The Impact of Unemployment on the Transition to First Parenthood

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Abstract: This paper advances our understanding about the impact of unemployment and career instability on having children. From a theoretical perspective either a negative or a positive effect could be expected. Existing empirical research also reached contradictory results partially due to different institutional contexts, different measures and selective samples due to left-censoring. We address these theoretical and methodological problems in the extant literature. Our data comes from the German Life History Study (GLHS) and, in particular, the data on the 1971 cohort, which was collected in two representative and retrospective surveys conducted in East and West Germany in 1996 -1998 and 2005. Using monthly information, we perform event history analysis to identify the timing of fertility for both men and women conditional on a number of covariates. We present our results as a comparison between East and West Germany where institutional contexts, labour markets and values exhibit strong contrasts.

1. Introduction

The empirical relationship between unemployment and fertility is not uncharted territory. In particular, the negative correlation between women's employment and fertility since the 1960s has been well studied (see Budig 2003 and Brewster & Rindfuss 2000 for a review of the earlier literature). More recently, a number of researchers pointed to a shift in the sign of the cross-country correlation coefficient between female labor force participation and total fertility rates (Adsera 2004; Adsera 2005; Ahn & Mira 2002; Brewster & Rindfuss 2000; Esping-Andersen 1999; Esping-Andersen 2009; Engelhardt & Prskawetz 2004). These studies showed that since the mid-1980s, countries with lower rates of female employment also experienced lower rates of fertility. Furthermore, the downward trends in fertility coincided with rises in unemployment for women. Thus, extended durations of high unemployment and labor market institutions were often used to explain the positive cross-country correlation between fertility and female labor force participation (e.g. Adsera 2002; Engelhardt & Prskawetz 2004; Ahn & Mira 2002).

Although the studies above successfully identified a relationship between unemployment and total fertility rates, for a number of reasons they did not adequately unravel the mechanisms by which unemployment influences parenthood transitions. First, they usually used aggregate fertility data, which are particularly vulnerable to temporary fluctuations in the age at first marriage and/or first birth (Adsera 2005). Second, the implications of unemployment and its duration might vary due to factors that are difficult to capture at the aggregate level, such as education, age and partnering structure. Third, changes in the aggregate unemployment rate can only affect individual behavior either by altering the risk perception of individuals or by depressing average wage levels in the society through an income effect (Kravdal 2002). In other words, aggregate unemployment may affect fertility behavior indirectly, and not only through an individual's own unemployment. Finally, the theoretical arguments presented in these studies have ambiguous predictions regarding the direction of the impact. Hence, testing some of these predictions requires individual-level data.

Consequently, several researchers recently turned their attention to individual-level analysis and have investigated the effect of unemployment spells and other career uncertainty measures on the transition to parenthood (e.g., Kreyenfeld 2009; Kravdal 2002; Tölke & Diewald 2003; Gonzalez & Jurado-Guerrero 2006; Rindfuss, Morgan & Swicegood 1988; Hoem 2000; Kohler & Kohler 2002,

Kurz, Steinhage and Golsch 2005; Gebel and Giesecke 2009)[1]. Yet, the results of these studies are contradictory and far from conclusive. One set of findings find no effect of unemployment on the fertility behavior of women in various national studies including Kreyenfeld (2009), Germany, Kravdal (2002), Norway, Rindfuss et al. (1988) the U.S., and Kohler & Kohler (2002), Russia during the transition period (1994-1996). Some of these studies even found a positive impact for women with low education (e.g. Kreyenfeld 2009, Hoem 2000).

Another set of findings, however, point to a negative impact of unemployment on women's transition to motherhood. For example, Hoem (2000) found the overall impact in Sweden to be negative. Using the European Community Household Panel (ECHP) Data, Adsera (2005) also found a negative effect for 15 European countries, and Gonzalez & Jurado-Guerrero (2006) found a negative effect for Italy, Spain and France. The few studies that analyzed the relationship of men's fertility behavior to unemployment also report contradictory findings (e.g., Tölke and Diewald 2002, Sullingham & Falkingham 1991; Kravdal 2002).

Besides ambiguity in the theoretical arguments (discussed in the next section), this research was motivated by our concerns about a number of methodological shortcomings in the extant literature, which may explain the variation in findings:

First, due to data limitations the existing literature is plagued by left-censoring problems. The studies that use panel data have often chosen a reasonable sample size over a sample without left-censoring. As a result, most analyses are applied to samples that are likely to have systematically selected a certain type of women. For example, women in the same age-range but who made the transition to motherhood before the panel started and/or the women not living with their children at the time of interview were excluded from the sample (Kreyenfeld 2009; Kravdal 2002; Gonzalez & Jurado 2006; Adsera 2005; Schmitt 2008)[2]. Since we know neither the number of excluded women, nor their unemployment experiences, it is hard to generalize the findings in these studies.

[1] There is also a large parallel literature that examined the link between women's work behavior (i.e. employment) and fertility (literature summarized in Brewster & Rindfuss 2000 and Budig 2003) where the reference category is *non-employment* instead of *unemployment*. The non-employment category groups all types of women who are outside the labor market for various reasons and is therefore fundamentally different from *unemployment*.

[2] Gonzalez & Jurado (2006) and Adsera (2005) attempted, although imperfectly, to address the left-censoring problem in their studies.

Secondly, women's relationship histories are frequently either crudely measured, e.g. with a binary variable for the presence of a partner (Kreyenfeld 2009), or ignored completely (Kurz 2005; Hoem 2000; Kravdal 2002[3]; Adsera 2005). In the few cases where a detailed partnership history that allows for a difference between marriage and cohabitation is taken into account, no additional attempts were made to include partner characteristics (Tölke & Diewald 2003). In fact, to our knowledge only two studies incorporated any partner characteristics into their models: Kohler & Kohler (2002) incorporated partner's employment status and Gonzalez and Jurado-Guerrero (2006) included partner's income. This absence is regrettable because there are several theoretical reasons to include partner characteristics (Corijn, Liefbroer and Gierveld 1996), which we discuss in the next section.

Third, studies that used individual-level data often had also limitations in the independent variables. For example, unemployment was sometimes measured yearly (or via imputed data) (e.g. Tölke and Diewald 2003); other times proxied by another variable such as "annual unemployment benefits" of low-income earners (e.g. Hoem 2000); or only measured for a short period due to incomplete work histories (Kravdal 2002). These limitations may have also contributed to the variation in findings.

Finally, the data sources used and time periods covered for different countries also differ largely. The same can be said for the institutional structures and labor market trends. These differences may also be responsible for the contradictory findings in the literature. If this is true, however, country selection becomes crucial. For example, some of the countries analyzed previously, such as Norway and the U.S., did not experience unemployment as high or sustained as in the Central and Southern European countries until very recently. Moreover, the decline in the fertility rate in Norway and the U.S. was not as dramatic. In these cases, as Kravdal (2002) reminds us, one should be cautious when interpreting the absence of an impact of unemployment on fertility behavior.

Another consequence of country selection relates to differing unemployment benefits. Countries have varying degrees of compensation, which further complicates the comparison of findings across countries.

[3] In fact, Kravdal (2002) discusses in detail the role of relationship type and the partner information. Yet, he uses the rate of unemployment men (or women) within the region together with the correlations of unemployment rates between both sexes to proxy the partner effects.

Here, we are able to overcome many of these theoretical and methodological issues. First, we do not limit our sample to only women or only men; rather, we conduct separate analyses for each. Second, we observe every individual since the age 16 and thus we avoid the left-censoring problems. Third, we include a fine-grained partnership history that is able to capture the differences between being in a relationship, cohabitation, marriage and not being in a relationship, as well as partner's education in each case. Fourth, we use detailed monthly data to follow individuals' employment and relationship histories up to their first birth, including all employment, unemployment and job spells. Fifth, we include a measure of job instability via the cumulative number of job changes for each individual. We explore the differential impact of unemployment and job shifts across education categories.

Last but not the least; our study is comparative between East and West Germany, which should prove especially fruitful for a number of reasons. First, they have identical unemployment compensation schemes, so the impact of unemployment in East and West should not vary due to differences in the relative generosity of unemployment benefits.

Despite this similarity, levels of unemployment and economic instability were (and are) much higher in East Germany (Mayer and Schulze 2009:29, 91-96, 140-148). Additionally, median age at first marriage and first birth increased in West Germany for more than three decades and in East Germany since 1991. According to period data (see Figure 1), the overall median age at marital first birth in Germany had its lowest point in 1970 with age 24, and has since risen beyond age 29. By 2006, period fertility converged between East and West Germany (Dorbritz 2008, Tivig & Hetze 2007).

Institutional backgrounds and values concerning fertility also remain strikingly different in East and West Germany. For instance, although family policy incentives for marriage and first births were curtailed in East Germany after unification, childcare facilities continued to be much better than those in West Germany (Trappe 2006). East German women spent fewer years in school, have higher rates of labor force participation, and still view the combination of work and motherhood as less problematic than West German women (Statistisches Bundesamt 2006: 523, Mayer & Schulze 2009: ch.5). East German women, more accustomed to economic scarcity and cramped housing conditions, were exposed to a sudden increase in consumption options after 1989. Since the seventies, East German women had a "culture' of early births with or without marriage and a very low rate of childlessness (Huinink and Kreyenfeld 2006; Bernardi et al. 2007; Trappe & Sorensen 1995). Although

problems of unemployment also inflicted West German women, as well as finding good jobs after training, these problems were exacerbated for East German women after unification (Diewald et al. 2006; Trappe 2004). Finally, the two German sub-societies are characterized by different scales and structures of social inequality. East Germany was (and partly still is) a more egalitarian, homogeneous society with fewer class barriers, whereas West Germany has a pronounced class structure based on its education and training system.

The rest of the paper is organized as follows. In Section 2 we offer a brief summary of competing theories from which we formulate a number of hypotheses. In Section 3 we describe our data and sample and discuss the construction of our main covariates. In Section 4 we present our results in three subsections: first for men, then for women, and then the results of models which include interaction effects between our main explanatory variables. Section 5 tests additional specifications and reports a number of robustness checks. The paper ends with a discussion and conclusion in Section 6.

