To better understand differences between men and women, we analyze the effect on self-employment for men that marry a high-income spouse. The register data limit us from further investigating differences in how men and women react to an increase in income. However, we can look at income earned in the self-employment that follows a marriage, and thereby shed some light on the type of self-employment that is being pursued.

3. Data and empirical estimation

3.1 Data source

The data used are from the LISA (Longitudinal integrated database for health insurance and labour market studies) register at Statistics Sweden, and includes all Swedish individuals age 18 and above.² Variables included are year of birth, sex, geographic region, education, number of children at home, income, family status, and occupational status. The panel covers all individuals during the period 1993–2013.

The occupational status (*yrkesställning*) is used to create a measure of self-employment. The variable is based on individual earnings and tax deduction statements and declared income from active businesses. Each individual that has an employment is matched to a workplace based on his or her main source of income in November each year. The resulting occupational codes define five categories: 0 individuals without any statements, 1 seamen, 2 employees (excluding seamen), 4 self-employed, and 5 self-employed in his/her own incorporated firm (*aktiebolag*). Our measure of self-employment is a dummy variable taking the value one if the individual is classified in category 4 or 5, and zero otherwise.³

² For further information on the LISA database, see <http://www.scb.se/lisa-en>.

³ In our measure of self-employment, the share of sole-proprietors is greater than the share of incorporated businesses. In Table A1, we see that in 2013, the share of incorporated business is larger for individuals that marry a spouse in the top of the income distribution.

3.2 Descriptive statistics

In order to define a group of men who are high-income earners, we have used total earned income from employment and business (*summa inkomst av förvärvskälla*), which includes gross wages and other income from business or farming. The variable is reported annually in thousands of Swedish krona (SEK).⁴ In order to define high income earners, we first created the following age categories: 18–29, 30–39, 40–49, and 50–64. We thus exclude individuals aged 65 and above. We then created cut-offs for each age category and year at the 99th, 99.5th, and 99.9th percentile of the entire Swedish income distribution.^{5,6} All three cut-offs are used throughout the paper to define the top income earners. We rely on the spouse's income in the year of marriage in our empirical setting below (see Section 3), and we use age cut-offs for each age category to assure that we have enough observations. Few men are in the top of the entire income distribution, regardless of age, at the time they get married. Most men and women will reach the peak of their income at ages 55–64 (Statistics Sweden 2008).⁷ In Appendix Tables A5–A7 and Figure A2, we show that our results hold when we do not rely on age cut-offs, but instead allow for the spouse to reach the top of the entire income distribution at any point in time after marriage.

The mean across all age categories for the three percentile cut-offs for each year are presented in Table 1 and reveal that the annual income that is required for the top 0.1 percent increased from SEK 824,900 in 1993 to SEK 2,073,700 in 2013.⁸ Percentile cut-offs for all age categories for the 99th, 99.5th and 99.9th percentiles are presented in Table A8–A10 in the Appendix.

⁴ One PPP USD = SEK 8.60 in 2013 (OECD 2017b). Since 1993, the PPP adjusted currency conversion has oscillated between 8.60 and 9.50 SEK per USD.

⁵ The entire Swedish income distribution includes both men and women, and those that are unemployed or not in the labor force.

⁶ In Appendix Tables A2–A4 and Figure A1, we show that our results hold when we include individuals above the age of 64, using the following age categories: 18–29, 30–39, 40–49, 50–59, 60–69, 70–79, 80–89, and 90–99.

⁷ The age statistics are based on the median value in disposable income between 1995 and 2008, where income is equalized, meaning it is weighted based on household structure (see Table 12 in Statistics Sweden 2008).

⁸ SEK 2,073,700 in 2013 is equivalent to 1,604,174 SEK in 1993 prices based on wage data on white collar workers from the Confederation of Swedish Enterprise (Svenskt Näringsliv 2016). SEK 824,900 in 1993 and SEK 2,073,700 in 2013 is equivalent to USD 89,894 and USD 241,193, respectively, using the PPP adjusted currency conversion by OECD (2017b). In addition, USD 241,193 in 2013 is equivalent to EUR 182,100.

Using information on family status we have identified married women, and each woman in the panel is matched to their spouse. As a control group, we use women who marry a spouse in the 20–80th percentile.⁹ Summary statistics for unmarried and married women within different income categories are presented in Table 2.¹⁰ The summary statistics in Table 2 indicate that women who are married to a spouse in the top 1, 0.5 and 0.1 percent have more children living in the household on average. In addition, women married to a spouse in the top 1 percent are more educated; 51 percent of women married to a spouse in the top 0.1 percent have at least three years of college/university, compared to 17 percent of women married to a spouse in the 20–80th percentile. The results in Table 2 show that the self-employment rate is higher for women with a spouse in the top 1, 0.5, and 0.1 percent. About 8 percent of women married to a spouse in the top 0.1 percent are self-employed, compared to 6 percent of women married to a spouse in the 20–80th percentile.¹¹

Additional descriptive statistics on annual percentiles of the income distribution of women, as well as mean income before and after marriage into the different income categories, are presented in Figures 2a and 2b.¹² Figure 2a reveals that income two years before marriage, for women who end up marrying a spouse in the 20–80th percentile, is close to the 50th percentile of the income distribution. Women who end up marrying a spouse in the top 1 percent have an income two years before marriage that is around, or above, the 90th percentile. Figure 2b reveals that income five years after marriage is on average lower for women who marry a spouse in the top 1 percent. However, it is higher for women who marry a spouse in the 20–80th percentile. Consistent with these data, Table A14 in the Appendix shows that the average employment rate is higher two years before marriage for women marrying a spouse in the top 0.1 percent, compared to women marrying a spouse in the 20–80th percentile. Five years after marriage, the employment rate is higher for women married to a spouse in the 20–80th percentile than for women married to a spouse the top 0.1 percent.¹³

⁹ In Appendix Table A11–12, we show that our results hold when we change the control group to include women who marry a spouse in the 50–80th percentile.

¹⁰ To allow for intertemporal comparability, income is expressed in 1993 prices based on wage data on white collar workers from the Confederation of Swedish Enterprise (Svenskt Näringsliv 2016).

¹¹ As a point of reference, official statistics estimate the average self-employment rate for all women 1993–2013 to 5.83 percent in Sweden and 6.11 percent in the U.S. (OECD 2016b).

¹² The underlying data for Figures 2a and 2b are presented in Table A13.

¹³ For further comparisons of educational level and number of children at home, before and after marriage, see Table A14 in the Appendix.

Figure 3 shows the annual percentage of self-employment for women, grouped by their spouse's position in the income distribution. The self-employment rate for women married into the 20–80th percentile is largely constant, slowly decreasing from seven percent in 1993 to five and a half percent at the end of the time-period. Self-employment rates for women married to a spouse in the top percentile increase dramatically after 2003. This is largely an effect of definitional changes by Statistics Sweden. Before 2004, self-employed businesses that declared negative profits were excluded (Bjuggren et al. 2012). Interestingly, this definitional change is not detectable in the self-employment rate of women married to a spouse in the 20–80th percentile. The sudden increase in self-employment among women married to a spouse in the top percentile suggests that the majority of these firms are in fact declaring negative profits, which indicates that this type of self-employment is pursued at a modest scale, and not necessarily as a source of income. The self-employment rate after 2003 is the highest for women married to a spouse in the top 0.1 percent. It reaches 9.4 percent in 2005 and increases to 10 percent in 2013.

In Appendix Figure A3 and Tables A15 and A16, we exclude all individuals who declare zero income. Excluding individuals who report zero gross wages and income from business, mitigates the definitional changes in 2004.¹⁴ In addition, we run the estimations separately for the time period 1993–2003 and 2004–2013. The results are presented in Tables A17–A20 and support our main findings.

3.3 Empirical estimation

To investigate the effect of marriage into the top percentiles on the likelihood of self-employment, we will use a DiD framework as our main empirical strategy. By doing so we will be able to account for the overall positive effect of marriage on self-employment, not specific to the group of women that marry a spouse in the top percentile. In the DiD setting, we compare the outcome of our treatment groups, defined as women that end up marrying a spouse in the top 1, 0.5 or 0.1 percent, with that of our control group, defined as those who end up marrying a spouse in the 20–80th percentile in the income distribution. We trace all women over time so that we compare the outcome for the treatment and control group before and after marriage.

¹⁴ See section 3 for a further discussion.

A few additional clarifications are needed to consistently define our control and treatment groups. First, the sample is reduced to only those that got married during the period 1993–2013. Second, there will be three different treatment groups, one for each top income category definition. A woman whose spouse reaches the top 1, 0.5 or 0.1 percent in the year of marriage will be defined as belonging to the treatment group. Note that we define the income categories according to the spouse’s income only in the year of marriage, in order for income to be independent of marriage. By doing so, we mitigate the potential scenario where the spouse’s income may be affected by specific marriage arrangements. For example, there may be a positive correlation between the spouse’s income and the wife’s decision to specialize in home production. After the year of marriage, income for both spouses is allowed to vary freely. A woman will be defined as belonging to the control group if her spouse’s income, at the year of marriage, lies between the 20–80th percentile. Women in our data are allowed to re-marry, and after a divorce or death of a spouse the treatment assignment is re-set. This means that the divorced or widowed woman is allowed to again be defined as belonging to either the treatment group or control group.

We normalize the timing of marriage into a before and after period. The maximum years of marriage possible in our data is 20, given that marriage occurred in 1993. In that case, there are no pre-marriage data points. The minimum years of marriage is 0, given that marriage occurred in 2013. In that case, there are no after-marriage data points. To allow for at least five years of pre- and after-marriage data points, we restrict the data to individuals who have been married at most 15 years and at least five years. We further restrict the data to include at most 10 years before marriage for all individuals. The likelihood of self-employment decreases considerably for each year before marriage. If, for example, a woman gets married at age 30, we thus limit our analysis to her self-employment status from age 20 and onwards.

In Figure 4, we plot self-employment rates before and after marriage for the control group and the three treatment groups. Consistent with the previous descriptive statistics, the self-employment rate is higher for women who marry a spouse in our three top groups. As expected, the self-employment rate increases after marriage for all women, including those who marry a spouse in the lower percentiles. The DiD framework allows us to compare the self-employment rate after

marriage between different income categories, while holding the average positive effect of marriage constant.

