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Carl Magnus Bjuggren and Magnus Henrekson

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Abstract. Little is known about self-employment as a career choice for women who marry a high-income spouse. 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. Using rich Swedish register data, we compare the likelihood of self-employment before and after marriage for women who marry a spouse in the top 1, 0.5 and 0.1 percent to those who marry a spouse in the middle of the income distribution. 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. The effect of marrying a high-income spouse is larger for women than for men.

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

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

[*] (Corresponding author) 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.**

[**] Professor and Senior Research Fellow, Research Institute of Industrial Economics (IFN), Box 55665, SE-102 15, Stockholm, Sweden. **magnus.henrekson@ifn.se.**

I. 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). Whereas this phenomenon is discernible in the U.S. data, it is less evident in some European countries, such as Sweden.

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, and highlights some of the potential problems involved with comparing labor force participation over time and across countries and cultures. 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.

II. 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 childcare (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. Thèbaud (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.

III. DATA AND DESCRIPTIVE STATISTICS

II.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.[1] 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

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[1] For further information on the LISA database, see http://www.scb.se/lisa-en.

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.

II.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).[2] 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.[3,4] 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).[5] In Appendix Tables A4–A6 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

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[2] 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.
[3] The entire Swedish income distribution includes both men and women, and those that are unemployed or not in the labor force.
[4] In Appendix Tables A1–A3 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.
[5] 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).

SEK 824,900 in 1993 to SEK 2,073,700 in 2013.[6] Percentile cut-offs for all age categories for the 99th, 99.5th and 99.9th percentiles are presented in Table A7–A9 in the Appendix.

Using information on family status we have identified married women, and each woman in the panel is matched to their spouse. Summary statistics for unmarried and married women within different income categories are presented in Table 2.

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.[7]

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.[8] 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 A11 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

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[6] 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).
[7] 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).
[8] The underlying data for Figures 2a and 2b are presented in Table A10.

women married to a spouse in the 20–80th percentile than for women married to a spouse the top 0.1 percent.[9]

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 A12 and A13, 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.[10]

IV. EMPIRICAL ESTIMATION

IV.1. The effect of marriage on self-employment

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

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[9] For further comparisons of educational level and number of children at home, before and after marriage, see Table A11 in the Appendix.

[10] See section 3 for a further discussion.

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.

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 are 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 percentile 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:

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

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.[11] 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:

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

where $time_t$ is a full set of year dummies indicating the time before and after marriage, and $time_t \times top_i$ 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.[12] 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.

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 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

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[11] 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.

[12] 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.

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.[13]

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 A12 in the Appendix). The estimated coefficient corresponds to an increase in the before-marriage rate of self-employment by 131–194 percent.[14] 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 A14 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 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. Although we do not find any evidence of sorting, we cannot rule out the possibility that this type of selection is taking place.

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[13] 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).

[14] See Table A13 in the Appendix for summary statistics before and after marriage for control and treatment groups, excluding individuals with zero income.

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.

An interesting point of comparison is men who marry high-income women. On average, the self-employment rate for men who marry into the top is higher than for women (Figure A4 in the Appendix). 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).[15] 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 A16 in the Appendix).[16] Although the estimated effects are large, they are smaller than those reported for women.

IV.2. The effect of marriage and self-employment on earned income
In section, 3.1, 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 6.

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

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[15] Summary statistics can be found in Table A15 in the Appendix. Annual effects that support the parallel trends assumption can be found in Figure A5 in the Appendix.
[16] The percentage increase is based on the before-marriage rate of self-employment.

Figure 6 we include individuals who are self-employed both before and after marriage. In the 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 5. Overall, the self-employed women represented in Table 5 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:

$$\ln Y_{it} = \alpha + \delta S_{it} + \rho M top_{it} + \beta(S_{it} \times M top_{it}) + v_i + \tau_t + X_i \gamma + \varepsilon_{it} \tag{3}$$

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. $M top_{it}$ 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. v_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, $M top_{it}$ and the interaction $S_{it} \times M top_{it}$ 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 6. 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.[17] In the three

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

right-most columns in Table 6, we limit the sample to those who entered self-employment *after* 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, that compensate for lower income.