2. Theoretical Background

How does the unemployment experience of individuals influence their transition to parenthood? Most theoretical accounts of fertility decisions rely on the neoclassical economic model of fertility developed by Becker (1981) and its extensions. The following arguments are, albeit in a synthesized way, based on the discussions regarding those extensions outlined in Kravdal (2002), Kohler and Kohler (2002), Bernardi et al.(2008) and Adsera (2004).

Before explaining their main predictions, it is important to note that neoclassical fertility models are based on a number of important assumptions. For example, we assume that children are costly both in economic terms and in social terms and that they necessitate time investments that are especially high for months immediately following the birth. Most studies that test the predictions of neoclassical model also assume that traditional gender roles are common and persistent even in advanced societies (see the critique of this in Esping-Andersen 2009). This assumption dictated that researchers only take women's time into account for childbearing and rearing, especially around the first birth. Because men's time investments are considered irrelevant, the neoclassical model predicts different impacts of unemployment on fertility for men and women.

For men, the prediction is negative and directly related to unemployment's effect on income. According to this model, unemployment leads to an income reduction that reduces the likelihood of fatherhood because it lowers household resources, the *income effect* (Kohler and Kohler 2002). In addition to the standard income effect, sociological models also argue that (from the women's perspective) unemployment may make men seem less reliable for fatherhood or a less favorable candidate for family formation in general (Kravdal 2002).

For women, however, the neoclassical model predicts two opposing effects. The first is an income effect, analogous to the effect for men that reduces the total household income and hence suggests a negative outcome. Yet for women there is a second effect in the opposite direction. A sizable decrease in earnings also reduces the opportunity cost of spending time caring for children, known as the *substitution effect*. (Recall that the underlying assumption is that only the mother's time is required for child-related activities). As a result, the aggregate effect for women depends on whether *the income effect* or *the substitution effect* dominates.

Substitution effects can assumed to be stronger for first births because there is a general social norm against remaining childless (Kravdal, 2002; Konietzka & Kreyenfeld, 2007). Additionally, unemployed women might be more motivated about securing their wellbeing by investing in a relationship, and childbearing might help to ensure that security and stability in the relationship. This theoretical background leads us to:

Hypothesis 1a: Men's unemployment will delay the onset of first birth.

Hypothesis 1b: Unemployment will not affect the onset of first birth for women due to income and substitution effects counterweighing each other.

But the impact of unemployment might also be contingent on the expectations about its duration. Different theoretical models propose contradictory predictions regarding the effect of unemployment duration, however. Adsera (2004) claims that a temporary spell of unemployment can be perceived as "a cheap time to have children". Yet, if unemployment becomes persistent, then pregnancy might imply "a weaker commitment to labor market" especially if it happens early in the life course. As a result, childbearing at younger ages combined with longer spells of unemployment might turn into "an unemployment trap" and lead to a considerable loss of lifetime income (p.22). In sum, this interpretation predicts that a short unemployment spell might have no impact or a positive impact whereas the expectation that unemployment will prove long or persistent should

have a negative impact. Because this prediction refers to (time costs of) motherhood, we believe that it better explains women's behavior than men's.

Focusing on the income effect, Kravdal (2002) argues the opposite. A temporary decline in income might influence the decision to become a parent because individuals prefer to delay fertility if they believe the decline will prove temporary. If the lower income proves persistent, however, individuals lower their aspiration levels and weaken their convictions concerning a "quality child". Hence, long-term low income becomes irrelevant for parenthood decisions. One can think of this mechanism as analogous to consumption-smoothing behavior: short-term fluctuations in income reduce the likelihood of engaging in costly events (i.e. cause fluctuations in consumption) but persistent declines in income do not fluctuate consumption as much. Contrary to the argument that Adsera (2004) formulates, we think that this prediction might be stronger for men than for women, due to the fact that the male breadwinner role is still dominant in most advanced societies. Consequently, two contrasting interpretations lead to our second hypothesis:

Hypothesis 2a: The higher the number of months spent in unemployment[4]*, the lower will be the likelihood of motherhood for women.*

Hypothesis 2b: Unemployment duration delays timing of fatherhood in the short run, but its negative effect disappears in the long run.

Hypothesis 2c: The negative impact of a high number of unemployment months will be strong at early ages for women but it will disappear at later ages.

In fact, the "substitution effect" in neoclassical fertility models makes sense only if we also make certain assumptions about expectations regarding the unemployment duration. Since the time span from conception through early infancy is 12 to 15 months, expectations about the duration of unemployment must logically coincide with this period for the substitution effect to be meaningful (Kravdal, 2002). In other words, women would only decide to have a child during unemployment if they assume it will last at least 12 months. If the expectations about their unemployment duration are shorter, they might be more likely to delay pregnancy. Alternatively, women might lower their aspirations, in line with sociological arguments about the erosion of self-confidence during unemployment, and might be willing to accept lower quality jobs from unemployment. For these

[4] This variable measures cumulative unemployment experience and it should be thought as a proxy for unemployment persistency (or duration). We will discuss this in depth in section 3.2.

women, taking the alternate track and becoming a mother might allow them to adopt a role that is highly valued among peers and within the marital dyad (Friedman, Hechter, and Kanazawa, 1994). In addition, we do not expect a strong substitution effect for highly educated women but do for women in the lower education category. In other words, women's education may translate the impact of unemployment on fertility behavior differentially. We can thus formulate our third hypothesis:

Hypothesis 3: Unemployment will affect the onset of childbearing positively for women in the lower education category but it will not affect highly educated women.

Recently, a considerable amount of research has tried to identify the link between perceived job stability and health (e.g. McDonough 2000, Ferrie et al 2005). Studies find that well-being is strongly related to employment predictability. Additionally, a few studies also explored the link between economic insecurity and fertility (Bernardi et al. 2008; Ahn and Mira 2002). However the precise definition of job insecurity and how best to measure it has been vague (e.g. Ashford, Lee and Bobko 1989). Consequently, theory building has suffered from a certain uncertainty itself. Job insecurity in recent studies usually defined as the perceived risk of either losing a job entirely or some characteristics of it, or sometimes more narrowly as "the perceived stability and continuance of one's employment with an organization" (see Bernardi et al. 2008 for an excellent discussion based on narratives). In this respect "insecurity" is frequently related to job instability.

Unemployment, in fact, implies a bigger risk than job instability because it combines two dimensions of economic insecurity: one is the short-horizon (loss of foresight) about the continuance of the current state and the other one is the economic difficulty as a result of complete[5] loss of earnings power. If childbearing is a long-term investment (Becker 1981), what might be more important for fertility decisions is the lack of predictability rather than the loss of current earnings. If this statement is true, frequent job changes, just like unemployment, would be an obstacle to childbearing.

Of course, frequent job changes might not always indicate job instability; they might also be a sign of career advancement. This would be especially true for highly educated men and for both genders when in the early stages of their career. If job changes are a result of upward mobility, we

[5] Of course it is not a complete loss of earnings when unemployment benefits are considered.

expect them to affect fertility timing positively, especially for men. In sum, we believe that frequent job switches also influence the timing of childbearing, yet do so differentially for men and women and vary by education level.

Hypothesis 4a: A high number of prior job changes will delay the onset of first birth for women and men with lower education.

Hypothesis 4b: Men with higher levels of education will make fatherhood transitions earlier as the number of job changes increase.

Hypothesis 4c: Higher numbers of job changes will delay fatherhood, especially at younger ages.

Until now, following the neoclassical theory of fertility, we have implicitly assumed a household (e.g. unitary) model with a single-decision maker. We have also assumed that only the decision maker's income determines the resources available for child raising. Furthermore, we stated the two underlying assumptions of this model that shaped theoretical arguments about the impact of unemployment: the prevalence of the male breadwinner and the irrelevancy of men's time for childrearing activities. In fact, both of these assumptions can be challenged and relaxed. For example, Esping-Andersen (2007, 2009) and Brodmann, Esping-Andersen and Guell (2007) provide evidence that societies with higher levels of gender symmetry, such as Denmark, men's potential child raising time also affects fertility decisions.

Recent evidence of increasing gender symmetry suggests that we move away from the model of unitary household decision-making towards a more flexible, joint decision-making framework. Consequently, the within-household bargaining process and the relative endowments of each spouse become crucial in determining the impact of unemployment and job stability on childbearing decisions. Put differently, not only an individual's but also his/her partner's preferences and characteristics may substantially alter the impact of income and substitution effects (Corijn et al 1996).

Consider partner's education, for example. Having a highly educated partner may have opposite effects for men and women's childbearing decisions, especially when unemployed. First of all, having a highly educated wife might delay transitions into fatherhood simply because a more highly educated wife's time preferences and career process may have greater weight in decisions about fertility timing, even in the absence of unemployment. Moreover, when her husband is unemployed, the cost of the wife's foregone income may simply be too large to offset any time gains

from substitution effect. Therefore, we would expect that highly educated women will not give up their employment prospects and have children while their husbands are unemployed. Even if those wives themselves are not employed, we expect them not to give birth since it will hamper the chances of finding a job quickly.

In contrast, we believe that for a woman, a highly educated partner might have the reverse effect, particularly when she is unemployed. As long as education is a good proxy for earnings, she can rely on her husband's earnings during her own unemployment, so the substitution effect might be stronger. This is of course contingent on her own education level and on her husband being employed. In any case, when a married woman is unemployed the effect differs from when she is single because the *income effect* may be alleviated by her husband's income.

To capture and test variations in the theoretical arguments due to partners' characteristics we formulate the following hypotheses:

Hypothesis 5a: Higher levels of partner's human capital will strongly delay men's transition to fatherhood when unemployed.

Hypothesis 5b: Higher levels of partner's human capital will positively affect women's transition to motherhood when unemployed.

The degree of gender symmetry in joint decision-making can be a function of social norms and values toward family and children in a society. It can also be reflected in institutional structures. Institutional settings can also play a crucial role in mediating the impact of unemployment on parenthood decisions. For example, Rindfuss et.al (1996) and Esping-Andersen (1999, 2009) have strongly argued that women have more children and have them earlier where high rates of female employment and gender symmetry prevail, such as the Scandinavian countries, the UK and the US, and where favorable conditions exist for combining work and family obligations, e.g. childcare facilities, paternity leaves, etc. Many studies on Southern Europe, Italy and Spain in particular, identified a lack of institutions such as universal childcare, explicit family policies, housing allowance, or other benefits as the primary reason for low fertility (Gonzalez and Jurado-Guerrero 2006; Adsera 2005, Esping-Andersen 2007). These studies show that childbearing occurs most among women in the top income quartile and women that are out of the labor force, which indicates that working women are faced with a tradeoff between their careers and motherhood. In societies where gender symmetry is low and institutional settings do not facilitate the combination of these two roles, the time advantage of unemployment is especially limited for educated (career-oriented)

women and during careers' initial stages. This suggests that women under different social and institutional settings may react differently to unemployment in regard to fertility decisions.

