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The effect of unemployment on couples separating. Panel evidence for Germany, Switzerland and the United Kingdom

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Abstract

We examine how unemployment affects the separation risk of heterosexual co-residing couples using an innovative method and large panel surveys. Theoretically, unemployment spells may decrease the separation risk as a drop in resources makes separation more costly. In contrast, the separation risk should increase if unemployment creates stress and reduces the quality of couple relations. In addition, the effect may not be homogeneous for all couples. If men's jobs are more consequential for household income and social status, male unemployment may undermine couple stability more than female unemployment. Moreover, low-income couples may be more vulnerable to the negative consequences of unemployment than high-income couples. We analyze the heterogeneous effects of unemployment on separation for Germany, Switzerland and the UK, using household panels that observe couples over time. We innovate by combining fixed-effects regressions with a matching method. This provides us with a control group of comparable couples that did not experience unemployment. For all three countries, our results show a doubling of the separation rate after an unemployment spell: It increases from 2% to 4% per year. This effect does not vary when men or women lose their job. However, contrary to Germany, it is higher for low-income couples than high-income couples in the UK where the welfare state provides only weak income protection to the unemployed.

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Introduction

The experience of unemployment has far-reaching consequences for individuals. It does not only hamper their work careers and lead to economic insecurity (Ehlert 2013), but also affects other life domains such as health and subjective well-being (Ervasti & Venetoklis 2010, Oesch & Lipps 2013, Price et al. 2002). Moreover, the effects of unemployment often transcend the individual and may upset the whole household (McKee-Ryan & Maitoza 2018). Our paper's question is how unemployment affects the likelihood of separation among heterosexual co-residing couples.

Our starting point is an apparent paradox. Country-level evidence suggests that divorce rates decrease in periods of recessions when unemployment increases (Amato & Beattie 2011, Cohen 2014, Kalmijn 2007, Schaller 2013). When material resources become scarce, the relative cost of separation may increase and thus enhance couple stability. At the same time, a number of individual-level studies indicate that workers who lose their job are also more likely to separate from their partners (e.g. Charles & Stephens 2004, Doiron & Mendolia 2012, Eliason 2012, Hansen 2005). Economic hardship produces uncertainty and stress which may, in turn, decrease the quality of couple relations and increase the risk of union dissolution. Of course, increased stability at the macro-level and more instability at the couple level are compatible if divorce rates fall during recessions among couples who may worry about the economy, but who do not experience unemployment.

Our paper's objective is to analyze the existence of heterogeneous treatment effects of unemployment on union dissolution (Xie et al. 2012). The impact of unemployment on couples may vary depending on whether it is the man or the woman who loses his or her job. If the social norm to work is stronger for men or if men take home a larger share of the household income, their unemployment may create more stress and increase the risk of union dissolution to a greater extent.

Our paper thus examines whether couples are affected to a greater extent by his than her unemployment.

The relationship may also vary for different socio-economic groups. We thus differentiate the effect of unemployment on low-income, mid-income and high-income couples. Two contrasting expectations exist on this issue. If one of the main benefits from marriage stems from shared consumption and insurance against negative earning shocks, individuals in low-income households may be less likely to separate after becoming unemployed. On the contrary, if union stability is a function of the resources that individuals possess, couples in low-income households may be at a greater risk of union dissolution after an unemployment spell (Hansen 2005).

Our study adds to the literature by comparing the effect of unemployment on couples for three West European countries, Germany, Switzerland and the United Kingdom, using longitudinal data from three of Europe's longest running household panels. Depending on a country's welfare state, unemployment may have different consequences for couple relationships (Albertini and Kohli 2012, Esping-Andersen 1999, Saraceno and Keck 2011).

Previous studies suffer from the problem that individuals who lose their jobs are more likely to separate because they constitute a selective group who struggle both to keep down a job and keep their couple working. Our paper's methodological innovation is to combine panel fixed-effects regressions with a matching method. A key benefit of matching is that it provides a control group of couples who did not experience an unemployment spell, but who present the same risk factors for unemployment and union dissolution. By comparing the separation rate between couples who experience unemployment and comparable couples who did not, we obtain a difference-in-differences model that brings us closer to estimating the true causal effect of unemployment on union dissolution than earlier analyses.

Our paper first presents the mechanisms through which unemployment affects the stability of couples. It then distinguishes between his and her unemployment and discusses the possibility of heterogeneous income effects. The methods section presents the data, measures and matching method. The results section shows how the separation rate varies after an unemployment spell by gender and income and provides several robustness tests. The conclusion compares our results with earlier findings.

The link between unemployment and union dissolution

In essence, the literature distinguishes three mechanisms through which unemployment may be associated with union dissolution. First, it may reduce the risk of union dissolution as a result of increased costs of separation. Second, unemployment may increase the risk of separation by creating stress and thus weakening relationship quality. Third, the association may be spurious and simply reflect selection if some underlying characteristics hamper both job stability and couple stability.

Evidence at the aggregate level strongly suggests that divorce rates decrease in periods of recessions when unemployment is on the rise – be it in Europe (Kalmijn 2007) or the United States (Amato & Beattie 2011, Cohen 2014, Schaller 2013). This association is attributed to the increased relative *cost of divorce*: In times of economic uncertainty, separations may become more costly relative to a spouse's or couple's (diminishing) resources (Cohen 2014). A separation may not only lead to legal fees, but also increases the costs of housing and childcare, all the while decreasing the economies of scale that come with a larger household (Browning & Chiappori 1998). This, in turn, may reduce the probability of union dissolution.

The negative relationship between unemployment rates and divorce rates is evident at the macro-level only. High unemployment rates may thus affect the decision-making of the majority of couples who do not experience unemployment, but who are worried about the economic context and therefore shy away from separation. This macro-level explanation does not rule out that at the individual level, workers who actually lose their job may still have a higher likelihood of breaking up. The main mechanism through which unemployment would increase the risk of union dissolution is stress (Aneshensel 1992, Pearlin et al. 1981). Becoming unemployed is a stressful life event that may depress income, social status, self-esteem and health (Paul et al. 2018). Moreover, unemployment is likely to affect both partners by creating common stressors, such as economic hardship, and by the transmission of one partner's stress to the other, thereby hampering relationship quality and increasing the risk of separation (Howe et al. 2005). Unemployment may further have a signaling effect: It may signal lower value in the labor market, lower earnings potential and hence reduce an individual's attractiveness as a partner (Boheim & Ermisch 2001, Charles & Stephens 2004, Doiron & Mendolia 2012, Vignoli et al. 2016).

There may be a third and altogether different explanation for the association between unemployment and union dissolution, which is that individuals who lose their jobs are more likely to separate because they constitute a selective group. Characteristics such as young age, low education or working in a menial occupation may increase the likelihood of experiencing both unemployment and union dissolution.

The bulk of studies that analyze the relationship between unemployment and union dissolution on the individual level find that workers who lose their job are also more likely to separate from their partner. This is the case for Denmark (Jensen & Smith 1990), Finland (Jalovaara 2003, 2013), Germany (Franzese & Rapp 2013, Kraft 2001), Norway (Hansen 2005), Sweden (Eliason 2012), the UK (Boheim & Ermisch 2001, Doiron & Mendolia 2012) and the United States (Charles &

Stephens 2004, Yeung & Hofferth 1998). However, with the notable exception of Eliason (2012) who looks at job displacement after firm closure rather than unemployment, none of these studies explicitly addresses selection by using a counterfactual design and including a comparable control group of workers who did not lose their job. However, the inclusion of a control group is crucial to address the issue of selection because the counterfactual situation, in the absence of unemployment, is not union stability for all couples, but dissolution for some. This means that many individuals who became unemployed and then separated would also have seen their couple break up if they had not experienced unemployment.

Nonetheless, given the strong associational evidence that unemployment hampers couple stability, we expect to find that an unemployment episode increases the risk of union dissolution. Thereby, we try to improve on earlier research by assessing if this association is present after accounting for selection effects and whether it holds across different countries. Hence, our first hypothesis is:

Hypothesis 1: An unemployment spell increases the risk of union dissolution among heterosexual co-residing couples.

Differences by gender

The risk of union dissolution may depend on whether it is men or women who become unemployed. Among others, unemployment has been found to affect men's health more than women's (Artazcoz et al. 2004). A stronger effect of unemployment on men could be the result of the gendered division of labor. If men take home a larger share of the household income, their unemployment may be more consequential for the household's economic security. As a result, unemployment of men might produce more financial stress and therefore have a stronger effect on

the risk of union dissolution. Moreover, regardless of the actual division of labor within the couple, men may still have a stronger identification with work and derive their own status to a larger extent from their job. Becoming unemployed may thus be more detrimental to men's self-esteem. This effect is further strengthened if being out of work is seen as reflecting more negatively on men than women (Michniewicz et al. 2014), because the social norm to be in paid employment is still stronger for men than women (Lalive & Stutzer 2010).

Empirical support for unemployment leading to an increase in divorce if witnessed by men, but not by women, has been found for Denmark in the period of 1979-1985 (Jensen & Smith 1990). More recent data for Finland (Jalovaara 2003) and Norway (Hansen 2005) suggest that unemployment among either husbands or wives is positively associated with divorce. Nonetheless, the effect on divorce seems stronger for men's than women's unemployment, be it in Germany (Franzese & Rapp 2013), Finland (Jalovaara 2003) or Sweden (Eliason 2012). Our second hypothesis therefore expects his unemployment to be more detrimental for couple stability than her unemployment:

Hypothesis 2: An unemployment spell increases the risk of union dissolution more if the male rather than the female partner becomes unemployed.

Differences by household income

Stress has been defined as a condition in which the demands of the environment exceed individuals' resources to cope (Amato & Beattie 2011: 706). A negative life event such as an unemployment spell may produce more or less stress depending on an individual's resources. This suggests that unemployment may have a heterogeneous effect on couple stability – that is, an effect that possibly varies by household income.

If one of the main benefits from being in a couple stems from shared consumption and insurance against negative shocks to household earnings, individuals in low-income households should be less likely to separate after becoming unemployed. Experiencing a period of unemployment increases the economic benefits of marriage to a larger degree for low-income than mid- or high-income households. On the contrary, if couple stability increases with the economic resources that individuals possess, low-income households may be at a greater risk of union dissolution after becoming unemployed (Hansen 2005).

