

Uncertainties in Female Employment Careers and the Postponement of Parenthood in Germany

Michaela Kreyenfeld

This article investigates whether uncertainties in female employment careers result in a postponement of family formation. Data for this analysis come from the German Socio-Economic Panel, which provides longitudinal information on economic uncertainty and fertility for the period 1984–2006. We employ objective measures of uncertainty (unemployment) as well as subjective measures (whether the respondent is worried about her economic situation, whether she is worried about the security of her job). We find little evidence that uncertainties in female employment careers generally lead to a postponement of parenthood. Hence, the relationship between economic uncertainty and first birth varies by level of education. While more highly educated women postpone parenthood when subject to employment uncertainties, those with low levels of education often respond to these situations by becoming mothers.

Introduction

Over the last decades, most European countries have witnessed a dramatic shift of childbearing to older ages. This development is one of the most significant demographic changes that Western industrialized countries have been experiencing. The increase in the age at first birth also plays a significant role in the decline of annual fertility rates. It has become evident that delay in family formation is the prime cause of the recent decline in fertility in Southern and Eastern Europe (Bongaarts, 1999, p. 256; Sobotka, 2004; Frejka and Sobotka, 2008). Delaying first parenthood has long-term consequences for completed fertility, given that a late age at first birth reduces the chances of having any further children (Marini and Hodson, 1981; Morgan and Rindfuss, 1999).

Women's education, employment, and career orientation have been identified as important parameters for the increase in the age at childbirth (Rindfuss,

Morgan and Offutt, 1996; Martin, 2000; Gustafsson, 2001). In more recent publications, it has been stipulated that youth unemployment, term-limited working contracts, and unstable employment situations also induce a postponement of childbearing (McDonald, 2000, pp. 10–11; Adsera, 2004; Blossfeld *et al.*, 2005; Gonzalez and Jurado-Guerro, 2006). Economic uncertainty is also regarded as being among the main driving forces behind the postponement of childbearing and the unprecedented decline in period fertility rates that occurred all over Eastern Europe after the demise of the communist systems (Eberstadt, 1994; Witte and Wagner, 1995; Kharkova and Andreev, 2000; Perelli-Harris, 2006; Bernardi, Klärner and von der Lippe, 2007). The delay in family formation may thus reflect growing uncertainty about the economic future that individuals face in contemporary societies.

However, little empirical evidence exists on the relationship between economic uncertainty and fertility. On the macro level, sudden economic downswings

have left their clear imprint on annual fertility rates. The Great Depression is an example, where a sudden increase in unemployment was followed by a drastic drop in birthrates (Kiser and Whelpton, 1953). The fall in fertility in East Germany after the unification is another example (Witte and Wagner, 1995; Bhaumik and Nugent, 2002; Huinink and Kreyenfeld, 2005). However, it is unclear whether historically exceptional situations of this kind can be generalized. Furthermore, micro-level evidence is far from conclusive. Many studies have addressed the role of employment in fertility transitions (Felmlee, 1993; Kravdal, 1994, 2002; Liefbroer and Corijn, 1999; Santow and Bracher, 2001; Meron, Widmer and Shapiro, 2002; Budig, 2003; Vikat, 2004; Kurz, Steinhage and Golsch, 2005; Schmitt, 2005; Diewald and Duentgen, 2007; Brüderl und Schröder, 2008). The way in which term-limited contracts relate to birth rates have also been investigated (De la Rica and Iza, 2005; Gonzalez and Jurado-Guerro, 2006; Bernhard und Kurz, 2007). Regarding the interrelation of subjective measures of economic uncertainty and demographic behaviour, there is, however, far less empirical evidence available. There are studies that show how marriage and fertility influence life satisfaction and economic well-being (Kohler, Behrman and Skytthe, 2005; Stutzer, 2005; Clark *et al.*, 2008). There are also some studies that illustrate how subjective indicators of economic uncertainties relate to intentions to have children (Kohler and Kohler, 2002; Speder and Vikat, 2005). However, hardly any study has dealt with the impact of subjective measures of economic uncertainty on fertility behaviour (exceptions are, for example, the studies by Witte and Wagner, 1995, and Bhaumik and Nugent, 2005). That there is little micro-level evidence for the role that subjective measures of uncertainty play in childbearing decisions can be attributed in particular to the strong demand for data of good quality. In order to study how an insecure economic situation affects subsequent childbearing, one requires longitudinal data on fertility, attitudes, and employment. Such data is rarely available.

The aim of this article is to understand how economic uncertainty in female employment careers affects first-birth rates. In order to address this issue, we use data from the German Socio-Economic Panel (SOEP), which provides longitudinal information on fertility, labour market characteristics, and attitudes for the period 1984–2006. We employ objective measures of uncertainty (unemployment) as well as subjective measures (whether the respondent is worried about her economic situation, whether she is worried about the security of her job). The key hypothesis that we

follow is that there are socio-economic differences in how uncertainties in female employment relate to fertility decisions. In the empirical part of the article, we apply event history techniques and investigate how the impact of economic uncertainty on first-birth rates varies by time, region, and level of education. The article is structured as follows: In Section 2, we develop our main research hypothesis. Section 3 gives an overview of data and methods. Section 4 presents empirical results. Section 5 provides a discussion of the findings and concludes the article.

Theoretical Approaches to Economic Uncertainty and Fertility

Economic Uncertainty in Fertility Theories

There is a long tradition in research on fertility that is rooted in the idea that forming families requires a secure economic foundation (Malthus, 1998, p. 46; Hajnal, 1965, p. 133). However, theoretical studies that have investigated fertility dynamics in post-war Europe have based their investigations on rather different concepts. The two ‘grand theories’ for empirical researchers have probably been the economic approach, which focuses on the interplay between female employment and fertility, and the second demographic transition theory. According to the economic approach, female education, income, and employment increase the opportunity costs of childrearing and result in lower fertility (Lehrer and Nerlove, 1986; Becker, 1993, p. 140; Engelhardt and Prskawetz, 2004). The second demographic transition theory has highlighted the role of values and ideas for explaining fertility and family dynamics (van de Kaa, 1987; Lesthaghe, 1995). Even though the economic approach and the second demographic transition theory focus on different factors—the second demographic transition theory highlights the role of values and ideas while the economic approach focuses on economic constraints in terms of female income and education—the two approaches have something in common. Both rely on the idea that female emancipation and employment are harmful for fertility. Furthermore, neither approach considers the idea that economic uncertainties could be a driving force behind the contemporary decline in fertility.