V. CONCLUSIONS

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.[18] 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 the self-employment among women married into the top percentile tends to be low. The typical business profile is unlikely to be driven by financial incentives.

There are several reasons for entering self-employment. An increase in household income may encourage self-employment. Women may also enter self-employment in order to avoid social stigma associated with being a housewife or a stay-at-home mother. Sweden has traditionally emphasized female breadwinning as a duty (Sommestad 1997). 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 were 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 housewife (Hobson 2003). According to the World Value Survey, only 35.3 percent

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[18] 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.

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).

Our results show that the effect of marrying a high-income spouse on self-employment is higher for women than it is for men. Despite the data showing that Swedish women reject the idea of being a housewife, 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.

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.

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Tables

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

Year	20th percentile	50th percentile	80th percentile	99th percentile	99.5th percentile	99.9th 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			
		20–80th 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	44.59	43.42	43.29	43.13
	(12.97)	(10.79)	(9.73)	(9.64)	(9.55)
Children at home	0.60	1.17	1.38	1.41	1.45
	(0.92)	(1.16)	(1.12)	(1.12)	(1.13)
Income (annual)	124.4	135.3	202.3	199.5	187.9
	(111.3)	(101.8)	(205.5)	(224.6)	(278.3)
Spouse's income		177.5	930.5	1167.7	2102.7
		(74.1)	(772.8)	(998.2)	(1774.7)
Years of Schooling					
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)
Years of Schooling (at marriage)								
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 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 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***	0.0372***	0.0471***
	(0.00118)	(0.00165)	(0.00369)
	[128%]	[149%]	[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: Background variables for women that are self-employed and married to a spouse in the top income categories.

	Spouse's income		
Variables	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)
Years of Schooling (at marriage)			
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 (≤ 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 (≥ 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 6: 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***	0.0325***	–0.00443	–0.0419***	–0.0340*	–0.101***
	(0.00306)	(0.00421)	(0.00916)	(0.0132)	(0.0175)	(0.0340)
S_{it}	–0.110***	–0.112***	–0.115***			
	(0.00153)	(0.00152)	(0.00150)			
$S_{it} \times Mtop_{it}$	–0.153***	–0.172***	–0.199***	–0.190***	–0.215***	–0.209***
	(0.00738)	(0.00978)	(0.0197)	(0.0102)	(0.0135)	(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 (%).
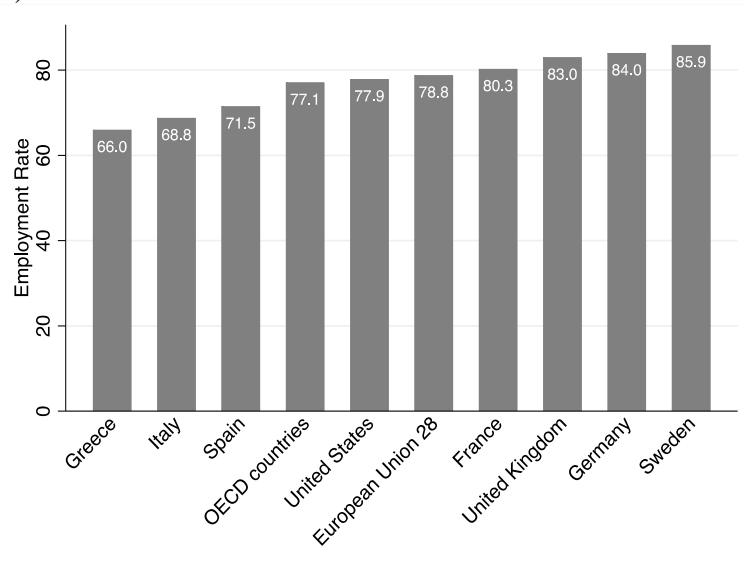
Note: The employment rate is defined as a percentage of the same-age total population.
Source: OECD (2017a).

