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Crisis or Adaptation – Reconsidered: A Comparison of East and West German Fertility Patterns in the First Six Years after the 'Wende'

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Abstract. Like other Eastern European countries, East Germany experienced a rapid decline in period fertility rates after the fall of communism. This decline has been discussed along the lines of a 'crisis' and an 'adaptation' to western demographic patterns. The aim of this paper is twofold. Firstly, we discuss the factors which foster and hamper a convergence of fertility behaviour in East and West Germany. Secondly, we use data from the German micro-census to analyse the fertility patterns of the cohorts born 1961–1970. The main result of our empirical analysis is that East Germans who were still childless at the time of unification are quicker to have their first child in the subsequent years than comparable West Germans. However, regarding second parity births, the pattern reverses. Here, East Germans display a lower transition rate than their counterparts in the West.

Key words: Fertility, East Germany

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Résumé. Comme les autres pays d'Europe de l'est, l'Allemagne de l'est a connu, après la chute du communisme, une baisse rapide des taux de fécondité du moment. Cette baisse a été tour à tour mise sur le compte d'une crise ou d'une adaptation au schéma démographique de l'ouest. Cet article a un double propos. D'une part, nous y discutons les facteurs qui jouent en faveur ou en défaveur de la convergence des comportements de fécondité entre l'ouest et l'est de l'Allemagne. D'autre part, nous utilisons les données du micro-recensement allemand pour analyser les profils de fécondité des générations nées entre 1961 et 1970. L'analyse empirique montre principalement que les Allemandes de l'est qui étaient encore sans enfants au moment de la réunification ont donné ensuite naissance à un premier enfant plus rapidement que les Allemandes de l'ouest. Cependant, si l'on considère les deuxièmes naissances, le schéma s'inverse. Ce sont les Allemandes de l'ouest qui ont un taux de transition plus élevé que leurs homologues de l'est.

Mots clés: fécondité, Allemagne de l'est

1. Introduction

Like other Eastern European countries, East Germany experienced a drastic and rapid decline in period fertility rates after the fall of communism (e.g., Kharkova and Andreev, 2000; Kučera et al., 2000; Frejka and Calot, 2001; Philipov, 2002). While there were still 180,000 births in 1990, there were only 110,000 a year later, which is a drop of about 40 percent in a single year. During this time, migration from East to West Germany had reduced the population size in the East considerably. In the period 1989 to 1991 alone, about one million East Germans had migrated to the West (Statistisches Bundesamt, 2001a). Massive East to West migration has clearly distorted the usefulness of the annual number of births as a fertility indicator. However, the total fertility rate (TFR), which standardises for population size and age structure, does show a drastic reduction in fertility. As can be seen from Figure 1, the East German TFR dropped from 1.5 in 1990 to 1.0 in 1991, reaching its lowest level of 0.8 in the years 1992 to 1995. Since then, the East German TFR has steadily increased, but has not reached the level of West Germany.

The decline in fertility rates after unification has motivated researchers to conclude that East German society is undergoing a severe social and economic crisis (e.g., Eberstadt, 1994; Witte and Wagner, 1995; Dorbritz, 1997; Lechner 2001). Mau (1994, p. 206) considers East German society to be in state of 'anomie' and the fertility decline a response to it. Eberstadt (1994) believes that the low East German birth rate is a consequence of the East German economy, where couples do not commit themselves to the responsibilities of parenthood in uncertain and unstable times. Fleischhacker (1994, p. 43) draws analogies to demographic developments during wartime. Others have spoken of a 'birth strike' ('Gebärstreik'), in which East German women are assumed to forego parenthood as part of a collective protest (e.g., Adler, 1997, p. 6) (for a critical discussion, see Dölling et al., 2000).

Although there is consensus that East Germany has been undergoing a fertility crisis following unification, there is some dispute regarding the course of the fertility development. In this context, a *crisis* and an *adaptation* hypothesis have been contrasted (e.g., Mau, 1994; Richter, 1993; Witte and Wagner, 1995; Conrad et al., 1996; Mau and Zapf, 1998; Schaich, 1998). Advocates of the 'crisis hypothesis' argue that unfavourable economic constraints keep East Germany's fertility below West German levels for the foreseeable future. Supporters of the 'adaptation hypothesis' are more optimistic in this respect. They argue that although the economic situation has been lagging behind, individuals in the 'neue Länder' (new federal states) are subject to very similar institutional constraints in the 1990s as their counterparts in the 'alte Länder' (old federal states). Assuming that family policies, tax regulations and the other institutions of the welfare system are the primary parameters for fertility decisions, one would expect that East German fertility would converge towards West German levels as soon as the economic situation relaxes.

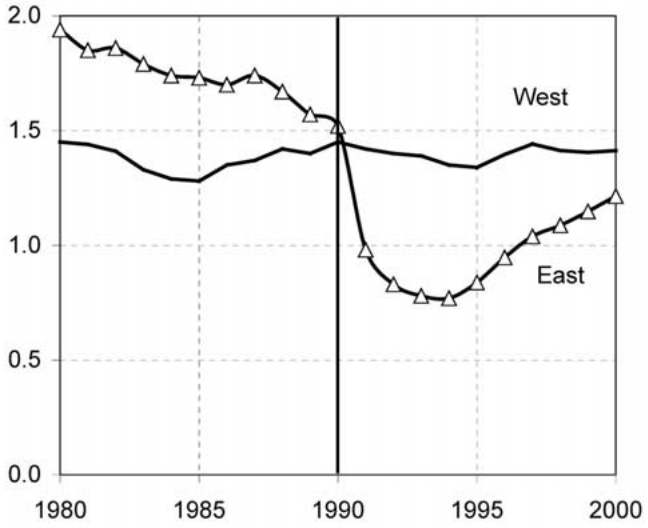

Figure 1. Total period fertility rate in East and West Germany 1980–2000.
Source: Statistisches Bundesamt (2001a). For the year 2000: personal communication to the German Statistical Office (*Statistisches Bundesamt*).

Advocates of the 'crisis hypothesis' have often taken the drop in annual birth rates as an unmistakable sign of a 'crisis-related' behaviour in the East (Eberstadt, 1994; Witte and Wagner, 1995; Beck-Gernsheim, 1997). Even if this interpretation was valid for the time around unification, it is unclear whether it remains true for later years. It is well known that period fertility indicators are easily misinterpreted, particularly when there are changes in the timing of childbirth (e.g., Bongaarts and Feeney, 1998; Kohler and Philipov, 2001). A decline in period fertility rates can indicate a decline in lifetime fertility, but it could also indicate a postponement of motherhood to higher ages.

This possibility is particularly relevant in the case of East Germany. Compared to other western European countries, the mean age of women at childbirth was very low in East Germany. In 1989, the mean age at childbirth was 24.7 (Statistisches Bundesamt, 1999). In contrast, West Germany displayed, with 28.3 years of age in the year 1989, a rather high mean age at childbirth by cross-national comparison (Statistisches Bundesamt, 2001a). This means that even if East German women who were childless in 1990, did not have children during the upheavals of unification, they were generally young enough to postpone childbearing to a later phase in their lives without reaching the biological limits of fertility. What looks like a fertility crisis from the point of view of period fertility indicators could in fact be a postponement of childbirth to West German age levels.

