Employment and Fertility - East Germany in the 1990s

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List of Content

Part I
Theoretical Considerations

Part II
Empirical Investigations

Chapter 4

Chapter 5

Chapter 6

List of Tables

List of Figures

Abbreviations

ASFR	Age Specific Fertility Rate
ALLBUS	Allgemeine Bevölkerungsumfrage der Sozialwissenschaften (German General Social Survey)
BiB	Bundesinstitut für Bevölkerungsforschung (Federal Institute for Population Research)
BMA	Bundesministerium für Arbeit und Sozialordnung (Ministery for Employment and Social Affairs)
BMBF	Bundesministerium für Bildung und Forschung (Ministery for Education and Research)
BMFSFJ	Bundesministerium für Familie, Senioren, Frauen und Jugend (Ministery for Elderly, Women and Youth)
DIW	Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Research)
DM	German Mark
FFS	Family and Fertility Survey
FRG	Federal Republic of Germany
GDR	German Democratic Republic
GDP	Gross Domestic Product
IAB	Institut für Arbeitsmarkt- und Berufsforschung (Institute for Employment Research)
n. a.	not available
PPR	Parity Progression Ratio
SOEP	(German) Socio-Economic Panel
TFR	Total Fertility Rate

PART I

Theoretical Considerations

Chapter 1

Introduction

After the fall of the Berlin Wall in November 1989, East Germany underwent a thorough restructuring of its economy. Already in March 1990, the Treuhand-Anstalt was founded in order to privatize the East German economy, which had so far been dominated by state-owned plants ("Kombinate"). In July, the Monetary Union with West Germany followed. In October 1990, the legal and political Unification of the two Germanies was ratified, which basically meant that the East German institutional framework was replaced by the West German one.

Compared to other formerly state socialist countries, East Germany has experienced the most rapid and radical transformation from a centrally planned to a market economy. On the one hand, the reconstruction of the East German economy was supported by massive transfer payments from the West (Brücker 1997; Schrettel 1992). By the middle of the 1990s, the transformation of the East German economy was basically complete, i.e. most formerly state-owned enterprises were privatized and wages only lagged slightly behind West German levels. On the other hand, the rapid transformation process was accompanied by an immediate collapse of production, massive closures of firms and dismissals of workers. The Gross Domestic Product (GDP) plunged from 325 billion DM in 1989 to 206 billion DM in 1991, which is a reduction of almost 40 percent. The number of regularly employed persons declined from 9.7 million in 1989 to 5.3 million in 1992 (Brücker 1997: 125; Lange/ Pugh 1998; Schwarze/ Wagner 2001).

Almost simultaneously with German Unification and the worsening of the economic situation, fertility rates dropped to unprecedented low levels. Although other Eastern European countries also experienced a rapid fertility decline after the dissolution of communism, East Germany's birth rates responded most severely to the change of political and economic regimes (Frejka/ Calot 2001a; Kučera et al. 2000). While there were still 180,000 births in 1990, there were only 110,000 a year later, which is a reduction of almost forty percent in the number of births within the period of one single year.

The simultaneous exacerbation of the economic situation and the change of demographic indictors induced social scientists to speculate about an inherent relationship between the labor market and the fertility crisis (e.g., Eberstadt 1994; Ranjan 1999: 27; Witte/ Wagner 1995). The hypothesis that is possibly discussed most often in this context is the idea of a "crisis phenomenon." Eberstadt (1994: 150) views the East German fertility decline as a demographic shock. He agues that fertility rates in East Germany "register a profound and broadly felt lack of confidence in the economic future." As indicators of economic insecurity Eberstadt (1994: 151) names low productivity, retraining measures, job creation programs and unemployment rates, which "engender insecurity and stress" among East Germans. In a similar fashion, Fleischhacker (1994: 43) describes the fertility decline after Unification as a result of a severe economic crisis comparable to the post-war periods. Witte and Wagner (1995: 395) do not explicitly talk about a shock experience, but they still believe that economic uncertainty and high unemployment keep East Germany's birth rates below West German levels. In the same vein, Ranjan (1999: 27) argues that it seems natural to suspect a relationship between the "sharp increase in economic insecurity" and the drop in fertility and Conrad, Lechner and Werner (1996: 333ff.) argue that East Germans "freeze" their fertility behavior in response to an uncertain economic environment.

Although there is a general consensus that in the short run, East Germans are undergoing a "fertility and labor market crisis", there is some dispute about the future course of fertility behavior in the East. In this context, it makes sense to contrast a "crisis" and an "adaptation hypothesis" (see also Mau 1994: 208f.; Mau/ Zapf 1998: 2; Richter 1993; Schaich 1998). While advocates of the crisis hypothesis project persisting

low birth rates in the East, supporters of the "adaptation scenario" expect a convergence of East and West German fertility levels. Witte and Wagner (1995: 395) are among the authors who favor the crisis scenario. They argue that "there is no reason to expect the total fertility rate in the East to rebound to the level found in the West." Unfavorable labor market constraints (e.g., high unemployment rates) will keep East Germany's fertility rate below West German levels for the foreseeable future. Conrad, Lechner and Werner (1996: 333ff.) are more optimistic in this respect. They argue that economic constraints in the East and West are converging; therefore fertility behavior will eventually (in the "medium term") converge as well.

The East German Fertility Decline: A Crisis Indeed?

Against the background of the "crisis versus adaptation hypothesis", one could classify East German fertility as *crisis*-related as long as East German birth rates lag behind. If they reach parity with the West, they have overcome the crisis and one could talk of an *adaptation* to West German behavioral patterns. Although this view on East German fertility has been very pervasive, it poses a variety of unresolved issues. This partially pertains to the ambiguities of the West German reference group (see below) and problems regarding the limitedness of common demographic indicators.

Particularly advocates of the "crisis hypothesis" have taken the drop in annual birth rates as an unmistakable sign of an East German fertility crisis (Eberstadt 1994: 150; Witte/ Wagner 1995: 388). However, period fertility indicators (such as the annual number of births or the TFR) can be very misleading in this context. A decline in period fertility rates might be related to a decline in lifetime fertility, but it might just as well be related to a postponement of motherhood. This aspect is of particular importance in the East German case. Compared to other European countries, the mean age of women at childbirth was relatively low in East Germany. In 1989, the mean age at childbirth was 24.7 (BiB 1999a). On the other hand, West Germany displays a rather high age at childbirth in cross-national comparison. In 1989, the mean age at childbirth in West Germany was 28.3 (Statistisches Bundesamt 1999a). The considerable difference in the age at childbirth between East and West Germans is crucial in understanding the "East

German fertility decline". Even if East Germans temporarily gave up on childbearing during the upheavals of Unification, they were still young enough to easily postpone childbearing to a later phase in their lives without reaching the biological limits of fertility or West German age levels. In other words, what looks like a fertility crisis from the point of period fertility indicators, might, from the cohort perspective be a simple postponement of childbirth to West German age levels. With suitable cohort and parity-specific fertility indicators such issues can be addressed (see Chapter 5).

However, the intriguing question is whether it is particularly sensible in the first place to measure a fertility crisis by the East-West differences in behavior and, vice versa, to talk of an adaptation when the East reaches parity with the West. At first glance, West Germany might appear as an uncomplicated comparison group. On closer examination, however, it turns out to be a substantially more troublesome one.

West Germany: A Sensible Benchmark?

Witte and Wagner (1995: 387) term East Germany as an ideal "natural experiment" to investigate the impact of the "economic transformation" on fertility behavior. In contrast to other Eastern European countries, East Germany can be directly compared to West Germany, which is subject to the same legal and political institutions. Distinct from West Germany, East Germany had been undergoing severe economic upheavals during the immediate years after Unification.

Although the legal and political system is indeed very similar in both parts of the country, there are still important differences which have persisted throughout the 1990s. In the West, there is, for example, a relatively larger proportion of foreigners who usually have a higher fertility rate than the average population (BMFSFJ 2000: 103; Schwarz 1996). In the East, the ratio of college graduates is much lower and college education is, in general, negatively correlated with fertility. In other words, apart from differences in economic uncertainty, there are *structural* differences, which could entail East-West differences in fertility behavior. Furthermore, there are some persisting differences in the *institutional constraints*. There are differences, for example, in the provision rate of public daycare and the structure of the educational system. 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. The East German states ("neue Bundesländer"), which are in charge of educational policy in Germany, only consecutively increased the duration of high school education after Unification. The state of Sachsen, Sachsen-Anhalt and Thüringen still require only 12 years for "Abitur". In Brandenburg it was increased to 13 years in 1994 and then in Mecklenburg-Vorpommern in 2000 (Arbeitsgruppe Bildungsbericht 1994: 772; von Below 2000: 202).[1]

Some authors also noted that there are persisting differences in the *preferences* for children and family-life (Beck-Gernsheim 1997: 63; Dennis 1999: 88; Richter 1993: 2; Störtzbach 1994: 160). East Germans were subject to a repressive government for almost half a century, which they responded to by seeking fulfillment in private life (Frerich/ Frey 1993: 392; Mau 1994: 199; Wendt 1991: 266). Additionally, a family-centered life was supported by East German family policy, which strongly encouraged couples to have children early on in life. Although the political set-up changed with German Unification, as a "holdover" of former behavioral patterns, East Germans still consider children and family life as a more essential part of their life courses (e.g., Beck-Gernsheim 1997: 63; Richter 1993: 24). A higher provision rate of public daycare, a shorter duration of education and a higher preference for children might very well contribute to an earlier family formation in the East, even though unfavorable economic parameters will work in the opposite direction.

West Germany: The Image of a "Modern" Fertility Pattern?

In the discussion of a "crisis" or "adaptation" in East German fertility, the West German fertility pattern has gathered the status of a "normal", "stable" and "secure" reference group. Obviously, it is an oversimplification to consider West Germany as a fixed

1 One might additionally name differences in the college enrollment rate. The Ministry for Education and Research (BMBF 2000a: 140) reports that for the year 1994 only 23.5 percent of East Germans aged 18-22 were enrolled in college education while this applied to 33.1 percent in the West German comparison group. How these differences relate to a lower density of universities in the East and/ or a high East-to-West migration of students is not answered in this context.

"target". Neither does it appear particularly sensible to set up a *dichotomy* of a "crisis-related behavior" in the East and a "non-crisis related" one in the West. There is substantial unemployment and economic uncertainty in the West, while there are some East Germans who have successfully settled into stable employment situations.

Moreover, the term "adaptation to West German fertility behavior" might have been a rather unfortunate choice of words in the first place. It too easily triggers the association that West German fertility behavior is more "normal" or "advanced" than the East German one and, along with its devastating economic situation, East Germany is still lagging behind and has not reached "modern" West German standards. This view has been reinforced by several researchers who use the term "adaptation" in the same context as "modernization" or "westernization" (Conrad/ Lechner/ Werner 1996: 322f.; Mau 1994: 208). Conrad, Lechner and Werner (1996: 332) phrase this issue in a rather misleading way when they argue that "East German couples will rapidly 'Westernize' their family size by trying to match completed fertility levels of the corresponding West German cohort". Apart from the fact that basically all East German birth cohorts had a larger family size at German Unification (and could therefore not lag behind), there is little reason to consider the West German fertility pattern as an image of "modern" family formation.[2]

2 There are several researchers who have discussed the Eastern European fertility decline within the concept of a second demographic transition (Coleman 1993: 523; Zakharov 2000: 308). The hypothesis of a *second demographic transition in Eastern Europe* basically relies on the idea that the repressive communist governments had put a halt to changes of values towards individualism and modernity, which, in Western Europe, had contributed to a steady decline in birth rates in the 1960s (Coleman 1993: 523; Kharkova/ Andreev 2000: 212). With the breakdown of communism, Eastern European countries are catching up on the second demographic transition and they have "entered the period of long-term fundamental changes which started in the West 20-30 years earlier" (Zakharov 2000: 308). Apart from the often stated criticism that the "second demographic transition theory" is no *theory* at all (see e.g., Cliquet 1991; Kuijsten/ Strohmeier 1997: 2), I question the idea that family formation patterns were particularly "backwards" in the GDR. Childlessness and age at first birth were relatively low, but, on the one hand, female employment, non-marital childbearing and divorce rates were at a very high level. In other words, some standard "second demographic transition indicators" suggest that the former East Germany has not yet experienced a "second demographic transition", other indicators put East Germany "in the lead". Related to this, this line of thought relies on the hypothesis that strong government intervention in Eastern Europe hampered a "second demographic transition". If one assumes that the recent fertility decline in Eastern Europe is just part of a modernization process, one basically ignores the important role that the government can play in shaping constraints related to fertility decisions.

Particularly with regard to female employment, cohabitation and nuptiality, East German family formation patterns are more in line with the general trend in the rest of Europe than the West German patterns are (Konietzka/ Kreyenfeld 2001a). Moreover, it requires further explanation if one cites a high level of childlessness and a high age at first birth (which is the typical West German fertility pattern) as being an unmistakable and inevitable sign of a modern society.

How Sensible is an East-East Comparison?

Given that West Germany is ultimately not such an uncomplicated reference group, one could, as has been done with other former socialist state countries, compare fertility behavior *before* and *after* the dissolution of communism (e.g., Avdeev/ Monnier 1995: 34; Kharkova/ Andreev 2000). In other words, one could use GDR-family formation patterns as a benchmark to compare East German behavior after Unification.

Several authors have referred to GDR family policies and fertility patterns in order to better understand East German fertility behavior in the 1990s. E.g., Conrad, Lechner and Werner (1996: 342) review family policies in the GDR to illustrate that the previous regime set much higher economic incentives to have children than the current one. They finally argue that the "sudden change of rules in 1990 entailing the loss of financial benefits associated with motherhood, together with a loss of job security, must have an objective effect on the fertility preferences of young East German women." In the same vein, Chesnais (1996: 736) argues that the "demise of that system, characterized by high female labor force participation rates, extensive coverage of family allowances, wide availability of nurseries and daycare facilities at the workplace, and special allowances for single mothers, is probably one of the main factors explaining an extraordinary fall in fertility."

This line of argumentation implies that East Germans have been pushed into an "institutional vacuum" since Unification, where no family policies are available to them. Although there has been a sizeable cutback in family policies compared to pre-unification times, there are very specific institutional constraints and family policies which East Germans are subject to in the 1990s. Furthermore, it remains unclear how

GDR policies impinge on the fertility patterns of the 1990s. Although one could argue that there is a holdover of GDR-behavioral patterns,[3] there is little reason to believe that East Germans still respond to family policies which no longer exist. The former socialist family policies set high incentives that fostered early family formation. With the curtailing of family policies and the drastic change of labor institutions, one would expect a drastic change in fertility behavior. However, even a drastic change does not necessarily constitute a fertility crisis. In other words, an East-East comparison gives some idea of how the transformation from a centrally planned economy to a market economy has affected fertility decisions, but it is not very helpful in identifying a "crisis-related" fertility behavior.

Aim and Structure of this Study

All in all, an East-West or an East-East comparison of fertility is important to "assess the phenomenon", i.e. to get a general idea of the fertility patterns of East Germans after Unification. However, in order to show how employment and fertility is interrelated, a *micro-level analysis* is imperative. The primary aim of this study is to perform such an analysis, i.e. to theoretically and empirically investigate how male and female employment is related to fertility decisions in East Germany in the 1990s. This study basically consists of two broad parts. The first one contains the theoretical framework (Chapters 2-3), and the second one, the empirical investigations (Chapters 4-7).

In the first step, I discuss the labor market institutions and family policies in West and East Germany before and after Unification **(Chapter 2)**. I then develop the theoretical framework, which links employment and fertility decisions **(Chapter 3)**. A key hypothesis derived from standard economic reasoning is that women's economic situation negatively affects fertility decisions, while men's economic situation has a positive impact on fertility. I argue, however, that this line of reasoning relies on

3 It is nevertheless important to be aware of family policies and labor market constraints that governed family formation before Unification. These institutional constraints could have long lasting effects on the employment careers of East German men and women and they could also have enduring effects on attitudes towards family formation or employment (Beck-Gernsheim 1997: 63; Dennis 1999: 88; Niephaus 2001; Richter 1993: 2; Störtzbach 1994: 160).

relatively strong assumptions regarding the persistence of traditional gender roles and the incompatibility of childrearing and employment. The East German case after Unification is of particular interest in this context since it provides an almost ambiguous incentive structure for the participation of women in the labor market. On the one hand, a tax and transfer system heavily subsidizes the non-employment of married women. Furthermore, East German women are subject to a relatively tight labor market situation, which encourages them to withdraw from the labor market. On the other hand, they are subject to relatively favorable constraints reconciling childrearing and employment due to a wider availability of public daycare.

The way in which women's employment affects fertility decisions strongly depends on the weight one assigns to the role of public daycare, the labor market crisis and the employment preferences of East German women. East German women might have withdrawn from the labor market, discouraged by their bleak employment prospects. If this is the case, the stable and secure employment situation of the male partner should be the most decisive factor influencing fertility. If one assumes, however, that East German women have kept a high labor market orientation and are striving for "economic independence", the woman's employment situation plays an important role in fertility. Fertility decisions, then, do not only require a high compatibility of childrearing and employment, but also a stable and secure employment situation for the woman. On the other hand, if a woman is employed and is therefore contributing to the household income, her labor force participation could compensate for the insecure employment situation of the male partner. Men's employment might therefore be less decisive for East German fertility than widely believed.

Chapters 4 to 7 contain the empirical analysis. The first two empirical chapters contain the description of fertility patterns before and after Unification. The analysis of the two former East and West German "fertility regimes" reveal substantial differences in age at first birth, the ratio of childlessness and progression to the second and third child **(Chapter 4)**. It is important to understand the differences in fertility patterns that existed prior to Unification since they contribute to substantial East-West differences in the population at risk of first, second and third birth at the eve of Unification. In order to assess whether East and West Germans timed their first, and spaced their subsequent

children in a similar manner in the 1990s, it is imperative to use cohort data which distinguish between births of different parities (**Chapter 5**).

In the two subsequent chapters, I investigate the role of female and male employment in the transition to the first (**Chapter 6**) and second child (**Chapter 7**). Along the lines of the hypotheses sketched in Chapter 3, I address questions such as: Did female and/or male unemployment contribute to a postponement of first birth to older ages? How do unstable employment situations and low East German wages affect the transition rate to the first child? Which role does the relatively high provision rate of children's daycare play in the East? Does it allow women to combine childrearing and employment more easily and ultimately foster fertility?

Chapter 8 summarizes major empirical findings and contains the concluding remarks.

Data and Definitions

In the empirical analysis, I use various data sources. In some parts of the analysis, I draw on aggregate vital statistics from the GDR and contemporary East and West Germany. In order to investigate selected issues, I employ the public use file of the German micro-census from the year 1997 and the Family and Fertility Survey from the year 1992. However, the bulk of the empirical analysis is based on data from the German Socio-Economic Panel (SOEP). I predominantly analyze cohorts born between 1961 and 1980. The last date of interview is the year 1999. Respectively, respondents are aged 10 to 29 at Unification, and they are between the ages of 19 and 38 at the time of censoring.

In this study, the term "East Germany" refers to the territories of the former German Democratic Republic (GDR); "West Germany" refers, respectively, to the territories of the former Federal Republic of Germany (FRG). An "East German" is a person living (at the time of interview) in the eastern states, a "West German" in the western states. In some parts of the analysis (see Chapter 6), I make a more refined distinction between East Germans who permanently lived in the East and those who migrated to the western part of Germany.

Chapter 2

Labor Markets and Family Policies in the GDR and FRG

This chapter gives an overview of relevant family policies and labor market institutions before and after Unification in East Germany. Under the GDR regime, an array of family policies promoted fertility decisions. The incompatibilities of childrearing and employment were solved, to a large extent, by the public provision of daycare. Furthermore the institutional set-up of the East German labor market made it easy for the individual actor to assess his or her future employment career. With German Unification, family policies and labor market constraints changed radically. East Germans did not only lose the predictability of their employment careers which they had been used to from former GDR times, they were additionally at a much greater risk of experiencing unemployment and labor market downward mobility than their West German counterparts. In Part 2.1 of this chapter, I discuss the characteristics of labor market institutions and family policies in the former East Germany. In Part 2.2, I examine the institutional constraints after Unification. The major focus of this part is on the East German labor market crisis.

2.1 Institutional Constraints in East Germany before Unification

2.1.1 Labor Market Institutions

It is often argued that there is no real dichotomy between a "free market system" on the one hand, and a centrally planned economy on the other (Szydlik 1993: 42; Widmaier 1988). Government intervention is prevalent in any society and there is also room for free choice in a centrally planned economy. Nevertheless, it is indisputable that in the centrally planned economy of the former East Germany, government intervention was rather encompassing. The production of goods and services was largely governed by the 'plan'. Firms were mostly publicly owned, and wages and prices were basically centrally set. One of the most important characteristics of the socialist system was its high degree of *social securit*y, provided by an encompassing health care system, highly subsidized housing, public education, etc. (Frerich/ Frey 1993: 171; Schmähl 1992: 41; Vortmann 1988). Furthermore, it guaranteed stable and predictable employment careers through a constitutional "right to work".

Article 24 of the former East German constitution guaranteed all East Germans the right to be employed.[4] Until the 1980s, this *constitutional right to work* could be easily guaranteed by the East German government, which was confronted with a constant shortage of laborers. In the 1980s, the situation slightly changed when the East German government proclaimed a "rationalization" policy. Compared to what is usually understood by "rationalization" in capitalist societies, the "socialist rationalization" did, however, not entail any unemployment. In principle, workers could be re-allocated against their will if this could be justified on the basis of public interest. In practice, the "socialist rationalization" was, however, solely a modest re-allocating of workers

4 In 1961, this constitutional "right to work" was basically replaced by the "right and the duty" to proceed to gainful employment. In principle, the East German government did not undertake any legal action against people who did not work. However, a strong moral pressure to work and the lack of institutions giving support to non-workers, such as social benefits or unemployment insurance, drew individuals into the labor market. Unemployment insurance was abolished in 1978 and social security benefits were basically reserved for invalids in the GDR (Frerich/ Frey 1993: 175).

between firms and it only rarely happened that workers were "re-allocated" against their will. Throughout the existence of the GDR, a statuary "right to work" and a "status adequate job placement" remained a central device of the East German government to prove its superiority over the West German system (Frerich/ Frey 1993: 173f.; Solga/ Konietzka 1999: 29).

Apart from the constitutional right to work, which insured workers against unemployment, there was not a high risk (or chance) of experiencing a *change of jobs* in the GDR. From the point of view of the East German government, a change of job was a cost-intensive staff-turnover (Frerich/ Frey 1993: 181; Winkler 1987: 159; Wingens 1999: 263). The allocation of workers to jobs was strongly regulated by local employment offices ("Abteilungen für Arbeit"). Firms were only allowed to hire workers in agreement with these institutions. In addition, they were severely restricted in advertising vacant positions and they were forbidden to entice workers away from other firms. Against this background, several researchers argue that internal labor markets were the dominant allocation mechanisms in the employment system of the GDR (Grünert/ Lutz 1994: 421; Grünert/ Karl 1997; Lutz 1997).

Before leaving primary school, students were, in general, expected to have arranged a vocational training position. The constitution of the GDR guaranteed, in principle, "free choice of occupation". However, the need of the centrally planned economy "to match labor supply and skill demand", made it necessary to strongly impinge on the choice of occupation through local career counseling services ("Berufsberatungen") (Frerich/ Frey 1993: 203f.; Zühlke 2000: 50ff.). Similar to other state socialist countries, access to college education was highly restricted, and per cohort of school leavers, only about 12 percent were allowed to proceed to college education (Huinink/ Mayer/ Trappe 1995). Based on vocational training and college certificates, workers were channeled into their

first positions in a firm (or rather plant), internal career ladders offered some upward mobility and there was also some performance-related pay.[5]

In sum, the East German government guaranteed secure and predictable employment paths through a policy that proclaimed "status-adequate job placement" and a statutory "right to work". There was little fear of losing or changing ones job and of experiencing a drop in earnings or status in the labor market. Additionally, an array of family policies relieved the costs associated with raising children and fostered the compatibility of childrearing and employment. I discuss these aspects in more detail in the following section.

2.1.2 Transfers & In-Kind Benefits

One can subdivide East German social policies into different eras, according to the dominant public policy goals (Obertreis 1986: 2f.; Trappe 1995: 36f.). For fertility decisions, the most significant section was the period before and after the implementation of pro-natalistic policies. In contrast to West Germany, which never openly favored pro-natalistic policies, the population policy in East Germany was launched as one of the most vital public policy goals in the 1970s (Speigner 1989: 2). These pro-natalistic policies included transfer payments and in-kind benefits that relieved the costs associated with raising children. Furthermore, these policies were particularly designed to facilitate the compatibility of female employment and raising children. Although both measures are usually summarized by the term "family policies", I discuss the two kinds of policy measures separately. In the following, I focus on the policies which relieve the costs associated with raising children.

5 In general wages were centrally set, i.e. workers were classified into different wage groups according to the requirements of the job, which in turn strongly related to their vocational and educational qualifications. Apart from the basic wage, which made up about 70 to 80 percent of the total wage, firms were allowed to pay extra bonuses to their workers (Frerich/ Frey 1993: 133f.; Szydlik 1993: 46). These extra bonuses could be granted for over-time, shift work, out-standing work performance, etc. Nevertheless, in comparison to the West German wage structure, there were substantially fewer incentives to perform better on the job in order to achieve upward mobility in terms of income (Bird/ Schwarze/ Wagner 1994: 391; Frick et al. 1995: 85; Krueger/ Pischke 1995: 412).

Table 1 summarizes major family policies in the former GDR. Child benefits were already introduced in the 1950s. Initially, they were only targeted towards larger families. In the 1970s, they were extended to all families. However, they were still granted on a rising scale, i.e. larger families received relatively higher support. A similar case applies to the "birth grant", which was also introduced in the 1950s and initially only granted for higher order births. From 1972, all mothers were given a cash benefit of 1,000 Marks on the birth of each child, provided they had taken part in medical check-ups during pregnancy and shortly after childbirth (Gysi/ Speigner 1983: 63). The most important monetary incentive was presumably the so-called "home furnishing loan".[6] Couples who got married early were given interest-free loans of 5,000 Marks, i.e. credits that were intended to help in acquiring furniture and household appliances (Cromm 1998: 477). Upon having children, a portion of this loan was paid off. That is 1,000 Marks of the repayments were cancelled out on the birth of a first child, another 1,500 Marks were cancelled out with a second child and another 2,500 Marks when a third child was born.

How did these cash transfers operate? Did they relieve the costs of children in the GDR? In 1972, the monthly gross income of a worker amounted to about 800 Marks. In reference to this wage level, cash transfers such as the birth grant of 1,000 Marks or the interest-free loan of 5,000 Marks had a sizeable impact on the household income (Statistisches Amt der DDR 1990: 52). Although the monetary transfers should have relieved the costs of children, one must place them in the context of a centrally planned economy. Obviously, monetary transfers have a different significance in a command and in a market economy. Opportunities for consumption were severely restricted in the GDR and monetary resources were less crucial to a family's standard of living (Brücker 1997: 122f.). A minimal standard of living was guaranteed by an encompassing provision of social infrastructure and the heavily subsidized housing and food "market" (Cromm 1998: 486ff.; Frick et al. 1995: 83; Schmähl 1992: 35). Public schooling, public daycare, public health care, public transportation and public holiday camps

6 Tax-deductions for children played a minor role in East Germany. In 1983, the average pay roll tax amounted to only eight percent (Cromm 1998: 484). In other words, monetary transfers in the GDR were, in the first place, direct cash transfers.

automatically reduced the costs associated with raising children. In this context, the East German housing policy also played a key role. In the GDR, the allocation of housing space was heavily regulated and in order to acquire one's own apartment or to change apartments, one had to officially apply to the local municipalities ("Referate für Wohnungswesen") (Frerich/ Frey 1993: 427f.; Winkler 1987: 432f.). Particularly before the 1980s, when there was a substantial housing shortage in the GDR, getting married was one means of receiving priority access to one's own flat early on in life. Having more than two children gave priority access to a bigger flat (Cromm 1998: 494). Huinink (1995b: 12) argues that the East German housing policy did not only relieve the costs of children, but it also made marriage and having more than two children a means of getting access to otherwise restricted housing space.

Table 1: Family Policies in the GDR

	1950s	**1960s**	**1970s**	**1980s**
Interest-Free Loan*) (in Mark of the GDR)			**1972** 5000 for couples who got married before age 26. Repayments were partly cancelled out on the birth of a child: 1st birth: 1000 2nd birth: 1500 3rd birth: 2500	**1980s** Increase in the age limit to 30 years of age **1986** Increase of loans to 7000
Birth Grant*) (in Mark of the GDR)	**1950** 100 for 3rd child 250 for 4th child 500 for 5th+ child **1958** 500 for 1st child 600 for 2nd child 700 for 3rd child 850 for 4th child 1000 for 5th+ child		**1972** 1000 on the birth of a child	
Child Benefits)** (in Mark of the GDR)	**1950** 20 for 4th child 25 for 5th+ child	**1967** 60 for 4th child 70 for 5th+ child **1969** 50 for 3rd child 60 for 4th child 70 for 5th+ child	**1972** 20 for 1st child 20 for 2nd child 50 for 3rd child 60 for 4th child 70 for 5th+ child	**1987** 50 for 1st child 100 for 2nd child 150 for 3rd+ child

Note: (1) *) lump-sum **) monthly (2) Source: Cornelius (1990: 310ff.); Cromm (1998: 473ff.); Frerich/ Frey (1993: 391ff.); Koch/ Knöbel (1986: 21ff.); Obertreis (1986: 287ff.); Trappe (1995: 39ff.)

Table 1 (continued): Family Policies in the GDR

	1950s/1960s	1970s	1980s
Maternity Leave	14 weeks	**1972** Prolongation to 18 weeks **1976** Prolongation to 26 weeks	
Childcare Leave ("Babyjahr")		**1972** Paid leave for single mothers when no slot in daycare could be provided (Amount: usual sick pay) **1976** One year of paid leave for mother with two or more children after the birth of a child	**1984** 18 months of paid leave for mothers with three or more children **1986** One year of paid leave for all mothers
Reduced Working Hours		**1972** Reduced working hours for mothers with three or more children **1976** Reduced working hours for mothers with two or more children	
Extra Holidays		**1972** Extra holidays for mothers with two or more children	
Child Sick Leave		**1972** Paid leave for single mothers when a child was sick	**1984** Extended to mothers with three or more children **1986** Extended to mothers with two or more children

Source: Cromm (1998: 473ff.); Cornelius (1990: 310ff.); Frerich/ Frey (1993: 391ff.); Koch/ Knöbel (1986: 21ff.); Obertreis (1986: 287ff.); Trappe (1995: 39ff.)

2.1.3 Compatibility of Childrearing and Employment

Apart from family policies that relieved the costs of children, there was an array of policies which supported the compatibility of childrearing and female employment. From the very beginning of the GDR, the regime declared "gender equality" as a major public policy goal, which meant an integration of women into "public life" and

particularly into the labor market.[7] Already in the 1950s, public policy measures were directed towards encouraging women to participate in the labor market. In firms, women's promotion schemes were set up to demonstrate how women were going to be hired and promoted (Obertreis 1986: 74ff.). The major focus of policy measures at that time was "moral suasion", a policy that glorified the status of the working woman and devaluated the woman as a housewife. Koch and Knöbel (1986: 48) argue that moral suasion had little impact, as women and men still clung to the "breadwinner type of ideology". In particular, women were not willing to carry the double burden of doing the housework and being employed. As a result, only single and divorced women increased their labor force participation in the following years. East German legislation was set up in such a way that in case of divorce, women were essentially not granted maintenance claims and, unlike West German legislation, single motherhood did not entitle one to social benefits which were reserved for invalids (Berghahn/ Fritzsche 1991: 144ff.; Frerich/ Frey 1993: 396).

In the 1960s, the emphasis of public policy shifted from solely promoting female employment to also qualifying women in the labor market. Businesses were asked to set up women's promotion schemes, furthermore women were encouraged to undergo retraining and further education (Obertreis 1986: 162ff.). In the consecutive years, the ratio of women with a vocational or a college degree increased steadily to a level where hardly any sex differences in educational attainment could be observed (Solga/ Konietzka 2000: 118). Besides this, it became obvious that public policy needed to better address time allocation problems that arose from combining housework and employment. The most notable policy measure in this context was the establishment of a network of public daycare in the following years.[8]

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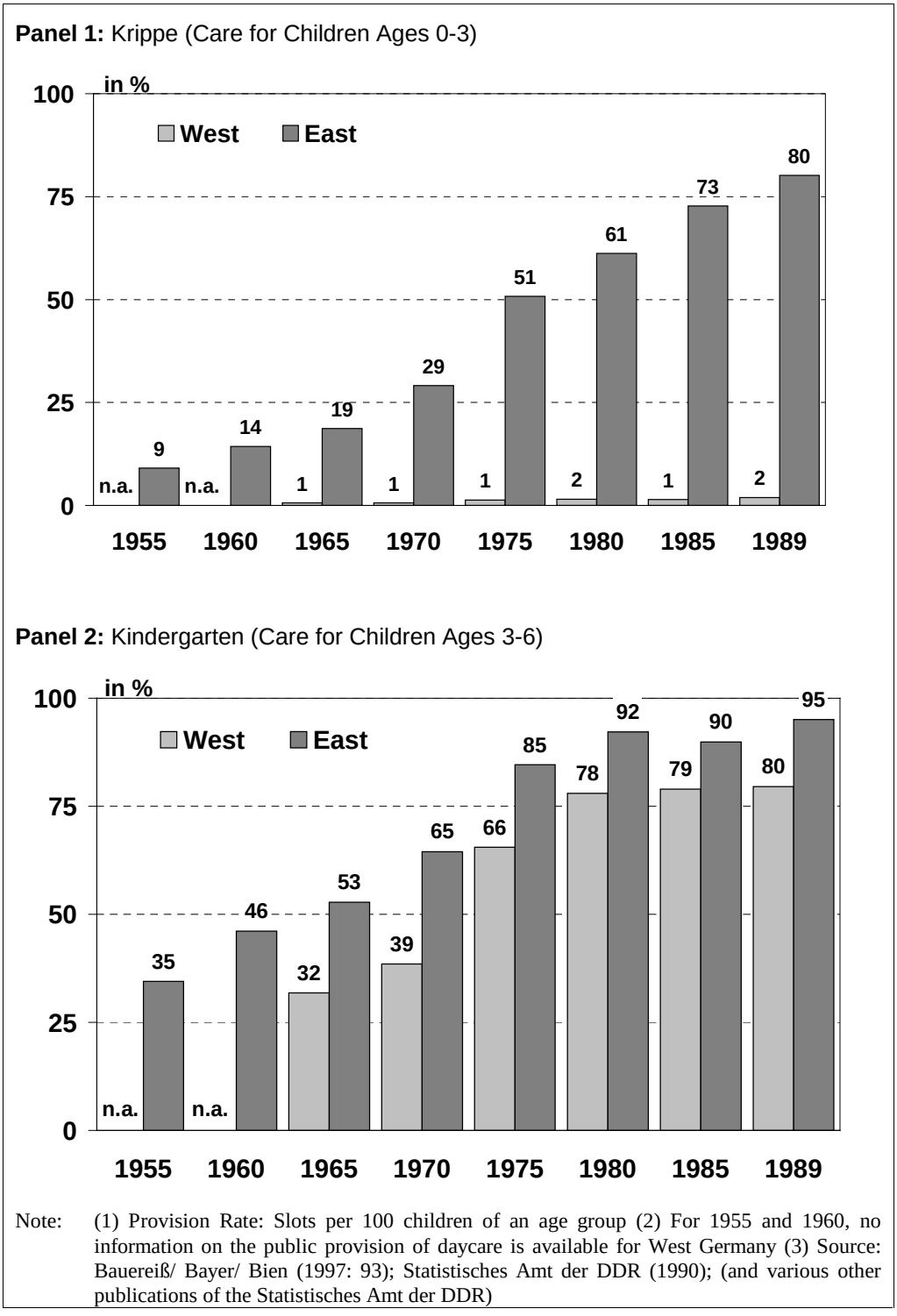
7 It is frequently argued that economic reasons motivated the GDR government to promote female employment (Frerich/ Frey 1993: 394). Of course, economic reasons cannot totally be separated from the ideological orientation which socialist and communist regimes were built upon (Koch/ Knöbel 1986: 45; Trappe 1999: 7ff.).

8 Other measures were, e.g., policies that intensified the service sector such as washing and ironing services (Koch/ Knöbel 1986: 63f.). Obertreis (1986: 154) argues further that economic incentives might also have played a dominant role. At the end of the 1950s, food vouchers were abolished and prices raised. Although salaries were also increased, most families were subject to a relative decline in their standard of living. An increase in female employment might have been related to the wish to maintain living standards.

Figure 1: Provision of Public Daycare 1955-1989



Note: (1) Provision Rate: Slots per 100 children of an age group (2) For 1955 and 1960, no information on the public provision of daycare is available for West Germany (3) Source: Bauereiß/ Bayer/ Bien (1997: 93); Statistisches Amt der DDR (1990); (and various other publications of the Statistisches Amt der DDR)

In contrast to West Germany, where the increase in public daycare was motivated by a desire to educate pre-school children, public daycare in East Germany was aimed particularly at serving the needs of working mothers. The daycare system therefore

included full-time care for children of all ages, flexible opening hours, meals at lunchtime, etc. (Kreyenfeld/ Spieß/ Wagner 2001: 135ff.). In addition, youth organizations took over substantial childcare responsibilities, e.g., by providing care for school-aged children during term holidays (Cornelius 1990: 313). Figure 1 displays the provision of public daycare in East Germany for "Krippe" (care for children ages 0-3) and "Kindergarten" (care for children ages 3-6). In the 1980s, almost complete daycare coverage was achieved. Although the provision rate for slots in kindergarten was almost the same in East and West Germany in the 1980s, the numbers conceal severe structural differences. While public daycare in East Germany was full-time care from the beginning, in West Germany it was almost exclusively part-time care and excluded care at lunchtime (see Part 2.2.2).

In the 1970s, additional measures were introduced which were directed towards facilitating the compatibility of employment and childrearing (see also Table 1). They encompassed priority access to public daycare for students and apprentices with children. Furthermore, university staff were asked to "reconcile the specific personal problems of student mothers and pregnant students with their duties as students" (Gysi/ Speigner 1983: 70f.). Working mothers with three or more children were given extra days of holiday and they were allowed to reduce their working hours.[9] Special treatment for single mothers was extended, i.e. children of single mothers received priority access to public daycare. When a child was sick or when no slot in daycare could be provided, a single mother was guaranteed paid leave.[10] The most important policy measure was the introduction of the "Babyjahr" in 1976. After the birth of a second or third child,

9 Since 1986, women with two or more children were also entitled to take paid leave when a child was sick. The maximum number of weeks was 6 weeks for women with two children, 8 weeks for women with three, 10 weeks for women with four, and 13 weeks for women with 5 or more children (Cromm 1998: 482).

10 When the ratio of out-of-wedlock births increased at the end of the 1970s, the priority treatment given to single mothers was largely held responsible (e.g., Cromm 1998: 529; Sackmann 2000a: 152; Trappe 1995: 210). This line of reasoning suggests that after Unification the ratio of non-marital births should have declined. Instead, after Unification the ratio of non-marital births sky-rocked to above 40 percent in 1991, reaching 50 percent in 1999 (for details, see Konietzka/ Kreyenfeld 2001a).

women were allowed to take a year of paid leave and in 1986, the "Babyjahr" was also extended to first births.[11]

The introduction of the "Babyjahr" is a remarkable turning point in East German family policies. In the 1950s, policy measures were primarily directed towards promoting female employment. In the 1970s, pro-natalistic policy aims basically meant that the East German government had to reconcile two conflicting policy goals. Thus, introducing a one year period of leave can be understood as a concession towards the pro-natalistic policy goal and a rejection of the belief that public daycare was able to solve all the "compatibility problems". Furthermore, the "Babyjahr" was directed at women; fathers could not take advantage of it. This entailed a unidirectional focus of social policy measures to women as providers of childcare. In a similar context, Trappe and Rosenfeld (1998, 2000) argue that also in East Germany, women deliberately refrained from taking up challenging labor market careers in order to balance employment and family responsibilities. Despite the high rate of female employment and despite propagated "gender equality", the GDR labor market showed a gender specific outcome. Women were predominantly employed in female type industry branches, they earned less than their male counterparts and they were less likely to hold a leading position in a business. In this context, East German policies have frequently been criticized for never really addressing traditional gender roles (e.g., Böckmann-Schewe/ Kulke/ Röhrig 1995; Sørensen/ Trappe 1994: 11ff.). The public provision of daycare solved some major incompatibilities of female employment and fertility, nevertheless, household tasks continued to be the responsibility of women. Pascall and Manning (2000: 254) argue that female employment policies (in Eastern Europe) were combined with an "unreconstructed domestic division of labor", which consequently produced "women's double burden".

11 From 1961, women were allowed to take one year of *unpaid* leave after childbirth. From 1976, single mothers and mothers with two or more children were entitled to a year of *paid* leave (the maternity pay amounted to the usual sick pay that was granted after the 7th week of sickness). From 1984, mothers with more than two children were entitled to 18 months of paid leave. In 1986, paid leave was extended to all mothers. If no slot in daycare could be found, all mothers were entitled to extend their period of unpaid leave up to the third birthday of the child (Cromm 1998: 482).

Although the employment situation of East German women stayed below the propagated ideal of gender equality, one must nevertheless conclude that, compared to West Germany, female and male employment tracks showed in the East a much more similar outcome. Earning differences between males and females were relatively small, moreover women were more likely to hold a leading position in a business compared to their counterparts in West Germany (Solga/ Konietzka 1999: 38). East German family policies did not only facilitate the compatibility of childrearing and employment; in addition, restricting labor market institutions, a strong pressure to be employed and a relative abundance of vacant positions drew women into full-time employment.[12]

Intermediate Summary

In this section, I summarized major family policies and labor market institutions in the GDR. Labor market uncertainties were reduced through a constitutional "right to work", restricted risks (and chances) of job changes and a wage structure which was largely centrally set. Extensive family policies relieved the costs associated with raising children. This relates to monetary transfers (such as the marriage loan and the birth grant) and particularly to in-kind benefits (such as public daycare and public housing). Furthermore, the government strongly supported the compatibility of childrearing and employment by a high provision rate of public daycare, flexible opening hours of the daycare centers and extra childcare facilities provided by youth organizations. In addition to this, mothers were given the opportunity to temporarily withdraw from the labor market to take care of their children. E.g., mothers were allowed to take paid leave when a child was sick. In 1976, paid leave was introduced allowing mothers to withdraw from the labor market for one year after childbirth. The large majority of women took advantage of the "Babyjahr"-regulation and interrupted their employment for one year, but returned to a full-time employment position thereafter. The return to

12 The East German government considered part-time positions as a "non-regular" employment form, which kept women out of the labor market. While the East German government therefore actively worked against the spread of part-time employment (Obertreis 1986: 305ff.), the German government welcomed the increase in part-time employment in the 1990s as a means of facilitating the return of mothers to the labor market (Drobnič 2000: 139; Holst/ Schupp 1994).

work after childbirth was not only facilitated by labor market institutions that guaranteed a statutory "right to work" and "status adequate job placement", but women were also basically drawn into full-time employment due to a lack of part-time positions, a moral pressure to be employed full-time and the need for a second income.