In more recent years, researchers have (re)discovered economic uncertainty as a cause of decline in fertility. Two major developments have spurred this interest. First, Southern Europe has experienced a drastic drop

in annual birth rates since the 1990s. Some have suggested that the peculiarities of the Southern European labour market regimes, which culminate in high youth unemployment and precarious patterns of entry to employment, are related to the low fertility rates in these countries (McDonald, 2000, pp. 10–11; De la Rica and Iza, 2004; Gonzalez and Jurado-Guerro, 2006). Secondly, in Eastern Europe, birth rates declined rapidly after the demise of the communist regimes. The uncertainties in the labour market that accompanied the transformation from planned to market economies are widely regarded as a chief determinant of this decline in fertility (Eberstadt, 1994; Witte and Wagner, 1995; Ranjan, 1999; Kharkova and Andreev, 2000). It has also been argued that growing insecurity is an overall characteristic of modern societies, which has been brought about by internationalization and globalization (Blossfeld *et al.*, 2005; Blossfeld, Mills and Bernardi, 2006; Blossfeld and Hofmeister, 2006). The uncertainties that young adults face ‘seep into the partnership and parenthood domains of their lives’ (Mills and Blossfeld, 2005, p. 1). Youth unemployment, term-limited working contracts, and unstable employment situations are thus considered to be the primary forces driving the postponement of childbearing in contemporary Europe.

In general, these considerations constitute a continuance of the ‘classical fertility theories’ that are rooted in the idea that adequate economic conditions are a precondition for having children. However, ‘classical fertility theories’ were able to assume that it is the male breadwinner who determines the economic foundation of the family. With rising female employment, this assumption is no longer valid. Female employment is an important new theoretical dimension for understanding the relationship between economic uncertainty and fertility. A fundamental issue is whether female employment is a barrier to, or a prerequisite for, having children.

Female Employment: A Barrier or a Prerequisite for Having Children?

In economic models, female employment has generally been viewed as a barrier to forming families. The major premises that underlie this view are the incompatibility of childrearing and employment, and a division of household chores according to gender. Against this background, an increase in female education, income, and employment results in lower fertility. Empirical studies have supported this hypothesis, and the evidence was so persuasive that the negative

correlation between female employment and fertility turned into conventional wisdom for many scholars (Spitze, 1988, p. 606; Becker, 1993, p. 140).

However, the idea that female employment is always a threat to reproduction has been disputed vigorously in recent sociological and demographic literature. Proponents of comparative research on social policy have pointed out the crucial role of the welfare state in accommodating work and family life (Rindfuss and Brewster, 1996; Rindfuss, Morgan and Offutt, 1996; Esping-Andersen, 1999; McDonald, 2000; Neyer, 2003). Countries that provide good opportunities for women to combine work and family life, such as Sweden and France, are nowadays those with relatively high fertility rates. In addition, micro-level studies show that women’s stable employment situation is a prerequisite for forming families in these countries (Hoem, 1990; Ellingsæter and Rønsen, 1996; Andersson, 2000).

These considerations suggest that the effect that female employment has on fertility depends on the circumstances. Whether a woman whose position in the labour market is insecure will postpone childbirth varies according to whether she is expected to be a caregiver or household provider after childbirth. This is affected by the type of welfare services that are available in the country in which the woman lives. In welfare regimes that relieve the incompatibilities between childrearing and employment, and where women are expected to work after childbirth, a stable female employment situation might be a prerequisite for having children. In countries where women are expected to be caregivers, labour market developments that discourage them from pursuing a career might even be beneficial for fertility.

Socio-Economic Differences and the Uncertainty–Fertility Nexus

There should also be individual differences in how women react to labour market uncertainties. Friedman, Hechter and Kanazawa (1994, pp. 383ff.) hypothesize that women with limited options in the labour market respond to unfavourable employment prospects by choosing the ‘alternative career’ of mothers. These women are likely to perceive motherhood as a strategic choice to structure an otherwise uncertain life course. McDonald (2000) draws a similar conclusion by arguing that globalization fuels a process that systematically excludes certain subgroups of the population from participating in the labour market. ‘For this group, nothing is lost by having children because they have no opportunity to succeed in the mainstream

economy. By having children, they are able to participate in family life which at least provides some meaning in life' (McDonald, 2000, p. 10).

Whether or not an unstable employment situation discourages women from having children depends on expectations regarding the course of their future career in employment. Women with restricted options in the labour market might adopt the role of mother quite readily (either as single mother or as dependent housewife). This group of women might not be affected in their choices regarding childbirth by an unstable employment situation. For other women, the prospect of being a dependent housewife (or a welfare-dependent mother) might not be an attractive life goal. Career-minded women, in particular, will need to time the first birth carefully in accordance with the requirements of the labour market. These women might not be willing to accept the role of dependent housewife and will only decide to have children if they are convinced that they can be employed and rear children without detriment to either. This line of argument yields the hypothesis that choices regarding childbirth are influenced by how women anticipate their employment situation after childbirth.

Employment Uncertainty and First-Time Motherhood in the Context of the German Welfare Regime (Research Hypotheses)

The aim of our empirical investigation is to analyse whether there are socio-economic differences in how uncertainties in female employment affect the postponement of parenthood. In our investigation, we consider objective as well as subjective measures of uncertainty. The objective measure is whether a person is unemployed, and the subjective measures are whether the respondent is worried about her economic situation and about the security of her job.

On the basis of our theoretical considerations, we assume that it is important to consider how women anticipate their employment situation after childbirth. Even though it is difficult to measure an 'anticipated employment situation', there is good reason to believe that employment aspirations, as well as chances to combine work and family life, vary by a woman's socio-economic characteristics. Highly educated women are usually better able to combine work and family life than others, and they return to the labour market much more quickly after childbirth (Kurz, 1998; Drobnič, 2000). Against this, one would expect that employment uncertainties are

particularly important for explaining the postponement of childbearing of highly educated women.

Apart from socio-economic differences, we also expect variations in the uncertainty–fertility nexus under social policy contexts. In comparative welfare state research, Germany has been classified as a prototype of a conservative welfare regime. Day care for children below age three is scarce, and tax deductions and social security regulations strengthen the role of mothers as homemakers and caregivers (for an overview, see Leitner, Ostner and Schmitt, 2007).¹ However, conditions to combine work and family life still differ in Eastern and Western Germany. In particular, public care for children below age three is still widely available in Eastern Germany. It has been argued that Scandinavian social policies provide incentives for women to get established in the labour market before they have children. A similar argument can be made for Eastern Germany where a good provision with public day care enables women to work after childbirth and provide for the family. Adler (1997) goes a step further and argues that economic independence is such an integral part of the identity of Eastern Germany's women that they do not even consider relying on their partner's income after childbirth. For this reason, one can hypothesize that a woman's stable employment situation is a prerequisite for having children, particularly in the eastern states of Germany.

The relationship between uncertainties in female employment careers and fertility should have changed over time. Women's work orientation has increased, and attitudes towards gender roles and maternal employment have become more liberal. Furthermore, most countries have consecutively introduced family policies that relieved the strains associated with the incompatibility of work and family life. Even though (Western) German family policies did not include many measures in this direction until 2007, one could nowadays expect work and maternal employment to be more acceptable than they were during the 1980s. Against this background, uncertainties in female employment careers should have become more important for fertility postponement over time in Western Germany.

Data, Method, and Covariates

In order to investigate whether there are socio-economic, regional, and temporal differences in how labour market uncertainties affect the timing of first births, we use data from the German Socio-Economic

Panel (SOEP). The SOEP is the longest household panel in Europe (for details, see SOEP Group 2001). It currently provides longitudinal information for the period 1984–2006. The first wave of the SOEP was launched in 1984. It encompassed 4,500 West German households (sample A) and an oversample of roughly 1,500 West German households with a foreign household head (sample B). Since 1984, the SOEP has been supplemented by several subsamples. For example, in 1990 an ‘East German sample’ (sample C) was added. In 1995, an ‘immigrant sample’ (sample D) was drawn. It was followed by refreshment samples in 1998, 2000, and 2006 (samples E, F, and H) and a high-income sample (sample G).