The aim of this paper is to discuss the major factors that both foster and hamper a convergence of fertility behaviour in the eastern and western states. We compare the fertility behaviour of East and West Germans from the *life course perspective*

(Elder 1985; Mayer 1997). By 'life course perspective', we mean that we (i) use cohort instead of period data, (ii) analyse the transition to the different birth parities separately, and (iii) pay particular attention to the way that unification cut into the life courses and the 'fertility careers' of the respondents. We limit our analysis to the birth cohorts 1961–1970 who were ages 20–29 at unification. They had entered childbearing age before unification, but were still at risk of childbirth thereafter. As such, their behaviour defined the fertility pattern of the 1990s. Furthermore, members of these cohorts had just entered the labour market around the time of unification and their employment careers were therefore most severely affected by the economic upheavals during this time (Sackmann and Wingens, 1996; Mayer et al., 1999). In other words, if the economic and social upheavals have affected East German fertility, it should be most pronounced for these cohorts. The remainder of this paper is structured as follows. In Section 2 we give a short account of the 'fertility regimes' in the former German Democratic Republic (GDR) and the Federal Republic of Germany (FRG). In Section 3, we discuss major factors that foster and hamper a convergence of fertility behaviour in East and West after unification. After presenting the data and methods in Section 4, Section 5 comprises the empirical analysis of the transition pattern to the first and second child using life table techniques. Section 6 contains the concluding remarks.

2. Fertility Patterns in the FRG and GDR

Age at first birth is an important indicator for the fertility pattern of a society. The transition to the first child coincides with setting up a family and a very late or early first birth can have long-term consequences for the subsequent fertility career (e.g., Morgan and Rindfuss, 1999). In the GDR an array of family policies and labour market institutions encouraged early family formation. For example, public full-time day care facilitated the compatibility of childrearing and employment. An encompassing health care system, highly subsidised housing and public education guaranteed a high degree of social security. A constitutional 'right to work' and a centrally directed labour market contributed to stable and predictable employment careers (e.g., Frerich and Frey, 1993; Trappe, 1995; Cromm, 1998). When this is considered, it becomes understandable that the age at childbirth has remained at a fairly low age of roughly 22 years throughout the existence of the GDR. In the West, on the other hand, the age at first parenthood increased constantly from the 1970s onwards. From the cohort perspective, age at parenthood increased progressively from the 1950 cohort onwards. Furthermore, there had been large East-West differences in the percentage of (ultimately) childless women. In the GDR, childlessness was around 5–10 percent, while it has increased to more than twenty percent in the Federal Republic of Germany (see also Table 1).

Apart from measures that encouraged early family formation, public policies in East Germany contained various measures that were directed towards higher order births. For example, mothers with three children were given extra leave and they

Table 1. Mean age at first birth and level of childlessness

	Mean age at first birth (at age 35)		Percentage childless women (at age 35)	
	East	West	East	West
Cohort 1940	22.0	24.2	12%	12%
Cohort 1945	21.5	23.7	8%	15%
Cohort 1950	21.7	24.1	8%	17%
Cohort 1955	21.7	25.1	8%	22%
Cohort 1958	21.6	25.4	8%	23%

Source: Statistisches Bundesamt (1996); BiB (1999); Kreyenfeld (2002).

received priority access to larger apartments; a measure which was of considerable significance in the centrally allocated housing market of the GDR (Cromm, 1998; Trappe, 1995). Since these policies were explicitly directed towards population goals, they were frequently labelled as 'pro-natalistic' (e.g., Büttner and Lutz, 1990; Dorbritz and Fleischhacker, 1995). On these grounds, one would have expected that East Germans were more likely to have a larger family than their counterparts in the Federal Republic of Germany, where no major pro-natalistic policies had been launched. However, there were only small East-West differences in the percentage of women with more than two children. The major differences relate to two-child-families. In the FRG, roughly 35 percent of all women had two children, in the GDR the comparable figure is 50 percent (see Table 2). The two-child difference partially relates to the differences in the percentage of childless women. The parity progression ratio from the first to the second child was fairly similar in the GDR than in the FRG, though.

Against this background, researchers diagnosed a general trend towards the 'two-child family' or even a 'two-child norm' for the GDR (Schott, 1992, p. 231; Wendt, 1997, p. 126). Since third-order birth rates never increased significantly in response to the introduction of the pro-natalistic policies, the policies were widely regarded as a failure (e.g., Menning, 1995, p. 142; Schwarz, 1992, p. 261; Wendt, 1991, p. 272). However, East German policies might be called as ineffective regarding their aim to increase fertility above replacement level, but they were, after all, highly significant for the timing of first birth. Compared to their West German counterparts, the early age at first birth and the low level of childlessness stands out as exceptional (Table 1).

The large differences in the "fertility Regimes" *before* German unification entail important consequences for the analysis of fertility patterns *after* unification. If there is a strong trend of East Germans adapting to West German fertility patterns, that would represent a big change in behaviour for the East Germans. This comprises a drastic increase in the age at first birth and an increase in childlessness. Most importantly, however, the differences in fertility patterns before unifica-

Table 2. Total Fertility Rate (TFR) and ultimate family size by birth cohort

	West Germany*				East Germany**			
	Cohort 1940	Cohort 1945	Cohort 1950	Cohort 1955	Cohort 1940	Cohort 1945	Cohort 1950	Cohort 1955
TFR								
TFR – parity 1	0.89	0.87	0.85	0.81	0.89	0.92	0.93	0.92
TFR – parity 2	0.63	0.57	0.55	0.53	0.63	0.63	0.63	0.66
TFR – parity 3	0.29	0.22	0.20	0.18	0.28	0.21	0.16	0.18
TFR – parity 4+	0.16	0.12	0.10	0.10	0.19	0.11	0.07	0.08
Sum	1.97	1.78	1.70	1.62	1.98	1.87	1.79	1.84
Ultimate family size								
No children	11%	13%	15%	19%	11%	8%	7%	8%
One child	26%	31%	31%	28%	26%	29%	30%	27%
Two children	34%	35%	35%	35%	35%	42%	47%	48%
Three or more children	29%	22%	20%	18%	28%	21%	16%	18%
Sum	100%	100%	100%	100%	100%	100%	100%	100%

*For West Germany, family size and TFR have been measured at age 40.
**For East Germany, ultimate family size and TFR are reported. Missing fertility information have been imputed by the German Statistical Office.
Source East Germany: BiB (1993); Source West Germany: Kreyenfeld (2002).

tion entail substantial East-West differences in the family structure in 1990. East Germans were much younger at first birth than their West German counterparts and therefore they were more likely to have already established a family by the time of unification compared to West Germans of a similar age. In other words, the East and West German *population at risk of childbirth* substantially differed at the eve of unification. This has rather paradoxical consequences for period fertility rates. It means that an adaptation of West German fertility patterns requires a decline in East German period fertility rates. Put differently, given that East and West German fertility behaviour *converge*, period fertility rates must *diverge*. Before we embark on this issue in greater detail, we discuss the factors that hamper and foster a convergence of behaviour.

3. East-West Differences in Constraints and Attitudes after 1990

In October 1990, the two former German states were united within a common institutional framework. This framework was largely the one that already existed in West Germany. In the subsequent years, East Germany experienced a rapid and radical transformation from a centrally planned economy to a market economy. Although the privatisation process was almost completed by the middle of the

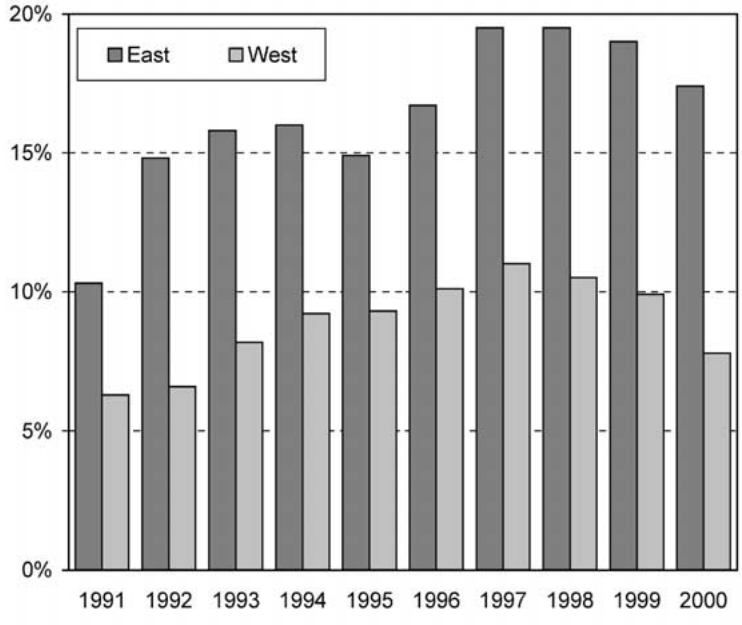

Figure 2. Unemployment rate in East and West Germany 1991–2000.
Source: Statistisches Bundesamt (2002).

