THE MALE MARRIAGE PREMIUM: SELECTION, PRODUCTIVITY, OR EMPLOYER PREFERENCES?

EVIDENCE FROM PANEL DATA AND A SURVEY EXPERIMENT

PATRICK MCDONALD

SWISS NATIONAL SCIENCE FOUNDATION

UNIL | Université de Lausanne

UNIVERSITÉ DE GENÈVE

A u t h o r

McDonald, P.

A b s t r a c t

Survey evidence finds a wage premium for married men over single in most of the western world. Three key theories are put forward as an explanation: 1) marriage makes men more productive and therefore increases their wages; 2) men with higher labour-market productivity, and therefore higher wages, are more likely to be married; 3) employers simply favour married men over unmarried. We use a two-step analysis to test these three theories. In the first step, we analyse national panel data from Switzerland to pinpoint the part of the penalty due to either productivity or selection. We use entropy balancing to match never-married men to married on a set of pre-labour market covariates, thus isolating the selection effect, before we perform fixed effects regressions for productivity effects and to uncover any unexplained residual. We find a premium for married men of 5%, much of which is explained by selection. Next, we seek to uncover employer preferences by using a factorial survey experiment among HR managers (N = 714) in Switzerland. We ask the managers to assign wages to the CVs of fictional job candidates, who vary randomly on their civil status, amongst other characteristics. We can therefore identify employers' preferences concerning married and unmarried men. We find that recruiters assign a small premium to married men, contingent on the job applied for. Overall, the premiums we find are lower than those previously reported in the literature.

A u t h o r ' s   a f f i l i a t i o n

Life Course and Inequality Research Centre LINES and LIVES, Swiss National Centre of Competence in Research, University of Lausanne, Switzerland

C o r r e s p o n d e n c e   t o

patrick.mcdonald@unil.ch

1. Introduction

In most western countries, married men earn more than unmarried. This premium is substantial – empirical studies show a bonus offered to married men of up to 20% in the US (Korenman and Neumark 1991, Chun and Lee 2001, Cohen 2002), 10% in Australia (Breusch and Gray 2004), and 10-15% in European countries (Gupta et al. 2007, Barg and Belbo 2007).

Three main mechanisms may explain the marriage premium. First, productivity: married men may work harder and longer because they have wives at home to take care of the domestic work, or because marriage makes them more responsible than bachelors. Second, selection: good workers with strong labour market chances make better husbands. Finally, the premium may come from employer preferences: employers prefer to hire married men because they believe the aforementioned characteristics will result in them being more reliable workers, whether this is the case or not, or because social norms suggest it is better to hire married men. These effects can be difficult to measure through surveys, and residuals often remain after taking productivity and selection into account. We propose to use data from a survey experiment to tap into employer preferences.

The aim of this paper is to elucidate on the marriage premium for men through the combination of a panel data analysis and a factorial survey. We use data from a nationally representative longitudinal survey to conduct fixed effects regression to identify the existence of a male marriage premium in Switzerland, using matching to differentiate selection effects from productivity and, possibly, employer preferences. To further analyse this latter effect we use the results of a vignette study, where a sample of 714 recruiters were shown fictional job candidate profiles and asked to indicate the likelihood they would invite a candidate to a job interview, and their wage if they were to be hired. The vignettes contain a set of randomly varying dimensions, including gender, marital status, and age, that enable us to identify the effect of marriage on men's wages.

Our analysis is focused on Switzerland. The Swiss labour market shares the strong vocational education system and concertation between the education sector and employers' associations of Germany, Austria, and Denmark, but has looser employment protection and fewer parental leave entitlements, more in line with the liberal labour markets of the US and UK.

The contribution of this paper is to combine the analysis of longitudinal population surveys with a factorial experiment among recruiters – this is the first study to our knowledge

that uses a factorial survey experiment to analyse the male marriage wage premium. In this way we can provide insight from both the employer and employee perspective. Our factorial survey is also unique in that it focuses on the members of a cross-industry human resources professional association, where we question recruiters across the Swiss labour market, rather than focusing on one sector, or using students as the target of the survey. The experimental design, where we control all the inputs and completely randomise the dimensions presented to the respondents, go some way towards meeting the requirements of a causal research design. Finally, by presenting fictive CVs to active recruiters, we are able to analyse more detailed information about the hiring process, albeit information gleaned from a hypothetical setting. We can therefore also observe an important but little-analysed part of the job search and recruitment process – the initial sorting and judging of CVs, and how recruiters and employers react to information on family status at first sight.

In the following section, we will present the competing theoretical explanations for the male marriage wage premium. Section 3 discusses our data, and sections 4 and 5 present the results and analysis of the panel studies and factorial survey respectively. We conclude with a discussion of our findings in section 6.

2. Theoretical and empirical background

The sociological and economic literature posits three main theoretical explanations for the existence of a marriage premium for men: the specialisation or productivity theory, the selection theory, and the employer preferences theory. We discuss these theories in turn in order to form our hypotheses.

2.1 Productivity

The productivity theory argues that marriage makes men more productive and therefore grants them higher wages. Historically, the key pillar of the productivity theory was household specialisation, which for many years was the most widely accepted explanation of the marriage premium for men. It argues that married men are more productive than unmarried men and are better remunerated as a function of their productivity. This stems from the idea that married men "specialise" in paid work, because they have wives at home who specialise in unpaid domestic work (Becker 1973). Conversely, unmarried men are expected to do both and therefore will have less time and energy to devote to their jobs. For women, the theory is

inversed: after marriage, they will be expected to undertake more domestic duties and therefore devote themselves less to paid work. Their wages are reduced in function of this expected lower productivity.

While household specialisation is no longer considered the key reason for the male marriage premium, the productivity theory offers further explanations. Productivity may also be improved by behavioural changes in married men stemming from the belief that husbands have a responsibility to provide for their wives and families. A qualitative analysis of the marriage premium in Russia finds that married men assume a persona of masculine responsibility, meaning they are more likely to take employment more seriously than non-married men (Ashwin and Isupova 2014: 52). Thompson and Walker (1989: 852) suggest that married men, particularly from the working class, see it as their duty to provide for the family and therefore will work harder to preserve a job, or toil longer in unfavourable working conditions. Additionally, married men may be more productive simply because they are happier and healthier than single men. While empirical evidence shows that married people may exercise less and are more prone to obesity than unmarried (Smith and Christakis 2008), there is nevertheless ample evidence to show married men are, overall, happier and healthier than unmarried, and that marriage has a more positive effect on men's health than women's. (Kiecolt-Glaser & Newton 2001). Married men, on average, have greater life satisfaction, are less prone to substance abuse and other high-risk behaviours (Umberson et al. 2010), and can make use of "communal coping" mechanisms to better address ill health (Lewis et al. 2006). These improved health outcomes combined with greater senses of responsibility amongst married men may lead to employees who are more productive at work than before they were married.

Notwithstanding that the traditional male-breadwinner model is on the wane in much of the western world, there is some evidence of a productivity effect in empirical studies in the US (Korenman and Neumark 1991; Gorman 1999; Chun and Lee 2001; Killewald and Gough 2013), Australia (Breusch and Gray 2004), China (Hughes and Maurer-Fazio 2002), and Germany (Barg and Belbo 2007), though the strength of this evidence varies from study to study. The strongest results come from large-sample panel studies. At the same time, some research suggests the productivity theory is losing some of its validity, or that indeed it was much less important than imagined. Budig and Lim (2016: 1037) argue that marriage premiums are higher for millennials, but that they are gender-neutral (with the premium going to the breadwinner irrespective of gender), and that single-earner households are generally

economically disadvantaged in comparison to those where both partners work. Hersch and Stratton (2000: 90-91) analyse the time men spend doing housework, rather than paid work, and find that it changes little between married and unmarried men (though the nature of it does). However, this explanation does not discount the improved health and responsibility thesis.

The productivity theory brings us to our first hypothesis:

H1 (productivity): Marriage results in higher productivity for men, which is rewarded by higher wages.

2.2 Selection

The selection theory suggests that rather than marriage being a signal of increased productivity, it is more productive men who get married in the first place. Characteristics that make men good workers, such as higher education, motivation, strong social networks and even more attractiveness and better physical health, make them better marriage prospects. These men, therefore, should earn more regardless of whether they are married or not, but by nature of their characteristics are more likely to be selected into marriage in the first place.

Empirical evidence on selection is mixed. In Germany, Barg and Beblo (2007: 70) use a matching approach to study the selection theory of the marriage premium, and find that about half of the 9% wage premium for married men is due to a positive mix of characteristics in married men. Petersen et al. (2011: 300), in a study of Norway, find that most of the premium for married men is present before marriage – suggesting that more productive men are indeed more likely to get married, rather than marriage being the cause of productivity improvements. Economic research in the US has pointed to selection being the key driver of the male marriage premium (Nakosteen and Zimmer 2001, Chiodo and Owyang 2002) with even perceptions of "beauty" in male candidates having an impact on their job prospects (Hamermesh and Biddle 1994). A study of the US National Longitudinal Survey of Youth from Ludwig and Brüderl (2018: 747, 757) suggests that about half of the male marriage premium comes from selection – making a distinction between men on higher wage "tracks" and men with higher earnings potential, both of which favour married men, while Killewald and Lundberg (2017: 1025), analysing marriages and divorces using the same data, find no evidence of a causal effect of marriage on wages, suggesting that the premium is rather due to men marrying when they are already on an increasing wage trajectory. On the other hand, Chun and Lee (2001: 318) analyse

data from the Current Population Survey in the US, and find that selection does not explain the penalty in any way. Ginther and Zavondy (2001: 326-327) test the selection hypothesis using the novel approach of analysing "shotgun" (unplanned) weddings brought on by unexpected pregnancy. By assuming that shotgun weddings are a random event the authors also assume that such marriages are random and therefore not subject to selection. By comparing the marriage premiums of men in shotgun marriages with those married more "conventionally", they find a difference in the marriage premium of only 10% in favour of the traditionally married, suggesting that selection plays only a small part in the premium.