The comparison between East and West Germany provides special opportunities to test the theoretical propositions above. Since unemployment and economic uncertainties were much higher in East Germany after 1989 (Diewald et.al. 2006; Mayer and Schulze 2009; Mayer 2004), we would expect cohort-specific fertility rates to be lower in East Germany and age at first birth to be higher. But when we compare overall cohort fertility, we see that this is not the case (Mayer and Schulze forthcoming). So what are the salient differences between East and West Germany which might explain the higher and earlier fertility in the East? First, childcare facilities are still much better in the East and it is still easier to combine full employment and having small children (Büchel and Spiess 2002). Second, East German women, unlike West German women, do not believe that it is harmful to very small children for their mother to work. Therefore they should feel less encouraged to use periods of unemployment as opportunities for staying at home (Mayer and Schulze 2009:184-188). Third, marriage is not a prerequisite for parenthood in the East, therefore the economic preconditions of weddings and marriage should have less impact in the East. Fourth, the level of employment and fulltime employment is higher in the East and the share of wives' earnings in household income is also higher (Mayer and Schulze 2009: 147, 151). East Germany bears a closer resemblance to the egalitarian work-family balance of Scandinavian countries than West Germany. While greater economic instabilities should delay and dampen fertility in the East, this might be (at least partially) offset by lower *income* effects due to better childcare and the higher labor force commitment of women. We will discuss the role of these contextual differences and similarities in detail in section 5.

3. Data and Methods

3.1. Data and Sample

We use German Life History Study (GLHS) 1971 Cohort Data for the analysis (Goedicke et.al. 2004;Hillmert et.a.. 2004; Matthes 2005; Mayer 2008). The GLHS 1971 cohort includes individuals in East and West Germany who were born in 1971. This cohort is uniquely interesting because its members were 18 years old in 1989 when the re-unification of Germany took place. They realized their transition to adulthood under the new conditions of unified Germany although most of their cultural formation occurred in the two different settings. Members of this cohort were

exposed to different institutional contexts regarding family policies. The attitudes of this cohort's East and West German women towards family formation differ significantly, although family policies, consumption patterns and labor market regulations became increasingly similar.

The GHLS 1971 data focuses on retrospective event histories in separate life domains such as residence, family of origin, marriage (including partners and partners' characteristics), fertility, education, training, employment, and careers. Table 1 shows the sizes of samples used in East and West Germany by gender. The total sample used here contains 1068 complete life histories of men and 936 complete life histories of women. Events and transitions were recorded forward in time and dated monthly.

As noted above, an important advantage of our data is that it avoids the left-censoring problem which is pervasive in the extant research (e.g. Kreyenfeld 2009, Gonzalez and Jurado 2006, Schmitt, 2008). We follow all the individuals from the time that they are at risk of being a parent (in our case, age 16) until they make their transition to parenthood or until the last interview date (at approximately age 34[6]).

We exclude unusual transitions to parenthood (e.g. adoptions or step-parenthood via marriages) from our sample and analysis since the decision making process for them is too complex to model using unemployment. However, note that Table 2 shows that East German men are more than twice as likely to adopt a child as the men in West Germany. The relevant question here is whether employment instability is correlated with becoming a stepfather. In other words, our estimates might be slightly biased in East Germany to the extent that certain characteristics of the men that make them enter parenthood via adoption and step-fatherhood also determine their employment status. However, we judge it as unlikely that such characteristics exist specifically for step-fatherhood.

Tables 3 and 4 show the descriptive statistics of our sample regarding the dependent variable and our main explanatory variable: employment status for men and women in East and West Germany. The distribution of spells in each category of employment status is fairly similar in East

[6] This can be considered a limitation because the observation window is shorter (ending around age 34) than the fertility window of women, and ends at the same age for men. We will discuss its possible consequences in the concluding section.

and West Germany. Looking at gender, we observe that slightly more women are in education and are inactive. Except these mentioned differences, our samples have similar distributions in both countries.

3.2. Model Specification and Variables

We use an event history analysis (e.g Blossfeld and Rohwer, 1995) that allows us to examine the first transition rates to parenthood and which controls for right-censored data. The crucial statistical concept here is conditional likelihood, i.e. a hazard rate: it is simply the likelihood that an event takes place within a time interval, conditional on it having not occurred previously. We preferred the piecewise constant exponential model because it relaxes the assumptions about the distribution of the hazard function by allowing the hazard to vary between specified portions of the time within our observation window. The piecewise constant (exponential) model of the hazard rate takes the following functional form:

$$r(t) = \exp(\beta_p' X)$$

where the subscript *p* denotes a specific sub-period -age group in this case[7]- (<20, 20–25, 25-30 or >30 years old, respectively) X refers to a set of explanatory and control variables used in the analysis. Thus, our main coefficient estimates (β_p) reveal information regarding the hazard rate. Our dependent variable is the timing (age) of first birth. So, for example, in isolation a positive coefficient implies that the hazard is increasing, which in turn means transitions occur (faster) at earlier ages. We subtract 9 months from the date of first birth in order to capture the time at which the decision for the parenthood was made and avoid reverse causation problems. In other words, our dependent variable is the age at first conception (of live births).[8]

We have a number of time-varying explanatory variables which measure different aspects of career and economic uncertainty. Our first direct measure is *employment status* which is a categorical time-varying variable that indicates four different states: being in employment, being in education, being unemployed, and being inactive. Our second measure of career and economic uncertainty

[7] Because we have only one cohort (1971) period effect should be identical to the age effect. Yet, it is not exactly identical because we have a variation of a few months among the members of the cohort, although it does not affect the results.

[8] One may argue that the decision for a conception is not the same thing as the conception itself. We discuss this in detail below.

counts *the number of months spent in unemployment*, i.e. *unemployment duration*. This variable indicates the cumulative loss of human capital due to unemployment that would have been obtained as a labor market experience (e.g. on the job training), and were mostly short in our sample. We also generated another variable that calculates the cumulative *number of unemployment spells*[9].

In order to tease out the effects of job instability, we construct a new variable that counts the *number of prior job shifts*. This is useful as a measure of job insecurity because it is less correlated with the drastic changes in earnings induced by entries into unemployment spells. However, we must be careful since some prior job shifts are progressive in terms of careers while others are indicators of downward mobility. We examine the how this interacts with education in order to sort out this difference. One would expect that the number of months spent in unemployment would also be correlated with the number of job shifts, but the correlation between these variables turned out to be comparably low (around 0.34-0.36 for each sample). Because they capture two different things, we included these variables in some of our models simultaneously.

We measure the educational achievements of the respondents in two ways. First, we take into account the respondent's *educational level*. It is important to note that the East and West Germans in this cohort experienced two different school systems. In West Germany, there are three main branches of schooling after leaving elementary school (after the fourth grade). The so-called "Hauptschule" is an eight-year track which enables students to attend basic apprenticeships and vocational training in certain occupations. A higher school degree (the "Mittlere Reife") can be obtained when graduating from "Realschule", a ten-year track that provides a greater variety of vocational training. The highest possible school degree is the so called 'Abitur' which can be obtained after twelve or thirteen (depending on the region) years of "Gymnasium"; only this degree allows students to attend a university. In contrast, in the former GDR there was one big common branch which was called "Polytechnische Oberschule" (POS) which nearly all students attended first through tenth grade. They then obtained a degree which enabled them to enter an apprenticeship. To attend university, however, students from the former GDR also had to make the "Abitur", which could be obtained after visiting the so-called "Erweiterte Oberschule" (EOS) as a two-year extension of the POS.

[9] This variable is highly correlated with number of months of unemployment (approximately r =0.7) Therefore we don't include it in the same specification. When we tested our models with this variable, the results barely changed.

In order to gain a comparable measure of education between the East and West we constructed a variable with three categories. We distinguish between the *low-educated,* i.e. persons whose highest degree is the "Hauptschulabschluss" in West Germany or who left POS after the 8th grade in East Germany; the *medium-educated*, persons who graduated from school after 10th grade; and the *highly educated,* persons who were eligible for university study. The distribution of these categories in East and West Germany is shown in Table 3. There are striking differences in the distribution of people across these categories in East and West Germany. There is almost no one in the lowest education category in East Germany and the percent in the highest education level in West Germany is almost double the respective percentage in East Germany. These differences are not an artifact of our categorization but rather they reflect real differences in both parts of the country (See Mayer and Schulze 2009 for the details about the education structure of East and West Germany).

Our second measure of educational attainment captures the *amount of time spent in education*. More precisely, it counts the months the respondents spent in education since age 16. Since people often delay entry into first parenthood until they enter the labor market (Huinink and Mayer 1995; Kreyenfeld 2006) this variable is important in that it roughly measures age at labor market entry.

Since the timing of birth and the timing of marriage are usually linked, and marriage accelerates the timing of first birth (Blossfeld and Huinink 1991), it is important to control for marital status (Blossfeld and Rohwer 1995). As described above, our variable for partnership status has four categories: no partner, non-married, non-cohabitating partner, cohabitating partner, and spouse. We also control for partner's age and use partner's educational level as a measure of partner's human capital to allow for testing of hypotheses 5a and 5b.

4. Results

The last six tables (from table 6 to table 11) report the results of our analysis. We ran separate models for women and for men, which we outline in sections 4.1 and 4.2, respectively. In these subsections, we also report separate sets of models for East and West Germany. Our aim at this stage is to define a saturated model of fertility timing and to analyze the impact of unemployment and partnership status for both genders. In section 4.3, we use the full model defined in sections 4.1 and 4.2 as a "baseline", and then introduce a number of interaction effects. Because our focus is only on the interaction effects in section 4.3, the variables of the baseline models will be considered

solely for control purposes. Finally, we report additional specifications and robustness checks in section 4.4.