Summary statistics for the treatment groups and the control group are presented in Table 3. The probability of self-employment increases after marriage for all groups, but more so for the three top groups. We can calculate the DiD manually, not conditioned on any covariates, from Table 3. For example, the increase in self-employment probability after marriage for the control group is 0.0364 (0.0597 – 0.0233), and it is 0.0581 (0.0849 – 0.0268) for the top 0.1 percent treatment group. The difference-in-differences is the average change in the treatment group minus the average change in the control group, which amounts to 0.0217 in this case. That corresponds to an increase in the before-marriage probability of self-employment of 81 percent. This can be seen as a first indication of the effect of marrying a spouse in the top 0.1 percent on self-employment.

To allow for the inclusion of year effects and additional covariates, the DiD is estimated in a regression framework using OLS and the following equation:

$$Y_{it} = \alpha + \tau_t + \delta top_i + \beta(marriage_{it} \times top_i) + X_i\gamma + \varepsilon_{it} \quad (1)$$

where Y_{it} is a dummy variable that takes the value 1 if individual i is self-employed at time t . τ_t is a full set of year dummies, top_i is our treatment indicator that takes the value 1 if the individual is in the treatment group of women that are, or will be, married to a spouse that is positioned in the top 1, 0.5 or 0.1 percent of the income distribution in the year of marriage. top_i takes the value 0 if the individual is in the control group of women that are, or will be, married to a spouse that is positioned between the 20–80th percentile in the year of marriage. $marriage_{it} \times top_i$ is an interaction variable where $marriage_{it}$ is a dummy taking the value 1 if individual i is married at time t , and zero otherwise. The corresponding coefficient β estimates the DiD effect of marrying into the top percentile compared to marrying into the 20–80th percentile. The vector X_i includes a second-degree polynomial of age, a full set of dummies for number of children at home, a full set of dummies for educational categories, as well as a full set of dummies for each county of

residence.¹⁵ All covariates are defined in the year of marriage in order not to be affected by post-marriage conditions.

The identifying assumption for the DiD framework is that we observe parallel trends in the probability of self-employment before marriage. To get an indication of the validity of the parallel trends assumption and to be able to capture some of the dynamics over time, we calculate year-specific effects using OLS and the following equation:

$$Y_{it} = \alpha + \tau_t + \delta top_i + \sum_{t=-10}^{15} \beta_t (\tau_t \times top_i) + X_i \gamma + \varepsilon_{it} \quad (2)$$

where τ_t is a full set of year dummies indicating the time before and after marriage, and $\tau_t \times top_i$ is the interaction where each separate year dummy is interacted with the treatment indicator. The interaction with time five years prior to marriage is used as a benchmark. The estimated coefficients β_t are plotted in Figure 5 with 95% confidence intervals. Before marriage, the estimated coefficients are not statistically different from zero, which provides support for the parallel trends assumption.¹⁶ After marriage, there is a positive effect on the probability of self-employment for those who marry a spouse in the top percentile. The effect appears to increase with time and reaches its highest point 11 years after marriage.

4. Results

4.1 The effect of marriage on self-employment

Results from equation (1) are presented in Table 4, where each column represents a different treatment group definition. The estimated coefficient for the interaction $marriage_{it} \times top_i$ (the DiD) is positive and significant for all three treatment group definitions. This indicates that the probability of self-employment increases significantly for women who marry a spouse in the top percentile compared to women who marry a spouse in the 20–80th percentile. The estimated

¹⁵ We see in Table 3 that the treatment groups have a larger share of individuals living in the greater metropolitan areas. This warrants the inclusion of county fixed effects. There are 21 counties in Sweden, and since there are fairly large variations in industry structure and income and wealth dispersion in different parts of the country, the inclusion of county dummies will capture any effects from such structural differences.

¹⁶ This holds for marriage into the top 1 and 0.1 percent. Although not by much, the coefficient for -2 years from marriage into the top 0.5 percent is statistically different from zero on the 5 percent level.

coefficient of 0.0471 for marrying a spouse in the top 0.1 percent is larger than the one we calculated from the descriptive statistics. This estimated increase by 4.71 percentage points corresponds to an increase in the before-marriage rate of self-employment by 176 percent (from 2.68 to 7.39 percent). Similarly, the estimated coefficient for marrying a spouse in the top 0.5 percent corresponds to an increase in the before-marriage rate of self-employment by 149 percent (from 2.50 to 6.22 percent). Hence, marrying a spouse in the very top of the income distribution greatly increases the probability of self-employment.¹⁷

To make sure that the DiD results in Table 4 are not driven by the definitional changes introduced by Statistics Sweden in 2004, we ran the same regression on a sample where we exclude all individuals who declare zero income (Table A15 in the Appendix). The estimated coefficient corresponds to an increase in the before-marriage rate of self-employment by 131–194 percent.¹⁸ In addition, we ran separate estimations for the time period 1993-2003 and 2004-2013. The estimated effect for the time period 1993-2003 is an increase in the before-marriage rate of self-employment by 108–186 percent, and the estimated effect for the time period 2004-2013 is an increase in the before-marriage rate of self-employment by 109–116 percent (Tables A17-A20). We are therefore confident that the definitional changes in 2004 are not driving our results.

As a further robustness check, we ran a before-after design with individual fixed effects, in which we changed the main independent variable to a dummy variable that indicates marriage to a spouse in the top percentile. The results are presented in Table A21 and confirm the increase in the probability of self-employment. Marriage to a spouse in the top 0.5 percent is associated with a 60 percent increase in the before-marriage rate of self-employment. Similarly, marriage to a spouse in the top 0.1 percent is associated with an increase in the before-marriage rate of self-employment by 98 percent.

A potential threat to the DiD design is that women might sort themselves based on a desire to become self-employed that does not manifest itself until after marriage and that is not captured in

¹⁷ The estimated coefficient for marriage into the top 1 percent corresponds to an increase in the before-marriage rate of self-employment by 128 percent (from 2.46 to 5.61 percent).

¹⁸ See Table A16 in the Appendix for summary statistics before and after marriage for control and treatment groups, excluding individuals with zero income.

the data. This would suggest that more women who marry a spouse in the top percentile are actively seeking out high-income men in order to be able to pursue self-employment after marriage, and that they are more successful than other women in doing so. In the regression setting we control for age, education, children at home, as well as geographic location, which implies that this potential sorting of women is not picked up by any of the covariates. To further address this potential threat to identification, we used propensity score matching to select individuals to the control group. We used one-to-one propensity score matching without replacement where the observations are matched on age, age squared, number of children at home, education and whether the individual lives in one of the major three cities (Stockholm, Gothenburg, Malmoe). The matching was based on covariates exactly one year before marriage in order to be exogenous. We re-estimated the propensity score and the matching process for each treatment category, top 1, top 0.5, and top 0.1 percent. The results confirm the increase in the probability of self-employment (Table A22–A23 in the Appendix). Marriage to a spouse in the top percent is associated with an increase in the before-marriage rate of self-employment by 107–144 percent.

Although we do not find any evidence of sorting, we cannot rule out the possibility that this type of selection is taking place. The interpretation of the DiD estimates should therefore be made with some caution. However, our main findings are still valid, despite the potential sorting problem described above. Our data shows that women married to a spouse in the top of the income distribution are more likely to enter self-employment, regardless of whether the effect is purely a result of marrying a high-income spouse or whether some of the effect can be attributed to sorting that manifests itself after marriage.

We concluded earlier that we are left with two competing explanations for our results, an income effect and avoiding the social stigma associated with being a stay-at-home mother. It is reasonable to believe that an income effect should be present also for men. We therefore start by analyzing the effect on self-employment for men that marry high-income women. On average, the self-employment rate for men who marry into the top is higher than for women (Figure 6). For example, men who marry a spouse in the top 0.1 percent have a self-employment rate of 14 percent in 1993. Similarly, men who marry a spouse in the middle of the income distribution have a relatively high self-employment rate, ranging from 11 to 14 percent. We proceed by setting up a DiD framework

where we, similar to before, compare men who marry a spouse in the top percentile with a control group of men who marry a spouse in the middle of the income distribution (20–80th percentile). Summary statistics can be found in Table 5. Similar to that of women, the likelihood of self-employment increases after marriage for all the treatment groups as well as the control group. We also see that the treatment groups have fewer observations in comparison to the previous analysis of women, which indicates that it is less common for men to marry a spouse in the top of the income distribution. Annual effects that support the parallel trends assumption can be found in Figure 7. The estimated coefficients indicate an increase in self-employment by 89 percent for marrying a spouse in the top 0.5 percent, and 78 percent increase for marrying a spouse in the top 0.1 percent (Table 6).¹⁹ Although the estimated effects are large, they are smaller than those reported for women. This difference may be attributed to a social stigma of being a stay-at-home mother that is present among women but not among men. As we discussed earlier, Swedish women, but not men, are adjusting their work schedule to accommodate for the care of children. In order to get a better understanding of the type of self-employment that is being pursued we look at income earned in the self-employment that follows a marriage.

4.2 The effect of marriage and self-employment on earned income

In section, 4.1, we showed that marrying a spouse in the top 1, 0.5 and 0.1 percent is associated with an increased probability of self-employment. In this section, we will investigate how this affects income, to address the idea that some women who marry a spouse in the top percentile are substituting low-wage self-employment for a potential high-wage job. We plot income before and after marriage in Figure 8.

Income is lower on average for women who are self-employed compared to those with salaried employment. Marriage seems to have a negative effect on income, both for women employees and for women who are self-employed. The effect appears to be larger for women employees whereas income for self-employed women is more stagnant over time. However, it should be noted that in Figure 8 we include individuals who are self-employed both before and after marriage. In the

¹⁹ The percentage increase is based on the before-marriage rate of self-employment.

regression setting below, we single out those who specifically switch to self-employment after marriage.

Descriptive statistics for the group of women who are both self-employed and married to a spouse in the top income categories are shown in Table 7. Overall, the self-employed women represented in Table 7 are highly educated: 34–37 percent have at least three years of college/university before they get married.