1990s, wages and productivity in the eastern states are still behind western levels (Lange and Pugh, 1998; Schwarze and Wagner, 2001). The unemployment rate in the year 2000 is 17 percent in the East, while it is 8 percent in the West (see Figure 2). The average hourly wage of a male East German worker in the industry sector ('Arbeiter im produzierenden Gewerbe') was 10.50 Euro in the year 2000. This was only 70 percent of the wage of a West German worker, who earned 15.00 Euro on average (Statistisches Bundesamt, 2002). Assuming that economic factors are important for fertility, one would assign the high unemployment rates and the low wages a key role when seeking to explain East-West differences in fertility behaviour (e.g., Eberstadt, 1994; Witte and Wagner, 1995).

Although the economic situation certainly stands out as exceptional, there are other East-West differences in attitudes and in institutional constraints, which have outlived unification. Those most relevant to fertility are presumably the differences in the public provision of day care, the attitudes towards women's employment, and family life. In contrast to the economic situation, which is widely expected to suppress East German fertility, these factors could explain a more rapid family formation in the East. In the following, we discuss these issues in more detail.

3.1. PUBLIC DAY CARE

There was a general belief that the day care system of the former GDR would either be privatised in the course of unification or at least drastically cut down. A 'lack'

Table 3. Availability ratio of public day care (available day care places per 100 children of an age group)

	West Germany			East Germany		
	1990	1994	1998	1990	1994	1998
'Krippe' (ages 0–3)	2	2	3	56	41	36
'Kindergarten' (ages 4–6)*	n.a.	14	19	n.a.	113	129
'Hort' (ages 7–10)	5	5	6	88	58	48

n.a. = not available.
*only full-time care.
Source: Deutsches Jugendinstitut (1993, 1998); Statistisches Bundesamt (2001b).

or a 'shortage' of public day care was therefore generally expected (e.g., Nauck and Joss, 1995, p. 25; Rindfuss and Brewster, 1996, p. 273; Adler, 1997, p. 44; Kopp, 2000, p. 109). However, developments in East Germany took a different turn. Throughout the 1990s, day care coverage in the new federal states has remained relatively high. For example, in 1998 the availability ratio for places in the 'Krippe' (care for children between the ages of 0–3 years) is almost 40 percent in the East, but only 4 percent in the West (see Table 3). There is complete coverage of full-time day care for pre-school children (between the ages of 4–7 years) in the East. In the West, the availability ratio is roughly 20 percent.

It is difficult to single out a chief factor for the persisting differences in the provision rate of public day care. However, it is clear that it partially relates to the structure of German childcare policies, which are the responsibility of the local municipality (Kreyenfeld et al., 2002).[1] Furthermore, the high coverage of public day care might also be considered an 'inheritance' from GDR-times, when a network of public day care centres was established (Hank et al., 2001). In contrast to other family policies of the former GDR, which were swiftly abolished in the course of unification, the day care infrastructure was taken over by the local communities and was only gradually cut down. Since birth rates and the numbers of children requiring day care declined, provision rates remained relatively high.

3.2. MOTHERS' EMPLOYMENT

Closely related to the high coverage of public day care is the persisting difference in attitudes towards women's employment. Former GDR policies were directed towards integrating women into working life, the provision of places in public day care being a major part of it. Other policies include maternity leave regulations which, by FRG standards, provided a relatively high income replacement level (Frerich and Frey, 1993; Höhn and Schwarz, 1993; Trappe, 1995; Trappe and Rosenfeld, 1998; 2000). Although GDR family policies had been replaced in favour of the West German system in 1990, very pronounced attitudes towards the labour market participation of women remained, particularly regarding those

with children. As a legacy from former socialist times, East German women still more often consider mother's employment as acceptable than their more traditional counterparts in the West who generally believe that women should reduce their working hours when they have small children (e.g., Braun et al., 1994).

It seems vital to find out how persistent individual preferences are and whether they will adjust now that changes have occurred at the macro level of society. How lasting is the strife for economic independence, being confronted with the new family policies and labour market institutions? Did the cohorts that were socialised during GDR times gradually change their attitudes over their life courses? Will only the subsequent cohorts that were socialised after unification adopt the 'Western' (but traditional) attitudes? Or are preferences, even across cohorts, persistent against change?

Table 4 shows the attitudes towards women's employment based on estimations from the ALLBUS survey (for details on the ALLBUS, see Terwey 2000). The ALLBUS is a repetitive cross-sectional data set, which does not allow for changes in attitudes over the life course to be investigated. Nevertheless, the table covers the years 1992, 1996 and 2000 and therefore gives some idea of the persistence of attitudes over time. Since we only select respondents from the cohorts 1961–1970, the information in the table is instructive regarding changes in attitudes over the life course.

The information presented in the table supports the view of strong East-West differences in the attitudes towards mother's employment. In 2000, 65 percent of the respondents (of the birth cohorts 1961–1970) in the 'alte Länder' agree that a child will suffer when the mother is employed. In the 'neue Länder', this is true only for 33 percent of respondents. This is largely unchanged from the situation eight years earlier, in 1992.

In general, one would expect that in a society where mother's employment and work orientation is high, fertility would be low. However, if one considers the public day care system in East Germany, one arrives at a completely different conclusion. 'Work oriented' women in the East still face relatively favourable constraints to proceed with their employment career after childbirth and should therefore encounter a higher fertility than their counterparts in the West. Possibly, it could be argued that the high coverage of public day care provides East German couples completely different opportunities to organise working and family life, contributing to a distinct structure of gender relations and employment patterns.

3.3. MARRIAGE AND FAMILY LIFE

It has also been argued that the GDR system supported a very favourable attitude towards children and family life (Richter, 1993, p. 2; Störtzbach, 1994, p. 160; Beck-Gernsheim, 1997, p. 63). East Germans were subject to a repressive system for almost half a century, which, it has been argued, they responded to by seeking fulfilment in private life (Wendt, 1991, p. 266; Frerich and Frey, 1993, p. 392;

Table 4. Attitudes towards female employment and family, (cohorts 1961–1970)

	West Germany			East Germany		
	1992	1996	2000	1992	1996	2000
Child suffers when mother employed?[1]						
Agree fully	28%	30%	28%	16%	19%	15%
Agree partially	35%	37%	37%	23%	27%	21%
Disagree partially	24%	22%	23%	33%	25%	41%
Disagree fully	10%	9%	12%	25%	26%	22%
Don't know	3%	3%	1%	3%	3%	1%
Number of valid cases	492	540	402	208	195	220
Needs family to be happy?[2]						
Needs family	57%	62%	67%	73%	77%	77%
Alone as happy	27%	25%	25%	16%	11%	13%
Alone happier	2%	2%	1%	1%	3%	1%
Don't know	14%	12%	7%	10%	10%	9%
Number of valid cases	492	541	402	207	195	220

[1] "A small child is most likely to suffer when the mother is working" ["Ein Kleinkind wird sicherlich darunter leiden, wenn seine Mutter berufstätig ist"].
[2] "Do you think it requires a family to be happy? Or do you think that it is possible to be just as happy by oneself?" ["Glauben Sie, daß man eine Familie braucht, um wirklich glücklich zu sein, oder glauben Sie, man kann alleine genauso glücklich sein?"]
Source: ALLBUS 1992, 1996, 2000 (own estimates).