4.1. Results for Women

Table 6 shows the results for transition to motherhood in East and West Germany. We report five different specifications per country. (We set the age group between 25 and 30 as the reference category in all models. All the coefficients in tables 6 to 11 represent hazard ratios.). Our analytical strategy is to begin with a simple, unconditional model (model 1) and then add sets of covariates and controls stepwise in each specification from models 2 to 5.

---Table 6 about here---

Model 1 includes two time-varying covariates to capture the unconditional effects of unemployment: *being unemployed* is one of the three dummy variables of our four-category employment status indicator. We exclude "being employed" since it is our reference category. Model 1 also includes the cumulative *number of months spent in unemployment (unemployment duration)*. For women in East Germany, being unemployed accelerates the hazard of childbirth twice as much as being employed, whereas for West German women the effect of being unemployed is not significant. In this and subsequent models we find that unemployment duration has no additional effect on transitions to motherhood in East or West Germany.

Hypothesis 1b suggested no effect of unemployment on women's motherhood timing due to offsetting income and substitution effects. While this is true for West German women[10], we find a strong positive effect for East Germany. Furthermore, these results are robust to different specifications with different sets of controls (see models 1 to 4). This comes as a surprise because in East Germany women do not share the norm that mothers' full employment is harmful for small children and better childcare facilities are more widely available. At the same time, these same factors—childcare availability, higher rates of female employment, and positive norms about working mothers—might cause women to be less concerned that having a child during unemployment might prevent them from returning to work. Additionally, lower wages in East Germany might reduce the relative weight of the income effect of unemployment. Taking these

[10] In other words, we fail to reject the null hypothesis that there's no impact of unemployment.

factors together, we conclude that East German women might indeed prefer using unemployment periods for an opportunity to give childbirth, as suggested by our results.

Conversely, we find unemployment *duration* to have no effect in either East or West Germany, and so reject hypothesis 2a, which predicted a negative impact. Yet, we must be cautious in interpreting this finding for two reasons. First, unemployment duration enters in our model linearly. Theoretically, the functional form of this variable with respect to fertility timing is ambiguous. However, the number of events occurring during unemployment spells in each subsample is so small that any added higher-order polynomial terms or interval dummies capture very little variation, leading us insignificant results.

Now, consider model 2 that incorporates two more variables regarding education: time spent in education and the three-category education level. In this model the middle level of education is the reference category. As expected, and in line with the previous literature (Rindfuss et al. 1996), moving from our middle level of schooling category to a higher level of education category reduces the hazard of motherhood transitions by about 65% in East Germany and 40% in West Germany. When we include partnership related variables in the following models, these effects decline to about 45% in East Germany and 35% in West Germany, though they remain statistically significant in all models (or at the edge). Furthermore, compared to the reference category women with low levels of schooling are 2.5 times more likely to become mothers in East Germany (controlling for partnership status) and around 1.5 times more likely to become mothers in West Germany. We should also note that our dummy variable for being in education relative to being employed decreases the motherhood transition rate to around 90% and 80% in East and West Germany respectively, indicating that, not surprisingly, women avoid pregnancy while in education.

In model 4, we add partner status. One may argue that this introduces endogeneity since motherhood decisions might dependent on marriage decisions and vice versa. However we would like to separate the timing of first birth from the timing of marriage because we suspect large variations in the degree to which these decisions are linked in East and West Germany. Thus, having a fine-grained relationship-status measure might allow us to control for the timing of changes in

partnership types. Additionally, we do not interpret the coefficients of these variables substantially since they are only for control purposes[11].

Also, when we control for partnership status, our job security indicators, which were insignificant in the simpler model, become significant. Specifically, *number of job spells* in East Germany decreases and *unemployment duration* in both East and West Germany increases the hazard of motherhood transitions. This means that for each additional job change, women delay fertility timing in East Germany by about 16%, other things being equal: an unsurprising result assuming this variable measures job instability. Hypothesis 4a suggests that this variable measures job instability for the women with low level of education, which we will discuss in detail in section 4.3.

Most of the coefficients, however, remain virtually unchanged when we add controls for partner's age and education in Model 5. Note that in this specification, we estimate the variation in partner characteristics for those who have a partner. We find that general partner's education has no impact on women's fertility timing although husband's age had a slightly positive impact that decreases over time in both the East and West.

In short, in this section, we could only confirm that unemployment did not have an impact on fertility timing for women (hypothesis 1b) in West Germany. In contrast, we found that being unemployed has a positive impact in East Germany, where the childcare system and reduced earnings decrease the impact of the income effect. Our hypothesis 2a could not be confirmed in either part of the country, indicating that unemployment *duration* plays no role in women's fertility timing. The effect of the education and partnership-status variables were all in the expected directions, and partner's education had no impact.

4.2. Results for Men

Table 7 reports the results for men and follows the same strategy as in Table 6 (stepwise addition of controls). For men, we initially expected unemployment to have a negative effect on fertility timing, as stated in hypothesis 1a. However, we fail to confirm this hypothesis. We find no significant association between unemployment and fertility timing in any of our models for men in East and West Germany. This is surprising because the theoretical prediction for men was less

[11] The coefficients in partnership status are positive significant and monotonically increase as we move from no partner to being married, as expected.

ambiguous than for women, since unemployment should have an income effect but no substitution effect.

---- Insert Table 7 about here ----

Regarding our unemployment duration variable, we face the same difficulty of small sample size for men as we do for women. Particularly in East Germany, we have such a small number of transitions (90 events) that it is difficult to find significant effects when we test for short versus long-run differences of unemployment duration. Hence, when we include unemployment duration linearly, it shows no significant effect on fertility timing. Thus, we cannot fully confirm hypothesis 2b, that the impact of unemployment depends on its duration. This is in line with our expectations but we need a more refined test for hypothesis 2b, which we discuss in the next section.

Nevertheless, our models do show the expected signs for the education variables, as in our model for women. Additionally, for West German men we find that time spent in education has a small but negative effect, which is robust across all specifications. We also find a striking difference between East and West German men regarding the impact of schooling. For East German men, like for women, having a high degree of schooling compared to middle level of schooling delayed the timing of the fertility by about 50%, whereas for West German men we did not observe significantly different effects between middle and high levels of schooling on fertility timing.

The coefficients in model 3 show that number of job spells increased the likelihood of becoming a father by about 11% in East Germany, although this effect is only significant at the 90% level. In West Germany we found no significant impact after including number of job shifts. Moreover, when we control for partnership characteristics the coefficient for the number of job spells turned out to be not significant anymore in East and West Germany.

Interestingly, we find that partner characteristics have a stronger effect for men than for women. As the female partner's human capital increases, fatherhood decisions are less likely by about 20% in East Germany and 10% in West Germany. This finding partially confirms hypothesis 5a, which predicted a negative impact of partner's human capital on fatherhood decisions, especially for those with lower education. (We provide further evidence concerning the lower educated subgroup in the next section.) Recall that we found husband's human capital to have no effect on women's motherhood transitions (see Table 6). This gender contrasting is interesting because it

suggests that the wife's education (and perhaps her career) is more import for the timing of childbirth decisions, although testing this argument formally is beyond the scope of this paper.

4.3. Interaction Effects

To test the ambiguous theoretical predictions concerning the effect of unemployment on fertility behavior (i.e. income versus substitution effect for women), requires refining the analysis in order to identify the type of women and men for which the each effect might dominate. For example, unemployment for highly educated individuals might imply a bigger income effect (loss) than for persons without much schooling. Similarly, frequent job changes might imply upward career mobility for the highly educated but may mean something quite different for persons without much schooling. To capture these nuances, we report a number of interaction effects for women and men respectively in Table 8 and Table 9.

Here we adopt the following strategy: we use model 4 from Tables 6 and 7 (which include partner status but not partner characteristics) as a baseline (i.e. saturated) model. We then add a number of interaction effects. In this section we focus on the interaction effects and consider the covariates of the baseline models only for control purposes.

---- Insert Table 8 about here ---

Table 8 reports the results of seven models with different sets of interactions for women, run for East and West Germany separately. Model 1 includes only the interaction term between education level and number of job shifts to capture the potentially different meanings of this variable. Strikingly, in East Germany we find a strongly negative effect (a 75% decrease in the transition rate)[12] of the number of prior job shifts on the hazard of first birth for women in the lowest education category. For West German women in lowest education category we also find a negative impact (an approximately 17% decline). Note that we do not find a similar effect for women with high level of education. This finding confirms our hypothesis 4a, that education would capture the differences between career advancement and job instability and that the latter would imply a delay in fertility timing. Sample differences complicate a comparison of impact sizes between East and West Germany. Still, we would like to note that the effect is strongly significant in East Germany and robust to the specification, but in West Germany it is somewhat less strong. This

[12] This figure is calculated using both coefficients of interaction components: [exp (ln(0.833)+ln(0.296))-1]x100%

result also verifies our expectation that West German women in this education category would consider motherhood as an alternative path when they experience job instability while East German women would prefer to delay motherhood because they do not perceive stable employment and motherhood as alternative (competing) roles, but instead perceive them as combinable.

Model 3 in Table 8 retains this interaction term and adds an interaction effect between unemployment duration and level of education. When we control for differential unemployment duration, the negative impact of job instability for women with low levels of schooling becomes stronger (up to 85% per job change) in East Germany.

We now turn our attention to men and the impact of number of jobs at different levels of education. Just like for women, hypothesis 4a predicted that increased number of job changes would lead to a delay in transitions to fatherhood for men in the lower education category. Furthermore, hypothesis 4b expected a positive impact of job changes for highly educated men, since we think it is an indication of career mobility. Table 9 shows the results for men in the same order as the Table 8. Model 1 again shows the variation in the impact of job changes by education. The negative effect of job changes we observed for low-educated women could not be confirmed for men. And even though we observe a positive impact for highly educated men, as expected, the coefficient is not significant[13]. In other words, our data cannot confirm hypothesis 4b for East or West Germany.