To investigate the effect of marriage and self-employment on income in a regression setting, we use an approach similar to the one above with individual fixed effects:

$$\ln Y_{it} = \alpha + \delta S_{it} + \rho Mtop_{it} + \beta(S_{it} \times Mtop_{it}) + \nu_i + \tau_t + X_i\gamma + \varepsilon_{it} \quad (3)$$

where $\ln Y_{it}$ is the natural logarithm of income, and S_{it} is a dummy taking the value 1 if the individual is self-employed. $Mtop_{it}$ is a dummy variable that takes the value 1 if an individual i is married to a man in the top 1 percent at time t , and zero otherwise. Like before, the definition of marrying into the top percentile is determined by the spouse's income in the year of marriage. ν_i are individual fixed effects, τ_t is a full set of year dummies, and X_i is defined as before. The interaction between self-employment and marriage into the top 1 percent will capture women who enter self-employment after they have become married, as well as women who get married after they have entered self-employment. Because of the individual fixed effects, $Mtop_{it}$ and the interaction $S_{it} \times Mtop_{it}$ will estimate within group effects, i.e., comparing income before and after marriage and self-employment within each group of women marrying a spouse in the top 1, 0.5, and 0.1 percent, respectively.

The results from equation (4) are presented in the first three columns of Table 8. The combined effect of entering self-employment and marrying a spouse in the top percentile is associated with a 14–18 percent decrease in income depending on the spouse's income category.²⁰ In the three right-most columns in Table 8, we limit the sample to those who entered self-employment *after*

²⁰ With a log-linear model, the coefficient β on a dummy variable can be interpreted as a percentage using the following transformation: $100 \times [e^\beta - 1]$.

getting married. Note that this will cause $Mtop_{it}$ and S_{it} to be perfectly collinear, and therefore we have dropped S_{it} . The estimated effect is larger, indicating a decrease in income by 17–19 percent. This is in line with the hypothesis that self-employment is an alternative to non-employment and strengthens the support for the hypothesis that self-employment is a career choice that produces certain benefits, such as a more flexible work schedule and a possible elimination of a stay-at-home stigma, that compensate for lower income.

5. Conclusions

Prior to this study, little was known about the self-employment rate of women who marry a spouse in the top of the income distribution. Our analysis of women entering self-employment after marrying high-income men suggests that even in a gender equal country like Sweden, highly educated women are abandoning potential careers in return for a more family-friendly work schedule. Monetary incentives for a spouse to stay at home with children are absent because childcare in Sweden is essentially free for everyone, i.e., it is provided by the welfare system.²¹ Other services provided by the Swedish welfare state include free education (also at the university level), free healthcare and free dental care. Our results indicate that the income from self-employment among women married into the top percentile tends to be low. In a society where there is a strong norm for women to work, one way to continue enjoying society's approval is to enter self-employment where one can stay in control of one's work schedule. Our analysis suggests that this benefit is so strong that women are willing to accept a significant reduction in income.

Women, more than men, tend to marry a person of a higher socio-economic status (hypergamy), and it may be explained by the allocation of custodial parent rights (Edlund 2013). In our study, however, hypergamy is less obvious. The self-employed women who are married into the top 1, 0.5 and 0.1 percent of the income distribution are on average highly educated, and the difference to women who marry middle-income men is substantial. We also show that their income is lower than the income of women in the same group who are employees. Thus, these women seem to

²¹ Pre-school has a maximum fee of SEK 1,362 per month (as of 2017) for the first child, which implies a subsidy rate in excess of 85 percent. For the second and third child the subsidy rate is roughly 90 and 95 percent, respectively. Moreover, every family receives a monthly tax-free child allowance of SEK 1,050 per month for the first child from the government. The allowance is 1,200 for the second child and increases for every additional child until it reaches a maximum of 2,300 per month.

trade potential high-wage employment for low-income self-employment. This may offset some of the effects of assortative mating on the household income distribution. Although these women are part of the labor force, they are unlikely to obtain more than a fraction of the skill premium they could have obtained as salaried employees. That women abstain from potential high-wage employment for low-income self-employment may not only hamper the economy's potential growth rate, but also hold back society's efforts to create a system with equal rights, responsibilities and opportunities.

Self-employment is often used as a measure of entrepreneurship. We believe it is important to acknowledge the type of low profitability self-employment described in this paper, especially when studying female entrepreneurship and making comparisons across countries. In addition, future cross-country studies comparing women's educational level and participation in the labor force should attempt to account for the type of self-employment profile found in this study.

References

- Atkinson, A. B., Piketty, T., & Saez, E. (2011). Top Incomes in the Long Run of History. *Journal of Economic Literature*, 49(1), 3–71.
- Barber, B. M., & Odean, T. (2001). Boys Will Be Boys, Gender, Overconfidence, and Common Stock Investment. *Quarterly Journal of Economics*, 116(1), 261–292.
- Becker, G. S. (1965). A Theory of the Allocation of Time. *Economic Journal*, 75(299), 493–517.
- Becker, G. S. (1985). Human Capital, Effort, and the Sexual Division of Labor. *Journal of Labor Economics*, 3(1), 33–58.
- Bengtsson, E., & Waldenström, D. (2018). Capital Shares and Income Inequality: Evidence from the Long Run. *Journal of Economic History*, 78(3), 712–743
- Bertrand, M., Goldin, C., & Katz, L. F. (2010). Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors. *American Economic Journal: Applied Economics*, 2(3), 228–255.
- Bjuggren, C. M., Johansson, D., & Stenkula, M. (2012). Using Self-Employment as Proxy for Entrepreneurship: Some Empirical Caveats. *International Journal of Entrepreneurship and Small Business*, 17(3), 290–303.
- Blau, F. D., & Kahn, L. M. (2013). Female Labor Supply: Why Is the United States Falling Behind? *American Economic Review: Papers & Proceedings*, 103(3), 251–256.
- Boden, R. J. (1999). Flexible Working Hours, Family Responsibilities, and Female Self-Employment. *American Journal of Economics and Sociology*, 58(1), 71–83.
- Boschini, A., Kristin, G., & Roine, J. (2017). Women in Top Incomes: Evidence from Sweden 1974–2013. IZA Discussion Paper No. 10979. Bonn: IZA – Institute of Labor Economics.
- Cardella G. M., Hernández-Sánchez B. R., & Sánchez-García J. C. (2020). Women Entrepreneurship: A Systematic Review to Outline the Boundaries of Scientific Literature. *Frontiers in Psychology*, 11, 1557.
- Cohn, D’Vera, Livingston G., & Wang, W. (2014). After Decades of Decline, A Rise in Stay-at-Home Mothers. Washington, D.C.: Pew Research Center’s Social & Demographic Trends project, April.
- Connelly, R. (1992). Self-Employment and Providing Child Care. *Demography*, 29(1), 17–29.
- Constant, A. (2006). Female Proclivity to the World of Business. *Kyklos*, 59(4), 465–480.
- Du Rietz, A., & Henrekson, M. (2000). Testing the Female Underperformance Hypothesis. *Small Business Economics*, 14(1), 1–10.
- Edlund, L. (2013). The Role of Paternity Presumption and Custodial Rights for Understanding Marriage Patterns. *Economica*, 80(320), 650–669.
- Edvinsson, R., & Edvinsson, T. N. (2017). Explaining the Swedish ‘Housewife Era’ of 1930–1970: Joint Utility Maximisation or Renewed Patriarchy? *Scandinavian Economic History Review* 65(2), 169–188.
- Gimenez-Nadal, J. I., Molina, J. A., & Ortega, R. (2012). Self-Employed Mothers and the Work-Family Conflict. *Applied Economics*, 44(17), 2133–2147.
- Global Entrepreneurship Monitor (2017). Global Report 2016/17. <http://www.gemconsortium.org/report/49812>. Accessed January 26, 2018.

- Henrekson, M., & Sanandaji, T. (2014). Small Business Activity Does Not Measure Entrepreneurship. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 111(5), 1760–1765.
- Henrekson, M., & Stenkula, M. (2009). Why Are There So Few Female Top Executives in Egalitarian Welfare States? *Independent Review*, 14(2), 239–270.
- Hobson, B. (2003). Recognition Struggles in Universalistic and Gender Distinctive Frames: Sweden and Ireland. In B. Hobson (Ed.), *Recognition Struggles and Social Movements: Contested Identities, Agency and Power* (pp. 64–92). Cambridge: Cambridge University Press.
- Hundley, G. (2000). Male/Female Earnings Differences in Self-Employment: The Effects of Marriage, Children, and the Household Division of Labor. *Industrial and Labor Relations Review*, 54(1), 95–114.
- Keloharju, M., Knüpfer S., & Tåg J. (2019). What Prevents Female Executives from Reaching the Top? IFN Working Paper No. 1111. Stockholm: Research Institute of Industrial Economics.
- Lombard, K. V. (2001). Female Self-Employment and Demand for Flexible, Non-Standard Work Schedules. *Economic Inquiry*, 39(2), 214–237.
- Macpherson, D. A. (1988). Self-Employment and Married Women. *Economics Letters*, 28(3), 281–284.
- Marshall, M. L., & Flaig, A. (2014). Marriage, Children and Self-Employment Earnings: An Analysis of Self-Employed Women in the U.S. *Journal of Family and Economic Issues*, 35(3), 313–322.
- Minniti, M. (2009). Gender Issues in Entrepreneurship. *Foundations and Trends in Entrepreneurship*, 5(7–8), 497–621.
- OECD (2016a). OECD.Stat (database) Graduation Rates and Entry Rates. http://stats.oecd.org/index.aspx?DatasetCode=EAG_GRAD_ENTR_RATES. Accessed 27 October 2016.
- OECD (2016b). Self-Employment Rate (indicator). <https://doi.org/10.1787/fb58715e-en>. Accessed 26 October 2016.
- OECD (2017a). OECD.Stat (database) LFS by Sex and Age – Indicators. https://stats.oecd.org/Index.aspx?DataSetCode=LFS_SEXAGE_I_R. Accessed 2 November 2017.
- OECD (2017b). Purchasing Power Parities (PPP) (indicator). <https://doi.org/10.1787/1290ee5a-en>. Accessed 19 November 2017.
- Parker, S. C. (2018). *The Economics of Entrepreneurship* (2nd ed.). Cambridge: Cambridge University Press.
- Patrick, C., Stephens, H., & Weinstein, A. (2016). Where Are All the Self-Employed Women? Push and Pull Factors Influencing Female Labor Market Decisions. *Small Business Economics*, 46(3), 365–390.
- Piketty, T., & Saez, E. (2006). The Evolution of Top Incomes: A Historical and International Perspective. *American Economic Review*, 96(2), 200–205.
- Roman, C. (2008). Academic Discourse, Social Policy and the Construction of New Families. In K. Melby, A. Ravn, & C. Wetterberg (Eds.), *Gender Equality and Welfare Politics in Scandinavia: The Limits of Political Ambition?* (pp. 101–116). Bristol, UK: Policy Press at the University of Bristol.