In sum, it seems that selection could offer an explanation for the male marriage premium but depending on the type of data analysed and the geographical context, estimations of its size (or its existence at all) vary widely. Part of this comes from its difficulty to measure – estimating a selection effect requires either the use of counterfactual analysis or ample data in order to estimate the change in wages before and after marriage. There nevertheless remains enough evidence to argue that selection does account for at least some of the premium, but that neither it nor productivity may be enough to account for it all. We must turn then to the question of employer preferences.

The empirical and theoretical literature on selection brings us to a second hypothesis:

H2 (selection): Men are positively selected into marriage, resulting in higher wages for married men irrespective of productivity changes.

2.3 Employer preferences

A third possibility for a marriage premium is the preference of employers for married men over other candidates. Sociology has long been sceptical of the notion that wages are decided purely on questions of productivity. Besides power resources, other factors such as employers' tastes and employees' personalities may come into play.

In terms of the marriage premium, employer favouritism could take on two forms in particular. First, it may be that employers simply prefer married men – perhaps they believe that married men are more reliable or feel the need to offer them a "family wage". Employers may also have greater affinity with married men: with married men over-represented in positions with hiring and firing power, they may simply hire the profiles closest to their own.

Employers could prefer married workers because they are less likely to cause unrest – a married man is perceived to have more to lose when losing a job and therefore will be less likely to join a union, participate in a strike, or otherwise put his job in danger (Schwartz 1990: 69). The second possibility is that employers and managers believe in the specialisation theory and expect married men to be the most productive workers, but overshoot the actual productivity difference (if there is one at all).

It is important to underline here that employers may not necessarily express their preferences in terms of wages, and may instead do so by hiring married men more often than single men. England and Farkas (1986: 125-126) point out that employers have "imperfect information" about prospective job candidates before they hire them and must therefore use what information they do have to screen applicants, and that this often strays into statistical discrimination when it encompasses such characteristics as age, sex, and marital status. If it is true that employers do prefer married men over unmarried, they should be expected to express this in terms of their hiring behaviour as well as (or in place of) their wage-setting patterns.

Measuring employer preferences is difficult, especially in traditional employment surveys. Doing so usually involves the analysis of firm-level hiring data, experiments, and correspondence studies, where fictive job applications are sent for real openings – the drawback being that this method can only ascertain if a given profile would be invited to a job interview. Perhaps as a result of this difficulty in ascertaining authoritative data, there are relatively few empirical studies of the male marriage premium with a focus on employer preferences. One paper that comes close is that of Bygren et al. (2017), which uses an audit study in Sweden to uncover evidence of employer preferences for hiring fathers. They find no evidence of systematic preferences for fathers, though it is important to note that the mechanisms behind the fatherhood and marriage premiums may differ, and that while the analysis can draw conclusions in terms of hiring, it cannot for wages.

Other studies of employer preferences focus on the gender gap more widely (see, for example, Carlsson 2011, Bielby and Baron 1986), but there are few studies focusing on employer preferences for married men. The empirical evidence is therefore inconclusive but suggests that there may indeed be a premium for married men linked to employers' preferences, especially if it follows the trends of other gender-based employer preferences demonstrated in the literature. However, to confirm the existence of a premium caused by employer preferences a more complete analytical strategy is required. It is here where this paper makes one of its key contributions, which will be elaborated further in the following section.

The discussion of the employer preferences theory brings us to a third and final hypothesis:

H3 (employer preferences): Employers prefer married men to unmarried, and will therefore offer married men higher wages.

3. Institutional context, data and method

3.1 Country

Our paper uses data from Switzerland. Switzerland combines the dual education/apprenticeship system, strong links between education and employment, and industry-level wage bargaining common in central European countries such as Germany and Austria. However, lower levels of worker protection and less generous family allocations move it closer to more liberal economies such as Britain and the United States. While the women's employment rate is amongst the highest in OECD nations, the country also has one of the highest rates of female part-time employment, partly due to strong normative expectations for women to act primarily as child-rearers and housekeepers, with men expected to be the primary breadwinner for their family (Levy 2013, Valarino and Gauthier 2016). All this leads us to the expectation that employer preferences should weigh quite strongly on providing generous premiums for married men.

3.2 Data

Longitudinal survey

We examine the existence of a male marriage premium by using a panel study based in Switzerland. The Swiss Household Panel (SHP) contains 17 annual waves between 1999 and 2015 (Voorpostel et al. 2016). It contains a large number of socio-demographic variables as well as information on employment and wages.

We restrict our dataset to men aged 25 to 50, who were unmarried at their first observation. This age means we generally cover early careers without too much interference from those still in education (Swiss apprentices or interns may still report wages), and cover the first marriage of the vast majority of individuals who will eventually marry. We further restrict our analyses to men employed as wage-earners who have reported wages across at least

two waves, in order that we can run individual fixed-effects regressions for each of the individuals. In order to carry out the entropy balancing matching procedure outlined in the method section, we must also disregard all person-years for which we do not have observations (actual or imputed) for all the variables we use to carry out the matching. Ultimately, these restrictions leave us with 628 persons and 3413 person-years, an average of 5 observations per respondent.

Survey experiment

Factorial survey experiments, or vignette studies, are a common analytical tool in many branches of social science (Rossi & Nock 1982, Jasso 2006) that have until recently been little used to study employer preferences. Since the early 2000s researchers have begun to utilise this method more frequently for these kinds of questions (e.g. de Wolf and van der Velden 2001, Di Stasio 2014, Liechti et al. 2017).

Factorial surveys can be used to effectively simulate the hiring process, by presenting employers with vignettes that resemble the CVs of applicants, but which vary key dimensions of the profiles. Vignette studies have two key advantages over traditional surveys when analysing employer preferences. First, by randomly varying several attributes, respondents are less likely to identify the changes and should therefore provide responses that are less prone to social desirability bias (Auspurg & Hinz 2014).

Second, because factorial surveys use an experimental design, the researcher fully controls what is presented to respondents. This removes the possibility of unobservable characteristics being correlated to marriage such as personality traits and work attitudes, meaning that unlike traditional surveys, factorial surveys satisfy the requirements of experimental design.

Vignette studies are not without drawbacks: they present hypothetical information rather than real events, and can at best be considered stated intentions. This means that while internal validity is strong, their external validity is weaker. These problems are amplified when the target population is a randomly drawn sample of adults or students, rather than professionals in the field.

Our experimental design

Our factorial survey experiment nullifies the last of these issues by surveying human resources managers. We targeted a large association of human resources professionals with over 4500 members in Switzerland. These HR professionals received a link to a web survey in 2016. 714 individuals responded for a response rate of about 16%, which is at a similar level to other large-scale experiments of a similar nature (e.g. Liechti et al. 2017). As well as the vignettes themselves, we collected information about the respondents. 63% were female and 37% male, close to the 60%-40% split in the HR profession in Switzerland overall, with an average age of 46. 70% responded to the survey in German and 30% in French, approximately mirroring the linguistic split in Switzerland.[1] 93% had been actively involved in recruiting in the last 12 months, meaning our survey did indeed target recruiters.[2] Respondents were concentrated in urban areas, with Zurich and Bern especially overrepresented, and workers in large organisations making up over half of the respondents.[3]

The recruiters were told that our study sought to understand different hiring practices across Swiss regions. Three different job vacancies were described, with each vacancy followed by 4 vignettes – 12 in total per respondent. We selected three occupations – an accountant, a HR assistant, and a building caretaker ("concierge") – that in Switzerland are not male- or female-dominated, and that cover a spectrum of skills required to carry out the occupation. The vignette order was randomized. After each vignette, recruiters were asked how likely they were to invite someone for a job interview (on a scale from 0 to 10), and, regardless of the probability to invite him or her, to designate a monthly salary in Swiss francs, assuming the job was fulltime.

Our vignettes were made up of 11 dimensions including age, gender, nationality, civil status, children, type of education[4] and work experience. This resulted in a vignette universe of 5,529,600 vignettes per occupation, from which we drew an orthogonal (d-efficient) design of 1080 per occupation.[5]

Not all respondents provided answers to the questions on all vignettes. Taking out non-responses and restricting our sample to active recruiters, we are left with an analytical sample of 491 recruiters and 2834 vignettes – approximately 7.4 vignettes per respondent.