The SOEP is a panel study in which individuals are re-interviewed on an annual basis. It includes a battery of questions on employment, income, labour market characteristics, attitudes, and household composition. Most items are surveyed in a similar manner each year. This allows the utilization of a large set of longitudinal information on a person’s characteristics. For some selected variables, such as activity status, the SOEP provides monthly information. Other variables, such as attitudes towards the economic situation, are only available for the date of interview.

For fertility analysis, it is vital to have complete information on the number of children. For event-history modelling, it is also important to have information on the date of childbirth, preferably on a monthly scale. This information is available in the SOEP: There is complete information on the number of children, as well as on the year of childbirth, for all female respondents. For the panel period, i.e. after a respondent has been surveyed for the first time, there is also information on the month of childbirth. For the analysis in our study, we restrict the investigation to female respondents of samples A–F. The samples are restricted to respondents who were of childbearing age (ages 15–44) during 1984–2006. Finally, we limit the analysis to the period after the respondents have entered the panel study. Our investigation covers 5,998 female respondents, who contribute 343,438 person months. Of these 5,998 respondents, 1,757 became first-time mothers during the observation window (for a detailed overview on the sample size, see Appendix).²

Covariates

One of our principal interests in the study is how insecurities in female employment careers relate to first-birth rates. We use both objective and subjective measures of economic uncertainty. The central

objective measure of employment uncertainty is *unemployment*.³ In the SOEP, employment status is surveyed using a monthly activity calendar. This calendar contains up to 15 different activities, which we re-group into the following four categories: (1) ‘In education’ contains all the different types of education, such as school, vocational training, college education, first job training, apprenticeships, continuing education, and retraining. (2) The category ‘employment’ encompasses full-time employment, part-time employment, short-term work and mini-jobs. (3) The category ‘unemployment’ encompasses episodes during which respondents classified themselves as unemployed. (4) The category ‘not in labour force’ encompasses respondents who have classified themselves as housewives. ‘Other activities’ are categorized under ‘not in labour force’.⁴ The great advantage of this employment variable is that it is available on a monthly basis. A downturn, however, is that respondents self-classify themselves and so there is a certain degree of ambiguity about the circumstances under which a person calls herself ‘unemployed’ and chooses the category ‘housewife’ or ‘other activities’. It is very likely that Eastern and Western German women have responded in a different manner, given that the ‘housewife model’ is less accepted in the eastern parts of the country. It is also very likely that non-working Western German women during the 1980s were less reluctant to call themselves ‘housewives’ than was the case in the 1990s or later.

Subjective economic uncertainties are measured by two variables. One indicates whether the person is worried when she thinks about her *personal economic situation*.⁵ The other measure indicates whether the respondent is worried *about the security of her job*. The great advantage of the first variable is that all respondents, independent of their employment status, can be asked how they feel when they think about their personal economic situation. The drawback of this variable is that even though the respondent is asked to report on her personal economic situation, she will probably refer to the household context in her answer instead of her own employment situation. The great advantage of the latter variable is that it refers directly to the employment situation of the respondent. All subjective measures are available only for the date of interview. We assume that the attitudes towards economic uncertainty that we measure in a given year remain constant until the next survey date.

Another important variable for our investigations is women’s level of education. This time-varying variable distinguishes university degree, vocational degree, and neither of these (‘no degree’). A university degree

encompasses technical college education ('Fachhochschulabschluss'), university education ('Hochschulabschluss'), as well as degrees from engineering and technical schools of the GDR ('Ingenieur-/Fachschulabschluss'). A vocational degree includes the various types of training degrees, such as an apprenticeship, a degree from a vocational school, as well as one from a health care or technical school. Also, respondents who received civil service training ('Beamtenausbildung') are grouped into this category. Respondents who received neither a university nor a vocational degree were classified under 'no degree' even though they might have received a school-leaving certificate. This is in line with the notion that the German labour market does not reward schooling degrees but rather rewards vocational training and university certificates (Blossfeld and Mayer, 1988; Shavit and Müller, 2000).

The control variables in our model are region, citizenship, and partnership status. We took into account the East–West divide of demographic behaviour by controlling where the respondents live—in Eastern or Western Germany. This variable is a time-varying covariate that changes its value when a person moves from the eastern to western states. We also consider the citizenship of the women by distinguishing respondents having German citizenship from others. This variable is also generated as a time-varying covariate that changes its value in case the woman takes up new citizenship. Partnership status accounts for whether the woman is living with a partner or whether she is single, also in a time-varying manner.

Method and Research Strategy

We employ a piecewise constant model to investigate how employment uncertainty affects first-birth rates (Blossfeld, Golsch and Rohwer, 2007, pp. 116ff.). The process starts at age 15 and ends at first birth. Cases are censored when a person drops out of the sample or reaches age 45. We restrict the analysis to the time that respondents were part of the panel study. This means that some cases are left-truncated (Guo, 1993; Cleves, Gould and Gutierrez, 2002, pp. 35–36; Blossfeld, Golsch and Rohwer, 2007, p. 40). In order to ensure that we avoid reverse causation, we backdate the date of birth by 9 months. Therefore, we actually study pregnancy rates, rather than first-birth rates. However, for improved readability, we refer to 'first-birth rates' in the description of the results. Of the 1,757 first births that were subject to our investigation, there were 170 for which it was not possible to identify the month of childbirth. For imputation, we assume

that the birth occurred in January of the given year. We use the earliest month possible to ensure that we measure the employment situation before pregnancy in all cases.

Our research strategy is to determine whether the role of economic uncertainty in first-birth rates varies by socio-economic characteristics. In the first step, we estimate models on the full sample. In the second step, we conduct separate analysis by region and period (Western Germany 1984–1989, Western Germany 1990–2008, Eastern Germany 1990–2008). In a final step, we apply an interaction model of measures of economic uncertainty and level of education (no degree, vocational degree, university degree). This model should reveal whether the impact of economic uncertainty on first-birth rates differs significantly by level of education. For the interaction model, as well as for the separate modelling by region, we focus on the variable that measures the feeling that the job situation is insecure. We select this variable for a deeper investigation since it should give a good account of the individual employment situation.

Results

Table 1 displays the results from the models on the full data. We estimate three different models, each of which contains a different measure of economic uncertainty. Model 1 includes employment status. Model 2 accounts for whether the respondent is worried about her personal economic situation. Model 3 contains a combination factor of employment status and the variable that measures the belief that the job situation is insecure.