Conflicting predictions have been made as to whether consequences of unemployment are harsher for individuals with a higher or a lower socio-economic status (Paul et al. 2018). On the one hand, individuals formerly employed in higher status jobs may suffer more, because they tend to lose a more attractive workplace, their occupation may be more central to their identity, and they may feel more stigmatized as the event is rare and harder to justify than losing a blue-collar job. On the other hand, individuals formerly employed in higher status jobs may not only have more economic means, but possibly also better coping strategies (Kulik 2000). To the extent that they also have higher levels of education, they may fall back to educational attainment as an alternative provider of identity.

Empirical findings from meta-analyses on the consequences of unemployment suggest that job loss has more negative effects on couples with lower income. Notably in terms of mental health and wellbeing, this effect seems clear (McKee-Ryan et al. 2005, Paul & Moser 2009). More generally, studies assessing how unemployment affects partnerships single out economic hardship as a crucial determinant that increases depression and anxiety in both partners (Price et al. 2002, Weckström 2012), thereby affecting marital adjustment (Kinnunen & Feldt 2004). Overall, we thus expect couples with higher income to be less likely to separate following unemployment than couples in lower-income households. This leads to our third hypothesis:

Hypothesis 3: The experience of unemployment increases the risk of union dissolution more for couples with low household income than high household income.

Country context

Our analysis compares three countries with different welfare states and institutional rules for individuals faced with unemployment. Given the small number of countries, there is no point in formulating country-level hypotheses. However, it is useful to review the two key dimensions that affect the stress created by a spell of unemployment: the generosity of unemployment benefits and the difficulty to find a new job.

With respect to benefit generosity, there is clear evidence that unemployed workers who receive financial support fare better in terms of mental health and life satisfaction than their colleagues who receive no or only meager benefits (Wulfgramm 2014). In line with this finding, a meta-analysis suggests that the effect of unemployment is less severe in countries with stronger social safety nets (Paul and Moser 2009). Our study includes the German and Swiss welfare states molded by Bismarck and the British welfare state carrying the imprint of Beveridge (Bonoli 1997). In the Bismarckian logic of corporatism, unemployment benefits are proportional to pre-displacement earnings and thus preserve status differences among the unemployed. In contrast, Britain's welfare state has an anti-poverty focus and is based on minimum income schemes that mostly pay out flat-rate benefits (Clasen & Clegg 2011). As a consequence, unemployment benefits are much higher in Germany and Switzerland than the UK, with replacement rates of previous income of 60% in Germany and 72% in Switzerland as compared to 34% in the UK (OECD 2020). Moreover, the duration of entitlement with unemployment insurance is twice as long in Germany (12 months) and thrice as long in Switzerland (18 months) as in the UK where it is limited to 6 months (OECD

2020). Unemployed individuals in the UK thus depend to a greater extent on means-tested benefits such as the jobseeker allowance (Clasen & Clegg 2011).

Weaker income protection in the UK may be partly compensated by a more dynamic labor market that offers unemployed workers better prospects of quickly returning to a job. The British labor market has, comparable to the United States, higher turnover rates and a stronger culture of hire-and-fire that results in less long-term unemployment (DiPrete et al. 1997). Indeed, while the unemployment rates did not differ much over the last two decades in our three countries (with the lowest average in Switzerland, the highest in Germany and the UK in-between), the incidence of long-term unemployment was substantially lower in the UK than in Switzerland and Germany. Almost half of the unemployed in Germany spend more than a year on unemployment, but this is the case only for a third in Switzerland and a fourth in the UK.⁵

Institutions may not only leave their imprint on our treatment variable of unemployment, but also on our outcome variable of couple stability. In terms of partnership prevalence or divorce rates, our three countries vary little. In 2011, the share of adults who were cohabiting, married or in registered partnerships amounted to 64% in Switzerland, 63% in Germany and 61% in the UK (OECD 2016: 2). While marriage is somewhat more widespread in Germany and Switzerland, more couples are cohabiting in the UK. Yet differences are again small, with 53% of the adult population being married in Germany and Switzerland as compared to 48% in the UK (OECD 2016: 2). With respect to divorce, the UK used to have a much higher rate in the 1980s and 1990s.

⁵ Between 2000 and 2019, the unemployment rate was 6.9% in Germany, 5.7% in the UK and 4.1% in Switzerland. Between 2000 and 2018, the share of all the unemployed individuals who were unemployed for over a year was 48% in Germany, 35% in Switzerland and 27% in the UK (OECD statistics, <https://stats.oecd.org/> assessed on 6 June 2020).

However, since the early 2000s, the British divorce rate has declined continuously and by the 2010s, the UK had a slightly lower divorce rate than Switzerland and Germany (OECD 2019: 4).

This comparison suggests that the mechanisms at play in union creation and dissolution may be similar in the three countries. Still, income protection is much lower and paid out for a shorter period in the UK than Germany and Switzerland. This leads us to expect that an unemployment spell creates more stress and economic hardship in the UK, notably for low-income households.

Data and measures

Our analyses are based on household panels that provide yearly data on individuals and households: the German Socio-Economic Panel 1984-2017 (SOEP), the Swiss Household Panel (SHP) 1999-2018 as well as the British Household Panel Study 1991-2008 (BHPS) and UK Household Longitudinal Study 2009-2018 (UKHLS), also known as Understanding Society. All three household panels interview all household members (of a certain age) and thus gathers information from both partners directly.

We construct a couple-year dataset. Our analytical sample includes all heterosexual couples at risk of experiencing unemployment (our treatment variable) in the age range from 25 to 64. We restrict the analysis to couples where the two partners are observed as living in the same household for at least three years and where at least one member is in the labor force. After additionally dropping unmatched couples (see below), we obtain 22,624 couples for Germany, 6,220 for Switzerland and 31,326 for the UK.

Our dependent variable is the separation of heterosexual couples, including both cohabiting and married couples, during the year of unemployment or the three following years. Respondents report

annually on the presence of a partner in the household. We consider a couple to be separated when one partner leaves the household, excluding cases of widowhood.

Our key independent variable is an unemployment spell, defined as moving from employment to unemployment by either partner in the couple.⁶ We include all unemployment spells in our analysis. As a robustness test, we show how results change when unemployment is defined as lasting at least 4 months or when it only includes spells caused by redundancy or dismissal (in the UK) and firm closure or employers' decision (in Germany). When an unemployment spell spans over multiple survey waves (e.g., t and $t+1$), it is assigned to the first year of occurrence (year t).

For the analysis of heterogeneous effects by income, we stratify our analytical sample into three hierarchically ordered income terciles. These terciles are based on post-government household income measured two years before the unemployment spell. Household incomes are deflated with the consumer price index and adjusted for household size using the OECD equivalence scale (a weight of 1 for the respondent, 0.5 for other adults and 0.3 for children).

Table A.1 in the appendix provides descriptive statistics and shows that 16% of couples separated in the German and the UK sample compared with 14% in the Swiss sample. The incidence of unemployment is highest in the UK data where we observe a spell of unemployment for 27% of couples as compared to 24% in the German data and 13% in the Swiss data. For Switzerland, we have not only a much smaller sample, but also a smaller share of couples experiencing unemployment. For this reason, we only show the main effect of unemployment on union dissolution for Switzerland and abstain from subsample analyses.

⁶ In the SHP and SOEP, individuals report each year their employment status on a monthly basis as well as their current labor force status. In UKHLS, personal questionnaires reconstruct the work activity of respondents at the time of the interview as well as any labor market spell that began after the interview of the previous year.

Matching method

Our analytical strategy approaches a causal design by addressing reverse causality and selection bias. Under the potential outcome framework (Rubin 1974), each couple has two potential outcomes: $Y(1)$ indicates the likelihood of separation that would result if the couple experienced an episode of unemployment, and $Y(0)$ indicates the likelihood of separation if the couple did not experience any unemployment. Therefore, for each couple, the causal effect of unemployment on the likelihood of separation is defined as $Y(1) - Y(0)$. Because each couple is observed only in either the treatment or the control group, either $Y(1)$ or $Y(0)$ is observed for each couple. This means that the counterfactual separation rate must be estimated using a control group.

We make the control and treatment group as comparable as possible by using a matching approach. For each couple that is affected by a partner's unemployment (treatment group), we try to identify couples in which partners were not unemployed, but who were observed during the same time period and who shared similar socio-demographic characteristics and thus had a similar risk of unemployment and couple dissolution (control group).

We use the matching method of coarsened exact matching (CEM, Iacus et al. 2011), which involves three steps. First, we temporarily coarsen each control variable that may confound the influence of unemployment on separation by transforming it into categories (age, for example, is coarsened into four categories). Second, we sort all units into strata, each of which has the same values of the coarsened variables. Third, we drop the couples in any stratum that do not include at least one treated and one control unit.

The variables used for matching include, for each partner, age (25-34; 35-44; 45-54; 55-64), education (ISCED 1-2; 3-4; 5-6) and occupation (ISCO major group 1-2, 3, 4, 5, 6-7-8, 9, missing). On the couple level we further include the survey year, children in the household (yes/no), being married (yes/no), partners' labor force participation two years before unemployment (both work

vs. one is not active in labor force).⁷ We further use indicators for assortative mating which possibly increase couple's stability (Boertien & Härkönen 2018, Matysiak et al. 2014): the difference in partners' age (woman more than 2 years older; age difference between -2 and 2 years; man more than 2 years older) and education (male partner more highly educated, same education, female partner more highly educated).

Tables W.1 to W.3 in the web-appendix show the descriptive statistics of the treatment and control group, before and after matching. For some individuals in the treatment group, the matching algorithm did not find a comparable individual in the control group (in technical terms, there was no common support, Iacus et al. 2011). These individuals were left out from the analysis.

The year used for matching precedes the unemployment spell of the treatment group by two years to prevent reverse causality. For each unemployment spell, we then create a six-year observation period (two years before unemployment, the year of unemployment, and up to three years after). For each treated couple that we observe before an unemployment spell, the matching algorithm finds one or more similar counterfactuals in the control group. This allows us to compare the likelihood of separation for these two groups.