Figure 2a and 2b: Mean income before and after marriage, by year 1993–2013.
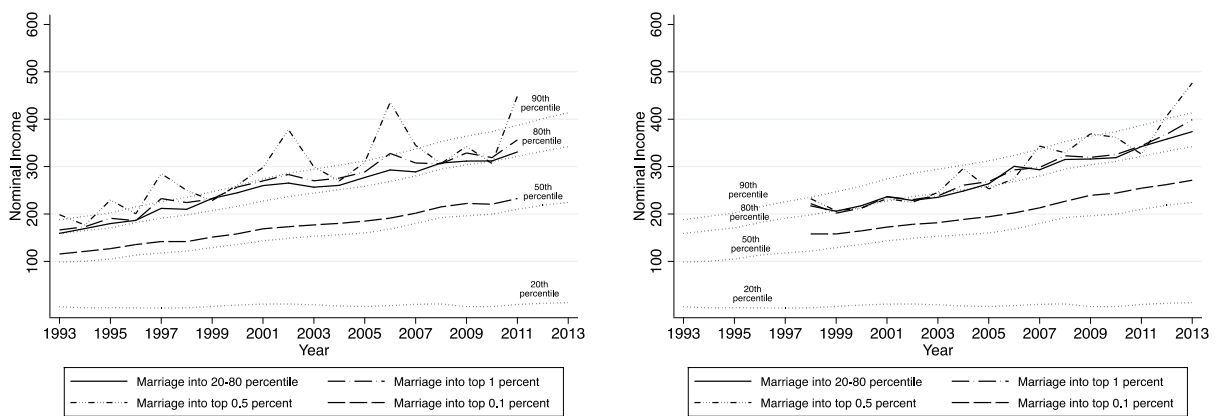
2a: Mean income two years before marriage into different income categories

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.