Mau, 1994, p. 199). Although the political set-up changed with unification, East Germans still consider children and family life a more essential part of their life courses than their counterparts in the West. While in 1992, only 57 percent of West Germans (of the cohorts 1961–1970) stated that they need a family to lead a happy life, this was true for 73 percent of their East German counterparts. By the year 2000, the respective proportions had increased to 67 percent in the western states and to 77 percent in the eastern states.

The high degree of family orientation among East Germans seems to contradict the high level of non-marital births. In the 1970s, the GDR government launched a social policy package that included special measures for lone mothers. This, it is largely understood, contributed to a continuous increase in the proportion of non-marital births (Trappe, 1995; Cromm, 1998). In 1989, the year before unification, the proportion of non-marital births had reached more than 30 percent in the GDR, while it was only 10 percent in the FRG. Although it was widely believed that the proportion of non-marital births would decline to West German levels after unification, non-marital parenthood became even more common in the eastern states than before. In the year 2000, about 50 percent of all children were born to unmarried mothers in the new federal states. This was true for a mere 19 percent

of births in the old federal states (Statistisches Bundesamt, 2001a). In this context it is important to consider that although single parenthood is relatively common in the eastern states, the large majority of unwed births are births to cohabiting couples (Konietzka and Kreyenfeld, 2002). The East German case shows that a high preference for family life does not necessarily involve a high preference for the institution of marriage.

In sum, apart from the glaring differences in the economic situation, there are other persisting differences between the 'alte Länder' and the 'neue Länder'. If one primarily focuses on the economic situation (and assumes that high unemployment and low wages influence fertility negatively), there would indeed be no reason to expect an 'adaptation' of East and West German fertility in the 1990s. On the other hand, a higher coverage of children's day care and a higher preference for children are parameters which should contribute to an earlier family formation in the East, even though unfavourable economic parameters are likely to have the opposite effect.

4. Data and Method

4.1. THE GERMAN MICRO-CENSUS

We compare the transition pattern to the first and the second child for the cohorts 1961–1970. We use data from the scientific-use file of the 1997 micro-census (Schimpl-Neimanns, 2002). The German micro-census is a one-percent sample of the population living in Germany. The scientific-use file of the micro-census is a 70 percent sample of this sample, or a 0.7 percent sample of the population living in Germany. The scientific-use file of the micro-census for the year 1997 contains roughly 500,000 respondents.

One of the major advantages of using the micro-census, compared to other survey data sets, is that it contains a relatively large sample size, which allows for the analysis of single birth cohorts. Furthermore, the data set is highly representative of the population living in Germany. Since respondents are legally required to fill in the questionnaire, there is relatively little non-response (Schimpl-Neimanns, 2002). The major drawback of the German micro-census is, however, that it does not survey the 'fertility history' of the respondents. This means that we have to reconstruct the fertility history based on the number of children who live in the mother's household at the date of interview. This creates a variety of problems. Most importantly, we are not able to identify children who are no longer living in the household of the respondents. For children who live in their mother's household, the micro-census provides information on the relationship to other cohabiting family members ('Familienzusammenhang'). This allows us to identify the age at childbirth and the parity of a child. It is, however, not possible to distinguish biological children from step or adopted children. As previously mentioned, children who have already moved out of the parental home or who have died are not included in the dataset. Comparisons with other data sets show, however, that for women

aged 36 or younger, the percentage of children who no longer live with their mothers is relatively small (Kreyenfeld and Huinink, 2003; Schimpl-Neimanns, 2002).

The other important drawback of the micro-census is that the most recent publicly available data set is from the year 1997. Other data sets, such as the German Family Survey ('Familiensurvey') or the German Socio-Economic Panel (SOEP), provide the fertility histories of the respondents up to the year 2000. These data sets do, however, not contain a sufficiently large sample size for a description of the fertility patterns in East Germany by single birth cohorts (Kreyenfeld and Huinink, 2003). German vital statistics would not be instructive here, either, mainly because they do not distinguish by the biological parity of the children.

Since the micro-census was conducted in the beginning of the year 1997, we can only study the fertility development until the middle of the 1990s. Neither is it possible for us to investigate 'completed' fertility, since the members of the cohorts 1961–1970 were only between the ages 27 to 36 at the date of interview. Nevertheless, the data set does provide a sufficiently long time period after unification to study the timing of first and second births.

As previously mentioned, for our analysis we select only women of the birth cohorts 1961–1970. Other minor selections are the following. We only select respondents who live in private household. Consequently, we omit respondents who live in institutions such as old people's homes or asylums. We do not consider respondents who gave birth to a first child before age 17. Per cohort of women, there are roughly 600 East and 2,500 West German women in our sample (see Appendix).

4.2. METHODS

Our analysis is purely descriptive; the methodological tools used are survival curves and hazard rates. The first part of the analysis deals with the transition to first birth, the second one with the transition to second birth. For the analysis of first births, the process time is the *age of the woman*. For the analysis of second births, the process time is the *spacing of the first and the second birth*. Taking a life course perspective on fertility draws attention to the question of how East and West Germans *time* their first birth and *space* their subsequent births. From this perspective, one might speak of an 'adaptation' to the West German pattern when East Germans have their first child at comparable *ages* as West Germans and when they *space* their subsequent children in a similar manner. Since fertility behaviour in the former GDR and FRG differed substantially, particularly regarding the transition pattern to the first birth, there was a larger proportion of East Germans (of the cohorts 1961–1970) who had already established a family by the year 1990. This means that the East and West German population at risk of childbirth differed at the eve of unification, which we have to take into account in the analysis.

5. Analysis

5.1. FIRST BIRTH

Figure 3 displays the survival curves for the transition to the first birth for the cohorts 1961–1970. Let us first describe the situation for West Germany (dotted line) in order to get an idea of the fertility pattern that the East is expected to converge with. For the birth cohort 1961, the median age at first birth (i.e., the age by which 50 percent of the respondents have become mothers) is roughly 27 in the former Federal Republic of Germany. At age 35, there are still 25 percent who do not yet have any children. Given that there are only a few women who have their first children past age 35, the 'final' percentage of childless women in the 'alte Länder' is 25 percent, which is in line with findings from other studies (see e.g., Dorbritz and Schwarz, 1996). The median age at first birth increases with progressive cohorts. For the 1961 cohort, the median age is 27. For the 1964 cohort, the median age is 28.

In the East, the median age at first birth is about 22 years of age for the birth cohort 1961. Since these cohorts were age 29 at unification, they still display the GDR fertility pattern. Later East German cohorts are substantially postponing first birth, compared to their predecessors. For example, the median age at first birth is age 26 for the cohort 1970, which is four years higher than for the cohort 1961.

A postponement of childbirth to higher ages was largely expected in the course of unification. The intriguing question is whether women in the new federal states are postponing their first birth above West German age levels and whether they remain childless to a larger extent. This question can, however, only partially be addressed using the survival curves. In order to get a more comprehensive picture, we calculate the survival curves for respondents who were still childless at the end of 1990. Furthermore, we estimate the hazard rates for the survival curves displayed in Figure 3.

5.1.1. *First birth after unification*

When comparing the fertility behaviour of East and West Germans (of the cohorts 1961–1970) after unification, it is necessary to consider the fact that childless East Germans are a more highly selected group in 1990. For the birth cohort 1968, for example, 55 percent of the women in the 'neue Länder' are childless in 1990, which is true for 85 percent of their counterparts in the 'alte Länder' (Figure 3, Panel 5). Related to this, one could imagine that the relative proportion of infertile respondents, or respondents with a strong preference to remain childless, is higher in the East German sample. Due to such unobserved characteristics, a *lower* hazard rate for the transition to the first birth for the remaining population would be expected.