Regression model

We estimate the impact of a partner's unemployment on a couple's risk of dissolution using a fixed-effects panel model (Halaby 2004). Combined with matching, this provides us with a difference-in-differences design (Balbo & Arpino, 2016). After matching the treated to their counterfactuals, we then estimate the rate of separation in the two groups in a time window spanning from $t = -1$ (the year after matching) to $t = 3$. This model only uses the within-couple variance over time and thus eliminates time-constant unobserved heterogeneity such as personality

⁷ In the UK, we further match for partnership duration (less than 2 years, 2-5 years, 5-10 years, 10-20 years, 20+ years).

and abilities, which might affect both the risk of unemployment and partnership separation. We estimate the following model:

$$Y_{jt} = \alpha_j + \sum_{k=-2}^3 \beta_k U_k + \sum_{k=-2}^3 \gamma_k I_g U_k + v_{jt} \quad (1)$$

Where Y_{jt} is a dichotomous indicator for the status of a couple j (0 = intact; 1= separated) at time t . U_k indicates the time dummies for the k^{th} year relative to the year of unemployment, and β_k represents the separation rate of a couple that is not affected by unemployment. Our model thus allows us to determine the separation rate of the control group. I_g identifies the couples experiencing an unemployment spell and is interacted with the time indicators. The subscript g indicates the gender of the partner experiencing an unemployment spell (0 = female; 1= male). The coefficient γ_k captures the *differential rate* of separation among couples experiencing an unemployment spell relative to the control group in a given year. If the separation rate is higher (lower), it needs to be added (subtracted) to the control group's baseline separation rate. α_j is the couple's fixed effect, while v_{jt} captures idiosyncratic errors. We use standard errors clustered for individuals because the observations are not independent over time.

Note that our difference-in-differences design seeks to overcome a typical issue affecting event history models that are also commonly used for our type of research question: the presence of couple-specific, time-invariant and unobserved effects denoted as α_j in the equation above. Fixed-effects panel regressions control for time-constant differences between couples in unobserved traits. Of course, there may be unobserved time-varying couple characteristics that correlate with the occurrence of unemployment. This issue means that, although we try to get closer to a causal model, we cannot claim to identify strict causal mechanisms.

The effect of unemployment on couple stability

We test our first hypothesis by examining whether a spell of unemployment increases the risk of a subsequent union dissolution. The estimates for the three countries are presented in Figure 1. The left-hand panel of each country chart displays the predicted annual risk of separation for the control group. The right-hand panel shows the *additional* risk of separation for couples that experienced an unemployment spell. The full regression is shown in Table W.4 in the web-appendix.

The left-hand panels reveal that couples in the United Kingdom and Switzerland who do not experience unemployment have a predicted separation rate that oscillates around 2% per year over our five-year observation window. In Germany, the predicted probability of separation is slightly higher and fluctuates between 2 and 2.5% per year. Consistent with the descriptive statistics discussed above, the three countries in our study show very similar separation rates, with about one co-residing couple in fifty separating every year.

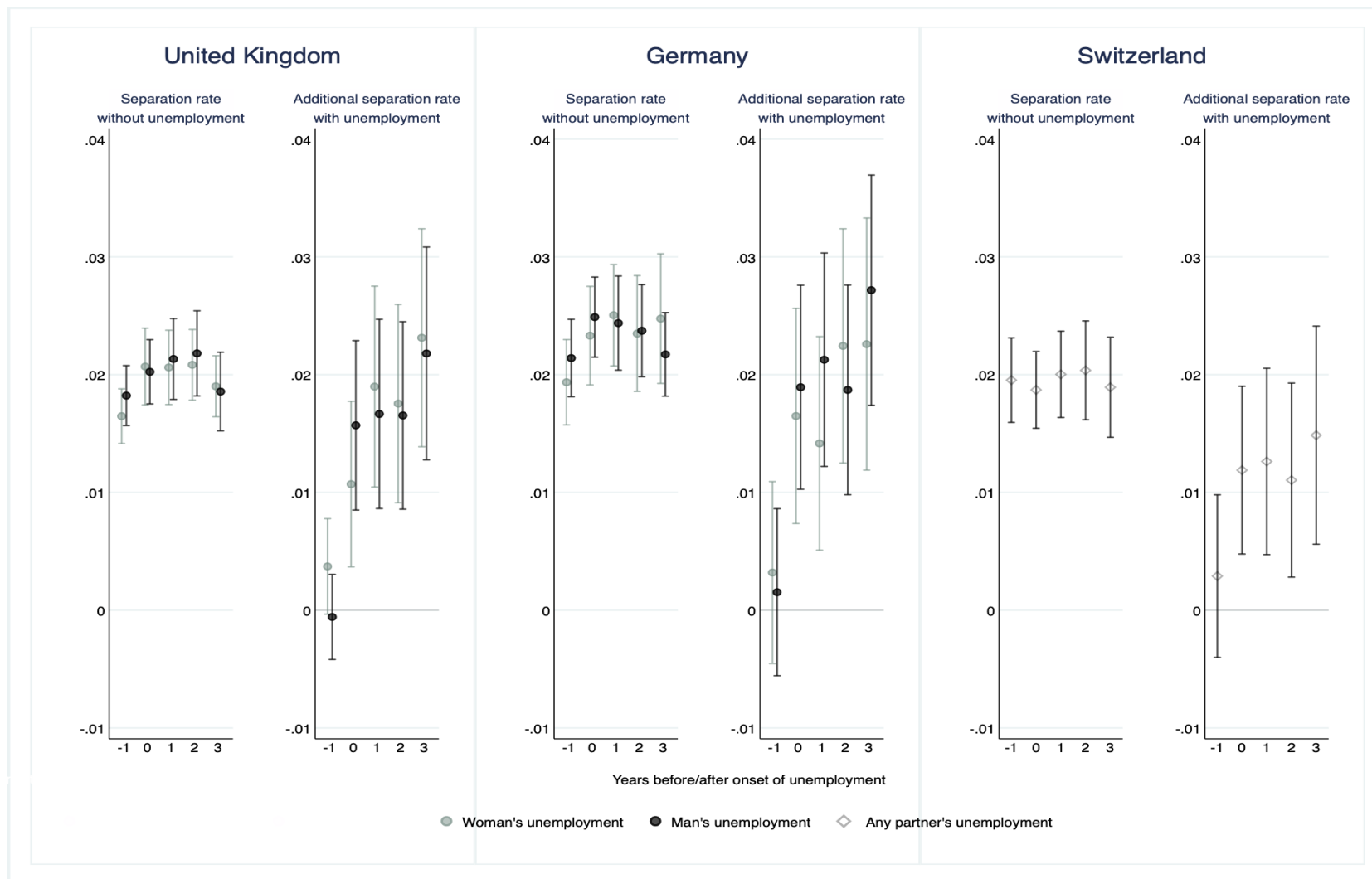
Our main interest lies in the right-hand panels that show the differential risk of separation for couples where either the male or female partner experiences a spell of unemployment (our treatment group). In all three countries, this group's separation rate in the year before an unemployment spell is not any different from the separation rate of the control group (the additional separation rate is around 0). This suggests that our matching method works as the couples in the control and treatment group initially show the same propensity to separate. However, a spell of unemployment leads to a substantial increase in the likelihood of union dissolution in all three countries. The right-hand panels show that for the UK and Germany, the excess risk ranges between 1.5 and 2.5 percentage points in the years following an unemployment spell. In Switzerland the additional risk of separation lies a bit lower at 1.5 percentage points. This means that an unemployment spell almost doubles a couple's risk of separation, increasing from 2% (control

group) to between 3.5%-4.5% (treatment group). Rather than pulling couples together, unemployment increases the risk of separation.

Figure 1 shows that the effect of unemployment on couple's stability is not limited to the year when the unemployment spell begins, but remains strong and statistically significant in the subsequent three years. This not only supports our first hypothesis of an increased likelihood of separation, but also shows that this effect persists. There are several possible explanations for this long-lasting effect. Unemployment likely triggers a period of uncertainty, job-seeking and re-adjustment to new circumstances. This process may increase stress and dissatisfaction in the partnership, leading to conflict and possibly separations – but separations and notably divorce are a time-consuming business that may be in the making for a moment before it results in the end of co-residence. Moreover, the experience of unemployment often leaves long-term scars on mental well-being (Mousteri 2018) and work careers, forcing workers to downgrade to less paid and less advantageous jobs (Gangl 2006). These longer term effects may lead to separation later down the line.

This leads us to our second hypothesis which expects a more negative impact of men's than women's unemployment on couple's stability. Figure 1 distinguishes whether a couple was hit by unemployment of the male or female partner in the United Kingdom and Germany. There is no difference for the UK. For Germany, the point estimates suggest that the extra risk of union dissolution increases slightly more if men become unemployed rather than women in three years following an unemployment spell. However, the differences are very small and not statistically significant. This suggests that there is no consistent effect and thus leads us to reject the second hypothesis. The separation rate increases to a similar extent if an unemployment spell is experienced by the male or the female partner.

Figure 1: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel)