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Figure 3: Likelihood of self-employment for married women, by spouse's income.
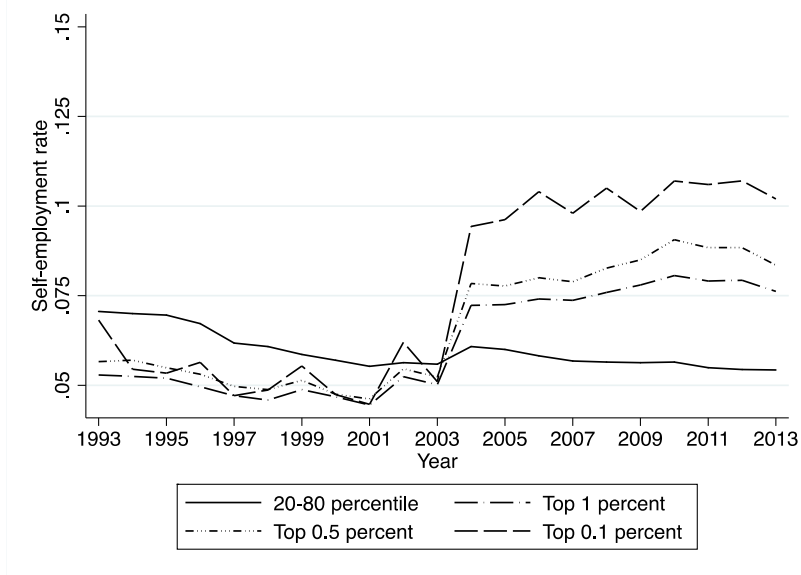
Figure 4: Likelihood of self-employment before and after marriage, by spouse's income.
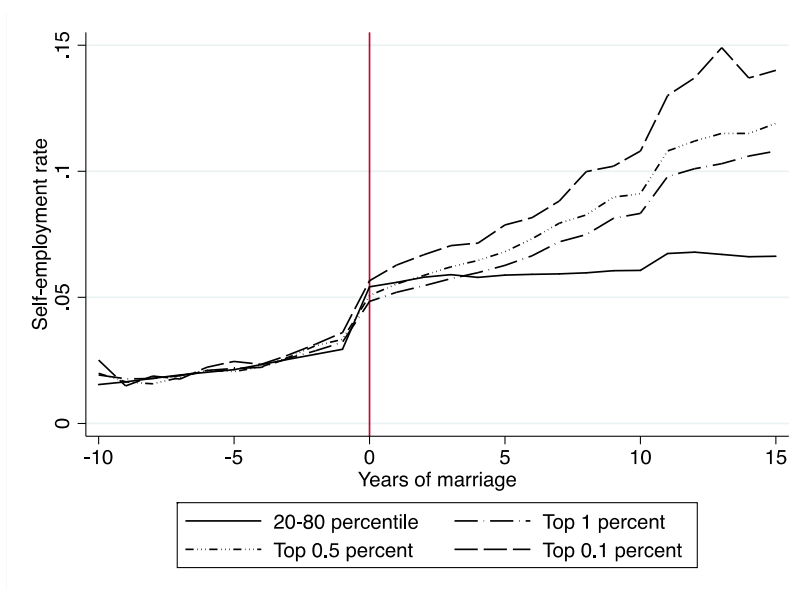
Figure 5: Year specific effects of marrying a spouse in the top percentile on the probability of self-employment
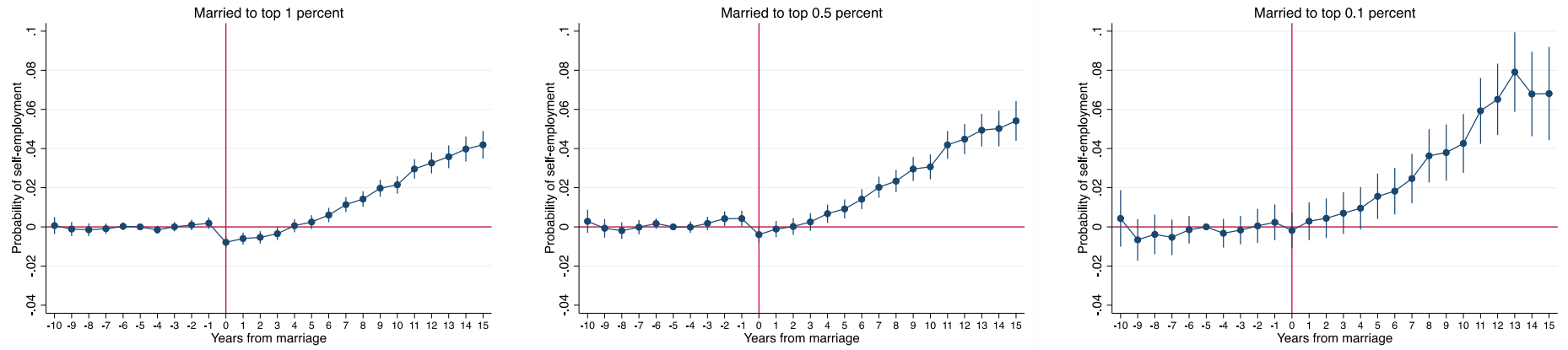
Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