- Simon, J. K., & Way, M. M. (2016). Why the Gap? Determinants of Self-Employment Earnings Differentials for Male and Female Millennials in the U.S. *Journal of Family and Economic Issues*, 37(2), 297–312.
- Sommestad, L. (1997). Welfare State Attitudes to the Male Breadwinning System: The United States and Sweden in Comparative Perspective. *International Review of Social History*, 42(S5), 153–174.
- Statistics Sweden (2008). Income Distribution Survey 2008, HE 21 SM 1001. https://www.scb.se/statistik/HE/HE0103/2008A02D/HE0103_2008A02D_SM_HE21SM1001.pdf. Accessed 12 December 2017.
- Statistics Sweden (2016). *Women and Men in Sweden 2016: Facts and Figures*. Örebro, SE: Statistics Sweden.
- Svenskt Näringsliv (2016). Löneutveckling, BNP och KPI. Stockholm: Confederation of Swedish Enterprise. http://www.svensktnaringsliv.se/fragor/fakta-om-loner-och-arbetstid/fola2016/1-loneutveckling-bnp-och-kpi_646777.html. Accessed 27 October 2016.
- Thébaud, S. (2015). Business as Plan B: Institutional Foundations of Gender Inequality in Entrepreneurship across 24 Industrialized Countries. *Administrative Science Quarterly*, 60(4), 671–711.
- Wellington, A. J. (2006). Self-Employment: The New Solution for Balancing Family and Career? *Labour Economics*, 3(3), 357–386.
- Wiswall, M., & Zafar, B. (2018). Preference for the Workplace, Investment in Human Capital, and Gender. *Quarterly Journal of Economics*, 133(1), 457–507.
- World Economic Forum (2016). *The Global Gender Gap Report 2016*. Cologne/Geneva: World Economic Forum.
- World Value Survey (2010–2014). Wave 6, Question v54. <http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>. Accessed 19 June 2017.
- Yavorsky, J. E., Keister, L. A., Qian, Y., & Nau, M. (2019). Women in the One Percent: Gender Dynamics in Top Income Positions. *American Sociological Review*, 84(1), 54–81.
- Yavorsky, J. E., Keister, L. A., & Qian, Y. (2020). Gender in the One Percent. *Contexts*, 19(1), 12–17.

Tables

Table 1: Percentiles for the income distribution (mean of all age categories), by year.

Year	20 th percentile	50 th percentile	80 th percentile	99 th percentile	99.5 th percentile	99.9 th percentile
1993	22.6	126.6	201.4	454.3	539.3	824.9
1994	19.5	130.1	208.1	486.2	584.9	959.1
1995	20.4	136.9	217.1	491.1	580.5	903.8
1996	19.6	147.7	229.0	526.3	625.9	989.0
1997	18.4	155.8	239.2	554.0	661.8	1067.0
1998	19.9	162.1	248.1	584.7	702.7	1152.9
1999	22.5	169.7	257.5	614.8	742.8	1230.4
2000	25.6	176.8	268.7	658.7	802.4	1363.3
2001	28.1	185.4	281.6	695.6	851.7	1472.1
2002	27.8	192.7	292.4	714.3	870.5	1471.1
2003	26.8	198.3	300.0	725.4	880.0	1459.3
2004	24.6	204.4	308.5	748.4	912.9	1542.2
2005	25.8	210.1	318.0	775.6	948.1	1654.1
2006	30.5	218.7	329.3	808.8	992.7	1737.4
2007	37.2	230.2	342.8	844.7	1044.2	1870.6
2008	41.9	243.5	358.2	881.5	1090.7	1968.1
2009	37.2	247.8	365.2	890.6	1090.5	1894.0
2010	38.9	254.8	375.2	911.1	1118.1	1971.1
2011	48.0	265.6	389.2	945.7	1167.6	2046.3
2012	52.4	274.5	402.2	964.8	1183.7	2055.9
2013	54.6	281.3	412.3	984.3	1206.5	2073.7

Note: Income refers to annual nominal income in thousands of SEK and includes gross wages and wages and other income from business or farming.

Table 2: Background variables for women depending on marital status and spouse's income.

Variables	Unmarried	Spouse's income			
		20–80 th percentile	Top 1 percent	Top 0.5 percent	Top 0.1 percent
Self-employed	0.028	0.060	0.062	0.066	0.076
Age	38.38 (12.97)	44.59 (10.79)	43.42 (9.73)	43.29 (9.64)	43.13 (9.55)
Children at home	0.60 (0.92)	1.17 (1.16)	1.38 (1.12)	1.41 (1.12)	1.45 (1.13)
Income (annual)	124.4 (111.3)	135.3 (101.8)	202.3 (205.5)	199.5 (224.6)	187.9 (278.3)
Spouse's income		177.5 (74.1)	930.5 (772.8)	1167.7 (998.2)	2102.7 (1774.7)
<i>Years of Schooling</i>					
Compulsory school (< 9 years)	5.3%	9.0%	1.0%	1.0%	0.9%
Compulsory school (9 or 10 years)	11.1%	10.3%	3.1%	3.1%	2.9%
Senior high school (≤ 2 years)	27.2%	34.9%	13.3%	12.6%	11.0%
Senior high school (> 2 years)	21.9%	14.7%	13.1%	13.4%	13.5%
Tertiary education (< 3 years)	16.1%	14.1%	21.3%	21.2%	20.6%
Tertiary education (≥ 3 years)	17.9%	16.6%	45.8%	46.6%	49.3%
PhD education	0.5%	0.4%	2.3%	2.2%	1.9%
Observations	25,870,065	9,622,763	485,581	254,583	55,599

Note: Variable entries refer to means. Entries for years of schooling refer to percent. Standard deviation in parentheses. Income is in thousands of SEK and includes gross wages and wages and other income from business or farming. To allow for intertemporal comparability, income is expressed in 1993 prices based on wage data on white collar workers from the Confederation of Swedish Enterprise (Svenskt Näringsliv 2016). Self-employed and years of schooling are dummy variables. Children at home refers to children living in the same household, including those above the age of 18.

Table 3: Summary statistics before and after marriage for the control group and treatment groups.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0233	0.0597	0.0246	0.0673	0.0250	0.0733	0.0268	0.0849
Age (at marriage)	35.63 (8.421)	40.80 (10.340)	33.83 (7.246)	39.62 (10.290)	33.74 (7.099)	39.54 (10.220)	33.67 (7.160)	39.39 (10.250)
Children at home (at marriage)	1.197 (1.055)	0.979 (1.042)	0.794 (0.966)	0.920 (1.009)	0.776 (0.956)	0.918 (1.010)	0.753 (0.924)	0.915 (1.000)
Greater metropolitan area (at marriage)	0.364	0.290	0.752	0.642	0.799	0.689	0.863	0.794
<i>Years of Schooling (at marriage)</i>								
Compulsory school (< 9 years)	1.3%	10.4%	0.1%	1.4%	0.1%	1.2%	0.0%	1.1%
Compulsory school (9 or 10 years)	7.4%	11.1%	2.1%	3.7%	2.0%	3.6%	1.9%	3.2%
Senior high school (≤ 2 years)	23.4%	36.6%	8.8%	15.6%	8.2%	14.6%	7.2%	13.0%
Senior high school (> 2 years)	24.5%	13.6%	17.2%	14.2%	17.1%	14.6%	16.8%	15.3%
Tertiary education (< 3 years)	14.8%	13.9%	18.0%	22.2%	17.9%	22.1%	17.8%	21.9%
Tertiary education (≥ 3 years)	28.0%	14.1%	52.5%	41.4%	53.5%	42.4%	55.0%	44.3%
PhD education	0.6%	0.3%	1.3%	1.5%	1.3%	1.5%	1.2%	1.2%
Observations	2,089,733	8,782,397	120,925	500,135	62,831	257,370	13,033	54,099

Note: Entries for the first four variables refer to means. Entries for the years of schooling refer to percent within each column definition. Standard deviation in parentheses. Self-employed, Greater metropolitan area, and years of schooling are dummy variables. Children at home refers to children living in the same household. The greater metropolitan area corresponds to the greater areas of Stockholm, Gothenburg, and Malmö. All variables, except for self-employment, are defined in the year of marriage in order not to be affected by post-marriage conditions.

Table 4: Effect of marriage to a spouse in the top percentile on the rate of self-employment.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0315*** (0.00118) [128%]	0.0372*** (0.00165) [149%]	0.0471*** (0.00369) [176%]
Observations	11,493,190	11,192,331	10,939,262
Individuals	1,038,972	1,013,373	990,988

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table 3 in brackets. All estimations include all covariates specified in equation (1).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Summary statistics for *men*: before and after marriage for the control group and treatment groups.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0630	0.1220	0.0472	0.1100	0.0521	0.1170	0.0680	0.1380
Age (at marriage)	37.65 (8.753)	42.55 (10.31)	34.65 (7.148)	37.60 (9.609)	34.44 (6.932)	36.96 (9.210)	34.52 (7.129)	36.61 (9.104)
Children at home (at marriage)	1.116 (1.009)	0.964 (1.018)	0.284 (0.665)	0.391 (0.761)	0.269 (0.651)	0.383 (0.754)	0.294 (0.652)	0.427 (0.788)
Observations	2,804,267	11,461,709	29,699	63,701	13,870	28,779	2,308	4,402

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table 6: Effect of marriage on the rate self-employment for *men*.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0451*** (0.00335) [96%]	0.0462*** (0.00512) [89%]	0.0531*** (0.0143) [78%]
Observations	14,359,376	14,308,625	14,272,686
Individuals	1,304,216	1,300,211	1,297,380

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table A11 in brackets. All estimations include all covariates specified in equation (1).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Background variables for women that are self-employed and married to a spouse in the top income categories.