Let us first consider the control variables in Model 1. The impact of age is not very pronounced until age 31. It is only after this age that birth rates decline significantly. Being in Eastern Germany increases first-birth rates by roughly 20 per cent. This is in line with previous findings that show higher first-birth rates in Eastern than in Western Germany after unification. Women with foreign citizenship have a 50 per cent higher birth rate than German nationals. Being single reduces first-birth rates by roughly 74 per cent. The level of education shows a positive gradient. Elevated first-birth rates for highly educated women are usually explained by their longer participation in education, during which they postpone parenthood (Hoem, 1986; Blossfeld and Huinink, 1991; Santow and Bracher, 2001; Kreyenfeld, 2004; Lappegård and Rønsen, 2004). Since this model accounts for participation in education, the results suggest that the highly educated

Table 1 Event history model, transition to first birth, relative risks

| | Model 1 | Model 2 | Model 3 |
|---|---------|---------|---------|
| Age | | | |
| 15–19 | 0.97 | 0.96 | 0.99 |
| 20–21 | 0.90 | 0.89 | 0.90 |
| 22–23 | 0.93 | 0.93 | 0.94 |
| 24–25 | 1 | 1 | 1 |
| 26–27 | 1.05 | 1.05 | 1.05 |
| 28–29 | 1.17 | 1.16 | 1.16 |
| 30–31 | 0.89 | 0.89 | 0.89 |
| 32–33 | 0.75*** | 0.75*** | 0.76*** |
| 34–37 | 0.43*** | 0.42*** | 0.43*** |
| 38–44 | 0.09*** | 0.09*** | 0.09*** |
| Region | | | |
| Western Germany | 1 | 1 | 1 |
| Eastern Germany | 1.21*** | 1.23*** | 1.24*** |
| Citizenship | | | |
| German | 1 | 1 | 1 |
| Foreign | 1.50*** | 1.50*** | 1.50*** |
| Partnership status | | | |
| No partner in household | 0.26*** | 0.25*** | 0.25*** |
| Partner in household | 1 | 1 | 1 |
| Educational level | | | |
| No degree | 1 | 1 | 1 |
| Vocational degree | 1.17** | 1.17** | 1.16** |
| University degree | 1.24** | 1.24** | 1.23** |
| Employment status & job security | | | |
| In education | 0.34*** | 0.34*** | 0.32*** |
| Not in labour force | 1.51*** | 1.51*** | 1.43*** |
| Unemployed | 1.20 | 1.21 | 1.12 |
| Employed | 1 | 1 | |
| Worried about job | | | 0.95 |
| Somewhat worried about job | | | 0.92 |
| Not worried about job | | | 1 |
| Economic worries | | | |
| Worried | | 0.95 | |
| Somewhat worried | | 0.92 | |
| Not worried | | 1 | |
| Log-likelihood | | | |
| Starting model | –2488 | –2488 | –2488 |
| Final model | –1660 | –1658 | –1666 |
| Number of cases | | | |
| Person-months of exposure time | 343438 | 343438 | 343438 |
| Occurrences (first births) | 1757 | 1757 | 1757 |

Notes: Flag variables for missing information have been added to the model.

Source: SOEP 1984–2006 (own estimates).

*** $p \leq 0.01$; ** $0.01 \leq p \leq 0.05$; * $0.05 \leq p \leq 0.10$.

accelerate childbearing after they complete their education.

In line with other studies, we find that first-birth rates are particularly low while participating in

education. Compared to employment, first-birth rates are reduced by 66 per cent when enrolled in education (see Model 1). Given that participation in education is a period of high biographical uncertainty, this result

supports the hypothesis that uncertainties matter for fertility choices. However, apart from this effect, which has already been well documented in previous studies, we find little evidence that employment uncertainties influence first-birth rates. In particular, unemployed and employed women do not differ significantly in their first-birth behaviour.

While we find little evidence for the hypothesis that economic uncertainties cause prospective mothers to postpone childbirth, there is evidence that some women consider not being in the labour force a suitable situation to have children. First-birth rates are very high for women who have classified themselves as ‘housewives’ and ‘others’ (which has been grouped into the category ‘not in the labour force’). Compared to employed women, those who are not in the labour force have a 51 per cent higher rate of becoming first-time mothers (see Model 1). Even though we are unable to determine whether these women respond to their non-employment by having children or whether they resign from the labour market in anticipation of forming a family, this result speaks strongly against the hypothesis that a woman must be employed in order to have children.

The view that uncertainties in female employment careers are unable to explain fertility postponement is supported when measures of subjective economic uncertainty are included in the model. A woman who worries about her economic situation does not behave differently from a woman who does not worry (Model 2). The result for the variable that measures the belief that the job situation is insecure (Model 3) is similar.

Differences in the Uncertainty–Fertility Nexus over Time in Western Germany

In the next step, we investigate whether there are any period and any East–West differences in how economic uncertainty affects the timing of first births. We break the sample down into Western Germany 1984–1989, Western Germany 1990–2006, and Eastern Germany 1990–2006. Since there are too few foreigners in the East German sample, we omit the few from this part of the investigation. Table 2 provides the results. Models 1 and 2 give the results for Western Germany before and after 1990. These results are described in a first step before we turn to the East–West differences later on.

For both periods, we find that women who are not in the labour force have higher first-birth rates, which, again, supports the idea that labour market integration is not a prerequisite for having children in Western

Germany. Similar can be said about the subjective measures of economic uncertainty. Women who are not worried about their jobs do not behave differently from women who are worried about their jobs. This is true for the periods before and after 1990. Regarding unemployment, we do not find any impact of it on women’s transition to first-time motherhood in the two periods. However, during 1984–1989, unemployed women seem to have lower first-birth rates than employed women, while during 1990–2006 the pattern is reversed. In a separate model (not shown here) we tested whether the impact of unemployment is statistically different for the two periods, which was, however, not supported. Since this result is insignificant, one does not want to attach too much attention to it. Nevertheless, one could consider that the way women classified their employment status can explain such a pattern. Non-working women have presumably become more reluctant over time to call themselves ‘housewives’. Instead, they might have rather chosen to view themselves as unemployed. This suggests that West German women who reported to be unemployed during the 1980s are more work oriented than those who did so during the 1990s or later.

East–West Differences in the Uncertainty–Fertility Nexus

Models 2 and 3 in Table 2 provide the results for an East–West comparison of first-birth behaviour for the period 1990–2006. If one turns first to the role of unemployment, the results are similar in the way the unemployed and employed women do not differ statistically in their behaviour in the two parts of Germany. It seems striking that women who are not in the labour force have extremely high—although statistically insignificant—first-birth rates in Eastern Germany (Model 3). Here one needs to consider, though, that it is very seldom that an East German woman classifies herself as such (see Table A1 in the Appendix). Regarding the belief that the job situation is unstable, we did not find any significant differences between women in Western Germany who worry and who do not worry about their jobs. For the eastern states there is a negative impact of job insecurity on first-birth rates. Women who are not worried about the security of their jobs have higher transition rates to first birth than those who are worried or somewhat worried. This result is, however, only weakly significant.