Figure 6: Income for women married to a spouse in the top 1 percent, before and after marriage.
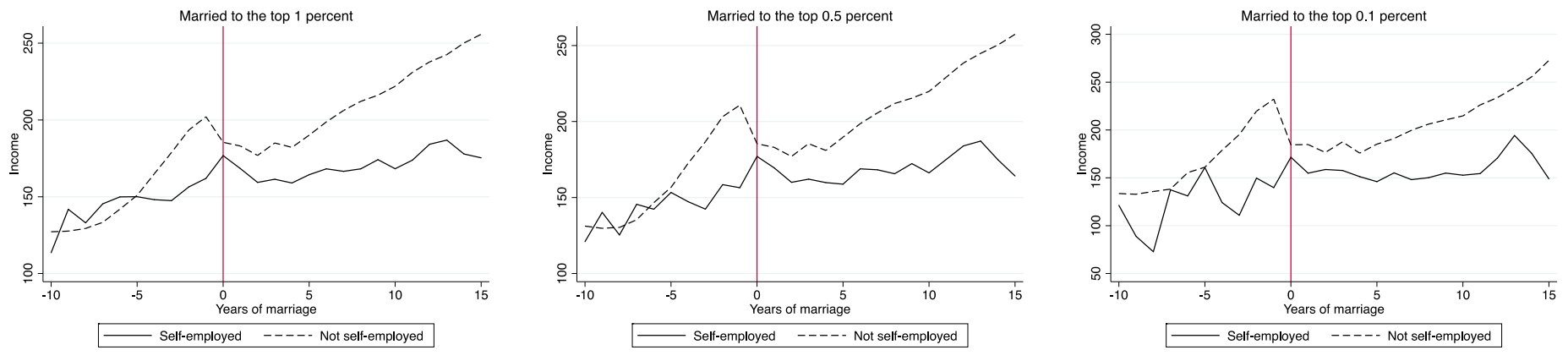
Note: Income is in thousands of SEK. To allow for intertemporal comparability, income is expressed in 1993 prices based on wage data on white collar workers from the Confederation of Swedish Enterprise (Svenskt Näringsliv 2016).

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: 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	42.71	34.75	44.53	34.79	44.52	34.83	44.56
	(8.707)	(11.42)	(8.810)	(13.35)	(8.861)	(13.38)	(9.071)	(13.56)
Children at home	1.193	0.896	0.767	0.744	0.748	0.742	0.725	0.737
(at marriage)	(1.055)	(1.025)	(0.958)	(0.966)	(0.948)	(0.966)	(0.915)	(0.957)
Observations	2,095,181	9,808,331	124,940	636,214	65,194	328,291	13,588	69,482

Note: *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 A2: 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***	0.0384***	0.0474***
	(0.00117)	(0.00165)	(0.00372)
	[127%]	[143%]	[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 A3: 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.

	Self-employment before and after marriage			Self-employment after marriage		
Variables	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***	0.0880***	0.0411***	0.152***	0.142***	0.0546
	(0.0032)	(0.0044)	(0.0096)	(0.0135)	(0.0179)	(0.0352)
S_{it}	−0.118***	−0.122***	−0.125***			
	(0.0016)	(0.0016)	(0.0015)			
$S_{it} \times Mtop_{it}$	−0.190***	−0.199***	−0.205***	−0.246***	−0.260***	−0.235***
	(0.0073)	(0.0096)	(0.0194)	(0.0098)	(0.0131)	(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 A4: No age cut-offs: Summary statistics before and after marriage for the control group and treatment groups.

	Control group (20–80 percentile)		Treatment group (Top 1 percent)		Treatment group (Top 0.5 percent)		Treatment group (Top 0.1 percent)	
Variables	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	31.97	35.09	32.68	34.97	32.66	34.78	32.49
	(7.511)	(7.210)	(6.737)	(6.243)	(6.538)	(6.080)	(6.553)	(5.889)
Children at home (at marriage)	1.094	0.817	0.875	0.602	0.865	0.593	0.787	0.542
	(0.995)	(0.938)	(0.956)	(0.839)	(0.953)	(0.833)	(0.914)	(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 A5: 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***	0.0306***	0.0360***
	(0.00141)	(0.00193)	(0.00430)
	[98%]	[110%]	[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 A6: No age cut-offs: Individual fixed effects regressions – Income as an effect of self-employment and marrying a spouse in the top percentile.