---- Insert Table 9 about here----

Model 2 in Tables 8 and 9 includes interactions between education and unemployment. For highly educated East German women (in Table 8), unemployment duration accelerates the hazard of motherhood by about 11% compared to women with the middle level of education. So in East Germany it is actually highly educated women who saw unemployment as an opportunity for motherhood, especially as its duration increases. This result is somewhat surprising, but is consistent with our finding in section 4.1 that unemployment contributed to the hazard of motherhood transitions in East Germany. When we interact these effects with job spells in Model 3, their coefficients become significant and stronger. We observe that for low-educated women compared to the reference category for each additional month of unemployment increases the likelihood of

[13] Note that the coefficient size is quite robust across specifications. Considering the fact that we have a small number of events for this group (East German men), we suspect that the lack of statistical power for these coefficients are mostly due to small sample size.

becoming a mother by about 17% in East Germany. For highly educated women compared to the reference category each additional month of unemployment increases the likelihood of becoming a mother by about 13% in East Germany. This implies that in East Germany unemployment duration only delays fertility for women in the middle level of schooling. In contrast, model 2 shows that in West Germany shows each additional month of unemployment decreases the hazard of motherhood by about 4% for women with low education compared to the reference category, which is in the expected direction (although not robust to other specifications, see model 3). Overall, these results indicate an opposite effect to what is predicted in hypothesis 3. If we focus on model 3 in East Germany we can confirm the first part of this hypothesis. But the second part, which postulates no effect of unemployment for highly educated women, is shown to be false in both models 1 and 3 in both parts of the country.

Finally, hypotheses 5a and 5b concern the interaction between partner's human capital and unemployment. Hypothesis 5a suggests that unemployed men with highly educated partners will delay fatherhood. Models 4 to 7, shown in table 9, consider different combinations of partner characteristics for men in East and West Germany. Overall, partner's education decreased men's likelihood of becoming father by around 10 to 20% in East and West Germany. Further, we find that each additional year of wife's education decreases the likelihood of fatherhood transitions for unemployed men by about 65% in East Germany. Although, partner education delays fatherhood in West Germany as well, its effect is general and its interaction with unemployment is not significant. Moreover, the effect we observed in unemployment does not apply to men who are inactive: this interaction has no effect for men in both East and West Germany. Thus, hypothesis 5a is confirmed in East Germany but not in West Germany.

It is unclear what exactly the absence of such an effect in West Germany means. First, we do not have information on partner's employment status. Partner's education might be capturing part of the effect of partner's employment. If this is true, when men are unemployed the cost of women's work interruptions due to childbirth for educated women might be bigger in East Germany than in West Germany because East German wives are more likely to be employed than West German wives.

If we again consider Table 8 and the same hypothesis (5b) for women, we find husband's education to have no impact on women's fertility timing and we cannot confirm that husband's

education matters for childbirth decisions when a wife is either unemployed or inactive. Thus, based on the results of models 4 to 7 we cannot confirm hypothesis 5a.

4.4. Additional Specifications and Period-Specific Effects.

We have to assess two remaining hypotheses (2c) and (4c). These suggest that the effect of unemployment and job instability varies in different stages of the life course. In order to capture life course trends[14], we include period-specific effects of unemployment duration and number of jobs as additional specifications in Table 10. We report two models for each country and for each sex. In the first model we look specifically at the impact of number of job changes by each sub-period of the baseline hazard (i.e. age group) on fertility timing. In the second we apply the same procedure for unemployment duration. In both models we again use model 4 from Tables 6 and 7 as the baseline to which we add a full set of period effects.

------ Insert Table 10 about here -----

Both for women and for men, the impact of number of jobs is very strong at the very initial stage of the life cycle. An additional job change at early stages of the life course (i.e. younger than 20 years old) accelerates the hazard of transitions about two times for women in East and West Germany. However, the positive impact of number of job changes disappears for East German women as we move across age groups, first it becomes insignificant and then it affects the timing of fertility negatively (decreases the hazard about 20%) between the ages 25-30. Women in West Germany also experience a similar pattern although at later ages the effect of number of job changes becomes simply insignificant.

We observe very similar trends over the men's life course as well. Number of job changes contributes strongly (about three times) to the hazard of fatherhood transitions at the early stages and its impact erodes largely at later ages. Yet, between ages 20 and 25, number of job changes still positively affects fertility timing of East German men. We expected to observe a negative impact of number of job changes at the earlier stages of the life-course. Therefore this is a surprising result, which contradicts with our prediction in hypothesis 4c. However, it may indicate that having a higher number of job changes at ages younger than 20 may be a sign of either a very select group of

[14] Recall that we have only one cohort and so observe life-course trends.

individuals that start work-life earlier or a rapid upward career mobility that contributes to an early fatherhood.

Model 2 in Table 10 shows the trends in unemployment duration over the life course. Hypothesis 2c predicted for women an initial strong negative effect of unemployment duration that fades away at later ages. Our models also rejected this hypothesis. We find a positive strong effect of unemployment duration in West Germany for the motherhood transitions at the early stages of life-course that disappears immediately. Both for East German women[15] and for men in the East and West, we find no significant difference on the impact of unemployment duration across age groups. Previous explanations for the trends of number of jobs might also apply to the trends of unemployment duration. One should also keep in mind that "the early stages" mentioned in the theoretical arguments about the impact of unemployment duration often refer to early stages of the work life. However, in our data because fertility window starts at the ages of 16, our "early" age group (age<20) usually coincides with the education years of individuals in Germany. In this context East and West difference might be driven by the type of women not in education in West Germany in a period when unemployment was just starting to take off.

While some studies directly model the timing of the first birth, most researchers subtract 9 months (or a year) from date of birth to counter this endogeneity problem, just as we did in this paper. However, as mentioned previously, one could argue that the timing of conception *decisions* may differ from the timing of conception *itself*. The extant literature using event history models often ignores this difference. The difficulty is that the distribution of the elapsed time between decisions and actual conception is unknown. To see whether our estimations are sensitive to this time difference, we tested our models subtracting 10, 11 and 12 months before the first birth.

In Table 11, we compare only the specification of 12 months before birth instead of 9 months. Model 1 simply replicates the baseline model (model 4 in Table 6 and 7) with this new dependent variable. Due to space limitations, control variables are not shown in this table. Three coefficients for the main explanatory variables related to unemployment are shown. Model 2 and Model 3 report the period-specific effects of unemployment duration and number of job shifts consecutively.

[15] The first period (Age< 20) corresponds to approximately pre 1991 era where unemployment has not started yet, zero coefficient in East Germany indicates this fact.

----- Insert Table 11 about here ----

Using 12 months instead of 9 before birth as the timing of the dependent variable hardly changed our results. Almost all the coefficients are in the same direction and of comparable impacts. The only difference is the impact of being unemployed for East German women becomes weakly significant. In all models, number of job shifts and unemployment duration have comparable coefficients with those in Tables 6 and 7. The same is true for the period-specific effects: the coefficients for number of jobs and unemployment duration in each period showed virtually no difference from those shown in table 10. Although this reassures us of the robustness of our models, one should still be aware of the underlying assumption, namely that the time between the decision and actual conception is uncorrelated with the unemployment experience. Testing this assumption is not possible with the current data. However, to our knowledge there is no empirical evidence suggesting this assumption to be unrealistic.

5. Discussion and Conclusions

In this paper we tried to assess whether work-life instability brought on by unemployment or due to job changes affects the timing of fertility transitions for men and women in East and West Germany. We took into account potential variations in these variables' impact by educational levels of individuals and their partners. We also considered whether a partner's characteristics mediate the impact of employment instability. We posed 5 main hypotheses regarding the direction and strength of the relationship in question.

In general, only half of our hypotheses were confirmed by the data. Specifically, our first hypothesis was twofold and suggested that men's unemployment would delay the onset of first birth due to income effect but unemployment of women would not affect it because of counterweighing income and substitution. We confirm this hypothesis only for women in West Germany. For women in East Germany we found that the substitution effect of unemployment was larger than the income effect. We believe availability of childcare, compressed low wages and positive norms about working mothers might all have contributed to this result. For men we have not found evidence for the income effect in East or West Germany.

Our hypothesis 2 was about unemployment duration and had three arguments. The first one predicted a negative impact of unemployment duration on the onset of first birth for women.

Second one suggested this negative effect to be stronger in early ages. Finally a third one distinguished long term and short term impact of unemployment duration on men's timing of their first birth. It is noteworthy that we could not confirm any of these hypotheses. To the extent that our cumulative number of months variable measure unemployment duration, we found no significant impact of it on motherhood transitions. We also found that it had a positive impact for West German women younger than 20 years old and that effect disappears later on contrary to our hypothesis. The third part of the hypothesis 2 predicted a declining effect of unemployment duration in the long run on fatherhood transitions of men. We could not adequately distinguish long and short run due to data limitation.

Our third hypothesis is also partially confirmed. We predicted that unemployment duration would affect the timing of motherhood positively for the low educated women but negatively for the high educated women. We could confirm the first part in East Germany. But we also find a positive effect of unemployment duration for the high educated women's motherhood transitions in East Germany.

The hypothesis 4 was about number of job spells and had three main parts. Altogether, it aimed to explore the variation in its impact on parenthood transitions by education level and age category. The hypothesis 4 suggested that for the low education category, the impact of job changes would be negative. We confirmed this hypothesis for women in East and West Germany. The number of prior jobs only delayed the onset of first birth for women in the lower education category but not for men.

Finally, the set of hypotheses 5 aimed to test whether partner's education can exacerbate or offset the negative effect of unemployment for men and women in Germany. These hypotheses suggest an extra educational degree that a female partner gets will delay the fatherhood when the respondent is unemployed. We also confirmed this hypothesis in both parts of the country. Yet, the expected effects for women respondents and their partners under unemployment did not prove significant in either East or West Germany.

Because of the smaller gap between men and women in labor market participation in East Germany than the West Germany, we expected to observe similar results for both sexes in East Germany. Although, most of the coefficient signs are in the same direction, our variables of interest are not significant for men or women.

One important conclusion is that unemployment per se is not a very clear determinant for delaying the first birth for women. The strength of the impact of unemployment on the fertility timing varies greatly by the education level, stage at life cycle and above all by the type of countries. Since marriage (in West Germany) and marriage or cohabitation (in East Germany) are still important prerequisites of first birth we need more partner variables and household level variables to understand various dimensions of unemployment.

