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Family Formation in Times of Social and Economic Change: An Analysis of the 1971 East German Cohort

Johannes Huinink* and Michaela Kreyenfeld**

Abstract

The birth cohort 1971 entered transition to adulthood at the onset of societal transformation in East Germany. Their marriage and fertility behavior therefore was expected to be severely affected by the upheavals following unification. And indeed, compared to their predecessors, there is a drastic increase in the age at marriage, age at first birth and a decline in second birth risks. In this paper, we adopt a life course perspective to investigate the factors that have contributed to the postponement of family formation after unification. The empirical analysis suggests that highly educated women in particular are postponing fertility. Women with a relatively low education, by contrast, are accelerating family formation. Contrary to standard views on East German fertility, we do not find evidence for the hypothesis that unemployment generally lead to a postponement of first birth.

Keywords: East Germany, event history analysis, fertility, life course analysis

Characters: 56744 (no spaces)

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1 Introduction

Cultural, political and economic conditions determine behavioral options when planning and constructing the life course. Macro level changes involve new constraints and opportunities and they can impinge on the timing and spacing of life course events (Ryder 1965, Elder 1985, Kohli 1985, Mayer and Schoepflin 1989, Mayer 1994, Willekens 1999). In response to new societal conditions, life course transitions -- such as entry into parenthood -- may be accelerated, postponed or forgone. It is the aggregation of life course transitions, which, in turn, constitutes social and demographic change (Coleman 1990). Discontinuities in societal developments, as in the case of German unification, have an encompassing and profound impact on life course transitions (Diewald and Mayer 1996, Mayer et al. 1999, Sackmann 2000). For many East Germans, unification meant a disruption in their employment careers. The younger cohorts started vocational training, college education, or their first job during times of drastic social and economic changes. Many East Germans adjusted their life course plans to the new conditions. This experience, on the aggregate, has left its mark on their life course patterns.

In a general sense, this paper deals with the demographic response to macro level changes that followed German unification. We focus on the *transition to the first child* which is, for many reasons, a good example of a significant life course transition that is highly sensitive to macro level conditions. While the age at first birth (and first marriage) has steadily increased in the Federal Republic of Germany (FRG) since the 1970s, family policies in the German Democratic Republic (GDR) actively fostered an early family formation (Huinink 1995c, Mayer 1996, Kreyenfeld 2004a). This was manifest in low age at motherhood of only 22 years (Table 1). Additionally, the percentage of childless women in the GDR remained at a level of around 5-10 percent, while it increased to more than 20 percent in West Germany (Dorbritz and Schwarz 1996).

With German unification in 1990, the political and economic institutions virtually changed overnight and the impact of these changes on marriage and fertility behavior were drastic and encompassing. Age-specific marriage and fertility rates dropped at all ages in 1991. They continued to fall at ages below 25 in the following years, and the mean age at marriage and family formation rose (Mau 1994, Eberstadt 1994, Conrad et

al. 1996, Schaich 1998, Kreyenfeld 2003). This resulted in an unprecedented decline in the total period fertility and marriage rates. They have only gradually recuperated since, as can be seen from Table 2.

Table 1: Mean ages at first birth and first marriage by calendar year

Calendar Year	Mean age at first marriage		Mean age at first birth	
	East Germany	West Germany	East Germany	West Germany
1960	22.5	23.7	22.4	24.9
1965	22.9	23.7	22.2	24.3
1970	21.9	23.0	22.1	23.8
1975	21.3	22.7	22.0	24.4
1980	21.3	23.4	21.9	25.0
1985	22.2	24.6	21.8	26.2
1989	23.2	25.7	22.2	26.6
1990	23.7	25.9	n.a.	26.6
1992	25.1	26.5	n.a.	26.7
1994	26.0	27.2	n.a.	26.9
1996	26.7	27.7	n.a.	n.a.
1998	27.3	28.1	n.a.	n.a.
2000	28.0	28.5	n.a.	n.a.

Notes:

(1) The mean age at first birth in West Germany was estimated based on Kreyenfeld (2000) (2) n.a.=not available (3) For the year 2000, mean ages at first marriage were provided upon personal communication to the German Statistical Office (Statistisches Bundesamt)

Source: Statistisches Bundesamt (1993, 1996, 2001), Kreyenfeld (2002)

Table 2: Total fertility and marriage rates by calendar year

Calendar Year	Total fertility rate		Total female first marriage rate	
	East Germany	West Germany	East Germany	West Germany
1960	2.33	2.37	1.06	1.06
1965	2.48	2.51	1.05	1.10
1970	2.19	2.02	0.98	0.97
1975	1.54	1.45	0.92	0.77
1980	1.94	1.45	0.81	0.66
1985	1.73	1.28	0.74	0.60
1989	1.57	1.40	0.76	0.63
1990	1.52	1.45	0.64	0.64
1992	0.83	1.40	0.32	0.62
1994	0.77	1.35	0.38	0.60
1996	0.95	1.40	0.41	0.61
1998	1.09	1.41	0.42	0.60
2000	1.21	1.41	0.46	0.62

Notes:

For the year 2000, the total fertility rate was provided upon personal communication to the German Statistical Office (Statistisches Bundesamt)

Source: Statistisches Bundesamt (2001), Council of Europe (2002)

This paper aims to investigate the role that social and economic changes played in the transition to first parenthood, comparing the life course patterns of East German women born in 1971 with those born 1959-1961. Members of the 1959-61 cohorts were roughly aged 30 at unification. We employ these cohorts to represent the typical *pre-unification* behavior. The 1971 birth cohort reached age 19 at unification, and their fertility pattern reflects the *post unification behavior* or -- more precisely -- the fertility behavior during times of social and economic change. In Section 2, we briefly develop our theoretical framework on the timing of first birth. Section 3 contains the description of the data used and the empirical methods. We employ data from the German Life History Survey (GLHS) and provide some descriptive statistics on first birth, second birth and first marriage. The heart of the analysis, however, deals, with the transition to the first child. In Section 4, we employ event history techniques and investigate the extent to which women and their partners' employment characteristics influence first birth risks in East Germany. Section 6 draws together the main results.

2 Theoretical considerations

2.1 General considerations on the timing of fertility

The aim of this paper is to investigate how unification affected family formation in East Germany. In order to understand how individuals respond to new societal conditions, one ultimately needs to adopt the perspective of the individual actor who faces constraints and options (e.g., De Bruijn 1999, Huinink 1995b). From this perspective, the decision to have a first child depends on:

- the macro-level *opportunity structure* which determines the costs and benefits of parenthood (such as family policies),
- *individual resources* (such as the couple's income) that can be mobilized for the family or alternative life goals, and
- *individual preferences* or dispositions favoring investments in children and family life.