	Self-employment before and after marriage		
Variables	Top 1 percent	Top 0.5 percent	Top 0.1 percent
$Mtop_{it}$	−0.00483	−0.0248***	−0.0611***
	(0.00352)	(0.00484)	(0.0105)
S_{it}	−0.318***	−0.319***	−0.320***
	(0.00256)	(0.00255)	(0.00253)
$S_{it} \times Mtop_{it}$	−0.123***	−0.166***	−0.343***
	(0.0127)	(0.0167)	(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 A7: Cut-offs for the 99th percentile, by age categories and year.

	Age categories			
Year	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 A8: Cut-offs for the 99.5[th] 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 A9: Cut-offs for the 99.9[th] 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 A10: Mean income before and after marriage and percentiles for the income distribution of women, by year.

Year	Income of women: 20th percentile	Income of women: 50th percentile	Income of women: 80th percentile	Income of women: 90th 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 A11: 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			
	20–80th percentile	Top 1 percent	Top 0.5 percent	Top 0.1 percent	20–80th 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
Years of Schooling								
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 (≤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 (≥ 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 A12: 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***	0.0382***	0.0497***
	(0.00122)	(0.00171)	(0.00388)
	[131%]	[157%]	[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 A13: 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	40.47	33.79	39.21	33.70	39.06	33.58	38.68
	(8.318)	(10.18)	(7.211)	(10.15)	(7.070)	(10.08)	(7.090)	(10.05)
Children at home	1.190	1.015	0.779	0.938	0.760	0.934	0.728	0.927
(at marriage)	(1.041)	(1.045)	(0.957)	(1.013)	(0.946)	(1.013)	(0.908)	(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 A14: 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***	0.0149***	0.0262***
	(0.000478)	(0.000653)	(0.00139)
	[49%]	[60%]	[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: $Y_{it} = \alpha + \beta Mtop_{it} + \nu_i + \tau_t + X_i\gamma + \varepsilon_{it}$ 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. ν_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 A15: 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	42.55	34.65	37.60	34.44	36.96	34.52	36.61
	(8.753)	(10.31)	(7.148)	(9.609)	(6.932)	(9.210)	(7.129)	(9.104)
Children at home	1.116	0.964	0.284	0.391	0.269	0.383	0.294	0.427
(at marriage)	(1.009)	(1.018)	(0.665)	(0.761)	(0.651)	(0.754)	(0.652)	(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 A16: 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***	0.0462***	0.0531***
	(0.00335)	(0.00512)	(0.0143)
	[96%]	[89%]	[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). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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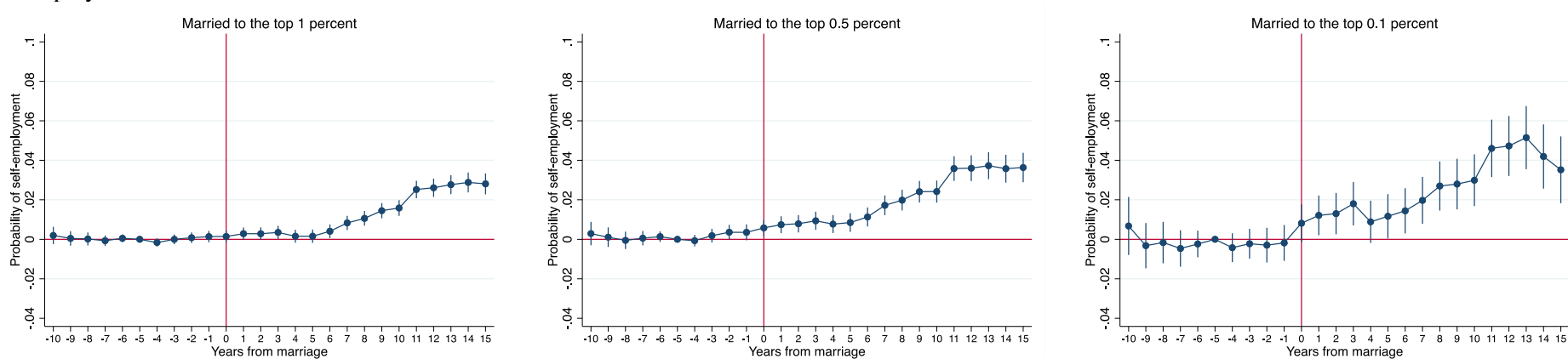
Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