2.2 Institutional Constraints after Unification

In October 1990, the two former German states were united. In practice, the East German legal and political systems were rapidly replaced by the West German ones.[13] A take-over of West German institutions entailed a take over of West German taxes, transfers and family policies. Moreover, the take-over of West German institutions entailed the abrupt change from a centrally planned to a market economy.[14] The change in the economic system was naturally followed by a thorough restructuring of the East German labor market. In the following, I first discuss some general empirical findings on the East German labor market situation after Unification. Thereafter, I discuss the role of female employment in greater detail. I particularly highlight the constraints women are faced with when reconciling employment and childrearing. The last section comprises a description of family-related tax and transfers in Germany after Unification, placing emphasis on the question of how the current system relieves the monetary costs associated with raising children.

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13 At German Unification, the Unification Treaty ("Einingungsvertrag") went into force, which prescribed the take over of West German rules and regulations in East Germany. However, it should be noted that some East German regulations were only gradually abolished (Schmähl 1992: 37f.). Paid leave when a child was sick was still valid until July 1991. Parental leave regulations and child benefits were changed in January 1991 (Berghahn 1992: 78ff.; Frerich/ Frey 1996).

In addition, it should be taken into consideration that Germany is a federal state, i.e. rules and regulations vary by federal state. This particularly applies to rules and regulation that apply to the educational system. Federal rules in the "neue Länder" (the new federal states) were gradually changed to comply with the federal rules in West Germany. Nevertheless, some typical East German features were retained. This is the case for East German childcare and the educational system (see also Chapter 1).

14 The process of transforming East Germany into a market economy was initiated before the Unification of the two Germanies in October 1990 (Brücker 1997: 116ff.). Already in March 1990, the "Treuhandanstalt" was founded in order to privatize formerly state owned firms. On the 1st of July, the Monetary Union came into force.

2.2.1 The East German Labor Market Crisis

Following German Unification, the East German labor market experienced radical changes. This encompassed a severe sectoral "restructuring", i.e. a downsizing of the industrial and agricultural sector and an expansion of the service sector which, until this time, was less developed (Bonin/ Zimmermann 2001: 16; Lange/ Pugh 1998: 32; Schwarze/ Wagner 2001). It also entailed the rapid privatization of businesses, the closure of firms and the dismissal of workers on a large scale. Since the East German "labor market crisis" affected men and women disproportionately, I discuss the labor market experience of men and women separately in the following section.

Male Employment

Panel 1 in Figure 2 displays the unemployment rates of East and West German males for the period 1991 until 1999. Until 1995, East German unemployment rates were just slightly above West German levels. It was only from this time that male unemployment substantially increased in the East. Based on this figure, one is tempted to hypothesize that the East German labor market situation worsened only after 1995. However, such an interpretation would be a serious simplification.

Most importantly, the German government introduced large-scale publicly funded training measures ("Umschulungs- und Weiterbildungs-Maßnahmen"), job-creation programs ("Arbeitsbeschaffungs-Maßnahmen") and early retirement schemes, which restricted a further increase in unemployment rates in East Germany after Unification (Brinkmann 1999; Lutz/ Ketzmerick/ Wiener 1999: 269; Wingens/ Sackmann/ Grotheer 2000: 61). Furthermore, there was a strong prevalence of short-term and subsidized employment. The dominant period of active employment policy in the East was between the period 1991 to 1993. Since then, expenditure for employment programs has been cut substantially, while unemployment rates have increased. Brinkmann (1999: 311) estimates that even in 1997, the East German unemployment rate would have increased by 27 percent if one took into consideration those people in retraining and job-creation schemes.

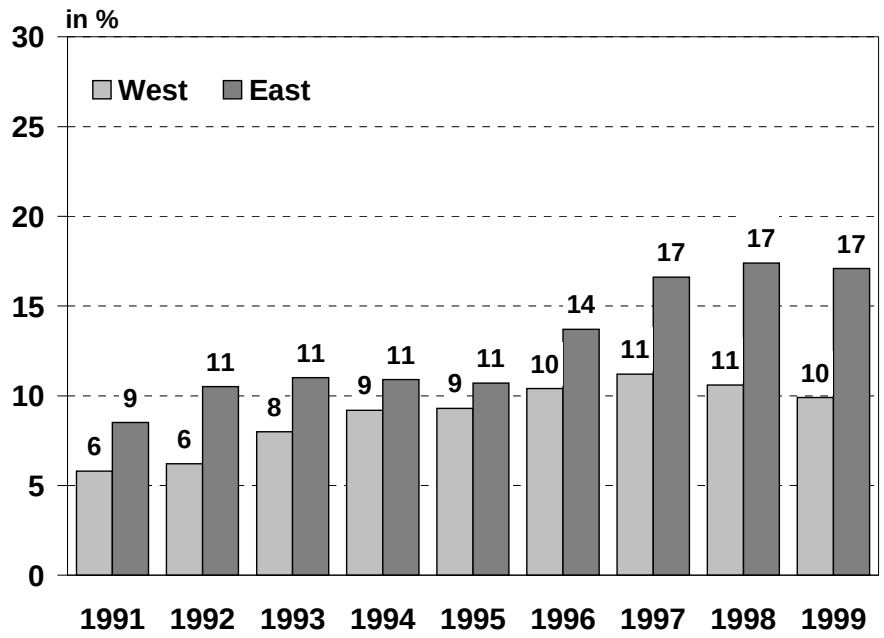
Moreover, cross-sectional unemployment rates do not reveal much about the *prevalence* of unemployment. If individuals only remain unemployed for a short period of time, a low unemployment rate is compatible with a large ratio of individuals experiencing some time of unemployment in their lives. Even short periods of unemployment might have long lasting effects on future employment careers. They inevitably result in a change of job and potentially in retraining and/or in a change of occupation. Only a longitudinal analysis is able to highlight such aspects.

Using data from the "Arbeitsmarkt-Monitor", Brinkmann and Wiedemann (1995: 328f.) analyze the employment tracks of East German males between 1989 and 1994. They find that only 31 percent of East German males (who were employed in 1989) were constantly employed in the same business until 1994. About 49 percent were subject to job changes, which were mostly involuntary changes, either after a period of unemployment or related to prospects of a lay-off (Brinkmann/ Wiedemann 1995: 330). The remaining 19 percent were either unemployed or in retraining programs initiated by the employment agency.[15] Using the same data set, Bielinski, Brinkmann and Kohler (1995: 47) analyze the prevalence of "non-regular employment" among East German males who were employed in 1994. They find that about half of them were either subject to short-term work, public retraining measures, public subsidized employment, job-creation programs, or other measures initiated by the employment agency for at least some periods between 1989 and 1994.

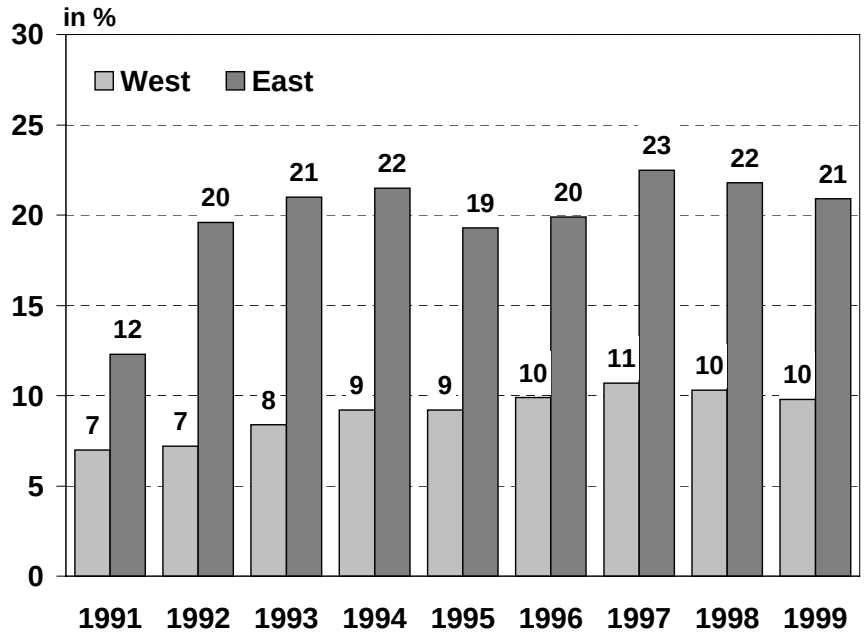
15 The "Arbeitsmarkt-Monitor" is a panel survey conducted by the Institute for Employment Research in Nürnberg (IAB). It provides employment indicators for East Germans for the period from 1989 until 1994. It should be noted that the original calculation by Brinkmann and Wiedemann (1995) also contains retirees.

Figure 2: Unemployment Rate 1991-1999

Panel 1: Males



Panel 2: Females



Source: Bundesanstalt für Arbeit (2000)

Labor Market Mobility

One of the crucial questions in this context is whether the "East German labor market crisis" had long-lasting consequences on the employment careers of East Germans. In other words, did East Germans finally settle into a stable employment situation? Or did the labor market crisis "disrupt" their employment careers?

There are several researchers who argue that the former East German labor market was an *internal labor market* (Grünert/ Lutz 1994: 421; Grünert/ Karl 1997; Lutz 1997). The notion of "internal labor market" generally implies that career advancements depend on seniority in the job. If the East German labor market was indeed an internal labor market, this would have had important implications for the employment careers of East Germans who lost their jobs after Unification. They would have also lost their firm-specific investments and would have therefore been subject to downward mobility and movement into unstable employment situations. However, there is considerable dispute about the "internal labor market hypothesis" (e.g., Huinink/ Mayer/ Trappe 1995: 117; Szydlik 1993: 57; Zühlke 2000: 59; Zühlke/ Goedicke 2000: 85). The most important counter argument in this context is that formal qualifications (such as vocational training certificates or university degrees) operated as a key measure in the allocation of workers to job positions in the GDR. Given that formal certificates retained their values, East Germans would have been able to keep their labor market positions after Unification.[16] Empirical evidence for this hypothesis is given by Mayer, Diewald, and Solga (1999) who use data from the German Life History Survey to analyze the career tracks of East Germans who were employed between 1989 and 1993. They find that Unification was not accompanied by a severe status loss for most East

16 For similar findings, see also Diewald et al. (1995: 320); Diewald, Goedicke and Solga (2000: 41); Holst and Schupp (1995); Rasztar et al. (1996).

German males. For the most parts, only those in managerial positions and in the agricultural sector were subject to labor market downward mobility.[17] [18]

The Labor Market Experience of Younger Cohorts

Based on these findings, one could draw the optimistic conclusion that, after a phase of "reorientation", most East Germans settled into stable employment situations. If one is particularly interested in the role of employment for fertility decisions, it is, however, of special importance to ask whether these general empirical findings transfer to the younger workers, i.e. those who were at an *early stage in their employment career* or who *entered the labor market* in the 1990s.

East Germans who had just started their employment before Unification had presumably not yet established a secure position in their firms. Therefore, one could assume that they were the first to be dismissed in the process of privatization and downsizing. In other words, one could expect that they were the first to be affected by the transformation process. At first sight, this aspect puts younger East Germans in a relatively disadvantaged labor market position. However, as Lutz (1997: 440) notes, those who were dismissed at an early stage might have been at a relative *advantage*. His major assumption is that there was only a short period after Unification (until the middle of 1992) when the East German labor market offered new career options. During this period, the East German privatization process accelerated, i.e. firms rapidly closed down, and at the same time, new businesses were founded. Workers who were dismissed during this "time-window" had fairly good chances of finding new

17 In cross-national comparisons, the German labor market is often titled as an *occupational labor market* (e.g., Konietzka 1999; Konietzka/ Kreyenfeld 2001b; Mayer/ Diewald/ Solga 1999; Sackmann 2000b: 52). A take over of West German labor market institutions basically meant a take over of a labor market that "discriminates" by vocational certificates. Similarities of the educational and vocational training systems between the (former) two Germanies might have facilitated matters (Zühlke 2000: 51ff.). Furthermore, it might have also been of importance, that there have always been official procedures that regulated an acknowledgement of East German certificates (Gewande 1990). The acknowledgment of most certificates was also formally laid down in the Unification Treaty (Unification Treaty, Article 37).

18 Bird, Frick and Wagner (1998) analyze the income mobility of the "socialist upper class". They find, however, that members of the upper class, measured by telephone ownership, fared substantially better during the transition period.

employment. However, workers who first remained in their jobs and were then dismissed at a later stage in the transformation process had a much smaller chance of reentering the labor market. In other words, being dismissed shortly after Unification forced East Germans to find a new, but more stable employment situation. Based on Lutz's "time-window hypothesis" ("Zeitfenster-Hypothese") and the assumption that younger East Germans were more likely to (voluntarily or involuntarily) change employment after Unification, one can conclude that they were better able to establish a secure labor market position. There is some empirical evidence that supports this hypothesis. East Germans, who were younger than 25 years of age at the time of German Unification, were severely hit by unemployment but, at the same time, they were more likely to find new employment in another business (Bielinski/ Brinkmann/ Kohler 1995: 8).

Nevertheless, although one could argue that younger workers fared relatively better than older ones in the transformation process, this does not contradict the hypothesis that East Germans fared in general worse than their West German counterparts. Furthermore, one must not overlook the difficulties which faced East Germans entering their first job after Unification. In the German labor market, *entry into the first job* is a crucial transition and the macro-economic condition of the labor market during this time predetermines, at least to some extent, the future career path (e.g., Blossfeld 1987: 93; Sackmann/ Wingens 1996: 12). In other words, one could anticipate some long-term effects (such as increased risks of future unemployment) in the career paths of East Germans who started their labor market careers during the 1990s.

In 1999, the youth unemployment rate (measured by the unemployment rate of those younger than 25 years of age) amounted to 15.1 percent in East Germany (BMBF 2000b: 152). It might be worth pointing out that the East German youth unemployment rate is far below the levels found in Southern European countries.[19] Nevertheless, more

19 Compared to other European countries, youth unemployment is relatively low in Germany (BMBF 2000b: 152). The low level of youth unemployment is often related to the special features of the German educational and vocational training system. College education is relatively long and most importantly, Germany has an established system of vocational training, the so-called dual system of vocational training ("Duales System der Berufsausbildung"). In the dual system of vocational training, part of the training takes place in the firm and the other part in vocational training schools ("Berufsschulen") (for details, see e.g., Greinert 1995).

important in the context of this study is that the East German unemployment rate is well above that of West Germany which only had a rate of 8.2 percent in 1999. This aspect partially pertains to the lack of vocational training positions in the East. Compared to their West German counterparts, East Germans had lower chances of finding a vocational training position. In the years 1996 to 1998 roughly ten percent of the East Germans who were seeking a vocational training space were not able to find one. In West Germany, this ratio fluctuated at around five percent in the 1990s (BMBF 2000a: 2). East Germans who underwent vocational training or college education were more likely to be unemployed after they had completed their vocational training/ college education (BMBF 2000b: 152; Dietrich 1999: 262; Falk et al. 2000; Konietzka 2001).[20]

In sum, the years 1990-1992 mark the time of the East German labor market's major reconstruction. Cohorts who had just entered the labor market around or after Unification experienced a less favorable labor market situation throughout the 1990s. This issue is also mirrored in the "feeling of economic uncertainty". In 1991, more than a third of the East German men of the cohorts 1961-1980 were very worried about their economic situation, whereas the figure was only ten percent for their West German counterparts (Panel 1 in Figure 3). The feeling of economic uncertainty subsequently declined, but still, throughout the 1990s, East Germans were slightly more worried about their economic situation than their West German counterparts.

Female Employment

Panel 2 in Figure 3 displays the economic worries of women in the 1990s. East German women were not only more worried about their economic situation than West German

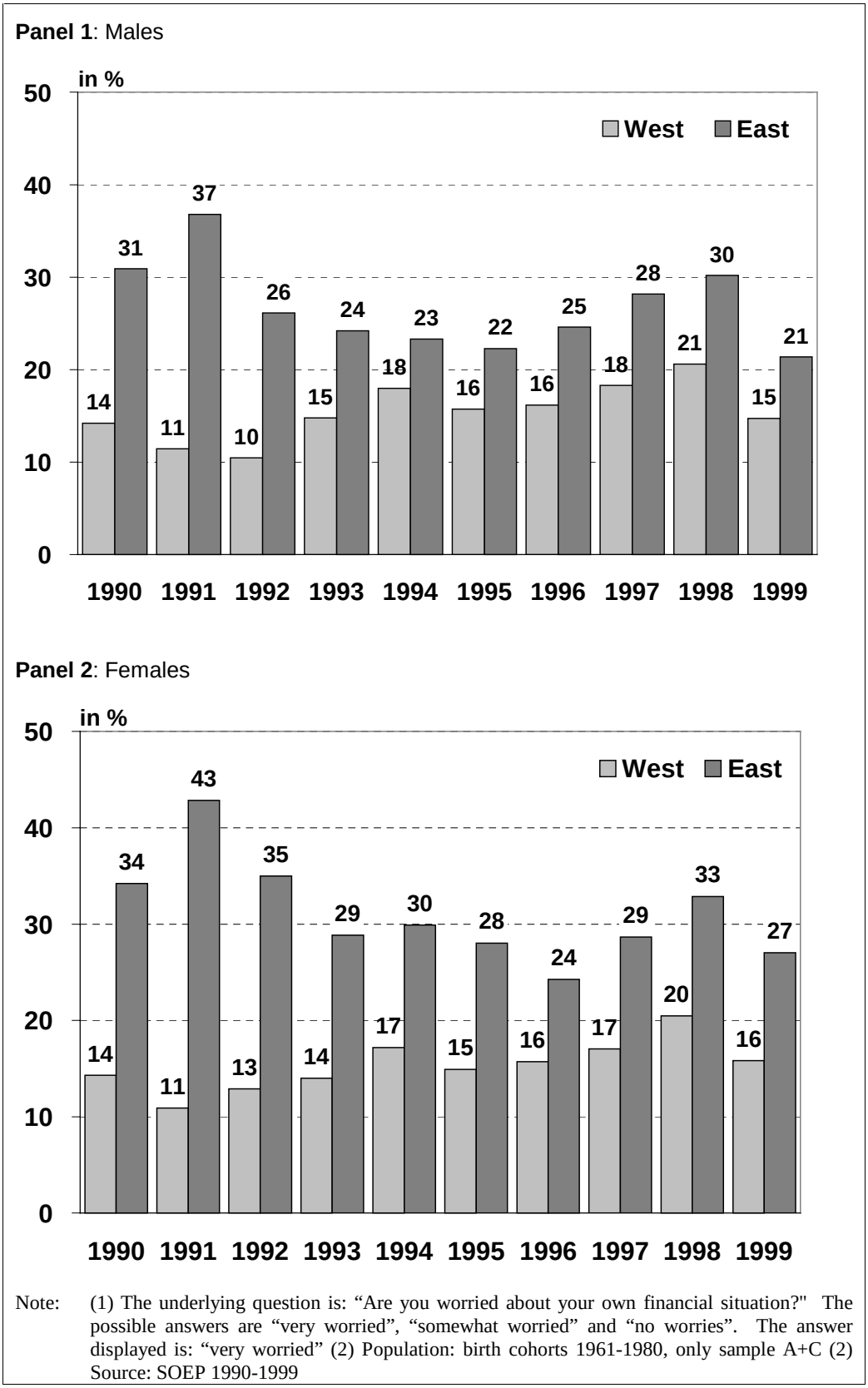
20 It is also important to note that this ratio only applies to East and West Germans who underwent regular training within the "dual system of vocational training". In response to the lack of vocational training positions, the German government established public vocational training centers ("außerbetriebliche Ausbildungsplätze"). In contrast to regular training, which takes place on the job, public vocational training programs take place in public training centers. In East Germany, roughly 22 percent of those who underwent a vocational training program in 1999 attended such institutions. In West Germany, this applies to only 7 percent (BMBF 2000a: 23). The high ratio of public vocational training is of some importance regarding the question of employment stability in East Germany. Public training positions do not allow for a "smooth transition into the first job", i.e. the trainee simply remains in the vocational training firm after completing his or her training (Konietzka 2001).

women, but they were also substantially more worried than their male counterparts. These findings comply with the frequently stated hypothesis that the restructuring of the East German labor market had a particularly strong, enduring and negative impact on the employment careers of East German *women*. Compared to their male counterparts, East German women were by far more likely to be subject to labor market downward mobility, had fewer chances of experiencing upward mobility, were at a higher risk of unemployment, were more likely to participate in retraining measures and had lower chances of entering the labor market again after unemployment (Beckmann/ Engelbrech 1999: 206; Bielinski/ Brinkmann/ Kohler 1995: 6f.; Engelbrech/ Reinberg 1998: 49ff.; Holst/ Schupp 1995; Lutz/ Grünert 1996: 98; Sackmann/ Wingens 1996: 20ff.).

Still, labor market turnovers after German Unification did not affect the labor market careers of East German women uniformly. Skilled office workers ("Sachbearbeiterinnen"*)* were better able to keep their labor market positions, which can largely be explained by the stable nature of public sector employment (Holst/ Schupp 1995: 4). Similar to their male counterparts, women without formal qualifications were the ones most likely to be subject to unemployment (Beckmann/ Engelbrech 1999: 218). In 1995, about half of all the women without any formal qualifications were unemployed, while on the other hand there was very little unemployment (about 5 percent) among women with a college degree. Engelbrech and Reinberg (1997: 11, 1998: 59ff.) even speak of a *polarization* with highly qualified employed women on the one hand, and non-working women without sufficient formal qualifications on the other.

Against this background, it was speculated that most East German women would soon be discouraged from their labor market opportunities and, similar to their West German counterparts, they would be inclined to follow the traditional "male-breadwinner model" once they had had a first child (Dorbritz 1997: 243; Huinink 1999: 129). However, full-time employment rates among East German women have stayed well above West German levels. East German women who are employed part-time would prefer to work full-time and East German women taking parental leave are faster in returning to the labor market (Beckmann 2001; Engelbrech 1997; Holst/ Schupp 1999). Since the large East-West differences can almost exclusively be explained by the employment behavior of women with children, I will briefly provide some descriptive statistics on this issue.

Figure 3: Economic Uncertainty 1990-1999



Note: (1) The underlying question is: “Are you worried about your own financial situation?" The possible answers are “very worried”, “somewhat worried” and “no worries”. The answer displayed is: “very worried” (2) Population: birth cohorts 1961-1980, only sample A+C (2) Source: SOEP 1990-1999

Employment Patterns of Women with Children

Figure 4 displays the employment rates of East and West German mothers by the age of their youngest children. The figure displays a pattern which is, by now, well known: East German women with children are more likely to be employed full-time than their West German counterparts. When the youngest child reaches primary school age (i.e. age 6), only 10 percent of the West German mothers are employed full-time, 29 percent work part-time and 59 percent are not employed (for a longitudinal analysis, see Drobnič 2000; Kurz 1998; Lauterbach 1994; Ondrich et al. 1999). In the East, the pattern is almost reversed. When the youngest child reaches primary school age, by then, 36 percent of all mothers are employed full-time; only 38 percent are not employed.

In Table 2, I distinguish the mother's employment patterns by various socio-demographic characteristics and also by the "desire to return to the labor market". The "desire to return to the labor market" indicates that the woman is either searching for employment, has already found a new job or wishes to take up a job in the near future. The table shows that the large majority of non-working West German women report no desire to return to the labor market, while in the East, this applies to barely more than ten percent. In other words, while the "homemaker model" (defined as a woman who does not seek employment) is relatively prevalent in the West, it is still exceptional in the East.

There is substantial variation in the employment patterns by educational attainment in West Germany. College educated women with children are about twice as likely to be in full-time employment than their less educated counterparts. In the East, the differences between college graduates and those with a vocational degree are less pronounced. One could infer from this that the mother's full-time employment is still a "privilege" for more highly educated women in the West, while in the East there is a "common" labor market orientation across all educational categories (see also Konietzka/ Kreyenfeld 2001a). The outliers are, however, women without any formal educational qualifications. They have by far the lowest chances of being employed and

they also express a relatively small desire to return to employment.[21] There are only very few West German women who are still employed full-time, once the second child is born. Likewise in the East, mothers' full-time employment rates are then cut by half.

An important question in this context is how to interpret the East-West differences in mothers' employment patterns. Probably the most frequently cited aspect is that East German women have, as a holdover from former socialist times, a high labor market orientation and consider *economic independence* and a full-time employment career as a "matter of course" (Adler 2001; Böckmann-Schewe/ Röhrig/ Kulke 1993: 47). Using data from the ALLBUS-survey of the year 1991,[22] Braun, Scott and Alwin (1994: 34ff.) analyze the attitudes of East and West German women towards the use of public daycare, women's employment and the necessity of women to contribute to the household income. Their major conclusion is that East and West German women do not differ in any substantial manner in their strive for economic independence. The largest differences relate to their attitudes towards the use of children's full-time daycare and the opinion that both partners should contribute to the household income. In sum, it is not totally convincing that women's strive for economic independence is the sole motivation behind the high labor market orientation of East German women. Instead, it might be worth considering the possibility that it reflects the necessity of both partners in contributing to a *joint household* income. Finally, the high East German employment rate might also be fostered by the still relatively *favorable provision of public daycare*. In the following section, I embark on the latter issue in more detail. That is, I explore the institutional constraints for reconciling childrearing and employment in the 1990s in Germany.

21 About 25 percent of the East German women (with a child age 0-10), who do not have a college degree or a vocational training certificate, express no desire to return to the labor market. This applies to less than 10 percent for other educational categories.

22 The ALLBUS is a representative sample of the Federal Republic of Germany on "attitudes, behavior and social structure" (see e.g., Braun/ Mohler 1991).

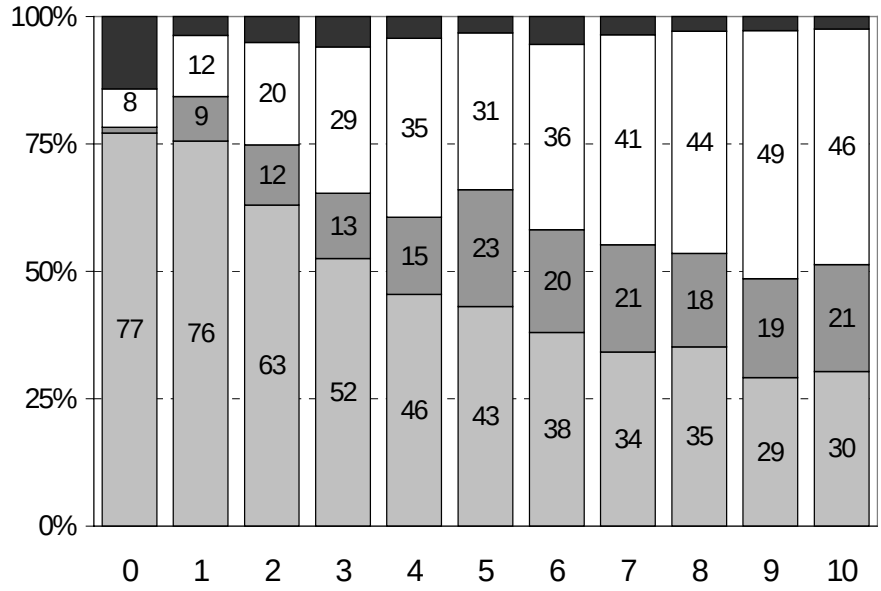
Table 2: Women's Employment Rate in 1997 by Age of Youngest Child

	West Germans			East Germans		
Age of Youngest Child	**0-3**	**4-6**	**7-10**	**0-3**	**4-6**	**7-10**
			Employment Rates			
Employed full-time	11%	12%	12%	24%	40%	48%
Employed part-time	15%	27%	34%	10%	20%	20%
Not employed	73%	61%	53%	66%	40%	32%
Sample size	*5,452*	*4,884*	*5,173*	*776*	*804*	*1,898*
			…by Desire to Return to Employment			
Employed full-time	11%	12	12%	24%	40%	48%
Employed part-time	15%	27	34%	10%	20%	20%
Not employed						
-- Desire to return…	10%	13%	13%	25%	28%	24%
-- No desire to return…	36%	36%	35%	17%	7%	4%
-- Missing	27%	11%	5%	24%	5%	4%
Sample size	*5,452*	*4,884*	*5,173*	*776*	*804*	*1,898*
			…by Educational Attainment*)			
No Degree						
-- Employed full-time	5%	9%	8%	5%	21%	16%
-- Employed part-time	9%	15%	21%	4%	4%	14%
-- Not employed	86%	76%	71%	91%	74%	70%
Sample size	*1,131*	*1,155*	*1,349*	*76*	*47*	*74*
Vocational Degree						
-- Employed full-time	9%	10%	11%	20%	36%	46%
-- Employed part-time	17%	32%	41%	11%	22%	21%
-- Not employed	75%	58%	48%	69%	42%	33%
Sample size	*3,615*	*3,243*	*3,439*	*557*	*630*	*1,554*
College Degree						
-- Employed full-time	14%	18%	21%	31%	49%	59%
-- Employed part-time	25%	33%	34%	13%	23%	22%
-- Not employed	61%	49%	45%	56%	28%	19%
Sample size	*536*	*384*	*288*	*96*	*90*	*214*
			…by Number of Children			
One Child						
-- Employed full-time	12%	19%	23%	25%	47%	59%
-- Employed part-time	17%	41%	44%	10%	23%	21%
-- Not employed	71%	40%	33%	65%	29%	21%
Sample size	*4,627*	*2,104*	*1,402*	*720*	*557*	*1,070*
Two Children						
-- Employed full-time	6%	7%	9%	24%	24%	36%
-- Employed part-time	9%	18%	35%	4%	14%	21%
-- Not employed	85%	75%	56%	73%	62%	43%
Sample size	*800*	*2,482*	*2,818*	*55*	*228*	*730*

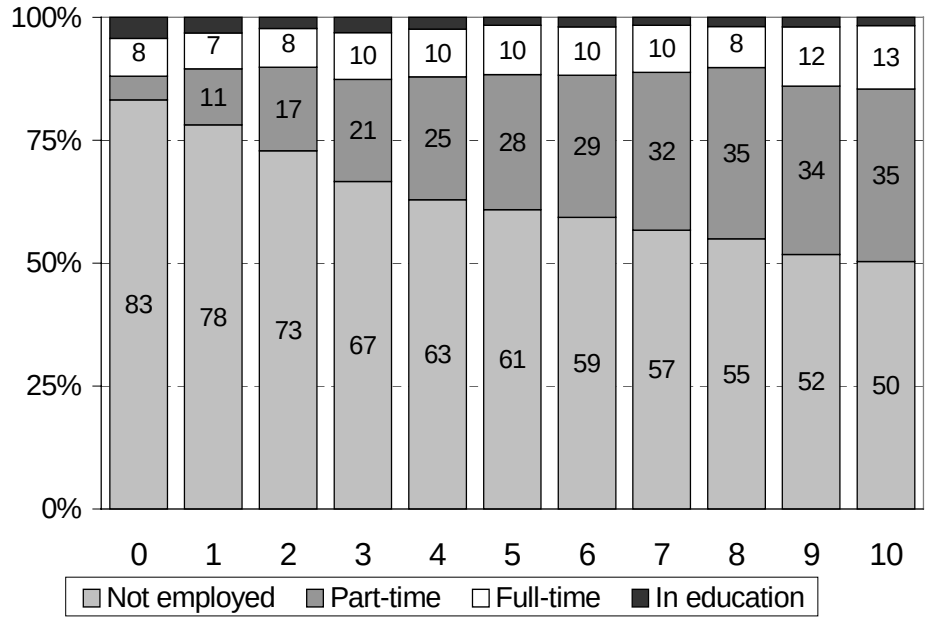
Note: (1) Population: women of the birth cohorts 1961-1980 whose youngest child is age 0-10 in 1997 (2) Women who are receiving education are classified as employed full-time (2) *) Women in education are omitted (3) Source: public use file of the German micro-census 1997 (own estimations, see Appendix)

Figure 4: Women's Employment Rate in 1997 by Age of Youngest Child

Panel 1: East Germany



Panel 2: West Germany



Note: (1) Employed full-time, i.e. 35 or more hours per week; part-time, i.e. 1-35 working hours per week (2) Population: women of the birth cohorts 1961-1980 whose youngest child is age 0-10 in 1997 (3) Source: public use file of the German micro-census 1997 (own estimations, see Appendix)

2.2.2 Compatibility of Childrearing and Employment

Women's employment crucially depends on social policies that foster (or hinder) the compatibility of childrearing and employment. In the GDR, an array of policy measures favored the compatibility of childrearing and employment. This applies to the encompassing provision of public daycare, paid leave for women with sick children and a one-year period of paid leave after childbirth. Since Unification, East and West Germans are subject to similar family policies. In the following, I discuss the most important cornerstones which affect the compatibility of childrearing and employment after Unification: the parental leave system and the public daycare system.

Parental Leave Regulations

The German parental leave system has changed considerably over the past 20 years. The leave period has been expanded several times and so has the entitlement to childrearing benefits. The current leave regulations basically consist of three parts:

- **Maternity protection** ("Mutterschutz"): All employed mothers are entitled to take paid leave for the period of six weeks before, and eight weeks after childbirth. Mothers are *prohibited* from working for a period of eight weeks after childbirth.
- **Parental leave** ("Erziehungsurlaub" and since 2001 "Elternzeit"): All employed mothers are entitled to take three years leave, i.e. they are entitled to return to their employer within a period of up to three years after the birth of a child. In principle, fathers are also allowed to take parental leave. In practice, about 98 percent of all persons taking parental leave are women (Beckmann 2001; Engelbrech 1997).
- **Childrearing benefits** ("Erziehungsgeld"): Parents are entitled to an income and employment related childrearing benefit of 600 DM, i.e. benefits are paid until the second birthday of a child, provided that the household income does not exceed certain income limits and that at least one parent is not engaged in full-time employment (see below).

Comparable to the GDR, the current German regulations also include the possibility of taking paid leave when a child is sick (see also Table 4).

German parental leave regulations allow the mother (and since 1992, also the father) to take job-protected leave after the birth of a child. Parents are allowed to return to their previous employer in a "status adequate job" within the parental leave period. A smooth return to the labor market after childbirth is, however, only guaranteed for those women (and men) who hold a regular working contract. This excludes women in education, the unemployed and those who hold limited-term working contracts.[23] Women also lose their right to return to their previous employer if the firm goes bankrupt in the interim. This is of particular importance for East Germany, since Unification was followed by an unprecedented closure of firms.[24]

However, one might question whether German parental leave regulations contribute to a compatibility of childrearing and employment in the first place (e.g., Ondrich/ Spiess/ Yang 1996; Schiersmann 1998: 143; Waldfogel 1998). On the one hand, the regulations are very "generous" in allowing mothers to return to their employers within a period of up to *three* years after childbirth. On the other hand, this "generosity" jeopardizes women's employment careers. Short-term leave is usually expected to help women combine childrearing and working life, though long-term leave, of up to three years, will most likely devaluate human capital and will eventually worsen the labor market chances of women after they return to the labor market (see Chapter 3). Besides this, a (means tested) childrearing benefit of currently 600 DM per month (900 DM if only one year of leave is taken up) is certainly no compensation for the forgone earnings of a full-time job. It sets particularly low incentives for the male partner to interrupt his employment career and explains the current ratio of less than two percent of males taking parental leave (Beckmann 2001: 6; Lohkamp-Himmighofen 1999: 60). Women

23 Women and men who hold limited-term working contracts can take parental leave, but the contract does not have to be extended by the parental leave period. Individuals who are in vocational training are entitled to parental leave. In this case, the vocational training period is extended for the period they are on parental leave (Bundeserziehungsgeldgesetz § 20, 1).

24 Winkel and Kerkhoff (1995: 45ff.) analyze a sample of East German women who interrupted their employment career due to childbirth in the period 1990 to 1992. In 1993, 55 percent of the East German women had returned to their previous employers, however, 16 percent of them had to change employers because the firm had closed down during their parental leave period.

(and men) who take leave will inevitably be dependent on the partner's income (or on other transfer payments) during the parental leave period.[25]

In sum, German parental leave regulations allow for a "status adequate" return to the labor market after childbirth, but do not come anywhere close to compensating for the loss in earnings. The current parental leave regulations provide a rather unattractive "compatibility solution" particularly for more highly educated women. Even when women accept a loss in earnings during parental leave, a smooth return to the labor market is not guaranteed. The parental leave regulations assure women a status adequate job, however, in the light of the lack of public daycare in (West) Germany, most of them will be unable to proceed with a full-time employment career thereafter, being burdened with childrearing tasks. I discuss this aspect in greater detail below.

Public Daycare

The major characteristic of the current West German "day care regime" is a relatively high coverage of part-time Kindergarten slots (i.e. care for children ages 3-6). The Kindergarten was "established" in the 1970s, when, as part of the German educational reform ("Bildungsreform"), public daycare was regarded as a means of creating equal opportunities for children. Since the policy goal of "supporting female employment" was not a particular concern during this time, it is not too surprising that only the supply of slots for pre-school children was increased and that the Kindergarten was only established as a part-time institution with rigid opening hours. In 1996, a constitutional right to a part-time slot in Kindergarten was introduced, which did not, however, change the general picture. In 1998, there was a high coverage of care for pre-school children, which was predominantly part-time (see Table 3). The "Krippe" (care for children ages 0 to 3) or the "Hort" (care for school-aged children) are still of basically no importance in West Germany.

25 Parents are allowed to work up to 19 hours (and since 2001 up to 30 hours) during the parental leave period and, in principle, they can claim childrearing benefits. However, after the sixth month, the income limits for childrearing benefits are relatively low (32,000 DM for married couples and 23,700 DM for single parents). Since the earnings from part-time employment have to be assessed as well, women in part-time employment who are living with a partner employed full-time will, in most cases, lose their right to receive childrearing benefits.

One could possibly argue that the restricted supply of public daycare for children ages 0-3 suits the parental leave regulations, which encourage parents to care for a child until it is three years of age. This suggests that after the child is three years old, the mother can smoothly return to the labor market. However, since for the most part only part-time Kindergarten slots are available, the large majority of mothers will be restricted to part-time employment. Although the Kindergarten may enable part-time employment among West German mothers, as soon as the child reaches school age, the women will face severe "compatibility problems". In Germany, primary schools normally only run in the morning and do not start or end at the same time each day. The current provision rate, which counts as seven percent of the slots in the "Hort", does not contribute much to the compatibility of childrearing and employment. In short, public daycare in West Germany possibly facilitates part-time employment while the child is of Kindergarten age, but it certainly does not enable women to proceed with a continuous full-time employment career.

After Unification, East Germany's legal and political system was basically replaced by the one of West Germany. For example, the relatively short "Babyjahr", which offered a high level of income replacement, was abolished in favor of the 1½ years (and since 1992, three years) of "Erziehungsurlaub" which only offers a low level of income replacement. The East German "marriage loan", the birth grant and maternity benefits, were replaced by the West German tax and transfer system, including the system of income splitting (see below). One of the crucial questions in this context is whether this also applies to public daycare as well. If the East German child care system was replaced by the West German system, the consequences would be apparent. This would mean that East Germans switched from a regime which offered universal care to a highly rationed daycare system. East German women would no longer be able to combine a full-time employment career and childrearing. They would either have to give up their employment altogether, forgo parenthood or search for daycare arrangements on the free market (or rely on care in social networks or on paternal care, if available).

In the discussion on an "East German fertility decline", there are several authors who assign the East German fertility crisis to the new daycare regime in the East (see also

Chapter 3). Lechner (1998: 473) relates the decline in fertility to a "discontinuation" in the provision of daycare for children ages 0-3. Kopp (2000: 109) speaks of a "lack" in childcare arrangements, Nauck and Joss (1995: 25) of a "shortage" in daycare facilities. Rindfuss and Brewster (1996: 273) argue that German Unification was accompanied by a "sharp decline in the availability of childcare in the East." Adler (1997: 44) believes that the closure of public daycare centers moved childcare "from the public to the private sphere". I argue, in the following, that the idea of a replacement of East German institutions is apt when talking about monetary transfers, however, this picture is not appropriate when talking about public daycare.

Daycare policy in Germany substantially differs from other family policies such as "Erziehungsgeld" (childrearing benefits) or "Kindergeld" (child benefit). Most importantly, daycare is publicly provided by the local municipalities, i.e., it is not a cash transfer. While cash transfers (such as the marriage loan) could easily be abolished after Unification, publicly run daycare centers had to be physically closed down. In East Germany, the "Treuhandanstalt" was in charge of the privatization of formerly state owned business (Brücker 1997). However, childcare centers (although they were state owned) were *not* part of the privatization process. This is somehow logical, since daycare centers are not private in the West either. Instead of being privatized, daycare centers were taken over by the local municipalities, which were now in charge of running and financing daycare.[26] There was great concern about whether East German municipalities would be able to keep up the high level of daycare, given the new mode of financing it (Deutsches Jugendinstitut 1993: 15; Hank/ Tillmann/ Wagner 2001). So far, however, provision rates in the East are well above West German levels.