However, one finds that the opposite pattern exists. As can be seen in Figure 4 (Panels 4–6), East Germans of the cohorts 1965–1970 are *faster* in having their first child after unification than their West German counterparts.[2] The respective hazard rates, shown in Figure 5, support this view. At unification, there is a strong and size-

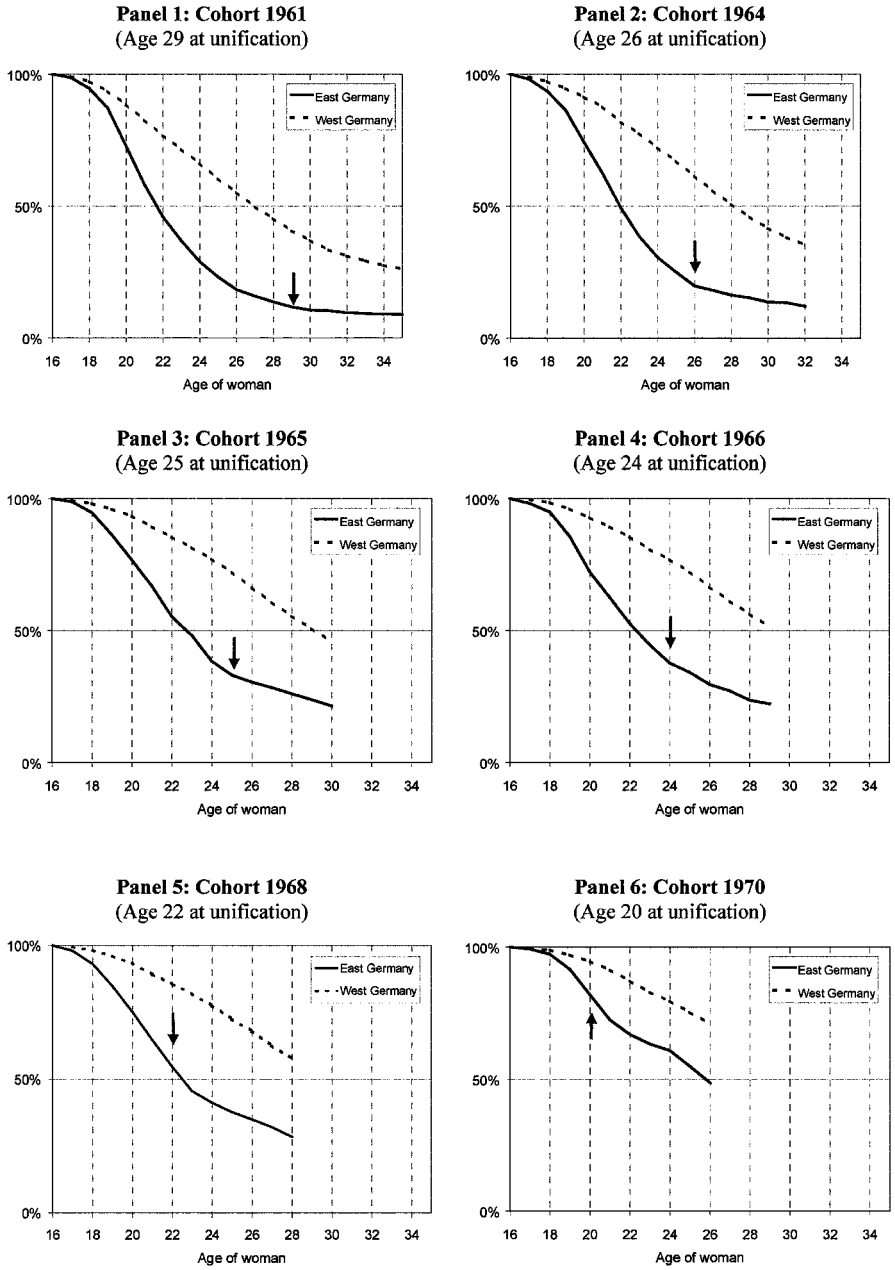

Figure 3. Transition to first birth, survival curves (The arrow indicates the year of unification). Source: German micro-census 1997 (own estimates).

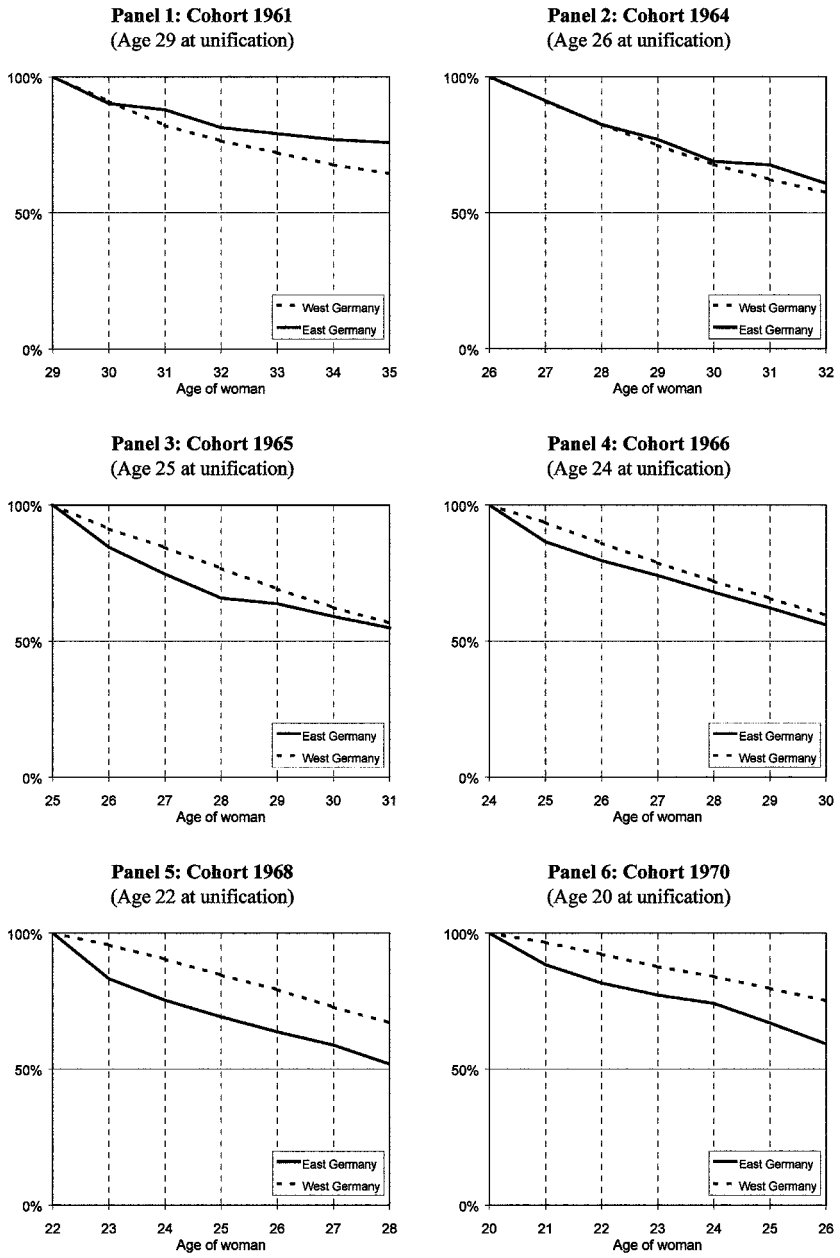

Figure 4. Transition to first birth, survival curves, women who are childless in 1990. Source: German micro-census 1997 (own estimates).