Data: BHPS 1999-2008, UKHLS 2009-2018, SOEP 1984-2017, SHP 1999-2018

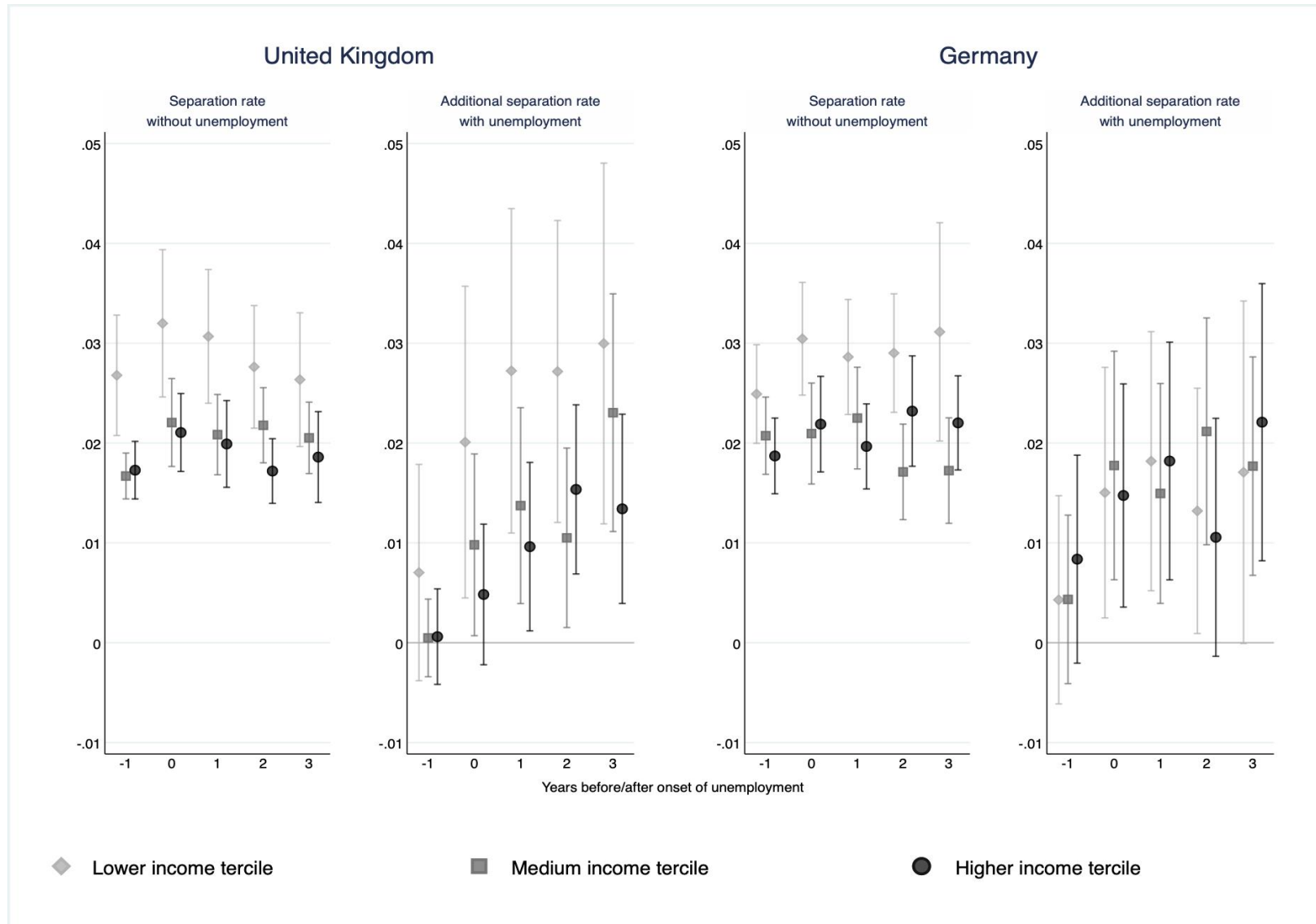
Varying effects by household income

We test our third hypothesis by assessing whether the effect of unemployment on separation rates varies by household income. Results are shown in Figure 2 and present again the separation rates for the control group in the left-hand panel and the additional risk of separation for the treatment group in the right-hand panel. For these stratified analyses, we no longer distinguish whether it is men or women who become unemployed. The full regression is shown in Table W.5 in the web-appendix.

We first focus on the separation rates for the control group and observe for Germany and the UK the income gradient of separation reported in the literature (De Graaf & Kalmijn 2006, Härkönen & Dronkers 2006): Couples in the lowest income tercile have systematically higher separation rates than couples in the middle and highest income tercile. The contrast is sizable as the separation rates of low-income couples exceed those of high-income couples by almost one percentage point in both Germany and the UK.

Consistent with our expectations, low-income couples in the UK seem to face a higher risk of separation after an unemployment spell than high-income couples. While confidence intervals are large, point estimates suggest that when a partner becomes unemployed, couples in mid- and high-income terciles see their separation rates go up by about one to two percentage points in the UK as compared to three percentage points among couples in the low-income tercile. In contrast, we do not observe any income effect for Germany where the three income groups face the same additional risk of union dissolution. These results only partly confirm our third hypothesis which expected low-income couples to be more vulnerable after an unemployment spell because they are likely to have fewer financial resources to cope with stress. Our analysis suggests that this may be the case in the UK where the welfare state provides a much weaker social safety net for the unemployed than in Germany.

Figure 2: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel) by household income terciles



Robustness tests

We perform a series of robustness tests. We begin by estimating a simple fixed-effects model without matching for a control group (see Figure A.1 in the appendix). The results lead to the same conclusions. The year before an unemployment spell, annual separation rates are about 1.5% in Switzerland and the UK, around 2.5% in Germany. Separation rates double with the onset of unemployment and fluctuate at around 3% in the UK and 4% in Germany and Switzerland during our observation window. Whether it is men or women who become unemployed does not seem to make a significant difference. This model without a control group is, however, not able to distinguish between the effect of unemployment and the possibility that separation rates may increase over time in general, as couples without unemployment spells do not enter the equation.

Another source of doubt may be the shortness of many unemployment spells. We thus re-estimate our initial model (with matching and fixed effects), but only include unemployment spells that last four months or longer, thereby eliminating short and possibly inconsequential unemployment episodes. While these results show exactly the same pattern over time, the effect size becomes a bit larger (see Figures A.2 and A.3 in the appendix). The additional separation rate due to unemployment reaches almost three percentage points in Germany and the UK. Again, there are no gender differences nor a heterogeneous effect by household income in Germany, but only in the United Kingdom.

Another concern is that some couples let one partner's contract end on purpose in order to improve their work-life balance. We test this assumption of "voluntary" unemployment by only including those unemployment spells that are caused by "redundancy" or "dismissal" in the United Kingdom (as in Upward & Wright, 2017) and "firm closure" or "employers' decision" in Germany (as in DeNew & Haisken-DeNew, 2009). When only considering these unemployment spells that are less prone to individuals' agency, we find that unemployment becomes more disruptive for couples (see Figure A.4 in the appendix). In both Germany and the UK, separation rates are half a percentage point higher if unemployment is due to firm closure, redundancy or employers' decisions. Moreover, men's

unemployment appears to affect couples more negatively than women's unemployment. However, since confidence intervals are larger than in our standard model and overlap, we prefer not to draw strong conclusions.

We further test the possibility of a differential impact by gender. Our theoretical expectation of a more disruptive effect of male than female unemployment was based on the assumption that men contribute, on average, more income to the household than women. We test this assumption directly by distinguishing whether an unemployment spell is experienced by a partner who is – or who is not – the couple's main earner, the main earner being defined as earning more than 55% of the couple's work income. These results indeed suggest that a spell of unemployment may be more disruptive if it is experienced by the couple's main earner (see Figure A.5 in the appendix). In both Germany and the UK, separation rates are half a percentage point higher if the main earner becomes unemployed – an effect that is not negligible given the baseline separation rate of about 2%. At the same time, the large size of confidence intervals dissuades us from drawing strong conclusions.

Finally, a stronger impact of his than her unemployment was also expected on the basis of the idea that unemployment may be more detrimental to men's social status and identity than women's, notably in contexts where gender roles are traditional (Poortman 2005). We test this idea by dividing the German data into two periods: 1984-1999 and 2000-2017. If gender norms have become less conservative as suggested by Germany's steadily rising female employment rate, then men's unemployment should be more detrimental than women's unemployment in the earlier, but not later subperiod. Our analysis does not confirm this expectation (see Figure A.6 in the appendix). In Germany, men's unemployment is not associated with systematically higher separation rates than women's unemployment in 1984-1999 or 2000-2017.

Conclusion

Our paper raised the question of whether the experience of unemployment increases or decreases the risk of separation. If one of the main benefits from living in a partnership stems from shared consumption and insurance against negative life events, unemployment should reduce the risk of separation. In contrast, as unemployment creates economic uncertainty and mental stress, it may decrease relationship quality and increase the risk of break-ups. Finally, the relationship may be spurious and driven by selection of individuals into both unstable work situations and unstable partnerships. Our study has tried to provide a robust answer to this question for Germany, Switzerland and the UK by using long-running panel datasets that allow us to combine a matching-method with fixed-effects regressions. Four main findings are noteworthy.

First, our estimates clearly show that unemployment increases the risk of separation in all three countries. The separation rate increases by 1.5 to 2.5 percentage points in the years following an unemployment spell. This implies that the experience of unemployment doubles the risk of the couple breaking up. Our results are in line with earlier studies for Sweden (Eliason 2012) and the UK (Doiron and Mendolia 2012) which report a negative effect of job displacement on the risk of divorce. However, they run contrary to the findings provided by Charles and Stephens (2004) who did not find for the United States any significant effect on divorce after plant closure (a specific type of job loss).

Second, our panel regressions show that partnerships are equally affected by men and women's unemployment. In Germany and the UK, the risk of separation is no larger for couples where men become unemployed than for couples where women become unemployed. Our results thus contradict findings from earlier periods (1979-1985) for Denmark where men's labor market status was shown to be more consequential for couple stability (Jensen & Smith 1990). Yet our findings are consistent with more recent studies from Norway (Hansen 2005) and Sweden (Eliason 2012), which show a comparable effect of men and women's unemployment on union dissolution. Our analyses provide tentative evidence that an unemployment spell is more disruptive for couples if it affects the main earner.

Third, our analysis only partly confirms the existence of heterogeneous effects by household income. We expected that unemployment would increase the risk of dissolution more for couples with low than

high household income, based on the argument that having more financial resources reduces the economic uncertainty and mental stress associated with unemployment. Our results do not validate this expectation for Germany. Yet they do so for the UK where couples in lower-income households seem less shielded from the negative consequences of unemployment. Their separation rates after unemployment exceed those of higher-income couples by 1.5 percentage points. One possible explanation is that by offering modest income replacement over a short period only, the British welfare state turns unemployment into a more stressful life event in the UK than in Germany. However, given the limited number of observations in our surveys, our analysis only provides tentative evidence on these heterogeneous effects. Future research on register data could go further in-depth and provide a more fine-grained analysis of how income differences affect couple stability.

Fourth, despite the differential impact of household income, overall our study provides surprisingly similar findings across countries. Consistent with the similarity in partnership prevalence and divorce rates, Germany, Switzerland and the UK show similar separation rates for couples having lived together for at least two years: 2 to 3% of our control group separate every year. In our three countries, couples affected by unemployment show a similar increase in their separation rate, with an additional 1.5 to 2.5 percentage points. Hence, rather than pointing to cross-country differences, our comparison points to a micro-level mechanism that looks much alike in the three West European countries under study. This suggests that it is not solely a matter of reduced resources that turns unemployment into a stressful and potentially disruptive event.

Finally, our study confirms that decreasing separation rates during periods of high unemployment that are consistently found in country-level studies are not driven by couples who themselves experience unemployment. Although divorce rates tend to decline in recessions (Amato & Beattie 2011, Kalmijn 2007), individuals who become unemployed are still more likely to see their couples break up. Hence, unemployment does not strengthen couples, but makes them more vulnerable – regardless which partner becomes unemployed and regardless of a household's economic resources.