Table 3 provides data on the number of daycare slots, the number of children by age group and the provision rate of public daycare for the period from 1990-1998. In West Germany, less than ten percent of all school-aged children and children aged 0-3 are cared for in public daycare. In contrast to this, about one third of the children of this age group are cared for in public daycare institutions in East Germany. At first sight, the

26 In Germany, daycare is primarily financed through the local municipalities. Until June 30th 1991, however, the East German municipalities still received subsidies from the central government to support public daycare centers (Unification Treaty, Article 31).

difference is less striking for pre-school children, since there is almost complete coverage in both parts of the country. On the other hand, the picture looks different when taking into account opening hours. While basically all children in East Germany are cared for the whole day, this only applies to less than 20 percent in West Germany.[27]

Table 3: Provision of Public Daycare 1990, 1994, 1998

	West Germany			East Germany		
	1990	**1994**	**1998**	**1990**	**1994**	**1998**
Provison Rate						
Krippe	2%	2%	3%	56%	41%	36%
Kindergarten	78%	85%	102%	113%	117%	132%
Hort	5%	5%	6%	88%	58%	48%
Kindergarten (full-time)	n.a.	14%	19%	n.a.	113%	129%
Daycare Slots (in 1,000)						
Krippe	38	47	58	353	103	108
Kindergarten	1,552	1,918	2,151	888	552	334
Hort	128	145	179	818	485	271
Kindergarten (full-time)	n.a.	324	405	n.a.	535	327
Number of Children (in 1,000)						
0 to 3	2,144	2,143	2,095	626	250	298
3 to 6	1,981	2,251	2,110	785	473	253
6 to 10	2,565	2,846	3,027	930	833	569
Public Expenditure (in billion DM)[*)]	n.a.	13.3[**)]	15.0[**)]	n.a.	6.2[***)]	4.4[***)]

Note: (1) [*)] Total expenditure for children's day care including subsidies to child minders, etc. [**)] including East Berlin [***)] excluding East Berlin (2) Provision Rate: slots per 100 children of an age group (3) n.a.=not available (4) Source: Deutsches Jugendinstitut (1993, 1998: 46); Statistisches Bundesamt (2001b); (and various other publications of the Statistisches Bundesamt)

One could argue that, there has been a sizeable decline in the provision of public daycare for children below the age of three in East Germany since Unification. Witte and Wagner (1996: 235) argue in this context that this decline is most likely not "supply driven". Instead, they argue that unemployed women or women on parental leave prefer

27 One might additionally note that the *acceptability of public daycare* is much higher in the East. While only 16 percent of the East Germans think that full-time daycare might be harmful for a pre-school child, 47 percent of the West Germans think that it might negatively affect the well-being of their children (Institut für Praxisorientierte Sozialforschung 1996: 53ff.; see also Braun/ Scott/ Alwin 1994: 34).

to take care of their children themselves. Local municipalities adjusted the supply to the decline in the demand for daycare. It is doubtful that the decline in provision rates only reflects an adjustment to the demand for care; instead it might very well indicate the first signs of a *rationing* of daycare in the East. Additionally, one must take into consideration that the high provision rate strongly profits from the low East German birth rates. In other words, daycare slots were cut down in East Germany, but birth rates (and therefore the number of children to care for) declined even faster. We have argued elsewhere that, in the long run, East German municipalities will not be able to keep up the high provision rates of public daycare (Kreyenfeld/ Hank 2000; Kreyenfeld/ Spieß/ Wagner 2001). In the 1990s, however, there is little reason to speak of an intense rationing of daycare in East Germany. In comparison to their West German counterparts, East German women enjoyed much better opportunities in combining childrearing and employment.

The Price of Daycare

Although one might be optimistic regarding the provision rate of public daycare in the East, this does not, in principle, rule out that high *prices for daycare* reduced the willingness of parents to enroll their children into daycare. Adler (1997: 43) argues in this context that after Unification the price for "childcare has been adjusted to Western market standards". If this was the case, high costs would have suppressed the demand for daycare, women's employment and ultimately fertility decisions.

However, I doubt that the price of daycare plays such a decisive role for individual behavior in Germany. Most importantly, there is basically no market yet for private daycare in Germany. Daycare is in the first place public care, run by local youth organizations or non-profit providers. My own calculations based on the SOEP indicate that East German parents paid about 150 DM per month for a daycare slot in 1996 for the whole day. One could perhaps argue that there is some negative impact of childcare fees for women who expect a very low labor market income, but even this effect should not be very pronounced, since daycare fees should be charged according to the

household income of the parents (for a more detailed discussion of this issue, see Hank/ Kreyenfeld 2001; Kreyenfeld/ Hank 2000; Kreyenfeld/ Spieß/ Wagner 2000).

2.2.3 Taxes & Transfers

In the Unification Treaty, it was legally laid down that the East German tax and transfer system would be replaced by the West German one. This meant that the GDR policies, which had been out-spokenly pro-natalistic since the 1970s, were abolished in favor of West German family policies. Reviewing Western European family policies, Gauthier (1996: 158) notes that "(al)though all countries since the turn of the century have introduced measures to support families, in very few cases have the measures been part of a coherent and comprehensive policy." This is particularly the case for Germany. Since the foundation of the West German state, a variety of tax and transfers have been introduced which support families with children. These measures are not designed as a comprehensive policy, instead elements of a family policy are scattered within the tax system, the pension system and the system of health insurance, etc. (Neumann/ Schaper 1998: 228; Lampert 1996: 151). Compared to the pro-natalistic family policies in the GDR, there has always been great reluctance towards population policies in (West) Germany. Here, family policies are designed to facilitate the "living conditions" of families, however they are not explicitly designed to affect population size (Dorbritz/ Fleischhacker 1995; Gauthier 1996: 123).

The cornerstones of the current German tax and transfer system constitute child benefits ("Kindergeld") and childrearing benefits ("Erziehungsgeld"). The amount of child benefits paid has been altered several times since its introduction in 1955 (see Table

4).[28] Similar to the former East Germany, child benefits are granted on a rising scale depending on the order of the child. Currently, they amount to 270 DM for the first and the second children, 300 DM for the third child and 350 DM for higher order children. Instead of claiming child benefits, parents are allowed to file 6,912 DM for each child in the annual tax-rebate.[29] Such a "dual regulation" basically contributes to a flat rate of transfers up to a certain income limit. In the case of very high incomes, transfers decrease gradually with the household income.

As already discussed above, parents are entitled to an income-related childrearing benefit of 600 DM.[30] For the first six months, there are very high income limits (100,000 DM for married couples). Couples who exceed these limits are not granted any childrearing benefits. After the first six months, the income limits are much lower. Couples who have an annual income of 32,200 DM or over receive a reduction in their childrearing benefits. In contrast to the regulations for the first six months, the "Erziehungsgeld" is then gradually reduced according to the household income.[31] It is also important to note that the "Erziehungsgeld" is not only income related, but also *employment related,* i.e. it is only granted if one of the parents is not working more than 19 hours (and since 2001 up to 30 hours) per week.

Additionally, there are a variety of rules and regulations that are designed to support families with children. Until 2001, the costs for domestic help could be filed for in the

28 This table only gives a short overview of the major cornerstones of German family policies. It should be noted that there were several minor changes in the amount of child benefits and child allowance in between the years presented in the table (for a more detailed overview, see Frerich/ Frey 1996; Lampert 1996: 154f.; Mannheim Centre for European Social Research 2000). Furthermore, the table leaves out a variety of tax-exemptions for families with children. This applies to tax-exemptions for children in education ("Ausbildungsfreibetrag"), tax-exemptions for childcare costs ("Betreuungsfreibetrag"), tax-exemptions for single parents ("Haushaltsfreibetrag") and tax-exemptions for domestic help ("Steuererleichterung für Haushaltshilfen"). Additionally, there are several housing subsidies for low income families ("kinderabhängiges Wohngeld") and loans for house-building (Lampert 1996: 156).

29 Since 2000, all parents are additionally allowed to file 3,024 DM for childcare costs. Before, only single parents were allowed to take advantage of this regulation.

30 If only one year of parental leave is taken, the benefits increase to 900 DM per month. Several federal states also grant additional parental benefits.

31 Until 1994, parental benefits were paid on a flat rate basis for the first six months after the birth of a child.

annual tax rebate.[32] In addition, it is still possible to have the costs for a child-minder reimbursed. However, this regulation only applies if no slot in daycare can be provided and the local authorities consider the use of a child-minder as a necessity. Usually, this only applies to single parents. In practice, none of these regulations are of much importance. In 1998, the subsidies for the use of child-minders only amounted to 0.2 billion DM. In comparison, 19.3 billion was spent on public daycare, 50.1 billion on the "Familienleistungsausgleich" (child benefits and tax exemptions for children) and 7.2 billion on childrearing benefits (Statistisches Bundesamt 2000b: 7; BMA 2000b).

Table 4: Family Policies in the FRG

	1950s/1960s	**1970s**	**1980s**	**1990s**
Child Benefits *) ("Kindergeld") (in DM)	**1955** 25 for 3rd+ child **1961** b) 25 for 1st child 40 for 2nd+ child	**1970** b) 25 for 1st child 60 for 2nd-4th child 70 for 5th+ child **1975** 50 for 1st child 70 for 2nd child 120 for 3rd+ child	**1981** 50 for 1st child 120 for 2nd child 240 for 3rd+ child **1983** b) 50 for 1st child 100 for 2nd child 220 for 3rd+ child 240 for 4th+ child	**1990** b) 50 for 1st child 130 for 2nd child 220 for 3rd child 240 for 4th+ child **1996** a) 200 for 1st child 200 for 2nd child 300 for 3rd child 350 for 4th+ child **2000** a) 270 for 1st child 270 for 2nd child 300 for 3rd child 350 for 4th+ child
Family Allowance **) ("Kinderlastenausgleich/ Kinderleistungsausgleich") (in DM)	**1950** 400 for 1st child 250 for 2nd child 700 for 3rd+ child **1962** 1200 for 1st child 1680 for 2nd child 1800 for 3rd+child	**1975** abolished	**1983** 432 for 1st+ child **1986** 2484 for 1st+child	**1990** 3024 for 1st+ child **1992** 4104 for 1st+ child **1996** 6264 for 1st+ child **1997** 6912 for 1st+ child

Note: (1) *) monthly **) annually a) Child benefits *or f*amily allowance can be taken advantage of b) income related
(2) Source: BMA (1994, 2000a); Frerich/ Frey (1996); Lampert (1996); Wingen (1997a)

32 In principle, this regulation fosters the employment of child-minders. In practice, households were only allowed to take advantage of this regulation, if the domestic help was regularly employed, i.e. domestic help had to be paid according to a wage tariff and the employer had to pay social insurance for them. This aspect is widely believed to be the main reason why only very few households took advantage of this regulation (for details, see Bittner/ Weinkopf 2000; Hank 2001b).

Table 4 (continued): Family Policies in the FRG

	1950s/1960s	1970s	1980s	1990s
Maternity Leave [c] ("Mutterschaftsurlaub")	**1952** Paid leave for 6 weeks before and 6 weeks after childbirth (Amount: equivalent to sick pay) **1965** Paid leave for 6 weeks before and 8 weeks after childbirth			
Parental Leave [c] ("Erziehungsurlaub" "Elternzeit" (since 2001))		**1979** 6 months after childbirth	**1986** 10 months **1988** 12 months **1989** (June) 15 months	**1990** (June) 18 months **1992** 3 years
Childrearing Benefit *) [b] ("Erziehungsgeld") (in DM)		**1979** [c] Equivalent to sick pay (for 6 months after childbirth)	**1986** 600 (for 10 months) **1988** 600 (for 12 months) **1989** (June) 600 (for 15 months)	**1990** (June) 600 (for 18 months) **1993** 600 (for 24 months) **2001** 600 (for 24 months) or 900 (for 12 months)
Child Sick Leave			5 days	**1992** 10 days for 1st child 20 days for 2nd+ child Single parents: 25 days for 1st child 50 days for 2nd+ child

Note: (1) *) monthly **) annually [a] Child benefits *or f*amily allowance can be taken advantage of [b] income related [c] only working mothers (2) Source: BMA (1994, 2000a); Frerich/ Frey (1996); Lampert (1996); Wingen (1997a)

The German Tax and Transfer System & the Breadwinner Model

How do the German family policies operate? Do they encourage family formation? Do they relieve the costs of children? Lampert (1996: 259) and Wingen (1997b: 565) strongly favor the hypothesis that German family policies do not sufficiently support families in Germany. They only partially relieve the costs of children and parents are

burdened with the greatest bulk of child costs. Kaufmann (1990: 383; 1995: 169) even talks of a "structural neglect" of families in this context.

However, a comparison of the child-related transfers in Germany with the amount paid in other countries sheds a different light on the issue. Particularly in comparison with countries such as Great Britain and the US, transfers to families with children are relatively generous in the German welfare state (Gauthier 1996: 170; Sainsbury 1997: 191; Shaver/ Bradshaw 1995: 15). The most striking issue about the German system is, however, the relatively high level of transfers to "one-earner families". The existence of the system of *income splitting* ("Ehegattensplitting") in particular, has induced several researchers to label the West German welfare state as a prototype of the traditional "male breadwinner model" (e.g., Bast/ Ostner 1992: 229; Gauthier 1996: 155; Holst/ Kirner 1995: 321; Sundström 1999: 196). Married couples can file their taxes jointly, i.e. the man's and the woman's income is added together, divided by two and taxed as individual incomes. Due to progressive taxation in Germany, this regulation results in high tax relief for couples in which the man and the woman earn very unequal wages. Put differently, this measure makes (in general) female "non-employment" less costly, provided the woman is married to a partner in full-time employment. The German health care and pension system contain similar "work-disincentives". Married housewives are automatically insured by the health insurance of their partners and entitled to a widow's pension. Housewives are also covered by the statutory health insurance of the spouse ("Familienmitversicherung") (Wingen 1997a: 188f.). Since 1986, periods of non-employment due to childrearing (currently up to three years) can be taken into account in the national pension system. As discussed above, additionally (one could even say correspondingly), full-time daycare for children is practically not available in the western states of Germany. In sum, the (West) German institutional framework is strongly tailored to fit the traditional male breadwinner family, i.e. the woman withdraws from the labor market after childbirth and relies on the partner's income which is then only modestly taxed (see also Pfaff 1997; Sainsbury 1997).

2.3 Conclusion

In this chapter, I gave an overview of the major labor market constraints and family policies that I expect to be relevant for fertility decisions before and after Unification in East Germany. One of the outstanding aspects in the GDR was the high degree of *social security* and the *high predictability of employment paths*. Unemployment virtually did not exist and there were rather low risks (and chances) of experiencing job or income mobility. It seems safe to put forward that men and women in the GDR were used to stable and predictable full-time employment careers. In addition, the problems that revolve around combining childrearing and employment were solved by an extensive provision of public daycare, paid leave for mothers with sick children and a one year period of childcare leave, which guaranteed a relatively high level of income replacement.

With German Unification, the set-up of the East German labor market drastically changed. Severe labor market turnovers, i.e. closures of firms and therefore dismissals of workers, had the effect that East Germans not only lost the predictability of their career paths, they were furthermore at greater risk of experiencing unemployment or a change of jobs or occupations than their West German counterparts. Empirical analyses reveal that almost half of all East German males experienced some periods of unemployment or job creation programs in the immediate period after Unification. Concerning female employment, several aspects are of special importance. On the one hand, East Germans faced rather unfavorable macro-economic constraints on participation in the labor market. They were more likely to be unemployed, more likely to participate in retraining measures and had lower chances of re-entering the labor market after unemployment. Additionally, the new family policies and labor market constraints render the "non-employment" of married women "less costly". While GDR family policies and labor market institutions basically "drew" women into full-time work, the new system of income splitting or the coverage of married women by national health insurance allowed married woman more easily to withdraw from the labor market after childbirth than West German women. On the other hand, however, East German women still faced better opportunities in reconciling childrearing and employment due to the wider availability of public daycare. In the following chapter, I discuss how these

drastic changes in family policies and labor market constraints may have affected fertility decisions in East Germany after Unification.

Chapter 3

Employment and Fertility Decisions

In this chapter, I firstly discuss the general theoretical framework, which relates economic parameters to fertility decisions (Part 3.1). Standard economic reasoning suggests a *positive* correlation between men's employment and fertility and a *negative* correlation between women's employment and fertility. In the two subsequent parts, I elaborate on how these predictions change when taking family policies into consideration (Part 3.2) and when viewing fertility as a life course event (Part 3.3). One of the major aspects I highlight in this context is that the often stated "stable" negative correlation between women's employment and fertility changes, when women are able to combine childrearing and employment (Part 3.4). This aspect is of particular importance in the East German case. Since Unification, an unfavorable economic situation has "pushed" women out of the labor market, but on the other hand, a high provision rate of public full-time daycare allows them to combine childrearing and employment more easily. In Part 3.5, I discuss, in reference to family polices and labor market institutions summarized in Chapter 2, more specific hypotheses on the role of women's employment in fertility decisions in East and West Germany during the 1990s.

3.1 The Standard Economic View on Fertility

In the economic theory of fertility, most attention has probably been paid to the relationship between female employment and fertility (e.g., Becker 1993: 140; Oppenheimer 1994). A major assumption that is made –frequently labeled as the "male

chauvinist approach"– is that the woman in the household gives up work on the labor market in order to take care of the children. This might be the result of intra-family bargaining, which assigns the childcare responsibilities to the person with the lowest market wage (e.g., Ott 1992), or it might just as well be an indicator of the persistence of traditional gender roles. However that may be, assuming that childrearing is considered a woman's responsibility and assuming further that childrearing and employment are incompatible, women have to choose to either proceed with an employment career or raise children. Brewster and Rindfuss (2000: 271) conclude in this context that "women's labor force behavior lies at the heart of most explanations of fertility and fertility change, (…). The association between fertility and women's labor force activity reflects the incompatibility between caring for children and participation in economically productive work that typifies industrialized societies."

When discussing the role of women's employment in fertility, the focus is generally geared towards the *opportunity costs* of childrearing. Yet, the impact of men's employment on fertility is viewed from the perspective of the *affordability* of children. In order to raise children, "large amounts of money" (Turchi 1981: 198) are needed. Therefore, fertility decisions should crucially be influenced by the monetary costs that are associated with raising them. Assuming that the male partner is the primary person providing the household income, his labor market status should be most decisive for fertility decisions.[33]

33 In particular, the most profound change in fertility behavior, namely the "first demographic transition", challenges this line of reasoning, since rapid fertility decline was accompanied by substantial economic growth then. It might have been –from the standpoint of economic theory– the unexplained negative correlation between economic growth and fertility which has motivated Becker (1960) to introduce a new variable into the economic framework. What he titles as *quality of children* is basically the expenditure per child, which he expects to be positively correlated with the well-being of children. The key issue now is how much of their income parents are willing to spend on their children. Allowing, e.g., for neglect of children on the one side and high investments in college education on the other side, leaves significant room for the choice of child quality. Although the concept of "child quality" gives an intuitive explanation of why an increase in income is not necessarily related to a proportional increase in fertility, it basically leads to a loss of the model's predictive capacity. It is not possible to project the impact of an income change on fertility any longer, unless one also takes into account the demand for child quality. Furthermore, the empirical analysis of child quality turned out to be a rather cumbersome issue. Willis (1987: 75) notes that "the operational definition of child quality" is "an unresolved issue". Robinson (1997: 70) argues that "the celebrated notion of 'quality of children' turns out to be an empirical 'empty box' and a methodological dead end."

According to the standard human capital theory, higher investments in education should lead to higher wages (Mincer 1974), which means that more highly educated males should be better able to afford a larger family. Female education and high female wages increase the opportunity costs of childrearing and suppress fertility. Vice versa, low female wages and high female unemployment reduce the time costs of childrearing and should, therefore, encourage couples to have children (Butz/ Ward 1979; Zimmermann/ DeNew 1990). The bottom line of this reasoning is a *negative* correlation between female employment (education or wages) and fertility on the one hand, and a *positive* correlation between male employment (education or wages) and fertility on the other.

An Alternative View

Many studies have confirmed the negative relationships between women's employment and fertility. The most influential study using macro level data is probably the one by Butz and Ward (1979), who use US-data to show that female wages are negatively correlated with fertility rates. On the micro level, there are various studies, which find a negative correlation between female wages or female education and fertility (e.g., Merrigan/ St. Pierre 1998: 41; Heckman/ Walker 1990: 1439). Since the pattern was repeatedly supported in various empirical studies, researchers claimed that they had found a consistent and stable relationship (e.g., Becker 1993: 140; Hirschman 1994: 222).

However, in recent years there have been an increasing amount of studies which contradict this "stable correlation" and report a positive relationship between female employment, education or wages and fertility (e.g., Ahn/ Mira 1999; Buber 2001; DeWit/ Ravanera 1998: 60; Ermisch 1989: 93; Hoem/ Hoem 1989: 52; Huinink 1989; Kravdal 1992). Empirical investigations on the role of women's unemployment and fertility provide similar equivocal results. Some studies report a positive correlation between female unemployment and fertility (e.g., Andersson 2001; Hoem 2000; Rindfuss/ Morgan/ Swicegood 1988; Kreyenfeld 2000), others show negative or no impact (e.g., Gutièrrez Domènech 2001; Kravdal 2001). Due to data limitations, there

are only a few micro-level studies on the role of male's unemployment in fertility, which neither provide consistent evidence for a positive or a negative impact on fertility (Kohler/ Kohler 2001; Kravdal 2001).

Apart from the fact that these studies differ substantially in the methods applied, which might partially explain the divergent results, one can question whether the line of reasoning presented above provides a convincing framework to explain the role of women's (un)employment in fertility decisions in contemporary societies. In other words, there is little reason to expect a universal positive or negative impact of female employment on fertility (Bernhardt 1993: 26-27). Instead, its impact should depend on the persistence of traditional gender roles, the career aspirations of women and institutions that alleviate the compatibility of childrearing and employment.[34]

Most importantly, if one assumes that women are able to reconcile childrearing and employment, their labor market status becomes of vital importance in supporting the family (Rindfuss/ Morgan/ Offutt 1996: 280; Macunovich 1996). Under a "regime" which provides out-of-home care, high female wage rates do not necessarily increase the opportunity costs of childrearing. Instead, the woman's employment status has a bearing on the household income and the woman's income can also compensate for the insecure labor market position of her male partner (Oppenheimer 1994). This aspect should crucially impinge on the relationship between female employment (unemployment, wages, education) and fertility. In short, whether and how women's employment affects fertility critically depends on the compatibility of childrearing and employment and ultimately on family policies which support the employment of women. In the following part, I discuss this issue in greater detail.

34 From a theoretical viewpoint, one can raise the additional concern of whether the correlation between female education and fertility is spurious in the first place (e.g., Blackburn/ Bloom/ Neumark 1993; Eloundou-Enyegue 1999; Engelhardt/ Fürnkranz-Prskawetz/ Kögel 2001; Mooeny Marini 1984: 491). Women *anticipate* that they will have a child later on and will therefore acquire less education from the very start. A woman "who is sure she does not want to have a child any time soon, if at all, may expand her role and educational aspirations accordingly" (Rindfuss/ Bumpass/ St. John 1980: 432).

3.2 Family Policies and Fertility Decisions

In Germany, as in most European counties, there are no explicit pro-natalistic policies (Gauthier 1996: 123; Höhn 2000: 5). Yet, there are a variety of policies, which aim at increasing the living standards of families with children. Such policies are based on redistribution grounds, i.e. to redistribute income from the childless to those who have children. Furthermore, there are some policies that facilitate the compatibility of childrearing and employment. The motivation behind such policy measures is to create equal opportunities for women in the labor market. Although these policies are not explicitly targeted towards fostering fertility, as a side effect, they should encourage couples to have children. Policies which are either directed towards "increasing the living standards of families with children" or "facilitating the compatibility of childrearing and employment" are frequently grouped together under the umbrella of *family policies*. There are numerous ways of setting up family policies. Below, I make a simplified distinction between three different types of government interventions:

(1) **Monetary transfers** include all allowances for families with children, such as child benefits, tax deductions or tax credits (Gauthier/ Hatzius 1997; Gauthier 2001; O'Donoghue/ Sutherland 1999). Child benefits can be granted at a flat rate, they can be means or income tested and they can vary by the size of the family. Tax deductions can be granted to all families with children; there can be additional tax exemptions for certain kinds of child expenditure, e.g., for the costs of education, housing or childcare. Furthermore, transfer payments can be employment related, e.g., they are only granted to working parents (like the childcare tax rebate in Australia) or only to parents in non- or part-time employment (like the childrearing benefits in Germany).

(2) **In-kind benefits** encompass all "non-monetary transfers" to families with children. Alternatively, one might title this type of government intervention as the "public provision of goods and services". In the context of German family

policies, the most important in-kind benefit is the public daycare system.[35] In the GDR, there was an array of other in-kind benefits, such as priority access to public housing or to public holiday camps for large families (see Chapter 1).

(3) **Regulations** which affect fertility decisions are particularly parental leave regulations. One could also name regulations that foster or hamper the functioning of a private childcare market or laws against the dismissal of pregnant women.

Table 5 gives an overview of this family policy classification scheme. In the following, I use this scheme to discuss the impact of different types of family policies on fertility decisions.

Table 5: Family Policy Classification Scheme[36]

	Policy Target	
	Supporting Families	**Compatibility**
Monetary Transfers	• child benefits	• tax deduction for childcare costs • maternity benefits
In-Kind Benefits	• public housing for large families	• public daycare
Regulations	—	• parental leave

35 One could also name the public schooling system in this context. The policy goal behind it is to create equal opportunities for children. At the same time, it reduces the costs of children. The effect of public schooling in reducing the costs of children is hardly ever discussed (an exception is the study by Percival/ Harding 2000).

36 This classification scheme is certainly only ideal-type. There are various other forms of government interventions, which do not comply with this scheme (e.g., childcare voucher, subsidies to non-profit childcare centers).

(1) Taxes and Transfers

As mentioned before, although child allowances are usually introduced to increase the living standard of families with children, they should also encourage couples to have children. Apart from fostering fertility they might, however, also affect employment decisions. In this context, O'Donoghue and Sutherland (1999: 569) talk of a *trade-off* between redistribution and "damaging" the incentives to work, particularly for the woman in the household. A similar (but reverse) aspect applies to childcare subsidies which are granted to parents who give their children into daycare. Childcare subsidies are expected to facilitate the employment of mothers; at the same time they weaken the above mentioned "stable correlation" between female employment and fertility.

For empirical analysis, these two aspects are of vital importance. If one analyses the impact of, e.g., child benefits on fertility decisions, it is important to consider its impact on employment at the same time. Incorporating childcare subsidies, the situation becomes even more cumbersome, since one would additionally have to consider the demand for childcare. There is also another important aspect which complicates the analysis. Family allowances are usually embedded in a complex tax and transfer system. In order to investigate how a marginal increase in family allowances affects fertility decisions, one would ideally have to consider the entire tax and transfer system. In most countries, including Germany, the tax and transfer systems are rather complex. E.g., income taxes vary for single and married women; there are different tax rates for different kinds of income, i.e. for property income, labor income, the income of the self-employed. In addition, there are a variety of family allowances, i.e. for childcare costs, child benefits, housing for families with children, etc. The situation becomes particularly complex if one considers that fertility decisions should preferably be analyzed from the life course perspective, which also necessitates taking into account the changes in the tax and transfer system over time. In order to thoroughly investigate how a marginal change of, e.g., the amount of child benefits affects fertility decisions, complex tax simulation programs are needed (see e.g., O'Donoghue/ Sutherland 1999; Szukalska/ Percival/ Walker 1999). One can fairly say that a thorough empirical analysis of the impact of monetary transfers on fertility decisions is a tedious issue. Nevertheless, it is still possible to derive a general hypothesis on the role of child

allowances in fertility decisions. If the *costs of children* are heavily subsidized, the labor market income will lose some of its importance in supporting a family. The higher the child related transfers, the less need there is for a couple to postpone childbirth until a "sufficient" and stable household income can be guaranteed.

(2) Compatibility of Childrearing and Employment

So far, I have not explicitly discussed the role of childcare subsidies in fertility decisions. The most important difference between, e.g., tax allowances for children and childcare subsidies is that the latter is more narrowly tailored. While tax allowances are given to all families with children (who pay taxes), childcare subsidies are only given to families who give their children into daycare. For empirical analysis, there is hardly any difference in the way one treats both measures.[37] However, one can question whether such a framework would be really helpful in understanding the role of government intervention in fertility decisions in Germany. In Germany (and in most other European countries), the government does not solve "compatibility problems" by subsidizing the use of daycare, but by the public provision of daycare.

Recalling the classification schemes from above, the provision of public daycare was labeled as an in-kind benefit. There are two aspects that are of vital importance in this context. Firstly, one of the key characteristics of an in-kind benefit is that the consumer has to accept the quality of the service that is provided by the government. This also

37 The *costs of childcare* are usually viewed as a reduction of female net wages, resulting in a flatter budget constraint for women with children. Heckman (1974: 137) was the first to characterize childcare subsidies as an increase in female net wages: "If a child-care program gives a woman with a child an hourly supplement for each hour she works, (...), the supplement is equivalent to a wage change of equal magnitude (...)." In other words, childcare subsides can be treated similarly to other transfer payments, i.e. they affect the shape of the budget constraint. There are various empirical studies which model the impact of childcare subsidies (or childcare costs) on female employment (e.g., Anderson/ Levine 1999; Conelly 1992; Ermisch 1993: 367), but there are hardly any studies which investigate the impact of childcare subsidies on employment *and* fertility decisions. The only study I know of, which models the impact of childcare subsidies on fertility and employment, is the one by Blau and Robins (1989). However, there are some studies which deal with the role of childcare in fertility decisions. Hank and Kreyenfeld (2001) and Kravdal (1996) investigate the effects of the availability of daycare on fertility, using data on the local provision rate of public daycare. Oppenheim Mason and Kuhlthau (1992) and Presser and Baldwin (1980) analyze attitudes of women towards the compatibility of childcare, fertility and employment.

means that if parents believe that the care provided in a public daycare center is below acceptable levels, they will not take advantage of it, even though it is free of charge. Secondly, assuming that daycare is publicly provided and assuming further that there is no or hardly any private daycare, it is not the *costs* of daycare that influence a couple's employment and fertility decisions, instead, the *availability* of daycare is more important in this context. In Germany, access to daycare is governed by regulations set by local municipalities or by the daycare centers. The key question in this context is no longer whether couples are able to afford daycare, but how they perceive their chances of obtaining a slot in a public daycare institution and how they evaluate the *quality* of care in a public daycare center.

(3) Parental Leave Regulations and the Return to Work after Childbirth

A high coverage of public daycare solves major incompatibilities between childrearing and employment. One could, however, argue that public daycare does not completely alleviate all conflicts between childrearing and employment. It is relatively safe to assume that some couples feel reluctant to give their child into daycare when it is still "very young". This means that the mother (or the father) would have to temporarily withdraw from the labor market. Depending on the type of job and the mechanisms that allocate workers to job positions, career interruptions might worsen long-term employment prospects (see below). Women, who are unwilling to give their children into daycare when they are very young, would then be downgraded in their jobs. In general, parental leave regulations are considered to alleviate this compatibility problem (Gornick/ Meyers/ Ross 1998: 37; Lohkamp-Himmighofen 1999). They allow the mother (and in general also the father) to take paid leave which guarantees the right to return to previous employment in a *status-adequate job* within the parental leave period. Put differently, they allow women to temporarily reduce their workload without having to withdraw from the labor market entirely.

The Effectiveness of Family Policies

One of the intriguing questions in this context is which family policies are the most successful in supporting fertility, i.e. family policies which are designed to "reduce the monetary costs of children" (such as child benefits) or policies which "facilitate the compatibility of childrearing and employment" (such as public daycare).

In the previous part, I emphasized that there are numerous ways of targeting family policies and therefore various ways of influencing fertility decisions via monetary transfers, in-kind benefits or legal constraints. Although, it is standard practice to separate the *affordability issue* ("reducing the costs of children") from the *compatibility issue* ("supporting the employment of mothers") both aspects are closely interwoven. Policy measures, which allow women to combine childrearing and employment, simultaneously increase the household income and put couples into a position where they can more easily afford a family. A policy which solely focuses on the monetary costs associated with raising children, basically ignores the large monetary losses couples are burdened with when one of the partners has to withdraw from the labor market to raise children. I will come back to this aspect later, when I discuss the role of family policies in fertility decisions after Unification (see Part 3.5).

3.3 Fertility Decisions from the Life Course Perspective

The standard economic framework (as sketched in Part 3.1) focuses on the role of employment in *family size* decisions (or rather on the decision to have children or to remain childless). Changes in fertility patterns since the 1960s in Western Europe are, however, less associated with a decline in lifetime fertility, but more with a permanent and steady increase in the *age at motherhood* (Bongaarts 1999: 256; Dorbritz 1998b; Frejka/ Calot 2001b; Lesthaeghe 2000: 2; Lesthaeghe/ Willems 1999: 211). Table 6 shows some of the changes in the age at first birth, which have occurred throughout

Western Europe since the 1960s.[38] In West Germany, e.g., the mean age increased from 24 in 1970 to almost 27 in 1995.[39] Other countries witnessed a similar development. In the European context, the Netherlands experienced the most drastic increase, where the mean age jumped from 24 in 1970 to almost 29 in 1995 (Bosveld 1996). Southern Europe's mean age for women bearing their first child was stable in the 1970s, however, it has also steadily increased since the late 1980s. In contrast to the developments in Western Europe, the age at childbirth remained at a stable low level in Eastern Europe during communist times.[40]

The high West German (and Western European) age at first birth does not only highlight the point that the "East German fertility decline" might be related to an increase in the age at parenthood to West German age levels (see Chapter 4), but it also raises the question of which factors contribute to a postponement of childbirth to older ages. In the following, I first discuss standard explanations for the *timing of first birth* (Part 3.3.1). In the second step, I focus on the decision to have a *second child* (Part 3.3.2).

Viewing fertility from the life course perspective and distinguishing births of different orders, matches the hypothesis developed in the previous section. Although one finds arguments which support the hypothesis that women's employment (education or wages) has a postponing effect on parenthood, the framework relies on very strong assumptions regarding the compatibility of childrearing and employment and the functioning of the labor market.

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38 In this context "Western Europe" refers to all European countries, which did not belong to the Eastern Block. Respectively "Eastern Europe " refers to all countries belonging to the former Eastern Block.

39 In comparison to the Netherlands, the West German mean age appears relatively low. There are two aspects which have to be considered in this context. Firstly, I only have my own estimations at my disposal for Germany; data from the other countries come from vital statistics (i.e. from total population surveys which do not contain any sampling error). Secondly, the (period) mean age at first birth can be a misleading indicator. It fails to take into account the relatively high West German level of childlessness. Furthermore, it can be distorted when there are changes in the age at parenthood.

40 It should be noted that before the upsurge of communism, there were some differences in the family formation patterns in Eastern and Western Europe. For Eastern Europe, Hajnal (1965: 105) observes a lower age at marriage and a lower proportion of people who never married at the turn of the last century. Still, there is little reason to believe that the low age at first birth during communism is a holdover from former times. The most important counter-argument is that some countries which Hajnal classified as Western Europe (e.g., Poland, Estonia, Lithuania, East Germany) displayed a low age at first birth during communism.

Table 6: Mean Age at First Birth in Selected European Countries, 1960-1995

	1960	1970	1980	1990	1995
Western Europe					
England/ Wales	24.8	23.5	24.5	25.5	26.7
Germany (West)	24.9	23.8	25.0	26.0	(26.7)[41] [42]
Italy	25.8	25.1	25.1	26.9	28.1
Netherlands	25.6	24.3	25.6	27.6	28.6
Sweden	n.a.	n.a.	25.5	26.3	27.3
Eastern Europe					
Bulgaria	22.1	22.0	21.9	22.1	22.5
Hungary	n.a.	22.8	22.4	23.1	23.8
Germany (East)	22.4	22.1	21.8	22.7[*)]	(24.9)[43]
Poland	n.a.	22.8	23.4	23.5	23.5
Russia	24.3	23.3	22.9	22.9	22.6

Note: (1) *) Data relates to the year 1989 (2) Sources: Bulgaria: Eurostat (1998); Hungary, Poland: Council of Europe (1998); East Germany 1970-1990: Statistisches Bundesamt (1999b); Russia: Goskomstat of Russia (1997); Netherlands, Sweden: Eurostat (1998); England/ Wales: Council of Europe (1998); Italy: Instituto Nazionale di Statistica (1998: 97)

3.3.1 Timing of First Birth

In the discussion on an increase in the age at parenthood, the most frequently named aspects are probably women's educational attainment and career orientation (Gustafsson 2001; Liefbroer/ Corijn 1999; Rindfuss/ Morgan/ Swicegood 1988; Taniguchi 1999). In more recent years, however, there is another aspect that has amassed some attention. Particularly with regards to southern European countries, it has been argued that youth unemployment and *unstable employment situations* have induced a postponement of childbirth to maturer ages (Höpflinger 1997: 178; McDonald 2000: 10f.). Below, I discuss some major arguments raised in the context of the timing of first birth. I

41 The West German mean age at first birth reported in this table is based on my own estimations (see Appendix for details).

42 If one used the German micro-census 1996 (see Footnote 43) to estimate a mean age at first birth for the year 1995, one yields a mean age at first birth of 27. The sample comprises 84,840 women who gave birth to 1,770 children.

43 For East Germany, the estimations are based on the German micro-census of the year 1996. The table displays the mean age at first birth for the year 1995. For this calculation the birth cohorts 1951-1981 (respectively women age 14-45 in 1995) were used. The sample comprises 20,370 East German women who gave birth to 201 children. The reported mean age at first birth was standardized for age.

consecutively discuss the role of (1) women's educational participation and (2) educational attainment, (3) the instability of male employment and (4) the instability of women's employment situations in the increase in the age at childbirth.

(1) Women's Educational Participation

Viewing the relationship between women's education and fertility from the life course perspective moves an element into focus, which the "period perspective" painfully neglected. In order to gain an educational certificate, one usually has to undergo education or vocational training and, depending on the educational outcome, the duration it takes to receive a degree might vary considerably. In this context, it has been argued that more highly educated women are solely older at first birth (or first marriage), because they are in the educational system for longer and because childrearing and receiving education is basically incompatible in most societies (Blossfeld/ Jaenichen 1990: 183; Hoem 1986: 113; Rindfuss/ Morgan/ Swicegood 1988). Students are generally subject to severe monetary and time constraints while receiving education and there are "normative expectations in society that young people who attend school are 'not at risk' of entering marriage and parenthood" (Blossfeld/ Huinink 1991: 147).

There is consistent empirical evidence, which supports the hypothesis that childrearing and receiving education are incompatible, particularly in the West German case (Blossfeld/ Huinink 1991; Blossfeld/ Rohwer 1995b: 70; Klein/ Lauterbach 1994: 287). This implies that more highly educated women are inevitably older at first birth, because they leave the educational system later than less educated women.[44] The crucial question in this context is, whether they also postpone (or avoid) parenthood after they have completed their studies. In other words, one of the crucial questions is whether there is only an *institutional effect* or also a *level effect* of education (Blossfeld/ Huinink 1991; Blossfeld/ Jaenichen 1990; Hoem 1986).

44 The same arguments, made for women's educational participation, should apply to the one of her partner as well. More highly educated men are usually enrolled in the educational system for longer. Assuming that receiving education and fertility is incompatible, they should be older at first parenthood.

(2) Women's Educational Attainment

The "level effect of education" refers to the aspect that more highly educated women also postpone parenthood *after* they have completed their education. They are expected to enter more challenging career paths which demand a postponement of childbirth to a later stage in life (e.g., Huinik 1995b; Klein 1989: 490; Taniguchi 1999: 1008). Since the arguments raised in this context depend on relatively strong assumptions regarding the role of *employment interruptions* in the subsequent labor market career, I examine this issue more closely in the following. In the first step, it is necessary to "disentangle" the various opportunity costs which are related to an interruption of the employment career.

Digression: The Opportunity Costs of Career Interruptions

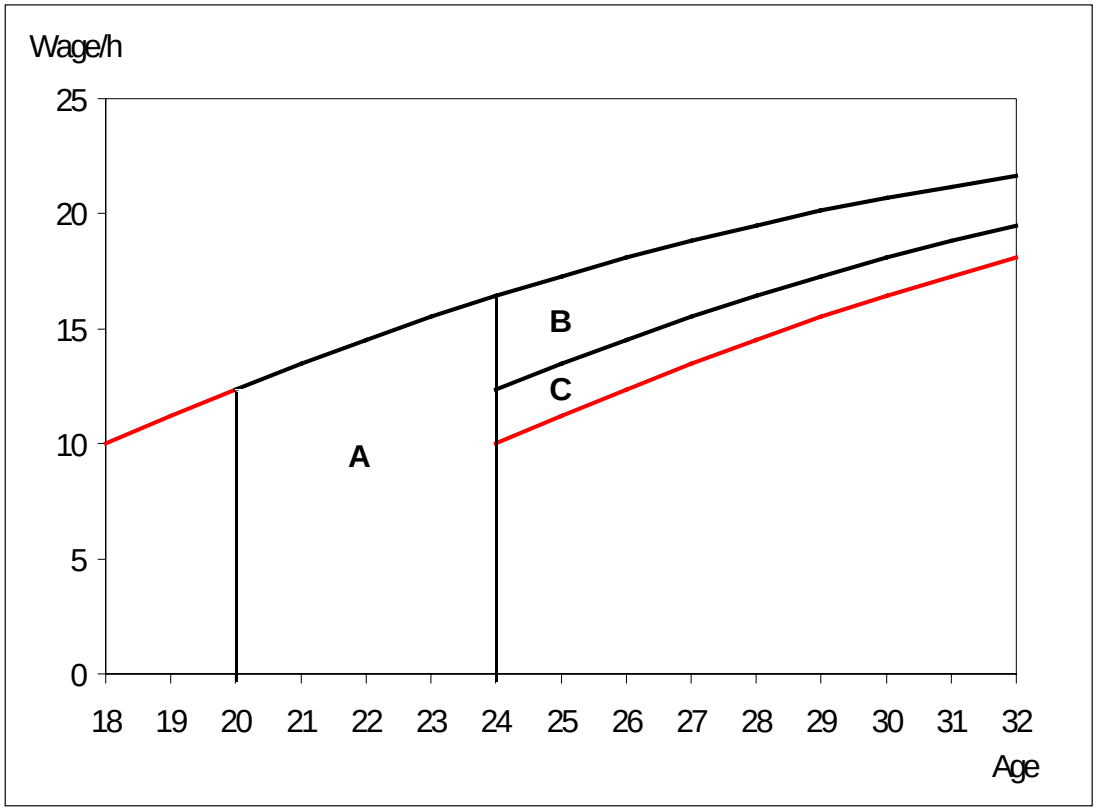
In the standard human capital model, the labor market performance (or more precisely the wage) depends on the worker's human capital endowment, i.e. his or her education and work (or firm) experience (Mincer 1974). Having the standard human capital model in mind, the forgone earnings after withdrawing from the labor market are usually broken down into the following three components (see e.g., Albrecht et al. 1999: 295; Gustafsson 2001).

- While caring for a child, a woman (assuming traditional gender roles) is not able to be gainfully employed at the same time, since "work sites are usually some distance from home, and work schedules, set by the employers, lack the flexibility required for children" (Brewster/ Rindfuss 2000: 271). This means, a woman will encounter opportunity costs of a *forgone income* while she cares for a child.
- When a woman interrupts her employment career to take care of her child, she does not accumulate work (or firm) experience. The monetary costs are the *forgone returns for this work experience*. To phrase it broadly: a woman forgoes labor market upward mobility when she withdraws from the labor market during the phase of "career building" (Taniguchi 1999: 1008).