It also seems vital to take into account that the decision to have children is a long-term commitment. Conceptually, one usually distinguishes between the direct monetary costs of raising children (such as the expenditures for children's clothing, education, housing) and the opportunity costs of childrearing. The opportunity costs of having children include the forgone earnings because of childrearing and the forgone long-term employment chances. Birg (1984) employs the term 'biographical opportunity costs' in this context in order to highlight that an early family formation not only involves the immediate costs of a forgone income while caring for a child, but also the costs associated with forgone labor market options. An early family formation might foreclose the chances in other life domains, such as a successful employment career. A straightforward assumption is that couples want to make sure that they will be able to bear these long-term consequences before they start family formation. On the one hand, one would expect that individuals who can develop reliable, long-term expectations of their employment careers would be more likely to opt for early entry into parenthood. On the other hand, individuals will delay family formation to a later age, if employment uncertainties are high, if they are not sure that they can afford parenthood and if they

feel that they will be unable to synchronize their employment career and childrearing tasks.

Particularly in the US and Southern Europe, instabilities in *male employment careers* have amassed considerable attention in explaining the recent fertility postponement (Höpflinger 1997: 178, Oppenheimer 1988, McDonald 2000: 10f.). A frequently cited micro-economic model was proposed by Happel, Hill and Low (1984: 304) who attribute the delay in fertility to the desire to have a stable level of consumption over the life-course. "Couples wishing to smooth their life-cycle distribution of non-child consumption have an incentive to synchronize the costs of childcare in which the man's earnings are relatively high." Although this framework does not explicitly consider employment uncertainties, it highlights that it is not the current labor market income that influences fertility decisions, but expectations about the future course of the employment career. If one assumes that the labor market is the major source of income to support a family and that the male partner is the chief provider of the family, there is good reason to believe that couples will postpone parenthood when the male is subject to unstable employment (Huinink 1995b: 247ff., Tölke and Diewald 2003). In other words, based on the assumption that having children demands a stable and predictable economic household situation, couples therefore postpone parenthood when the future course of the man's employment career is uncertain.

Against the background of the increase in *females' education and employment*, women's career orientations have been identified as another chief factor for the postponement of fertility (Gustafsson 2001: 236, Liefbroer and Corijn 1999, Rindfuss et al. 1996: 280, Huinink 2000). Work-oriented women are expected to enter steeper and more challenging employment tracks. During the 'career building' phase, the opportunity costs of childrearing are particularly high and if a woman interrupts employment at this stage, she is expected to miss out on crucial career opportunities (e.g., Huinink 1995b, Taniguchi 1999: 1008). Since educational attainment is usually considered a chief indicator of women's employment chances, highly educated women in particular are assumed to postpone parenthood. A distinction has been made between the 'institutional effect' and the 'level effect' of education. The 'institutional effect' refers to the incompatibility of childrearing and receiving education. In order to earn a degree, several years of education are necessary. The duration it takes to receive a degree varies by educational level, i.e., it takes longer to receive a university degree

than a vocational training certificate. More highly educated women are therefore inevitably older at first birth (or first marriage), because they stay in the educational system for longer periods and because childrearing is basically incompatible with education in most societies (Blossfeld 1995, Hoem 1986, Rindfuss et al.1988). The 'level effect of education' refers to the effect of educational attainment on the timing of fertility, net of the length of educational participation. Both aspects -- women's longer educational participation and higher educational attainment -- are expected to have induced a postponement of fertility.

Another twist to the same argument is a framework developed by Friedman, Hechter and Kanazawa (1994). While women with good employment prospects strategically delay parenthood, women with low employment aspirations may accelerate childbearing. They encounter relatively low 'biographical opportunity costs' of an early commitment to family life. Moreover, an early entry into parenthood can be seen as a rational strategy to achieve satisfying life course prospects. In other words, if a woman faces unfavorable employment prospects, she may choose early parenthood as a biographical option to structure her otherwise uncertain life course (Friedman et al. 1994, Montgomery 2002).

The basic hypotheses that can be derived from this reasoning is that couples will postpone parenthood until the male breadwinner has settled into a stable and secure employment situation. Women's career planning defers family formation, while their bleak employment prospects encourages setting up a family early in life. These hypotheses apply to a *societal context* in which the male is the provider of the family and the woman is primarily responsible for childrearing tasks. This is a questionable assumption, however, particularly in the case of East Germany. In the following section, we discuss the role of the societal context for the timing of parenthood in greater detail. We pay special attention to labor market institutions and family policies, which reduced labor market uncertainties and supported compatibility of childrearing with employment in East Germany before and after unification.

2.2 Family formation before unification

In the GDR, the government actively supported women's labor market participation through measures that relieved the problems arising from the incompatibility of childrearing with employment by providing full-time day care for children of all ages (Obertreis 1986, Trappe 1995). A very powerful measure encouraging early family formation was possibly the moral appeal of government officials who declared late parenthood to have a negative impact on the child's health. Furthermore, public transfers encouraged couples to have their first child early in life. For example, couples who married before age 26 (before age 30 since the 1980s) received a 'marriage loan' (Cromm 1998: 477). Also, East German housing policy played a key role in the timing of marriage and fertility. Apartments were centrally allocated, and getting married and having children was a powerful means of receiving priority access to one's own flat early in life. Huinink (1995c: 12) argues that owing to East German housing policy marriage and children were an important means of getting access to otherwise restricted goods and services.

Restricted leisure, consumption and travel opportunities are other aspects that led to low age at first parenthood in the GDR (Adler 1997: 40, Beck-Gernsheim 1997: 64). They led to restricted social activities and having children therefore may have been perceived much less of a constraint on individual life opportunities than in a society that offers greater room for travel and consumption. As noted above, fertility postponement is often regarded as a means of 'synchronizing child costs and earnings' (Happel et al. 1984: 304). Couples are expected to postpone parenthood to the best time at which they are able to afford children and until 'the breadwinner' has settled into a stable employment situation. In the GDR, this 'consumption smoothing argument' applied to a much lesser extent. First, both partners contributed to the household income. This reduced the labor market risks associated with a single breadwinner household. Second, comprehensive family policies reduced the costs of raising children. This not only applied to child benefits, but also to subsidized housing, food, public education, health and day care (Frerich and Frey 1993: 171, Schmähl 1992: 41). Third, a high degree of employment stability was a glaring characteristic of the socialist system. Stable and predictable employment careers were guaranteed by a constitutional 'right to work' and the principle of 'status-adequate job placement' (Solga und Konietzka 1999, Szydlik

2002). Before leaving primary school, students usually had secured a vocational training position. Workers were allocated their first positions according to their education qualifications. Internal career ladders offered predictable upward mobility. There was little fear of losing one's job and of experiencing a drop in earnings or a lower status in the labor market. There was thus little reason to postpone parenthood until either of the partners had established a secure labor market position.