There are a few other aspects worth pointing out. There are highly elevated first-birth rates for university-educated women in Eastern Germany, but not

Table 2 Event history model, transition to first birth, relative risks

| | Model 1 Western Germany 1984–1989 | Model 2 Western Germany 1990–2006 | Model 3 Eastern Germany 1990–2006 |
|---|--|--|--|
| Age | | | |
| 15–19 | 0.88 | 1.05 | 0.83 |
| 20–21 | 0.61** | 1.04 | 0.94 |
| 22–23 | 0.95 | 0.99 | 0.72 |
| 24–25 | 1.18 | 0.98 | 1.23 |
| 26–27 | 1 | 1 | 1 |
| 28–29 | 1.12 | 1.23* | 1.14 |
| 30–31 | 0.49*** | 1.07 | 0.84 |
| 32–33 | 0.40*** | 0.93 | 0.47** |
| 34–37 | 0.17*** | 0.52*** | 0.44*** |
| 38–44 | 0.07*** | 0.11*** | 0.02*** |
| Citizenship | | | |
| German | 1 | 1 | – |
| Foreign | 1.76*** | 1.47*** | – |
| Partnership status | | | |
| No partner in household | 0.26*** | 0.23*** | 0.34*** |
| Partner in household | 1 | 1 | 1 |
| Educational level | | | |
| No degree | 1 | 1 | 1 |
| Vocational degree | 1.06 | 1.17* | 1.37 |
| University degree | 1.02 | 1.11 | 2.43*** |
| Employment status & job security | | | |
| In education | 0.32*** | 0.28*** | 0.41*** |
| Not in labour force | 1.34** | 1.40*** | 1.77 |
| Unemployed | 0.74 | 1.15 | 1.31 |
| Worried about job | 1.16 | 1.01 | 0.69* |
| Somewhat worried about job | 0.93 | 0.96 | 0.73* |
| Not worried about job | 1 | 1 | 1 |
| Log-likelihood | | | |
| Starting model | –559 | –1468 | –458 |
| Final model | –367 | –928 | –330 |
| Number of cases | | | |
| Person-months of exposure time | 68767 | 214331 | 60184 |
| Occurrences (first births) | 375 | 1092 | 289 |

Notes: Flag variables for missing information have been added to the model.

Source: SOEP 1984–2006 (own estimates).

*** $p \leq 0.01$; ** $0.01 \leq p \leq 0.05$; * $0.05 \leq p \leq 0.10$.

so in the western part of the country. This supports the idea that it is only in Eastern Germany that university-educated women accelerate childbearing after completion of education. Furthermore, educational enrolment seems to reduce first-birth rates more strongly in Western than in Eastern Germany. It is not straightforward to compare parameters across models. However, a model on the full data (not shown here), where we let the parameters differ by Eastern and Western Germany, supports the idea that the impact

of educational level and educational participation is significantly different in the two parts of Germany.

Educational Differences in the Uncertainty–Fertility Nexus

Following our theoretical arguments, the impact of economic uncertainty should vary by women’s career orientation. Women who are happy becoming housewives might not be particularly affected in their fertility

Table 3 Results from interaction model, transition to first birth, relative risks

| | No degree | Vocational degree | University degree |
|----------------------------------|-----------|-------------------|-------------------|
| Panel A | | | |
| Employment status & job security | | | |
| In education | 0.37*** | 0.48*** | 0.73 |
| Not in labour force | 2.12*** | 1.79*** | 1.53 |
| Unemployed | 1.64*** | 1.40* | 1.12 |
| Worried about job | 1.61** | 1.21 | 1.31 |
| Somewhat worried about job | 1.05 | 1.28* | 1.40* |
| Not worried about job | 1 | 1.41*** | 1.59*** |
| Panel B | | | |
| Employment status & job security | | | |
| In education | 0.26*** | 0.34*** | 0.52** |
| Not in labour force | 1.50*** | 1.27** | 1.08 |
| Unemployed | 1.17 | 0.99 | 0.80 |
| Worried about job | 1.14 | 0.86 | 0.93 |
| Somewhat worried about job | 0.74* | 0.91 | 0.99 |
| Not worried about job | 0.71*** | 1 | 1.12 |
| Panel C | | | |
| Employment status & job security | | | |
| In education | 0.23*** | 0.30*** | 0.46** |
| Not in labour force | 1.34* | 1.13 | 0.96 |
| Unemployed | 1.04 | 0.88 | 0.71 |
| Worried about job | 1.01 | 0.76* | 0.83 |
| Somewhat worried about job | 0.66** | 0.81 | 0.88 |
| Not worried about job | 0.63** | 0.89 | 1 |

Notes: This table provides the results of one interaction model with different choices of reference categories. Apart from the interaction effects displayed here, the model also includes region, age, citizenship and partnership status.

Source: SOEP 1984–2006 (own estimates).

*** $p \leq 0.01$; ** $0.01 \leq p \leq 0.05$; * $0.05 \leq p \leq 0.10$.

plans when their own employment situation becomes unstable. However, women who are more career minded might take greater pains to plan when they become parents. Even though we are unable to measure a respondent's career orientation, we assume that it is correlated with her level of education. Table 3 presents the interaction with level of education. Our chief interest is to see whether the impact of economic uncertainty is different by education level. In a first step, we pick women who do not have a degree, who are employed, and who are not worried about the security of their jobs as the reference group. Since it is difficult to interpret the results for the other educational groups in relation to this reference category, we recalculate the model, changing reference categories. The results in Table 3, Panels B and C are from the same model as the ones reported in Table 3, Panel A, the only difference being the choice of reference.

Let us first turn to the group of women with no degree (Table 3, Panel A). The most striking result

is that women who are employed and not worried about their jobs have relatively low first-birth rates. Women who are worried about job security, and even unemployed women, have significantly higher first-birth rates than this reference group. In terms of relative rates, unemployed women without a degree have 64 per cent higher rates of first birth than the reference group, employed women who are worried have 61 per cent higher first birth rates, and women who are not in the labour force have 112 per cent higher birth rates. This strongly speaks for the hypothesis that lowly educated women respond to an uncertain employment situation by having children.

In the group of women with a vocational degree, we find elevated first-birth rates for women who are not in the labour force (Table 3, Panel B). Unemployed and employed women do not differ significantly. Similarly, employed women who are worried, somewhat worried, and not worried about the stability

of their jobs also do not differ in their first-birth behaviour.

In the group of women with a university degree, we find relatively low first-birth rates for unemployed women. Compared to the reference group, unemployed women have 29 per cent lower first-birth rates. This result is, however, not statistically significant, which pertains to the small number of unemployed university graduates. This is only a weak support for our hypothesis that university-educated women postpone parenthood in times of economic uncertainties. However, there is still a difference between university-educated women and others. Compared to the results from the other educational groups, it is striking that university-educated women who are not in the labour force do not display elevated first-birth rates. While for other educational groups, one must conclude that some women consider non-employment as a suitable situation for having children, we do not find such a pattern for university-educated women.

Conclusion

The goal of the study reported herein was to investigate the relationship between economic uncertainty and the postponement of childbirth. The fertility theory has been rooted in the idea that the decision to have children requires a secure economic foundation, which was usually considered to comprise the secure employment of the 'male breadwinner'. Female employment was often approached via the 'opportunity cost argument', according to which the participation of women in the labour market suppresses fertility. In this framework, women's employment is the greatest threat to a country's level of fertility. By contrast, high female unemployment and poor chances of employment for women should result in higher fertility.