Variables	Spouse's income		
	Top 1 percent	Top 0.5 percent	Top 0.1 percent
Age (at marriage)	41.23 (10.03)	41.11 (9.993)	40.70 (10.16)
Children at home (at marriage)	0.957 (1.011)	0.982 (1.025)	0.994 (1.012)
Income (at marriage, annual)	164.3 (172.2)	167.1 (186.0)	167.7 (218.5)
<i>Years of Schooling (at marriage)</i>			
Compulsory school (< 9 years)	1.9%	2.0%	1.8%
Compulsory school (9 or 10 years)	6.1%	5.7%	5.2%
Senior high school (\leq 2 years)	17.6%	16.4%	16.0%
Senior high school ($>$ 2 years)	18.1%	17.9%	16.8%
Tertiary education (< 3 years)	22.4%	22.8%	23.4%
Tertiary education (\geq 3 years)	33.1%	34.3%	35.9%
PhD education	0.8%	1.0%	0.8%
Observations	34,070	19,095	4,665

Note: Variable entries refer to means. Standard deviation in parentheses. Income is in thousands of SEK and includes gross wages and wages and other income from business or farming. To allow for intertemporal comparability, income is expressed in 1993 prices based on wage data on white collar workers from the Confederation of Swedish Enterprise (Svenskt Näringsliv 2016). Years of schooling are dummy variables. Children at home refers to children living in the same household, including those above the age of 18, at the time of marriage. All variables are defined in the year of marriage in order not to be affected by post-marriage conditions.

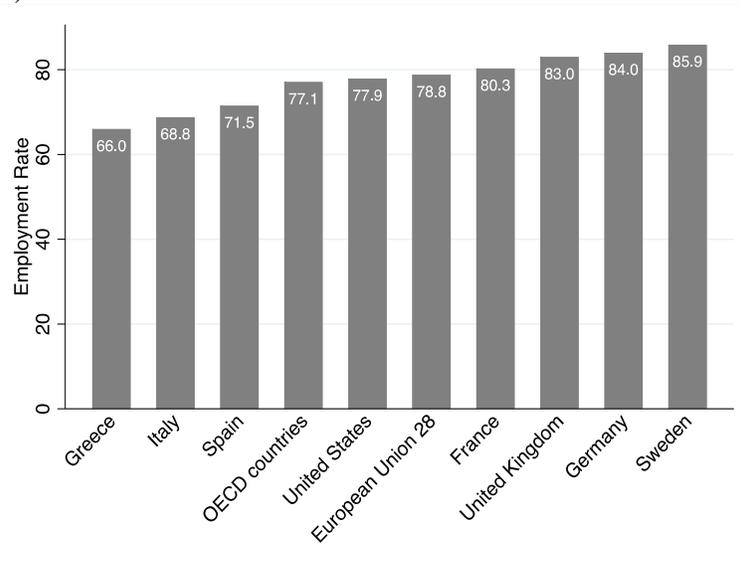
Table 8: Individual fixed effects regressions: Income as an effect of self-employment and marrying a spouse in the top percentile.

Variables	Self-employment before and after marriage			Self-employment after marriage		
	Top 1 percent	Top 0.5 percent	Top 0.1 percent	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$Mtop_{it}$	0.0471*** (0.00306)	0.0325*** (0.00421)	-0.00443 (0.00916)	-0.0419*** (0.0132)	-0.0340* (0.0175)	-0.101*** (0.0340)
S_{it}	-0.110*** (0.00153)	-0.112*** (0.00152)	-0.115*** (0.00150)			
$S_{it} \times Mtop_{it}$	-0.153*** (0.00738)	-0.172*** (0.00978)	-0.199*** (0.0197)	-0.190*** (0.0102)	-0.215*** (0.0135)	-0.209*** (0.0272)
Observations	20,224,954	20,224,954	20,224,954	1,552,828	1,552,828	1,552,828
Individuals	1,869,051	1,869,051	1,869,051	136,001	136,001	136,001

Note: All estimations include individual fixed effects and the covariates specified in equation (3). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

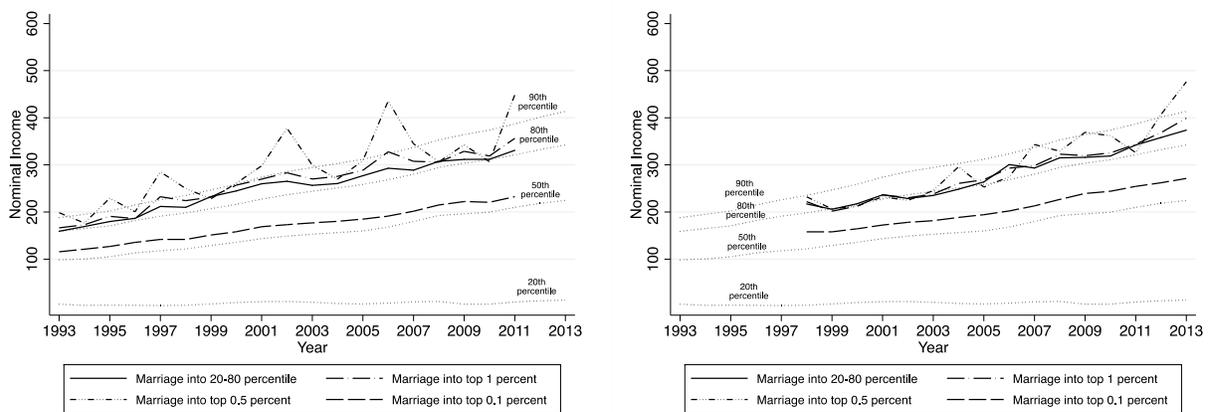
Figures

Figure 1: Employment rate in 2016, women aged 25–54, selected countries, the EU and the OECD average (%).



Note: The employment rate is defined as a percentage of the same-age total population.
Source: OECD (2017a).

Figure 2a and 2b: Mean income before and after marriage, by year 1993–2013.



2a: Mean income two years before marriage into different income categories

2b: Mean income five years after marriage into different income categories

Note: Dotted lines correspond to the 90th, 80th, 50th and 20th percentile of the income distribution of women for each year.

Figure 3: Likelihood of self-employment for married women, by spouse's income.

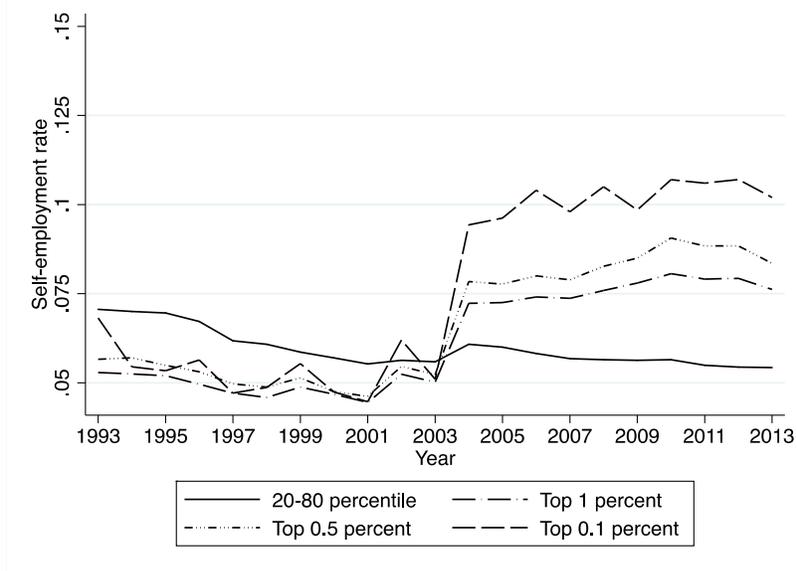


Figure 4: Likelihood of self-employment before and after marriage, by spouse's income.

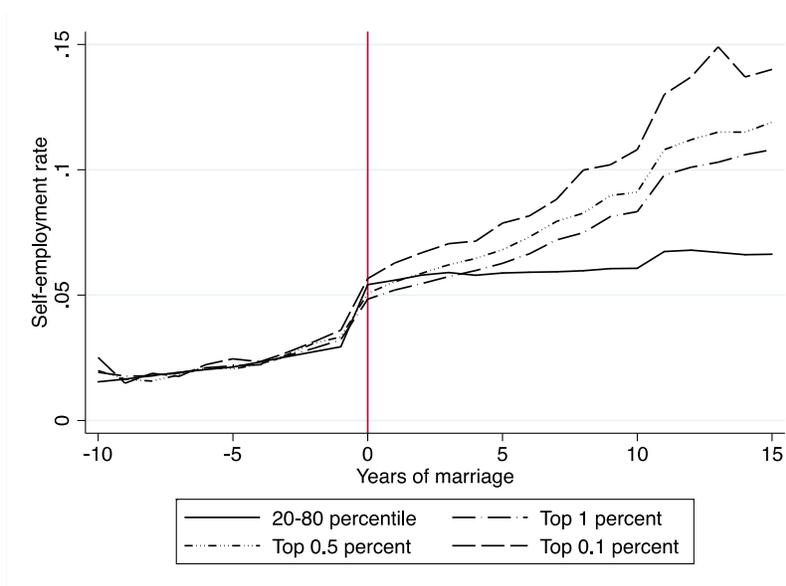
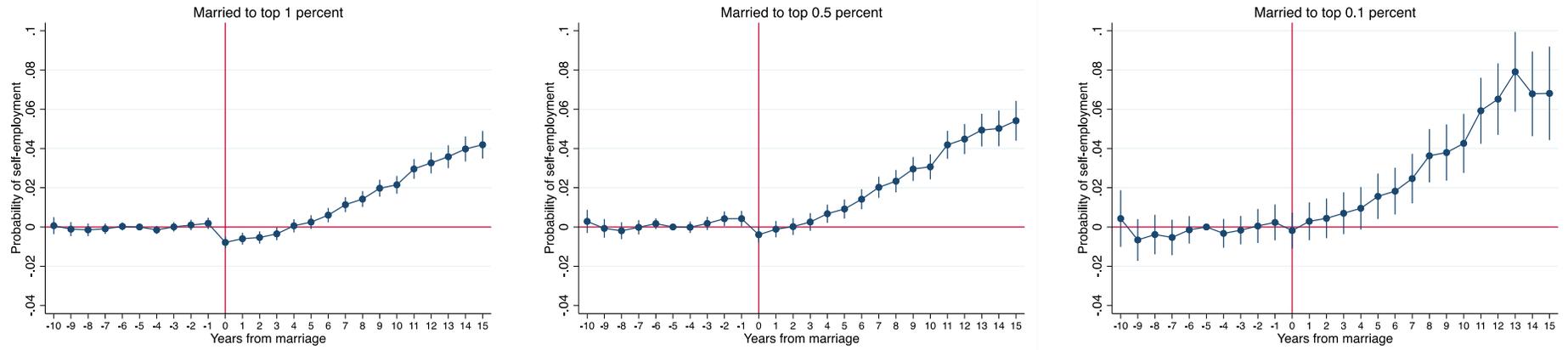


Figure 5: Year specific effects of marrying a spouse in the top percentile on the probability of self-employment



Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

Figure 6: The self-employment rate for married *men*, by spouse's income.