2.3 Family formation after unification

After the fall of the Berlin Wall in November 1989, institutional transformation was rapidly brought on its way. In March 1990, the 'Treuhand Anstalt' was established to privatize the East German economy. The month of July saw the introduction of the Monetary Union and in October (less than one year after the collapse of the GDR-system) German unification was officially ratified through the Unification Treaty. For the analysis of fertility, two aspects in particular seem most important to mention. First, the Unification Treaty entailed the political and legal unification of the former two separate states. This also meant that the family policies and the tax and transfer systems of the (former) FRG -- which is widely acknowledged to represent the prototype of a conservative welfare state model (Sainsbury 1997, Gauthier 1996, Dingeldey 2001) -- were introduced in the former GDR territories. Second, although the privatization reached near-completion by the middle of the 1990s, the economy in the 'neue Länder' (the new federal states) is still lagging behind that of the 'alte Länder' (old federal states). For example, unemployment is higher and wages are lower in the eastern states. For the cohort who entered the labor market in the former GDR, unification often meant a disruption in their employment careers. Those who were still in education at unification took up employment in times of social and economic upheavals.

Unification also led to changes in the educational system. While student mothers and vocational trainees with children received substantial state support in East Germany, this no longer applies. Furthermore, the transition from the education to the first job has become more unstable and uncertain. While youth unemployment did virtually not exist prior to unification, it became increasingly difficult to find vocational training

thereafter. The youngsters who were able to secure a training position were often subject to unemployment after training completion (BMBF 2000, Konietzka 2001). Closely related to this aspect is that the new system demands greater regional mobility. In the former GDR, getting married was a means of forcing the authorities to provide both partners with employment in the same town and/or prevent the reallocation to a different city. Since unification, however, vocational training or college education has become a time of high biographical uncertainties. Marrying or having a first child seems a venture associated with high risks.

We argued above that the absence of extensive consumption, leisure, and traveling opportunities may contribute to explaining early age at first parenthood in the GDR. Leisure and consumption options that usually compete with parenthood in capitalist societies were simply less accessible in socialist East Germany. After unification, this situation changed drastically when a whole range of leisure and consumption options emerged. This 'increase in choice' (Zimmermann 1989) and the new 'offers for pleasure' (Linde 1984) may also have played a major role in the postponement of family formation (Beck-Gernsheim 1997, Münz and Ulrich 1995, Sobotka et al. 2003). Confined by financial restrictions -- particularly in the immediate years following unification -- new expensive leisure and consumption opportunities competed with the now even more costly venture of family formation. Hence, economic resources, income from labor market activities and the question of allocating financial expenditures over the life course grew in significance.

One of the most glaring changes after unification was the increase in unemployment and economic uncertainty. East Germans were used to stable and predictable employment careers. Suddenly, they were faced with insecurities in a society that had overnight been transformed from a planned to a market economy. Given these drastic and encompassing changes, labor market insecurities were assumed to have been an important determinant of the fertility decline (Eberstadt 1994, Conrad et al. 1996, Witte and Wagner 1996, von der Lippe et al. 2002, Bhaumik and Nugent 2002).

Standard fertility theories assume that women devote their time to childrearing tasks and men provide the household income. Insecurities in the employment of the male breadwinner delay fertility decisions (see Section 2.1). This standard assumption was not applicable to East Germany before unification. And even in contemporary eastern

Germany, it does not hold. Compared to their West German counterparts, East German women are more work-orientated, do not intend to disengage from the labor market after childbirth, and do not adjust to the traditional pattern of the 'female-housekeeper model' (Böckmann-Schewe et al. 1993, Braun et al. 1994, Holst and Schupp 1999). Given their high labor market commitment and their pronounced strife for economic independence, East German women's employment was identified as the crux of East German fertility behavior. Not so much men's but "women's absolute or relative economic prosperity and feeling of general economic insecurity" triggered the East German fertility decline (Adler 1997: 38).

The more common it is for women to be working, the more important is the compatibility of work and family life for fertility decisions. It was widely expected for public day care places to be drastically cut down and privatized in the course of unification (Adler 2001: 22, Lechner 1998: 473, Rindfuss and Brewster 1996: 273). However, public day care was never privatized and public day care coverage is still fairly high in post-unification eastern Germany (DJI 2002, Kreyenfeld 2004b). Nevertheless, the problems that arise from combining childrearing and employment have become more severe after unification. Day care centers have increased the child care charges, opening hours have become less flexible, and public day care spaces are now provided fairly restrictively. Furthermore, a more competitive labor market imposes stronger demands on worker flexibility. Being faced with a more competitive labor market, greater career options and uncertain employment tracks, particularly career oriented women may have been inclined to postpone parenthood. This should result in an increase in the variations in the timing of fertility by women's career orientation after unification.

3 Data and procedure

For the following empirical investigations, we use data from the German Life History Study (GLHS). The GLHS is a retrospective cohort study which provides detailed employment, fertility, partnership and residential histories for selected East and West German birth cohorts (for details, see e.g. Brücker and Mayer 1998). Our analysis is restricted to respondents of the East German birth cohorts 1959-1961 and 1971. For some parts of the analysis, we also draw on data from the West German 1971 cohort. For the definition of an 'East German', we follow the sample design of the GLHS, i.e., an East German as living in the eastern states of Germany when the interview was conducted. A West German is a respondent who was living in the western states of Germany (or West Berlin) at the time of interview.

The birth cohort 1971 was aged 19 at unification. East Germans of this cohort have undergone education during state socialism, but they entered childbearing age after unification. We label this cohort the *post-unification cohort*. The cohorts 1959-61 were aged 29-31 in 1990 and due to the very low age at first birth in the GDR, virtually all respondents had set up a family before unification (see Figure 1). We use these cohorts to represent the fertility pattern in East Germany and label them the *pre-unification cohorts*. Members of the cohort 1971 were interviewed around 1997, i.e., the data is censored at age 26. The cohorts 1959-1961 were also surveyed in 1997, i.e., they were roughly age 37 then. In order to achieve comparability between the pre- and post-unification cohorts, we censor both data sets at age 26. This unfortunately means that our analysis mainly reflects the effect of employment on fertility for respondents who entered the labor market before age 26, i.e., women who have a qualification lower than college education.