Figure A2: No age cut-offs: Year specific effects of marrying a spouse in the top percentile on the probability of self-employment.
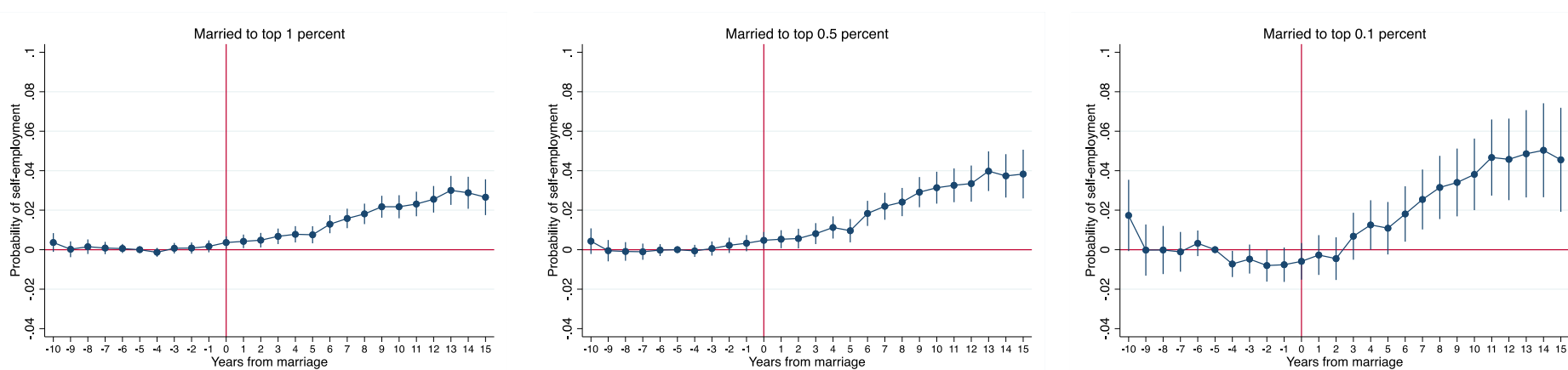
Note: The DiD estimates are the estimated coefficients β_t from equation (2). Vertical lines refer to a 95% confidence interval. Five years prior to marriage is used as baseline.

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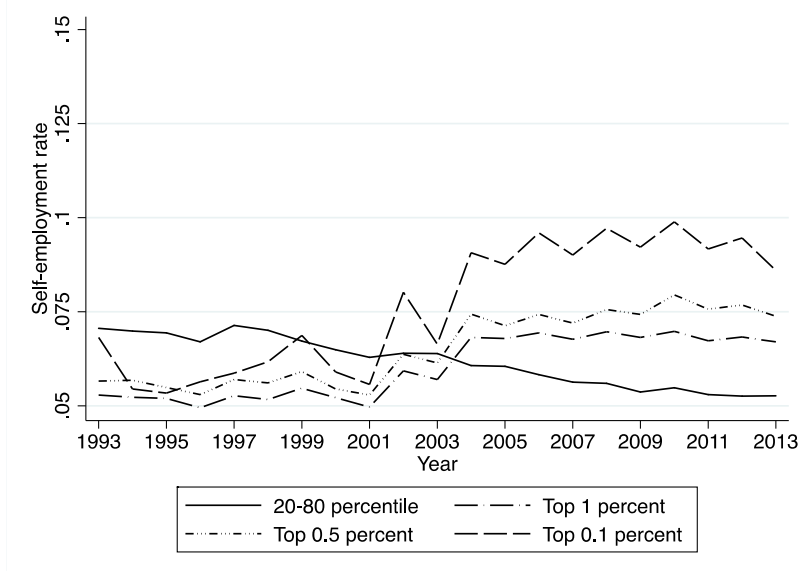