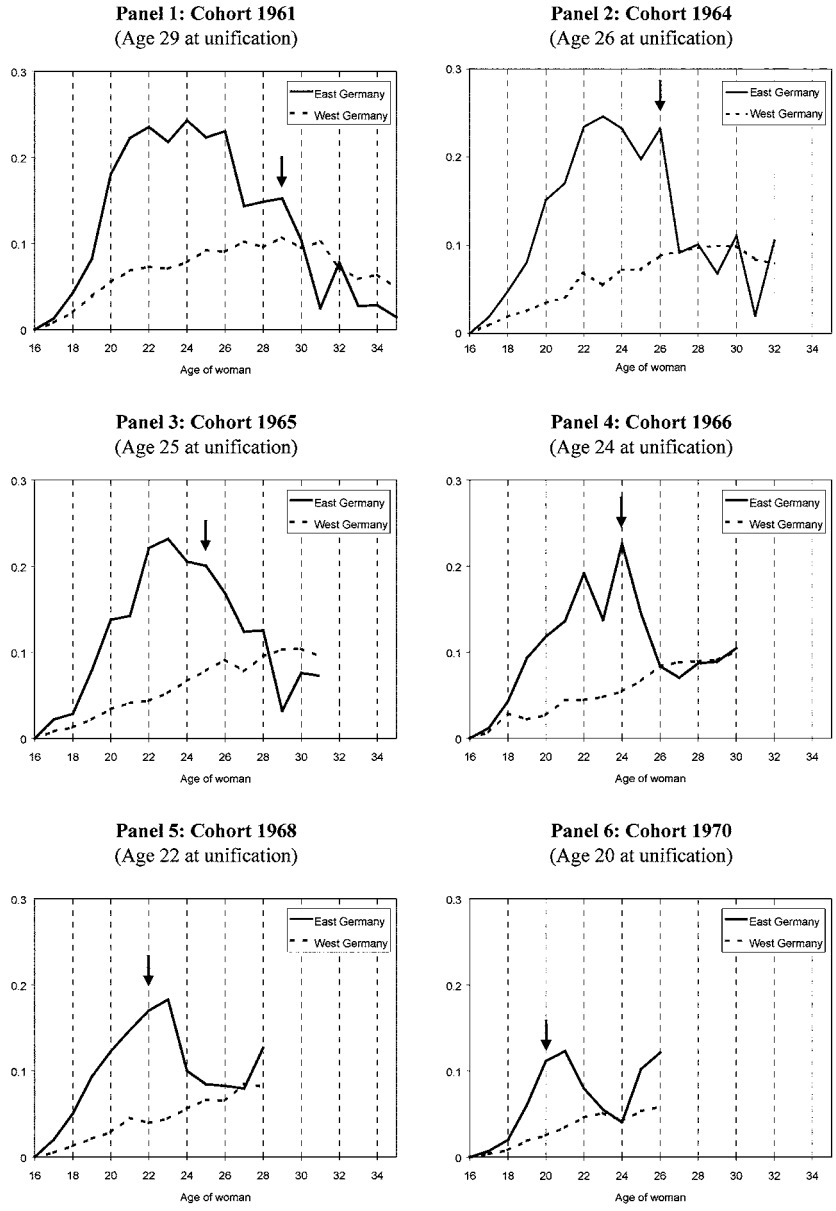

Figure 5. Transition to first birth, hazard rates (The arrow indicates the year of unification). Source: German micro-census 1997 (own estimates).

able 'period effect' of unification in the eastern states. This effect is very striking compared to the GDR fertility pattern. However, if compared to the western pattern, this 'period effect' is less strong. East German first birth risks stay above West German levels even in the immediate years after unification. For example, for the birth cohort 1968, first birth risks are significantly higher at age 23 for women in the 'neue Länder' than in the 'alte Länder'.[3] This is peculiar if one takes into account that children who were born in 1991 were mostly conceived in 1990, i.e., during a time when the social and economic uncertainty was particularly high.

For the cohorts 1961–1964, one observes the expected slower transition rate to the first birth for the women who live in the new federal states. Here, it is necessary to consider that less than 25 percent of the members of the East German cohorts were childless at unification. As briefly mentioned above, the expected percentage of childless women is around 25 percent for West Germany. East German cohorts born in 1964 or earlier had already reached a lower level of childlessness in 1990 (Panel 2 in Figure 3). This means that the percentage of childlessness cannot increase above West German levels for the cohorts born 1964 or earlier, even if those East German women who were childless at unification had completely foregone parenthood in the subsequent years. This, however, is not the case: East German women of the cohorts 1961–1964 continued to have children in the 1990s. At censoring (at the end of the year 1996), the final percentage of childless women is only slightly more than 10 percent, which is close to the levels of childlessness found in the former GDR (see e.g., Dorbritz and Schwarz, 1996).

In sum, for the birth cohorts 1964 and earlier there is no reason to expect that childlessness would increase above West German levels. For the younger cohorts, it is too early to predict a final percentage of childless women. So far, East Germans are, however, more rapid in having their first child than their West German counterparts.

5.2. SECOND BIRTH

We now address the transition pattern to the second birth. Panel 1 in Figure 6 displays the survival curve for the time prior to 1990. Women in the former GDR were slightly less rapid in having their second child than their counterparts in the former FRG. The final progression ratio is, however, fairly the same at 75 percent. Panel 2 in Figure 6 displays the respective hazard rates, which also show the wider spacing of the second child in the East.

Figure 7 displays the second birth pattern for the time after unification. For this part of the analysis, we left-censored the cases in the year 1990. The most glaring aspect of this figure is that second birth risks in the eastern states basically collapse after unification. The hazard rates are far below West German levels. The survival curves suggest that four years after the birth of the first child, there are still 75 percent who do not yet have a second child. Among the West German sample, the comparative figure is only 50 percent.[4] In other words, before unification there

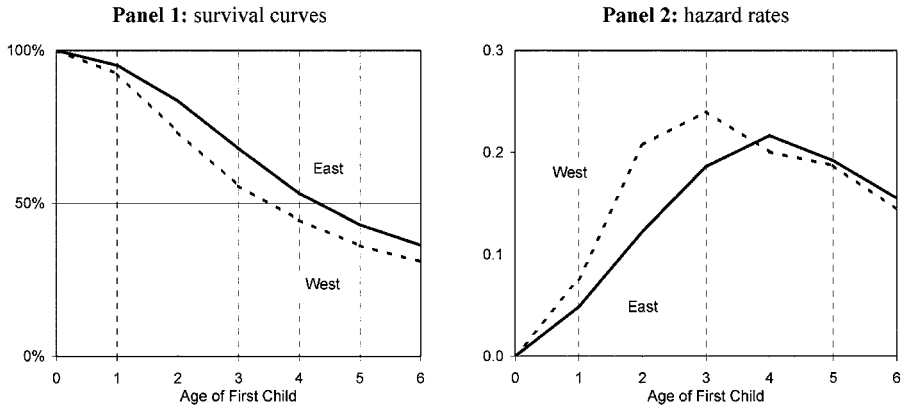

Figure 6. Transition to second birth before unification (right censored 1990).
Source: German micro-census 1997 (own estimates).

had been minor East-West differences in the spacing of the first and the second birth. After unification, the 'spacing behaviour' in the new federal states strongly differs from the one in the old federal states. East German women are exceptionally reluctant to have a second child.

5.2.1. *Transition to the second child by 'first child cohorts'*

In the next step, we display the transition pattern to the second child for 'first child cohorts'. By 'first child cohorts', we mean a group of women who have given birth to their first child in the same year. This procedure allows us to show more clearly how unification affected the spacing pattern.

Let us first describe the spacing pattern of women who had their first child before unification, i.e., who had their first child in the year 1987, 1988 or 1989. Unification basically 'cut' into the fertility careers of these women and we expect a decline in second birth risks following unification. Since women in the former GDR were, however, relatively young at their first birth, there might be a 'recuperation' of second births in the period thereafter. In other words, women who had their first child just before unification should display a very wide spacing between the first and the second birth.

However, this expectation is not completely supported by our analysis. As can be seen from Figures 8 and 9, East German women display an astonishingly low transition rate to the second child. There is a drastic 'period effect' at unification and the hazard rates do not, contrary our expectation, 'recuperate' at a later stage. For example, for the respondents who had their first child in 1989, second births risks are substantially below West German levels in the years 1990–1993 (i.e., when the first child is aged 1–4), but they also remain lower thereafter.