- After a woman returns to the labor market, she earns less because her human capital has lost some of its value in the interim. "(…) human capital acquired in previous years of employment may become obsolete after a break, because this knowledge is not maintained and updated during the leave in most cases" (Beblo/ Wolf 2000: 1). In other words, she encounters opportunity costs related to a *devaluation of human capital.*

In Figure 5, I display the age-earning profile of a fictitious woman who interrupts her employment career at age 20 and resumes employment again at age 24. The forgone earnings (A), the forgone return for human capital (B) and the costs of the depreciation of human capital (C) are visualized in this Figure. Aspect (B) and (C) can also be titled as the loss of future earning potential (Cigno/ Ermisch 1989: 741).

Figure 5: Age-Earning Profile with and without Employment Interruption



The crucial question is why more highly educated women (who are expected to encounter a steeper age-earning profile) postpone childbirth to older ages. The most frequently cited argument in this context is that several years in the job are required before one has settled into a stable "career track", which allows a temporarily withdrawal from the labor market without having to fear that one has missed out on crucial career opportunities (e.g., Huinink 1995b; Klein 1989: 490; Taniguchi 1999: 1008). What follows on from this, is that career orientated women should have the highest incentive to postpone parenthood to avoid "a regression" in their career paths. Assuming that educational attainment is positively correlated with career orientation, more highly educated women should have the highest incentive to have their first child later on in their employment careers (Gustafsson 2001: 236; Liefbroer/ Corijn 1999; Rindfuss/ Morgan/ Offutt 1996: 280).

However, this line of reasoning relies on a group of relatively strong assumptions. At first, one has to assume that women will be able to return to a "status-adequate job" after career interruptions. In other words, one has to assume that there are institutions (such as parental leave regulations) which guarantee women a return to their previous labor market position after childbirth. If career interruptions entail the severe danger of being downgraded in the job, it does not seem particularly sensible to leave the labor market when one has finally acquired a high position.[45] Instead, the question arises, why invest in one's employment career in the first place. Secondly, one has to assume that women are able to reconcile childrearing and employment. Given that a woman has to withdraw from the labor market for an "indefinite" period of time after childbirth, she should in any case postpone parenthood to the biological limits. If childrearing and employment are incompatible, the "timing issue" is presumably of only very secondary

45 In principle, one could argue that in such a situation "career orientated" women should have children before they even enter the labor market in order to minimize the career interruptions due to childbirth later on (De Wit/ Ravanera 1998: 46). However, taking into account the incompatibility of childrearing and employment, this line of reasoning is not really convincing.

importance. The more pressing question is rather, whether to invest in ones' employment career or to have children at all.[46]

In sum, there are several arguments, which support the hypothesis that more highly educated women *avoid* parenthood altogether. The arguments raised for the *postponement* of childbirth are not as convincing, unless one makes strong assumptions regarding the functioning of the labor market, the course of employment tracks and the possibilities of combining childrearing and employment. As a result, researchers might have too rashly cited female educational attainment within the context of a postponement of childbirth, without distinguishing its impact on the timing and quantum of fertility or checking the validity of the assumptions the framework is based upon. Empirical studies on the role of women's education in fertility support this presumption. There are several studies which report a negative "level effect" of education in first birth risks (e.g., Brüderl/ Klein 1991; Dorbritz/ Schwarz 1996; Schwarz 1989). However, this effect is relatively responsive to the specification of the model, the other controlling variables and the operational definition of the educational levels (Blossfeld/ Huinink 1991: 157; Blossfeld/ Huinuink/ Rohwer 1991: 339). The bottom line of empirical investigations is that female educational attainment does not have a postponing effect on family formation *per se*. It is rather the characteristics of the employment track a woman chooses, which affects fertility decisions.[47]

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46 Another argument frequently named in this context is that employers actively *discriminate* against women with children (Marini 1989: 354; Reskin 1993: 254f.). Despite encompassing regulations in basically all industrialized countries, which forbid employers to dismiss pregnant women or to discriminate against women with children, one cannot rule out that employers pay women with children less or do not even hire them. Titled as "statistical discrimination", it is argued that employers are unable to completely judge the productivity of a worker and therefore they rely on simple characteristics such as race, gender or motherhood status. Using "group stereotypes" as an indicator for productivity "will create racial and gender gaps in earnings and employment opportunities" (Borjas 1996: 336). However, also in this case, the argument made is convincing as to why more highly educated women avoid parenthood altogether, but less so with regard to why they postpone it.

47 Additional support for this hypothesis is given by studies on the role of occupational characteristics in the return to work after childbirth. They show that women who work in occupations that offer flexible working hours (school teachers) or additional parental leave regulations (such as public sector employees) are faster in having their first child and return to the labor market more rapidly after childbirth (Desaj/ Waite 1991; Lauterbach 1994; Ranson 1998: 526).

(3) Men's Unstable Employment Situation

Similar to the "family size discussion", the "timing discussion" is generally based on the assumption of traditional gender roles (Cigno/ Ermisch 1989; Happel/ Hill/ Low 1984; Hotz/ Klerman/ Willis 1997). While women's employment comes into the picture in the form of the *opportunity costs of career interruptions,* the male is usually viewed as a *provider of the household income*. One of the most frequently cited models in this context is probably the one by Happel, Hill and Low (1984: 304). In this model, the delay of fertility is triggered by the desire to have a stable level of consumption over the life-cycle. "(C)ouples wishing to smooth their life-cycle distribution of non-child consumption have an incentive to synchronize the costs of child care in which the man's earnings are relatively high."[48]

Although this framework does not explicitly consider employment uncertainties and is very blunt about gender roles, it highlights an important aspect. It is not the *current* labor market income which 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, there is good reason to believe that couples will postpone parenthood (assuming traditional gender roles) when the male partner is subject to an unstable employment situation (e.g., Höpflinger 1997: 178; Huinink 1995a: 247ff.; McDonald 2000: 10f.). During times of unemployment, the future path of the employment career is uncertain and, in most cases, it will be open if a new job can be found easily. Given that a new job can be found, the employee has to establish his position in the new firm. E.g., a probationary period during the first months of a new job (in Germany) gives the employer the right to dismiss the new employee without giving reasons. In other words, based on the assumption that having children demands a stable and predictable economic situation, couples should postpone parenthood when the future course of the couple's (or rather the male's) employment career is uncertain. This is typically the case during periods of education, retraining, job-creation schemes or unemployment.

48 This line of reasoning must also assume that capital markets are imperfect, i.e. that it is impossible to borrow money in order to raise children (Hotz/ Klerman/ Willis 1997: 314).

(4) Women's Unstable Employment Situation

As previously mentioned, in the standard economic framework, women's employment is generally viewed from the perspectives of the "opportunity costs of childrearing". In this framework, female unemployment should positively affect fertility decisions, since it reduces the time costs of having children. One might however argue that the standard neoclassic framework is rather myopic in that it does not take into consideration the fact that the decision to have a child involves a longer term perspective. The decision to have a child and childbirth are usually separated by nine months and, needless to say, the decision to have a child therefore involves some planning. If a woman is affected by unemployment, the opportunity costs of childrearing are indeed very low. However, she must expect her unemployment period to last for at least another nine months before she can "take advantage" of the low opportunity costs of childrearing. In other words, it is hard to believe that a woman is able to synchronize her periods of unemployment and childrearing.[49]

On deciding to have a child during unemployment, a woman will most likely withdraw from the labor market substantially longer than the period of unemployment would normally have lasted. In Germany, mothers are prohibited from working during the first eight weeks after childbirth. In addition, when the child is still very young, parents might be less willing to put the child into daycare. Having a child during the process of searching for a job, therefore, increasing the time of absence from the labor market, the woman might encounter difficulties in returning to the labor market at all. If she, however, postpones childbirth until having found a stable employment situation, she can take advantage of parental leave regulations which guarantee the right to return to a status-adequate job after childbirth. Given this institutional setting, female unemployment should have a *postponing* effect on the decision to have a child.

49 The standard neoclassic approach has as its core assumptions, *complete information* and stable and given preferences. The notion of complete information involves the idea that couples plan their "fertility career" at the outset of their marriage and that they have "perfect foresight concerning all relevant demographic and economic variables over the course of their marriage" (Willis 1974: 28). This also involves the very unrealistic assumption that they foresee periods of unemployment.

The line of reasoning sketched above assumes that unemployment has a postponing effect on childbirth due to a woman's career-planning motives. It implicitly assumes that women are able to combine childrearing and employment and also that they have a desire to bring their employment and fertility "careers" into synch with each other. Friedman, Hechter and Kanazawa (1994: 382ff.) challenge this line of reasoning with a set of rather provocative hypotheses. They basically argue that, in contemporary societies women face a choice between an employment career and a "career" as mother and housewife. Although women might wish to pursue an employment career, bleak employment prospects might discourage them from doing so. Women then respond to their unfavorable employment prospects by choosing the secure and predictable career of a mother and housewife, since "having a child is a possible mechanism to reduce uncertainty, because it structures the future by foreclosing a lot of other options" (Friedman/ Hechter/ Kanazawa 1994: 382).

In this framework, fertility decisions during unemployment are a sign of labor *market discouragement.* Unemployed women and women with poor employment prospects rationally opt for motherhood, since it allows them to avoid labor market uncertainties they do not want to cope with. This not only implies that these women will not return to the labor market after childbirth, but that they are also able to rely on a second income (i.e. the man's income or transfer payments) while they raise children. Similar to the standard neoclassic framework, female unemployment has an accelerating impact on childbirth. However, the choice to have a child is not a short-term decision influenced solely by the opportunity costs of childrearing. Rather, it is a long-term decision, which encompasses the future prospects of an unfavorable employment situation.

3.3.2 Women's Education and the Second Child

In the neoclassic framework, a standard assumption is that couples decide on the number of their children "at the outset of their marriage" (De Tray 1974; Willis 1974). Viewing fertility from the life course perspective brings another issue to the center of

attention, i.e. that it might be more advantageous to view fertility as a *sequential decision* (Turchi 1991: 241). Given that couples have decided to have one child, they are committed to a certain "life plan". In other words, they have already become parents, have had experience in having a child and have accordingly adjusted their employment situation. Assuming that it is generally the woman who is responsible for childrearing, she will have particularly altered her labor market participation in response to the birth of her first child. In this context, one can take two different stances on the role of women's education (wage and employment) in second birth risks, depending on the assumptions one makes regarding the compatibility of childrearing and employment.

First of all, one could argue that women, who have chosen to have one child and return to the labor market after childbirth, have apparently found ways of arranging childrearing and employment. If childrearing and employment is compatible, more highly educated women could have a higher incentive to have children than less educated women. They earn higher wages, and therefore they have the economic resources to support a larger family. There are several empirical studies, particularly for Scandinavian countries, which report a positive correlation between female education and second (or third) birth risks, which support this hypothesis (Hoem/ Hoem 1989: 52; Kravdal 1992; Oláh 1996). The crucial assumption in this context is that children's daycare is very effective in resolving "compatibility problems" and therefore allowing couples to reconcile the rearing of two children and proceeding with full-time employment careers. Although, it seems very plausible to believe that public daycare alleviates crucial conflicts between childrearing and employment, one could very well argue that having a second child is a serious impediment for the full-time employment career of both partners.

In the West German case, this line of reasoning is very hard to believe in the first place, given the low coverage of public full-time care. However, also in relation to the West German case, Huinink (1989, 1995c, 2001) reports a positive correlation between women's educational attainment and second birth risks. His main argument in this context is that women who are at risk of second birth are a select group, namely those who have already given birth to a first child. There is good reason to believe that they are more family orientated than women who remain childless. This "selection effect"

should especially apply to more highly educated women. Given the unfavorable constraints in reconciling childrearing and employment in West Germany, women basically have to choose between proceeding with an employment career or having children. Women with a college degree, who will mostly be subject to more favorable employment prospects, face very high opportunity costs by having children. If they nevertheless decide to have children, they should, ceteris paribus, be more family orientated than less educated women.

Related to this, Huinink (2001) also suspects that the West German institutional framework (particularly the lack of children's daycare) supports a *polarization* of fertility behavior, i.e. a high ratio of childlessness on the one hand, but a relatively high progression ratio to the second child among more highly educated women.[50] For empirical analysis, this aspect has important implications. Since female education is expected to have a different impact on births of different orders, *it is imperative to analyze the transition to the first, second and third child separately.*

3.4 Intermediate Summary: An Alternative View on Employment and Fertility

Standard economic reasoning suggests a negative correlation between women's employment and fertility. In the absence of children's daycare and a persistence of traditional gender roles, women are basically forced into choosing either to have children or to proceed with an employment career. Assuming that more highly educated women are subject to more favorable career prospects and higher wages, they will encounter higher opportunity costs of childrearing and will therefore be more likely to

50 It should be noted that the term "polarization" is also used in a slightly different context. Strohmeier (1993) investigates the "pluralization" of family structures in Germany. In empirical analysis, he finds a dominance of the traditional family, i.e. couples who marry and have children. On the other hand, there are those who neither marry nor have children. He concludes that instead of a *pluralization* of family structure, there is a *polarization* in a "family-sector" and a "non-family-sector" (see also Höhn/ Dorbritz (1995: 152); Dorbritz/ Schwarz (1996: 255), for a critical discussion see Huinink/ Wagner (1998); Nave-Herz (1997); Wagner/ Franzmann (2000: 154)).

remain childless. In short, there is indeed good reason to expect a negative correlation between women's education and fertility, if one takes traditional gender roles and the absence of children's daycare for granted. Male employment, on the other hand, should be positively associated with fertility. Assuming that the male is responsible for providing the household income, higher male wages and stable career paths should encourage couples to have children.

However, if one allows for the availability of *children's daycare*, one yields very different predictions on the role of women and men's employment in fertility decisions. Most importantly, the provision of children's daycare solves major incompatibilities between childrearing and employment. Assuming that non-parental (or rather non-maternal) care is available, women do not necessarily have to interrupt their employment in order to raise children. Although they may mostly be unable to put in as high a workload as before or they might deliberately search for less challenging jobs (Hofferth/ Collins 2000: 358; Whittington/ Averett/ Anderson 2000: 339), the availability of children's daycare allows women to be gainfully employed and to have children at the same time. This aspect should reduce the opportunity costs of childrearing and crucially weaken the "stable" negative correlation between female employment (education or wages) and fertility.

If a woman is able to reconcile childrearing and employment, her labor market status might become of vital importance in supporting her family. In contrast to the "opportunity cost argument", high female wage rates no longer increase the time costs of having children. Instead, if the woman gains the role of a "family provider", her employment matters for the household income. This can imply that women postpone parenthood until they themselves have established a secure position in the labor market. This can, however, also mean that women's employment compensates for an insecure labor market situation of the male partner.

3.5 Employment and Fertility after Unification

In the previous part, I discussed the general framework which relates female and male employment to fertility. Particularly with regards to women's education and first birth, I argued that it is imperative to take into consideration family polices that foster the compatibility of childrearing and employment and labor market institutions which structure employment mobility. In Chapter 2, I gave an overview of major family policies and labor market institutions in Germany in the 1990s. The pervasive attitude towards German policies is that there is a "structural neglect" of families with children and that family policies fail to reduce the costs associated with raising children (Kaufmann 1990; 1995; Lampert 1996; Wingen 1997b).

As discussed in Part 3.2, in order to evaluate the effectiveness of family policies with regard to fostering fertility, it is important to closely examine how they are targeted. Cross-national comparisons suggest that German family policies provide substantial monetary transfers to families, but that they are in the first place directed towards the traditional family form of the "one-earner" or rather "male breadwinner model" (Gauthier 1996: 170; Sainsbury 1997: 191). Family policies directed towards the "compatibility of childrearing and employment" are "half-hearted". Public daycare is considered an important means of supporting the employment of mothers, but no major efforts to expand full-time daycare have yet been made. The German parental leave system offers a "generous" three-year period of leave, which is, however, combined with a childrearing benefit which provides a sum nowhere near income replacement level. Due to the relatively low level of income replacement, such regulations are widely believed to entrench traditional gender roles. Faced with a lack of children's daycare for small children, women might embrace the three years of job-protected leave. However, being absent from the job for three years will, in most cases, jeopardize long-term career prospects (Meyers/ Gornick/ Ross 1997: 123; Ondrich/ Spiess/ Yang 1996; Waldfogel 1998). In sum, the analysis of German family policies in Chapter 2 does not support the idea of a *general* "structural neglect" of families, but a one-sided focus on "traditional family forms". There are substantial transfers to "one-earner families" (through the system of income splitting, the widow's pension, etc.), however, only

meager support for "dual-earner families" (through public daycare, extensive parental leave benefits, etc.).

With German Unification, the former East German institutional constraints were basically replaced by the West German ones, which entailed a take-over of West German family policies, labor market institutions and the tax and transfer system. However, due to the peculiarities of daycare policies (which is a matter of the municipalities in Germany) and profiting from low East German birth rates, the provision of children's full-time care has remained relatively high throughout the 1990s. Therefore, East German women are -against common speculations- *not* subject to the incompatibility of childrearing and employment. Compared to their West German counterparts, they enjoy much better chances of reconciling childrearing and full-time employment. As a result, East German women are exposed to an almost contradictory incentive structure to participate in the labor market in the 1990s. One the one hand, a tax and transfer system subsidizes the non-employment of married women, additionally, unfavorable macro-economic constraints push women out of the labor market. On the other hand, a high provision rate of public daycare and a high labor market orientation makes it more likely that they combine childrearing and employment. The "fertility hypotheses" one formulates, strongly depends on the weight one assigns to the role of public daycare in alleviating conflicts between childrearing and working-life, the labor market orientation of women and the role of women as providers of household income.

Labor Market Discouragement and Fertility Decisions

When the labor market situation among East German women dramatically worsened, it was widely believed that more women would take advantage of the new institutional constraints which favor the traditional "one-earner model" (Dorbritz 1997: 243; Huinink 1999: 129). Discouraged by their labor market opportunities, they would chose the traditional "homemaker-model" and withdraw from the labor market. If the tight economic situation and the new tax and transfers system did indeed contribute to an all-encompassing withdrawal of East German women from the labor market, the fertility consequences would be easy to project. Most importantly, there would basically be no

"compatibility problem" because women had already decided on the homemaker-model. The crux of the fertility decision would be the male's labor market situation. As soon as his employment situation stabilized, East German birth rates should rapidly increase again. Female unemployment and employment uncertainty could even encourage couples to have children, provided women had a stable "second income" they could rely on (which could be the partner's income or transfer payments). In line with Friedman, Hechter and Kanazawa (1994) one could suspect that women's labor market *discouragement* has an accelerating effect on family formation.

Women's Economic Independence and the Lack of Children's Daycare

A brief look at the employment rates (see Table 2) challenges the "labor market discouragement hypothesis". Only a very small fraction of East German women deliberately choose the "homemaker-model" (defined as being non-employed and not seeking employment). The large majority is employed full-time or is seeking to return to the labor market. The cited reasons for the large East-West differences in women's employment patterns are manifold. One explanation is that the employment situation among East German males is not favorable, which simply rules out the "one-earner model" as a family form which provides sufficient household income. Besides this, it has been argued that, as a holdover from GDR times, East German women have a higher labor market orientation and take it as a "matter of course" to be economically independent from their male partners (see Chapter 2).

However, the way one interprets the high female East German employment rates is of crucial importance for the "fertility hypotheses". Taken aback by the low East German TFR, researchers have clung to the most "pessimistic" (in respect to fertility) of all possible interpretations: it has been argued that East German women are not only more attached to the labor market, but that they are striving for "economic independence" from their male partners (e.g., Adler 2001: 8; Reinheckel et al. 1998: 125). Given that East German women demand *economic independence*, their labor market position is most decisive in providing the family income. Fertility decisions not only demand a high compatibility of childrearing and employment, they also demand a stable

employment situation among East German women (e.g., Adler 1997: 37; Schulz/ Wagner/ Witte 1993: 6).

In this context, it has further been argued that high female unemployment rates have contributed to heavy competition for vacant positions, which has ultimately lead to a *discrimination of women with children* in the labor market. Employers anticipate that mothers are unable to put in the sufficient workload and they will preferably hire childless women or males. "(L)eaving the labor market for childbearing is perceived as a dangerous proposition because the label 'family-orientation' makes re-entry more difficult" (Adler 2001: 9). In order to gain a relatively advantageous labor market position, unemployed East German women remain childless. Those who hold a working contract do not get pregnant because they fear they will lose their employment. Legally, employers are not allowed to dismiss a pregnant woman and parental leave regulations, in principle, give a woman the right to take job-protected leave. Nonetheless, so the line of argumentation goes, these legal constraints are not sufficient to protect women's employment positions in the East German case. If a firm closes down during the parental leave period, women lose their rights to return to their previous job. Moreover, women are only protected during the parental leave period and employers will dismiss them when the job protection period ends (Winkel/ Kerkhoff 1995: 125).

In the same vein, there are several authors who (erroneously) state that after Unification, public daycare institutions were rapidly closed down. Due to a *lack of public daycare*, East German women are no longer able to combine childrearing and full-time employment (e.g., Adler 2001: 22; Kopp 2000: 109; Lechner 1998: 473; Nauck/ Joss 1995: 25; Rindfuss/ Brewster 1996: 273). If this hypothesis were also warranted, the consequences would be apparent. East German women, who do not accept being economically dependent on their male partners, would avoid parenthood. This should even be the case when the labor market situation improves again.

In sum, in contrast to their West German counterparts, East German women have a higher preference for being economically independent from their male partners. Against this background, the labor market situation of females is the crux of the East German fertility decline. Unstable female employment paths induce women to postpone

parenthood and discrimination of women in the labor market and the incompatibility of childrearing and employment even force them to avoid parenthood altogether. [51]

Compatibility of Childrearing and Employment

Apart from the fact that it is not totally convincing that *all* East German women ignore the new incentive structure and do not even temporarily accept being economically dependent on the male partner (or on public transfer payments), the "public daycare argument" is simply not accurate. Despite a decline in the provision rate of public daycare, East German women still enjoy relatively good chances of finding a slot in full-time care for their children in the 1990s. It is also incorrect to believe that the price for "childcare has been adjusted to Western market standards" (Adler 1997: 43). Due to the set up of the German "daycare regime", childcare is still relatively inexpensive in both East and West Germany.

As argued in Chapter 2, one can also question whether high female employment rates solely reflect women's strong strive towards economic independence. Instead, women might very well have responded to a greater financial pressure to be employed and to the higher provision rate of public daycare. If one assumes that childrearing and employment are compatible and if one also assumes that couples contribute to a joint household income, this has important implications for fertility decisions. Most importantly, women's employment can *compensate for unstable employment situations* of their male partners. As discussed above, one major reason for the increase in the age at first birth in Western Europe is expected to be the unstable employment situation among males. Given that also women contribute to the household income, a stable *male* employment situation is no longer a prerequisite to having children and there should be less reason to postpone parenthood until the male partner has established himself in the labor market.

51 In the public press, the East German fertility decline was also titled as a *birth strike* ("Gebärstreik"). In fear of unemployment, East German women are forgoing parenthood or undergo sterilization as part of a "collective protest" (for a critical discussion, see e.g., Dölling/ Hahn/ Scholz 2000).

Moreover, if one assumes that childrearing and employment are compatible, women do not necessarily have to postpone or avoid parenthood because they are seeking an employment career. Under such conditions, "career orientated" East German women should be setting up a family more rapidly than their West German counterparts. Assuming that educational attainment is a good indicator for the labor market prospects of women, the *level effect of education* should be smaller among more highly educated East German women.

Regarding the transition to the *second* child, one could make a similar point. Since, East German women are better able to reconcile childrearing and employment, they enjoy a higher labor market income and therefore they have a command of greater economic resources to support a family. If one follows this line of reasoning, one has, however, to assume that the public provision of daycare is very "effective" in the sense that it even allows the rearing of two children along with the continuation of a full-time employment career. However, also in East Germany, full-time employment rates drastically decline once the second child is born (see Table 2), which suggests that two children are, also in a regime with a high coverage of public daycare, a serious impediment for the full-time employment career of both partners.

3.6 Conclusion

In this chapter, I first summarized the standard neoclassic framework which particularly projects a negative correlation between women's employment (education or wages) and fertility and a positive one between men's employment (education or wages) and fertility. I discussed how the impact of women's employment changes when viewing fertility from the life course perspective and when considering the decisions to have a first and a second child as a sequential decision. In addition, I argued that the role of women's employment in fertility relies on various parameters, most importantly the compatibility of childrearing and employment, the labor market aspirations of women,

their employment opportunities and labor market institutions that structure employment mobility.

The institutional constraints in East Germany are particularly interesting in this context since they provide a rather contradictory incentive structure. On the one hand, a tax and transfer system heavily subsidizes the non-employment of married women. Furthermore, East German women are subject to a relatively tight labor market situation, which could have encouraged them to withdraw from the labor market. On the other hand, they are subject to relatively favorable constraints when reconciling childrearing and employment. The hypotheses one formulates, strongly depends on the weight one assigns to the role of public daycare, the East German labor market situation and the career aspirations of East German women. In this context, I discussed three hypotheses:

- **Discouragement Hypothesis:** Against the background of high female unemployment rates combined with a tax and transfer system that subsidizes the non-employment of married women, one could expect that East German women have withdrawn from the labor market and followed the traditional "one-earner model". If this is the case, male unemployment and employment uncertainty should have the most decisive effect on the transition to the first child and should determine the decision of whether to have a larger family. Female unemployment or unstable employment situations, on the other hand, could ultimately have an accelerating impact on fertility.
- **Independence Hypothesis:** Taking into consideration that the labor market orientation among East German women has remained high and if one interprets this as a strive for economic independence, female unemployment and unstable employment situations should have a postponing effect on fertility. Male employment should, however, play no major role in fertility.
- **Dual-Earner Hypothesis:** Focusing on the better availability of children's daycare and assuming that both partners contribute to a joint household income, yields a different prediction regarding East German fertility. It not only implies that women's employment fosters fertility, but also that the woman's employment

can compensate for an insecure labor market situation of the male partner. Besides this, it suggests that "career orientated" East German women should be more likely to have children than their counterparts in the West.

Table 7 provides a schematic overview of the hypotheses. While the "Discouragement Hypothesis" predicts (similar to the standard neoclassic framework) a negative correlation between women's employment and fertility, the "Independence Hypothesis" and the "Dual-Earner Hypothesis" predict a positive one.

Table 7: Expected Impact of Women and Men's Employment on Fertility

	Male Employment	**Female Employment**
Standard Economic Framework	positive	negative
Discouragement Hypothesis	positive	negative
Independence Hypothesis	non	positive
Dual-Earner Hypothesis	positive	positive

In the subsequent empirical chapters, these partially contradictory hypotheses will serve as a basic theoretical framework for investigating the role of male and female employment in fertility. However, before I address these hypotheses more thoroughly, it is important to "clarify the explanandum", i.e. to get a general idea on East and West German fertility. In the next two chapters (Chapter 4 and 5), I therefore simply describe the fertility patterns in East and West Germany before and after Unification. Chapter 6 and 7 deals then more closely with the hypotheses sketched above by investigating the role of women and men's employment in the transition to the first and second child in the 1990s.

PART II

Empirical Investigations

Chapter 4

Fertility Patterns before and after Unification

This chapter describes general fertility patterns in East and West Germany by drawing on vital statistics. The first part of this chapter deals with the two German "fertility regimes" before Unification (Part 4.1). In the second part, I argue that the former fertility differences entail important consequences for the analysis of fertility in the 1990s (Part 4.2). Most importantly, during GDR times couples had their children much earlier on in their lives. Therefore, compared to West Germans of the same ages, there were more East Germans who had already set up a family at the time Germany was unified. In the last part of this chapter, I present some commonly available vital statistics for the 1990s (Part 4.3). Particularly in the light of the substantial differences in fertility patterns *before* Unification, the commonly available vital statistics are, however, not very instructive for evaluating East German fertility behavior *after* Unification.

German Vital Statistics: Lack of Birth Parity Information

This chapter particularly draws on German vital statistics. It should be pointed out beforehand, that German vital statistics do not include birth rates by birth order. This information is only available for marital births (or more precisely for births in the *current* marital union "in der bestehenden Ehe"). This practice is rather unfortunate from the perspective of a researcher since it comprises a lack of crucial indicators, such as the mean age at first birth or the ratio of childlessness. In order to give an idea of the

development of e.g. the mean age at first birth or the ratio of childlessness, I draw on additional parity specific fertility information:

- **East Germany (1960-1989):** For the time prior to Unification, I use data collected by the Statistical Office of the GDR.[52]
- **West Germany (1960-1989):** For West Germany, I use "corrected" vital statistics. By "corrected" I mean that survey data and vital statistics are combined. The results of this process are parity specific birth rates. For the time between 1960-1985, this data comes from Birg, Filip and Flöthmann (1990: 15ff.). For the time between 1985-1989, I use my own estimations. The estimation procedure is explained in the Appendix.
- **East and West Germany (1990-1999):** For the time after 1989, there are basically no parity specific birth rates available. The "correction" of German vital statistics is very sensitive to the ratio of non-marital births. In West Germany, the ratio of non-marital births increased to above 10 percent in 1990. In East Germany it even sky-rocked after Unification, reaching 50 percent in 1999 (Konietzka/ Kreyenfeld 2001a). With almost half of the births being out-of wedlock, a "correction" of the vital statistics is subject to severe estimation error.

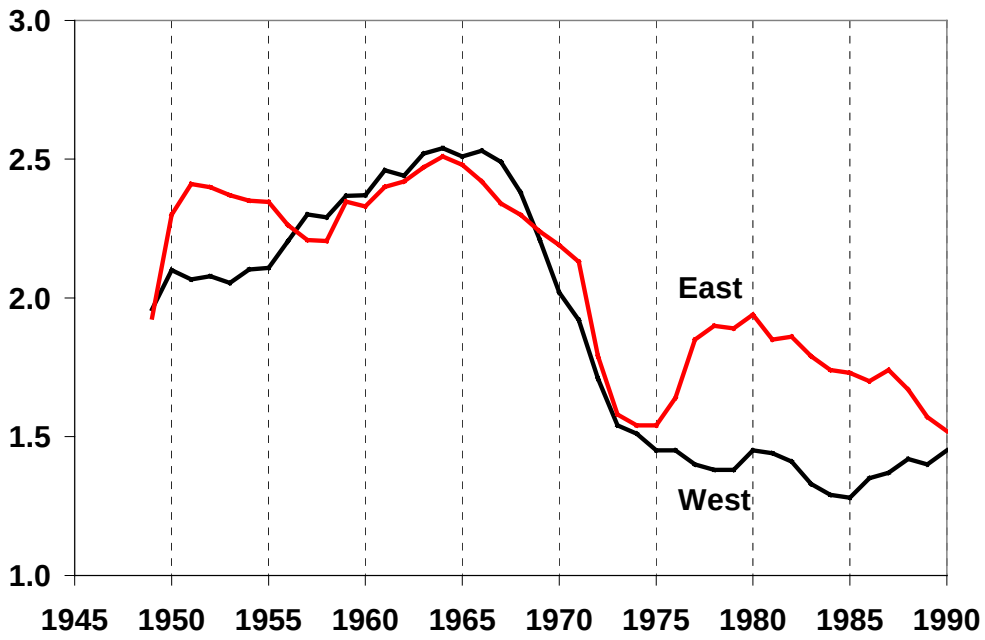
4.1 Fertility Patterns before German Unification

Figure 6 displays the TFR for East and West Germany from the foundation of the two German states in 1949 until German Unification in 1990. In the 1960s, the TFRs in East and West Germany declined almost simultaneously. They diverged again in 1975 and finally converged in the late 1980s. By just looking at the TFR, one is tempted to

52 The BiB (1999a) provides the number of births by order of births for former East Germany for the period 1952-1989. It should be noted that in the GDR-statistics, births are classified according to age groups (e.g., age 14 to under 15: class middle 14.5). However, for the year 1989, births are classified by the year of birth of the mother (e.g., year of birth 1974: class middle 15). The same applies to the West German statistics, which also classify births by the year of birth of the mother. Differences in the age-categorization were taken into account in the following analysis.

hypothesize that East Germany experienced a "second demographic transition" at the same time as their West German counterparts (Höhn/ Dorbritz 1995: 156-157; Heilig/ Büttner/ Lutz 1990: 16). In the 1970s, the TFR diverged again. During this time, the East German government launched pro-natalistic policies (see Chapter 2). One could argue here that East Germany's policy put a temporary halt to the downward trend in fertility, whereas West Germany's government did not take any action against this decline. In the long run, East German family policy was, however, unable to alter the "build in trend" so that the TFR fell back to West German levels in the 1980s.

Figure 6: Total Fertility Rate 1949-1990



Source: Statistisches Bundesamt (1994, 1999a); 1949-1951 East Germany: Shoup (1981)

Such a line of reasoning is, however, jumping to (the wrong) conclusions. Most importantly, it ignores the fact that the TFR is a complex measure, which is subject to misinterpretation, particularly when there is a change in the timing of parenthood. Höhn (1991: 91) notes that "there are indeed numerous demographic differences concealed behind the summary indicator of the TFR." The decline in the TFR in the early 1960s was, to a large extent, a decline in third parity births in East and West Germany (see below). However, in basically all other respects, fertility patterns in East and West

Germany differed substantially. The major aspects, which I discuss in the following are differences (1) in the age at first birth, (2) the level of childlessness and (3) the progression to higher parity births.

(1) Age at First Birth in East and West Germany

The age at first birth is an important indicator for the fertility pattern of a society. The transition to the first child does not only coincide with setting up a family, a very late or early first birth might also have long-term consequences for the subsequent fertility career (Kohler/ Skytthe/ Christensen 2001; Marini/ Hodson 1981; Morgan/ Rindfuss 1999). Table 8 displays the mean age at first birth in East and West Germany by calendar year and birth cohort. It shows that already in the 1960s East Germany's mean age at first birth was well below the West German average. This means that even before the simultaneous decline in the TFR, East and West German fertility patterns had already diverged.[53] In 1960, East Germans were about two years younger when they had their first child. Since the 1970s, the mean age at first birth has steadily increased in the West (from the cohort perspective, this is since the birth cohort 1950). In East Germany, on the other hand, the mean age at first birth was constant at age 22. It should nevertheless be noted, that there was a slight increase in the age at first birth in the late 1980s, when the mean age at first birth increased to 22.2 in East Germany. Even such a small increase could have contributed to the decline in the TFR during this time (see Figure 6). Nonetheless, compared to the changes in the age at first birth in West Germany, the increase in the age at first birth in the East is of minor importance. In 1989 (respectively the last full year of the existence of the GDR), there is a difference in the age at first birth by roughly four years of age between East and West Germans.

53 Unfortunately, there is no data on the age at first birth for the time prior to 1960 for West Germany. Therefore, I am unable to answer the question, at what stage the age at first birth diverged or if there even was a difference in the age at first birth before the separation of Germany into two states. There is some evidence that fertility and nuptiality differed in East and West Germany before the two German states were founded. In Prussia completed family size was lower and the rate of out-of wedlock births were higher than in other parts of the German Reich, such as Bavaria or Baden-Württemberg (Bertram 1996: 184). However, the former regional differences are not identical with the territories of the German Democratic Republic (GDR) and the Federal Republic of Germany (FRG). Furthermore, compared to the differences in fertility patterns between the GDR and FRG, these differences were substantially less pronounced.

Table 8: Age at First Birth by Calendar Year (1952-1990) and Birth Cohort (1935-1958)

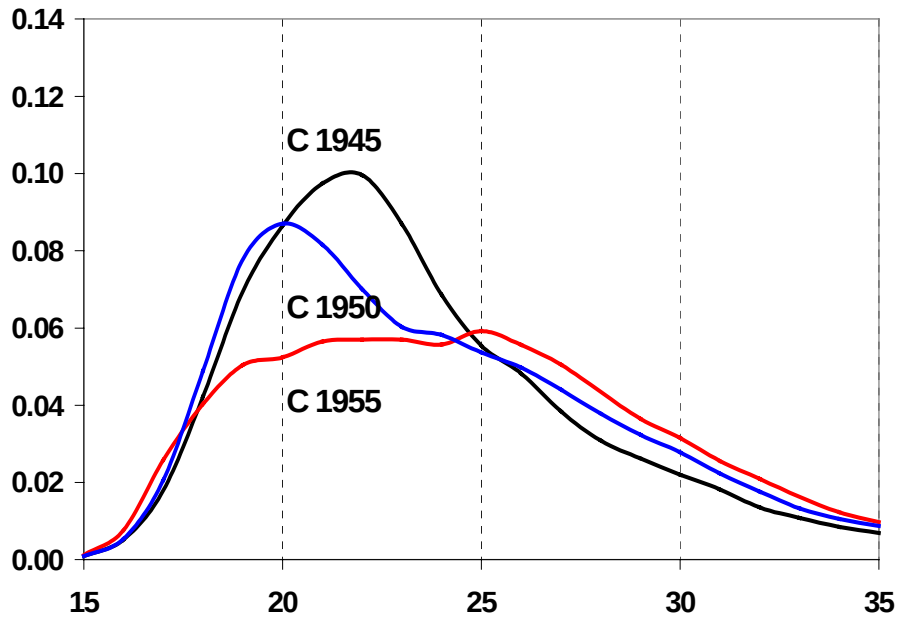
	Mean Age at First Birth by Calendar Year			Mean Age at First Birth by Birth Cohort	
Year	**West**	**East**	**Cohort**	**West**	**East**
1952	n.a.	23.6	**1935**	24.70	n.a.
1960	24.9	22.4	**1940**	24.23	22.01
1965	24.3	22.2	**1945**	23.68	21.51
1970	23.8	22.1	**1950**	24.14	21.65
1975	24.4	22.0	**1955**	25.05	21.65
1980	25.0	21.8	**1958**	25.44	21.61
1985	26.2	21.8			
1989	26.6	22.2			

Note: (1) n.a.=not available (2) Mean age at first birth by birth cohort was calculated at age 35. (3) Source: Birg/ Filip/ Flöthmann (1990); Statistisches Bundesamt (1996b, 1999b); BiB (1999a, 1999b); own estimations (see Appendix)

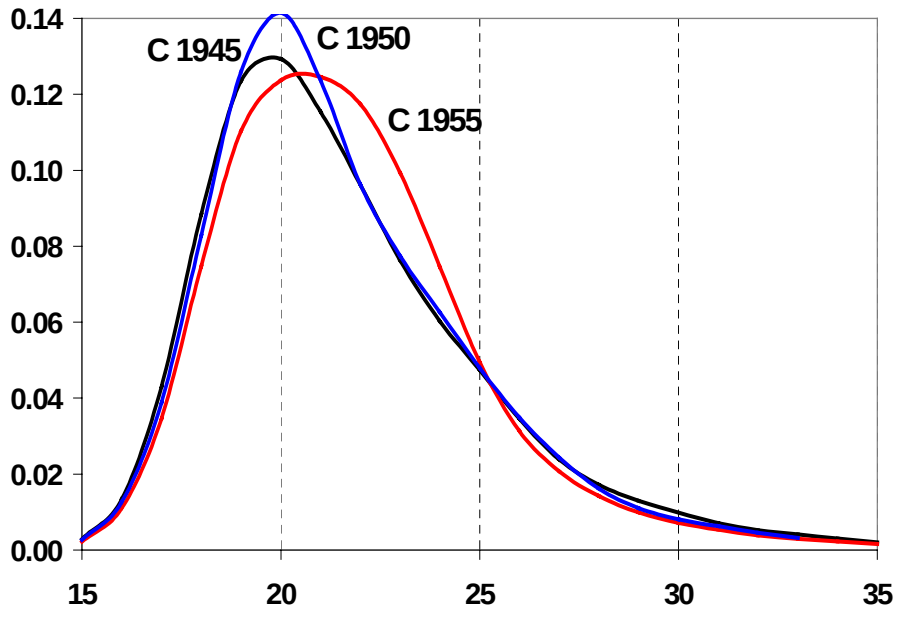
The increase in the age at first birth in West Germany was accompanied by a substantial increase in the variance around the mean age at first birth. This aspect can be depicted from Figure 7 (Panel 1), which displays the age specific fertility rates (ASFR) for the birth cohort 1945, 1950 and 1955. While the ASFR for the cohort 1945 had a maximum at age 22, the ASFR for the cohort 1955 is so flat that no maximum can clearly be distinguished. In other words: A characteristic of the current West German "fertility regime" is not only the relatively high age at first birth, but also a substantial variance around the mean age at first maternity. In former East Germany, on the other hand, there was a small variance around the mean age at first birth, which hardly changed over the cohorts (Panel 2 in Figure 7).

Figure 7: Age Specific Fertility Rates, First Births, Cohorts 1945, 1950, 1955

Panel 1: West Germany



Panel 2: East Germany



Note: (1) C=Cohort (2) Lines were smoothed. (3) Source: BiB (1999b); Birg/ Filip/ Flöthmann (1990); own estimations (see Appendix)

(2) Childlessness in East and West Germany

One of the most notable aspects about East and West Germany's fertility patterns is the striking difference in the ratio of childlessness. In East Germany, the ratio of childlessness remained at a level of around eight percent for the birth cohorts born after 1940. If one accepts a level of five percent as being "biologically related" childlessness in contemporary societies, this means that there was hardly any "voluntary" childlessness in East Germany. In this context, Speigner and Winkler (1990: 221f.) conclude that almost all women, who were (from the biological standpoint) able to have children in the GDR, had at least one child and this very early on in their lives. In West Germany, on the other hand, the ratio of childlessness has steadily increased since the cohorts born around 1950. For the birth cohorts born after 1951, the estimated ratio of childlessness surmounts twenty percent and has steadily increased since then (see Table 9; see also Dorbritz/ Schwarz 1996: 237; Höpflinger 1991; Schwarz 1999: 16).