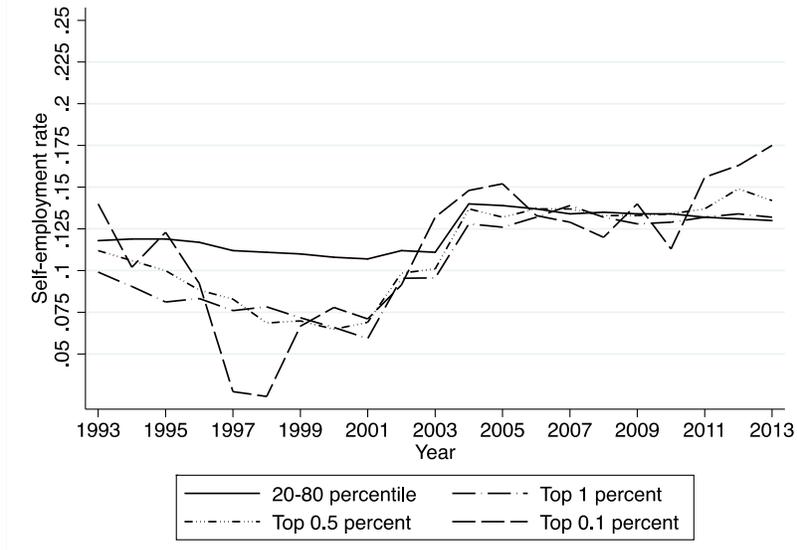
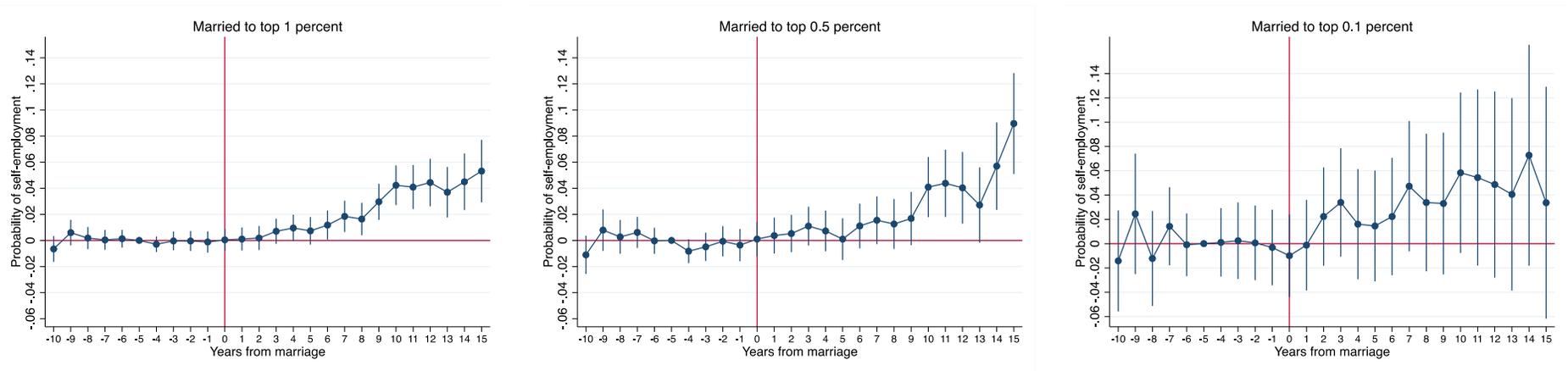
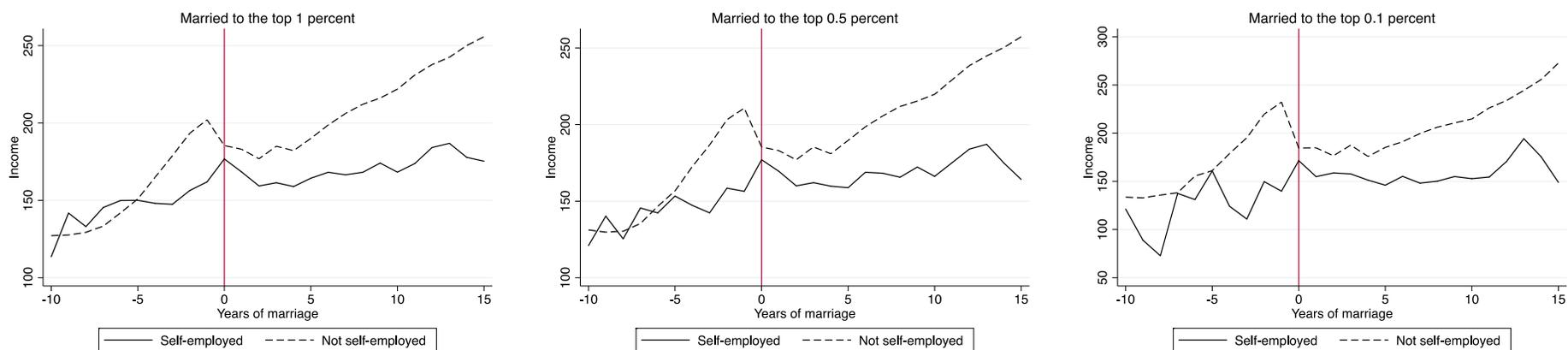


Figure 7: Year specific effects for *men* that marry a spouse in the top percent on the probability of self-employment.



Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

Figure 8: Income for women married to a spouse in the top 1 percent, before and after marriage.



Note: Income is in thousands of SEK. To allow for intertemporal comparability, income is expressed in 1993 prices based on wage data on white collar workers from the Confederation of Swedish Enterprise (Svenskt Näringsliv 2016).

Appendix

The data used are from the LISA (Longitudinal Integrated Database for Health Insurance and Labour Market Studies) register at Statistics Sweden. Further information about the LISA database can be found at <http://www.scb.se/lisa-en>.

Table A1 Share of sole-proprietors and incorporated businesses in 2013

	Control group (20–80 percentile)	Treatment group (Top 1 percent)	Treatment group (Top 0.5 percent)	Treatment group (Top 0.1 percent)
Sole-proprietors	3.72%	4.23%	4.72%	6.19%
Incorporated businesses	1.61%	3.63%	4.07%	4.67%

Table A2: Age cut-offs including ages up to 99: Summary statistics before and after marriage for the control group and treatment groups.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0235	0.0609	0.0258	0.0741	0.0268	0.0805	0.0287	0.0910
Age (at marriage)	35.77 (8.707)	42.71 (11.42)	34.75 (8.810)	44.53 (13.35)	34.79 (8.861)	44.52 (13.38)	34.83 (9.071)	44.56 (13.56)
Children at home (at marriage)	1.193 (1.055)	0.896 (1.025)	0.767 (0.958)	0.744 (0.966)	0.748 (0.948)	0.742 (0.966)	0.725 (0.915)	0.737 (0.957)
Observations	2,095,181	9,808,331	124,940	636,214	65,194	328,291	13,588	69,482

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table A3: Age cut-offs including ages up to 99: Effect of marriage to a spouse in the top percentile on the rate of self-employment.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0328*** (0.00117) [127%]	0.0384*** (0.00165) [143%]	0.0474*** (0.00372) [165%]
Observations	12,664,666	12,296,997	11,986,582
Individuals	1,065,579	1,035,337	1,008,845

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table 3 in brackets. All estimations include all covariates specified in equation (1).

Table A4: Age cut-offs including ages up to 99: Individual fixed effects regressions: Income as an effect of self-employment and marrying a spouse in the top percentile.

Variables	Self-employment before and after marriage			Self-employment after marriage		
	Top 1 percent	Top 0.5 percent	Top 0.1 percent	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$Mtop_{it}$	0.103*** (0.0032)	0.0880*** (0.0044)	0.0411*** (0.0096)	0.152*** (0.0135)	0.142*** (0.0179)	0.0546 (0.0352)
S_{it}	-0.118*** (0.0016)	-0.122*** (0.0016)	-0.125*** (0.0015)			
$S_{it} \times Mtop_{it}$	-0.190*** (0.0073)	-0.199*** (0.0096)	-0.205*** (0.0194)	-0.246*** (0.0098)	-0.260*** (0.0131)	-0.235*** (0.0265)
Observations	20,945,528	20,945,528	20,945,528	1,907,478	1,907,478	1,907,478
Individuals	1,919,811	1,919,811	1,919,811	169,871	169,871	169,871

Note: All estimations include individual fixed effects and the covariates specified in equation (3). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: No age cut-offs: Summary statistics before and after marriage for the control group and treatment groups.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0250	0.0467	0.0266	0.0622	0.0278	0.0680	0.0320	0.0774
Age (at marriage)	34.49 (7.511)	31.97 (7.210)	35.09 (6.737)	32.68 (6.243)	34.97 (6.538)	32.66 (6.080)	34.78 (6.553)	32.49 (5.889)
Children at home (at marriage)	1.094 (0.995)	0.817 (0.938)	0.875 (0.956)	0.602 (0.839)	0.865 (0.953)	0.593 (0.833)	0.787 (0.914)	0.542 (0.804)
Observations	1,665,447	2,464,484	104,472	214,001	57,906	120,101	13,027	28,344

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table A6: No age cut-offs: Effect of marriage to a spouse in the top percentile on the rate of self-employment.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0262*** (0.00141) [98%]	0.0306*** (0.00193) [110%]	0.0360*** (0.00430) [113%]
Observations	4,448,404	4,307,938	4,171,302
Individuals	334,721	325,422	316,377

Note: Robust standard errors, clustered on individuals, in parentheses. All estimations include all covariates specified in equation (1). Percent change in the before-marriage rate of self-employment from Table A1 in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: No age cut-offs: Individual fixed effects regressions – Income as an effect of self-employment and marrying a spouse in the top percentile.

Variables	Self-employment before and after marriage		
	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$M_{top_{it}}$	−0.00483 (0.00352)	−0.0248*** (0.00484)	−0.0611*** (0.0105)
S_{it}	−0.318*** (0.00256)	−0.319*** (0.00255)	−0.320*** (0.00253)
$S_{it} \times M_{top_{it}}$	−0.123*** (0.0127)	−0.166*** (0.0167)	−0.343*** (0.0341)
Observations	5,520,310	5,520,310	5,520,310
Individuals	427,690	427,690	427,690

Note: All estimations include individual fixed effects and the covariates specified in equation (3). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Cut-offs for the 99th percentile, by age categories and year.