Let us now turn to the second birth pattern of women who had their first child after unification, i.e., in the year 1990, 1991 or 1992. For these women, it is difficult

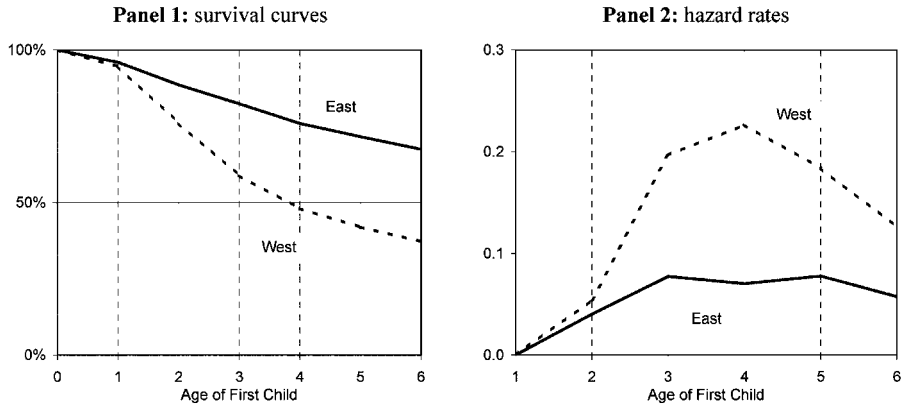

Figure 7. Transition to second birth after unification (left censored 1990).
Source: German micro-census 1997 (own estimates).

to hypothesise what the second birth pattern would look like. On the one hand, they might have been harshly affected by the upheavals of unification, since they had just entered the phase of being at risk of second birth in the early 1990s. On the other hand, they already had their first child in unstable times and might therefore be less reluctant to have a second child then as well. In other words, women who know that they can raise children in stressful times are not deterred from doing it again. As can be seen from Panels 4–6 in Figure 9, there is support for the *first* idea: East Germans who have given birth to their first child in 1990, 1991 or 1992 display a much slower transition rate to the second child than their counterparts in the West.

In sum, East German women are considerably more reluctant to have second children after unification. The cohorts under consideration are still of childbearing age at the date of censoring and therefore one cannot rule out the possibility that there will eventually be a 'recuperation' of second birth risks at the end of the 1990s. This would, however, involve an enormous and unprecedented increase in the spacing of second children.

6. Summary and Conclusions

It has been said that the case of East Germany provides a quasi natural experiment allowing for investigation in to how well and how fast people adjust to new conditions (e.g., Witte and Wagner, 1995, p. 387). The two very contrasting societies of the FRG and the GDR were united within a common institutional framework overnight. This common institutional framework was largely that of the former West Germany. Given that East Germans are now subject to similar institutional constraints, one would expect that East and West German fertility patterns will converge, once the economic situation in the eastern states reaches parity with the one in the western states. In this context, the 'crisis' and the 'adaptation'

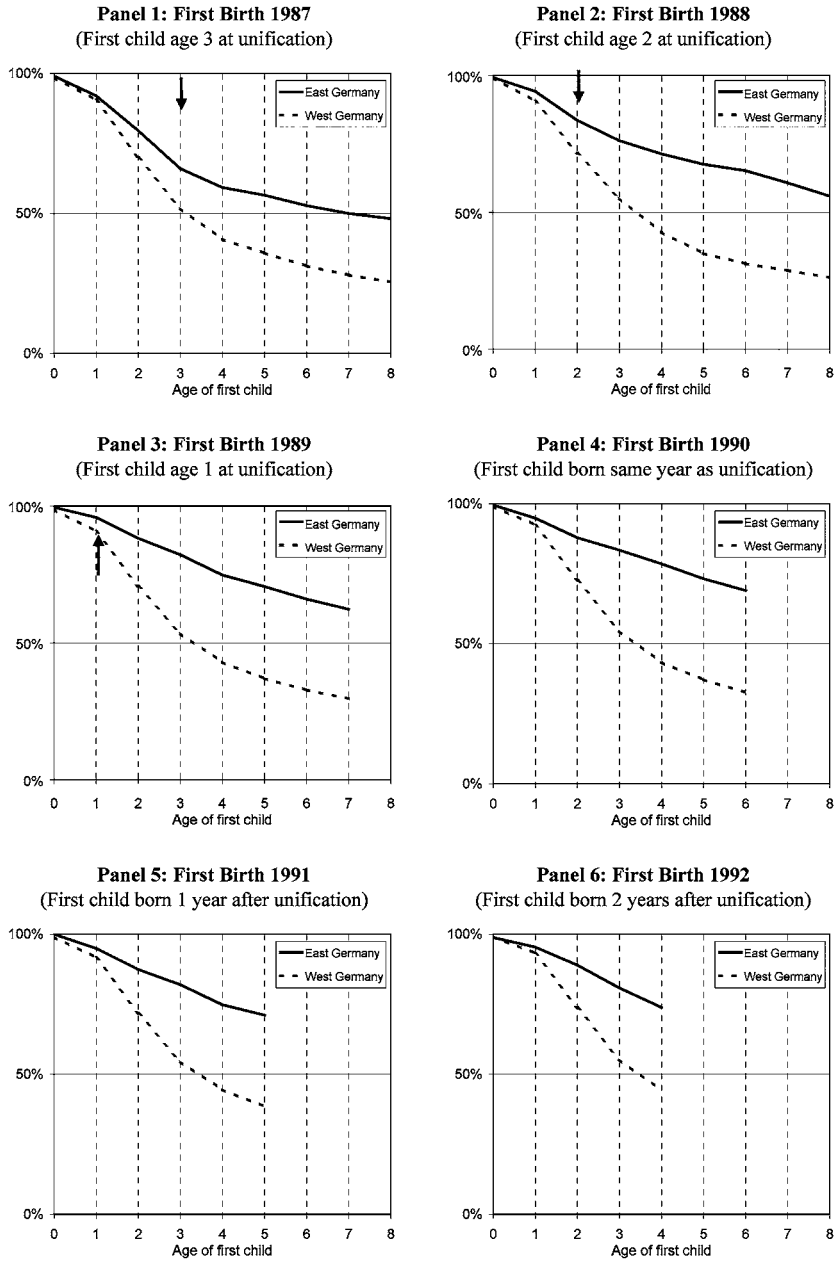

Figure 8. Transition to the second birth by year of first birth, survival curves (The arrow indicates the year of unification).
Source: German micro-census 1997 (own estimates).