We select female respondents only. The primary reason why we exclude male respondents is that men are usually older at first parenthood than the opposite sex. Since our sample is censored at age 26, there are too few occurrences for the male sample. However, for some parts of the analysis, we also consider the male partner's characteristics. The total number of valid female respondents in the GLHS is 207 for the cohorts 1959-1961 and 287 for the birth cohort 1971. The birth cohorts 1959-1961 gave

birth to 178 first children before censoring and the 1971 cohort to 102 first children.¹

Transition to first birth, second birth and first marriage

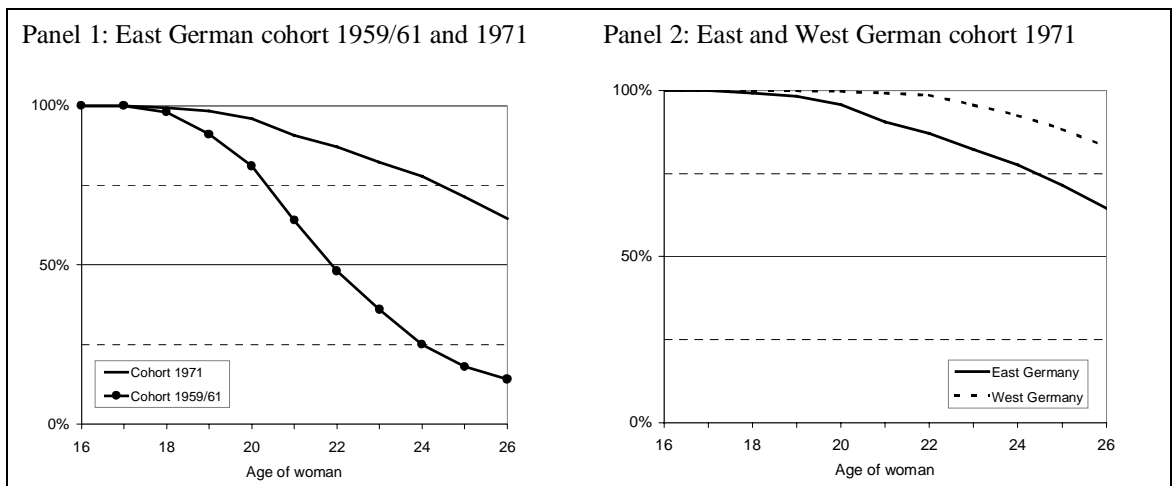
Panel 1 in Figure 1 displays the survival curve for the transition to the first child for the East German cohorts 1959-61 and 1971. For the pre-unification cohorts, the median age at first birth -- i.e., the age at which half of the female population had set up a family -- is age 22. At age 27, only 20 percent of women are childless. In other words, family formation in the GDR was completed before reaching the middle of the twenties. For the post-unification cohorts, however, a drastic postponement of first parenthood to higher ages can be noted. Unfortunately, it is not yet possible to calculate a median duration at first birth for the birth cohort 1971. Nevertheless, it is clear that it will be at least age 27. In other words, compared to the pre-unification cohorts, the cohorts who entered childbearing age after unification postponed parenthood for at least five years. Whether this also means that the post-unification cohorts will remain childless to a larger extent cannot be answered with the given data.

Panel 2 in Figure 1 displays the survival curve for the West German birth cohort 1971 which serves as a useful reference point. Given that labor market uncertainties have contributed to fertility postponement, one would expect that East Germans are more reluctant to have a first child than their West German counterparts who are subject to more favorable labor market conditions. Nevertheless, East Germans of the birth cohort 1971 are still quicker to have their first child at younger ages than their counterparts in the West. Therefore, there either must be some other factors, which are still contributing to an earlier family formation in East Germany, or economic uncertainties do not have a strong grip on the transition to the first child than expected.²

1 We only consider the respondent's biological children. If the respondent has a child, but does not report whether the child is a stepchild or an adopted child, we assume that it is her biological child.

2 Some few respondents of the 1971 birth cohort had their first child prior to unification. Left-censoring the cases at unification, however, does not change the results in any substantial manner.

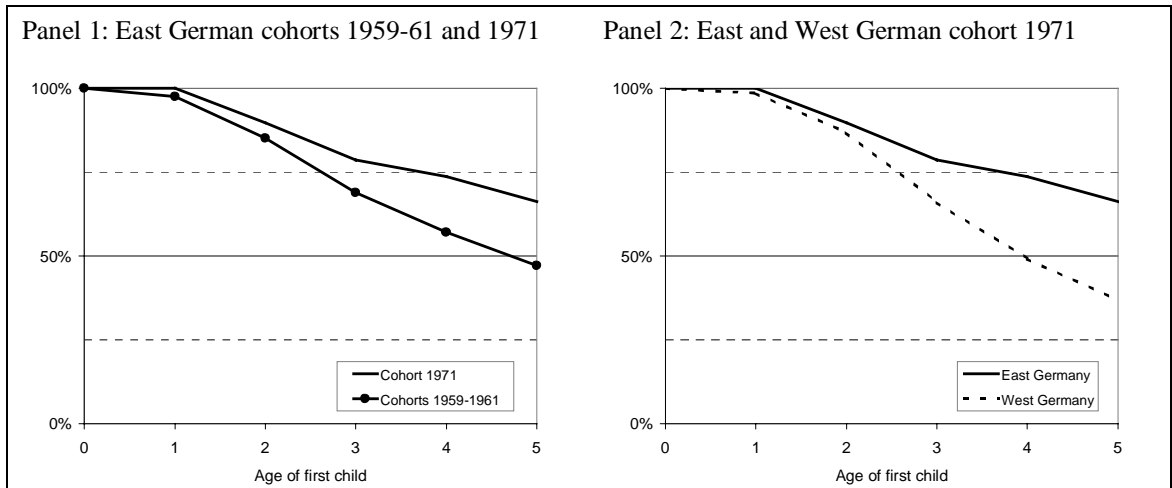
Figure 1: Transition to first birth, cohorts 1959-1961 and 1971, Kaplan-Meier survival curves



Source: GLHS, East German 1959-61 cohorts and East and West German 1971 cohort

For second parity births, the GLHS unfortunately only provides very limited scope for analysis. An investigation of second birth risks must be restricted to women who already had a first child before censoring. Since our cases were already censored at age 26, this means that we mainly select women into the sample who had the first child at relatively young ages. Furthermore, sample sizes for the analysis of second parity births are fairly small: there are only 104 women who gave birth to a total of 25 second children before censoring. We give a short account of the second birth pattern based on our sample despite these limitations: Compared to their predecessors, young East German women of the cohort 1971 are substantially more reluctant to have a second child (Figure 2, Panel 1). Four years after the birth of the first child, about 50 percent of the cohorts 1959-61 have a second child, among the 1971 cohort, this applies to only 25 percent. Similar differences can be observed when comparing the East with the West German 1971 cohort (Figure 2, Panel 2).