A standard assumption behind this thinking is that women are unable to both rear children and be employed. Female employment has been viewed as a barrier to having children. With increasing maternal employment, the woman's role in the family is gradually changing from being exclusively that of a caregiver to being also a breadwinner. With this change, uncertainties in female employment careers become more important for explaining the postponement of childbearing. In this article, we have argued that employment uncertainties are particularly important for explaining the postponement of childbearing of highly educated women. We have also assumed that uncertainties in female employment careers are very

important for explaining fertility postponement in Eastern Germany, where public day care is still widely available and women are expected to work after childbirth.

The empirical results of our study are mixed. For Western Germany, we do not find evidence that employment uncertainties (such as unemployment, or the feeling that the job situation is insecure) make women postpone first-time motherhood. A group that clearly sticks out in their first-birth behaviour is the group of women who have classified themselves as 'housewives' and 'others'. It might not come as a great surprise that these women display strongly elevated first-birth rates, given that they might have resigned from employment in anticipation of family formation. However, this group is reasonably large in Western Germany and one must conclude that some women consider not being in the labour force a suitable situation for becoming a mother. In essence, we do not find support for the hypothesis that a stable female employment situation is a prerequisite for having children in Western Germany.

For Eastern Germany, the situation is slightly different. Also in Eastern Germany, we observe highly elevated birth rates for women who have classified themselves as 'housewives' and 'others'. However, this group is so small in the eastern parts of the country that one should not attach too much significance to this finding. There is some mild support for the idea that employment stability is important for East German women's fertility choices. East German women who are worried about the security of their jobs have somewhat lower first-birth rates than women who are not worried about their jobs. This result is, however, only weakly significant. Also, we do not find any evidence that unemployment makes East German women postpone first-time motherhood.

In support for our theoretical argument, we find interaction effects between measures of economic uncertainty on the one hand and female education on the other. More highly educated women have somewhat lower first-birth rates during unemployment. The most striking result is probably that among poorly educated women, economic uncertainties accelerate decisions to have children. Women who have neither a vocational degree nor a university degree are very likely to become mothers when they are unemployed or when they are worried about their personal economic situation. This result provides empirical support for Friedman, Hechter and Kanazawa (1994), who posit that disadvantaged subgroups of the population choose parenthood as a strategy to structure their otherwise uncertain life course.

In essence, these results suggest that socio-economic differences are important for understanding fertility dynamics in contemporary societies. However, we were forced to leave many issues unresolved. In particular, we did not study the possibly crucial role of the employment situation of the male partner, which has to be left for future research.

Notes

1. In 2007, the German government has introduced radically new parental leave regulations which puts into question whether this classification still holds today. However, this analysis focuses on the time before the reforms.
2. There are 21,366 women with valid fertility information in samples A–F. However, only 5,998 respondents are still at risk of first birth after they have been surveyed for the first time.
3. Whether a person holds a fixed-term or a permanent working contract would have also been a good indicator for employment uncertainty. However, this variable has not been surveyed in a comparable manner over the years in the SOEP.
4. Respondents are allowed to report two or more activities within a month. To avoid overlapping activities, we rank the activities according to the following order: employed full-time > unemployed > vocational training, college education, first job training, apprenticeship > employed part-time, short-work > housewife > other > continuing education and retraining > mini-jobs.
5. The wording of the question on economic worries is as follows: ‘Wie ist es mit folgenden Gebieten? Machen Sie sich da Sorgen? Um ihre eigene wirtschaftliche Situation. Große Sorgen/einige Sorgen/keine Sorgen.’ The wording of the question on security of the job is: ‘Wie ist es mit folgenden Gebieten? Machen Sie sich da Sorgen? Um die Sicherheit ihres Arbeitsplatzes? Große Sorgen/einige Sorgen/keine Sorgen.’

Acknowledgements

I am grateful for the comments I have received at the International Population Conference held in Tours (France) in 2005. I would like to thank Gunnar Andersson (SPaDE, Stockholm University, Sweden) and Ulrich Walwei (Institute for Employment

Research, Mannheim, Germany) for valuable comments on a first draft of this paper. Thanks also to my colleagues at the Max Planck Institute for Demographic Research for various comments and suggestions. For language editing, I would like to thank Chris Wright.

References

- Adler, M. A. (1997). Social change and decline in marriage and fertility in Eastern Germany. *Journal of Marriage and Family*, **59**, 37–49.
- Adsera, A. (2004). Changing fertility rates in developed countries. The impact of labor market institutions. *Journal of Population Economics*, **17**, 17–43.
- Andersson, G. (2000). The impact of labour-force participation on childbearing behaviour: pro-cyclical fertility in Sweden during the 1980s and the 1990s. *European Journal of Population*, **16**, 293–333.
- Becker, G. S. (1993). *A Treatise on the Family*. Enlarged edition. Cambridge, MA: First Harvard University Press.
- Bernardi, L., Klärner, A. and von der Lippe, H. (2007). Job insecurity and the timing of parenthood: a comparison between Eastern and Western Germany. *European Journal of Population*, **2**, 287–313.
- Bernhard, S. and Kurz, K. (2007). *Familie und Arbeitsmarkt. Eine Längsschnittstudie zum Einfluss beruflicher Unsicherheiten auf die Familienerweiterung*. IAB Discussion Paper 10/2007.
- Bhaumik, S. K. and Nugent, J. B. (2005). *Does economic uncertainty affect the decision to bear children? Evidence from East and West Germany*. William Davidson Institute Working Paper No. 788. Available at SSRN: <http://ssrn.com/abstract=814145>
- Blossfeld, H.-P., Golsch, K. and Rohwer, G. (2007). *Event History with STATA*. Mahwah, NJ: Lawrence Erlbaum.
- Blossfeld, H.-P. and Hofmeister, H. (2006). *Globalization, Uncertainty and Women's Careers: An International Comparison*. Cheltenham: Edward Elgar Publishing.
- Blossfeld, H.-P. and Huinink, J. (1991). Human capital investment or norms of role transition? How women's schooling and career affect the process of family formation. *American Journal of Sociology*, **97**, 143–168.
- Blossfeld, H.-P. and Mayer, K. U. (1988). Labour market segmentation in the Federal Republic of Germany: an empirical study of segmentation