3.3 Method

Table 1 summarises our analytical strategy by setting out the suitability of different survey types in testing our three hypotheses. To test the productivity hypothesis, we use a respondent-level panel fixed-effects model with the civil status (married or unmarried) as the independent variable. Fixed-effects account for unobserved heterogeneity and should therefore give us an idea of the changes that occur to wages after marriage – though they will not tell us whether the change is *caused* by marriage. To answer this question, we also use fixed-effects regression but with an added step: matching the never-married observations with those who marry at some point during the observation period, using pre-labour market variables for the matching: years of education, the prestige of the father's job (Treiman scale), health satisfaction, and nationality (Swiss or non-Swiss). We also include the year of birth to account for potential cohort effects. We opt for entropy balancing to carry out the matching. Entropy balancing is a matching technique that calculates scalar weights to the treatment group which can then be used in a regression analysis (Hainmueller 2012). In this way fewer observations are discarded than in other matching techniques where individual observations are matched, leading to "orphan" observations which cannot be analysed. As a robustness check, all the matched analyses are replicated using nearest-neighbour matching with replacement, the results of which can be found in the appendix and which broadly conform with the results obtained by the entropy balancing analysis.

Table 1: Analytical strategy summary – suitability of different survey types

	Cross-section	**Panel Fixed Effects Regression**	**Factorial survey analysis**
Productivity (H1)	*Not suitable*	***Yes – once selection is accounted for (matching)***	*No*
Selection (H2)	*Not suitable*	***Yes – comparison of residuals in matched and unmatched samples***	*No*
Employer preferences (H3)	*Not suitable*	*No*	***Yes – assuming no correlated variables***

The matching process has the benefit of creating a quasi-experimental design and therefore the possibility to assign causality: by making sure that all our observations are the same before they marry, any residual is likely caused by marriage either through productivity changes or a preference of employers for married men. As a consequence we can also measure selection: The difference between our unmatched results and the results with observations matched on pre-labour market characteristics will indicate how much of the difference is due to the selection of men on in higher wage tracks or with higher wage trajectories into marriage (Ludwig and Brüderl 2018, 747).

Our interest lies in the evolution of salaries of married compared to unmarried men. As such, our dependent variable is the natural logarithm of hourly wages. We construct this variable from the annual wage and contractual working hours variable, or usual working hours variable where this is missing. We cap working hours at 60 per week to account for potential over-reporting of hours, and exclude potential outliers by excluding wages above CHF 136 per hour, as well as any wages below CHF 20 per hour[6], corresponding to approximately the top and bottom 1% of the distribution. Inflation is controlled for by using 2015 constant Swiss Francs.

The analytical model for both the matched and unmatched samples can be summarised as follows:

$$Y_{it} = \beta_0 + \beta_1 CIVIL_{it} + \beta_2 AGE_{it} + \beta_3 CHILDREN_{it} + \alpha_t + \varepsilon_{it} \qquad (t=1, 2, \ldots T)$$

where Y is the natural logarithm of hourly wages of an individual i at time t. Our dependent variable, $CIVIL_{it}$, is the time-varying dummy variable of the marital status (either never married or married) of an individual i at time t. AGE_{it} is a covariate specifying the age of the individual. In our regression models, we include age in years as a covariate to account for increasing job experience and the fact that our observations occur across a period in the life course when human capital and salaries increase very quickly. $CHILDREN_{it}$ is a dummy variable of an individual's parenthood status (whether they have children or not). While this is not a study of a fatherhood wage premium or penalty, marriage and fatherhood are closely linked, particularly in Switzerland where 75% of children are born to married parents (OFS 2018). Moreover, given some of the literature argues that it is the transition to fatherhood rather

than the transition to marriage that affects wages (see Astone et al. 2010 for an overview), by including a parenthood variable we are able to ascertain whether or not the change is indeed linked to becoming a husband rather than becoming a father. α_t represents a set of time-variant unobserved characteristics that is perfectly correlated with all individual predictors, while ε_{it} represents the idiosyncratic standard error. We correct for the clustering of observations across waves by using clustered standard errors.

A critical reader may note that we introduce no further controls to our regression models beyond age, children and the variables used for the entropy balancing algorithm. This is a deliberate strategy to avoid controlling away meaningful results – over-control bias. The fact of being married may not directly lead to higher wages but rather filter through other mechanisms: a married man may work longer hours, have a more stable contract or be more likely to be considered a prospect for promotion than single men – all possible contributors to the marriage premium that would not be visible if controlled for. We thus choose to run our models without these controls in order to ensure we capture the full relationship between marriage and wages.

We are left with the analysis of employer preferences, and to do so we turn to our survey experiment, which combines two key features that make it suited to the task: first, it surveys employers and human resources professionals directly, giving us a strong indication of their behaviours and thought processes. Second, by applying an experimental design whereby all variables are known to the researcher and uncorrelated with each other, the results are likely to be an expression of preference towards married men and not confounded with other variables. We again use a fixed-effects regression with civil status as the key independent variable. Here, the fixed-effects refer to the within-effect for survey respondents: we measure only the differences within respondents, and therefore take into account the varying rating threshold, and the fact that it is likely that respondents will compare the vignettes they rate to those previously rated. 3 civil status levels were possible – single, married and divorced – our analysis treats only the difference between single and married. As the candidates apply for different jobs, we use occupation and the interaction between occupation and civil status as controls. Although all dimensions are uncorrelated and should therefore have no impact on the results, we nevertheless also include education, nationality, and experience as controls to convince sceptical readers of our results.

We take the natural log of monthly wages, to determine whether the marriage premium is expressed in terms of higher wages for married men than unmarried.[7] As a check for our results, we take the likelihood, between 0 and 10, of being invited to a job interview, to see whether the premium expressed in terms of employers' preferences for hiring married men over unmarried is similar to that of the wage premium. The general equation is expressed as:

$$Y_{ir} = \beta_0 + \beta_1 OCC_{ir} + \beta_2 CIVIL_{ir} + \beta_2 OCC_{ir}*CIVIL_{ir} + \beta_3 CONTROLS_{ir} + \alpha_r + \varepsilon_{ir} \quad (r=1, 2, \ldots R)$$

where Y_{ir} is either the logarithm of monthly wages for a vignette i evaluated by respondent r, or the likelihood of interview rating respondent r assigns vignette i. OCC_{ir} is a control for occupation, $CIVIL_{ir}$ is a categorical variable of civil status (either single, married, or divorced), $OCC_{ir}*CIVIL_{ir}$ is an interaction term and $CONTROLS_{ir}$ is a vector of control variables. α_r is a set of unobserved variables that correlate with all individual predictors. ε_{ir} is the idiosyncratic random error, and we correct for clustering of observations within respondents by using robust standard errors.

4. Panel data evidence for the male marriage premium

4.1 Descriptive statistics

Table 2 sets out the mean values for our data sample for the independent, dependent and control variables for the full sample, as well as for the group of married observations, and the group of unmarried observations, both weighted and unweighted, to show the effectiveness of the entropy balancing algorithm.

The first thing to note is that the entropy balancing is indeed effective: All the balancing variables are perfectly matched when weights are applied to the unmarried group. When this exercise is repeated for the nearest-neighbour matching results (see table A.3 in the appendix), the difference between the two groups reduces but does not disappear, again vindicating our choice of matching strategy. The nearest-neighbour matching also involved the dropping of some observations that are outliers in the sample, reducing the size of the analytical sample. Overall wages are high, with a near-CHF 3 gap between the married and unmarried group, reducing to a little over CHF 2 when weighted. While this seems small, for a full-time job of 42 hours per week, this represents over CHF 6000 per year, or close to a month's average wage

in favour of married men over unmarried. The two groups are otherwise remarkably similar, with generally only slight differences: the single men are slightly older and less educated but the difference in social origin is minute and there is almost no difference at all in terms of health satisfaction – the variable could be discarded and the analytical results would be largely unaffected. Interestingly, the married men group is slightly less Swiss than the unmarried – a 7 percentage point gap – but both groups are significantly more Swiss than the resident population in Switzerland as a whole, suggesting our dataset does not do a very good job of reaching foreign residents in Switzerland.

With so much similarity between the two groups it is likely that much of the gap in wages seen here is linked to the marital status. To confirm this, we turn to our fixed-effects analysis of the data.

Table 2: Descriptive statistics for SHP analysis

Variable	All observations	Married	Never married, unweighted	Never married, weighted
Married (in %)	88.30%	-	-	-
Average wage (CHF/hour)	45.31	44.59	43.19	43.98
Age (years)	36.3	36.1	38.4	35.8
Year of birth	1970	1971	1967	1971
Years of education	14.9	15	14.1	15
Health (satisfaction on 0-10 scale)	8.2	8.2	8.1	8.2
Nationality (% Swiss)	89%	88%	95%	88%
Social origin (position of father on 0-80 Treiman scale[*]):	43.5	43.4	44.3	43.4
N obs	3413	3013	400	400

* *Treiman scale is inverted: The lower the number, the higher the prestige of the occupation.*

4.2 Fixed-effects regression analysis

If the descriptive statistics confirm the existence of a wage premium for married men in Switzerland, we must resort to regression analysis to identify the relationship between this premium and civil status. Table 3 shows the male marriage premium for men aged 25 to 50 in Switzerland. The first model shows the results for the unmatched observations, including age as a covariate, while the second model reports the results for the matched subsets.