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Appendix

Table A.1: Descriptive statistics. Sample size by unemployment occurrence and partnership outcome

	United Kingdom		Germany		Switzerland	
	N	Share	N	Share	N	Share
Number of couples	31326		22642		6220	
Any partner ever unemployed	8360	0,27	5425	0,24	817	0,13
Couple ever separated	5028	0,16	3697	0,16	853	0,14
No partner ever unemployed & Couple never separated	19776	0,63	14806	0,65	4726	0,76
Any partner's unemployment & Couple never separated	6522	0,21	4139	0,18	641	0,10
Man's unemployment & Couple never separated	3221	0,10	2279	0,10	251	0,04
Woman's unemployment & Couple never separated	3301	0,11	1860	0,08	390	0,06
No partner ever unemployed & Couple separated	3190	0,10	2411	0,11	677	0,11
Any partner's unemployment & Couple separated	1838	0,06	1286	0,06	176	0,03
Man's unemployment & Couple separated	868	0,03	669	0,03	74	0,01
Woman's unemployment & Couple separated	970	0,03	617	0,03	102	0,02

Figure A.1: Fixed-effects panel regressions without matching on the probability of couples separating (separation rates before and after unemployment)

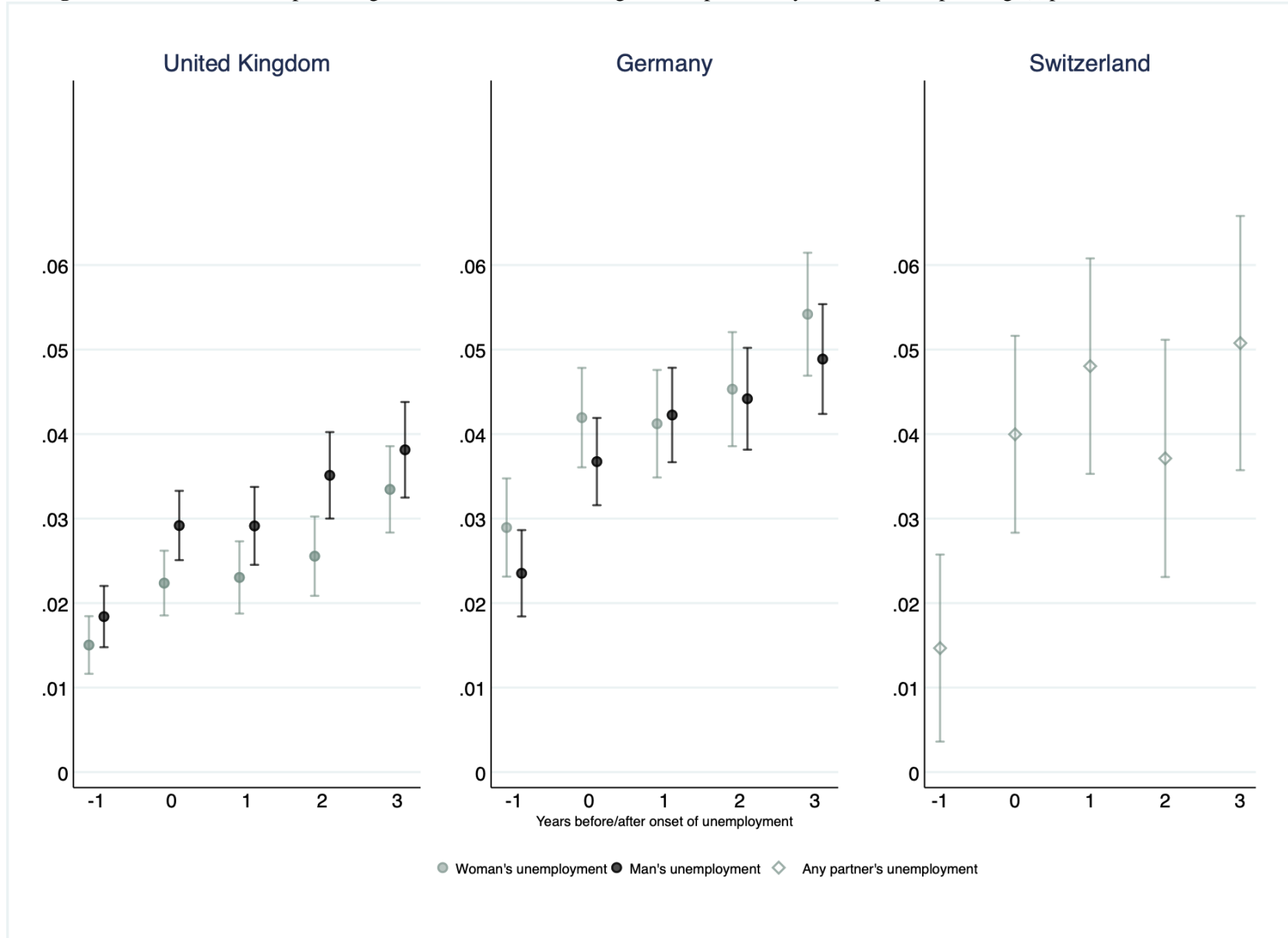


Figure A.2: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel) – unemployment spells of at least 4 months

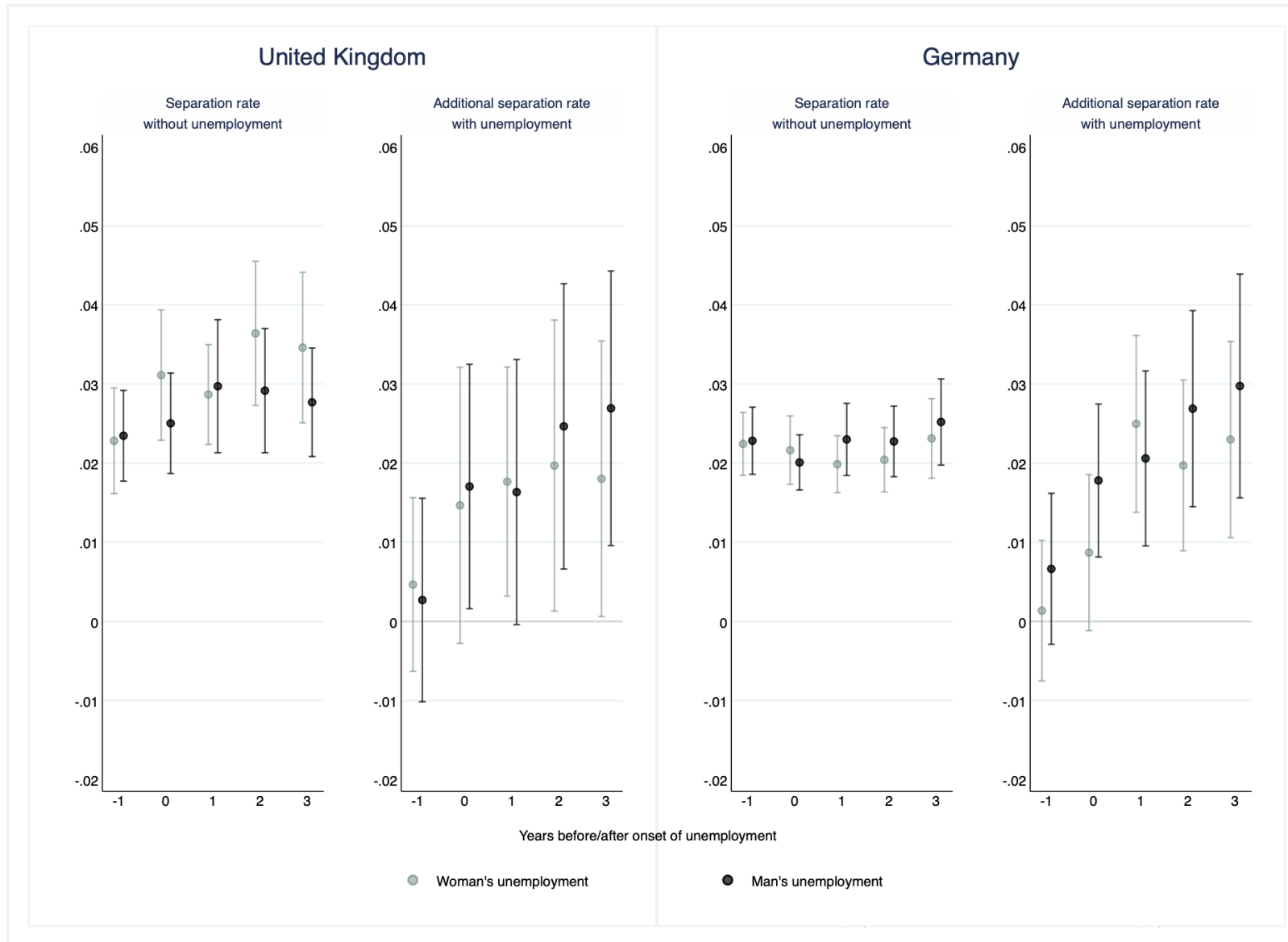


Figure A.3: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel) – unemployment spells of at least 4 months