- theories from a life course perspective. *European Sociological Review*, **4**, 123–140.
- Blossfeld, H.-P., Mills, M. and Bernardi, F. (2006). *Globalization, Uncertainty and Men's Careers: An International Comparison*. Cheltenham: Edward Elgar Publishing.
- Blossfeld, H.-P., Mills, M., Klijzing, E. and Kurz, K. (Eds.) (2005). *Globalization, Uncertainty, and Youth in Society*. New York: Routledge.
- Bongaarts, J. (1999). Fertility decline in the developed world: where will it end? *American Economic Review*, **89**, 256–260.
- Brewster, K. L. and Rindfuss, R. R. (2000). Fertility and women's employment in industrialized nations. *Annual Review of Sociology*, **26**, 271–296.
- Budig, M. J. (2003). Are women's employment and fertility histories interdependent? An examination of causal order using event history analysis. *Social Science Research*, **32**, 376–401.
- Clark, A. E., Diener, E., Georgellis, Y. and Lucas, R. E. (2008). Lags and leads in life satisfaction: a test of the baseline hypothesis. *Economic Journal, Royal Economic Society*, **118**, F222–F243.
- Cleves, M. A., Gould, W. W. and Gutierrez, R. G. (2002). *An Introduction to Survival Analysis using STATA*. Texas: College Station.
- De la Rica, S. and Iza, A. (2005). Career planning in Spain: do fixed-term contracts delay marriage and parenthood? *Review of Economics of the Household*, **3**, 49–73.
- Drobnic, S. (2000). The effect of children on married and lone mothers' employment in the United States and (West) Germany. *European Sociological Review*, **16**, 137–157.
- Duentgen, A. and Diewald, M. (2007). Auswirkungen der Flexibilisierung von Beschäftigung auf eine erste Elternschaft. In Szydlik, M. (Ed.), *Flexibilisierung – Folgen für Familie und Sozialstruktur*. Wiesbaden: VS Verlag, pp. 213–231.
- Eberstadt, N. (1994). Demographic shocks after communism: Eastern Germany, 1989–93. *Population and Development Review*, **20**, 137–152.
- Ellingsæter, A. L. and Rønsen, M. (1996). The dual strategy: motherhood and the work contract in Scandinavia. *European Journal of Population*, **2**, 239–260.
- Engelhardt, H. and Prskawetz, A. (2004). On the changing correlation between fertility and female employment over space and time. *European Journal of Population*, **20**, 35–62.
- Esping-Andersen, G. (1999). *Social Foundations of Post-industrial Economies*. Oxford: Oxford University Press.
- Felmlee, D. H. (1993). The dynamic interdependence of women's employment and fertility. *Social Science Research*, **22**, 333–360.
- Frejka, T. and Sobotka, T. (2008). Fertility in Europe: diverse, delayed and below replacement. *Demographic Research*, **19**, 15–46.
- Friedman, D., Hechter, M. and Kanazawa, S. (1994). A theory of the value of children. *Demography*, **31**, 375–104.
- Gonzalez, M. J. and Jurado-Guerro, T. (2006). Remaining childless in affluent economies: a comparison of France, West Germany, Italy and Spain, 1994–2001. *European Journal of Population*, **22**, 317–352.
- Guo, G. (1993). Event-history analysis for left-truncated data. *Sociological Methodology*, **23**, 217–243.
- Gustafsson, S. S. (2001). Optimal age at motherhood: Theoretical and empirical considerations on postponement of maternity in Europe. *Journal of Population Economics*, **14**, 225–247.
- Hajnal, J. (1965). European marriage patterns in perspective. In Glass, D. and Eversley, D. (Eds.), *Population in History: Essays in Historical Demography*, 101–143.
- Hoem, J. M. (1986). The impact of education on modern family-union initiation. *European Journal of Population*, **2**, 113–133.
- Huinink, J. and Kreyenfeld, M. (2005). Family formation in times of social and economic change: An analysis of the East German cohort 1971. In Diewald, M. et al. (Eds.), *After the Fall of the Wall: Life Courses in the Transformation of East Germany*. Palo Alto, CA: Stanford University Press, pp. 170–190.
- Kharkova, T. L. and Andreev, E. M. (2000). Did the economic crisis cause the fertility decline in Russia: evidence from the 1994 microcensus. *European Journal of Population*, **16**, 211–233.
- Kiser, C. and Whelpton, P. K. (1953). Resume of the Indianapolis Study of social and psychological factors affecting fertility. *Population Studies*, **7**, 95–110.
- Kohler, H. P. and Kohler, I. (2002). Fertility decline in Russia in the early and mid 1990s: the role of economic uncertainty and labour market crisis. *European Journal of Population*, **18**, 233–262.
- Kohler, H. P., Behrman, J. R. and Skytthe, A. (2005). Partner + children = happiness? The effects of partnerships and fertility on well-being. *Population and Development Review*, **31**, 407–445.
- Kravdal, O. (1994). The importance of economic activity, economic potential and economic resources for the timing of first births in Norway. *Population Studies*, **48**, 249–267.

- Kravdal, O. (2002). The impact of individual and aggregate unemployment and fertility in Norway. *Demographic Research*, **6**, 262–294.
- Kreyenfeld, M. (2004). Fertility decisions in the FRG and GDR. *Demographic Research (Special Collection)*, **3**, 276–318.
- Kurz, K. (1998). *Das Erwerbsverhalten von Frauen in der intensiven Familienphase ein Vergleich zwischen Müttern in der Bundesrepublik Deutschland und den USA*. Opladen: Leske + Budrich.
- Kurz, K., Steinhage, N. and Golsch, K. (2005). Case study Germany. Global competition, uncertainty and the transition to adulthood. In Blossfeld, H.-P. et al. (Eds.), *Globalization, Uncertainty, and Youth in Society*. New York: Routledge, pp. 51–81.
- Lappegård, T. and Rønsen, M. (2004). The multifaceted impact of education on entry into motherhood. *European Journal of Population*, **21**, 31–49.
- Lehrer, E. and Nerlove, M. (1986). Female labor force behavior and fertility in the United States. *Annual Review of Sociology*, **12**, 181–204.
- Leitner, S., Ostner, I. and Schmitt, C. (2007). Family policies in Germany. In Ostner, I. and Schmitt, C., (Eds.), *Family Policies in the Context of Family Change. The Nordic Countries in Comparative Perspective (Zeitschrift für Familienforschung Sonderheft 6)*. Wiesbaden: VS Verlag, pp. 175–202.
- Lesthaeghe, R. (1995). The second demographic transition in western countries: an interpretation. In Mason, K. O. and Jensen, A. M. (Eds.), *Gender and Family Change in Industrialized Countries*. Oxford: Clarendon Press, pp. 17–62.
- Liefbroer, A. and Corijn, M. (1999). Who, what, and when? Specifying the impact of educational attainment and labour force participation on family formation. *European Journal of Population*, **15**, 45–75.
- Malthus, T. R. (1998) [originally published in 1798]. An essay on the principle of population as it affects the future improvement of society (first edition). In Simon, J. (Ed.), *The Economics of Population*. New Brunswick: Transaction Publisher, pp. 41–57.
- Marini, M. M. and Hodson, P. J. (1981). Effects of the timing of marriage and first birth of the spacing of subsequent births. *Demography*, **18**, 529–548.
- Martin, S. P. (2000). Diverging fertility among U.S. women who delay child bearing past age 30. *Demography*, **37**, 523–533.
- McDonald, P. (2000). Gender equity, social institutions and the future of fertility. *Journal of Population Research*, **17**, 1–16.
- Meron, M., Widmer, I. and Shapiro, D. (2002). Unemployment leads women to postpone the birth of their first child. *Population*, **57**, 301–330.
- Mills, M. and Blossfeld, H.-P. (2005). Globalization, uncertainty and changes in early life courses. In Blossfeld, H.-P. et al. (Eds.), *Globalization, Uncertainty, and Youth in Society*. New York: Routledge, pp. 1–24.
- Morgan, P. S. and Rindfuss, R. R. (1999). Reexamining the link of early childbearing to marriage and subsequent fertility. *Demography*, **36**, 59–75.
- Oppenheimer, V. K. (1988). A theory of marriage timing. *American Journal of Sociology*, **94**, 563–591.
- Perelli-Harris, B. (2006). The influence of informal work and subjective well-being on childbearing in post-Soviet Russia. *Population and Development Review*, **32**, 729–753.
- Ranjan, P. (1999). Fertility behaviour under income uncertainty. *European Journal of Population*, **15**, 25–43.
- Rindfuss, R. R., Morgan, P. S. and Offutt, K. (1996). Education and the changing age pattern of American fertility: 1963–1989. *Demography*, **33**, 277–290.
- Santow, G. and Bracher, M. (2001). Deferment of the first birth and fluctuating fertility in Sweden. *European Journal of Population*, **17**, 343–363.
- Schmitt, C. and Winkelmann, U. (2005). Wer bleibt kinderlos? Was sozialstrukturelle Daten über Kinderlosigkeit bei Frauen und Männern verraten. *Zeitschrift für interdisziplinäre Frauen- und Geschlechterforschung*, **23**, 9–23.
- Schröder, J. and Brüderl, J. (2008). Der Effekt der Erwerbstätigkeit von Frauen auf die Fertilität: Kausalität oder Selbstselektion? *Zeitschrift für Soziologie*, **37**, 117–136.
- Shavit, Y. and Müller, W. (2000). Vocational secondary education. Where division and where safety net? *European Societies*, **2**, 29–50.
- Sobotka, T. (2004). Is lowest-low fertility in Europe explained by the postponement of childbearing? *Population and Development Review*, **30**, 195–220.
- SOEP-Group (2001). The German Socio-Economic Panel (GSOEP) after more than 15 years – overview. *Vierteljahreshefte zur Wirtschaftsforschung*, **70**, 7–14.
- Speder, Z. and Vikat, A. (2005). *Intentions to become a parent after societal transformation in Hungary*. Paper presented at the IUSSP conference in Tours, France.
- Spitze, G. (1988). Women's employment and family relations: a review. *Journal of Marriage and the Family*, **50**, 595–618.