In our raw models, containing only age as a covariate, we see a premium to married men of about 5.6%. This is a within-effect, meaning it measures the change over time in wages of each individual, and could therefore broadly be interpreted as a productivity effect, if no employer preferences towards married men are present and men do not positively select into marriage. This result is below other estimates found using panel data: Budig and Lim (2016), Killewald and Gough (2013) and Hersch and Stratton (2000) find marriage premiums in the order of 7-9% in the US, while in Germany, Barg and Beblo (2007) estimate a wage premium for married men of 9.5%. This could be a case of more recent data reflecting a diminishing penalty, in line with Gray's (1997) finding that the premium has been decreasing as more women join the workforce, or simply suggest that the marriage premium is of a lower order in Switzerland than in these countries. Nevertheless, our results confirm the trend demonstrated in the previous literature if not the magnitude. The age variable suggests that each additional year on the labour market adds 2% to wages, a figure which is confirmed by replicating the analysis with each year of age as a dummy variable. This "experience premium" of 2% a year seems a feasible figure, particularly given such a rise is built-in to many work contracts in the public sector in Switzerland.

The 5.6% premium refers to a correlation between being married and higher wages. It does not take into account whether or not the premium may be *caused* by marriage, through either improved productivity or a preference of employers for married men, or if it results from married men being already on a higher earnings trajectory – the selection effect. Model 2 disentangles this relationship by reweighting the analytical sample with entropy balancing, effectively making the group of never-married men and those who do marry across the same on a set of pre-labour market socio-economic characteristics. Any remaining premium should therefore be the direct result of the fact of being married, net of any selection effects. This model finds that the premium has been reduced to 2.5%, significant only at the $p < 0.1$ level. This finding is in line with previous empirical research showing that selection accounts for between 50% and 80% of the premium (see Petersen et al. 2011, Nakosteen and Zimmer 2001).

Indeed, or results closely match those of Ludwig and Brüderl's (2018: 762-763) longitudinal analysis of the premium in the US, which suggests that approximately half of the premium is due to either married men being in a higher wage track or on a faster growing wage trajectory, the remainder being not statistically significant. The age premium remains the same as in the unmatched model, lending further credibility to the results: a distortion in the age variable may have been a signal of a poor matching algorithm. This would suggest that in Switzerland at least, the selection of more productive men into marriage has a larger effect than productivity, or, possibly, employer preferences.

In a further analysis, we control for parenthood status by introducing a dummy variable for whether or not an individual has children of his own. Including this variable results in a slight increase in the premium in both the matched and unmatched sample – indeed, in both samples having children is associated with a penalty, though the standard errors are quite large, notably in the matched sample. These results argue for a marriage premium independent of parenthood, which may in fact have a negative effect on men's wages.

Table 3: Wage premium for married men, SHP

Dimension	Level	Unmatched (1)	Matched (2)	Unmatched (3)	Matched (4)
Marital status	Married	0.056***	0.025*	0.061***	0.041***
(ref. never married)		(0.021)	(0.015)	(0.022)	(0.015)
Age		0.021***	0.022***	0.021***	0.022***
		(0.002)	(0.001)	(0.002)	(0.001)
Children	Yes			-0.055	-0.131***
(ref. no child)				(0.048)	(0.029)
	Individuals		628		
	Observations		3,413		
	R^2	0.179	0.177	0.18	0.18

Note: Individual fixed-effects regressions on (log) wages for men. Clustered standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.
Observations in the matched sample are matched on social origin (Treiman scale), nationality, year of birth, years of education, health satisfaction.

Figure 1 graphically summarizes the results of our fixed-effects panel data analysis. With our matched samples showing wage premiums of 2.5 and 4.1% when children are excluded from and included in the analysis, respectively, and our unmatched samples showing premiums of 5.6 and 6.1%, the effect of selection on married men's wages is in the order of 2 and 3%. Some of this residual is likely due to productivity, while some may be a result of employers preferring married men over single. To delve further into the question of employer preferences impacting the male marriage premium, we turn to our survey experiment.

Figure 1: Summary of male marriage premiums, matched compared to unmatched, with and without controls for children
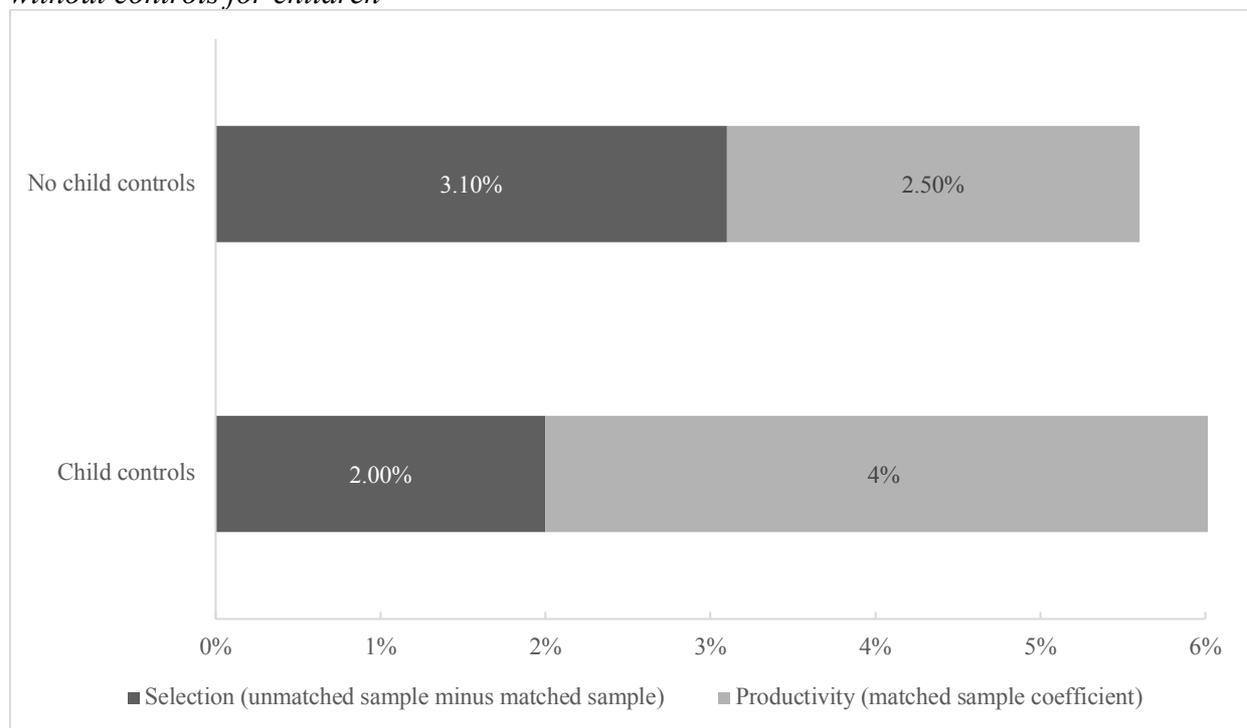
Source: Swiss Household panel, table 3 regressions (own calculation).

5. Experimental evidence for the male marriage premium

5.1 Fixed-effects analysis

Our analysis of Swiss Household Panel data points to a male marriage premium of over 5%, most of which is driven by selection of men with better wage trajectories into marriage. What is left may be due either to increased productivity on the part of married men, or favouritism on the part of employers for these workers. If any part of the male marriage premium is indeed due to the preferences of employers, we should expect to see this in our factorial survey. Table 4 shows the effect of marriage on the wages our sample of employers and recruiters consider adequate for male job candidates. The first model is a simple regression of civil status on wages, where we see a small premium of 1.3% for married men compared to single. This result would seem to be in line with those we found in our panel data analysis.

Our profiles, however, refer to three different occupations with differing job functions and cognitive and physical requirements, and therefore in Model 2 we control for occupation. Despite a small reduction in the size, we find that the premium for married men of approximately 1% becomes statistically significant at $p < 0.1$. In a third model, we account for the fact that marriage may be seen differently in each of the three occupations by introducing an interaction term between occupation and civil status. Here we see an increase in the premium from the model without interaction terms, to a premium of 2% for the reference occupation of accountants. Introducing further controls in Model 4 results in no significant changes, as should be expected from a survey experiment.[8]

The coefficients reported in Models 2-4 refer to the reference category of accountants. The interactions show us that there is indeed a difference between occupations in how civil status affects wages. Figure 2 illustrates these differences: a married HR assistant in fact receives a 1% wage penalty, while a married concierge receives a premium of 1.5%, though in these cases the 90% confidence interval crosses 0.