Table 9: Percent of Childless Women, Cohorts 1935-1960

	Childlessness at Age 35		**Childlessness at Age 40**	
Cohort	**East**	**West**	**East**	**West**
1935	15	11	15*)	9
1940	12	12	12	11
1945	8	15	8	13
1950	8	17	7	15
1955	8	22	8	19
1956	8	22	--	--
1957	8	23	--	--
1958	8	23	--	--
1959	8	23	--	--
1960	8	24	--	--

Note: (1) *) cohort 1937 (2) Source: Birg/ Filip/ Flöthmann (1990); Statistisches Bundesamt (1996b, 1999b); BiB (1999b); own estimations (see Appendix)

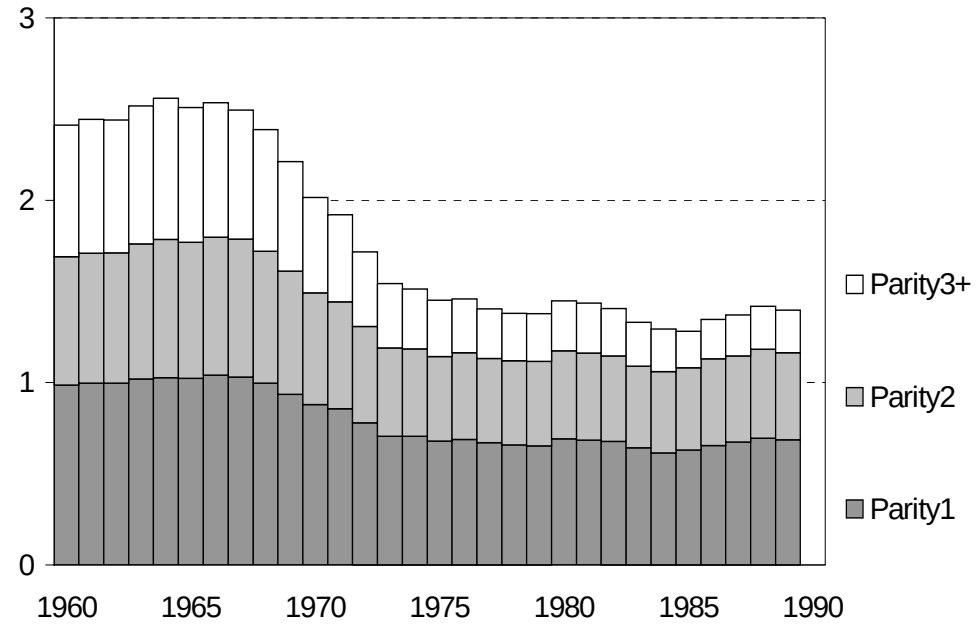
(3) Higher Parity Births

Since 1972, public policies in East Germany were out-spokenly pro-natalistic and they were openly geared towards increasing the overall level of fertility. From the perspective of the GDR government it was of particular interest whether social policy measures had an impact on higher parity births (Speigner 1989: 21). Therefore, one could also expect that East Germans were more likely to have a second or third child than their West German counterparts. Figure 8 displays the TFR by birth parities.

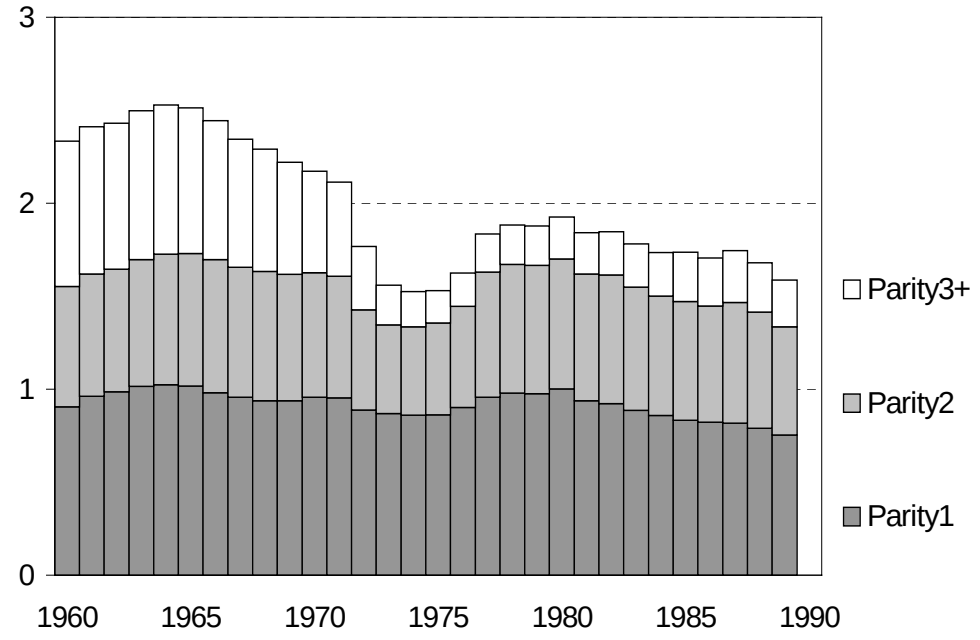
There was a rapid decline in second and third parity births in East and West Germany in the end of the 1970s. In East Germany, this rapid decline is mostly related to the liberalization of access to abortion and contraceptive usage in 1972. Frejka (1983: 504) shows how the change of rules coincide with a drastic increase in induced abortions in the GDR. This change of rules must have particularly affected higher parity births, considering that the age at first birth did not change during this time. In 1976, the TFR for second parity births increased again, which coincides with the introduction of the "Babyjahr" for second and higher parity births. Since the 1970s, the TFR for second parity births remained at a relatively stable level in East Germany, but it declined in the 1970s for third and higher parity births and never "recuperated". In West Germany, the TFR for second and third parity births declined in the 1970s and did not increase again either.

Figure 8: Total Fertility Rate by Birth Parities 1960-1989

Panel 1: West Germany



Panel 2: East Germany



Note: (1) Parity 3+ includes three and higher parity births. (2) Source: Birg/ Filip/ Flöthmann (1990); own estimations (see Appendix)

Family Size and Parity Progression Ratios in East and West Germany

The parity specific TFR gives the first insight into fertility patterns of a society. However, period measures of fertility are easily distorted by changes in the timing of parenthood (see below). This is of particular importance for West Germany, where the age at first birth has constantly increased since the 1970s. Naturally, the increase in the age at first birth affects second parity births even when the spacing of children remains unchanged. Cohort fertility rates are generally considered as more significant in this context. In the following, I therefore display the family size by birth cohorts and the respective parity progression ratios. The family size distribution addresses the question of whether larger families are more common in East than in West Germany. The parity progression ratios reveal whether there are differences in the *conditional* probability of having a second or third child.

Table 10 displays the TFR, the family size distribution and the parity progression ratios for the birth cohorts 1940-1955 (see also Figure 9). From the cohort 1940 to the cohort 1945, there is a drastic decline in the ratio of women with three or more children. This means that, from the period perspective, the fertility decline in the early 1960s was less related to changes in the timing of birth. Instead, it was primarily a decline in the probability of having a third or higher order birth (Barkalov/ Dorbritz 1996: 497). For the younger cohorts (in the figure exemplified by the birth cohort 1955), there are substantial East-West differences in the ratio of women with two children. While the "two-child family" amounts to 35 percent in West Germany, it amounts to roughly 50 percent in the East. Despite substantial differences in the ratio of childlessness and one- and two-child families, there are hardly any differences in the ratio of women with three or more children. Since East German family policies were explicitly directed towards higher parity births in the 1980s, the low ratio of women with three or more children is rather surprising. There are several researchers who diagnose a general trend towards the two-child family or even a "two child norm" in the East (Schott 1992: 231/ Wendt 1997: 126). Höhn (1990: 10) argues that female employment precluded couples from having more than two children, as it "put a double burden on mothers preventing to a degree a 'large' family with three or more children." Dorbritz, Schultze and Hoffmann (1989: 34) argue that social policies aimed at the "third child" were unsuccessful, since

there was simply no underlying motivation which these policies could trigger. Families regarded their "desire for children" as being satisfied when they had two children.

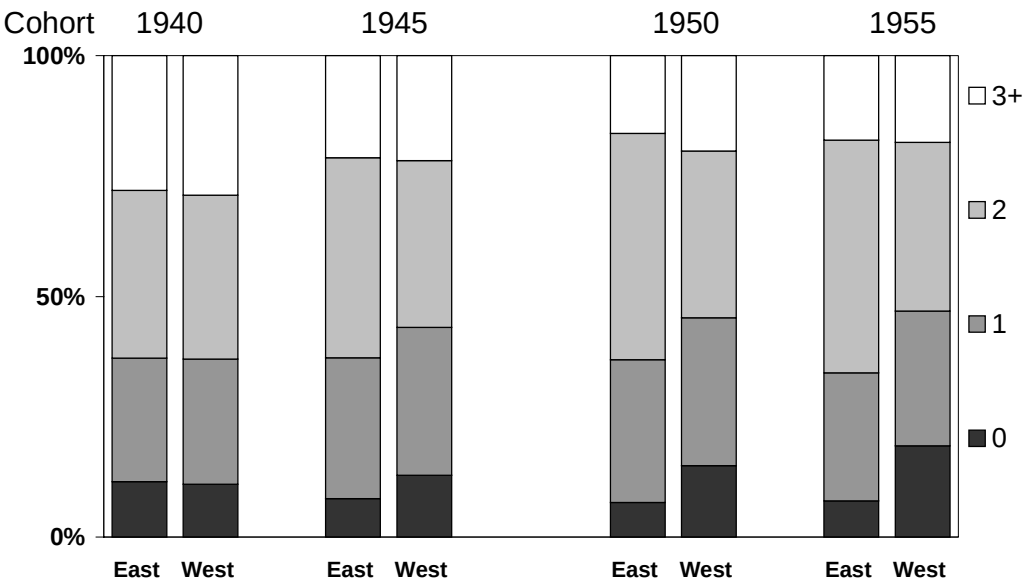
The last rows in Table 10 display the parity progression ratios for the cohorts 1940 to 1955. Parity progression ratios give the conditioned probability of having a child of, e.g., parity two, conditioned on the probability of already having a first child (see e.g., Preston/ Heuveline/ Guillot 2001: 104f.). The table again shows the large differences in the progression to the first child (respectively the differences in childlessness). The progression ratios to the second child are roughly 70 percent in East Germany and 65 percent in West Germany. The pattern reverses for third parity births. West Germans are substantially more likely to have a third child (conditioned on already having a second child) than their East German counterparts.

Table 10: Total Fertility Rate (TFR), Completed Family Size, Parity Progression Ratio (PPR), Cohorts 1940-1955

	West				East			
	1940	**1945**	**1950**	**1955**	**1940**	**1945**	**1950**	**1955**
TFR								
1	0.89	0.87	0.85	0.81	0.89	0.92	0.93	0.92
2	0.63	0.57	0.55	0.53	0.63	0.63	0.63	0.66
3	0.29	0.22	0.20	0.18	0.28	0.21	0.16	0.18
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
Family Size								
0	11%	13%	15%	19%	11%	8%	7%	8%
1	26%	31%	31%	28%	26%	29%	30%	27%
2	34%	35%	35%	35%	35%	42%	47%	48%
3+	29%	22%	20%	18%	28%	21%	16%	18%
Sum	100%	100%	100%	100%	100%	100%	100%	100%
PPR								
0 to 1	0.89	0.88	0.86	0.81	0.89	0.92	0.93	0.92
1 to 2	0.71	0.65	0.64	0.65	0.71	0.68	0.68	0.71
2 to 3	0.46	0.39	0.36	0.34	0.45	0.34	0.26	0.27

Note: (1) West Germany: final number of children at age 40 (2) Source East Germany: BiB (1999b); West Germany: own estimations (see Appendix), for the graphical representation see Figure 9

Figure 9: Final Number of Children, Cohorts 1940-1955



Note: (1) For West Germany, completed fertility was measured at age 40. For the East German cohorts, fertility rates were imputed for the older ages by the Statistisches Bundesamt. (2) Source: East Germany: Statistisches Bundesamt (1993: 82); West Germany: Birg/ Filip/ Flöthmann (1990); own estimations (see Appendix)

Intermediate Summary

There are several researchers who argue that East Germany's family policy was relatively unsuccessful in increasing the overall level of fertility (e.g., Menning 1995: 142; Schwarz 1992: 261; Wendt 1991: 272). Höhn and Schwarz (1993: 18) argue in this context that the East German experience "indicates that even a strong financial and material support for families cannot change fertility very much." Under the perspective of "replacement level fertility" one might indeed argue that former East German policy was ineffective. Completed family size was below replacement, which is usually located at 2.1 children per woman (e.g., Pressat 1985: 200). Furthermore, completed family size in East Germany was only barely above the level found in the West, where no explicit pro-natalistic policies were launched. While the East German birth cohort 1955 had 1.8 children, their West German counterparts had on average 1.6 children, respectively there was a difference of only 0.2 children (see Table 10).

Although East German policy might be titled as "ineffective" in respect to increasing the overall level of fertility, this does not mean that it was ineffective in respect to changing

behavior. When studying the impact of public policy on *individual decision making*, one must conclude that the GDR-policies *decisively* influenced fertility behavior. Compared to their West German counterparts, the most profound characteristics of the former East German fertility pattern are: an early first birth and a low variance around the mean age at first birth, a very low level of childlessness and a strong dominance of the two-child family.

The large differences in the "fertility regimes" *before* German Unification entail important consequences for the analysis of fertility patterns *after* Unification. If there is an "adaptation of" (Mau 1994 208ff.) or "convergence to" (Wendt 1991: 251) West German fertility patterns, this must consequently mean a strong break from the patterns found in former East Germany. This comprises a drastic increase in the age at first birth, an increase in the variance around the mean age at first birth and an increase in childlessness. Furthermore, it should also involve an increase in the progression ratio to the third child.

Most importantly, however, the differences in fertility patterns before Unification entail substantial East-West differences in the family structure in 1990. East Germans were much younger at first birth than their West Germans counterparts and therefore they were more likely to have already set up a family at 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 aspect has rather paradoxical consequences for period fertility rates. It means that an "adaptation of" or "convergence to" West German fertility patterns requires a decline in East German birth rates. Put differenty, given that East and West German fertility behavior converges, period fertility rates must diverge. Before, I embark on this issue in greater detail, I present some commonly available fertility indicators for the time after Unification.

4.2 The Fertility Decline after German Unification

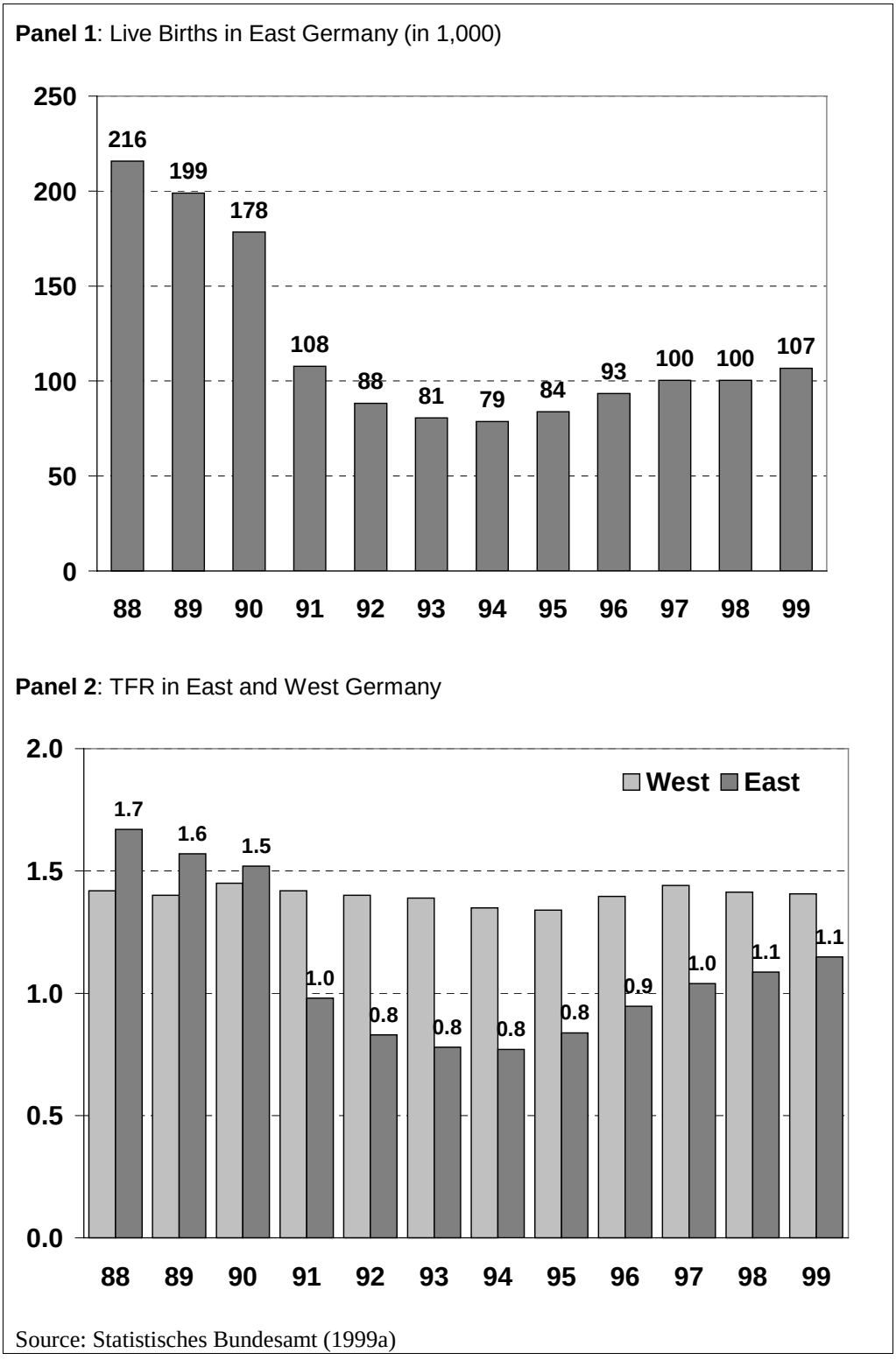
The fall of the Berlin Wall on November 9th, 1989 is usually equated with the breakdown of the GDR regime. As can be seen from Figure 10, aggregate fertility rates in East Germany declined almost immediately after German Unification. While there were still 180,000 births in 1990, there were only 110,000 a year later. This is a drop in the number of births by about 40 percent over the period of a single year. During this time, however, migration from East to West Germany had drastically reduced the population size in the East, which consequently had an impact on the population at risk of childbirth. Between 1989 and 1991, about one million East Germans migrated to the West (Statistisches Bundesamt 1998: 184). Massive East to West migration clearly distorts the usefulness of the annual number of births as a fertility indicator. The TFR, which standardizes for population size and age structure, is surely a more useful indicator in such a context. As can be seen from the figure, 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.[54]

A closer look at the monthly TFR reveals the precise onset of changes in fertility patterns in the East. In Panel 1 of Figure 11, the monthly TFR is displayed. The figure shows the seasonal fluctuations in birth rates, booming in spring and autumn (Lerchl/ Simoni/ Nieschlag 1993: 517). Taking into account seasonal effects, East German birth rates already showed a "Unification Effect" in July 1990. While in West Germany birth rates increased, East Germany's TFR had already experienced a slight decline during that time. However, it was in September 1990 when birth rates declined rapidly. Three months later, the TFR was down to 1.0, however, it stopped decreasing much further thereafter. The major phase of the East German fertility decline might therefore be best placed in the time bracket between September 1990 and January 1991. Taking into account nine months of pregnancy, East German couples changed their fertility behavior between December 1989 and May 1990. It is worth pointing out that this is just after

54 It should be noted that the usefulness of the TFR might be distorted, if East German migrants are selective in their fertility behavior. For the fertility behavior of migrants, see also Chapter 6.

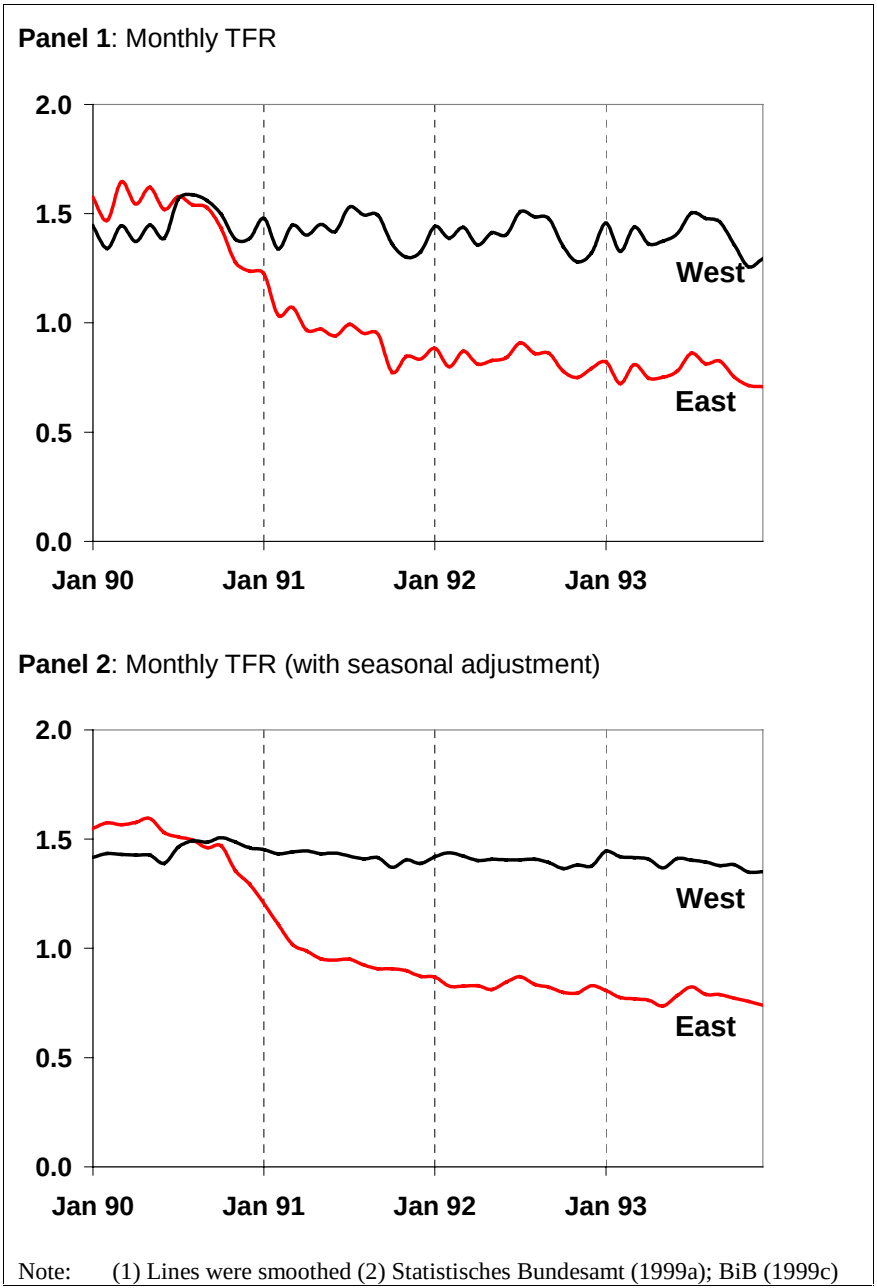
the fall of the Berlin Wall, but well *before* the Monetary Union or the legal and political Unification of the two German states.

Figure 10: Birth Rates 1988-1999



Source: Statistisches Bundesamt (1999a)

Figure 11: Monthly Total Fertility Rate, January 1990 - December 1993



Note: (1) Lines were smoothed (2) Statistisches Bundesamt (1999a); BiB (1999c)

The Drop in the TFR: An Indicator for a Fertility Crisis?

Low birth rates can have far reaching consequences for a society as a whole. E.g., small cohort sizes can involve the closure of daycare centers and schools; and when these cohorts reach adult age they can bring about problems in the pay-as-you-go social security system (see e.g., Schulz 1995). *However*, a decline in period fertility rates does not necessarily indicate that East and West Germans differ in their fertility behavior after Unification.

Ideally the TFR indicates the expected lifetime fertility in a population. Its theoretical concept is based on the synthetic cohort principle, i.e. the fertility schedule in a given year is taken as the fertility behavior of a cohort of women throughout their lives (e.g., Petersen/ Petersen 1986: 326). If one takes the East German TFR for the year 1992, one projects an East German lifetime fertility of 0.8 children per woman. A more illustrative example is a ratio of 20 percent childlessness, a ratio of 80 percent with only one child and no third or higher parity births. However, such a simplified interpretation of the TFR is almost certainly fallacious.

If there is a change in the timing of parenthood, the TFR is widely known as a measure being severely subject to misinterpretation (Bongaarts/ Feeney 1998: 272; Ryder 1983: 741f.; Kohler/ Ortega 2001; Kohler/ Philipov 2001). A decline in the TFR might indeed be related to a decline in lifetime fertility, which is usually referred to as the "quantum effect" of fertility, but it might just as well be related to a postponement of childbirth. The latter is usually titled as the "timing" or "tempo effect". One of the intriguing questions is whether the decline in the TFR merely indicates a postponement of childbirth *to* West German age levels or whether it indicates that East Germans postpone first birth *beyond* West German age levels, *forgo* higher parity births or even avoid parenthood altogether.

In order to understand these issues, one has to "adopt a cohort perspective" on fertility (Conrad/ Lechner/ Werner 1996: 339). Even though several researchers have noted that timing effects might be an important factor for the drop in the TFR (e.g., Conrad/ Lechner/ Werner 1996: 339; Dorbritz 1997: 239; Schulz/ Wagner/ Witte 1993: 13; Störtzbach 1994: 155), it has remained unclear what this aspect precisely means for period fertility rates. Hitherto, the question of how close East and West German fertility has come[55] has not been addressed and, most importantly, it remains unclear how the "timing issue" fits into the hypothesis of an "East German fertility crisis".

55 Dorbritz (1997), Schaich (1998) and Conrad, Lechner and Werner (1996) went beyond period indicators and used cohort fertility rates. However, since they did not use parity specific birth rates, they could not really investigate whether East and West fertility patterns had converged so far. The main reason is that former East and West German fertility patterns strongly differed, which entailed huge East-West differences in the population at risk of childbirth in 1990. This aspect makes it very cumbersome to interpret cohort fertility rates for birth cohorts who were already at risk of childbirth before Unification (see below).

4.3 The Cohort Perspective

Adapting a cohort perspective on fertility draws attention to the question of how East and West Germans *time* their first and *space* their subsequent children. Additionally, it raises the question, at what stage did Unification *cut into the life course* of individuals. In life course analysis, it is standard practice to distinguish cohorts by the point in time where they were affected by major turnovers on the macro level of society (Elder 1985: 25; Mayer 1997, 2001). With the same logic, it makes sense to distinguish the following groups of cohorts (for a similar classification, see Dorbritz 1998a: 129ff.).

- **Pre-Unification Cohorts (born 1960 or earlier):** Members of the cohorts born in 1960 or earlier were at least age 30 at Unification. Due to the very low age at first birth and the low level of childlessness during GDR times, the overwhelming majority had already set up a family at Unification.
- **Unification Cohorts (born 1961-1970)**: Members of the cohorts 1961-1970 were between age 20 and 29 at German Unification. Some of them should have set up a family before German Unification, others were still childless in 1990.
- **Post-Unification Cohorts (born 1971 or later)**: Members of the cohorts born 1971 or later were at least age 19 at Unification. Hardly any of them should have set up a family before Unification.

For the analysis of fertility patterns after Unification, the Pre-Unification cohorts are of relatively little interest since the large majority of them had one or more children before Unification. Since their fertility behavior should be more or less unaffected by the upheavals following Unification, it is sensible to exclude this group from the analysis. The analysis of the Post-Unification Cohorts is also straightforward, since they basically entered childbearing age after Unification (see below). A very troublesome group are, however, the Unification Cohorts. They were already at risk of childbirth before 1990 and this aspect renders an East-West comparison as a very cumbersome issue. In the following, I dwell on this issue in more detail by displaying commonly available cohort fertility rates.

4.3.1 The Unification Cohorts

Figure 12 displays the ASFR for the cohorts 1966, 1968 and 1970. These cohorts were between 20 and 24 at German Unification. About half of them should have already had a first child, only few should also have had a second child in 1990. If they had continued to have children as their predecessors, the cohort ASFR should have peaked in the immediate years after 1990. In other words, Unification must have particularly affected the shape of the ASFR for these cohorts. The changes in fertility behavior that occurred with German Unification can clearly be depicted from the figure. In 1990, there is a rapid and drastic drop in birth rates. This basically means that, compared to the fertility patterns in former East Germany, there is an abrupt change of behavior.

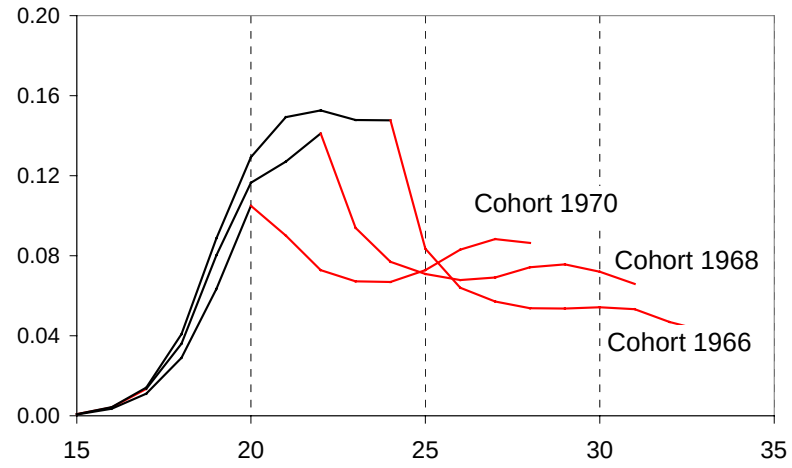
As argued in Chapter 1, there is every reason to expect a drastic change of behavior compared to pre-unification times. Since Unification, East Germans have been subject to a completely different incentive structure. The decisive question is not so much whether they behave differently from their "predecessors" who had children during GDR times, but whether they differ in their fertility behavior from their counterparts in the West, who are subject to similar institutional constraints.

Panel 2 displays the ASFR for the cohort 1968 which shows that East German birth rates are *above* West German levels in the immediate two years after Unification. In other words: if one takes West Germany as a benchmark, there is no sign of a "crisis-related" fertility behavior in the year 1991 and 1992 for the cohort 1968. It is only after three years of Unification when they drop below West German levels.

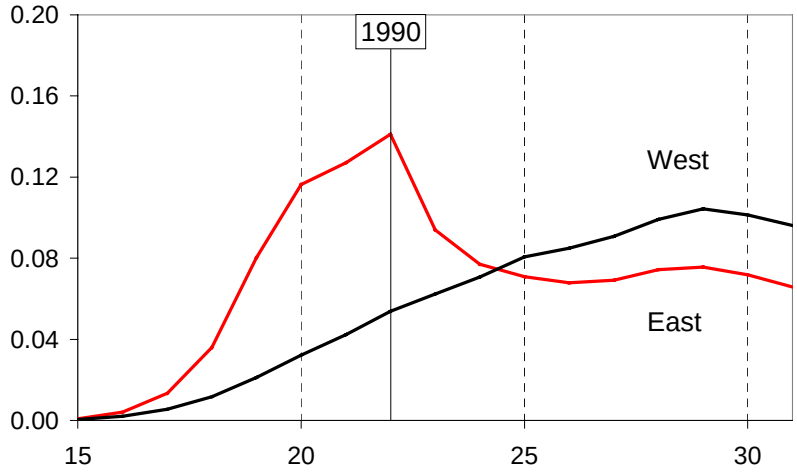
It is however rather cumbersome to assess whether the low East German birth rates in the year 1993 and later indicate a "crisis-related" fertility behavior. A comparison of fertility patterns is severely complicated by the fact that East Germans were more likely to have children before Unification. This aspect can be depicted from Panel 3, which displays the cumulated ASFR for the cohort 1968. In 1990, the East German fertility rate amounts to 0.5, but for West Germans to only 0.2. In the subsequent years, West Germans have not been "catching up" on their East German counterparts. In 1999 (respectively at age 31), East Germans of the cohort 1968 still have slightly more children.

Figure 12: Age Specific Fertility Rates, Cohorts 1966, 1968, 1970

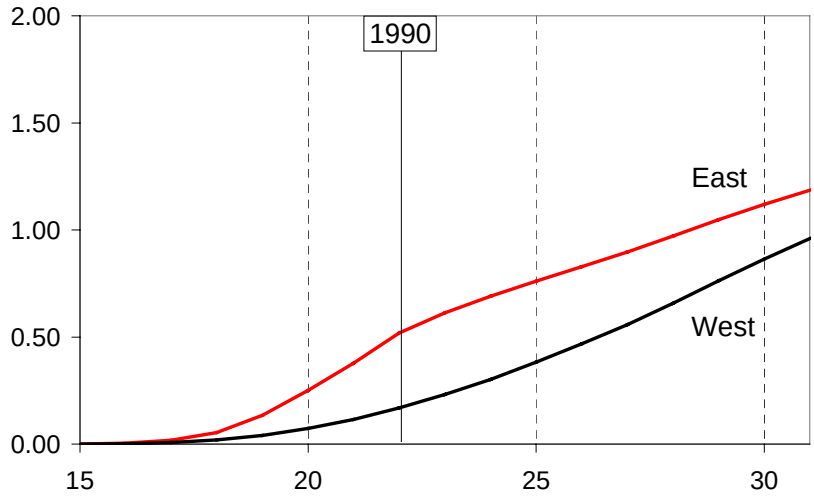
Panel 1: ASFR, East Germany, Cohort 1966, 1968, 1970



Panel 2: ASFR, East and West Germany, Cohort 1968



Panel 3: Cumulated ASFR, East and West Germany, Cohort 1968



Source: Statistisches Bundesamt (1994, 1995a, 1999a, 2000a, 2001a)

Family Size in 1990 and the Decline in Cohort Fertility

Since East German Unification Cohorts have more children on average in 1999 than West German Unification Cohorts,[56] one is tempted to reject the hypothesis of an "East German fertility crisis". This is, however, jumping to conclusions. The same average family size is compatible with substantial differences in the ratio of childlessness, one, two or three children. Aggregating the different birth parities into one single measure might conceal substantial parity specific differences. This aspect is of particular importance for the East and West German Unification Cohorts, since they were subject to different "fertility regimes" for some time in their lives. Most importantly, in the former two Germanies, progression ratios to the various parities substantially differed, which entails substantial East-West differences in the population at risk of first, second and third birth in 1990.

Table 11: Number of Children in 1990, Cohorts 1961-1970

	West	**East**
Childless	70%	35%
1 Child	18%	37%
2 Children	10%	24%
3+ Children	2%	3%
Sample Size	*31,964*	*6,784*

Source: Mikrozensus 1997 (own estimations), for details see Appendix

Table 11 displays the family size for the Unification Cohorts in 1990. While 70 percent of the West German comparison group was still childless in 1990, this applies to only 35 percent in the East. There are only small differences in the ratio of couples with three or more children, but large differences in the ratio of couples with one or two children. If East German Unification Cohorts were to progress towards West German fertility patterns, they should display much lower first birth risks, slightly lower second birth risks and about the same third birth risks after Unification. Aggregating all parities

56 This aspect also applies to the "Unification Cohorts" (1961-1970) which are not displayed here.

into one single measure renders it impossible to assess how close East and West Germans have come in the 1990s. In short, commonly available vital statistics are not instructive at all for evaluating East German fertility behavior after Unification. In order to address this issue it is not only imperative to use *cohort* data, but to also distinguish the birth of different *parities* and take the *fertility history* prior to 1990 into consideration.

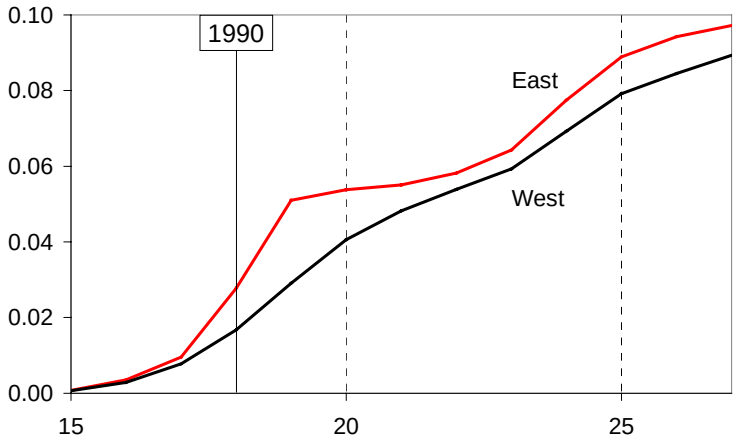
4.3.2 The Post-Unification Cohorts

Members of the cohorts 1971 or later were at a maximum age of 19 when Germany was unified. Only a few of the members of these cohorts were old enough to already have given birth before Unification. This aspect crucially facilitates the analysis. A comparison between East and West Germans is no longer distorted by the fact that they were subject to different "fertility regimes" for some time in their lives and, related to this, that East Germans were more likely to have set up a family in 1990.

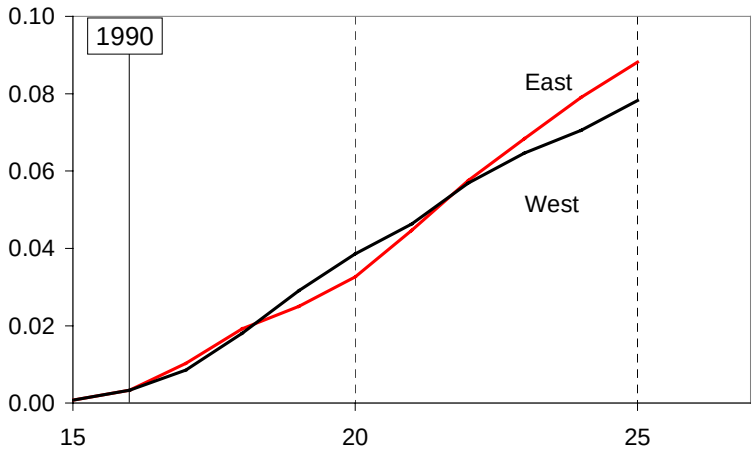
Figure 13 displays the ASFR of the cohorts 1972, 1974 and 1976. The most important aspect these figures reveal is that there are only small differences between East and West Germans. Nevertheless, it might be worth pointing out some minor ones. For the cohort 1972, East German birth rates are higher at all ages. This is not quite that notable for the time prior to Unification, but birth rates for the time after Unification are still above West German levels. The same applies to the birth cohort 1971, (which is not displayed here). For the cohorts 1973 and younger, hardly any East-West differences can be detected. Teenage pregnancies (defined as births that occur at age 19 or younger) are slightly lower in East than in West Germany. This could possibly be attributed to the relatively high proportion of foreigners in West Germany who are more likely to have children at younger ages (BMFSFJ 2000: 103). As noted in Chapter 1, structural differences in the East and West German population (e.g., differences in the ratio of foreigners or differences in the ratio of college graduates) might contribute to East-West differences in the overall fertility level. How far structural differences are able to explain East-West differences can, however, not be investigated on the basis of the commonly available vital statistics.

Figure 13: Age Specific Fertility Rates, Cohorts 1972, 1974, 1976

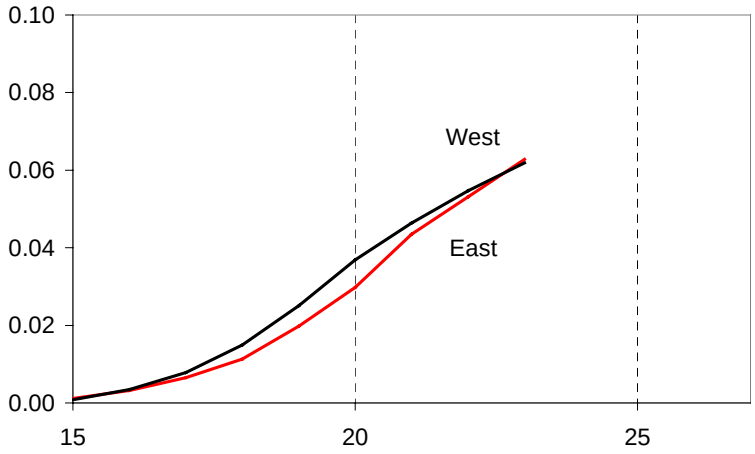
Panel 7: ASFR, East and West Germany, Cohort 1972



Panel 8: ASFR, East and West Germany, Cohort 1974



Panel 9: ASFR, East and West Germany, Cohort 1976



Source: Statistisches Bundesamt (1994, 1995a, 1999a, 2000a, 2001b)

4.4 Conclusion

This chapter basically consisted of three broad parts. In the first part, I summarized the typical East and West German "fertility regime". I then discussed the implications of the East-West differences *before* Unification for the analysis of fertility patterns *after* Unification. The last part comprised the analysis of German vital statistics for the time after Unification. Major results of the comparison of the East and West German "fertility regime" before Unification can be summarized as follows:

- In the East, there was a very low age at first birth, a low variance around the mean age at first birth and a low level of childlessness. In the West, on the other hand, the mean age at childbirth and the ratio of childlessness have constantly increased for the cohorts born in 1950 and later.
- Concerning higher parity births, there was a strong dominance of the two-child family in East Germany. Roughly 50 percent of the East Germans had a second child. Among the West Germans, this ratio amounted to 35 percent only.
- East Germans had a substantially lower progression ratio to the third child than their West German counterparts.

The East-West differences in fertility behavior *before* Unification are of major importance for the analysis of fertility patterns *after* Unification. Most importantly, they entail substantial East-West differences in the population at risk of childbirth at German Unification. Related to this, it is basically not possible to clarify whether East and West German fertility differs in the 1990s based on the decline of the period TFR. Since East Germans were younger at childbirth before Unification, a drop in birth rates is even a prerequisite for "an adaptation to" West German fertility patterns. In order to answer the question of whether East Germans are showing similar fertility patterns to their West German counterparts, cohort fertility rates are needed.

Unfortunately, The German Statistical Office solely provides cohort fertility rates which do not distinguish births of different parities. The East and West German cohorts born after 1970 display very similar age specific fertility rates. However, aggregated birth rates might very well conceal parity specific differences. This might be of smaller

importance for the younger cohorts, it is, however, of vital importance for the "Unification Cohorts", i.e. cohorts born from 1961-1970. These cohorts were subject to different "fertility regimes" for some time in their lives. In 1990, there are only small East-West differences in the ratio of women with three or more children, larger differences in the ratio of those with two, and huge differences in the ratio of women with only one child or childless women. If there is an "adaptation to" West German fertility patterns, first birth rates must decline more rapidly than second or third birth rates. Aggregating different parities into one single measure conceals these differences. In other words, particularly for the cohorts 1961-1970, German vital statistics are unable to clarify whether East and West German fertility behavior differs after Unification. To investigate this issue, a parity specific analysis is needed.

Chapter 5

Fertility after Unification: A Parity Specific View

In the Chapter 4, I have shown that former East and West Germany's "fertility regimes" substantially differed. The large differences in fertility patterns *before* Unification entail important consequences for the analysis of fertility patterns *after* Unification. Most importantly, it is basically imperative to use cohort fertility rates, which distinguish by birth parities when comparing East and West German fertility patterns after Unification. In the subsequent part, I address this issue, i.e. I compare the fertility behavior of East and West Germans in the 1990s using parity-specific cohort data.

In the first step, I utilize data from the Family and Fertility Survey (FFS) in order to describe childbearing desires in 1992 (Part 5.1). Compared to the analysis of "actual behavior", fertility desires provide a major advantage in that they give insight into the lifetime fertility plans of respondents and might therefore give an idea of the future fertility behavior in a population. Using fertility desires as a predictor of subsequent fertility, involves some major drawbacks which I will also discuss. In the second step, I use data from the German Socio-Economic Panel (SOEP) to analyze the transition to the first child in East and West Germany before and after Unification (Part 5.2). In order to analyze the fertility patterns by single birth cohorts and to investigate the "period effect" of German Unification more closely, I finally use the public use file of the German micro-census of the year 1997. Part 5.3 contains the analysis of *second* and *third* births which solely draws on data from the German micro-census.