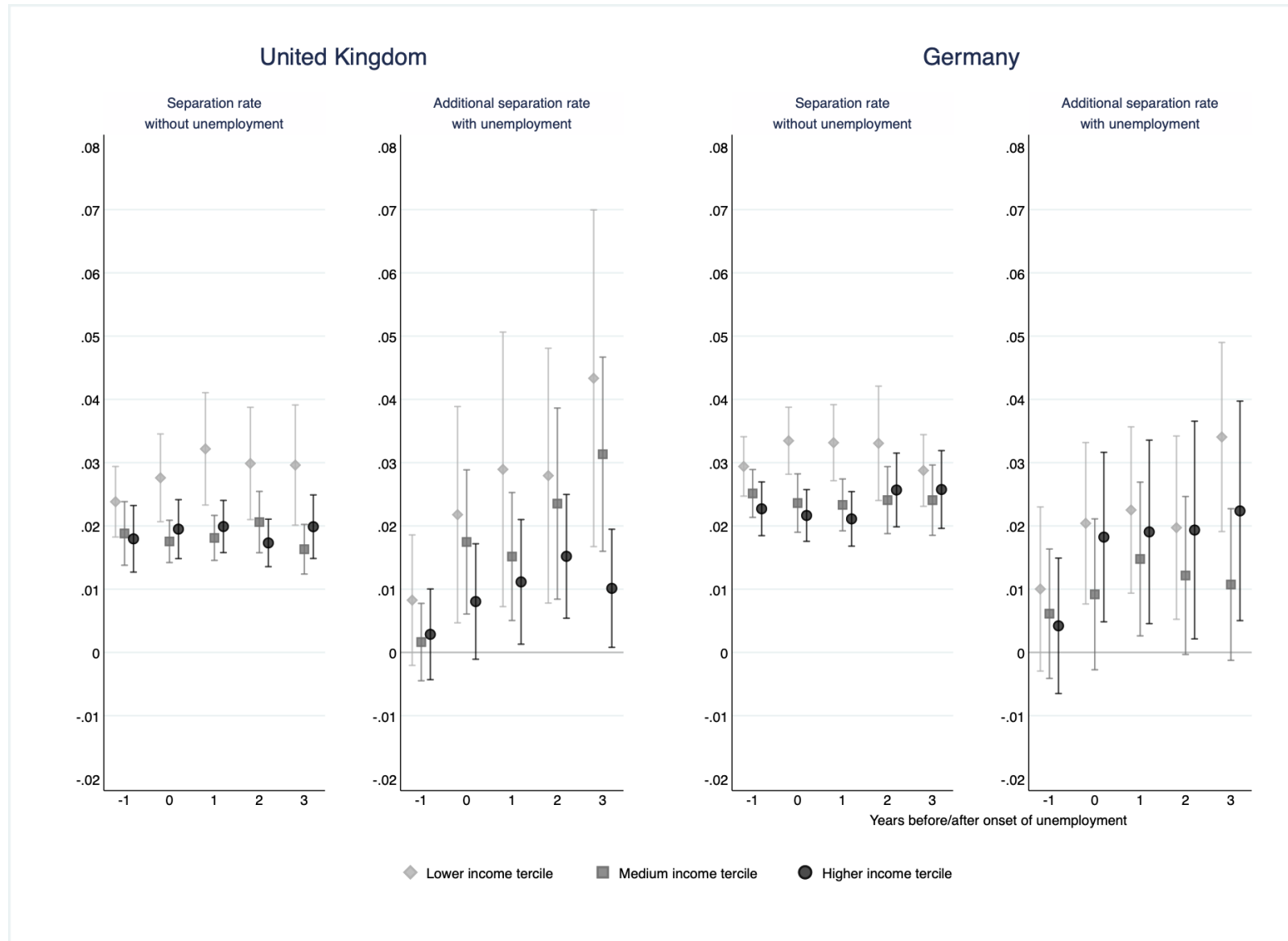


Figure A.4: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel) – unemployment defined as redundancy or dismissal (UK), firm closure or employer’s decision (Germany).

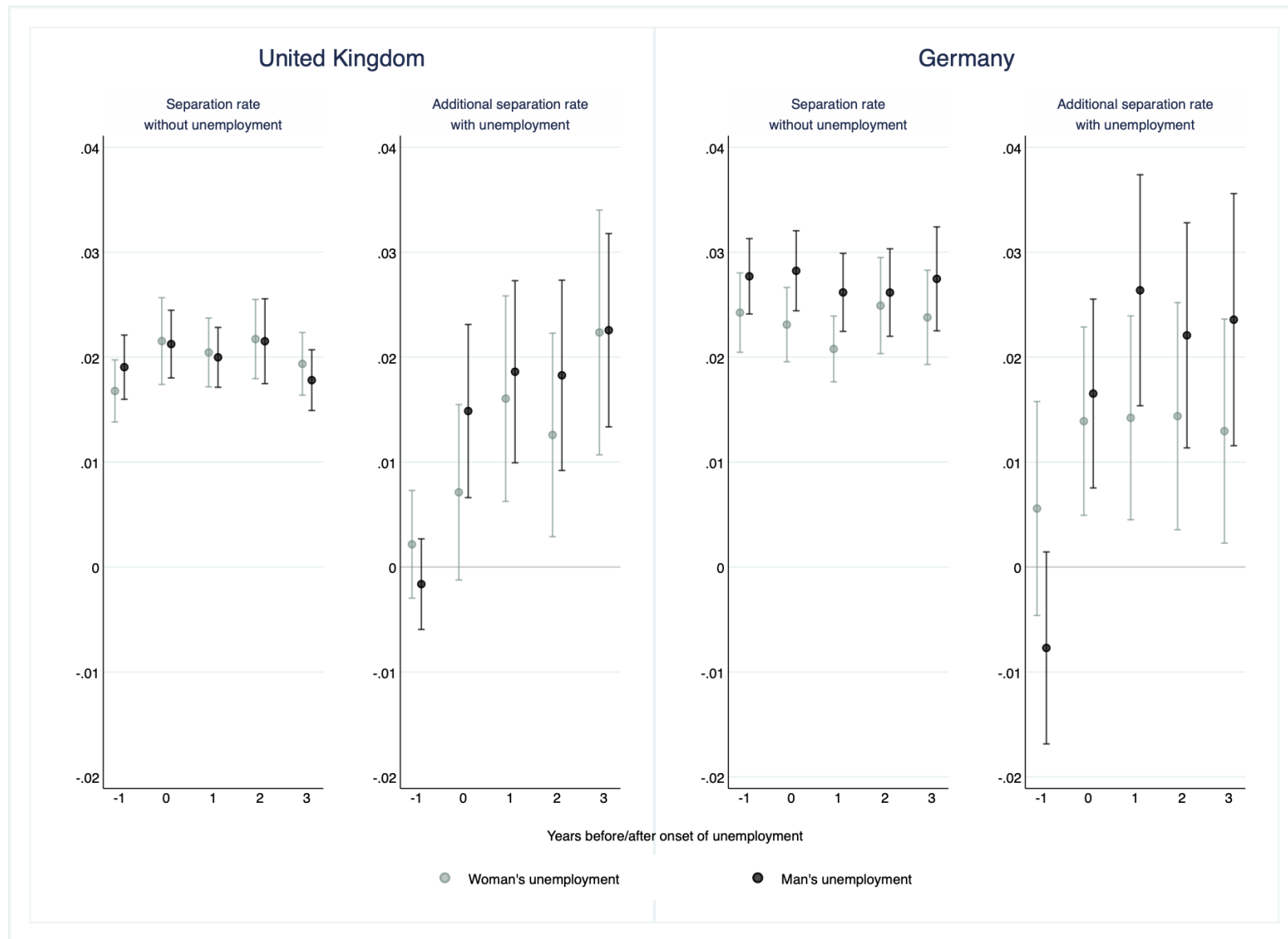


Figure A.5: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel) – unemployment spells distinguished for main earners (>55% of couple’s labor earnings) and non-main earners

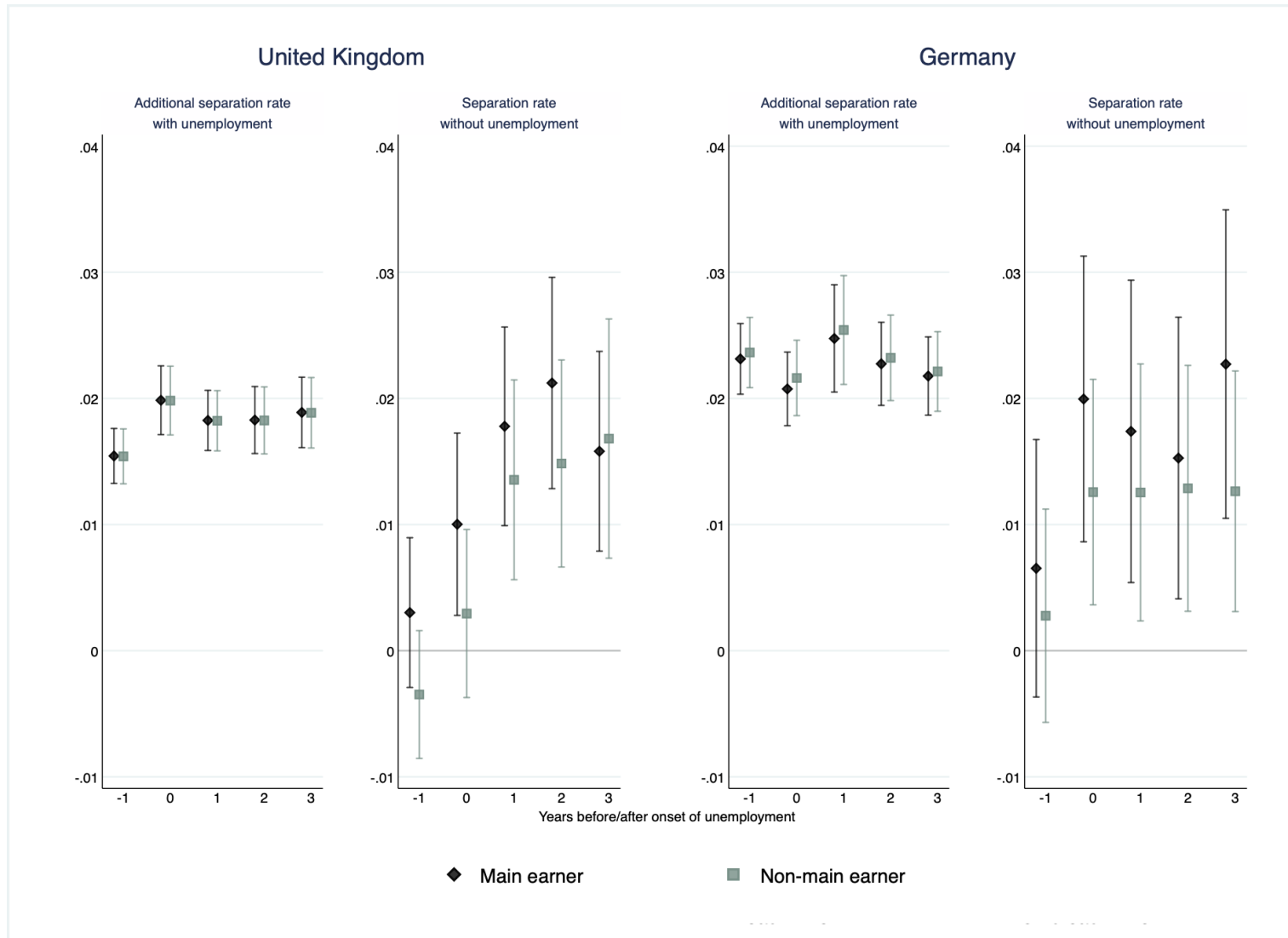
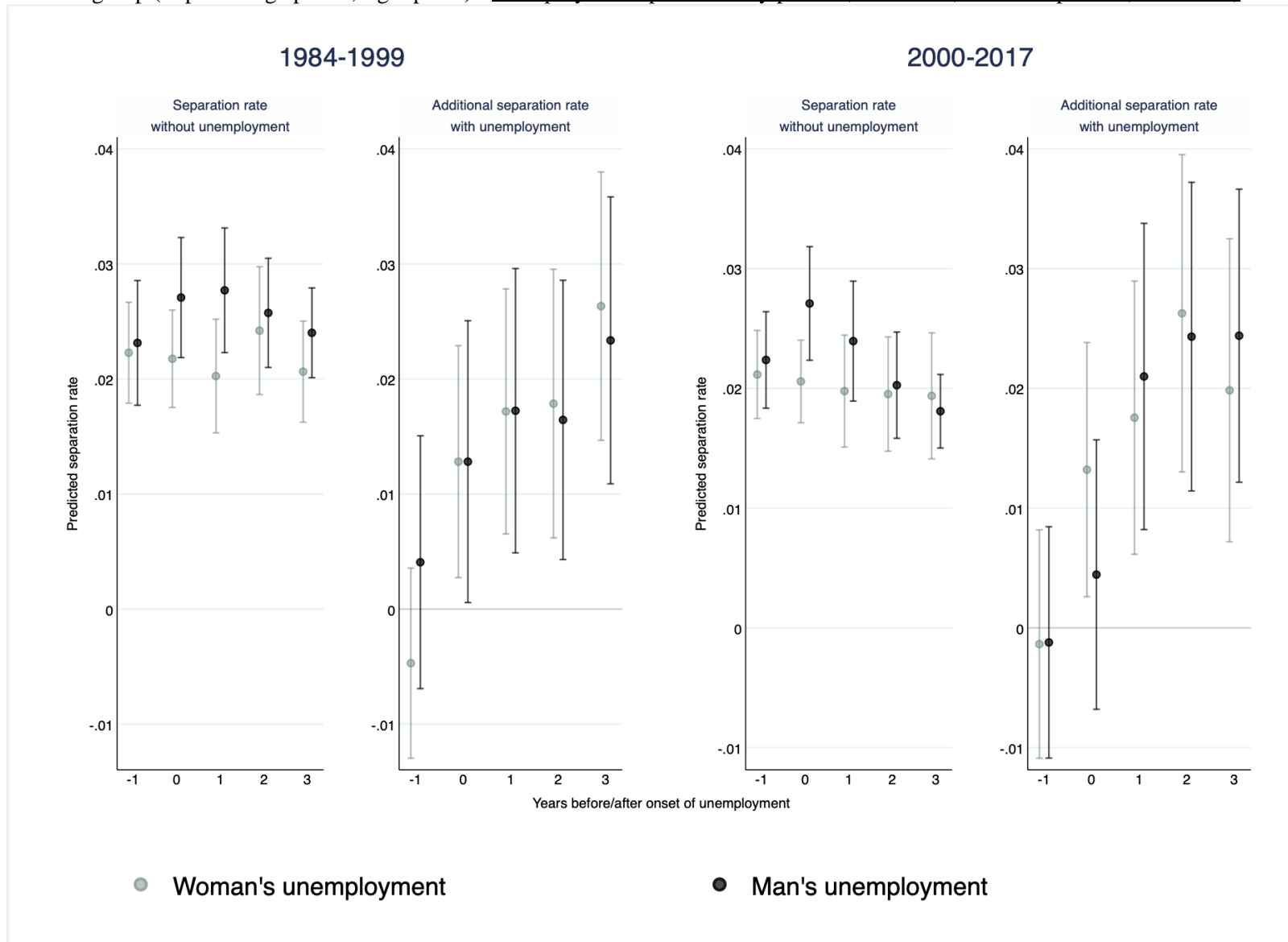