Furthermore institutional settings mattered to great degree, many of our hypothesis are either confirmed or disconfirmed for East and West Germany where childcare system, labor market structure and values about women's employment are still quite different. One major contrast between East and West Germany which we so far did not explore in detail are the differences in regard to the in- and between-household wage distribution. Some of the partner effects, or economic loss generated by unemployment can be explained by the differences in reservation wages. Because the wages are still at lower levels in East Germany, the opportunity cost of unemployment might not be so high for women, which might explain the positive (substitution) effect we found in Table 6. Future research should incorporate variation in such variables (i.e. wage distribution measures) in a more systematic fashion.

We should mention a few caveats of our study. First of all, we observe these cohorts at a maximum age of 34, which is still within the fertility window of women. Yet, we think this type of right-censoring is likely mostly a problem for very highly educated persons, who are most likely to postpone first birth past age 34. We expect that right-censoring in our case is also likely to affect men more than women.

Second, the decision to become a parent is an inter-temporal one, which requires taking into account current conditions as well as long-run economic circumstances, since the consequences of such decisions are spread over time. Ideally, we would capture this inter-temporal nature of parenthood decisions by using household-level variables to proxy for current and future economic conditions. This is also crucial, for example, to answer the question of to what extent spouses buffer each other's potential life vagaries. In other words, we would need to include variables such as partner's earnings, total household income, partner's occupation, and partner's employment history. Unfortunately our data does not allow us to include such measures in a reliable way. We think

partner's education captures some those effects, although we are well aware of the fact that more refined analysis is needed to assess partners' roles.

It is important to note that decisions to become a parent is inherently an *endogenous process* which is strongly linked to other decisions that span the life course, such as choices involving of education, the choice of job, and finally, the choice of a partner (Esping-Andersen 2007). A number of selection processes operate along these choices and they ultimately shape the context in which a fertility decision takes place. Thus, preferences might be key determinants of decisions about the number and timing of children. And these preferences might also influence individual's labor market commitment, educational attainment, their likelihood of being unemployed, and their responses to unemployment. In our models, partner characteristics add another layer to these selection issues. Tackling these problems is beyond the scope of this paper. Therefore, our results should be interpreted cautiously as describing the patterns through which unemployment is associated with the timing of first birth for individuals with different relationship statuses, educational backgrounds and institutional settings.

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Figure 1: Birth of the first Child, Kaplan-Meyer estimates

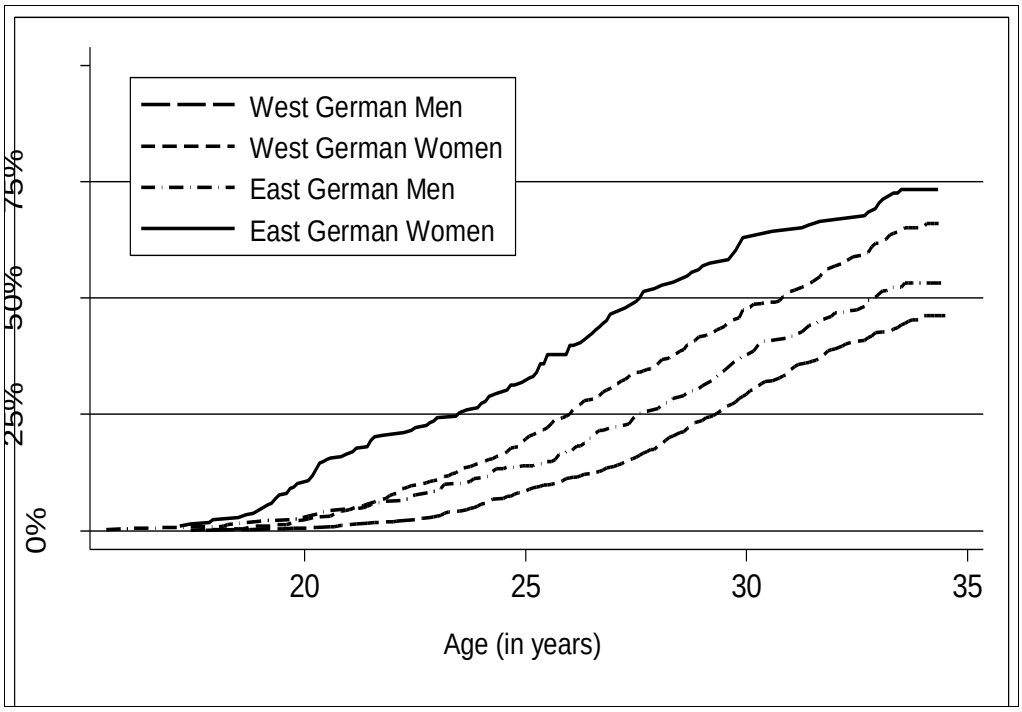

Table 1: Samples used for analyses

		East Germany	West Germany	Total
Men	n	306	762	1068
	%	28.7	71.3	100
Women	n	286	650	936
	%	30.6	69.4	100

Note: The numbers above indicate number of individuals (not spells).

Table 2: Nature of the Relation between Parents and their first child

		Relation to first child		
		Own child	Adopted child	Child of partner
East Germany	Men	82.4	17.6	0.0
	Women	100.0	0.0	0.0
	Total	92.1	7.9	0.0
West Germany	Men	91.4	7.5	1.1
	Women	98.8	1.2	0.0
	Total	95.7	3.9	0.5

Note: The percentages above are for the respondents at the age of 34 or at the age of childbirth .

Table 3: Distribution of events (first births) by partnership status

		1st Child	No Partner		Partner		Total
		until 35	%	n	%	n	n
East Germany	Men	yes	12.9	12	87.1	81	93
		no	47.9	102	52.1	111	213
	Women	yes	9	14	91	141	155
		no	29.8	39	70.2	92	131
West Germany	Men	yes	8.2	19	91.8	213	232
		no	46.6	247	53.4	283	530
	Women	yes	8.1	26	91.9	295	321
		no	37.1	122	62.9	207	329

Table 4: Employment status (person-spell data)

		Status				
		Employed	Unemployed	Education	Inactive	n
East Germany	Men	49.0	8.0	32.0	11.0	3504
	Women	43.9	7.5	44.7	3.9	2843
West Germany	Men	46.2	4.8	38.3	10.7	8716
	Women	47.7	3.5	43.6	5.2	6764

Note: The figures above indicate the percentages of the corresponding person-spells not the individuals. Because we adopt a continuous time data, spell lengths vary. These percentages do NOT indicate the percentages of months.

Table 5: Level of Education

		School degree		
		Low	**Middle**	**High**
East Germany	Men	5.2	73.2	21.6
	Women	4.2	73.4	22.4
West Germany	Men	30.4	27.7	41.9
	Women	22.6	35.6	41.8

Note: These figures indicate the percentages of all individuals.

Table 6. Piecewise Constant Exponential Models for the Timing of the First Birth (Women)

	East Germany					West Germany				
	model 1	**model 2**	**model 3**	**model 4**	**model 5**	**model 1**	**model 2**	**model 3**	**model 4**	**model 5**
Age groups (Reference category Age between 25-30):										
<20	0.679	0.731	0.631	1.269	1.154	0.193***	0.173***	0.181***	0.569*	0.470**
	(0.202)	(0.238)	(0.217)	(0.445)	(0.446)	(0.053)	(0.060)	(0.063)	(0.189)	(0.158)
20-25	0.706	0.691	0.636*	0.645*	0.635*	0.906	0.745**	0.766*	0.990	0.814
	(0.163)	(0.167)	(0.159)	(0.162)	(0.174)	(0.123)	(0.105)	(0.111)	(0.143)	(0.125)
>30	0.850	0.771	0.898	0.883	1.149	1.315	1.474**	1.404*	1.402*	1.841***
	(0.254)	(0.238)	(0.297)	(0.298)	(0.427)	(0.220)	(0.250)	(0.253)	(0.250)	(0.364)
panel	1.229	1.317	1.295	1.307	1.405	1.562***	1.726***	1.714***	1.336**	1.350**
	(0.239)	(0.260)	(0.256)	(0.261)	(0.292)	(0.219)	(0.251)	(0.249)	(0.196)	(0.203)
Employment Status (Reference Category: Being Employed):										
_Unemployed	2.210**	2.296***	2.182**	2.026**	1.568	0.857	0.861	0.877	0.968	0.921
	(0.681)	(0.711)	(0.684)	(0.638)	(0.551)	(0.373)	(0.422)	(0.428)	(0.453)	(0.426)
_ in Education	0.071***	0.089***	0.079***	0.159***	0.171***	0.084***	0.092***	0.096***	0.216***	0.181***
	(0.021)	(0.026)	(0.025)	(0.048)	(0.054)	(0.023)	(0.029)	(0.031)	(0.066)	(0.058)
_ Inactive	1.520	1.563	1.468	1.740	1.687	1.481	1.643*	1.689*	1.558	1.697*
	(0.616)	(0.637)	(0.603)	(0.721)	(0.748)	(0.383)	(0.456)	(0.472)	(0.436)	(0.480)
Unemp. Duration	0.996	0.996	0.997	1.012	1.016*	0.994	0.984	0.983	0.981*	0.989
	(0.007)	(0.007)	(0.007)	(0.009)	(0.009)	(0.010)	(0.011)	(0.011)	(0.011)	(0.012)
Time in Education		1.007**	1.007**	1.005	1.005		0.998	0.998	1.001	1.001
		(0.003)	(0.003)	(0.003)	(0.003)		(0.003)	(0.003)	(0.002)	(0.003)
Schooling Level (Reference Category: Middle Level):										
_Low		1.623	1.582	2.437**	2.443**		1.408**	1.409**	1.626***	1.562***
		(0.602)	(0.587)	(0.913)	(0.982)		(0.196)	(0.196)	(0.229)	(0.225)
_High		0.343***	0.336***	0.451**	0.529*		0.585***	0.590***	0.600***	0.619**
		(0.105)	(0.102)	(0.142)	(0.175)		(0.102)	(0.103)	(0.108)	(0.119)
# Job Spells			0.906	0.838**	0.838**			1.039	1.020	1.022
			(0.073)	(0.071)	(0.074)			(0.047)	(0.049)	(0.052)
Relationship status (Reference category: Without partner):										
_Have a partner				9.722***	6.414***				3.014***	5.027***
				(3.405)	(4.052)				(0.896)	(2.697)
_Cohabitating				19.933***	14.015***				9.129***	15.745***
				(7.516)	(8.983)				(2.621)	(8.278)
_Marriage				35.114***	24.679***				32.318***	54.827***
				(14.412)	(15.545)				(8.967)	(28.637)
Age of Partner					1.098*					1.029
					(0.055)					(0.038)
Age-Squared of Partner					0.998*					0.999*
					(0.001)					(0.001)
Partner Human Capital					0.876					0.969
					(0.073)					(0.037)
log likelihood	-120.762	-112.765	-112.008	-52.558	-50.968	-190.610	-157.443	-157.090	18.336	26.904
Chi-Squared	283.33***	299.33***	300.84***	419.74***	390.63***	755.79***	786.75***	787.46***	1138.31***	1116.48***
Number of Events	152	152	152	152	140	311	311	303	303	299
N	2807	2807	2807	2807	2645	6688	6596	6596	6596	6282

Note: One asterisk indicates significance level at 90%, two asterisks at 95% and three asterisks at 99%. Coefficients are in terms of Hazard ratios and standard errors are in parentheses.