Year	Age categories			
	18–29	30–39	40–49	50–59
1993	249.3	393.4	507.4	516.7
1994	259.4	418.3	542.2	555.0
1995	271.6	428.3	537.9	554.6
1996	287.5	457.2	572.9	594.0
1997	300.7	483.6	598.7	619.1
1998	322.0	515.7	631.3	647.3
1999	342.0	547.8	665.3	675.0
2000	372.8	600.2	715.6	715.2
2001	391.9	636.7	765.3	749.1
2002	388.0	638.7	788.4	773.8
2003	381.4	635.0	798.9	791.5
2004	380.0	645.1	830.9	821.1
2005	384.2	664.4	865.0	850.3
2006	397.1	695.8	907.0	888.7
2007	416.4	729.4	955.3	925.0
2008	432.7	760.5	999.2	970.2
2009	431.0	753.0	1,006.1	992.9
2010	440.0	769.7	1,030.7	1,019.3
2011	456.0	795.8	1,069.1	1,058.5
2012	466.7	805.5	1,086.0	1,083.4
2013	474.4	806.8	1,107.8	1,114.5

Note: Income refers to annual nominal income in thousands of SEK and includes gross wages and wages and other income from business or farming.

Table A9: Cut-offs for the 99.5th percentile, by age categories and year.

Year	Age categories			
	18–29	30–39	40–49	50–59
1993	275.0	455.6	602.5	591.5
1994	286.5	489.7	652.8	642.7
1995	298.6	495.7	635.0	633.6
1996	317.3	530.4	682.0	682.5
1997	333.1	565.8	720.3	714.3
1998	361.1	608.8	765.6	748.3
1999	384.7	651.5	810.4	783.2
2000	422.3	724.3	882.5	830.6
2001	443.8	773.3	951.8	870.9
2002	434.0	767.3	977.7	899.8
2003	425.0	756.2	987.2	920.6
2004	421.6	772.3	1,029.9	958.8
2005	426.6	798.7	1,081.0	992.0
2006	439.4	842.1	1,138.1	1,035.1
2007	463.3	892.0	1,211.3	1,079.9
2008	481.3	931.9	1,269.1	1,129.1
2009	480.0	906.8	1,261.0	1,149.6
2010	488.9	927.7	1,292.0	1,187.9
2011	507.4	959.4	1,352.5	1,242.2
2012	516.4	968.7	1,354.7	1,271.2
2013	525.3	966.1	1,378.5	1,308.1

Note: Income refers to annual nominal income in thousands of SEK and includes gross wages and wages and other income from business or farming.

Table A10: Cut-offs for the 99.9th percentile, by age categories and year.

Year	Age categories			
	18–29	30–39	40–49	50–59
1993	354.0	677.7	931.9	921.0
1994	373.6	781.8	1,090.4	1,067.8
1995	381.7	746.1	1,001.9	1,004.3
1996	407.0	803.5	1,097.9	1,096.8
1997	429.6	880.5	1,188.2	1,164.3
1998	474.8	978.5	1,297.8	1,225.1
1999	509.1	1,061.9	1,394.4	1,287.9
2000	576.3	1,239.4	1,564.3	1,383.7
2001	605.6	1,342.7	1,726.0	1,472.4
2002	573.9	1,266.2	1,742.5	1,501.3
2003	554.3	1,201.4	1,722.0	1,520.3
2004	549.1	1,243.7	1,832.8	1,614.1
2005	561.0	1,305.6	2,004.3	1,725.8
2006	580.8	1,424.4	2,126.4	1,779.8
2007	617.4	1,553.2	2,286.0	1,911.7
2008	633.3	1,633.7	2,369.6	2,039.2
2009	625.6	1,508.1	2,298.2	1,989.1
2010	646.3	1,567.3	2,369.3	2,100.0
2011	669.3	1,608.2	2,444.5	2,196.3
2012	677.9	1,572.2	2,406.6	2,262.3
2013	683.0	1,550.2	2,412.2	2,309.8

Note: Income refers to annual nominal income in thousands of SEK and includes gross wages and wages and other income from business or farming.

Table A11: Summary statistics before and after marriage for the alternative control group (50–80th percentile).

Variables	Control group (50–80 percentile)	
	before	after
Self-employed	0.0200	0.0470
Age (at marriage)	35.24 (8.107)	40.51 (10.12)
Children at home (at marriage)	1.214 (1.041)	0.995 (1.032)
Observations	1,399,874	5,832,612

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table A12: Effect of marriage to a spouse in the top percentile on the rate of self-employment using the alternative control group (50–80th percentile).

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0347*** (0.00118) [141%]	0.0405*** (0.00165) [162%]	0.0505*** (0.00369) [189%]
Observations	7,853,546	7,552,687	7,299,618
Individuals	705,512	679,213	656,204

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table 3 in brackets. All estimations include all covariates specified in equation (1).

Table A13: Mean income before and after marriage and percentiles for the income distribution of women, by year.

Year	Income of women: 20 th percentile	Income of women: 50 th percentile	Income of women: 80 th percentile	Income of women: 90 th percentile	Mean income 2 years before marrying into 20–80 percentile	Mean income 2 years before marrying into top 1 percent	Mean income 2 years before marrying into top 0.5 percent	Mean income 2 years before marrying into top 0.1 percent	Mean income 5 years after marrying into 20–80 percentile	Mean income 5 years after marrying into top 1 percent	Mean income 5 years after marrying into top 0.5 percent	Mean income 5 years after marrying into top 0.1 percent
1993	4.4	98.4	159.0	188.1	159.2	166.3	198.5	115.7	.	.	.	.
1994	1.9	100.2	165.0	195.1	169.2	173.1	176.6	121.1	.	.	.	.
1995	2.4	105.0	170.5	202.0	179.9	190.9	229.4	127.0	.	.	.	.
1996	2.0	113.2	182.0	215.0	186.6	185.8	200.6	135.5	.	.	.	.
1997	1.4	117.8	191.1	225.9	211.8	232.4	285.3	141.9	.	.	.	.
1998	2.2	121.7	198.0	235.2	210.0	224.1	249.9	141.8	217.2	221.8	232.2	157.9
1999	4.9	129.0	207.1	246.9	232.8	231.8	228.2	151.3	205.8	201.8	206.6	157.9
2000	7.9	135.8	216.2	258.8	244.9	257.1	261.4	158.1	217.7	212.5	212.8	164.5
2001	9.8	143.4	227.4	274.1	259.9	269.7	298.0	168.7	236.4	236.6	232.1	172.4
2002	10.1	148.8	236.5	285.7	265.3	283.4	377.9	173.2	228.6	230.3	224.8	178.1
2003	8.4	152.9	244.0	294.5	256.6	270.0	299.6	176.9	235.2	238.0	245.3	181.6
2004	5.9	156.3	251.3	302.9	260.5	275.6	269.8	180.3	248.4	260.8	296.1	188.6
2005	4.8	159.9	258.5	312.0	277.0	288.6	309.0	185.0	263.7	268.4	252.9	194.3
2006	6.6	168.1	268.6	323.6	292.9	327.8	435.6	191.3	300.5	293.2	274.7	202.3
2007	9.5	180.0	280.2	337.1	288.7	307.7	344.7	201.7	293.4	298.2	343.2	213.0
2008	10.2	192.5	294.7	352.9	307.7	306.0	306.5	215.0	315.1	322.9	329.1	226.7
2009	4.5	196.2	303.7	364.3	311.7	328.7	342.6	222.2	316.0	319.5	369.2	239.4
2010	4.5	199.6	311.1	373.8	311.8	319.0	306.6	220.5	318.9	325.6	361.9	244.1
2011	9.0	209.9	321.4	387.0	331.0	356.3	448.6	232.6	342.2	343.8	326.2	254.4
2012	11.6	218.5	332.4	401.4	.	.	.	.	358.0	368.6	407.0	262.2
2013	13.1	224.6	342.4	413.6	.	.	.	.	373.7	399.0	476.4	271.2

Note: Income refers to annual nominal income in thousands of SEK and includes gross wages and wages and other income from business or farming.

Table A14: Background variables for women divided by marital status and spouse's income.

Variables	2 years before marrying a spouse in the				5 years after marrying a spouse in the			
	20–80 th percentile	Top 1 percent	Top 0.5 percent	Top 0.1 percent	20–80 th percentile	Top 1 percent	Top 0.5 percent	Top 0.1 percent
Employment rate	0.783	0.844	0.842	0.817	0.785	0.832	0.812	0.743
Children at home	0.830	0.475	0.457	0.424	1.144	1.326	1.345	1.385
<i>Years of Schooling</i>								
Compulsory school (< 9 years)	1.6%	0.1%	0.1%	0.0%	11.4%	1.5%	11.6%	1.2%
Compulsory school (9 or 10 years)	9.3%	2.6%	2.4%	2.2%	10.4%	3.7%	18.6%	3.3%
Senior high school (\leq 2 years)	24.6%	9.7%	8.9%	8.1%	35.0%	14.8%	34.6%	12.4%
Senior high school (> 2 years)	24.8%	18.8%	18.7%	18.6%	13.0%	13.3%	34.3%	14.1%
Tertiary education (< 3 years)	16.3%	22.2%	22.1%	21.7%	13.6%	21.3%	40.9%	21.3%
Tertiary education (\geq 3 years)	23.0%	45.8%	47.1%	48.4%	16.1%	43.3%	49.7%	46.0%
PhD education	0.4%	0.8%	0.8%	0.8%	0.4%	2.2%	14.0%	1.7%

Note: Variable entries refer to means. Children at home refers to children living in the same household, including those above the age of 18.