Figure A.6 - Germany: Predicted probability of separation for couples in control group (in %, left panel), predicted additional probability of separation for couples in treatment group (in percentage points, right panel) - unemployment spells in early period (1984-1999) or recent period (2000-2017)



Web-Appendix

Table W.1 – United Kingdom: Descriptive statistics. Variables in pre and post matching samples

		Couples with an unemployed man & counterfactuals								Couples with an unemployed woman & counterfactuals							
		Before Matching				After Matching				Before Matching				After Matching			
		Counterfactual		Treated		Counterfactual		Treated		Counterfactuals		Treated		Counterfactuals		Treated	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Union duration	<i>0-3 years</i>	0,10	0,30	0,06	0,23	0,17	0,38	0,17	0,38	0,10	0,30	0,06	0,24	0,15	0,36	0,14	0,35
	<i>3-6 years</i>	0,12	0,32	0,09	0,29	0,10	0,30	0,14	0,35	0,12	0,32	0,10	0,30	0,09	0,28	0,14	0,35
	<i>6-10 years</i>	0,14	0,34	0,13	0,33	0,11	0,31	0,14	0,35	0,13	0,34	0,14	0,35	0,11	0,31	0,13	0,34
	<i>10-20 years</i>	0,27	0,45	0,35	0,48	0,27	0,44	0,25	0,43	0,28	0,45	0,32	0,47	0,26	0,44	0,26	0,44
	<i>20 years over</i>	0,36	0,48	0,36	0,48	0,36	0,48	0,29	0,46	0,35	0,48	0,37	0,48	0,40	0,49	0,30	0,46
Dependent children		0,46	0,50	0,46	0,50	0,53	0,50	0,53	0,50	0,46	0,50	0,46	0,50	0,49	0,50	0,51	0,50
Married couple		0,69	0,46	0,73	0,45	0,85	0,36	0,80	0,40	0,70	0,46	0,72	0,45	0,88	0,32	0,79	0,40
Man's education	<i>Lower Secondary</i>	0,14	0,34	0,10	0,30	0,10	0,30	0,11	0,31	0,13	0,34	0,11	0,32	0,13	0,34	0,14	0,35
	<i>Upper Secondary</i>	0,42	0,49	0,46	0,50	0,45	0,50	0,47	0,50	0,42	0,49	0,44	0,50	0,44	0,50	0,45	0,50
	<i>Tertiary</i>	0,44	0,50	0,44	0,50	0,45	0,50	0,43	0,50	0,44	0,50	0,45	0,50	0,43	0,50	0,40	0,49
Woman's education	<i>Lower Secondary</i>	0,13	0,33	0,11	0,31	0,12	0,32	0,13	0,34	0,13	0,34	0,09	0,29	0,14	0,35	0,13	0,34
	<i>Upper Secondary</i>	0,41	0,49	0,43	0,50	0,45	0,50	0,46	0,50	0,41	0,49	0,43	0,50	0,44	0,50	0,47	0,50
	<i>Tertiary</i>	0,47	0,50	0,46	0,50	0,44	0,50	0,41	0,49	0,47	0,50	0,48	0,50	0,42	0,49	0,41	0,49
Education difference	<i>Woman higher</i>	0,22	0,42	0,21	0,41	0,15	0,36	0,17	0,38	0,22	0,41	0,22	0,41	0,15	0,36	0,20	0,40
	<i>Same</i>	0,59	0,49	0,60	0,49	0,68	0,47	0,62	0,49	0,59	0,49	0,61	0,49	0,68	0,47	0,61	0,49
	<i>Man higher</i>	0,19	0,39	0,20	0,40	0,17	0,38	0,21	0,41	0,19	0,39	0,18	0,38	0,17	0,37	0,18	0,39
Man's age	<i>24-34</i>	0,15	0,36	0,13	0,33	0,23	0,42	0,25	0,43	0,15	0,36	0,13	0,33	0,18	0,38	0,24	0,43
	<i>35-44</i>	0,23	0,42	0,23	0,42	0,29	0,46	0,28	0,45	0,23	0,42	0,24	0,43	0,29	0,45	0,28	0,45
	<i>45-54</i>	0,25	0,43	0,28	0,45	0,24	0,43	0,27	0,44	0,25	0,43	0,27	0,44	0,22	0,42	0,25	0,44
	<i>55-64</i>	0,36	0,48	0,37	0,48	0,23	0,42	0,20	0,40	0,36	0,48	0,37	0,48	0,31	0,46	0,23	0,42
Woman's age	<i>24-34</i>	0,20	0,40	0,18	0,38	0,32	0,47	0,31	0,46	0,20	0,40	0,18	0,38	0,27	0,44	0,31	0,46
	<i>35-44</i>	0,25	0,43	0,26	0,44	0,28	0,45	0,28	0,45	0,25	0,43	0,26	0,44	0,27	0,44	0,28	0,45
	<i>45-54</i>	0,24	0,43	0,25	0,43	0,22	0,41	0,24	0,43	0,24	0,43	0,26	0,44	0,23	0,42	0,25	0,44
	<i>55-64</i>	0,30	0,46	0,32	0,47	0,18	0,39	0,16	0,37	0,31	0,46	0,31	0,46	0,24	0,43	0,16	0,37
Age difference	<i>Woman 2+ years</i>	0,11	0,31	0,12	0,33	0,06	0,23	0,10	0,30	0,11	0,32	0,11	0,31	0,04	0,19	0,09	0,29
	<i>-2/2 years</i>	0,43	0,50	0,44	0,50	0,52	0,50	0,49	0,50	0,43	0,50	0,45	0,50	0,49	0,50	0,46	0,50
	<i>Man 2+ years</i>	0,46	0,50	0,44	0,50	0,43	0,49	0,41	0,49	0,46	0,50	0,44	0,50	0,47	0,50	0,46	0,50
Labour force	<i>Man active</i>	0,61	0,49	0,67	0,47	0,81	0,40	0,89	0,32	0,61	0,49	0,62	0,49	0,74	0,44	0,80	0,40
	<i>Woman active</i>	0,59	0,49	0,59	0,49	0,71	0,45	0,76	0,43	0,58	0,49	0,63	0,48	0,67	0,47	0,79	0,41

Table W.2 – Germany: Descriptive statistics. Variables in pre and post matching samples