Figure 2: Transition to the second child, Kaplan-Meier survival curves

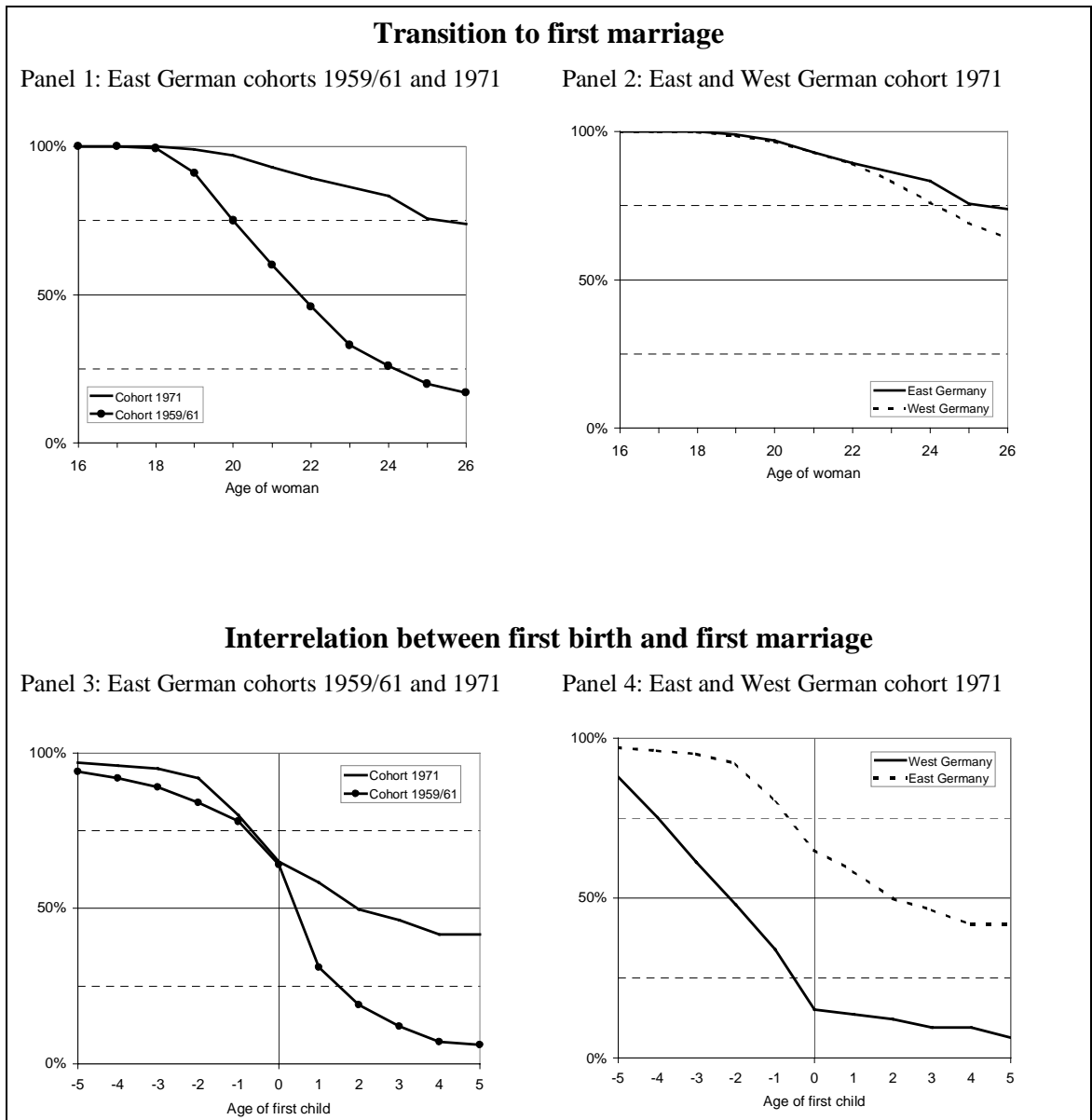


Source: GLHS, East German 1959-61 cohorts and East and West German 1971 cohort

The percentage of children born to unmarried mothers is extraordinarily high in East Germany. For the pre-unification period, high proportions of non-marital parenthood were seen to be the result of GDR-family policies, that offered special treatments to single mothers. It was an unexpected and surprising development when the proportion of non-marital births continued to increase after unification (Konietzka and Kreyenfeld 2002). Even though we are unable to investigate the determinants of non-marital parenthood with the given data, we provide some descriptive statistics on the transition to first marriage and the temporal relation between first birth and first marriage.

Panel 1 in Figure 3 illustrates drastic changes in marriage behavior when comparing the East German pre- and post-unification cohorts. While 50 percent of the cohorts 1959-1961 was married at age 22, this applied to merely 15 percent of their successors. Compared to their West German counterparts, the East German post-unification cohorts are also more reluctant to get married (Panel 2). Large East-West differences can also be observed in regards to the interrelation between first birth and first marriage (Panels 3 and 4). Roughly 35 percent of the East German cohort 1971 were married at first birth. In West Germany, by contrast, about 85 percent were married then.

Figure 3: Transition to first marriage and interrelation between first birth and marriage, Kaplan-Meier survival curves



Notes: In Panel 3 and 4, we only selected women who had a first child at the time of interview.

Source: GLHS, East German 1959-61 cohorts and East and West German 1971 cohort

Method

In the following multivariate analysis, we investigate the transition to first pregnancy using event history techniques.³ The process starts in January of the year the respondent turned age 16 and ends at first conception or at interview, whatever is first. We study first conception instead of first birth in order to avoid reversed causation, which particularly concerns the effect of unemployment on fertility, i.e., women usually withdraw from the labor market around the time of childbirth. The date of conception was calculated by subtracting nine months from the date of first birth. For the specification of the baseline hazard, we use a piecewise constant model where the cut-points are at ages 18, 20, 22 and age 24. When $\alpha(t)$ is the baseline hazard, x the time-constant covariates, z the time-variant covariates, and β and γ the regression parameters, the hazard rate can be expressed as

$$\ln h(t) = \alpha(t) + \sum \beta x + \sum \gamma z(t) \quad (1)$$

Our empirical analysis consists of three parts. In the first part, we compare first birth patterns of the pre-unification cohorts (1959-1961) and the post-unification cohort (1971). In the second part, we address the role that unemployment plays in the transition to first child. Here, we limit the analysis to the 1971 cohort since unemployment did not exist prior to unification. The last empirical section provides some descriptive statistics on child preferences for respondents who were still childless at the date of interview.

3 For improved readability, we also employ the term ‘first birth risks’ although the multivariate analysis deals with first conception risks.

Covariates

Following our theoretical considerations, key independent variables are the educational attainment and the employment status of the respondent. We distinguish three levels of educational attainment: ‘Abitur’ (high school degree), ‘Polytechnische Oberschule 10. Klasse’ (secondary school degree) and less than ‘Polytechnische Oberschule 10. Klasse’.⁴ In regard to the employment status, we distinguish between periods during which respondents are in education (school, vocational training or college), retraining, unemployment and employment. We furthermore consider the characteristics of the partner. For the 1959-61 cohorts, we distinguish marital unions, cohabiting unions and singles. For the 1971 cohort, it is possible to also identify ‘Living-Apart-Together-Partnerships’, i.e. respondents with partners who do not live in the same household. We take into account the partner’s employment status and his educational attainment.