Table A15: Effect of marriage to a spouse in the top percentile on the rate of self-employment, excluding individuals with zero income.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0319*** (0.00122) [131%]	0.0382*** (0.00171) [157%]	0.0497*** (0.00388) [194%]
Observations	10,287,333	10,009,104	9,779,146
Individuals	991,561	966,555	944,880

Note: Robust standard errors, clustered on individuals, in parentheses. All estimations include all covariates specified in equation (1). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A16: Summary statistics before and after marriage for the control group and treatment groups, excluding individuals with zero income.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0237	0.0626	0.0243	0.0667	0.0244	0.073	0.0256	0.0855
Age (at marriage)	35.60 (8.318)	40.47 (10.18)	33.79 (7.211)	39.21 (10.15)	33.70 (7.070)	39.06 (10.08)	33.58 (7.090)	38.68 (10.05)
Children at home (at marriage)	1.190 (1.041)	1.015 (1.045)	0.779 (0.957)	0.938 (1.013)	0.760 (0.946)	0.934 (1.013)	0.728 (0.908)	0.927 (0.997)
Observations	1,933,424	7,788,277	115,167	450,465	59,708	227,695	12,209	45,236

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table A17: Summary statistics before and after marriage for the control group and treatment groups, 1993–2003.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0199	0.0612	0.0193	0.0549	0.0176	0.0590	0.0169	0.0631
Age (at marriage)	35.53 (8.257)	41.82 (10.26)	33.75 (7.159)	40.63 (10.07)	33.68 (7.026)	40.57 (10.02)	33.63 (7.049)	40.29 (10.06)
Children at home (at marriage)	1.206 (1.064)	1.074 (1.096)	0.772 (0.955)	1.089 (1.062)	0.754 (0.944)	1.087 (1.064)	0.736 (0.918)	1.082 (1.051)
Observations	1,317,452	4,867,167	81,535	272,593	42,263	138,924	8,763	28,514

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table A18: Effect of marriage to a spouse in the top percentile on the rate of self-employment, 1993–2003.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0208*** (0.00134) [108%]	0.0266*** (0.00183) [151%]	0.0314*** (0.00393) [186%]
Observations	6,538,747	6,365,806	6,221,896
Individuals	907,581	884,483	864,776

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table A14 in brackets. All estimations include all covariates specified in equation (1).

Table A19: Summary statistics before and after marriage for the control group and treatment groups, 2004–2013.

Variables	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
	before	after	before	after	before	after	before	after
Self-employed	0.0290	0.0578	0.0358	0.0822	0.0402	0.0900	0.0471	0.109
Age (at marriage)	35.81 (8.690)	39.53 (10.30)	33.99 (7.420)	38.41 (10.41)	33.86 (7.244)	38.32 (10.32)	33.77 (7.383)	38.38 (10.37)
Children at home (at marriage)	1.180 (1.037)	0.860 (0.957)	0.838 (0.985)	0.716 (0.900)	0.820 (0.979)	0.720 (0.904)	0.788 (0.935)	0.730 (0.905)
Observations	772,281	3,915,230	39,390	227,542	20,568	118,446	4,270	25,585

Note: Variable entries refer to means. Standard deviation in parentheses. Self-employed is a dummy variable. Children at home refers to children living in the same household.

Table A20: Effect of marriage to a spouse in the top percentile on the rate of self-employment, 2004–2013.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0389*** (0.00201) [109%]	0.0421*** (0.00288) [105%]	0.0545*** (0.00669) [116%]
Observations	4,954,443	4,826,525	4,717,366
Individuals	782,547	762,926	745,899

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table A16 in brackets. All estimations include all covariates specified in equation (1).

Table A21: Individual fixed effects regressions: Effect of marriage to a spouse in the top percentile on the rate of self-employment.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$Mtop_{it}$	0.0121*** (0.000478) [49%]	0.0149*** (0.000653) [60%]	0.0262*** (0.00139) [98%]
Observations	22,847,881	22,847,881	22,847,881
Individuals	1,989,689	1,989,689	1,989,689

Note: The following equation was estimated: $Y_{it} = \alpha + \beta Mtop_{it} + v_i + \tau_t + X_i\gamma + \varepsilon_{it}$ where $Mtop_{it}$ is a dummy variable that takes the value 1 if an individual i is married to a man in the top 1 percent at time t , and zero otherwise. The dummy variable varies over time, but the definition of marrying into the top percentile is still determined by the spouse’s income in the year of marriage. v_i are individual fixed effects, τ_t is a full set of year dummies, and X_{it} is defined as before. We used the entire sample of women during the period 1993–2013. Although we include women married into all income categories, the within group estimations will capture the effect of $Mtop_{it}$, only for women who marry into the top percentile. Robust standard errors in parentheses. All estimations include individual fixed effects and covariates specified in equation (2). Percent change in the before-marriage rate of self-employment from Table 3 in brackets.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A22: Propensity score matching: Summary statistics before marriage for the control group and treatment groups.

	Control group (20–80 percentile)	Treatment group (Top 1 percent)	Control group (20–80 percentile)	Treatment group (Top 0.5 percent)	Control group (20–80 percentile)	Treatment group (Top 0.1 percent)
<i>Variables</i>						
Self-employed	0.0201	0.0244	0.0206	0.0246	0.0216	0.0266
Age (at marriage)	33.97 (7.245)	33.60 (7.062)	33.96 (7.166)	33.53 (6.907)	33.92 (7.190)	33.44 (6.944)
Children at home (at marriage)	0.452 (0.798)	0.401 (0.761)	0.445 (0.796)	0.382 (0.746)	0.424 (0.787)	0.356 (0.722)
<i>Years of Schooling (at marriage)</i>						
Compulsory school (< 9 years)	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%
Compulsory school (9 or 10 years)	2.1%	2.1%	2.0%	1.9%	2.1%	1.9%
Senior high school (\leq 2 years)	9.0%	8.7%	8.2%	8.0%	7.3%	7.2%
Senior high school ($>$ 2 years)	17.7%	17.2%	17.8%	17.1%	17.4%	16.7%
Tertiary education (< 3 years)	18.2%	17.9%	18.0%	17.9%	17.8%	17.5%
Tertiary education (\geq 3 years)	51.6%	52.5%	52.5%	53.7%	54.1%	55.4%
PhD education	1.3%	1.3%	1.3%	1.3%	1.3%	1.2%
Observations	293,323	287,831	154,570	149,550	33,128	31,682

Note: Entries for the first three variables refer to means. Entries for the years of schooling refer to percent within each column definition. Standard deviation in parentheses. Self-employed and years of schooling are dummy variables. Children at home refers to children living in the same household. All variables, except for self-employment, are defined in the year of marriage in order not to be affected by post-marriage conditions.

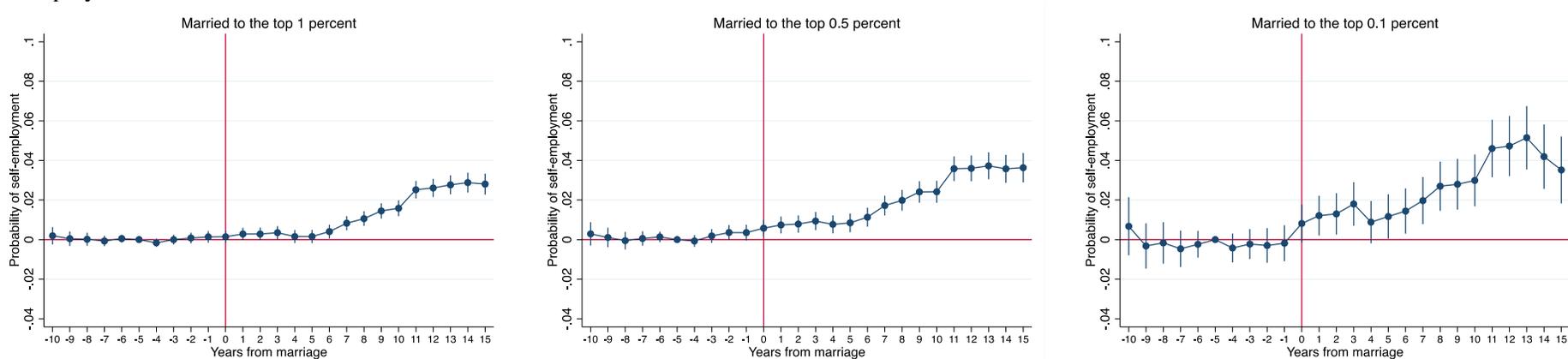
Table A23: Propensity score matching: Effect of marriage to a spouse in the top percentile on the rate of self-employment.

Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$marriage_{it} \times top_i$	0.0261*** (0.00150) [107%]	0.0300*** (0.00212) [122%]	0.0382*** (0.00486) [144%]
Observations	581,154	304,102	64,810
Individuals	42,961	22,629	4,887

Note: Robust standard errors, clustered on individuals, in parentheses. Percent change in the before-marriage rate of self-employment from Table A15 in brackets. All estimations include all covariates specified in equation (1).

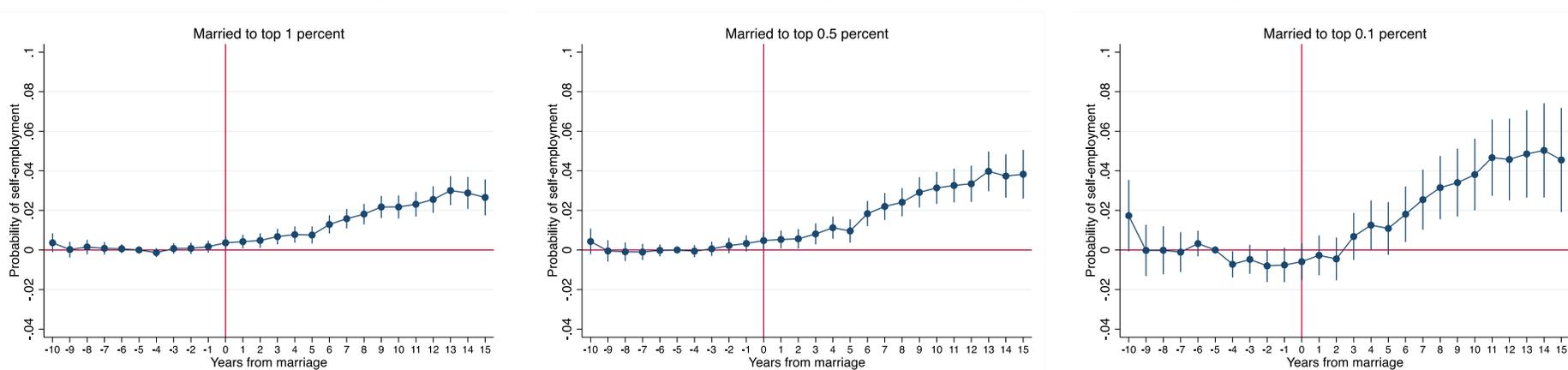
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure A1: Age cut-offs including ages up to 99: Year specific effects of marrying a spouse in the top percentile on the probability of self-employment.



Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

Figure A2: No age cut-offs: Year specific effects of marrying a spouse in the top percentile on the probability of self-employment.



Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

Figure A3: Self-employment rate for married women, by spouse's income, excluding individuals with zero income.