Table 4: Wage recommendations for men depending on their civil status

Dimension	Level	Model 1	Model 2	Model 3	Model 4
Marital status	Married	0.013	0.009*	0.02*	0.019*
(ref: unmarried)		(0.011)	(0.006)	(0.011)	(0.012)
Occupation	HR assistant		-0.18***	-0.167***	-0.167***
(ref: Accountant)			(0.01)	(0.013)	(0.013)
	Concierge		-0.348***	-0.353***	-0.352***
			(0.008)	(0.014)	(0.014)
Interaction terms	HR assistant*Married			-0.031**	-0.030**
(ref: Acct, unmarried)				(0.014)	(0.014)
	Concierge*Married			-0.003	-0.003
				(0.015)	(0.015)
Controls		No	No	Children	All
	Respondents		395		
	Observations		2,083		
	R^2	0.001	0.6968	0.6993	0.7031

Note: Respondent fixed-effects regressions on (log) wages for men. Clustered standard errors in parentheses. Additional controls in M4 include: children, nationality, education, experience; full M4 model is shown in the Appendix. *p<0.1; **p<0.05; ***p<0.01

Figure 2: Wage recommendations for married men, by occupation (ref single)
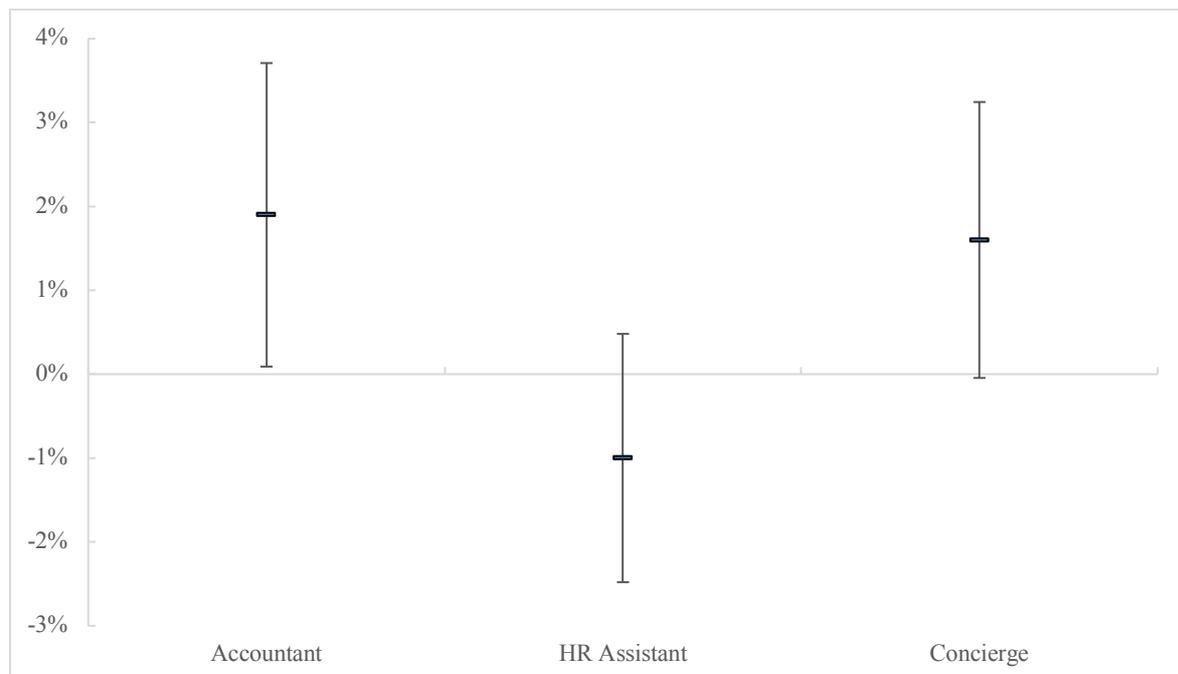
Note: Results from respondent fixed-effects regressions on (log) hourly wages for men, model with control and interaction terms. See the appendix for regression tables including the full models. 90% confidence intervals shown.

5.2 Further analyses and robustness checks

Our factorial survey, then, shows small premiums for married men that do not confirm the large premiums otherwise seen in the literature (though they are in line with the smaller, weaker premiums we find for Swiss men in our panel data analysis), implying that employer preferences do not much affect the married wage premium. Our respondents, however, were also asked to rate the likelihood of inviting profiles to a job interview, a process which also expresses a preference for a certain type of candidate. Given that our wage regressions report large standard errors, we can use these likelihoods to interview values as a robustness check – if they also report preferences for married men, this is a strong indication of the presence of employer preferences in favour of married men. Table 5 reports the regression results for the likelihood to get a job interview dependent the on civil status. Here we see a preference of 0.2 points for married men in the empty model, remaining similar when controls for occupation are added. However, adding an interaction term for civil status with occupation again complicates the story.

Table 5: Probability to invite to a job interview (on a scale from 0 to 10) for men depending on their marital status

Dimension	Level	Model 1	Model 2	Model 3	Model 4
Marital status (ref: unmarried)	Married	0.217*	0.237**	0.256*	0.242*
		(0.091)	(0.083)	(0.131)	(0.132)
Occupation (ref: Accountant)	HR assistant		-1.088***	-1.135***	-1.144***
			(0.11)	(0.15)	(0.15)
	Concierge		0.411***	0.267	0.267
			(0.103)	(0.164)	(0.163)
Interaction terms (ref: Acct, unmarried)	HR assistant*Married			-0.171	-0.141
				(0.196)	(0.197)
	Concierge*Married			0.136	0.147
				(0.206)	(0.207)
Controls		No	No	Children	All
	Respondents			491	
	Observations			2,665	
	R^2	0.003	0.145	0.149	0.1541

Note: Respondent fixed-effects regressions on likelihood to invite to a job interview for men. Clustered standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

Figure 3 shows that although married men are generally preferred over single, this preference varies in size from 0.1 point for HR assistants (where the 90% confidence interval crosses 0), through to 0.24 points for accountants and 0.39 points for building concierges – for comparison, this is a greater preference shown than that for Swiss men over Turkish candidates (0.26 points). There may be several explanations for the fact that the values for hiring preferences are greater than those for wages – expressing a preference for inviting to a job interview for fictive profiles may be a simpler process for recruiters than allocating wages, or, employers prefer married men over single but are reticent to express this in offering higher wages. Either way, the results point to a preference for married men by employers, reinforcing the notion that employers are prone to favouring married men, at least at the higher and lower ends of the job prestige scale.

Figure 3: Probability of inviting for a job interview (on scale from 0 to 10) for married men, by occupation (ref unmarried)
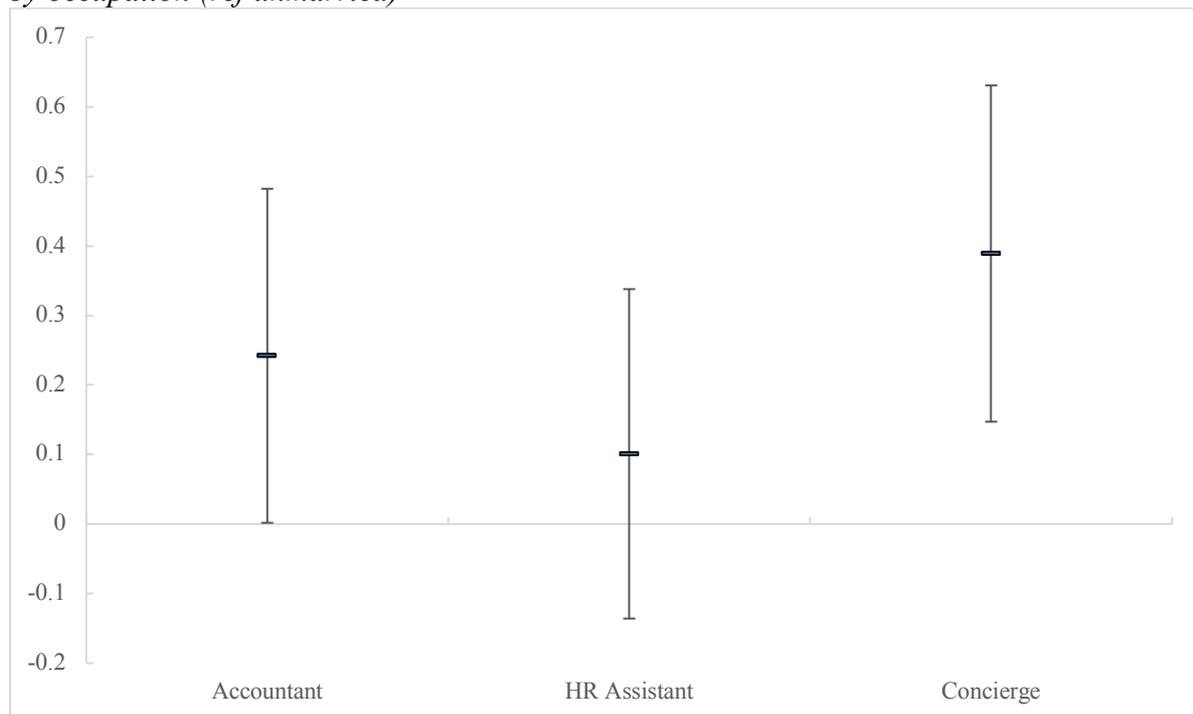
Note: Results from respondent fixed-effects regressions on probability of inviting candidate for a job interview, model with control and interaction terms. See the appendix for regression tables including the full models. 90% confidence intervals shown.