Table 3 displays the descriptive statistics. For the 1971 cohort, the sample comprises 287 women who gave birth to 102 children. This corresponds to 26,734 person months at risk of childbirth since age 16. Most of the activity periods are spent in education (62 percent of all person months at risks). The last column in this table displays the exposure and occurrence rate. This measure shows, for example, that first birth is more likely to occur during unemployment than during employment.

4 ‘POS 10. Klasse’ also includes ‘Erweiterte Oberschule ohne Abschluss’ (secondary school attendance without completion of final degree). ‘Less than POS 10. Klasse’ includes ‘POS 8. Klasse’ (POS 8th grade), ‘Sonderschulabgang’ (special school) and no school degree.

Table 3: Descriptive statistics

	Cohort 1971			Cohorts 1959-61		
	Exp.	Occ.	Exp./Occ.	Exp.	Occ.	Exp./Occ.
Education						
In school	5,942	3	0.00	2,596	3	0.001
Less than POS 10. Klasse	699	8	0.01	1,185	9	0.008
POS 10. Klasse	16,023	86	0.01	9,661	140	0.014
Abitur	4,079	5	0.00	1,682	25	0.015
Missing	--			38	1	0.026
Employment status						
In education/school	16,669	28	0.00	9,072	43	0.005
Employed	82,24	54	0.01	6,090	135	0.022
In retraining	690	4	0.01	--		
Unemployed	861	13	0.02	--		
Missing/ others	299	3	0.01	--		
Partnership status						
No partner	13,473	12	0.001	12,067	59	0.005
Living apart together	8,191	45	0.005			
Cohabiting couple	4,464	28	0.006	1,174	38	0.032
Married couple	615	17	0.028	1,921	81	0.042
Partner' s education						
In school	105	0	0	--		
Less than POS 10. Klasse	714	10	0.014	--		
POS 10. Klasse	9,247	67	0.007	--		
Abitur	2,764	8	0.003	--		
Other/ missing	13,913	17	0.001	--		
Partner' s employment status						
In education/ military service	3,699	5	0.001	--		
Not employed	455	6	0.013	--		
Employed	8,617	77	0.009	--		
Other/ missing	13,972	14	0.001	--		
Total	26,743	102		15,162	178	

Note: Exp.=months of exposures; Occ= Number of occurrences

Source: GLHS, East German cohorts 1959-61 and 1971

4 Empirical analysis of first birth risks

4.1 A comparison of the 1971 and 1959-61 cohorts

First, we estimate the transition to first birth (or rather to the first pregnancy since we backdated the date of birth by 9 months) by controlling for the women's age, partnership status and educational attainment (Table 4). Regarding the role that educational participation plays, the following can be said: The coefficient is strong, significant and negative. For the pre-unification cohorts, first birth risks are reduced by 46 percent when being in education. For the post-unification cohorts, the so-called 'institutional effect' of education is stronger, reducing first birth risks by roughly 60 percent. From this, one can conclude that childrearing and educational participation is no longer as compatible after unification as it used to be in the GDR. This is of some importance since the time spent in education has increased also. After unification, it became easier to proceed to college education and many youngsters took advantage of the newly available options that opened up to them. Furthermore, the skills of those who had already completed vocational training before unification may have become obsolete, and they therefore may have taken advantage of retraining programs and/or have undergone additional vocational training schemes more often (Dietrich 1999, BMBF 2000). For example, at age 24, only 10 percent of the pre-unification cohorts were still in education, among the post-unification cohort this applied to 27 percent.

Turning now to the effect of education level, there is no difference in first birth risks for women with a high school ('Abitur') and a secondary school degree ('POS 10. Klasse') when looking at the pre-unification cohorts. Against the background of high compatibility between childrearing and employment in the GDR, we largely expected this result. The group which stands out as an exception is the one without any formal qualifications. Women who have less than secondary education encountered a lower first birth risk than others. Their restricted income capacity possibly put them at a disadvantage in the partner market. Such an effect on first birth risks is usually reported for male education in western societies, where the male is the chief provider of the household income (see e.g., Huinink 1995a). In a country where women also contribute considerably to the household income, the human capital relevant for market activities may become an important asset.

After unification, the pattern reversed. Women without any qualification encounter the highest first birth risks. Also, there is a significant difference between women with a secondary school degree only and those with a higher school degree ('Abitur'). For women with an 'Abitur', first birth risks are reduced by roughly 60 percent compared to women with a secondary school degree. From this result, one can conclude that women with higher education in particular postpone family formation after unification.

The effect of family status on first birth risks is different for the pre- and post unification cohorts. For the 1959-1961 cohorts, there is a clear and pronounced difference between single women and others. Married and cohabiting couples face fairly similar birth (or rather pregnancy) risks. After unification, singles and cohabiting couples are behaving fairly similar, while married couples display very high birth risks, if compared to the two other reference categories. In order to understand this result, one needs to take into account that marriage risks declined rapidly after unification. Therefore, the group of married women at risk of first birth has become more selective. Those who get married will also have a first child more swiftly. It is astonishing that we do not find great differences between single and cohabiting women after unification since one would expect that cohabiting couples are more likely to opt for parenthood than couples who have not moved in with their partners yet. However, this finding may be explained in light of the high percentage of lone parents among women who have the first child at younger ages in post-unification eastern Germany (Huinink and Konietzka 2003).

Table 4: Regression results, transition to first birth, relative risks

	Model (1a) Cohort 1959-61		Model (1b) Cohort 1971	
	exp(b)	t	exp(b)	t
Age				
16-18*)	0.003		0.002	
18-20	0.007		0.006	
20-22	0.015		0.005	
22-24	0.011		0.004	
24-26	0.009		0.006	
Educational level				
Less than POS 10. Klasse	0.50	-2.09 **	2.76	2.68 **
POS 10. Klasse	1		1	
Abitur	0.92	-0.34	0.43	-1.73 *
Activity status				
In education	0.54	-2.98 ***	0.41	-3.10 ***
Other	1		1	
Partnership status				
Single/ living apart together	1		1	
Cohabiting union	3.69	5.98 ***	1.59	1.81 *
Marital union	4.60	8.03 ***	6.80	6.15 ***
<i>Note:</i>				
(1) *) absolute risks				
(2) Method: Event history model (Specification of baseline: piecewise constant)				
(3) Dependent variable: First birth (backdated by nine months)				
(4) Significance: *<.10; **<.05; ***<.01				
(5) Flag variables for missing information were added to the regression.				
Source: GLHS, East German cohorts 1959-61 and 1971				

4.2 Employment and first birth (cohort 1971)

In the following, we investigate the way in which women's and men's employment affect transition to first birth. We have completed our analysis of the 1959-61 cohort and will concentrate in this and the following sections on the cohort 1971 only. Our decision is based on the assumption that unemployment did not exist prior to unification.

First, we look at the effect of the employment status of the respondent (Table 5, Model 2a). If employment uncertainty negatively influenced fertility, one would expect that unemployed women and women in retraining programs are more reluctant to opt for parenthood. However, being unemployed surprisingly increases first birth risks. Compared to employed women, first birth risks are double as high as for women not employed. A similar matter applies to periods of retraining, although the coefficient is not statistically significant in this case.