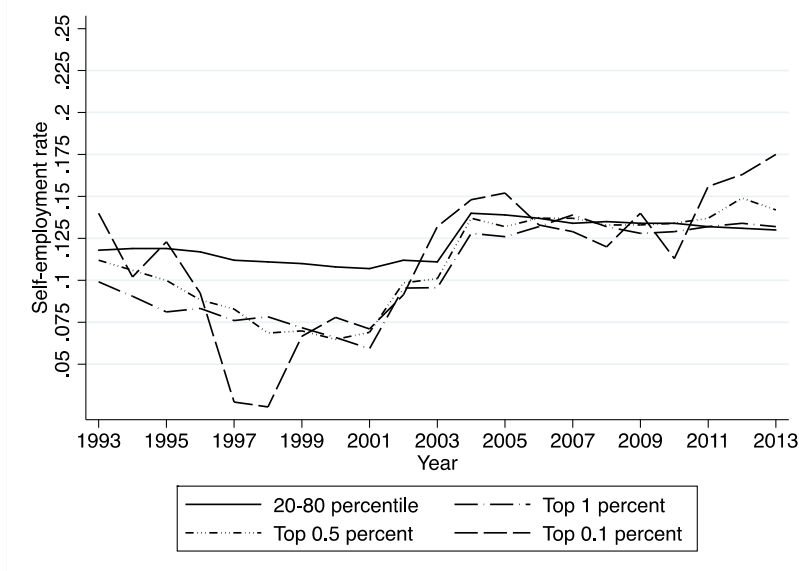**Figure A4:** The self-employment rate for married men, by spouse's income.
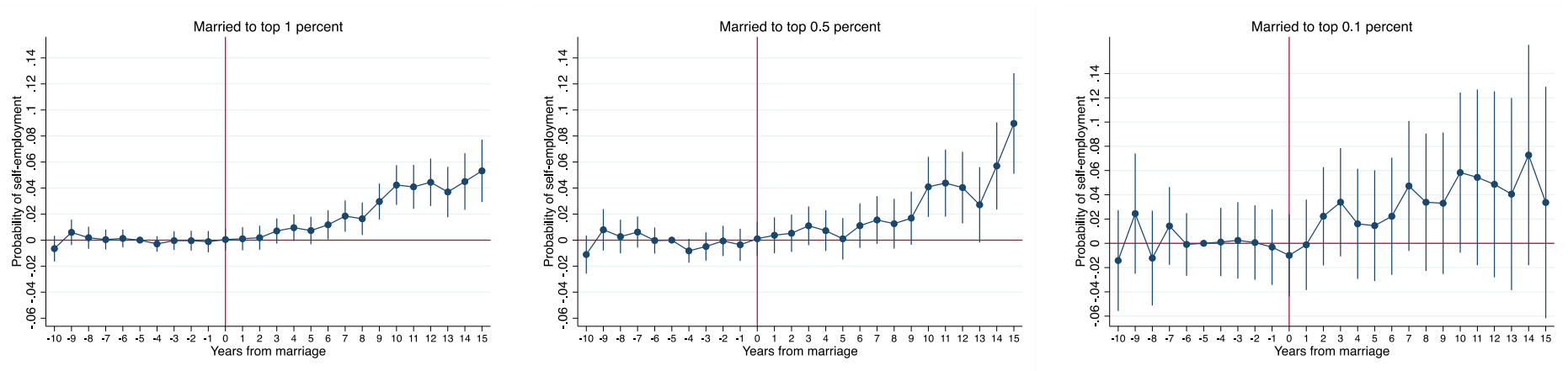
Figure A5: Year specific effects for *men* that marry a spouse in the top percent on the probability of self-employment.

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.