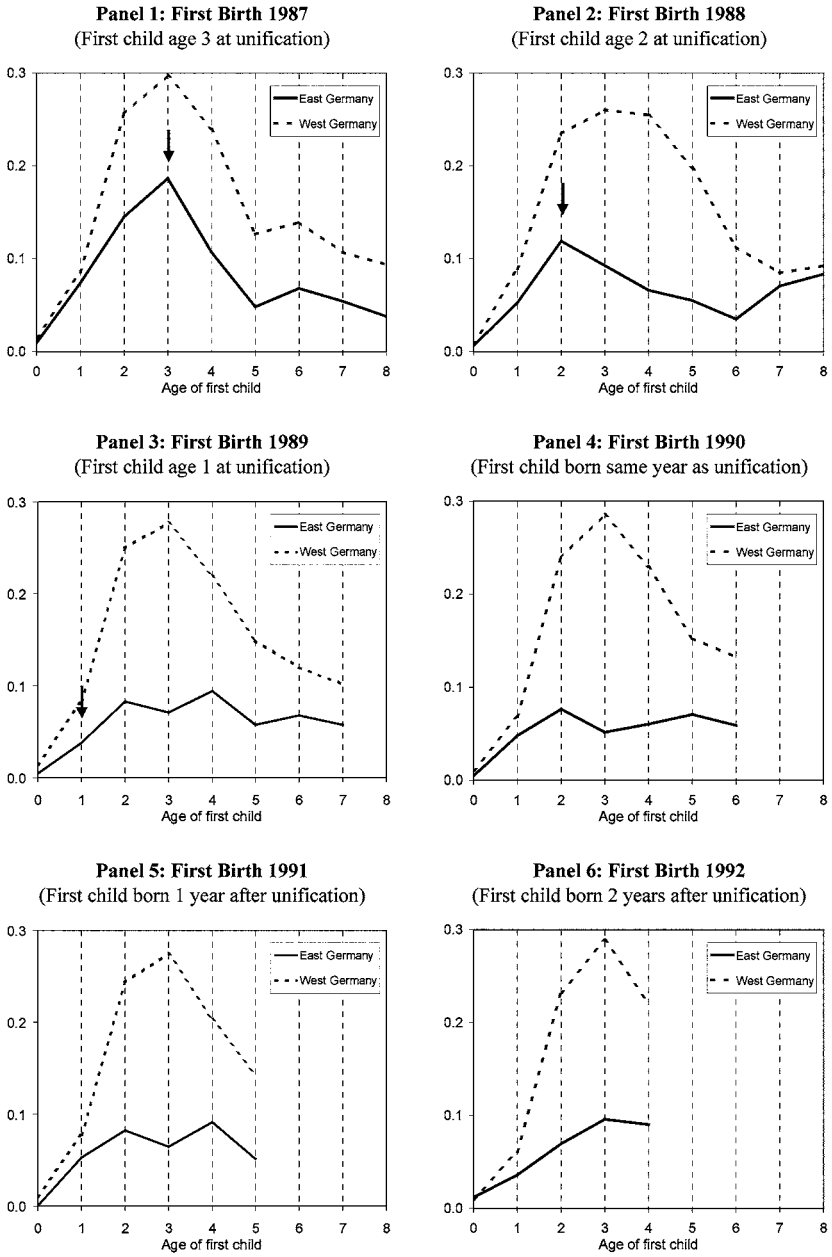

Figure 9. Transition to the second birth by year of first birth, hazard rates (The arrow indicates the year of unification).
Source: German micro-census 1997 (own estimates).

hypotheses have been put forward to explain the fertility development in post-communist East Germany. While the 'crisis hypothesis' suggests that the economic situation in the East will dominate East German behaviour and push fertility below western levels, the 'adaptation hypothesis' more strongly focuses on the similarities in institutional constraints and projects a convergence of East and West German behaviour.

In this paper, we have compared the fertility patterns in East and West Germany for the first six years after unification. We restricted the analysis to this time period because of data limitations (we required parity-specific fertility data, which we gathered from the most recently available micro-census of 1997). In the first part of the paper, we discussed the factors which should, despite the legal and political unification of the former two countries, contribute to persistent East-West differences in behaviour. On the one hand, the economic situation is still lagging behind and could contribute to lower fertility rates. On the other hand, there are aspects, such as a higher availability of public day care and a higher preference for children and family life, which could encourage family formation. The second part of the paper comprised the empirical analysis. The major result of our investigation is that East Germans are still younger at first birth than their counterparts in the West. However, for second births the pattern reverses: East Germans are substantially less likely to have a second child. Of equal importance, the relatively low second birth risks are not restricted to the first few years immediately following unification, but they have also remained low thereafter. This means that there are still important differences in behaviour in the first six years after the 'Wende'. East Germans have postponed parenthood to higher ages, without having reached the very high West German ages. Regarding second births, there is no sign of behaviour converging: East Germans are substantially more reluctant in their transition to the second child.

What implications do our findings have for the idea of a 'crisis' and an 'adaptation' of East to West German fertility? Will there be convergence by the year 2005, as predicted by the German Statistical Office (Statistisches Bundesamt, 2000)?

Our findings suggest that there is no reason to take a general and rapid convergence of behaviour in the old and new federal states for granted. It is another question, though, whether the East German period Total Fertility Rate will reach parity with the West German one by 2005. For 2000, the TFR amounts to 1.4 in the western states and to 1.2 in the eastern states, which suggests that a gradual convergence is taking place. However, a convergence of period fertility indicators does not have to involve a convergence of behaviour. The summary indicator TFR is unsatisfactory for two reasons. Firstly, it does not reveal parity-specific differences. Secondly, it is distorted by the East-West differences in fertility behaviour that existed prior to unification. This means that the TFR is not an ideal measure to use when assessing whether East German fertility is 'crisis-related' or whether it reflects an 'adaptation' to West German behaviour. In addition, the initial fertility decline following the 'Wende' is equally compatible with both concepts. The crisis hypothesis suggests that East Germans postpone, or forego, parenthood in response

to the economic crisis that followed unification, which leads to a drop in period fertility rates. However, the same pattern would have emerged if East Germans had postponed their first birth to the higher West German ages.

Proponents of the 'crisis hypothesis' have compared the East German fertility decline to demographic responses during wars and recession. If one followed this logic, one would expect that fertility would eventually return to previous levels once the crisis is over. However, in the case of East Germany (and presumably also in the case of other formerly socialist countries), there is little reason to believe that the fertility behaviour will ever resemble previous patterns again. Although the TFR might eventually rebound, a completely different fertility pattern in term of the timing of birth will probably appear.

Regarding the 'adaptation hypothesis', it might almost be trivial to project a long-term adjustment process. The intriguing questions are: Which are the factors that make East Germans time and space their births similar as West Germans? How persistent are attitudes and behaviour towards institutional change (Niephaus, 2002)? In the case of East Germany, West Germany is used as an unambiguous and 'westernised' (Conrad et al., 1996, p. 323) reference category. However, West Germany is by no means an uncomplicated and 'normal' comparison group. In terms of childbearing behaviour, the level of childlessness and the age at first birth are among the highest in Europe. If East German fertility converges towards West German levels, it will converge towards a pattern of exceptionally low fertility. In order to understand the process that is guiding the 'adaptation process', one needs to get a clear picture of the factors that are contributing to high ages at childbearing in the East and in the West. Otherwise, the concept of fertility adaptation will remain mute and meaningless (see also Sobotka, 2002).

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Notes

[1] A similar matter applies to educational policies, which are largely a matter of the federal states. In the East, primary school is still slightly shorter. In some East German states, the 'Abitur' (A-level) only requires 12 years of education, while in most West German states 13 years are compulsory (von Below 2002). Furthermore, the percentage of college graduates is slightly lower, which can partially be explained by the lower density of universities and a smaller fraction of East Germans taking the 'Abitur'.

[2] The same applies to the cohorts 1967 and 1969, which are not displayed here.

[3] They are significantly different at the 95-percent level. For improved readability of the graphs, we did, however, not display the confidence intervals.

[4] The descriptive analysis might involve some bias, since we do not control for the age at first birth. For example, in Figure 6 we analyse the transition to the second birth before 1990. Since we are only

dealing with the birth cohorts 1961–1970, we automatically include women who had their first child before age 30. The sample therefore comprises women who, by West German standards, had a first child relatively early in life and who might differ in their spacing behaviour from those who have their first child at older ages (for a multivariate analysis, see Kreyenfeld, 2001).

Appendix

Sample size scientific-use file of the German micro-census, only women of the birth cohorts 1961–1970 who live in private households

Cohort	West Germany			East Germany		
	Respondents	First births	Second births	Respondents	First births	Second births
1961	3261	2424	1685	776	708	453
1962	3196	2252	1510	771	684	436
1963	3478	2425	1620	799	696	415
1964	3330	2178	1322	747	659	363
1965	3395	2095	1192	689	585	289
1966	3309	1837	948	676	536	228
1967	3142	1588	800	589	458	211
1968	3183	1399	625	601	439	166
1969	2982	1193	507	578	360	127
1970	2688	833	327	558	296	78

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