Table 7. Piecewise Constant Exponential Models for the Timing of the First Birth (Men)

	East Germany					West Germany				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Age groups (Reference category Age between 25-30):										
<20	0.074***	0.069***	0.091***	0.247**	0.229***	0.035***	0.021***	0.022***	0.098***	0.096***
	(0.037)	(0.038)	(0.051)	(0.141)	(0.130)	(0.015)	(0.010)	(0.010)	(0.047)	(0.047)
20 - 25	0.483**	0.462***	0.518**	0.659	0.497**	0.532***	0.446***	0.459***	0.791	0.614**
	(0.137)	(0.134)	(0.153)	(0.199)	(0.157)	(0.090)	(0.078)	(0.081)	(0.141)	(0.118)
>30	0.981	1.044	0.931	0.921	1.411	1.195	1.354*	1.310	1.288	1.561**
	(0.305)	(0.326)	(0.300)	(0.305)	(0.503)	(0.209)	(0.246)	(0.243)	(0.239)	(0.309)
panel	1.456	1.577	1.575	1.357	1.405	1.233	1.435**	1.422**	1.191	1.248
	(0.408)	(0.444)	(0.443)	(0.382)	(0.403)	(0.204)	(0.241)	(0.239)	(0.204)	(0.222)
Employment Status (Reference Category: Being Employed):										
_Unemployed	0.874	0.912	0.966	0.842	0.468	0.618	0.600	0.623	0.694	0.591
	(0.509)	(0.532)	(0.557)	(0.487)	(0.311)	(0.298)	(0.312)	(0.322)	(0.360)	(0.332)
_ in Education	0.357**	0.414**	0.451*	0.532	0.488*	0.259***	0.380***	0.394***	0.591*	0.560**
	(0.143)	(0.172)	(0.187)	(0.210)	(0.188)	(0.063)	(0.102)	(0.107)	(0.160)	(0.159)
_ Inactive	1.070	1.087	1.168	1.168	1.113	0.531*	0.612	0.630	0.720	0.602
	(0.449)	(0.456)	(0.491)	(0.495)	(0.476)	(0.188)	(0.218)	(0.225)	(0.255)	(0.240)
# of Unemp Months	1.000	0.997	0.995	1.001	1.009	0.997	0.991	0.989	1.008	1.007
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.009)	(0.010)	(0.010)	(0.011)	(0.012)
Time in Education		1.001	1.002	0.998	1.000		0.994**	0.994**	0.992***	0.994**
		(0.004)	(0.004)	(0.004)	(0.004)		(0.003)	(0.003)	(0.003)	(0.003)
Schooling Level (Reference Category: Middle Level):										
_Low		0.864	0.864	0.976	1.162		1.287	1.279	1.324*	1.154
		(0.457)	(0.455)	(0.554)	(0.622)		(0.212)	(0.211)	(0.219)	(0.200)
_High		0.422**	0.433**	0.505*	0.564		0.813	0.825	1.130	1.140
		(0.157)	(0.164)	(0.193)	(0.225)		(0.171)	(0.174)	(0.243)	(0.257)
# Job Spells			1.110*	1.064	1.011			1.033	0.935*	0.952
			(0.063)	(0.061)	(0.061)			(0.038)	(0.036)	(0.032)
Relationship status (Reference category: Without partner):										
_Have a partner				7.200***	0.704				6.823***	3.286*
				(2.744)	(0.913)				(2.197)	(2.249)
_Cohabitating				12.555***	1.068				16.861***	8.461***
				(4.955)	(1.397)				(5.481)	(5.794)
_Marriage				29.567***	3.780				68.640***	36.655***
				(12.702)	(4.919)				(21.646)	(24.746)
Age of Partner					1.435***					1.163***
					(0.160)					(0.061)
Age-Squared of Partner					0.991***					0.996***
					(0.002)					(0.001)
Partner Human Capital					0.788**					0.890**
					(0.082)					(0.043)
log likelihood	-114.421	-110.347	-108.838	-64.749	-48.411	-243.179	-226.674	-226.309	-51.203	-41.325
Chi-Squared	183.815***	191.492***	194.508***	282.686***	303.499***	550.268***	559.836***	560.565***	910.778***	882.875***
Number of Events	90	90	90	90	88	223	223	223	223	208
N	3471	3466	3466	3466	3257	8641	8466	8466	8466	8221

Note: One asterisk indicates significance level at 90%, two asterisks at 95% and three asterisks at 99%. Coefficients are in terms of Hazard ratios and standard errors are in parentheses.

Table 8. Interaction Effects on the timing of the First Birth for WOMEN in East and West Germany

	EAST GERMANY							WEST GERMANY						
	model 1	**model 2**	**model 3**	**model 4**	**model 5**	**model 6**	**model 7**	**model 1**	**model 2**	**model 3**	**model 4**	**model 5**	**model 6**	**model 7**
Level of Schooling (Reference Category: Medium)														
_Low	7.511***	1.753	6.428***	2.443**	2.463**	2.443**	2.463**	2.298***	1.742***	2.295***	1.562***	1.562***	1.546***	1.546***
	(3.636)	(0.825)	(3.326)	(0.982)	(0.990)	(0.982)	(0.990)	(0.543)	(0.252)	(0.545)	(0.225)	(0.225)	(0.224)	(0.224)
_High	0.405**	0.349***	0.295***	0.529*	0.524*	0.529*	0.524*	0.616*	0.618***	0.622*	0.619**	0.620**	0.619**	0.620**
	(0.167)	(0.124)	(0.138)	(0.175)	(0.174)	(0.175)	(0.174)	(0.163)	(0.113)	(0.164)	(0.119)	(0.119)	(0.119)	(0.120)
Employment Status (Reference Category: Employed)														
_Education	0.143***	0.163***	0.148***	0.171***	0.176***	0.171***	0.176***	0.218***	0.218***	0.220***	0.181***	0.181***	0.183***	0.184***
	(0.045)	(0.050)	(0.047)	(0.054)	(0.055)	(0.054)	(0.055)	(0.068)	(0.067)	(0.068)	(0.058)	(0.058)	(0.059)	(0.059)
_Unemployed	2.007**	1.781*	1.635	1.568	3.052	1.568	3.057	0.922	0.876	0.879	0.921	0.443	0.920	0.449
	(0.634)	(0.577)	(0.552)	(0.551)	(2.220)	(0.551)	(2.228)	(0.440)	(0.419)	(0.421)	(0.426)	(0.488)	(0.426)	(0.495)
_Inactive	1.673	1.612	1.555	1.687	1.706	1.648	1.798	1.480	1.494	1.447	1.697*	1.701*	2.528*	2.510*
	(0.694)	(0.676)	(0.652)	(0.748)	(0.757)	(2.222)	(2.433)	(0.418)	(0.421)	(0.409)	(0.480)	(0.481)	(1.396)	(1.386)
Unemp. Duration	1.012	1.011	1.011	1.016*	1.012	1.016*	1.012	0.985	1.006	1.005	0.989	0.989	0.989	0.989
	(0.009)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.011)	(0.017)	(0.017)	(0.012)	(0.012)	(0.012)	(0.012)
# of Jobs	0.833**	0.842**	0.842*	0.838**	0.841**	0.838**	0.841**	1.069	1.019	1.056	1.022	1.025	1.025	1.028
	(0.073)	(0.071)	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)	(0.068)	(0.049)	(0.067)	(0.052)	(0.052)	(0.052)	(0.052)
_Low x (# of Jobs)	0.296**		0.154**					0.828*		0.856				
	(0.159)		(0.126)					(0.087)		(0.091)				
_High x (# of Jobs)	1.063		1.087					0.990		0.998				
	(0.180)		(0.181)					(0.095)		(0.096)				
_Low x (Unemp. Duration)		1.081	1.158***						0.957*	0.963				
		(0.055)	(0.066)						(0.023)	(0.023)				
_High x (Unemp.Duration)		1.103*	1.113**						0.988	0.989				
		(0.056)	(0.059)						(0.026)	(0.026)				
Partner's Education				0.876	0.890	0.875	0.891				0.969	0.966	0.973	0.970
				(0.073)	(0.075)	(0.074)	(0.077)				(0.037)	(0.037)	(0.038)	(0.038)
(_Unemployed) x (Partner's education)					0.844		0.844					1.192		1.187
					(0.143)		(0.143)					(0.267)		(0.266)
(_Inactive) x (Partner's Education)						1.006	0.988						0.895	0.897
						(0.309)	(0.304)						(0.125)	(0.125)
log-likelihood	-48.506	-50.057	-43.982	-50.968	-50.474	-50.968	-50.474	20.231	20.267	21.534	26.904	27.216	27.220	27.518
Chi-squared	427.85***	424.74***	436.89***	390.62***	391.61***	390.62***	391.61***	1142.10***	1142.17***	1144.71***	1116.48***	1117.1***	1117.11***	1117.70***
N	2807	2807	2807	2645	2645	2645	2645	6596	6596	6596	6282	6282	6282	6282

Note: One asterisk indicates significance level at 90%, two asterisks at 95% and three asterisks at 99% In the specifications 1 to 3, we control for being in the Panel survey, Time spent in education, Relationship status. In models 4 to 7 we also include Partner's age, Age square of Partner as controls. Coefficients indicate Hazard ratios and standard errors are in parentheses.