5.1 Desires for Children in 1992

In the following, I analyze the fertility desires which East and West Germans expressed in the year 1992. Fertility desires might not only give an idea of the role East and West Germans assign to children in their lives, furthermore they might serve as predictor of subsequent behavior. In order to analyze fertility desires, I use data from the Family and Fertility Survey (FFS) (for a description of the FFS, see Appendix). It covers respondents who were aged 20-39 at the time of interview, i.e. the birth cohorts 1952-1972. For this analysis, I only use the cohorts 1961-1972, i.e. more or less the cohorts which I defined as Unification Cohorts in the previous chapter. Table 12 displays the ratio of East and West Germans by their desire to have children. I distinguish the following four categories:[57]

- **Have children**: Respondents who have a child or who are pregnant at the time of the interview. (Naturally, for male respondents, this refers to the partner's pregnancy).
- **Want Children**: Respondents who are childless and not pregnant at the time of interview, but plan to have children at some stage in their lives.
- **Don't Know:** Respondents who are childless and not pregnant at the time of interview and who are uncertain about having children in their lives.
- **Don't Want:** Respondents who are childless and not pregnant at the time of interview and who do not want children.

About 65 percent of the East German women of the cohorts under consideration had their first child in 1992. Among the West German sample, this applies to only 34 percent. The percentage of East Germans who state that they want children is smaller than among West Germans. However, such a comparison is obviously problematic when most East Germans have already set up a family. If one only uses childless East and West German women, one finds that the East Germans are more certain to want children than their counterparts in the West. It might also be worth noting that there is

57 The underlying question is: "Do you want children of your own sometime?" The answers are: "Yes", "Don't know", "No"

only a very small group (8 percent) who clearly object to having children. Notably, too, there are only small differences in the desire to have children by males and females.

Table 12: Desire to Have Children in 1992

	Females		Males	
	West	**East**	**West**	**East**
All				
No	5%	2%	6%	4%
Don't know	23%	8%	30%	18%
Want children	38%	24%	47%	36%
Have children	34%	65%	16%	42%
Total	100%	100%	100%	100%
Sample size	*1,696*	*1,691*	*1,184*	*1,085*
Only Childless				
No	8%	7%	7%	7%
Don't know	35%	24%	36%	30%
Want children	57%	69%	56%	62%
Total	100%	100%	100%	100%
Sample size	*1,121*	*595*	*993*	*630*

Note: (1) Population: East and West German cohorts 1961-1972 (2) Source: FFS 1992

Apparently East Germans are more certain that they want children in their lives than their West German counterparts. Does this also mean that they plan to have them earlier in their lives? In the FFS, respondents are also requested to report their *desired age at first birth*.[58] It should be noted that only respondents who state that they want children, but who do not have any children yet are queried. East Germans are therefore less likely to be selected into the group of respondents. Table 13 displays the desired age at first birth, by different age groups. Additionally, it gives the difference between the current age and the preferred age at first birth. The most important aspect this table shows, is that East Germans wish to have their first child about one year earlier than their counterparts in the West.

58 The desired age at first birth is surveyed in the following manner: "At what age do you want your first child?"

Table 13: Desired Age at First Birth in 1992

	Females		Males	
	West	**East**	**West**	**East**
Desired Age at First Birth				
Current age 20-23	27.4	26.3	29.0	27.9
Current age 24-27	29.8	29.2	31.0	30.0
Current age 28-31	32.8	32.5	33.9	32.9
Desired Years until First Birth				
Current age 20-23	6.2	5.2	7.6	6.5
Current age 24-27	4.5	3.9	5.6	4.7
Current age 28-31	3.7	3.1	4.7	3.7
Sample size	*1,814*	*1,778*	*1,283*	*1,149*

Note: (1) Population: childless East and West Germans; only cohorts 1961-1972 (2) Source: FFS 1992

Finally, I address the question of *how many children* East and West Germans, who were childless in 1992, wish to have in their lives. Table 14 displays the percentage of respondents wanting one, two or three and more children. Compared to their West German counterparts, East Germans (who were still childless in 1992) are substantially more likely to want one child only. Furthermore, they are less likely to want more than two children. In other words, although East Germans are more certain to want children and, although they want to have their first child earlier in life, they are less likely to want a larger family.

Table 14: Desired Number of Children in 1992

	Females		Males	
	West	**East**	**West**	**East**
All				
No children	8%	7%	7%	7%
Uncertain	35%	24%	36%	30%
One child	16%	34%	14%	28%
Two children	34%	33%	36%	31%
More than two children	7%	2%	6%	3%
Total	100%	100%	100%	100%
Sample size	*1,113*	*595*	*987*	*629*
Only Respondents Wanting Children				
One child	28%	49%	25%	45%
Two children	60%	48%	64%	50%
More than two children	12%	3%	11%	5%
Total	100%	100%	100%	100%
Sample size	*632*	*411*	*554*	*392*

Note: (1) Population: childless East and West Germans; only cohorts 1961-1972 (2) Source: FFS 1992

Desires for Children: A Predictor of Subsequent Behavior?

The analysis of desires for children provides the first insight into differences in fertility plans among East and West Germans. They show that, contrary to the idea of a "fertility crisis", East Germans plan to have their children earlier in life than their West German counterparts. However, there are several restrictions which need to be named. First of all, the FFS was surveyed in 1992, which means that it is relatively old by now and therefore it no longer provides an ideal database for predicting future fertility behavior. More recent data sets provide fertility histories of East and West Germans until the year 1999 (see below).

Besides this, there has been substantial concern as to whether one can interpret fertility desires in a meaningful manner in the first place. The most often stated criticism relates to the empirical finding that desires for children are not sufficiently correlated with subsequent behavior (e.g., Bongaarts 1998: 9; Schoen et al. 1997: 339; Schoen et al. 1999: 790). Researchers also found that fertility desires are highly volatile over time. Longitudinal studies show that negative fertility desires are, to some extent, stable over the life course, i.e. respondents who initially do not want children tend to keep this attitude during their life-time. However, respondents who are initially uncertain about

wanting children or who state that they want children, are very likely to change their attitude over time (Heaton/ Jacobson/ Holland 1999: 534; Rovi 1994: 346). One could interpret a change of attitudes over the life course in the sense that individuals rationally adjust their preferences to the given constraints. East Germans might state that they are more certain to want children and that they want them earlier in their lives, but unfavorable labor market constraints might finally hinder them from realizing their fertility plans. However, one could argue as well, that fertility desires are volatile because they do not reflect any coherent fertility plans. Instead, they are just vague attitudes, which fluctuate with the temporal mood of the respondent (Strohmeier/ Schulze 1995: 35).

In short, the analysis of fertility desires does not show any sign of a "fertility crisis" in East Germany. On the other hand, fertility desires provide a rather weak basis to test this hypothesis in the first place. Instead of using fertility desires from the year 1992, it is certainly more appropriate to use more recent data on "actual behavior". In the following, I present some findings on the transition to first birth from the German Socio-Economic Panel 1999 (SOEP) and from the public use file from the German micro-census 1997.

5.2 The First Child

5.2.1 Transition to the First Child before and after Unification

In the following part, I use data from the German Socio-Economic Panel in order to describe the transition to the first child for the period before and after Unification. In particular, the analysis of data from the SOEP, which draws on various survey years, raises the question of how to define East and West Germans. To simplify matters, one could use the region of residence. Respectively, individuals who are living in the territories of the former German Democratic Republic are classified as East Germans, respondents who are living in the territories of the former Federal Republic of Germany are classified as West German. This is the procedure I applied in the previous analysis

(Part 5.1). This is also the standard procedure which is followed by the German Statistical Office, where births are classified according to the place of residence of the mother. Such a procedure means that all births to East-to-West migrants appear in the German vital statistics as births to West German women. Correspondingly, births to West-to-East migrants are classified as births to East German women. If one is interested in whether the upheavals around German Unification had long lasting effects on the fertility careers of East German women, this procedure is not very sensible. Although West-to-East migrants are exposed to similar socio-economic constraints after they migrate, one could make a point that they did not experience a disruption of their employment careers which East Germans were subject to at the time of Unification.

Distinct from the common practice of the German vital statistics, I define an East German as a person who was living in East Germany in the spring of 1990 (, i.e. when the first survey of the eastern sample of the SOEP was conducted). A West German is correspondingly, a person who already lived in the western states of Germany in 1990. Since the SOEP contains an oversample of foreigners and ethnic Germans, I omit this group from the subsequent analysis. By this procedure I also substantially reduce the heterogeneity of the West German comparison group. Furthermore, I limit the sample to the cohorts born 1961-1980 (for details, see Appendix).[59] In line with the classification presented in Chapter 4, I distinguish the Unification Cohorts (1961-1970) and the Post-Unification Cohorts (1971-1980). Table 15 displays the sample size and the number of first births for this analysis. There are 1,027 East German women who gave birth to 490 first children and 1,957 West German women who gave birth to 692 children.[60]

59 In line with the analysis of Chapter 4, I omit the cohorts born 1960 or earlier, since only a small fraction was still at risk of first birth after Unification.

60 It should be noted that in contrast to the analysis in Chapter 6, I do not use monthly information on the date of birth of the child. I simply calculate the age at birth by the difference between the year of birth of the mother and the year of birth of the child. The primary reason for only using an "annual time scale" is that for the time prior to Unification, I do not have any monthly information available for the East German sample (see Appendix for details).

Table 15: Sample Size for the Descriptive Analysis of First Births (SOEP)

	Cohorts 1961-1970		Cohorts 1971-1980	
	West	**East**	**West**	**East**
First birth 1990 or before	301	321	3	3
First birth after 1990	304	87	84	79
Total number of first births	605	408	87	82
Sample size (Respondents)	1,359	568	598	459

Method

As a methodological tool to describe first birth patterns, I use standard survival analysis. A key indicator in this context is the *median age at first birth*, i.e. the age when half of the cohort had their first child.[61] In addition, I estimate *hazard rates*, particularly in order to show how birth intensities dropped after German Unification. In order to estimate the survival curves and hazard rates, I use life table techniques (e.g., Blossfeld/ Rohwer 1995: 51ff.). Defining R_j as the risk set (i.e. the number of observations at the start of the interval, minus half of the observations who are censored during this interval), d_j are the number of events during the interval, the survival function S_j can be written as follows (see Stata Corporation 1999a, 1999b: 251ff.):

$$S_j = \prod_{k=1}^{j} \frac{R_j - d_j}{R_j} \qquad (1)$$

61 The median age at first birth indicates when half of the cohorts had a first child. Therefore it is still significant, even though the cohorts under observation have not reached the biological limits of fertility. This is of particular importance for this analysis, since the Unification Cohorts were at a maximum age 38 in 1999 (the year of censoring). The major disadvantage of this method is that it is not sensitive to the level of ultimate childlessness. The same median age at first birth is compatible with large differences in the final ratio of childlessness. The median age at first birth might increase, because some cohort members have their first child later in life than their predecessors. However, it can also increase because they will not have any children in their lives. In other words, changes in the median age at first birth can relate to changes in the timing and quantum of fertility. A similar case applies to standard event history techniques, which do not disentangle the *rapidity* of having a child from the *probability* of having one (see also Chapter 6).

When $(t_{j+1} - t_j)$ *is* the length of the interval, f_j equals d_j/R_j , the hazard function λ_j is respectively:

$$\lambda_j = \frac{f_j}{(1 - f_j/2)(t_{j+1} - t_j)} \tag{2}$$

In the graphical representations, the hazard rates and survival estimates are plotted against t_j. In order to test the homogeneity of the survival curves, a log-rank test is applied (Stata Corporation 1999b: 251ff.).

Structure of the Analysis

The empirical analysis (of this part) is structured in the following manner:

- First, I compare survival curves for the transition to the first child in East and West Germany for the time **prior to Unification**. The censoring date is German Unification.
- Second, I estimate hazard rates for first birth risks. As discussed in Chapter 2, the years 1990-1992 mark the time of the East German labor market's major reconstruction. Since dismissals, retraining programs and job changes mainly took place during the immediate two years after Unification, East Germans should have postponed childbirth particularly during this time. In other words, there should be a "**period effect**" of Unification, which should be mirrored in the low hazard rates in the years 1990-1992.
- Third, survival curves for East and West Germans who were childless at German Unification are estimated. This analysis reveals differences in the transition to the first child **after Unification**.
- Finally, the question of **"timing and quantum"** is addressed: is there "only" a postponement of first births concerning East Germans? Or, is there are also an increase in the ultimate ratio of childlessness?

(1) Transition to First Birth before German Unification

Figure 14 displays the survival curves for the transition to first birth for the period before German Unification, i.e. I censor the cases in 1990. For this part of the analysis, I only use the Unification Cohorts (1961-1970). The Unification Cohorts were between age 20 and 29 in 1990. Since more than half of the sample members had their first child at Unification, the median age at first birth reflects the "typical" fertility pattern of former East Germany. As expected, the median age at first birth is significantly lower in former East Germany. In the West, the median age at first birth is about 28 years of age, but it is 23 in the East. In other words, the median East-West difference in the age at first birth is about five years in age for the time prior to Unification.

Figure 14: Transition to First Birth before Unification, Cohorts 1961-1970

Note: (1) Method: life table method (2) Time scale: age of woman (difference between year of birth and year of birth of child/ year of censoring) (3) Censoring: 1990 (4) Source: SOEP 1999

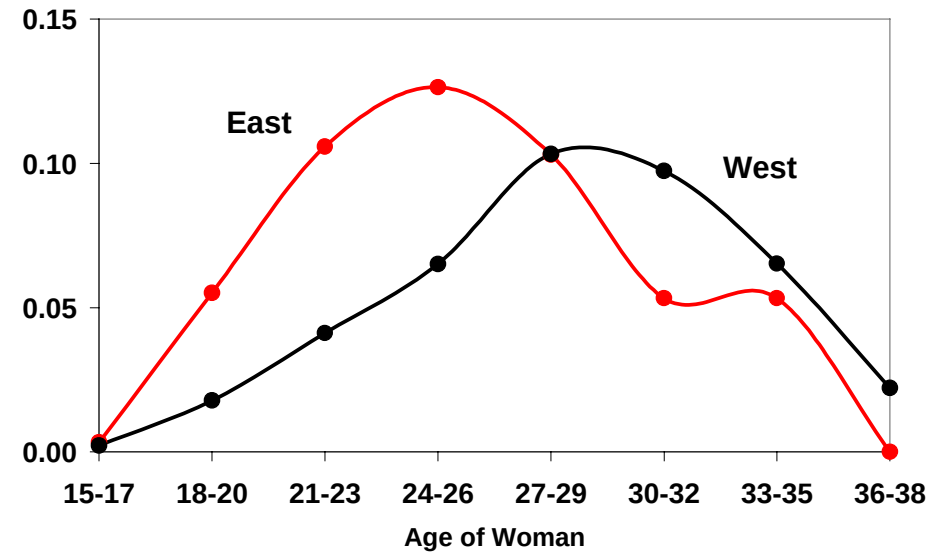
(2) "Period Effect" of German Unification

How did fertility behavior change after Unification? Was there a "period effect" of Unification? How long did this "period effect" last? What happened after the "temporal freeze" some researchers talked about? In order to address some of these issues, I estimate hazard rates for the Unification Cohorts. It should be noted

beforehand, that I had to use rather large age intervals, otherwise the graphs would have fluctuated in a manner which would have restricted any meaningful interpretation of the hazard rates.

Figure 15 displays the results of this analysis. At the ages 27-29, East German hazard rates decline. Possibly one could call such a pattern, a period effect of Unification. However, this would rather be jumping to conclusions. The East German Unification Cohorts were between age 20 and 29 at German Unification. Given this large age range, it is almost impossible to attribute the decline in birth intensities at age 27-29 to the East German labor market crisis. In other words, based on the SOEP data alone, it is difficult to investigate a "period effect of Unification". I will come back to this issue later on, when I use data from the public use file of the German micro-census to investigate the "period effect of German Unification" by single birth cohorts.

Figure 15: First Birth Risks (Hazard Rates), Cohorts 1961-1970



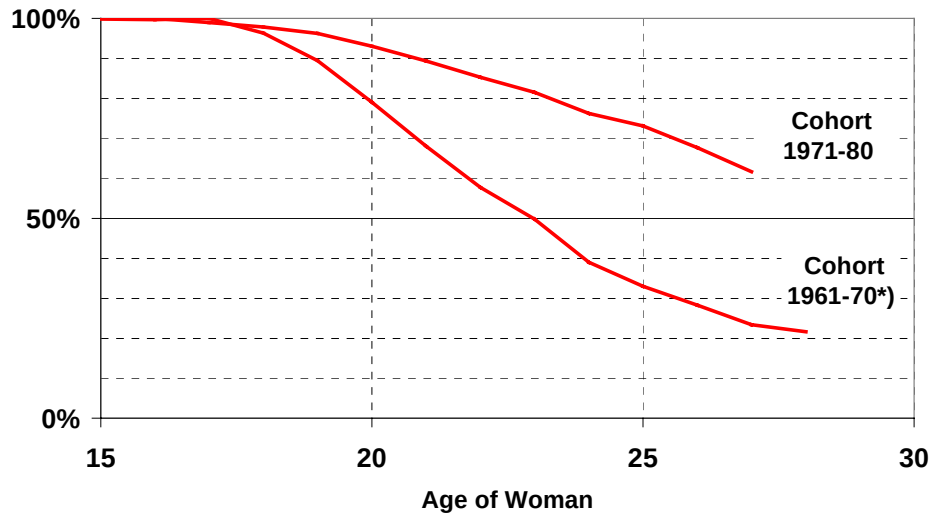
Note: (1) Method: life table method, 3 year age intervals used (2) Lines were smoothed. (3) Source: SOEP 1999

(3) Transition to First Birth after Unification

As shown above (see Figure 14), the East-West difference in the median age at first birth before Unification was five years. What happened to this age difference after

Unification? One straightforward way of investigating this issue is to compare the median age at first birth for the Unification (1961-1970) and the Post-Unification Cohorts (1971-1980). Unfortunately, for the latter cohorts, the median duration time cannot yet be estimated. Only 40 percent of them had a first child at censoring in 1999 (see Figure 16). I therefore compare the age when 40 percent of the sample members had their first child. This is at age 22 for the Unification Cohorts and at age 27 for the Post-Unification Cohorts. In other words, there is good reason to expect an increase of five years in the median age at first birth.

Figure 16: Transition to First Birth, East German Cohorts 1961-1970 and 1971-1980



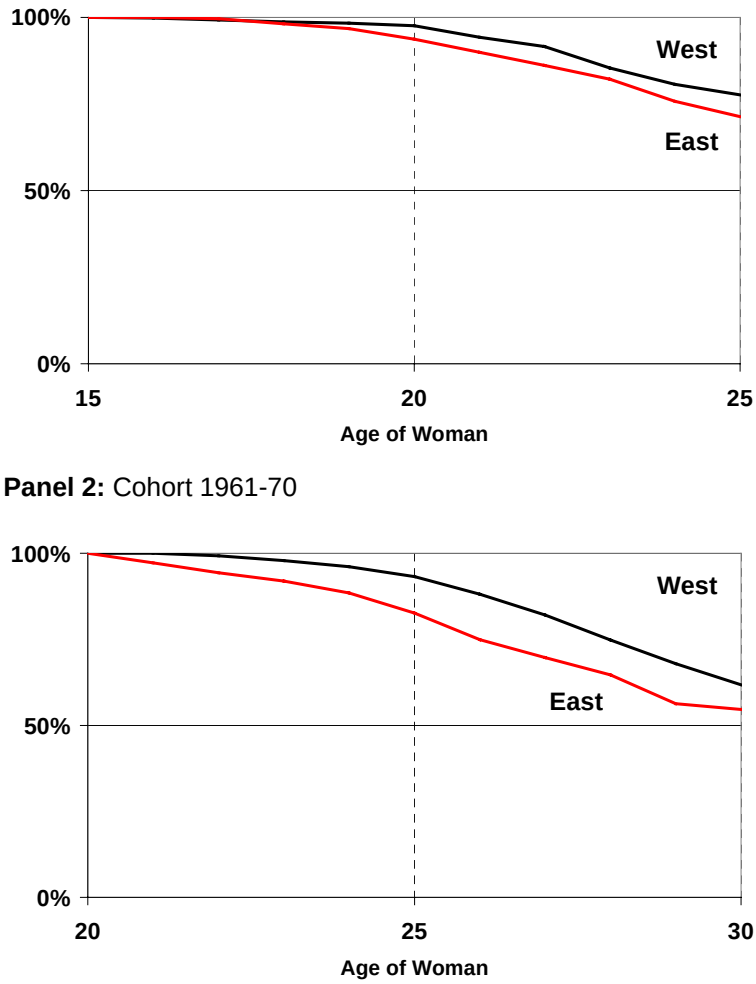
Note: (1) *) Censored in 1990 (2) Method: life table method (3) Time scale: age of woman (difference between year of birth and year of birth of child/ year of censoring) (4) Source: SOEP 1999

Given the drastic postponement of first birth to older ages, one could expect that the East and West German Post-Unification Cohorts hardly differ in their fertility behavior. In the next step, I investigate this issue, i.e. I compare the fertility patterns of the East and West German Post-Unification Cohorts. There are some respondents who already had a first child before Unification. I omit these cases from the subsequent analysis.

Panel 1 in Figure 17 displays the survival curves for the *Post-Unification Cohorts.* Surprisingly, East Germans are still more likely to have their first child at younger ages.

Testing the survival curves for equality, it turns out that they differ significantly from one another on the 95-percent level.

Figure 17: Transition to First Birth, Respondents who were Childless at Unification



Note: (1) Method: life table method (2) Time scale: age of woman (difference between year of birth and year of birth of child/ year of censoring) (3) Source: SOEP 1999

The East German *Unification Cohorts* (1961-1970) mostly had a first child before Unification, i.e. about 80 percent had already given birth to a first child in 1990 (see Figure 14). This means that the large majority should not have been affected in their first birth patterns by the upheavals during German Unification. This certainly does not rule out that the remaining 20 percent postponed childbirth in the subsequent years.

Before investigating this issue, it is important to recall that childless East Germans of the Unification Cohorts are a more highly selected group in 1990. 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 this sample. Due to such unobserved characteristics, one could expect a slower transition rate to the first child for the remaining sample.

Panel 2 in Figure 17 displays the survival curves for the transition to the first child by the age of the women for this sample. Since the Unification Cohorts were age 20 and older at Unification, the time scale starts at age 20 (and not at age 15, as in the previous figures). Although East Germans are presumably a more highly selected sample, they are still more rapid in having their first child *after* Unification than their West German counterparts. (This difference is also significant on the 95-percent level).

In sum, the analysis of data from the SOEP does *not* support the idea of a "fertility crisis". East Germans, who were still at risk of childbirth in 1990, were younger at their first birth than West Germans in the subsequent years after Unification. This means that there is a postponement of first birth compared to GDR times. However, East Germans did *not* postpone first parenthood beyond West German age levels.

(4) Timing or Quantum: Childlessness after Unification

In the discussion on an "East German fertility decline", one of the crucial questions is whether the decline in the TFR reflects a temporal postponement of birth or whether it rather reflects a decline in lifetime fertility. The analysis of the data from the SOEP suggests that there is a drastic postponement of first births after Unification. The question of whether there will also be an increase in the ratio of childlessness compared to former East Germany cannot yet be answered, considering that the Unification Cohorts have not reached the biological limits of fertility by 1999. Nevertheless, it is possible to answer the question of whether they will have a higher ratio of childlessness compared to their West German counterparts. As can be depicted from Figure 16, almost 80 percent of the East German Unification Cohorts had a first child at Unification. Various studies for West Germany show that the ratio of childlessness for

the birth cohorts born after 1955 increased to above 20 percent (see Chapter 4). Given that this trend persists in West Germany, childlessness among the German Unification Cohorts will definitely be lower in the East than in the West.

Analyzing First Births with the SOEP: Drawbacks and Advantages

The analysis of data from the SOEP reveals a couple of "counter-intuitive" aspects about first births in East Germany after Unification. These aspects are particularly "counter-intuitive" in respect to the idea of an East German "fertility crisis". To summarize major aspects:

- The analysis of the data from the SOEP confirms the findings from the German vital statistics for the time prior to Unification. There were substantial differences in the age at first birth before Unification. The difference in the median age at first birth is about 5 years.
- After Unification, birth intensities for the East German Unification Cohorts dropped. Nevertheless, East German Unification Cohorts (1961-1970) and Post-Unification Cohorts (1971-1980) were still younger at first birth in the 1990s than their counterparts in the West.

Although the analysis of the SOEP reveals some interesting aspects about East Germany's fertility pattern, one must comment on major shortcomings of the data set. The SOEP is a survey data set. Its virtue is its panel characteristics, the detailed employment histories, the detailed income information, etc. (see Chapter 6). However, the major drawback of this data set is that it comprises a relatively small sample size for the analysis of fertility patterns in East Germany after Unification. The hazard rates are very volatile, unless one uses relatively large age intervals. This is, however, not very advisable. It potentially hides differences in birth intensities in the immediate years after Unification, i.e. one could assume that birth intensities dropped below West German levels in 1990, but increased again in 1992. It is also a drawback that one has to aggregate the Unification Cohorts into one category. This might obscure the fact that some East Germans differ in their behavior depending on the age of the respondents at the time of Unification. In other words, a larger sample size is needed to analyze single

years and single birth cohorts. The German micro-census, which I will use in the following, contains such virtues.

5.2.2 A Closer Examination of the "Period Effect"

In the following, I use data from the public use file of the German micro-census of the year 1997 (in the following "Mikrozensus") in order to get a better insight into the "period effect" of German Unification. The great advantage of the Mikrozensus is that it contains a relatively large sample size which allows for the analysis of single birth cohorts. The major drawback of the Mikrozensus is, however, that it does not provide the "fertility history" of the respondents. The age at childbirth and the parity information can only be inferred from the number and age of the children who still live in the household (or more specifically in the family). This basically means that it is only reasonable to use respondents whose children have not yet moved out of the parental home. It is obvious that the older the respondent, the more likely his or her children have already founded their own household. For this analysis, I restrict the analysis to females born in 1961 or later. It should further be noted that I censor the cases in the year 1996, which means that respondents were at a maximum age of 35 at censoring (for a detailed description of the sample and the variables, see Appendix).[62]

Structure of the Analysis

- In the first step, I display **survival curves by single birth cohorts**. The major reason for doing so, is to display more closely the changes in the timing of first birth, which occurred after Unification.

62 It should further be noted that the analysis of data in the German micro-census does not allow for the identification of East-to-West migrants. I therefore have to define an East German as a person living in the "new federal states" at the time of survey. In contrast to the analysis using the SOEP, foreigners are also included in the subsequent analysis.

- In the second step, I compare the ratio of **childlessness at German Unification** by single birth cohorts. This will give a better idea of the ratio of women, who are still at risk of first birth at Unification.
- In the final step, the **"period effect"** of German Unification is investigated for single cohorts.

Table 16 displays the sample size for this analysis. Per cohort, there are roughly 600 East and 2,5000 West German women available.

Table 16: Sample Size for the Descriptive Analysis of First Births (Mikrozensus)

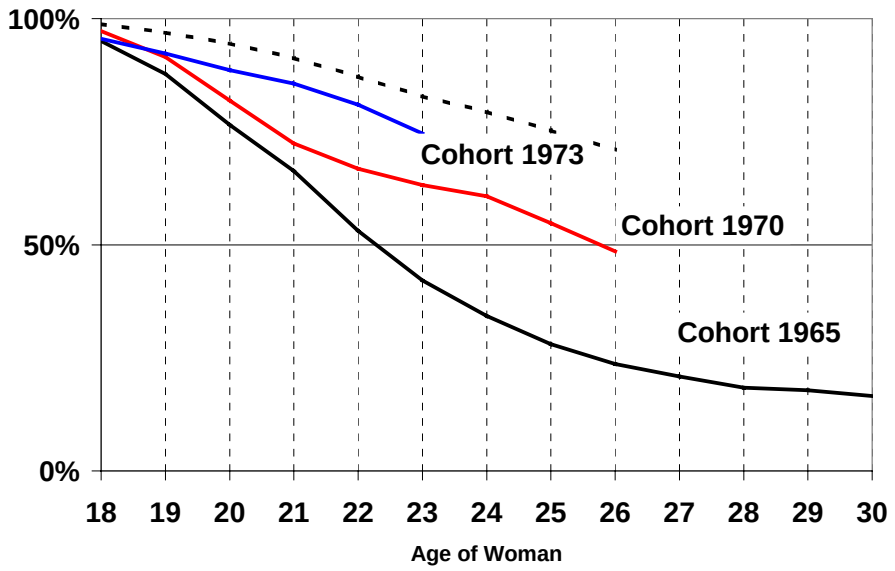
	No. of First Births		No. of Cases	
	West	**East**	**West**	**East**
Cohort 1961	2,424	708	3,261	776
Cohort 1962	2,252	684	3,196	771
Cohort 1963	2,425	696	3,478	799
Cohort 1964	2,178	659	3,330	747
Cohort 1965	2,095	585	3,395	689
Cohort 1966	1,837	536	3,309	676
Cohort 1967	1,588	458	3,142	589
Cohort 1968	1,399	439	3,183	601
Cohort 1969	1,193	360	2,982	578
Cohort 1970	833	296	2,688	558
Cohort 1971	700	233	2,640	518
Cohort 1972	564	155	2,434	454
Cohort 1973	391	111	2,177	406

(1) Transition to the First Child: The Cohorts 1965, 1970 and 1973

Figure 18 displays the survival curve for the transition to the first child for the birth cohort 1965, 1970 and 1973. The survival curves support the findings from the SOEP. Compared to former East Germany, there is a drastic increase in the median duration time until first birth. Members of the cohort 1965 were age 25 at German Unification and the large majority had a first child by then. Therefore, the median age at first birth for this birth cohort is still representative for the fertility pattern prior to Unification. The cohort 1970 was age 20 at Unification and almost 20 percent of this cohort had a first child in 1990. Therefore, the median age at first birth of this cohort is not completely representative for the post-unification area. Nevertheless, a comparison of the cohort 1965 and 1970 gives some idea of the changes in the timing of first birth after

German Unification. There is a difference in the median duration time of four years in age, which suggests an immediate and rapid postponement of first births after Unification for the cohort 1970. Again, this does not mean that East Germans are older at first birth than their West German counterparts. The dotted line in Figure 18 represents the survival curve for the West German cohort 1970, which is clearly above the East German one.

Figure 18: Transition to First Birth, East German Cohorts 1965, 1970, 1973



Note: (1) Method: life table method (2) Time scale: age of woman (difference between year of birth and year of birth of child/ year of censoring) (3) Dotted Line: West German birth cohort 1970 (4) Source: Mikrozensus 1997

(2) Childlessness at German Unification

Table 17 displays the ratio of childlessness in 1990 and 1996 by single birth cohorts. Most of the East German Unification Cohorts had already set up a family at German Unification. As discussed in Chapter 4, the expected ratio of childlessness is around 25 percent for the West German birth cohort 1960. However, all East German cohorts born in 1964 or earlier already had a lower ratio of childlessness in 1990. In other words, it is basically not possible that the ratio of childlessness increased above West German levels for these cohorts, even if those East German women who were childless at Unification had completely forgone parenthood in the subsequent years.

Table 17: Percent Childless in 1990 and 1996, Cohorts 1961-1970

	East		West	
	1990	**1996**	**1990**	**1996**
Cohort 1961	12	9	41	26
Cohort 1962	16	11	49	30
Cohort 1963	19	13	54	31
Cohort 1964	20	12	61	35
Cohort 1965	28	15	70	40
Cohort 1966	38	21	77	46
Cohort 1967	44	22	81	51
Cohort 1968	55	28	87	58
Cohort 1969	67	39	89	62
Cohort 1970	82	49	95	71

Source: Mikrozensus 1997

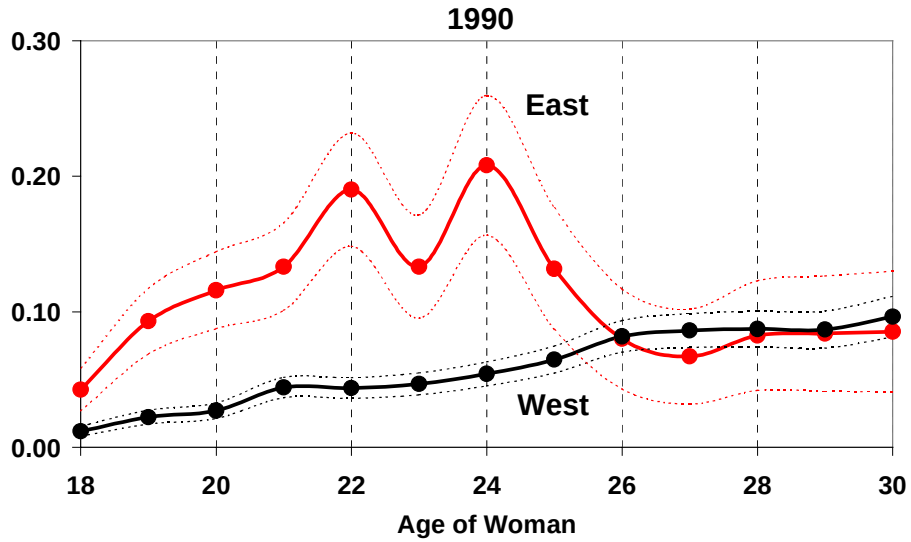
(3) Period Effect of German Unification?

Figure 19 is supposed to show the "period effect" of Unification more closely by displaying the hazard rates and the 95-confidence-level for the cohorts 1966, 1968 and 1970. The main reason why I chose theses cohorts is the following: if there was a "period effect" of German Unification, it should have been most pronounced for the cohorts who were still at risk of childbirth and who were old enough to have children at Unification.

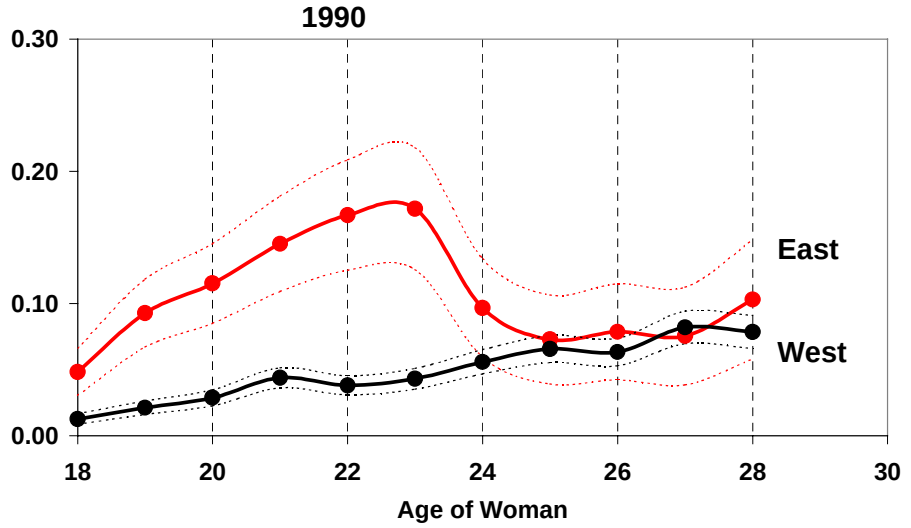
As can be seen from the figure, birth intensities dropped rapidly at Unification. However, in the immediate year after Unification, birth intensities are significantly *above* West German levels for all East German birth cohorts. They finally dropped to West German levels two years later, but they did not drop *below* West German levels (until censoring). In other words, compared to West German fertility patterns, there is no sizeable period effect of German Unification. In fact it is quite the opposite in 1991, where East German birth risks are higher than the ones of their counterparts in the West. This is even more peculiar if one takes into account that children, who were born in 1991, were mostly conceived in 1990. This was between the fall of the Berlin Wall and German Unification, i.e. during a time when the social and economic uncertainty was particularly high in the East.

Figure 19: First Birth Risks (Hazard Rates), Cohorts 1966, 1968, 1970

Panel 1: Cohort 1966



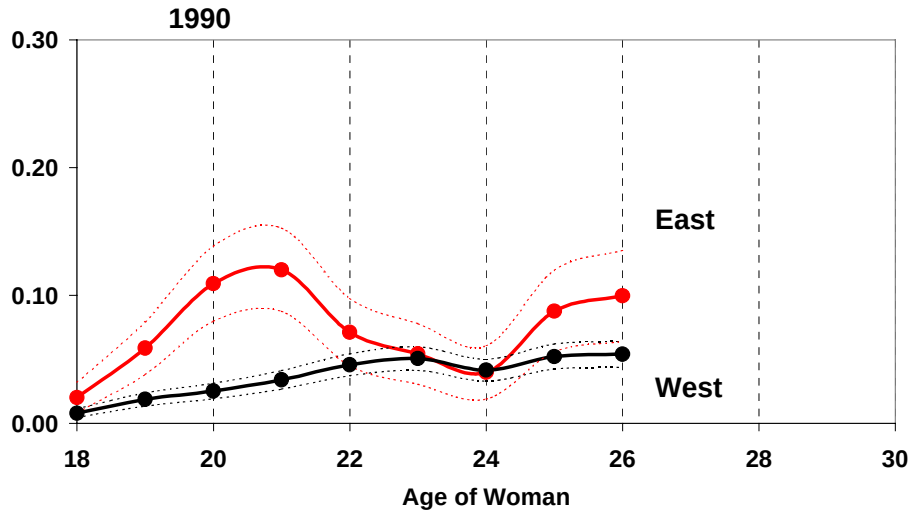
Panel 2: Cohort 1968



Note: (1) Method: Life table method (2) Time scale: age of woman (difference between year of birth and year of birth of child/ year of censoring) (3) Hazard rates and 95-confidence level (4) Lines were smoothed. (5) Source: Mikrozensus 1997

Figure 19 (continued): First Birth Risks (Hazard Rates), Cohorts 1966, 1968, 1970

Panel 3: Cohort 1970



Note: (1) Method: Life table method (2) Time scale: age of woman (difference between year of birth and year of birth of child/ year of censoring) (3) Hazard rates and 95-confidence level (4) Lines were smoothed. (5) Source: Mikrozensus 1997

Intermediate Summary

The analysis of data from the SOEP and the Mikrozensus reveal that there is a strong postponement of first births compared to former East Germany. However, most importantly, compared to their West German counterparts, East Germans are still younger at first birth after Unification. One could infer from this that the so-called East German "fertility crisis" is, from the perspective of cohort data, rather a "timing phenomenon". Due to the very low age at childbirth in the GDR, birth rates necessarily had to drop in the 1990s, if East Germans were to progress towards West German timing patterns. Given that the fertility decline is a "timing phenomenon", this has important consequences. It means that many researchers mistook the drop in the TFR as a sign of a "fertility crisis".

However, rejecting the idea of a "fertility crisis" might be jumping to conclusions. First of all, it is clear that East Germans "profited" from the very low age at first birth during GDR times. Since most couples had already set up a family at Unification, their first birth pattern could not be affected by the labor market crisis. Those still childless in 1990, were young enough to postpone parenthood to a later stage in their lives. Given

that a "period effect" (the economic and social upheavals in the years 1990-1992) coincides with an increase in the age at first birth, it is cumbersome to separate the two effects. Furthermore, it is not sensible to reject the "crisis hypothesis" as long as higher parity births are not taken into consideration as well. In the next part, I investigate this issue, i.e. the transition to higher parity births.

5.3 Higher Parity Births

5.3.1 The Second Child

For the analysis of the transition to higher parity births, the SOEP provides too small a sample size. Therefore, I solely draw on the Mikrozensus for the subsequent analysis. The analysis of second birth risks is complicated by the fact that there are at least two sensible "time scales". This is the duration since the birth of the first child, i.e. the *spacing* of children and the *biological age* of the woman. One could imagine that there has been a widening of the spacing between the first and the second child after Unification in East Germany. This should apply to East Germans who had just had a first child under the old regime, but who had not yet a second birth during GDR times. An increase in the spacing of the second child does, however, not necessarily contradict the hypothesis that East Germans are still younger at second birth than their West German counterparts. In this context the question emerges of how to operationalize an East-West comparison. Do East Germans "converge" to West German fertility patterns when they space their second child in a similar manner to their West German counterparts? Or is it the case when they have the second child at a comparable age to West Germans?

Structure of the Analysis

In the following, I focus on the *spacing of second children*, i.e. the duration between the first and the second child (in the multivariate analysis in Chapter 7, I also take the age at first birth into account). Respectively, I define a "second birth crisis" as an increase in the spacing of second children above West German levels. This definition is slightly troublesome, considering that East Germans are on average younger at first birth than their West German counterparts. This aspect particularly applies to East Germans who had just had a first child under the former East German "fertility regime". In order to somehow take this aspect into account, I subdivide the analysis into two parts.

- In the first part, I investigate the "**transition pattern"**. By "transition pattern", I mean the fertility behavior of respondents who just had a first child before Unification. If they had postponed the second child to a later stage in their lives, there should be an "enormous" increase in the spacing of second births for this group of women. In order to address this issue empirically, I restrict the sample to women born between 1964 and 1966. About 72 percent of them had a first child in 1990, but only 27 percent of these cohorts had a second child by then. In other words, if there was an "enormous" increase in the spacing of the second child, this aspect should particularly apply to these cohorts.
- In the second step, I investigate the "**post-transition pattern"**. By "post-transition pattern", I understand the second birth behavior of women, who gave birth to the first child after Unification. In such cases, there should only be small East-West differences in the age at first birth. For this part of the analysis, I restrict the sample to women who had a first birth in the period 1991-1996.