6. Discussion and conclusion

Wage gaps exist not just between genders but within them. Just as mothers earn less than non-mothers (Gangl and Ziefle 2009, Oesch et al. 2017), single men tend to earn less than their married counterparts. These within-gender differences – penalties for mothers, premiums for husbands, form a large portion of the mechanism behind the overall wage gap, and understanding them is key to being able to act upon wage discrepancies in a meaningful way.

This paper has made a twofold contribution to the discussion of the latter of these phenomena, the male marriage premium. First, we confirm the existence of the male marriage premium in Switzerland using national panel data. We find a raw premium of between 5 and 6%, depending on controls for children – smaller than that reported in much of the existing literature but nevertheless significant. This decreases to between 2 and 3% when we match individuals who remain unmarried across the period of observation with individuals who start single but marry during the period of observation, arguing for a strong selection effect. In terms of our initial hypotheses, we cannot confirm H1 – that marriage makes men more productive – but H2 – that more productive men select into marriage – is confirmed by the data. The data also confirms that the marriage premium for men exists whether or not children are controlled for in the analysis.

Following our panel data analysis, we use a survey experiment amongst Swiss recruiters to ascertain how much of the residual is due to employer preferences. We find that recruiters give a 1-2% premium to married men, but that this varies based on occupation. This does not match the wage penalties reported in the previous literature, suggesting that employer preferences play, at most, a very small role in the male marriage premium – although it does conform with the lower-end residuals from our panel data analysis. Our third hypothesis (H3) – that employers prefer married men and therefore offer them a higher wage – is partially confirmed, with this being the case for occupations at the top (accountant) and bottom (concierge) of the workforce, but not in the middle (HR assistant). The effects are also quite small.

Importantly, however, we uncover that wages are only part of the employer preferences story. We find somewhat stronger preferences expressed for married men over single in terms of the probability of inviting for a job interview – in the case of concierges, up to half a point on an 11-point scale, comparable, and in fact sometimes larger to the premium received by being a Swiss applicant as opposed to a foreigner. This suggests that rather than rewarding married men in terms of the salaries offered to them, employers express their preferences earlier

– at the point of interview – but also suggests that employers do express a small preference for married men. This is a unique contribution made by this paper, as modelling outcomes for yet-to-be hired profiles is very difficult using survey data and while possible with audit studies, in this context only an indication of whether or not a profile would be invited to a job interview is possible.

We see vast differences between occupations, with the higher (accountant) and lower (concierge) prestige jobs more affected than the middle occupation (HR assistant). There is evidence that social norms of the good working husband and stay-at-home-wife are stronger in higher-prestige jobs (Carlsson 2011, Berghammer 2014), while in lower-prestige jobs, reliability is valued, and marriage sends a strong reliability signal to many employers of lower skilled jobs (Schwartz 1990), which seems to be reinforced by the results of this analysis.

Our analysis is not without its drawbacks. Concerning the survey experiment, it is clear that while such a setup has the benefit of estimating effects without confounders, given its fictional grounding, the results can at best be considered stated intentions and not necessarily predictions of actual behaviour – though research by Hainmueller et al. (2015) suggests that responses given in an experimental context are in fact quite close to real-world behaviour. Our estimates are also likely to be lower-bound – research by Fuller (2017) into the presence of a motherhood wage penalty in Canada suggests that a professional HR department decreases the penalty. We would expect the same to hold true for marriage premiums, given the employer preferences mechanisms are similar. Given that most Swiss work in SMEs, which often do not have a dedicated HR department, it is likely that the actual effects of employer preferences are higher than those we find in our survey experiment, which is heavily biased towards large enterprises in urban areas which are more progressive and have vastly superior employment and family services than rural areas.

There is a trend in social commentary to suggest that as living arrangements become more flexible, and cohabitation without marriage becomes more acceptable in most societies, judgements based on marital status may become a thing of the past (Gray 1997). This paper confirms that trend to a degree by finding a smaller premium than much of the previous literature, largely driven by selection. Employers attribute slightly higher wages to married men than single, suggesting that employer preferences, based either on statistical discrimination or

social norms in Switzerland do still have some (small) impact on wage decisions when it comes to civil status. Moreover, we find that employers also express a preference for married men at the point of interview, and that this "interview premium" is stronger than the wage one in our survey experiment analysis. In other words, it is harder for unmarried men to get a "foot in the door" than their married counterparts. While the marriage premium may be diminishing in terms of wages, it is important to also consider other areas in which married men may be favoured. Using analytical strategies that can identify causal relationships and analyse employers directly is an important contribution to understanding, and therefore being able to better address, such questions.

7. Notes

[1] Of the three main official languages of Switzerland, German is spoken by 63% of the population, French by 23% and Italian by 8% (OFS 2016). A small number of Italian speakers responded, mostly in German.

[2] 82% of these active recruiters claimed "decisive influence" over the hiring process in their firm.

[3] Other large urban areas, including Basel and the Lake Geneva region, were underrepresented, as well as rural German-speaking regions and Ticino, the main Italian-speaking canton of Switzerland. Half of the respondents were employed in organisations of over 250 workers, and a quarter in organisations of over 1050 employees. In reality, most Swiss work in small and medium enterprises. The public sector is also overrepresented compared to the Swiss labour market.

[4] The Swiss education system places a heavy focus on vocational education and so the distinction between vocational and academic degrees is well known and understood by employers.

[5] Tables of all vignette dimensions and levels, and correlations between the dimensions, are available in the appendix. Some dimensions (nationality, hobbies, experience, type of education, participation in labour market programmes, channel of application) are of no direct interest to our study but are included to further other research interests and to make our profiles more realistic.

[6] Switzerland has no federal statutory minimum wage but wages below CHF 20 per hour are extremely rare outside of in-firm apprenticeships and internships.

[7] The wage distribution can be found in the appendix and shows that median wages in the sample (6000 Swiss francs overall, CHF 7200 for accountants, CHF 6000 for HR assistants and CHF 5000 for caretakers) are plausible and correspond closely to the median monthly wage in the Swiss private sector of CHF 6189 (OFS 2015).

[8] Full regression tables, including all controls, can be found in the appendix.

8. References

Ashwin, S., & Isupova, O. (2014). 'Behind Every Great Man…': The Male Marriage Wage Premium Examined Qualitatively: The Male Marriage Wage Premium. *Journal of Marriage and Family*, *76*(1), 37–55. https://doi.org/10.1111/jomf.12082

Astone, N. M., Dariotis, J. K., Sonenstein, F. L., Pleck, J. H., & Hynes, K. (2010). Men's Work Efforts and the Transition to Fatherhood. *Journal of Family and Economic Issues*, *31*(1), 3–13. https://doi.org/10.1007/s10834-009-9174-7

Auspurg, K., & Hinz, T. (2014). *Factorial survey experiments* (Vol. 175). Sage Publications.

Barg, K., & Beblo, M. (2007). The Male Marital Wage Premium in Germany: Selection versus Specialization. *Schmollers Jahrbuch*, *127*, 59–73.

Becker, G. S. (1973). A Theory of Marriage: Part I. *Journal of Political Economy*, *81*(4), 813–846. https://doi.org/10.1086/260084

Berghammer, C. (2014). The return of the male breadwinner model? Educational effects on parents' work arrangements in Austria, 1980–2009. *Work, Employment and Society*, *28*(4), 611–632. https://doi.org/10.1177/0950017013500115

Bielby, W., & Baron, J. (1986). Men and Women at Work: Sex Segregation and Statistical Discrimination. *American Journal of Sociology, 91*(4): 759–99.

Breusch, T., & Gray, E. (2004). Does marriage improve the wages of men and women in Australia? In *Population and Society: Issues, research, policy*. Canberra.

Budig, M. J., & Lim, M. (2016). Cohort Differences and the Marriage Premium: Emergence of Gender-Neutral Household Specialization Effects: Marriage Premiums, Specialization, Cohort Change. *Journal of Marriage and Family*, *78*(5), 1352–1370. https://doi.org/10.1111/jomf.12326

Bygren, M., Erlandsson, A., & Gähler, M. (2017). Do Employers Prefer Fathers? Evidence from a Field Experiment Testing the Gender by Parenthood Interaction Effect on Callbacks to Job Applications. *European Sociological Review*, *33*(3), 337–348. https://doi.org/10.1093/esr/jcx051

Carlsson, M. (2011). Does Hiring Discrimination Cause Gender Segregation in the Swedish Labor Market? *Feminist Economics, 17*(3), 71–102. https://doi.org/10.1080/13545701.2011.580700

Chiodo, A. J., & Owyang, M. T. (2002). For love or money: Why married men make more. *Regional Economist, April*, 10–11.

Chun, H., & Lee, I. (2001). Why do married men earn more: productivity or marriage selection? *Economic Inquiry*, *39*(2), 307–319. https://doi.org/10.1111/j.1465-7295.2001.tb00068.x

Cohen, P. N. (2002). Cohabitation and the Declining Marriage Premium for Men. *Work and Occupations*, *29*(3), 346–363. https://doi.org/10.1177/0730888402029003004

de Wolf, I. (2001). Selection Processes for Three Types of Academic Jobs. An Experiment among Dutch Employers of Social Sciences Graduates. *European Sociological Review*, *17*(3), 317–330. https://doi.org/10.1093/esr/17.3.317

Di Stasio, V. (2014). Education as a Signal of Trainability: Results from a Vignette Study with Italian Employers. *European Sociological Review*, *30*(6), 796–809. https://doi.org/10.1093/esr/jcu074

Eckstein, Z., Keane, M., & Lifshitz, O. (2017). Wages and Employment of Married vs. Unmarried Individuals: Cohorts born 1935–1975.