Table 9. Interaction Effects on the timing of the First Birth for MEN in East and West Germany

	EAST GERMANY							WEST GERMANY						
	model 1	**model 2**	**model 3**	**model 4**	**model 5**	**model 6**	**model 7**	**model 1**	**model 2**	**model 3**	**model 4**	**model 5**	**model 6**	**model 7**
Level of Schooling (Reference Category: Medium)														
_Low	0.894	2.021	1.431	1.162	1.118	1.162	1.118	1.412	1.286	1.461	1.154	1.154	1.157	1.156
	(0.844)	(1.254)	(1.343)	(0.622)	(0.606)	(0.622)	(0.606)	(0.409)	(0.220)	(0.426)	(0.200)	(0.200)	(0.201)	(0.201)
_High	0.467	0.423**	0.389*	0.564	0.587	0.564	0.587	0.772	1.011	0.768	1.140	1.144	1.143	1.148
	(0.221)	(0.180)	(0.201)	(0.225)	(0.232)	(0.225)	(0.232)	(0.261)	(0.228)	(0.262)	(0.257)	(0.259)	(0.258)	(0.259)
Employment Status (Reference Category: Employed)														
_ in Education	0.539	0.527	0.536	0.488*	0.499*	0.488*	0.499*	0.721	0.609*	0.725	0.560**	0.559**	0.562**	0.562**
	(0.215)	(0.207)	(0.213)	(0.188)	(0.190)	(0.188)	(0.190)	(0.204)	(0.165)	(0.205)	(0.159)	(0.159)	(0.160)	(0.160)
_Unemployed	0.841	0.798	0.801	0.468	4.071	0.468	4.082	0.690	0.640	0.658	0.591	0.316	0.587	0.317
	(0.487)	(0.465)	(0.467)	(0.311)	(3.633)	(0.311)	(3.656)	(0.362)	(0.341)	(0.351)	(0.332)	(0.342)	(0.331)	(0.343)
_Inactive	1.168	1.218	1.215	1.113	1.142	1.037	1.180	0.799	0.715	0.791	0.602	0.600	0.832	0.818
	(0.495)	(0.517)	(0.516)	(0.476)	(0.490)	(1.000)	(1.164)	(0.285)	(0.253)	(0.282)	(0.240)	(0.240)	(0.611)	(0.601)
Unemp. Duration	1.001	1.005	1.006	1.009	1.007	1.009	1.007	1.010	0.976	0.977	1.007	1.009	1.008	1.009
	(0.014)	(0.017)	(0.017)	(0.014)	(0.014)	(0.014)	(0.014)	(0.011)	(0.036)	(0.037)	(0.012)	(0.012)	(0.012)	(0.012)
# of Jobs	1.054	1.060	1.046	1.011	1.012	1.012	1.012	0.926	0.939	0.951	0.952	0.950	0.952	0.951
	(0.071)	(0.064)	(0.072)	(0.061)	(0.061)	(0.061)	(0.061)	(0.076)	(0.036)	(0.082)	(0.032)	(0.032)	(0.032)	(0.032)
_Low x (# of Jobs)	1.024		1.152					0.972		0.947				
	(0.205)		(0.326)					(0.090)		(0.091)				
_High x (# of Jobs)	1.033		1.035					1.208*		1.161				
	(0.121)		(0.131)					(0.133)		(0.132)				
_Low x (Unemp. Duration)		0.932	0.909						1.031	1.034				
		(0.055)	(0.088)						(0.039)	(0.040)				
_High x (Unemp.Duration)		1.049	1.048						1.065	1.059				
		(0.033)	(0.033)						(0.044)	(0.046)				
Partner's Education				0.788**	0.785**	0.786**	0.785**				0.890**	0.885**	0.893**	0.888**
				(0.082)	(0.082)	(0.084)	(0.083)				(0.043)	(0.043)	(0.043)	(0.044)
(_Unemployed) x (Partner's education)					0.446**		0.445**					1.180		1.177
					(0.157)		(0.157)					(0.263)		(0.262)
(_Inactive) x (Partner's Education)						1.019	0.991						0.915	0.918
						(0.238)	(0.237)						(0.163)	(0.164)
Log-likelihood	-64.708	-61.940	-61.775	-48.411	-45.441	-48.408	-45.441	-48.546	-49.718	-47.475	-41.325	-41.044	-41.202	-40.931
Chi-squared	282.77***	288.31***	288.64***	303.50***	309.44***	303.51***	309.44***	916.1***	913.75***	918.24***	882.88***	883.44***	883.13***	883.67***
N	3466	3466	3466	3257	3257	3257	3257	8466	8466	8466	8221	8221	8221	8221

Note: One asterisk indicates significance level at 90%, two asterisks at 95% and three asterisks at 99% In the specifications 1 to 3, we control for being in the Panel survey, Time spent in education, Relationship status. In models 4 to 7 we also include Partner's age, Age square of Partner as controls. Coefficients indicate Hazard ratios and standard errors are in parentheses.

Table 10. Period (Age)-Specific Effects of Unemployment Spells and Job Changes

	Women				Men			
	East Germany		West Germany		East Germany		West Germany	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Unemp. Duration	1.010		0.984		0.994		1.003	
	(0.008)		(0.011)		(0.015)		(0.011)	
# of Jobs		0.852*		1.029		1.055		0.941
		(0.074)		(0.050)		(0.062)		(0.036)
# of Jobs x (Age< 20)	2.220***		2.000**		2.931***		1.703***	
	(0.579)		(0.606)		(1.069)		(0.338)	
# of Jobs x (Age 20-25)	0.804		1.012		1.209*		0.885	
	(0.128)		(0.100)		(0.135)		(0.081)	
# of Jobs x (Age 25-30)	0.794*		1.014		1.011		0.963	
	(0.109)		(0.079)		(0.104)		(0.043)	
# of Jobs x (Age>30)	0.853		1.036		0.967		0.891	
	(0.134)		(0.083)		(0.108)		(0.075)	
Unemp. Duration x (Age< 20)		1.010		1.141***		0.001		1.011
		(0.041)		(0.051)		(1.034)		(0.076)
Unemp. Duration x (Age 20-25)		1.021		0.997		1.008		1.013
		(0.014)		(0.028)		(0.027)		(0.015)
Unemp. Duration x (Age 20-25)		0.995		0.979		0.980		0.967
		(0.020)		(0.017)		(0.027)		(0.025)
Unemp. Duration x (Age > 30)		1.016		0.983		0.995		1.011
		(0.010)		(0.016)		(0.017)		(0.012)
# of Events	139	139	289	289	87	87	208	208
Log-likelihood	-81.286	-85.965	-19.675	-18.635	-67.739	-70.894	-81.192	-81.755
Chi-squared	4318.571***	4356.662***	7508.538***	7515.606***	2853.629***	2897.187***	6402.993***	6414.605***
N	2760	2760	6523	6523	3445	3445	8414	8414

Note: One asterisk indicates significance level at 90%, two asterisks at 95% and three asterisks at 99% . In all the specifications, we control for being in the Panel survey, Time spent in education, all the previous covariates about Employment Status and Relationship status. Coefficients indicate hazard ratios and standard errors are in parentheses.

Table 11. Piecewise exponential models for the parenthood transitions (12 months date-back) and Period (Age) specific- Effects

	Women						Men					
	East			West			East			West		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Unemp. (Ref: Empl.)	1.312*	1.354*	1.226	0.592	0.607	0.506	1.586	1.589	1.598	1.087	1.058	1.131
	(0.473)	(0.489)	(0.475)	(0.331)	(0.339)	(0.286)	(0.794)	(0.798)	(0.821)	(0.492)	(0.482)	(0.518)
Unemp Duration	1.011	1.010		0.985	0.985		0.994	0.994		1.002	1.003	
	(0.008)	(0.008)		(0.011)	(0.011)		(0.014)	(0.014)		(0.011)	(0.011)	
# Job Shifts	0.842**		0.845**	1.027		1.028	1.056		1.054	0.940		0.944
	(0.073)		(0.073)	(0.050)		(0.050)	(0.062)		(0.062)	(0.037)		(0.036)
# of Jobs x (Age< 20)		2.193***			1.904**			3.106***			1.695***	
		(0.572)			(0.588)			(1.120)			(0.338)	
# of Jobs x (Age 20-25)		0.804			1.016			1.204*			0.878	
		(0.127)			(0.100)			(0.135)			(0.083)	
# of Jobs x (Age 25-30)		0.792*			1.013			1.016			0.969	
		(0.109)			(0.079)			(0.105)			(0.042)	
# of Jobs x (Age>30)		0.838			1.035			0.963			0.892	
		(0.130)			(0.083)			(0.108)			(0.076)	
Unemp. Duration x (Age< 20)			1.011			1.138***			0.001			1.010
			(0.041)			(0.051)			(1.022)			(0.076)
Unemp. Duration x (Age 20-25)			1.022			0.997			1.007			1.012
			(0.014)			(0.028)			(0.027)			(0.015)
Unemp. Duration x (Age 20-25)			0.996			0.979			0.981			0.968
			(0.019)			(0.017)			(0.027)			(0.025)
Unemp.Duration x (Age > 30)			1.016			0.983			0.995			1.011
			(0.011)			(0.016)			(0.017)			(0.012)
Log-likelihood	-84.721	-79.198	-83.834	-20.007	-18.237	-16.953	-73.082	-69.233	-72.683	-83.950	-81.343	-82.102
# of Events	142	142	142	287	287	287	86	86	86	206	206	206
Chi-squared	357.115***	4325.564***	4363.784***	1059.422***	7491.774***	7494.814***	261.556***	2844.775***	2891.035***	845.394***	6357.271***	6370.364***
N	2761	2761	2761	6523	6523	6523	3443	3443	3443	8410	8410	8410

Note: One asterisk indicates significance level at 90%, two stars at 95% and three stars at 99%. In all the specifications, we include all controls as in Tables 6 to 9, but we do not report here : Panel, Time in Education, Employment Status, Relationship status, Partner's age, Age-square of Partner and Partner's Education. Coefficients indicate hazard ratios and standard errors are in parentheses.