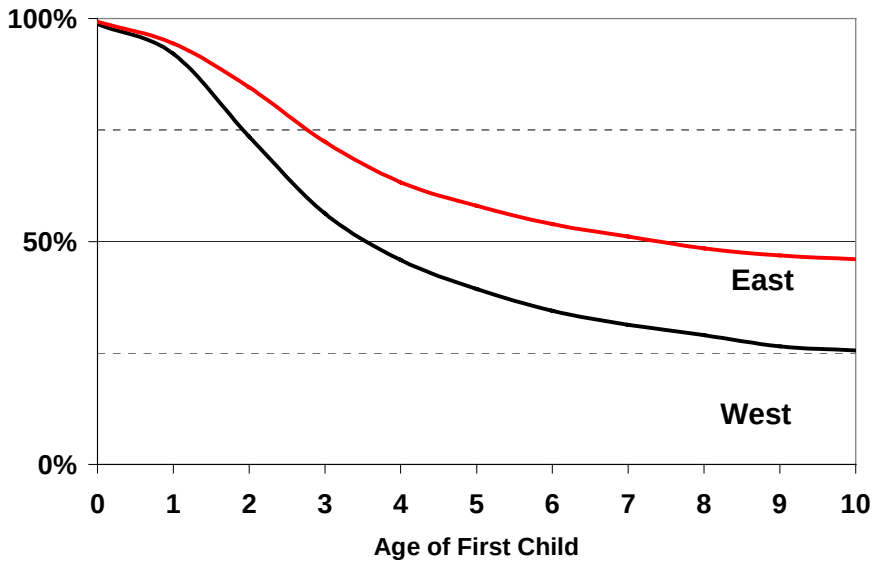
(1) The "Transition Pattern"

At first, I display the survival curves for the transition to the second child for the cohorts born 1964-1966. The sample for this analysis comprises 1,771 East and 6,003 West German women. As can be seen from Figure 20, East Germans are much less likely to have a second birth than their counterparts in the West. Five years after the birth of the first child, there are 60 percent of West Germans who have a second child, but only 40

percent among the East German sample. Panel 2 displays the respective hazard rates. The East German hazard rate is much flatter than the West German one. At basically all points in time, hazard rates for the cohorts 1964-1966 are lower. Counter to the assumption made above, there is no "enormous" increase in the spacing of children. Instead of an increase in the spacing of children, it rather appears that the East German cohorts 1964-1966 are forgoing second births. Panel 3 in Figure 20 displays the respective hazard rates by calendar year. It clearly shows how second birth risks decline in 1990 and do not increase again in the subsequent years (at least not until censoring in the year 1997).

Figure 20: Spacing of the Second Child, Cohorts 1964-1966

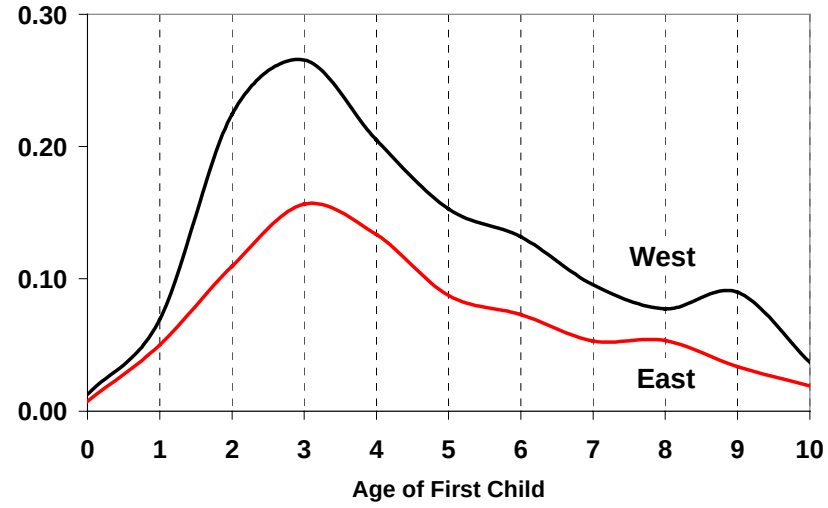
Panel 1: Survival Curves



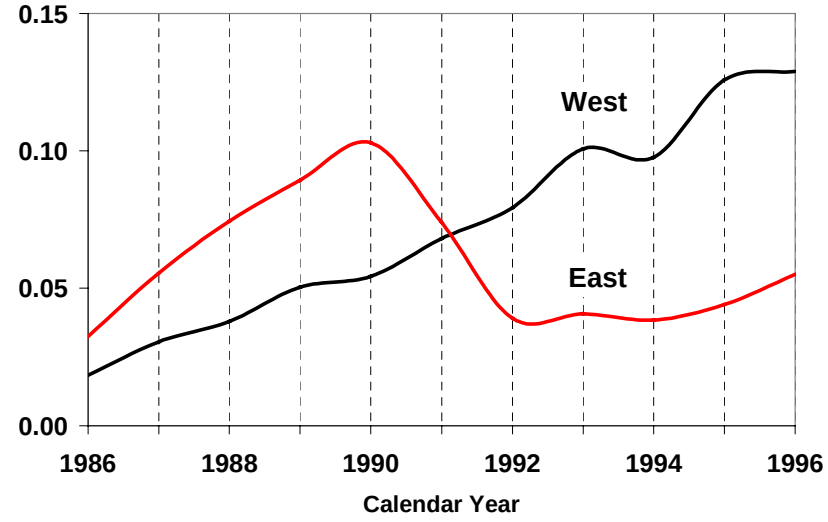
Note: (1) Population: women of the cohorts 1964-1996 who had a first birth before 1997 (2) Source: Mikrozensus 1997

Figure 20 (continued): Spacing of the Second Child, Cohorts 1964-1966

Panel 2: Hazard Rates (by Age Of First Child)



Panel 3: Hazard Rates (by Calendar Year)



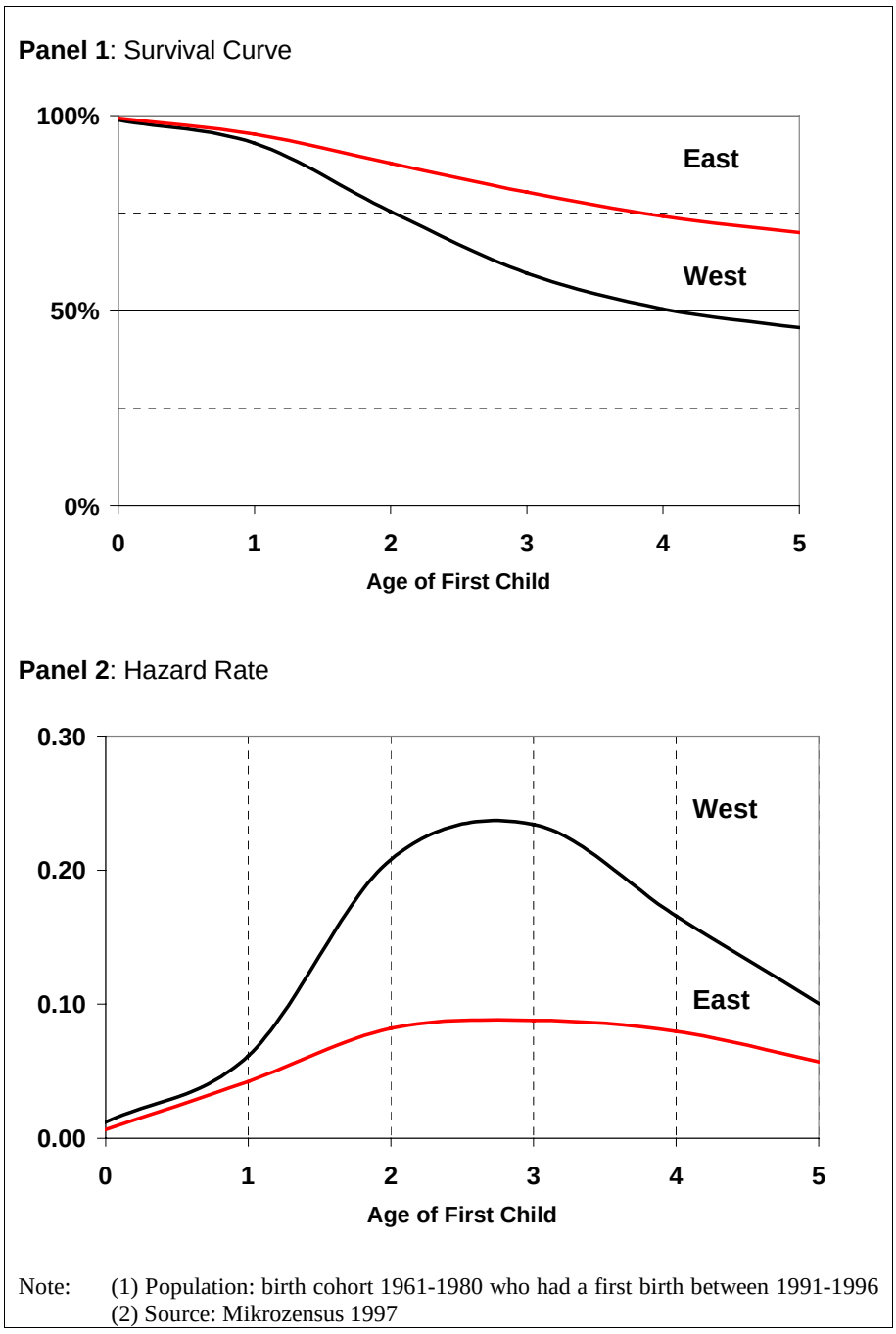
Note: (1) Population: women of the cohorts 1964-1996 who had a first birth before 1997 (2) Source: Mikrozensus 1997

(2) The "Post-Transition Pattern"

In the next step, I address the group of women who gave first birth *after* Unification. In other words, I select women (of the cohorts 1961-1980) in this analysis, who had a first birth in the period 1991-1996. Altogether this applies to 10,228 West German and 1,544 East German women. Figure 21 displays the survival curve and the hazard rate

for this group of women. Again, East German women are much slower in the transition to the second child. Five years after the birth of the first child, there are still 70 percent who do not yet have a second child. Among the West German sample, this amounts to only 45 percent.

Figure 21: Spacing of the Second Child, Women who had a First Birth 1991-1996



Note: (1) Population: birth cohort 1961-1980 who had a first birth between 1991-1996
(2) Source: Mikrozensus 1997

5.3.2 The Third Child

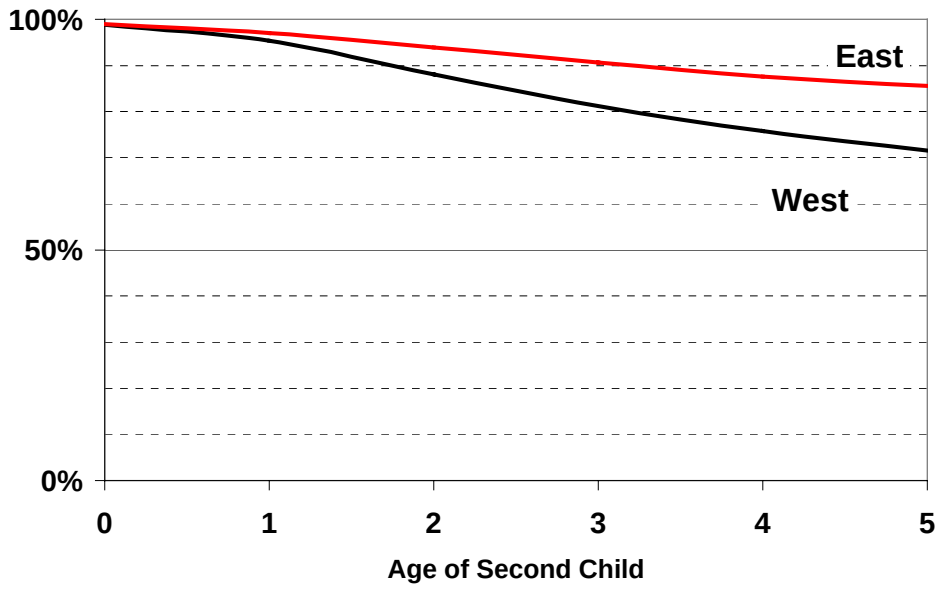
Given the rapid decline in second birth intensities, one would expect that a similar issue would apply to the transition to the third child. On the other hand, one could argue that third parity births constitute a different case. Women who are at risk of a third birth must already have two children, respectively they are a very selected group. Furthermore, one has to take into consideration that in West Germany, the transition rate to the third child is relatively high (see Chapter 4). This basically means that if East Germans are converging towards West German third birth patterns, there should be an increase in the transition rate to the third child compared to pre-unification times.

In the next part, I address this issue by selecting all respondents of the cohorts 1961-1980 who had a second child at censoring. The sample comprises 2,865 East German women who gave birth to 445 third children before censoring and 10,856 West German women who had 2,651 third children. As can be depicted from Figure 22, only 10 percent of the women in the East German sample had a third child by the time the second child reached age three, compared to 20 percent among their West German counterparts. Similar to the analysis of second births, hazard rates for the East German sample are substantially below West German levels.

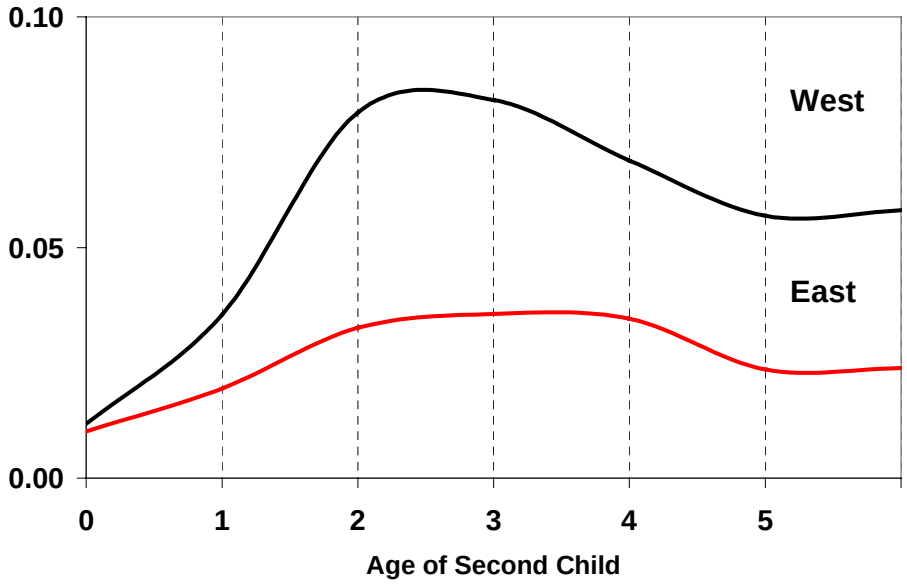
What do these results mean for the hypothesis of an "East German fertility crisis"? Obviously, the analysis of higher parity births does not match the findings on first birth risks after Unification. It is not possible to reject the hypothesis of an "East German fertility crisis" for second and third births. East Germans have much lower second birth risks than their West German counterparts. In other words: the "East German fertility crisis" is less a crisis of the first child, but a crisis of higher parity births.

Figure 22: Spacing of the Third Child

Panel 1: Survival Curve



Panel 2: Hazard Rate



Note: (1) Population: cohorts 1961-1980 who had a second child before 1997 (2) Source: Mikrozensus 1997

5.4 Conclusion

In this chapter, I conducted a period-specific analysis of fertility patterns after Unification using data from the SOEP and the Mikrozensus. The most important finding in this chapter is that, against general expectations, East Germans are slightly younger at first birth after Unification than their counterparts in the West. This finding sheds a very different light on the idea of an East German "fertility decline". What looks like a crisis from the perspective of period fertility indicators is, from the cohort perspective, a postponement of first birth to West German age levels. This does however not rule out that, compared to pre-unification times, East Germans have drastically changed their fertility behavior. On the contrary, compared to GDR times, East Germans have strongly postponed parenthood to older ages. Neither does this finding necessarily contradict a "fertility crisis", a "freeze" of fertility behavior, or a "shock experience " during the upheavals of German Unification. The sudden and drastic drop in fertility rates (which can already be witnessed in July 1990) is surely an unmistakable sign of an abrupt change in behavior and possibly also an indicator for the postponement of parenthood during uncertain times. Nonetheless, in the immediate years after Unification, first birth risks did not substantially drop below West German levels. In other words, I do not find any sign of a "crisis-related" first birth pattern, when I use West Germans' fertility pattern as a benchmark.

Based on these findings, one is tempted to reject the "crisis hypothesis" and argue that the drop in the TFR after Unification was, in the first place, a timing phenomenon and researchers wrongly mistook it as a sign of a "fertility crisis". However, the analysis of higher parity births does not fit into this frame. Although East and West Germans hardly differ in the transition rate to the first child, there are huge differences in the transition to the second (and third) child. East Germans are substantially less rapid in having the second child. This aspect is particularly astonishing for the group of East Germans who had just had a first child before Unification. One could have expected that they postponed childbirth during the upheavals of Unification, but that once the economic situation relaxed they would have the second child. This aspect should have contributed to an "enormous" increase in the spacing of the second child. However, the

empirical results do not support the idea of a big increase in the spacing of children. Instead it rather appears that East Germans simply forgo second and higher parity births.

The questions which emerge in this context are: Why are East Germans faster at giving first birth than their West German counterparts, despite being subject to rather unfavorable labor market constraints? Why do East Germans avoid second births, although they are faster in having their first child? Is the decision to have a first child less affected by unfavorable labor market constraints, while the decision to have a second child is crucially determined by it? In the following two chapters, I address these issues by relating the woman and her partner's employment situation to the transition to the first and second child.

Chapter 6

Employment and the Transition to the First Child after Unification

In the previous chapters, I compared the overall fertility patterns in East and West Germany. These analyses showed that East Germans are slightly faster in having the first child, but less rapid in having their second after Unification. Although these findings strongly go against the presumption that the East German *first birth* pattern is particularly "crisis-related", this does not, however, rule out that on the micro-level, economic uncertainty or unemployment exercise a postponing effect on the transition to the first child. Furthermore, one has to take into consideration that, in cross-national comparisons, West Germany's mean age at first birth is at a very high level. If one assumes that the East German fertility pattern converges towards West German timing patterns, it is important to know which factors contribute to this very high age at first maternity. In this chapter, I investigate how women and men's educational attainment, educational enrolment and employment affect the transition to the *first* child in East and West Germany after Unification. In the first step, I summarize previous micro-level studies on fertility in East Germany after Unification (Part 6.1). In the subsequent parts, I analyze how women's education (Part 6.2), unemployment (Part 6.3) and the partner's employment status (Part 6.4) affect the transition to the first child in Germany in the 1990s.

6.1 Previous Empirical Findings

There are rather few systematic empirical findings on fertility patterns in East Germany after Unification. This might particularly be related to the fact that birth rates declined rapidly after German Unification. Surveys that were conducted in the immediate years after 1990 (such as the Family and Fertility Survey in the beginning of 1992, the Familiensurvey in 1994, or the first waves of the SOEP) provide relatively few "post Unification births" for extensive data analysis. In order to portray some of the empirical problems involved with the analysis of fertility decisions after Unification, I distinguish the studies by the empirical methods which were applied. First, I present the empirical findings of a study by Witte and Wagner (1995) who estimate a logistic regression model on the probability of having a child in the years 1990 to 1992. Second, I discuss the study by Sackmann (1999) who uses Kaplan-Meier survival curves. Finally, I discuss a study by Klein et al. (1996) who apply event history techniques on the transition to the first child in East Germany.

The easiest way of addressing fertility decisions in a multivariate framework is by the application of logit or probit models. Witte and Wagner (1995: 390ff.) take such an approach and estimate the probability of an East German woman having a first child during the period between April 1991 and March 1992.[63] They draw on data from the German Socio-Economic Panel and select a sample of East German women who were age 18 to 30 and who did not yet have any children in 1990. They find that East German women, who were less worried about their economic situation in 1990, were slightly more likely to have a child in the consecutive two years. This empirical study therefore provides some evidence that the feeling of economic uncertainty and fertility were correlated in the immediate years after Unification. What this early study could not address, is whether and how the feeling of economic uncertainty has contributed to a postponement of childbirth in the individual life course.

63 Lechner (1998; 2001) takes a similar approach by estimating the probability of an East German woman having a child in the period 1990 to 1995. In contrast to the study by Witte and Wagner (1995), he does not distinguish births of different orders. In other words, he estimates the probability of an East German having at least a first, second, third or higher order birth in the period 1990-1995. Particularly in the East German case, it is not sensible at all to mix births of different orders in empirical analysis (see Chapter 4 and 5).

In order to address the timing of parenthood, it is imperative to *place fertility decisions into the life courses* of women (or rather couples). In the last chapter, I addressed this issue by calculating survival curves for the transition to the first child by the age of the respondent. A similar approach is taken by Sackmann (1999). Instead of birth cohorts (which I took in the previous chapter), he analyzes cohorts who completed vocational training or college education in the same year. The idea behind this is that respondents who completed education simultaneously also entered the labor market at similar stages in their lives.[64] Comparing the median age at first birth of the "school-leaver cohorts" 1985 and 1990, Sackmann (1999) finds an increase in the median age at first birth of around four years in age. This is about the same magnitude as I reported for the East German birth cohorts 1965 and 1970 (based on data from the Mikrozensus 1997, see Chapter 5, Figure 18). In the second step, Sackmann (1999) distinguishes the survival curves by educational attainment. Instead of using the age of the woman as the "time variable", he calculates the difference between the time they completed their studies and the age at first birth.[65] He finds that almost 40 percent of the college graduates of the school-leaver cohort 1985 had had a child before completion of college education.[66] However, for the cohort 1995, this applies to only 10 percent. In other words, East German college graduates are less likely to have their first child during education in present day Germany. A similar, but less intense aspect applies to vocational training

64 The data comes from the "Berufsverlaufsstudie Ost", which is a sample of East Germans from Rostock and Leipzig who completed college education or vocational training in 1985, 1990, or 1995. This means that the sample is not representative for entire East Germany, i.e. it does not contain respondents without a secondary degree. Furthermore, it only comprises respondents from two large East German cities and therefore does not cover rural areas.

65 Sackmann (1999) displays survival curves by *final* educational attainment. Although one could criticize that this is anticipatory analysis, since women might drop out of education due to unwanted pregnancies, it is unlikely that this aspect plays an important role in former East Germany. Access to birth control methods was not restricted (which was, however, the case in other Eastern European countries) and abortion was legal (in the first three months of pregnancy). Moreover, there was a high compatibility of receiving education and childrearing, which must have reduced the risks of dropping out of college or vocational training due to unwanted pregnancies. The low ratio of East German women without a college degree or a vocational training certificate supports this argument (see below).

66 For a similar finding with data from the German Life History Survey, see also Huinink (1995b). According to this study, roughly 35 percent of East German women with a college degree (of the birth cohorts 1954-56) had had a first birth before they completed their studies. In West Germany, this amounts to 12 percent.

leavers. The ratio of respondents who had a child before completion of vocational training declined from ten to less than five percent.

The analysis of survival curves reveals important aspects about the changes in the timing of childbirth after Unification. However, if one wants to consider more than just a few variables, survival curves can become a tedious issue. In this respect, event history models are more advantageous since they allow for taking various covariates into consideration more easily and, most importantly, incorporating *time-variant covariates.* This is particularly important, if one is interested in the role of the employment status in consecutive events, such as first or second birth risks. To my knowledge, there is only the study by Klein et al. (1996) which explicitly addresses the role of women's unemployment in first (and second) birth risks in East Germany after Unification in an event history framework.[67] They use data from the Familiensurvey of the year 1994 and select a sample of East German women aged 18 to 55 at the time of interview (respectively the cohorts 1939-1976). The key independent variables are regional unemployment rates, the unemployment status and the educational attainment of the respondent. One of their major findings is that neither the regional unemployment rate, nor women's unemployment exercise any statistically significant impact on the transition to first birth in East Germany. Furthermore, they find a negative impact of educational attainment on first birth risks.

Since I also apply event history techniques to the analysis of first birth risks, I will briefly comment on the major shortcomings of the model. In Chapter 4, I have shown that basically all East Germans of the cohorts born before 1961 had a first child before Unification. The sample selected by Klein et al. (1996) therefore contains an unreasonably high ratio of women who are no longer at risk of first birth in the 1990s. Most importantly, Klein et al. (1996) do not allow the covariates to vary for the time prior and after Unification. Since the sample comprises the cohorts 1939 to 1976, the

67 Hullen (1998: 100-102) also applies an event history framework. He estimates the transition to the first (and second) child using data from the Family and Fertility Survey of the year 1992. He controls for various independent variables, amongst them a binary variable for being an East German. The major drawback of this analysis is that he does not sufficiently distinguish between the period before and after Unification, nor does he allow the covariates to differ for the East and West German sample. The result is that the estimated coefficients relate to East *and* West Germans before *and* after Unification.

results will, in the first place, reflect the impact of the covariates for the time *prior* to Unification. However, how, e.g., the women's educational attainment affected first birth risks *before* Unification is of less research interest. Instead the crucial question is how it did do so *after* Unification.[68] In short, if one wants to analyze the role of woman's employment in the transition to the first (or higher order births) in East Germany, it is imperative to distinguish the period *before* and *after Unification.* In one way or the other, one must reflect this issue in the way one specifies the model.

6.2 Procedure of the Analysis

Method

As said before, I apply event history techniques to investigate the role woman and man's employment plays in the transition to the first child in Germany during the 1990s. A key concept in event history analysis is the hazard function.

$$h(t) = \lim_{\Delta \to 0} \frac{P(t \leq T < t + \Delta t | T \geq t)}{\Delta t} \qquad (3)$$

The hazard rate *h(t)* can be interpreted as the "instaneous probability" per unit time for the event to occur (in this case the birth of a first child), given that the event did not occur up to time *t* (see e.g., Blossfeld/ Rohwer 1995a). The hazard rate can be specified as a function of time-constant (such as place of birth) and time-variant (such as educational attainment or employment status) covariates. For the specification of the

68 For the impact of unemployment, one could argue that the results are still instructive, considering that unemployment did not basically exist prior to Unification. In other words, they must have measured unemployment for the period after Unification. However, one can raise serious concerns regarding the reference category of this variable. Apparently this is simply "not unemployed", which, however, unifies a large set of activities, including full-time employment, part-time employment, receiving education and periods of missing activity states.

baseline hazard, I use a *piecewise constant model.*[69] In the piecewise constant model, the baseline hazard is assumed to be constant for pre-defined time intervals, but it is allowed to vary across these time periods. When $\alpha(t)$ is the baseline hazard, x the time-constant covariates, z the time-variant covariates, and β and γ the respective regression parameters, the hazard rate can be expressed as

$$\ln h(t) = \alpha(t) + \Sigma \beta x + \Sigma \gamma z(t) \qquad (4)$$

(Note: Subscripts are omitted for the improved readability of the equation.)

In this study, the baseline hazard is the age of the respondent, measured in months from the January of the year she turned age 17 (for details, see Appendix). I divide the time axis at four points in time, namely at the ages 20, 24, 28 and 32. It is important to note that I *backdate the date of birth by nine months.* The major reason for doing so, is to allow the covariates (particularly the activity status) to have an impact on the decision to become pregnant.

In order to estimate the parameters, I use the computer software Transition Data Analysis (TDA Version 6.3) (Rohwer/ Pötter 1999). The signs of the parameter estimates reflect a positive or negative effect on the hazard rate. By taking the anti-log of the coefficients, one yields the *relative risks,* which can be more easily interpreted. The reference category is then fixed to one. A positive relative risk of e.g., 1.25 indicates an increase in first birth risk by 25 percent (in reference to the base category). A relative risk of less than 1, such as 0.75 indicates a reduction of first birth risk by 25 percent.

One of the major disadvantages of standard event history models (such as the piecewise constant model or the Cox model) is that they do not sufficiently separate the factors which affect the timing of parenthood from the factors which affect the final probability

69 I also experimented with Cox-regression models and the results did not change in any substantial manner. The primary reason why I settled for the piecewise constant model is that it allows the proportionality assumptions to be relaxed more easily, i.e. TDA allows for the relatively easy interaction of the baseline with other covariates.

of having a child (Henz/ Huinink 1999). In other words, the coefficients "mix" the timing and the quantum. One could, e.g., imagine that more highly educated women are less likely to have children, but those who do decide to have a child, time childbirth in a similar manner to their less educated counterparts. In a standard event history model, one would yield a negative coefficient for college education and one would be unable to tell if this relates to the fact that college educated women have children *later* in life or whether they are *less likely* to have children. In order to separate these two aspects one could apply split population models. However, in the East German case, such an approach is not very sensible since the overwhelming majority of the respondents are still of childbearing age at censoring. In the subsequent analysis, I will therefore *not* attempt to separate the timing from the quantum. This aspect should, however, be born in mind, particularly with regard to the interpretation of the impact of women's education on fertility.

Selection of the Sample

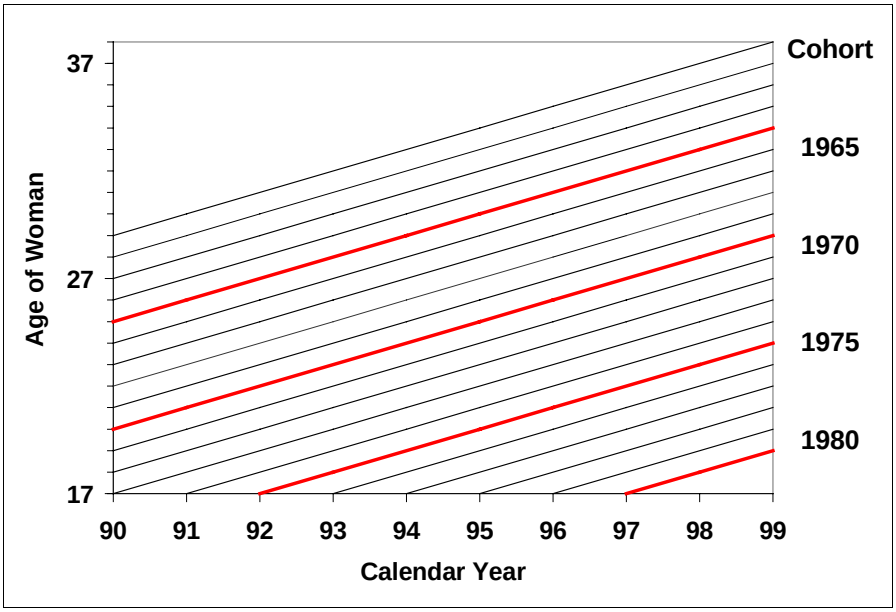
As mentioned before, it is imperative to give some thought to the way one selects the sample and sets up the model. In line with the previous analysis (see Chapter 5), I restrict the sample to the birth cohorts 1961-1980. The primary reason for restricting the sample to the cohorts born after 1960 is because the older cohorts had almost exclusively had a first child before Unification. However, the sample still contains a large fraction of respondents who either had a first child before Unification or were at risk of first birth before 1990. Since I am primarily interested in the role of employment in fertility decisions in the period *after* Unification, the crucial question is how to address this issue properly in the model.

One straightforward and easy way would be to simply reduce the sample even further and only investigate East Germans who entered childbearing age after Unification. Respectively, one would limit the sample to the Post-Unification Cohorts, i.e. the cohorts born 1971 and later. This procedure would, however, not be very sensible either, since these cohorts were at a maximum age of 28 at censoring and one would therefore only have a relatively small life span at hand to analyze. Furthermore, one

would have to omit a large fraction of women from the analysis who were still at risk of childbirth and who were, most importantly, severely hit by the economic upheavals after German Unification. In sum, it seems badly advised to reduce the sample any further. However, how does one analyze fertility as a *life course event* and simultaneously set up the model in such a way that the coefficients reflect the role of, e.g., education and employment *in the period after Unification?*

In this analysis, the baseline hazard is (as noted above) the age of the woman, measured from age 17. *I restrict the analysis to the period after Unification*. In other words, I only analyze the period after October 1990 and I omit the pre-unification time from the analysis. (In practice, I simply delete all pre-unification episodes from the sample). Figure 23 displays the way I selected the sample. The oldest cohort (born 1961) was age 29 in 1990 and age 38 in 1999. The youngest cohort (born 1980) had just reached age 19 at the time of censoring.[70]

Figure 23: Selection of the Sample: October 1990 - Spring 1999



70 It should be noted that I backdate the date of birth by nine month. Therefore, the sample only comprises *conceptions* which occurred after October 1990, respectively births which happened later than July 1991.

Covariates[71]

In line with previous analysis (see Part 5.2.1), I define an East German as a person who was living in East Germany in the beginning of 1990. In order to take into account that some respondents have migrated, I construct a time-variant dummy variable for whether she has *moved to the western states of Germany*. A West German is correspondingly a person who already lived in the western states of Germany in 1990. The West German sample will primarily serve as comparison group and in order to reduce the heterogeneity of it, I omit (similar to the previous analysis) foreigners and ethnic German migrants from the analysis.

One of the key variables is the *activity status* of the respondent and her partner. It should be stressed that I avoid the term "employment status", since persons can also spend their time receiving education. I distinguish five exclusive activity states (1) education, (2) full-time employment, (3) part-time employment, (4) unemployment and (5) retraining.[72] While "education" covers all periods before *labor market entry*, "retraining", "full-time employment", "part-time employment" and "unemployment" cover periods after labor market entry.[73]

As an indicator of the career opportunities of the woman (and also her partner) I particularly use *educational attainment.* I measure educational attainment by three time-variant binary variables. A college degree encompasses the German "Fachhochschulabschluß" (technical college) and a university degree received in (East or West) Germany or in a foreign country. A vocational degree encompasses vocational certificates. The third category encompasses periods where respondents do not hold a

71 The Appendix comprises a detailed description of the variables.

72 The "retraining category" mixes different states, such as further education, regular retraining programs and presumably also programs initiated by the unemployment agency. Due to data limitations, it is, however, not possible to separate them any further.

73 I define the *labor market entry* as the first full-time employment episode after completion of education. For respondents who did not earn a degree (and were not in education at censoring) this is the first full-time employment episode after termination (or rather leaving) education. It should be noted that the average age at first labor market entry is substantially lower in the East than in the West German sample. This partially relates to the structure of the educational system, which is still slightly different in both parts of the country in the 1990s (see Chapter 1). For respondents with a vocational degree, the average age at first job is age 20.7 in the West and 20.1 in the East. For college graduates, it is 26.7 in the West and 24.1 in the East. For respondents who did not earn a degree at censoring, this is 19.6 in both parts of the country.

college degree or a vocational certificate. I will refer to the latter category as respondents without any formal qualifications. This definition is not completely accurate, since respondents might have received a secondary school qualifications (such as the "Abitur"). However, if one takes for granted that particularly vocational training certificates and college degrees govern the allocation of workers to jobs in Germany (e.g., Konietzka/ Kreyenfeld 2001b; Müller/ Shavit 1998), this definition is sufficiently precise.

Other employment related variables are *labor market status*, which I classify in five categories. I distinguish (1) employees in highly qualified positions, (2) employees in qualified positions, (3) employees with routine duties, (4) skilled workers including foremen ("Vorabeiter") and master craftsmen ("Meister"), and (5) unskilled and semi-skilled workers. For the male partner, this variable is measured as a time-variant covariate, which changes its value whenever the partner experiences an upward or downward move in the labor market. For the female respondent, the labor market status is also measured as a time-variant covariate, however, I construct this variable as "cumulated labor market status", indicating the highest labor market status attained hitherto. I additionally construct the *monthly gross wage,* deflate it by the price index provided by the Statistisches Bundesamt (20001c) and classify it into three categories (0-3,000DM, 3,000-5,000DM, 5,000DM+).

Other standard variables are *marital status* and an indicator variable for whether the woman is *living with a partner* in the same household. Most of the variables are *time-variant.* However, for illustrative purposes, I construct the woman's educational attainment as a time-variant and a time-constant variable. For some variables (such as the woman's educational attainment, her activity and her marital status), I have monthly information at my disposal. For most other variables (such as the partner's monthly gross wage or his activity status), there is only information to the accuracy of a year. In other words, the variables only change their values annually, i.e. when the interview is conducted.

Table 18: Composition of the Sample for the Multivariate Analysis of First Births

	West Germans		East Germans	
Time-Constant Covariates	**% of all cases**		**% of all cases**	
Educational Level (at censoring)				
No degree	12%		6%	
Vocational degree	65%		72%	
College degree	18%		14%	
In education (and no degree)	4%		8%	
Missing	1%		1%	
Flag Variables				
Month of birth imputed	2%		3%	
Sample Size				
Total occurrences (first births)	*335*		*124*	
Total number of cases	*897*		*326*	
Time-Variant Covariates	**Exposures**	**%**	**Exposures**	**%**
Activity Status [m)]				
In education (no labor market entry yet)	10,171	17%	3,798	20%
Retraining	1,944	3%	1,165	6%
Employed full-time	30,777	52%	9,039	47%
Employed part-time	1,472	2%	635	3%
Unemployed	1,337	2%	989	5%
Missing (or annual episodes)	13,185	22%	3,799	20%
Education [m)]				
In education (no labor market entry yet)	14,718	25%	5,321	27%
Out of education				
-- No degree	5,493	9%	413	2%
-- Vocational degree	33,866	58%	12,319	63%
-- College degree	4,416	7%	1,292	7%
-- Missing	64	0%	9	0%
Cumulated Labor Market Status [a)]				
Employees				
-- Highly qualified employees	5,365	9%	7%	1,282
-- Qualified employees	17,793	30%	25%	4,920
-- Employees with routine duties	5,157	9%	8%	1,541
Workers				
-- Skilled workers	2,267	4%	9%	1,684
-- Unskilled, semi-skilled	1,564	3%	1%	151
Others				
-- Self-employed	1,296	2%	2%	351
-- Never employed (at date of interview)	12,664	21%	30%	5,802
-- Missing	12,780	22%	19%	3,694
Migration to West Germany [a)]	--		1,979	10%
Marital Status [m)]				
Married	12,137	21%	3,174	17%
Not married	46,268	79%	16,251	83%
Missing	581	1%	71	0%

Notes: (1) m=monthly information available; a=only annual information available (2) Population: cohorts 1961-1980; period: after October 1990 (3) Source: SOEP 1999

Table 18 (continued): Composition of the Sample for the Analysis of First Births

Time-Variant Covariates	**West Germans**		**East Germans**	
	Exposures	**%**	**Exposures**	**%**
Partner [a)]				
Partner	25,260	42%	8,503	43%
No partner	20,175	34%	7,097	37%
Unknown whether partner in household	13,451	23%	3,826	20%
Partner's Activity Status [a)]				
No partner, unknown whether partner in …	33,626	57%	10,922	56%
In education	1,870	3%	547	3%
Full-time employment	17,245	29%	5,737	30%
Unemployed, part-time employment	1,777	3%	646	3%
Missing	4,368	7%	1,573	8%
Partner's Education [a)]				
No partner, unknown whether partner in …	33,626	57%	10,922	56%
In education	1,870	3%	547	3%
No degree	1,800	3%	300	2%
Vocational degree	12,753	22%	5,054	26%
College degree	4,057	7%	725	4%
Missing	4,780	8%	1,877	10%
Partner's Monthly Gross Wage [a)]				
No partner, partner not employed, etc.	41,641	71%	13,688	70%
Full-time employment				
-- Less than 3000 DM	1,223	2%	2,499	13%
-- 3000DM - 5000DM	9,429	16%	2,439	13%
-- More than 5000DM	5,564	9%	478	2%
-- Missing	1,029	2%	321	2%
Partner's Labor Market Status [a)]				
No partner, partner not employed, etc.	4,1641	71%	13,688	70%
Employees				
-- Highly qualified, self-employed	5,648	10%	921	5%
-- Qualified employees	4,341	7%	661	3%
-- Employees with routine duties	694	1%	345	2%
Workers				
-- Skilled workers	4,822	8%	2,703	14%
-- Unskilled, semi-skilled workers	1,468	2%	1,009	5%
Missing	272	0%	98	1%
Sample Size				
Total exposures (person months at risk)	*58,886*		*19,425*	
Total occurrences	*335*		*124*	
Total number of cases	*897*		*326*	

Notes: (1) m=monthly information available; a=only annual information available (2) Population: cohorts 1961-1980; period: after October 1990 (3) Source: SOEP 1999

Table 18 contains the description of the sample. In the East German sample, there are 326 women who gave birth to 124 first children before censoring. In the West German sample, there are 897 respondents who gave birth to 335 first children before censoring. For the time-constant variables, the descriptive statistics show the distribution of the sample at the time of censoring. E.g., 14 percent of the sample members had a college degree at censoring. For the time-variant covariates, it is not straightforward to proceed in the same manner. I therefore decided to display the times of *exposure* (also titled person months at risk). In order to interpret them, it is important to bear in mind that they indicate the *duration* individuals remain in certain states. Therefore, a ratio of 17 percent of married East German women does *not* indicate that 17 percent of the women in the sample are married. It means that in 17 percent of the observed time, women are married. The same aspect applies to the time-variant covariate for "migration to West Germany". In about 10 percent of the person months at risk, East Germans are living in the western states of Germany. This ratio is relatively high, which relates to the aspect that the SOEP contains an oversample of East-to-West migrants (Burkhauser/ Kreyenfeld/ Wagner 1997).

Strategy of the Analysis

The analysis of first births consists of basically three parts:

- In the first part, I investigate the role of *women's education* in first birth risks (Part 6.3).
- In the second step, I concentrate on the role of *women's (un)employment* in the transition to the first child (Part 6.4).
- In the third part, I also take the *partner's employment status* into consideration (Part 6.5).

6.3 Woman's Education and First Birth

The most frequently used variable to show how women's "career resources" affect family formation is presumably educational attainment. Using educational attainment as an indicator of "career resources" relies on a group of strong assumptions. Most importantly, one has to assume that education indeed influences labor market performance, career opportunities and wages. The less decisive educational qualifications for the allocation of workers to jobs are, the weaker the correlation between woman's education and fertility should be.

As discussed in Chapter 2, educational qualifications played a decisive role in allocating workers to jobs in former East Germany. Although one could have expected that with the drastic changes in the labor market institutions, educational certificates, particularly if acquired before Unification, would no longer be as decisive for the allocation of workers to jobs, quite the opposite is true. After Unification, East Germans were subject to a labor market, which entailed greater risks, but also greater chances of experiencing job mobility. Unemployment risks and career opportunities are still strongly related to educational qualifications and this also applies to educational certificates obtained during GDR times (Brinkmann/ Wiedemann 1995: 330; Holst/ Schupp 1995; Mayer/ Diewald/ Solga 1999; Rasztar et al. 1996). In other words, there is strong empirical support for the use of educational attainment as an indicator of the career opportunities of East and West German women.

Before addressing the role of women's education in fertility *after* Unification, it is worth investigating the relationship between women's education and fertility *before* Unification. In contrast to other variables (such as labor market status or monthly wage), this variable is also available for pre-unification times and it is also instructive in its analysis (which does, e.g., not apply to unemployment, since unemployment virtually did not exist in the GDR).

6.3.1 Education and First Birth before Unification (Digression)

Figure 24 displays the survival curves for the transition to the first child for the cohorts 1961 to 1964.[74] Due to the low age at first birth in the GDR, the survival curves primarily show the relationship between education and fertility for the period before Unification for the East German sample. (Only 6 percent of the East Germans of these cohorts had their first child after 1990.)