Second, we include the partner's characteristics. We find that the partner's educational training has a negative impact on the transition to first birth. Being in education (or military service) reduces first birth risks by roughly 75 percent and this effect is even stronger than for women's educational participation. Similarly to the effect of women's educational level, we find that men without formal qualifications encounter higher first birth risks than men who have a secondary or a high school degree. This again is a surprising result. From the analyses of family formation in western countries we know that men with no or little education are late with family formation and stay childless more often (Huinink 1995a). One plausible reason is that they are disadvantaged in the marriage market. In this analysis we only consider men who have a partner, i.e., the female respondent. Some selection has therefore been made and this may explain our result. It should be noted, however, that the group of East German men (and women) without any formal qualifications is very small (see Table 3). Regarding the partner's employment status, we do not find any statistically significant effect of the men's employment on first birth risks.

Table 5: Regression results, transition to first birth, relative risks, cohort 1971

	Model (2a)		Model (2b)	
	exp(b)	t	exp(b)	t
Age*)				
16-18	0.021		0.031	
18-20	0.042		0.050	
20-22	0.026		0.031	
22-24	0.022		0.032	
24-26	0.034		0.041	
Educational level				
Less than POS 10. Klasse	3.87	3.46 ***	3.67	3.23 ***
POS 10. Klasse	1		1	
Abitur	0.44	-1.68 *	0.56	-1.18
Employment status				
In education	0.50	-2.37 ***	0.55	-2.08 **
In retraining	1.24	0.41	1.53	0.89
Not employed	1.93	2.07 **	1.92	2.06 **
Employed	1		1	
Partnership status				
Single	0.04	-7.31 ***	0.12	-2.69 **
Living apart together	0.25	-4.34 ***	0.24	-4.48 ***
Cohabiting union	0.24	-4.53 ***	0.21	-4.94 ***
Marital union	1		1	
Partner's educational level				
Less than POS 10. Klasse			1.92	1.88 *
POS 10. Klasse			1	
Abitur			0.96	-0.11
Partner's employment status				
In Education/ military service			0.24	-2.91 **
Not employed			1.13	0.28
Employed			1	
<i>Note:</i>				
(1) *) absolute risks				
(2) Method: Event history model (Specification of baseline: piecewise constant)				
(3) Dependent variable: First birth (backdated by nine months)				
(4) Significance: *<.10; **<.05; ***<.01				
(5) Flag variables for missing information were added to the regression.				
Source: GLHS, East German cohort 1971				

4.3 Attitudes towards children (cohort 1971)

The East German birth cohort 1971 was interviewed at age 26. One of our findings - that women's unemployment accelerates childbearing- may primarily apply to women who have completed vocational training or have no vocational qualification. Women who proceeded to college education were either in education at censoring or they had just started their employment career. For them, economic uncertainty or unemployment possibly has operated very differently. With the given data, such issues cannot be investigated. However, the GLHS provides some information on the fertility preferences of respondents who were still childless at censoring, an issue that we will address in the following (and last) empirical section (for details, see also Gerken 1997).

Among the 1971 cohort, 185 female respondents were still childless at the time of interview. Upon being asked about their preference for children, 78 percent responded that they desire to have children. Another 17 percent reported that they want children but that it also depends 'on the circumstances'. Only a very small fraction of 5 percent were either uncertain about their preferences or they did not want children. This corresponds to other findings, which also show a high preference for children in the eastern states of Germany (e.g., Störtzbach 1994).

The respondents were asked in addition whether they believe that they would have already set up a family, given that the GDR still existed.⁵ 34 percent believed that they would nevertheless still be childless, 38 percent reported that they would have possibly already set up a family and another 26 percent were absolutely sure about this. Even though this question is highly hypothetical, it shows that many young East Germans are well aware of the fact that they changed their family plans in response to the new societal conditions. This is confirmed by the fact that the majority of the respondents who reported that they would have had a child also agreed that the advantages to young families had diminished in the GDR and that public support of families deteriorated.⁶

5 The exact wording of this question is as follows: "Imagine unification would not have taken place. Would you have children then today?" (Stellen Sie sich vor, es hätte die Wende nicht gegeben, hätten Sie dann heute schon Kinder?)

6 The exact wording of this question is as follows: "The advantages young families had during GDR-times no longer exist." (Die Vorteile, die man in der DDR als junge Familie in verschiedener Hinsicht hatte, gibt es seit der Wende nicht mehr.)

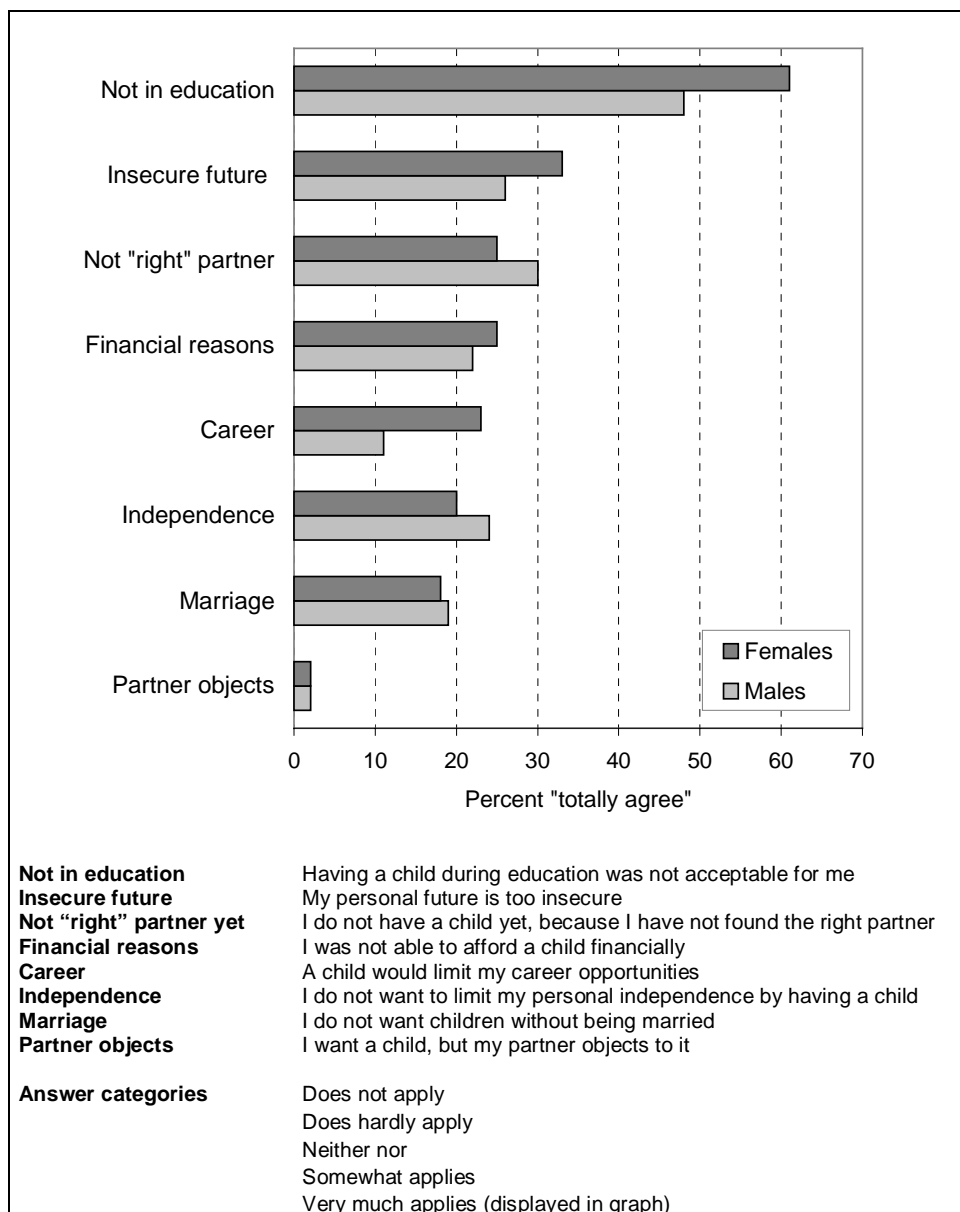
Also, 50 percent of this group entirely agreed that it was taken for granted in the GDR that a person of the respondent's age would have already set up a family.⁷