- Stutzer, A. and Frey, B. S. (2005). Does marriage make people happy, or do happy people get married? *Journal of Socio-Economics*, **35**, 326–347.
- Van de Kaa, Dirk J. (1987). Europe's second demographic transition. *Population Bulletin*, **42**, 1–57.
- Vikat, A. (2004). Women's labor force attachment and childbearing in Finland. *Demographic Research (Special Collection)*, **3**, 177–212.
- Willis, R. J. (1987). What have we learned from the economics of the family? *American Economic Review*, **77**, 68–81.
- Witte, J. C. and Wagner, G. G. (1995). Declining fertility in East Germany after unification: a

demographic response to socioeconomic change. *Population and Development Review*, **21**, 387–397.

Author's Address

Michaela Kreyenfeld, Laboratory of Economic and Social Demography, Max Planck Institute for Demographic Research, Konrad-Zuse Strasse 1, D-18057 Rostock, Germany.
Email: kreyenfeld@demogr.mpg.de

Manuscript received: November 2005

Appendix

Table A1 Distribution of person-months of exposure time in per cent (exp) and number of occurrences (occ)

| | All | | West 1984–1989 | | West 1990–2006 | | East 1990–2006 | | No degree | | Vocational | | University | |
|---------------------------|-------------|-------------|----------------|------------|----------------|-------------|----------------|------------|-------------|------------|-------------|-------------|-------------|------------|
| | exp | occ | exp | occ | exp | occ | exp | occ | exp | occ | exp | occ | exp | occ |
| Region | | | | | | | | | | | | | | |
| Western Germany | 82% | 1467 | | | | | | | 81% | 443 | 82% | 845 | 90% | 145 |
| Eastern Germany | 18% | 290 | | | | | | | 19% | 70 | 18% | 182 | 10% | 32 |
| Citizenship | | | | | | | | | | | | | | |
| German | 85% | 1431 | 79% | 276 | 83% | 866 | 100% | 289 | 80% | 331 | 91% | 907 | 93% | 163 |
| Foreign | 15% | 326 | 21% | 99 | 17% | 226 | 0% | 1 | 20% | 182 | 9% | 120 | 7% | 14 |
| Partnership status | | | | | | | | | | | | | | |
| No partner in household | 61% | 440 | 65% | 108 | 58% | 226 | 69% | 106 | 81% | 225 | 44% | 174 | 40% | 33 |
| Partner in household | 34% | 1210 | 31% | 240 | 37% | 796 | 29% | 174 | 16% | 256 | 50% | 788 | 53% | 139 |
| Missing | 5% | 107 | 5% | 27 | 5% | 70 | 2% | 10 | 3% | 32 | 6% | 65 | 6% | 5 |
| Educational level | | | | | | | | | | | | | | |
| No degree | 47% | 513 | 50% | 135 | 46% | 308 | 51% | 70 | | | | | | |
| Vocational degree | 42% | 1027 | 42% | 212 | 42% | 633 | 43% | 182 | | | | | | |
| University degree | 8% | 177 | 6% | 21 | 10% | 124 | 4% | 32 | | | | | | |
| Missing | 2% | 40 | 2% | 7 | 2% | 27 | 2% | 6 | | | | | | |
| Employment & job security | | | | | | | | | | | | | | |
| In education | 33% | 147 | 31% | 29 | 31% | 67 | 45% | 51 | 18% | 43 | 22% | 44 | 102% | 44 |
| Not in labor force | 8% | 268 | 10% | 84 | 8% | 174 | 2% | 10 | 6% | 139 | 6% | 80 | 22% | 42 |
| Unemployed | 4% | 89 | 3% | 11 | 3% | 42 | 7% | 36 | 3% | 30 | 4% | 44 | 6% | 11 |
| Worried about job | 6% | 137 | 5% | 28 | 5% | 78 | 9% | 31 | 4% | 55 | 6% | 53 | 15% | 26 |
| Somewhat worried | 17% | 383 | 14% | 63 | 18% | 245 | 18% | 75 | 11% | 104 | 17% | 165 | 53% | 98 |
| Not worried about job | 23% | 567 | 25% | 124 | 26% | 385 | 10% | 58 | 11% | 126 | 24% | 248 | 89% | 176 |
| Missing | 9% | 166 | 11% | 36 | 9% | 101 | 9% | 29 | 6% | 57 | 8% | 59 | 35% | 41 |
| Economic worries | | | | | | | | | | | | | | |
| Worried | 20% | 349 | 17% | 64 | 18% | 198 | 30% | 87 | 22% | 152 | 19% | 166 | 14% | 22 |
| Somewhat worried | 52% | 901 | 48% | 165 | 52% | 579 | 58% | 157 | 51% | 259 | 55% | 548 | 45% | 73 |
| Not worried | 27% | 491 | 33% | 139 | 29% | 306 | 12% | 46 | 26% | 98 | 26% | 301 | 41% | 82 |
| Missing | 1% | 16 | 1% | 7 | 1% | 9 | 1% | 0 | 1% | 4 | 1% | 12 | 0% | 0 |
| Total | 100% | 1757 | 100% | 375 | 100% | 1092 | 100% | 290 | 100% | 513 | 100% | 1027 | 100% | 177 |