England, P., & Farkas, G. (1986). *Households, employment, and gender: a social, economic, and demographic view*. New York: Aldine Pub. Co.

Gangl, M., & Ziefle, A. (2009). Motherhood, Labor Force Behavior, and Women's Careers: An Empirical Assessment of the Wage Penalty for Motherhood in Britain, Germany, and the United States. *Demography*, *46*(2), 341–369. https://doi.org/10.1353/dem.0.0056

Ginther, D. K., & Zavodny, M. (2001). Is the Male Marriage Premium Due to Selection? The Effect of Shotgun Weddings on the Return to Marriage. *Journal of Population Economics*, *14*(2), 313–328.

Gorman, E. H. (1999). Bringing Home the Bacon: Marital Allocation of Income-Earning Responsibility, Job Shifts, and Men's Wages. *Journal of Marriage and the Family*, *61*(1), 110. https://doi.org/10.2307/353887

Gray, J. S. (1997). The Fall in Men's Return to Marriage: Declining Productivity Effects or Changing Selection? *The Journal of Human Resources*, *32*(3), 481. https://doi.org/10.2307/146180

Gupta, N., Smith, N., & Stratton, L. (2007). Is Marriage Poisonous? Are Relationships Taxing? An Analysis of the Male Marital Wage Differential in Denmark. *Southern Economic Journal*, *74*(2), 412–433.

Hainmueller, J. (2012). Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies. *Political Analysis*, *20*(1), 25–46. https://doi.org/10.1093/pan/mpr025

Hamermesh, D. S., & Biddle, J. E. (1994). Beauty and the Labor Market. *The American Economic Review*, *84*(5), 1174–1194.

Hersch, J., & Stratton, L. S. (2000). Household Specialization and the Male Marriage Wage Premium. *ILR Review*, *54*(1), 78–94. https://doi.org/10.1177/001979390005400105

Hlavec, M. (2018). Stargazer: Well-Formatted Regression and Summary Statistics Tables. R package version 5.2.1. https://CRAN.R-project.org/package=stargazer

Hughes, J., & Maurer-Fazio, M. (2002). Effects of Marriage, Education and Occupation on the Female / Male Wage Gap in China. *Pacific Economic Review*, *7*(1), 137–156. https://doi.org/10.1111/1468-0106.00156

Jacobsen, J. P., & Rayack, W. L. (1996). Do Men Whose Wives Work Really Earn Less? *The American Economic Review*, *86*(2), 268–273.

Jasso, G. (2006). Factorial Survey Methods for Studying Beliefs and Judgments. *Sociological Methods & Research*, *34*(3), 334–423. https://doi.org/10.1177/0049124105283121

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, *127*(4), 472–503. https://doi.org/10.1037/0033-2909.127.4.472

Killewald, A., & Gough, M. (2013). Does Specialization Explain Marriage Penalties and Premiums? *American Sociological Review*, *78*(3), 477–502. https://doi.org/10.1177/0003122413484151

Killewald, A., & Lundberg, I. (2017). New Evidence Against a Causal Marriage Wage Premium. *Demography*, *54*(3), 1007–1028. https://doi.org/10.1007/s13524-017-0566-2

Korenman, S., & Neumark, D. (1991). Does Marriage Really Make Men More Productive? *The Journal of Human Resources*, *26*(2), 282. https://doi.org/10.2307/145924

Levy, R. (2013). Regulating life courses: national regimes of gendered trajectories. In R. Levy & E. Widmer (Eds.), *Gendered life courses between standardization and individualization: a European approach applied to Switzerland* (pp. 225–244). Zürich: Lit-Verl.

Lewis, M. A., McBride, C. M., Pollak, K. I., Puleo, E., Butterfield, R. M., & Emmons, K. M. (2006). Understanding health behavior change among couples: An interdependence and communal coping approach. *Social Science & Medicine, 62*(6), 1369–1380. https://doi.org/10.1016/j.socscimed.2005.08.006

Liechti, F., Fossati, F., Bonoli, G., & Auer, D. (2017). The Signalling Value of Labour Market Programmes. *European Sociological Review*, *33*(2), 257–274. https://doi.org/10.1093/esr/jcw061

Ludwig, V., & Brüderl, J. (2018). Is There a Male Marital Wage Premium? New Evidence from the United States. *American Sociological Review*, *83*(4), 744–770. https://doi.org/10.1177/0003122418784909

Murphy, E., & Oesch, D. (2016). The Feminization of Occupations and Change in Wages: A Panel Analysis of Britain, Germany, and Switzerland. *Social Forces, 94*(3), 1221–1255. https://doi.org/10.1093/sf/sov099

Nakosteen RA, & Zimmer MA. (2007). Spouse selection and earnings: evidence of marital sorting. *Economic Inquiry, 39*(2), 201–213. https://doi.org/10.1111/j.1465-7295.2001.tb00061.x

Oesch, D., Lipps, O., & McDonald, P. (2017). The wage penalty for motherhood: Evidence on discrimination from panel data and a survey experiment for Switzerland. *Demographic Research*, *37*, 1793–1824. https://doi.org/10.4054/DemRes.2017.37.56

OFS Office fédéral des statistiques. (2018). *Naissances vivantes selon le rang biologique de naissance et l'état civil de la mère, en 2017*. Neuchâtel: OFS.

OFS Office fédéral des statistiques. (2016). *Indicateurs du marché du travail 2016*. Neuchâtel: OFS.

OFS Office fédéral des statistiques. (2015). *Enquête suisse sur le niveau des salaires 2014*. Neuchâtel: OFS.

Pencavel, J. (1986). Labor supply of men: A survey. In O. Ashenfelter & D. Card (Eds.), *Handbook of Labor Economics* (Vol. 1, pp. 3–102). Elsevier. https://doi.org/10.1016/S1573-4463(86)01004-0

Petersen, T., Penner, A. M., & Høgsnes, G. (2011). The Male Marital Wage Premium: Sorting Vs. Differential Pay. *ILR Review*, *64*(2), 283–304. https://doi.org/10.1177/001979391106400204

Rossi, P. H., & Nock, S. L. (1982). *Measuring social judgments: The factorial survey approach*. SAGE Publications, Incorporated.

Schwartz, O. (1990). *Le monde privé des ouvriers*. Paris: Presses Universitaires de France.

Smith, K. P., & Christakis, N. A. (2008). Social Networks and Health. *Annual Review of Sociology, 34*(1), 405–429. https://doi.org/10.1146/annurev.soc.34.040507.134601

Thompson, L., & Walker, A. J. (1989). Gender in Families: Women and Men in Marriage, Work, and Parenthood. *Journal of Marriage and Family*, *51*(4), 845–871. https://doi.org/10.2307/353201

Umberson, D., Crosnoe, R., & Reczek, C. (2010). Social Relationships and Health Behavior Across the Life Course. *Annual Review of Sociology, 36*(1), 139–157. https://doi.org/10.1146/annurev-soc-070308-120011

Valarino, I., & Gauthier, J.-A. (2016). Paternity leave implementation in Switzerland: a challenge to gendered representations and practices of fatherhood? *Community, Work & Family*, *19*(1), 1–20. https://doi.org/10.1080/13668803.2015.1023263

Voorpostel, M., Tillmann, R., Lebert, F., Kuhn, U., Lipps, O., Ryser, V.-A., Schmid, F., Antal, E., Monsch, G.-A., & Wernli, B. (2016). *Swiss Household Panel User Guide (1999 - 2015), Wave 17, December 2016.* Lausanne: FORS

Appendix
Figure A.1: Example vignettes (translated from French/German)

You will now be asked to evaluate 12 fictional candidates for 3 different jobs. For each candidate, please give the likelihood that you would invite him or her to a job interview (0 = very unlikely, 10 = very likely) as well as the monthly salary you would pay them. All the candidates completed their compulsory schooling in Switzerland, have been unemployed for 6 months, and lost their previous job due to the closure of their firm.

HR Assistant job candidate:

Application:	One of your employees had recommended Mr Ismail Üstgül for the vacant position.
Personal details:	He is 45 years old, has 2 school-aged children and is unmarried.
Education:	He has completed his upper-secondary schooling.
Professional experience:	He has, amongst other work experience, 8 years of Human Resources experience in the private sector.
Language skills:	Mr Üstgül speaks French and Turkish.
Hobby:	He is a committee member of *Türkgücü*, a Turkish cultural association.
Further information:	He is currently completing training in human resources management, paid for by the Regional Employment Office.

Invite for an interview:	Monthly gross salary (100%):
0 1 2 3 4 5 6 7 8 9 10	_____ CHF

Accountant job candidate:

Application: A few days ago, you received a spontaneous application from Ms Nathalie Rochat.

Personal details: She is 40 years old, has one school-aged child, and is divorced.

Education: She completed professional business studies and has a diploma in accounting.

Professional experience: She has, amongst other work experience, 8 years of accounting experience in the public sector.