Respondents who stated that they want children were additionally asked about the reasons why they did not have any children at the time of interview. The most frequently stated reason (for both men and women) was the rejection of parenthood during periods in education (see Figure 4). About 60 percent stated that having children whilst being in education was not acceptable to them. The second most frequently mentioned aspect among women is an insecure future. "Not right partner" also ranked surprisingly high in the hierarchy of reasons for not having started family formation. Hence, career aspects, financial reasons or independence was only stated by about 20 percent of the respondents as reasons for their childlessness.

Based on this pattern, it seems quite difficult to paint a clear picture of the role that employment uncertainties and career prospects play in fertility postponement. On the one hand, the clear rejection of parenthood during periods in education underlines that family formation at times of education is no longer as acceptable as it used to be in the GDR. However, since hardly any of the respondents were still in education at the time of interview, this aspect cannot fully explain why they did not have children yet. On the one hand, one could argue that the respondents do not perceive the effects of children on the individual opportunities to be as adverse as widely expected, since career and financial aspects do not rank particularly high. On the other hand, an insecure future is the second most important reason that is stated why the childless respondents of the 1971 cohort did not have any children yet.

7 The exact wording of this question is as follows: "Before unification, having a child at my age would have been something natural." (Vor der Wende wäre ein Kind in meinem Alter für mich noch eine Selbstverständlichkeit gewesen.)

Figure 4: Reasons for not having any children yet, childless respondents of the cohort 1971, (percent totally agree)



Source: GLHS, East German cohort 1971

5 Conclusion

This paper aimed to analyze the timing of first birth for the East German 1971 cohort. Compared to their predecessor cohorts who had children during state socialism, we noted a drastic postponement of first birth to higher ages. At age 26, only about 40 percent of the post-unification cohort (cohort 1971) has a first child, while for the pre-unification cohorts (cohorts 1959-1991) this applied to roughly 85 percent then. This shows how drastically changes on the macro-level manifest themselves in individual life course patterns. Furthermore the East German case illuminates how sensitive fertility decisions are to societal conditions. That the social, political and economic changes contributed to this fertility postponement is hardly open to question. Though, it is less clear what the most important factors are that have contributed to the increase in age at first birth. In this paper, we particularly focused on the role of the woman and her partner's employment situation. Major results can be summarized as follows:

- There is strong evidence that **educational participation** (of the woman and her partner) reduces first birth risks. In post-unification Germany, this effect has become stronger and individuals stay longer in the educational system than under the socialist regime. One can therefore content that the increase in educational participation and the incompatibility of childrearing and education explains part of the postponement of first birth after unification.
- There is some indication of an increase in the variation in the timing of fertility by **women's career orientation** after unification. Compared to their less educated counterparts, women with a high school degree are more reluctant to embark on parenthood.
- The most glaring result is that **employment uncertainties** do not generally contribute to a postponement of fertility. On the contrary, unemployed women display significantly higher first birth risks than employed women.

The increase in the variation in the timing of fertility by women's education is in agreements with our hypothesis that women plan parenthood more strategically in accordance with their employment careers after unification. However, the finding that women's unemployment accelerates childbearing very much opposes our assumption on

the role that employment uncertainties play in fertility in East Germany. How can this rather puzzling finding be interpreted?

Against the background of the high work orientation among East German women, it was generally assumed that insecurities in women's employment would lead to fertility postponement. One explanation that we do not find this pattern might be that a high work orientation is not such a universal characteristic of East German women as it has frequently been postulated (e.g., Adler 1997, Konietzka and Kreyenfeld 2002). Although public day care is widely available, this does not necessarily mean that all women are 'work-oriented'. In the GDR, there was a general economic and moral pressure to be employed full-time. The new system provides on the one hand greater room for career upward mobility, on the other hand it also leaves room for reduced labor market participation, particularly after having children. The new institutional constraints favor the 'female home-keeper model', which was previously neither socially acceptable nor economically feasible. It seems plausible that women with very bleak employment situations take advantage of the new incentive structure, i.e., the possibilities to choose the 'female home-keeper male-breadwinner model'. In order to verify this hypothesis, one would have to investigate women's employment behavior after childbirth. Furthermore, one would have to take into account interaction effects between partner's and women's labor market situation. Too small sample sizes precluded us from performing such an analysis.

Another explanation may be that unemployed women constitute in many respects a select group. They are the ones that face the worst employment prospects. For them, there may simply be less of a need to plan childbearing in accordance with an employment career. Seen in this light, it is not unemployment that fosters family formation, but the fact that women with few labor market chances are the first to become unemployed. This may also help to explain the positive effect of having a partner without any education on the transition to the first child. In principle, one would expect that men without formal qualifications have worse labor market prospects and should therefore rather postpone parenthood. On the other hand, if they do not expect to experience any improvement in their current employment situation, it also makes sense to initiate childbearing early.

Eventually, our finding that unemployment or employment uncertainty encourages

fertility is restricted to the effect of youth unemployment and unemployment of women with less than college education. However, there is every reason to believe that women will respond very differently to unemployment depending on whether they proceed to an employment career or whether they do not do so. Whether unemployment operates differently for college educated women could not be investigated with the given data. This is a highly relevant issue, which has to be left to future research.

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