		Couples with an unemployed man & counterfactuals								Couples with an unemployed woman & counterfactuals							
		Before Matching				After Matching				Before Matching				After Matching			
		Counterfactuals		Treated		Counterfactuals		Treated		Counterfactuals		Treated		Counterfactuals		Treated	
		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Dependent children		0,50	0,50	0,43	0,50	0,62	0,48	0,56	0,50	0,51	0,50	0,41	0,49	0,61	0,49	0,51	0,50
Married couple		0,83	0,38	0,86	0,34	0,91	0,28	0,90	0,31	0,84	0,37	0,84	0,37	0,93	0,25	0,90	0,30
Man's education	<i>Lower Secondary</i>	0,11	0,32	0,14	0,35	0,09	0,28	0,14	0,35	0,12	0,32	0,11	0,31	0,05	0,22	0,09	0,28
	<i>Upper Secondary</i>	0,53	0,50	0,58	0,49	0,63	0,48	0,66	0,47	0,53	0,50	0,58	0,49	0,60	0,49	0,62	0,49
	<i>Tertiary</i>	0,36	0,48	0,28	0,45	0,28	0,45	0,20	0,40	0,35	0,48	0,31	0,46	0,35	0,48	0,30	0,46
Woman's education	<i>Lower Secondary</i>	0,17	0,38	0,23	0,42	0,16	0,37	0,24	0,43	0,18	0,39	0,18	0,38	0,11	0,31	0,16	0,36
	<i>Upper Secondary</i>	0,56	0,50	0,55	0,50	0,61	0,49	0,58	0,49	0,56	0,50	0,59	0,49	0,63	0,48	0,62	0,49
	<i>Tertiary</i>	0,26	0,44	0,22	0,42	0,23	0,42	0,18	0,39	0,26	0,44	0,24	0,43	0,27	0,44	0,22	0,42
Education difference	<i>Woman higher</i>	0,13	0,34	0,14	0,35	0,06	0,24	0,11	0,32	0,13	0,34	0,13	0,33	0,06	0,24	0,11	0,31
	<i>Same</i>	0,59	0,49	0,59	0,49	0,75	0,43	0,66	0,47	0,59	0,49	0,61	0,49	0,74	0,44	0,65	0,48
	<i>Man higher</i>	0,28	0,45	0,27	0,44	0,19	0,39	0,23	0,42	0,28	0,45	0,26	0,44	0,20	0,40	0,24	0,43
Man's age	<i>24-34</i>	0,15	0,36	0,12	0,33	0,22	0,41	0,24	0,43	0,15	0,36	0,13	0,33	0,16	0,37	0,21	0,40
	<i>35-44</i>	0,27	0,44	0,24	0,43	0,35	0,48	0,27	0,44	0,27	0,44	0,25	0,43	0,37	0,48	0,31	0,46
	<i>45-54</i>	0,28	0,45	0,23	0,42	0,24	0,43	0,25	0,44	0,27	0,45	0,25	0,43	0,27	0,44	0,24	0,43
	<i>55-64</i>	0,31	0,46	0,41	0,49	0,18	0,39	0,24	0,43	0,31	0,46	0,38	0,49	0,20	0,40	0,24	0,43
Woman's age	<i>24-34</i>	0,22	0,41	0,18	0,38	0,33	0,47	0,33	0,47	0,22	0,41	0,20	0,40	0,26	0,44	0,30	0,46
	<i>35-44</i>	0,30	0,46	0,24	0,43	0,36	0,48	0,27	0,44	0,29	0,46	0,26	0,44	0,38	0,49	0,31	0,46
	<i>45-54</i>	0,25	0,43	0,23	0,42	0,19	0,40	0,25	0,43	0,25	0,43	0,24	0,43	0,23	0,42	0,22	0,42
	<i>55-64</i>	0,24	0,42	0,35	0,48	0,12	0,33	0,15	0,36	0,24	0,43	0,30	0,46	0,13	0,33	0,17	0,37
Age difference	<i>Woman 2+ years</i>	0,08	0,27	0,10	0,30	0,03	0,17	0,06	0,24	0,08	0,28	0,08	0,27	0,02	0,15	0,05	0,22
	<i>-2/2 yrs</i>	0,42	0,49	0,42	0,49	0,45	0,50	0,43	0,50	0,42	0,49	0,40	0,49	0,46	0,50	0,43	0,50
	<i>Man 2+ years</i>	0,50	0,50	0,48	0,50	0,52	0,50	0,51	0,50	0,50	0,50	0,52	0,50	0,52	0,50	0,53	0,50
Labour force	<i>Man active</i>	0,81	0,39	0,87	0,34	0,97	0,17	1,00	0,05	0,82	0,38	0,77	0,42	0,97	0,18	0,89	0,31
	<i>Woman active</i>	0,74	0,44	0,70	0,46	0,76	0,43	0,70	0,46	0,72	0,45	0,85	0,35	0,92	0,27	0,99	0,11

Table W.3 – Switzerland: Descriptive statistics. Variables in pre and post matching samples

		Couples with any unemployed partner & counterfactuals							
		Before Matching				After Matching			
		Counterfactuals		Treated		Counterfactuals		Treated	
		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Dependent children		0,38	0,49	0,36	0,48	0,55	0,50	0,54	0,50
Married couple		0,83	0,38	0,84	0,37	0,85	0,36	0,89	0,31
Man's education	<i>Lower Secondary</i>	0,06	0,23	0,09	0,29	0,02	0,13	0,03	0,17
	<i>Upper Secondary</i>	0,48	0,50	0,46	0,50	0,48	0,50	0,50	0,50
	<i>Tertiary</i>	0,46	0,50	0,45	0,50	0,50	0,50	0,47	0,50
Woman's education	<i>Lower Secondary</i>	0,11	0,31	0,12	0,32	0,05	0,22	0,08	0,27
	<i>Upper Secondary</i>	0,62	0,49	0,53	0,50	0,69	0,46	0,69	0,47
	<i>Tertiary</i>	0,28	0,45	0,35	0,48	0,26	0,44	0,24	0,43
Education difference	<i>Woman higher</i>	0,11	0,31	0,15	0,36	0,04	0,20	0,07	0,25
	<i>Same</i>	0,56	0,50	0,57	0,50	0,65	0,48	0,61	0,49
	<i>Man higher</i>	0,33	0,47	0,28	0,45	0,31	0,46	0,33	0,47
Man's age	<i>24-34</i>	0,11	0,31	0,08	0,28	0,14	0,35	0,14	0,35
	<i>35-44</i>	0,19	0,40	0,20	0,40	0,37	0,48	0,37	0,48
	<i>45-54</i>	0,26	0,44	0,30	0,46	0,24	0,43	0,23	0,42
	<i>55-64</i>	0,44	0,50	0,42	0,50	0,25	0,43	0,27	0,44
Woman's age	<i>24-34</i>	0,15	0,36	0,12	0,32	0,22	0,42	0,24	0,43
	<i>35-44</i>	0,21	0,41	0,22	0,42	0,39	0,49	0,35	0,48
	<i>45-54</i>	0,28	0,45	0,35	0,48	0,21	0,41	0,25	0,44
	<i>55-64</i>	0,36	0,48	0,32	0,47	0,18	0,38	0,15	0,36
Age difference	<i>Woman 2+ years</i>	0,09	0,28	0,13	0,33	0,02	0,14	0,04	0,20
	<i>-2/2 years</i>	0,42	0,49	0,39	0,49	0,45	0,50	0,42	0,49
	<i>Man 2+ years</i>	0,49	0,50	0,48	0,50	0,53	0,50	0,54	0,50
Labour force	<i>Man active</i>	0,88	0,32	0,96	0,19	0,98	0,13	0,98	0,15
	<i>Woman active</i>	0,82	0,39	0,87	0,34	0,97	0,18	0,95	0,22

Table W.4: Fixed-effects regression with matching on couples separating, men or women being unemployed

	United Kingdom		Germany		Switzerland
	Man's unemployment	Woman's unemployment	Man's unemployment	Woman's unemployment	Any partner's unemployment
t = -1	0.007*** (0.002)	0.005*** (0.001)	0.007*** (0.002)	0.006** (0.002)	0.009*** (0.002)
t = 0	0.009*** (0.002)	0.010*** (0.002)	0.011*** (0.002)	0.010*** (0.002)	0.008*** (0.002)
t = 1	0.010*** (0.002)	0.010*** (0.002)	0.010*** (0.002)	0.012*** (0.003)	0.009*** (0.002)
t = 2	0.011*** (0.002)	0.010*** (0.002)	0.009*** (0.002)	0.010*** (0.003)	0.010*** (0.002)
t = 3	0.007*** (0.002)	0.008*** (0.001)	0.007*** (0.002)	0.011*** (0.003)	0.008*** (0.002)
t = -1 * treated	-0.013*** (0.002)	-0.008*** (0.002)	-0.014*** (0.004)	-0.012*** (0.004)	-0.009** (0.004)
t = 0 * treated	0.004 (0.004)	-0.001 (0.004)	0.003 (0.004)	0.002 (0.005)	0.000 (0.004)
t = 1 * treated	0.005 (0.004)	0.007 (0.004)	0.006 (0.005)	-0.001 (0.005)	0.001 (0.004)
t = 2 * treated	0.004 (0.004)	0.005 (0.004)	0.003 (0.005)	0.008 (0.005)	-0.001 (0.004)
t = 3 * treated	0.010** (0.005)	0.011** (0.005)	0.012** (0.005)	0.008 (0.006)	0.003 (0.005)
Constant	0.007*** (0.001)	0.007*** (0.001)	0.010*** (0.001)	0.009*** (0.001)	0.007*** (0.001)
Observations	204,913	198,333	158,880	145,812	104,366
R-squared	0.002	0.002	0.002	0.002	0.002

Table W.5: Fixed-effects regression with matching on couples separating after an unemployment spell – couples separated into three income terciles based on household income

	United Kingdom			Germany		
	1st tercile	2nd tercile	3rd tercile	1st tercile	2nd tercile	3rd tercile
t = -1	0.011*** (0.004)	0.005*** (0.001)	0.007*** (0.002)	0.009*** (0.003)	0.008*** (0.002)	0.006*** (0.002)
t = 0	0.017*** (0.004)	0.011*** (0.003)	0.012*** (0.002)	0.015*** (0.003)	0.008** (0.003)	0.010*** (0.003)
t = 1	0.015*** (0.004)	0.010*** (0.002)	0.010*** (0.002)	0.013*** (0.003)	0.009*** (0.003)	0.007*** (0.002)
t = 2	0.011*** (0.003)	0.011*** (0.002)	0.007*** (0.002)	0.013*** (0.003)	0.003 (0.003)	0.011*** (0.003)
t = 3	0.010*** (0.004)	0.009*** (0.002)	0.008*** (0.003)	0.015** (0.006)	0.003 (0.003)	0.009*** (0.003)
t = -1 * treated	-0.011* (0.006)	-0.012*** (0.002)	-0.011*** (0.002)	-0.014** (0.005)	-0.010** (0.004)	-0.005 (0.005)
t = 0 * treated	0.003 (0.008)	-0.002 (0.005)	-0.006* (0.004)	-0.003 (0.007)	0.003 (0.006)	0.001 (0.006)
t = 1 * treated	0.010 (0.008)	0.002 (0.005)	-0.001 (0.004)	0.001 (0.007)	0.001 (0.006)	0.005 (0.006)
t = 2 * treated	0.010 (0.008)	-0.002 (0.005)	0.004 (0.004)	-0.005 (0.006)	0.007 (0.006)	-0.003 (0.006)
t = 3 * treated	0.013 (0.009)	0.011* (0.006)	0.002 (0.005)	-0.001 (0.009)	0.003 (0.006)	0.008 (0.007)
Constant	0.010*** (0.001)	0.007*** (0.001)	0.006*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.009*** (0.001)
Observations	57,174	95,904	128,932	55,483	68,467	85,301
R-squared	0.003	0.002	0.002	0.002	0.001	0.002