Language skills: Ms Rochat speaks French

Invite for an interview:	Monthly gross salary (100%):
0 1 2 3 4 5 6 7 8 9 10	_____ CHF

Building caretaker job candidate:

Application: The Regional Unemployment Office has sent you the application of Mr Pedro Martinez.

Personal details: He is 45 years old, has no children and is married.

Education: He completed an apprenticeship as a commercial building maintenance specialist.

Professional experience: He has, amongst other work experience, 8 years of building maintenance experience in the private sector.

Language skills: Mr Martinez speaks German and Spanish.

Hobby: In his free time, he volunteers as a driver for the Red Cross.

Further information: Alongside his job search, he has a part-time job as a sales assistant in a retail business.

Invite for an interview:	Monthly gross salary (100%):
0 1 2 3 4 5 6 7 8 9 10	_____ CHF

Figure A.2: Wage distribution for different job candidates
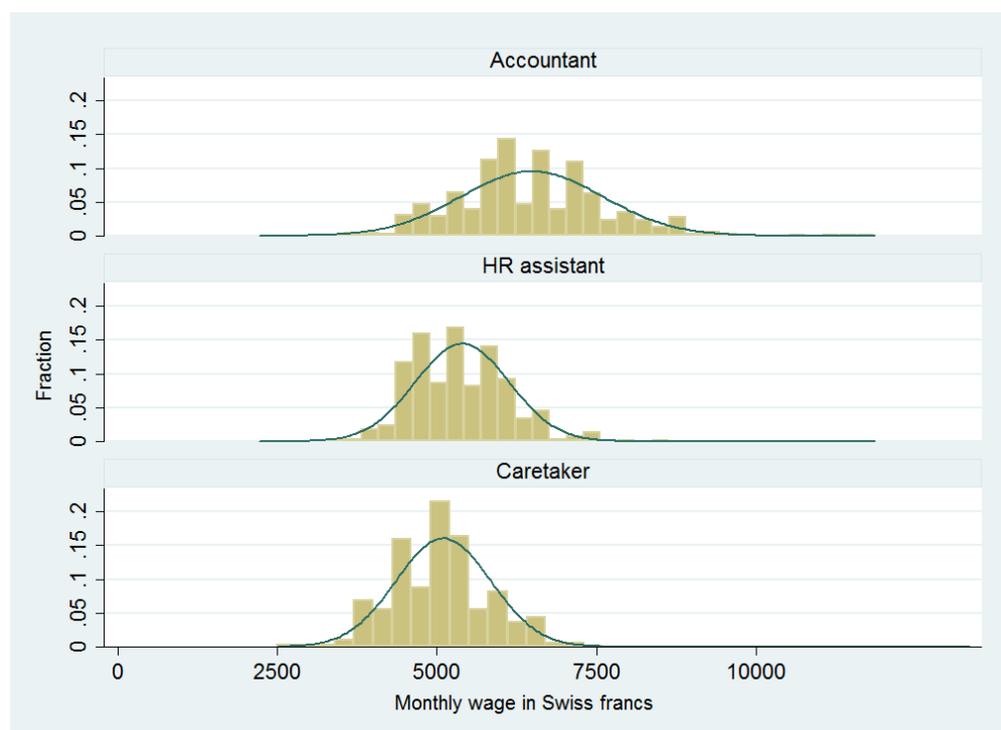
Notes: N respondents 418 (active recruiters only), N vignettes 4137.

Table A.1: variables included in the vignettes of the factorial survey experiment

Dimension (variable)	Levels (values)
Gender*	Male, female
Age	35, 40, 45, 50, 55
Children	0, 1, 2, 3
Civil Status	Unmarried, married, divorced
Type of education	Vocational, general
Type of work Experience	Private sector, public sector
Nationality*	Swiss, Spanish, Turkish, Polish
Mother tongue	German/French German/French plus an additional language
Participation in active labour market program**	None, training program, occupational program (matched and unmatched), subsidy, temporary employment
Channel of Application	Advertisement, referral from current employee, unsolicited application, regional employment service
Hobby**	None, swim coaching, board member of a Swiss/foreign cultural association, volunteer for Red Cross driving service

* *These dimensions were denoted by the names of applicants*
** *"None" implies that this dimension did not appear in the vignette.*

Table A.2: correlations between vignette dimensions (Cramer's V)

	1	2	3	4	5	6	7	8	9	10	11
1 ALMP	1										
2 Channel of applic.	0.028	1									
3 Gender	0.015	0.02	1								
4 Age	0.023	0.017	0.018	1							
5 Children	0.017	0.017	0.034	0.024	1						
6 Civil status	0.028	0.01	0.015	0.036	0.011	1					
7 Hobby	0.029	0.027	0.015	0.024	0.021	0.011	1				
8 Education	0.019	0.021	0.003	0.017	0.009	0.017	0.007	1			
9 Nationality	0.02	0.016	0.013	0.021	0.022	0.019	0.027	0.025	1		
10 Experience	0.013	0.016	0.003	0.014	0.019	0.014	0.015	0	0.013	1	
11 Language	0.022	0.015	0.001	0.009	0.018	0.003	0.009	0.002	0.014	0.018	1

No correlation is statistically significant at $p<0.05$

Table A.3: Descriptive statistics of SHP analysis (nearest-neighbour replication)

Variable	All observations	Married	Never married, before matching	Married, after matching	Never married, after matching
Married (in %)	88.30%	-	-	-	-
Average wage (CHF/hour)	45.31	44.59	43.91	46	46.2
Age (years)	36.3	36.1	38	36.6	37.3
Year of birth	1970	1971	1967	1970	1969
Years of education	14.9	15	14.1	14.9	15.8
Health (satisfaction on 0-10 scale)	8.2	8.2	8.1	8.1	7.9
Nationality (% Swiss)	89%	88%	95%	94%	92%
Social origin (position of father on 0-80 Treiman scale[*]:)	43.5	43.4	44.4	44	44.3
N obs		3413	3013	350	2557	324

Note: the "N obs" row values appear as: 3413, 3013, 350, 2557, 324

[*] *Treiman scale is inverted: The lower the number, the higher the prestige of the occupation.*

Table A.4: Wage premium for married men, SHP (nearest-neighbour matching replication)

Dimension	Level	Unmatched (1)	Matched (2)	Unmatched (3)	Matched (4)
Marital status (ref. single)	Married	0.056*** (0.021)	0.036** (0.022)	0.061*** (0.022)	0.044*** (0.023)
Age		0.021*** (0.002)	0.022*** (0.002)	0.021*** (0.002)	0.022*** (0.002)
Children (ref. no child)	Yes			-0.055 (0.048)	-0.094*** (0.046)
	Individuals	628	504	628	504
	Observations	3,413	2,881	3,413	2,881
	R^2	0.179	0.181	0.18	0.183

Note: Individual fixed-effects regressions on (log) wages for men. Clustered standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

Observations in the matched sample are matched on social origin (Treiman scale), nationality, year of birth, years of education, health satisfaction. Nearest-neighbour matching carried out with replacement: control observations can be matched more than once.

Table A.5: Wage recommendations for men, depending on their marital status

Dimension	Level	
Marital status (ref: unmarried)	Married	0.019* (0.011)
Occupation (ref: Accountant)	HR assistant	-0.167*** (0.013)
	Concierge	-0.352*** (0.014)
Education (ref: lower education)	Higher	0.019*** (0.005)
Nationality (ref: Swiss)	Spanish	-0.009 (0.007)
	Polish	-0.01 (0.007)
	Turkish	-0.010* (0.006)
Experience (ref: Public sector)	Private	0.007 (0.005)
Interaction terms (ref: Acct, unmarried)	HR assistant*Married	-0.03** (0.014)
	Concierge*Married	0.003 (0.015)
Children (ref: no child)	1 child	0.005 (0.007)
	2 children	-0.01 (0.007)
	3 children	0.003 (0.007)
	Respondents	395
	Observations	2,083
	R^2	0.7031

Note: Respondent fixed-effects regressions on (log) wages for men. Clustered standard errors in parentheses.
*$p<0.1$; **$p<0.05$; ***$p<0.01$

Table A.6: Probability to invite to a job interview (on a scale from 0 to 10) for men depending on their marital status

Dimension	Level	
Marital status (ref: unmarried)	Married	0.242* (0.132)
Occupation (ref: Accountant)	HR assistant	-1.144*** (0.15)
	Concierge	0.267 (0.163)
Education (ref: lower education)	Higher	0.129* (0.07)
Nationality (ref: Swiss)	Spanish	-0.046 (0.092)
	Polish	-0.159* (0.088)
	Turkish	-0.26*** (0.09)
Experience (ref: Public sector)	Private	0.046 (0.075)
Interaction terms (ref: Acct, unmarried)	HR assistant*Married	-0.141 (0.197)
	Concierge*Married	0.147 (0.207)
Children (ref: no child)	1 child	-0.112 (0.108)
	2 children	-0.121 (0.109)
	3 children	-0.079 (0.102)
	Respondents	491
	Observations	2,665
	R^2	0.1541

Note: Respondent fixed-effects regressions on likelihood to invite to a job interview for men. Clustered standard errors in parentheses. *$p<0.1$; **$p<0.05$; ***$p<0.01$