For West Germany, there is a clear negative relationship between women's educational attainment and age at first birth. For women with a vocational degree, the median age at first birth is 27 years of age. For college educated women, it is 33 years of age. For women without any educational qualifications, the respective median age at first birth amounts to only 24 years of age. The figure also highlights substantial differences in the final ratio of childlessness (measured at age 35). About 25 percent of the women with a vocational certificate remain childless; among the college graduates this ratio amounts to 40 percent (!).[75]

In (former) East Germany, one finds a very different fertility pattern. As expected, the overall age at first birth is much lower. The difference in the median age at first birth for college educated women and women with a vocational training certificate amounts to two years in age. The most puzzling group are women who did not receive any degree. Contrary to the West German situation, East German women without a formal educational degree are more likely to remain childless than more highly educated women. This group is, however, very small (only four percent of the sample do not hold a college degree or a vocational training certificate). East German policy strongly encouraged individuals to proceed to vocational training. A training certificate was considered a "base qualification" and everybody was expected to receive one, so that women who did not receive a degree must have been a highly select group (Huinink/

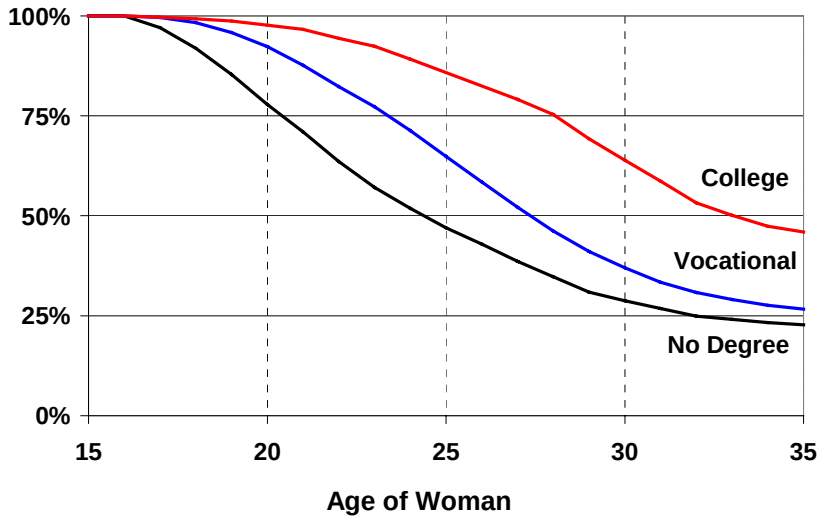
74 Unfortunately, the German Socio-Economic Panel provides a relatively small sample size in order to display survival curves by final educational attainment and single cohorts. Therefore, I draw on the Mikrozensus of the year 1997 for this part of the analysis.

75 One must however note that 35 years of age is too low to assess a final level of childlessness for the college graduates in (West) Germany. If one, e.g., takes the cohort 1957 (who is age 40 at censoring) one observes a level of slightly more than 30 percent childlessness among college educated West German women.

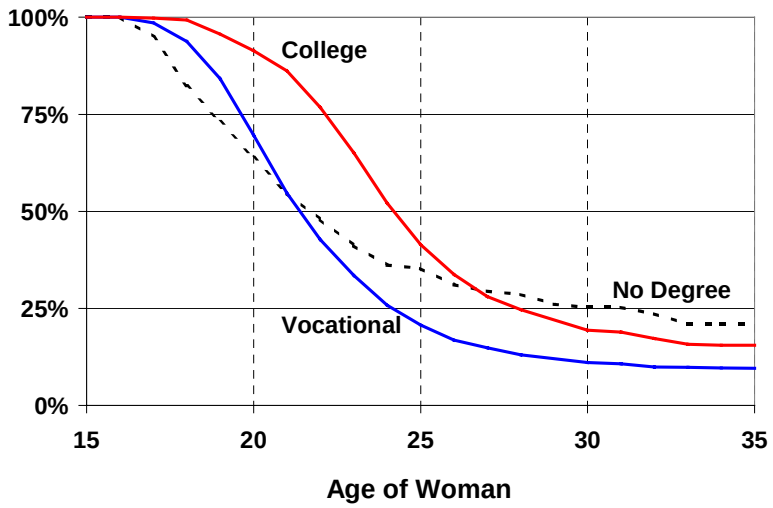
Mayer/ Trappe 1995: 100). Possibly, this selection is related to physical impairments, which are correlated with fertility.

Figure 24: Transition to First Birth by Final Educational Attainment, Cohorts 1961-1964

Panel 1: West Germany



Panel 2: East Germany



Note: (1) Population: Cohorts 1961-1964 (2) Women who are still in education at censoring and who had yet not earned a degree, were excluded. (3) Age of woman: difference between year of birth of woman and year of censoring/ year of birth of first child (4) Source: Mikrozensus 1997

In sum, there were rather small differences in the age at first birth by educational attainment in former East Germany, while there are huge differences in the age at first birth by final educational level in West Germany. The intriguing question is, how the role of educational attainment changed with German Unification in the East. In line with the hypotheses discussed in Chapter 3, one could expect that women without any formal education, discouraged from their labor market options, set up a family more rapidly. One could also expect that, due to the better availability of children's daycare, East German women were better able to reconcile childrearing and employment which should contribute to a smaller variation in the fertility patterns by educational levels. In the following part, I investigate this issue, i.e. the role of women's educational attainment in the transition to the first child *after* Unification.

6.3.2 Education and First Birth after Unification

One of the major advantages of an event history framework is that it allows for the incorporation of time-variant covariates into the analysis. This aspect is of particular importance for the impact of educational attainment on first birth risks. In the example above (see Figure 24), I displayed the survival curves by *final* educational attainment. In a similar manner, one could estimate an event history model with educational attainment as a time-constant covariate. Although such a procedure is frequently applied (e.g., Klein 1989; Schwarz 1989), it contains a major methodological problem, which is labeled as *anticipatory analysis* (see e.g., Blossfeld/ Huinink 1991; Hoem 1996). The bottom line of this criticism is that one classifies women into different categories depending on their educational outcome. If one calculates hazard rates (or survival curves) for the entire life span of the women in the sample, this means that one partially assigns them educational levels which they will gather at a *later* stage in their lives.

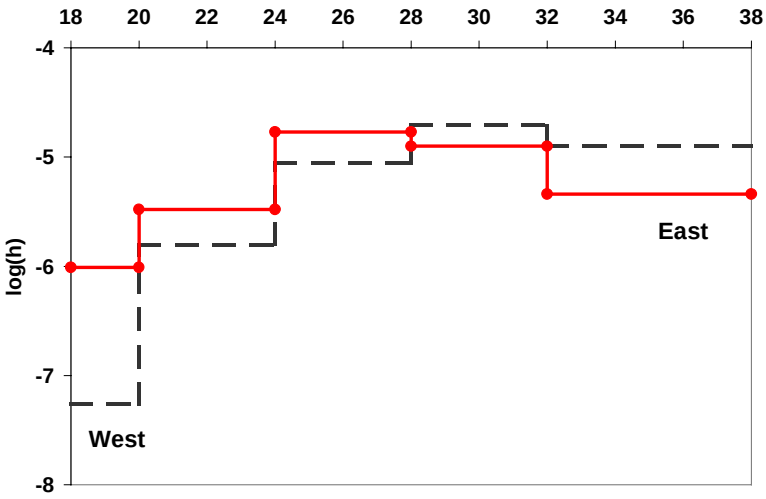
This strategy entails two important aspects. First of all, one wrongly classifies women who drop out of education or vocational training because of a pregnancy. In this case,

the causation is reversed, i.e. parenthood determines the educational outcome. Whether this aspect biases the results, depends on whether women have to give up their studies due to an early first birth. In the US-American context there are various studies which show how an unplanned pregnancy increases the risks of dropping out of education and how it also forecloses the chances of resuming studies at a later age (e.g., Mooney Marini 1984: 493; Rindfuss/ Bumpass/ St. John 1980). In the German case, this issue has been investigated to a much lesser extent. For East Germany, one could argue that this issue must be of less importance, since only a very small fraction of women have no formal educational degree at censoring (see Table 18).

The second aspect relates to the fact that, before receiving a degree, one usually undergoes education. In this context, it has been argue that the large differences in the age at first birth by educational attainment solely pertain to differences in the length of educational participation (see Chapter 3). The questions which emerge in this context are the following: are college graduates older when opting for parenthood because they are in the educational system for longer and because childrearing and receiving education are barely compatible? Or, do college graduates postpone or even avoid parenthood even after completing education since they are subject to more challenging employment tracks? In order to answer these questions, it is important to distinguish periods when respondents are receiving education and periods when they completed their studies and entered the labor market.

Below, I estimate two different types of event history models. In the first one, I use education as a time-constant covariate (Model A). The results are comparable to displaying survival curves by final educational outcome. In the second and third Model (Model B and C), I use educational attainment as a time-variant covariate. The only other controlling variable is *migration status*, i.e. a time-variant indicator variable for whether the person has moved to the western states of Germany. Other variables (such as marital status or partner information) are added later on. The primary reason for inserting the variable for "having migrated to West Germany" at this stage of the analysis is that East-to-West migrants are oversampled in the SOEP. An indicator variable for having migrated to West Germany partially accounts for this aspect.

Figure 25: First Birth Risk by Current Age (Piecewise Linear Baseline Hazard)



Source: see Table 19

Results

Table 19 displays the results from the analysis and in Figure 25, I graphed the baseline hazard. As expected, the risk of first birth is slightly higher for East Germans until age 28, thereafter West German first birth risks are slightly higher. The time-variant dummy variable for East-to-West migrants is positive, but barely significant. In other words, there is no empirical evidence that a move to the western parts of the country has a delaying effect on family formation. This result might be surprising, since one could have expected that a move to the western parts disrupts the employment careers of East Germans. Couples might need some time to adjust to the new environment and should therefore postpone parenthood. On the other hand, one could also argue that East-to-West migrants are more mobile and are therefore better able to find a stable employment situation in the West. Against this background, a positive impact of this variable could be a sign of the rapid labor market integration of East German migrants. It should be stressed in this context that I used migration status as a time-variant covariate. Therefore, the results have to be interpreted in the sense that *after* having migrated to western Germany, first birth risks did not drop substantially. This does not rule out that

East-to-West migrants postponed parenthood *before* they migrated. Neither does it rule out that East-to-West Germans are older at first birth than non-migrants.[76]

Model A contains educational attainment as a time-constant covariate. For this part of the analysis, I exclude women who are still in education at the time of censoring. The results can be interpreted in a similar manner to the survival curves shown above (see Figure 24). There is a negative relationship between women's educational attainment and the transition to the first child in West Germany. Having a college degree cuts the chances of giving birth to a first child into half, compared to women with a vocational degree. Compared to having no degree, a college degree reduces first birth risks to less than 40 percent.[77] In East Germany, the relative difference between women with a college and a vocational degree is less pronounced. However, women without any educational qualifications have by far the highest transition rate to the first child.

As said before, one major reason for the differences in the age at first birth between college graduates and other educational categories might be the longer duration of their educational careers. College graduates might solely be older at first birth because they enter the labor market at a later age. It is, however, just as likely that they postpone parenthood *after* entering the labor market, since they pursue career tracks which are incompatible with childrearing. Model B contains the results after adding the indicator variable for educational participation. As expected, after controlling for duration of education, the negative impact of having a college degree is less strong. However, it is still negative and significant in the West. In other words, there is some evidence that college educated women postpone parenthood even after completing education. For the East Germans sample, however, there is no such kind of evidence. There is even a

76 The opposite is true. If one uses East-to West migration as a *time-constant* variable (measured by an indicator variable for whether the person has migrated to the Western parts of Germany between January 1991 and censoring) the indicator variable for the East-to-West migrant becomes negative. This basically means that East-to-West migrants are older at first birth than those who did not migrate. The logic behind this relates to the specific features of time-variant covariates in an event history framework (see below).

77 To be precise, it reduces the relative risk to 34 percent. To yield this value, one has to divide the relative first birth risks for college educated women (0.45) with the first birth risks of those without a degree (1.31) (see Model A in Table 19).

small (insignificant) positive impact of a college degree on the transition to the first child.

One of the intriguing questions in this context is whether the impact of education on first birth is significantly different in the East and West. In order to investigate this issue, I pool East and West Germans into one sample and interact an indicator variable for "being an East German" with the educational characteristics (Model C).[78] The reference category is the group of West German women with a vocational degree (since they constitute the largest group). The most obvious result is that, across all educational groups, East Germans have a higher first birth risk. Compared to West Germans, East German women are more than twice as likely to have a child before completion of education, which suggests that receiving education and having children is still more compatible in the East. Moreover, East German college graduates have a 60 percent higher risk of having a first child than their West German counterparts.

Intermediate Summary

The analysis so far provides strong evidence that childrearing and receiving education are basically incompatible in (East and West) Germany in the 1990s. This implies that the high age at first birth can partially be explained by the long duration of educational participation. Nevertheless, also after completion of education, West German college graduates are more likely than their less educated counterparts to postpone (or avoid) parenthood. As discussed in Chapter 2, childrearing and full-time employment are, due to a shortage of children's full-time day care, basically incompatible in the western parts of Germany. The strong negative impact of college education on the transition to the first child fits into this picture very well. The situation in East Germany is still very different, where daycare is more readily available and women encounter better chances

78 By the term "interaction models" it is usually understood that two (or more) independent variables are multiplied and added to the regression. The interpretation of the coefficients is, however, tedious, particularly when there are more than two variables involved. A more straightforward way is to construct "new variable combinations". E.g., if one wants to interact two binary variables, one constructs four new binary variables which contain all possible combinations of the initial two binary variables. One of the four binary variables is then used as a reference category. Mathematically, there is no difference between the two procedures.

of reconciling childrearing and full-time employment (or education). Since college education has no significantly different impact on the transition to the first child than vocational training (after controlling for duration of education), it appears that public daycare solves major "incompatibility problems". In other words, the analysis so far goes against the hypothesis that career orientated East German women avoid or postpone parenthood because they fear losing their labor market status. Instead, the empirical results give rise to the hypothesis that, due to a relative abundance of public daycare, more "career orientated" East German women are more likely to have children than their counterparts in the West.

A puzzling finding is the very high transition rate to the first child for women without any educational qualifications in the East. There is consistent empirical evidence (see Chapter 2) that women who do not have any formal secondary educational or vocational qualifications have, by far, the worst labor market chances. Having a child before having earned a degree will most likely reduce the chances of ever resuming education. Against this background, it is plausible to believe that women, who do not have a degree and have a child, foreclose their future employment chances. One could interpret this finding as "labor market discouragement". Women without any formal qualifications respond to their unfavorable employment prospects by choosing the secure and predictable career of a mother and housewife instead. The analysis of women's employment rates gives some support to this hypothesis (see Chapter 2, Table 2). Compared to other educational groups, women without any formal educational degree are less likely to be employed and, compared to their more highly educated East German counterparts, express a relatively low desire to return to the labor market. However, this group of women is relatively small in East Germany. Besides this, further investigations on the subsequent employment and fertility career of women without any formal degrees are certainly required before conclusions like this can be drawn (see Chapter 7).

Table 19: First Births & Women's Education

Model A	**West Germans**			**East Germans**		
	b	exp(b)	t	b	exp(b)	t
Baseline (age)						
17-20	-7.26	0.001	-10.23 ***	-6.01	0.002	-12.82 ***
20-24	-5.80	0.003	-38.54 ***	-5.48	0.004	-29.89 ***
24-28	-5.05	0.006	-54.97 ***	-4.77	0.008	-32.30 ***
28-32	-4.71	0.009	-47.28 ***	-4.90	0.007	-21.23 ***
32-38	-4.90	0.007	-25.96 ***	-5.34	0.005	-10.56 ***
Education (time-constant)						
No degree	0.27	1.31	1.78 *	1.11	3.03	3.44 ***
Vocational degree	0	1		0	1	
College degree	-0.80	0.45	-3.93 ***	-0.33	0.72	-1.08
Migration to West Germany	--			0.23	1.26	0.32
Model B	**West Germans**			**East Germans**		
Baseline (age)						
17-20	-6.40	0.002	-8.86 ***	-5.17	0.006	-11.24 ***
20-24	-5.51	0.004	-36.06 ***	-5.24	0.005	-27.69 ***
24-28	-4.99	0.007	-54.16 ***	-4.76	0.009	-31.86 ***
28-32	-4.70	0.009	-46.40 ***	-4.96	0.007	-20.81 ***
32-38	-4.92	0.007	-25.74 ***	-5.33	0.005	-10.47 ***
Education (time-variant)						
In education	-1.40	0.25	-5.68 ***	-0.85	0.43	-2.70 ***
Out of education						
-- No degree	0.23	1.26	1.42	1.01	2.74	2.51 **
-- Vocational degree	0	1		0	1	
-- College degree	-0.39	0.68	-1.80 *	0.07	1.07	0.21
Migration to West Germany	--			0.44	1.55	1.71 *
Model C						
Baseline (age)						
17-20	-5.73	0.003	-15.08 ***			
20-24	-5.45	0.004	-42.82 ***			
24-28	-4.93	0.007	-58.74 ***			
28-32	-4.75	0.009	-49.15 ***			
32-38	-4.99	0.007	-27.64 ***			
	West			**East**		
Education (time-variant)						
In education	-1.47	0.23	-6.01 ***	-0.58	0.56	-2.00 **
Out of education						
-- No degree	0.20	1.23	1.26	1.16	3.20	3.00 ***
-- Vocational degree	0	1		0.12	1.12	0.94
-- College degree	-0.35	0.71	-1.61	0.12	1.13	0.41

Note: (1) Method: piecewise constant model (2) Population: cohorts 1961-1980; period: after October 1990 (3) Flag variables for missing information or inaccurate information were added to the regression. (4) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (5) Source: SOEP 1999

6.4 The Role of Women's (Un)employment

In the discussion on the East German "fertility-labor market crisis", unemployment and unstable employment situations are considered to be among the key factors which have contributed to a fertility decline. In line with the "independence hypothesis", sketched in Chapter 3, one could argue that since most East German women want to be economically independent from their male partners, it is less the partner's uncertain employment situation which affects fertility, but the unstable employment situation of the woman in the household. The analysis so far, however, provides little evidence that unstable employment situations among East German women have contributed to a postponement of first birth. In fact, quite the opposite appears to be true: women with poor labor market prospects (i.e. without any formal educational degrees) are more rapid in having their first child.

In the following, I address the question of whether woman's unemployment has a delaying effect on first birth risks.[79] As discussed above, I use the term *activity status* in the following context. The activity status has five categories: in education, full-time employment, part-time employment, not employed and in retraining. The results of the estimation are displayed in Table 20 and the relative risks of the activity statuses are graphed in Figure 26. As already shown above (see Part 6.3.2), "being in education" has a strong, significant and negative impact on the transition to the first child. A similar case applies to periods of retraining. In West Germany, part-time employment has a positive impact on the transition to the first child, and it has basically no impact in the East (compared to full-time employment). The most important finding from this analysis is that women's unemployment exercises a very strong, highly significant and *positive* impact on first birth risks. This effect is even stronger in the East than in the West. Compared to women employed full-time, unemployed women have more than twice as high a risk of first birth.

79 It should be noted that I omit all episodes from this part of the analysis where I only have annual activity information or imprecise information on the date of birth available. The main reason for omitting these periods is that women are obliged to withdraw from the labor market for 8 weeks after childbirth. If I do not have the exact month of birth of the child and the exact activity history at my disposal, I might reverse the temporal order of the activity status and the fertility decision.

Table 20: First Births & Women's Activity Status

Model A	**West Germans**			**East Germans**		
	b	exp(b)	t	b	exp(b)	t
Baseline (age)						
17-20	-5.76	0.003	-7.89 ***	-4.63	0.010	-9.86 ***
20-24	-5.21	0.005	-32.56 ***	-5.16	0.006	-24.04 ***
24-28	-4.82	0.008	-51.63 ***	-4.73	0.009	-28.78 ***
28-32	-4.64	0.010	-46.75 ***	-5.00	0.007	-19.67 ***
32-38	-5.11	0.006	-25.54 ***	-5.33	0.005	-10.54 ***
Activity Status						
In education	-1.43	0.24	-5.15 ***	-0.87	0.42	-2.48 **
Out of education						
-- Retraining	-0.61	0.54	-1.70 *	-0.78	0.46	-1.51
-- Employed full-time	0	1		0	1	
-- Employed part-time	0.58	1.79	2.54 **	-0.15	0.86	-0.29
-- Unemployed	0.73	2.08	3.21 ***	0.88	2.40	3.29 ***
Migration to West Germany	--			0.28	1.32	1.09
Model B						
Baseline (age)						
17-20	-6.33	0.002	-8.63 ***	-4.74	0.009	-10.01 ***
20-24	-5.96	0.003	-32.91 ***	-5.36	0.005	-24.10 ***
24-28	-5.99	0.002	-41.21 ***	-5.08	0.006	-26.84 ***
28-32	-6.03	0.002	-38.30 ***	-5.43	0.004	-19.38 ***
32-38	-6.47	0.002	-27.66 ***	-5.89	0.003	-11.25 ***
Activity Status						
In education	-0.97	0.38	-3.48 ***	-0.76	0.47	-2.14 **
Out of education						
-- Retraining	-0.21	0.81	-0.59	-0.53	0.59	-1.03
-- Employed full-time	0	1		0	1	
-- Employed part-time	0.16	1.17	0.69	-0.19	0.83	-0.37
-- Unemployed	0.59	1.80	2.57 **	0.88	2.40	3.28 ***
Marital Status						
Married	2.14	8.48	14.68 ***	1.02	2.78	4.78 ***
Not married	0	1		0	1	
Migration to West Germany	--			-0.04	0.97	-0.13

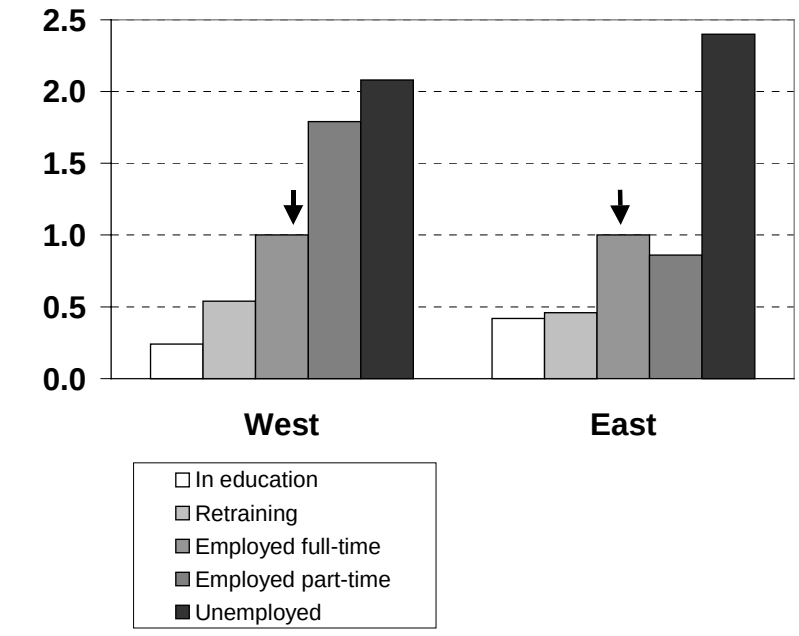
Note: (1) Method: piecewise constant model (2) Population: cohorts 1961-1980; period: after October 1990 (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (4) Source: SOEP 1999

Table 20 (continued): First Births & Women's Activity Status

Model C	**West Germans**			**East Germans**		
	b	exp(b)	t	b	exp(b)	t
Baseline (age)						
17-20	-6.40	0.002	-8.35 ***	-5.37	0.005	-9.36 ***
20-24	-5.92	0.003	-20.83 ***	-5.88	0.003	-14.72 ***
24-28	-5.91	0.003	-22.85 ***	-5.50	0.004	-14.51 ***
28-32	-5.96	0.003	-22.23 ***	-5.71	0.003	-13.70 ***
32-38	-6.41	0.002	-19.79 ***	-6.19	0.002	-10.40 ***
Activity Status						
In education	-1.26	0.28	-4.17 ***	-1.37	0.25	-3.44 ***
Out of education						
-- Retraining	-0.38	0.69	-1.03	-1.05	0.35	-1.91 *
-- Employed full-time	0	1		0	1	
-- Employed part-time	-0.07	0.93	-0.30	-0.74	0.48	-1.35
-- Unemployed	0.39	1.47	1.55	0.40	1.48	1.25
Cumulated Labor Market Status						
Employees						
-- Highly qualified position	0.03	1.03	0.10	0.32	1.38	0.72
-- Qualified position	-0.24	0.79	-0.97	0.13	1.14	0.34
-- Routine duties	0.12	1.13	0.44	0.63	1.87	1.38
Workers						
-- Skilled	0	1		0	1	
--Unskilled, semi-skilled	0.13	1.14	0.39	0.67	1.95	0.84
Others						
-- Self-employed	0.08	1.08	0.20	0.99	2.70	1.82 *
-- Never employed	0.40	1.49	1.37	1.28	3.61	3.07 ***
Marital Status						
Married	2.13	8.45	14.62 ***	1.11	3.04	5.08 ***
Not married	0	1		0	1	
Migration to West Germany	--			0.03	1.04	0.12

Note: (1) Method: piecewise constant model (2) Population: cohorts 1961-1980; period: after October 1990 (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (4) Source: SOEP 1999

Figure 26: Relative First Birth Risks by Activity Status



Note: (1) The arrow indicates the base category. (2) Source: see Table 20

Homemaker or Poor Labor Market Prospects?

How can one interpret the strong and significant positive impact of women's unemployment on first birth risks? Does it also imply that women choose the homemaker model and deliberately withdraw from the labor market to raise children? Or does it simply indicate that for women, who are subject to bleak labor market prospects, there is simply little reason to postpone parenthood any further?

In order to address these issues, I estimate two additional models. In the first one, I simply add the *marital status* to the regression (Model B). The logic behind this is that, in Germany, marriage is an institution which strongly favors the traditional "one-earner model". Given that women give up their employment careers and choose the "homemaker-model" in order to raise children, they should also be very likely to secure their non-employment through marriage. If this is the case, employment and marital

status should be closely related. Adding the marital status to the regression should therefore reduce the impact of women's unemployment on fertility.[80]

For the West German sample, I find some support for this hypothesis. After including marital status into the analysis, the impact of unemployment is slightly less strong. It is also worth noting that the coefficient for part-time employment, which was highly significant and strong before, is now small and insignificant. One could infer from this that women deliberately reduce their working hours to have children later on. For East Germany, the picture looks very different. After adding marital status to the regression, the effect of part-time employment and unemployment remains unchanged. In other words, the positive correlation between unemployment (or part-time employment) and first birth risks might partially be related to a simultaneous choice of "parenthood" and "homemaker-model" among West German women. For East Germans, there is no evidence for this presumption.

In Model C, I add the woman's cumulated labor market status to the regression. The rationale behind this is that the positive correlation between women's unemployment and fertility can be explained by the poor labor market prospects of unemployed women. The "cumulated" labor market status measures employment chances based on past employment experiences. After adding this variable to the regression, the impact of unemployment becomes insignificant. Women who never reached anything more than a low labor market status (i.e. a position as an unskilled worker or an employee with routine duties), display very high transition rates to the first child. The highest transition rate is experienced, however, by women who were unemployed whenever the labor market status was surveyed. These are presumably women with particularly unstable employment careers.

80 Alternatively, one could also distinguish non-working women by "housewives" and "non-employed". However, it is only in about one percent of the observed person months at risk before first pregnancy, that women report the status of housewife. After omitting these periods from the analysis, the results do not change in any substantial manner.

Intermediate Summary

As discussed in Chapter 3, East German women are often characterized to be more labor market orientated and more likely to seek economic independence than their West German counterparts. As a holdover from GDR times, they consider economic independence and full-time employment "a matter of course". Against these theoretical assumptions, it seems straightforward to assign women's unfavorable employment situation as playing a key role in the East German fertility decline. If the woman is the chief "provider of the family income", she should postpone parenthood until she has reached a stable employment situation. In sum, women's unemployment or unstable employment situations should negatively affect fertility decisions.

The major finding from the previous analysis is, however, that an unfavorable economic situation has *not* contributed to a postponement of first birth. Women's unemployment is even *positively* correlated with the transition to the first child. This positive correlation largely relates to the aspect that women with poor labor market chances are more likely to be unemployed and also more likely to opt for parenthood. What implications does this finding have for the "independence hypothesis" sketched in Chapter 3?

It basically shows that this hypothesis is too general. Apparently, it is not the case that *all* East German women are seeking stable jobs before they opt for parenthood. For some women it might even be quite rational to have children when faced with poor labor market prospects. Given that there are hardly any chances that the labor market situation improves in the near future, there is little reason to wait to have children. Against this background, one could suspect that in such cases the partner's employment labor market situation is of greater importance in supporting the family. I address this issue in the next step.

6.5 The Role of the Partner's Employment Status

In the following, I focus on the role of the partner's economic situation in the transition to the first child. In the first Model (Model A) I insert a binary variable, indicating whether the woman is living with a partner and in the subsequent models, I add the partner's labor market characteristics.[81]

The results are displayed in Table 21. Obviously, being single strongly reduces first birth risks. It might be worth pointing out that this effect is less strong in the East, which corresponds to the higher ratio of single parents there (see e.g., Huinink 1999; Konietzka/ Kreyenfeld 2001a). In Model B, I insert the partner's activity status. The coefficient for "being in education" is negative but insignificant. A plausible explanation for this is that I only observe the partner's activity status when he is living together with a woman, so there is only a relatively short time span to analyze while the partner is in education. The partner's unemployment has a strong and negative impact on the transition to the first child in the West German sample. It is highly significant and it reduces first birth risks to a third. In the East German sample, however, the coefficient for male unemployment is basically zero. In other words, there is no indication that male unemployment has a delaying effect on first birth risks in East Germany.

How can one interpret this divergent effect? In line with the "Dual-Earner Hypothesis", one could argue that the man's employment status is indeed of less importance in the East, since most women are employed themselves. If this is true, the impact of men's unemployment should, however, play a role when the woman is subject to an unstable employment situation as well. In order to investigate this issue thoroughly, further investigations on the *joint effect* of the woman and her partner's employment status would be needed. With the given data, such an analysis, due to its small sample size, is

81 There are some respondents who, at least for some time in their lives, do not have a partner. I take this aspect into account by "combing" the variable on the activity status and the one on the partner's characteristics. The new variable has four realizations (1) partner in education, (2) partner in full-time employment, (3) partner not employed, employed part-time or in short-term work, and (4) no partner. For the other variables, I proceed in a similar manner.

not conceivable. I will come to this issue in Chapter 7, when I use data from the German micro-census for the transition to the second child.

It is, however, also possible that the activity status is simply not a very good indicator of the employment chances of East German males. In the immediate years after Unification, unemployment was relatively widespread. Although the large majority of East Germans were able to find employment in the long run, the employment situation might have been precarious and/or the previous unemployment experience might have had long term consequences on the feeling of economic security. In this case, it is less the current employment status which matters, but the attitudes towards the stability of the job and expectations regarding the future employment career. In other words, it is necessary to take *other job characteristics* into consideration as well.

In order to address this issue, I incorporate other job characteristics of the partner into the analysis. I do not add the various job characteristics simultaneously, since there is good reason to believe that they are highly correlated. Model C contains educational attainment, Model D the partner's labor market status and Model E his monthly gross wage. Figure 27 displays the relative first birth risks by the partner's gross wage and his labor market status.

In West Germany, the *partner's education* is basically not correlated with the transition to the first child. In East Germany, there is a strong positive impact of having a partner with no formal educational or vocational qualifications on the transition to the first child. Since the group of East German males without any formal degrees is very small, one might not want to attach too much significance to this finding (see Table 18). Regarding the impact of the *partner's labor market status*, one partially finds the expected pattern. In the West, qualified employees have a 1.5 higher transition rate to the first child compared to unskilled employees.[82] Skilled workers have a 1.4 higher risk compared to unskilled workers.[83] In the East, the pattern is similar, however the results are less pronounced and not significant at all. Regarding the *partner's wage*, a

82 To yield this value, one has to divide the relative risk of the qualified employees (0.72) with the one of the unskilled and semi-skilled employees (0.48) (see Model D in Table 21).

83 To yield this value, one has to divide the relative risk of the skilled workers (1) with the one of the unskilled and semi-skilled workers (0.74) (see Model D in Table 21).

very low monthly gross wage cuts first birth risks into half in the West (compared to the medium income range). In the East, the coefficients have the expected sign, but are small and insignificant.

Intermediate Summary

In sum, there is only lukewarm evidence that the partner's labor market status or his monthly gross wage negatively affects first birth risks in East Germany. The coefficients are neither strong nor significant. For the West German sample, there is a much clearer pattern. The labor market status, or the wage rate is positively correlated with the transition to the first child and his unemployment negatively correlated. Hence, the unfavorable economic situation among males has contributed to a postponement of fertility in the 1990s in the West, but apparently not in the East. This suggests that the male's employment situation plays a much smaller role in the postponement of first births after Unification than it has widely been expected (see e.g., Eberstadt 1994; Witte/ Wagner 1995). A likely explanation is that, in contrast to the West German situation, substantially more East German women return to full-time employment after childbirth. Therefore, the male is not the sole person responsible for providing the household income. In other words, the woman's employment might have compensated for the unfavorable employment situation of the male. Unfortunately, the SOEP provides too small a sample size to allow for the interaction of the woman and the partner's labor market status. I will come back to this issue when I analyze the transition to the second child with data from the Mikrozensus.

Table 21: First Births & the Partner's Employment Status

Model A	**West Germans**			**East Germans**		
	b	exp(b)	t	b	exp(b)	t
Baseline (age)						
17-20	-5.61	0.004	-7.76 ***	-4.57	0.010	-9.62 ***
20-24	-4.80	0.008	-30.76 ***	-4.72	0.009	-23.21 ***
24-28	-4.46	0.012	-47.08 ***	-4.32	0.013	-27.80 ***
28-32	-4.27	0.014	-41.73 ***	-4.46	0.012	-18.31 ***
32-38	-4.48	0.011	-23.24 ***	-4.89	0.008	-9.65 ***
Educational Attainment						
In education	-1.04	0.35	-4.23 ***	-0.61	0.54	-1.90 **
Out of education						
-- No degree	0.35	1.42	2.14 **	1.04	2.84	2.57 **
-- Vocational degree	0	1		0	1	
-- College degree	-0.34	0.71	-1.54	-0.01	0.99	-0.03
Migration to West Germany	--			0.26	1.30	1.02
Partner						
No partner	-2.04	0.13	-9.56 ***	-1.65	0.19	-5.70 ***
Partner	0	1		0	1	
Model B						
Baseline (age)						
17-20	-5.25	0.005	-7.21 ***	-4.33	0.013	-8.83 ***
20-24	-4.58	0.010	-28.56 ***	-4.57	0.010	-21.03 ***
24-28	-4.29	0.014	-43.71 ***	-4.22	0.015	-25.78 ***
28-32	-4.13	0.016	-39.54 ***	-4.37	0.013	-17.59 ***
32-38	-4.35	0.013	-22.48 ***	-4.82	0.008	-9.49 ***
Educational Attainment						
In education	-0.99	0.37	-3.99 ***	-0.55	0.58	-1.70 *
Out of education						
-- No degree	0.37	1.45	2.28 **	1.07	2.92	2.60 ***
-- Vocational degree	0	1		0	1	
-- College degree	-0.31	0.73	-1.43	0.02	1.02	0.05
Migration to West Germany	--			0.22	1.25	0.85
Partner's Activity Status						
No partner	-2.23	0.11	-10.33 ***	-1.82	0.16	-6.00 ***
Partner						
-- In education	-0.34	0.71	-1.33	-0.46	0.63	-0.88
-- Employed full-time	0	1		0	1	
-- Unemployed	-1.11	0.33	-3.09 ***	-0.05	0.95	-0.13

Note: (1) Method: piecewise constant model (2) Population: cohorts 1961-1980; period: after October 1990 (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (4) Source: SOEP 1999

Table 21 (continued): First Births & the Partner's Employment Status

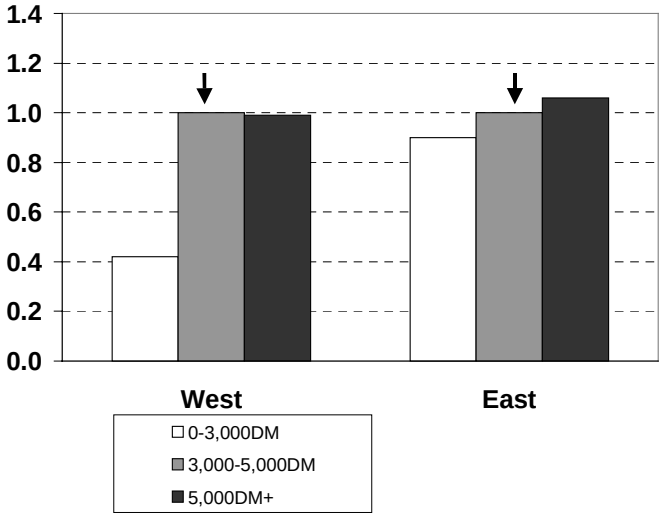
Model B[*)]	**West Germans**			**East Germans**		
	b	exp(b)	t	b	exp(b)	t
Partner's Activity Status						
In education	-0.34	0.71	-1.33	-0.46	0.63	-0.88
Employed	0	1		0	1	
Unemployed	-1.11	0.33	-3.09 ***	-0.05	0.95	-0.13
Model C[*)]						
Partner's Education						
In education	-0.12	0.89	-0.47	-0.27	0.77	-0.51
Not in education						
-- No degree	0.20	1.22	0.91	0.97	2.64	2.56 ***
-- Vocational degree	0	1		0	1	
-- College degree	0.15	1.16	0.82	0.28	1.32	0.73
Model D[*)]						
Partner's Labor Market Status						
In education	-0.52	0.59	-1.93 *	-0.47	0.62	-0.89
Unemployed	-1.29	0.27	-3.47 ***	-0.08	0.93	-0.19
Employed						
-- Highly qualified employee[**)]	-0.16	0.85	-0.93	0.13	1.14	0.36
-- Qualified employee	-0.33	0.72	-1.81 *	0.19	1.21	0.52
-- Un-/ semi-skilled employee	-0.73	0.48	-1.71 *	0.10	1.11	0.21
-- Skilled worker	0	1		0	1	
-- Un-/ semi-skilled worker	-0.30	0.74	-1.19	-0.35	0.70	-0.93
Model E[*)]						
Partner's Wage						
In education	-0.40	0.67	-1.54	-0.45	0.64	-0.85
Unemployed	-1.17	0.31	-3.21 ***	-0.04	0.96	-0.10
Employed						
-- less than 3,000 DM	-0.87	0.42	-2.37 **	-0.11	0.90	-0.39
-- 3,000DM – 5,000DM	0	1		0	1	
-- 5,000DM and more	0.01	0.99	-0.06	0.06	1.06	0.13

Note: (1) *) For the full model see Model B, previous page (2) **) Includes also the self-employed. (3) Method: piecewise constant model (4) Population: cohorts 1961-1980; period: after October 1990 (5) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (6) Source: SOEP 1999

Figure 27: Relative First Birth Risks by Partner's Labor Market Status and Monthly Gross Wage

Panel 1: Relative First Birth Risks by Partner's Labor Market Status

Panel 2: Relative First Birth Risks by Partner's Monthly Gross Wage



Note: (1) The arrow indicates the base category. (2) Monthly gross wage is deflated, 1995=100. (3) Source: see Table 21

6.6 Conclusion

In this chapter, I investigated the economic determinants of the transition to the first child after Unification. The empirical analysis revealed a strong *institutional effect of*

education in the West. Undergoing education reduces the chances of giving birth to a first child to a quarter. In addition, there is a significant and strong *level effect* of education. Even after having completed education and having entered the labor market, West German college graduates display a lower transition rate to the first child than their less educated counterparts. On the other hand, unemployment and poor career prospects among women are positively correlated with a rapid transition to the first child. This empirical finding supports the hypothesis that particularly women with very poor labor market chances are more inclined to set up a family earlier. In addition, the *partner's employment status* plays an important role. Unemployment, a low labor market status or a low monthly gross wage reduce the chances of giving birth to a first child. This strongly suggests that couples postpone parenthood until the male partner has established a secure position in the labor market. In sum: the analysis of the West German situation reveals a very predictable pattern. While women's "career resources" are negatively correlated with the transition to the first child, it is vice versa for the partner's employment characteristics. These findings do not only support the hypothesis of a dominance of the "male breadwinner model", they also show that a woman's employment career and childrearing is still barely compatible in the West.

Also for East Germany, I find a strong and highly significant negative *institutional effect of education*. This aspect is of some interest if one recalls that women often had their first child before completion of (college) education in the GDR. The intriguing question in this context is whether "career-orientated" East German women postpone, similar to their West German counterparts, first maternity to older ages. One could have argued that more highly educated East Germans have even greater incentives to avoid parenthood. College educated women have the highest chances of experiencing upward mobility in the labor market and might therefore risk substantial status losses by having children in the crucial phase of "career building" (see Chapter 3). This aspect should particularly matter for East Germany, assuming that there is heavier competition for vacant positions. The major counter-argument is that East German women still enjoy better chances of *reconciling childrearing and employment*. Furthermore, a full-time employment career is no particular privilege for highly educated women. East German

women have generally a higher labor market orientation, which is why the "compatibility issue" is not only a problem college educated women have to cope with.

The empirical analysis for the East German sample provides equivocal results. There is some evidence that women with unfavorable labor market prospects (i.e. women without any educational degree or an unskilled or semi-skilled labor market position) have very high transition rates to the first child. Studies of the East German labor market show that these women were most likely to be subject to unemployment or labor market downward mobility after Unification. One could argue that unfavorable labor market conditions made them opt for parenthood quickly. I argue, however, that this group only constitutes a small proportion of the sample and if one blends out this group and focuses on women with at least a vocational degree, one finds a more homogenous picture in the East. Women with a college education or a vocational training certificate hardly differ in the transition to first parenthood (after controlling for educational participation). This empirical finding strongly suggests that a labor market career and having children are still more compatible in East Germany due to a relatively greater abundance of public daycare and a better structure in the opening hours. Moreover, the *partner's employment status* hardly contributes to a postponement of first birth after Unification. I argue that this finding supports the presumption that the male "bread-winner model" is less prevalent in the East, so that an unstable male employment situation does not necessarily entail a postponement of the first birth.

Chapter 7

Employment and the Transition to the Second Child after Unification

The previous analyses do not provide much empirical evidence for the presumption that the economic situation in the East has markedly suppressed first birth rates. Given that the East German "fertility crisis" is, in the first place, a "second birth crisis" (see Chapter 5), one could suspect that economic parameters more strongly influenced the decision for the second child rather than the first. In this chapter, I investigate the economic determinants of the transition to the *second child* in East and West Germany in the 1990s.

The question, which guides the subsequent analysis is, whether and how the woman and her partner's economic situation affects the transition to the second child. Does women's labor market participation foster the transition to the second child or does the incompatibility of full-time employment and raising two children suppress second birth risks? Furthermore, what role does the economic position of the male partner play in being able to afford a larger family? In Part 7.1, I describe the procedure of the analysis, in Part 7.2, I focus on the role of women's educational attainment in second birth risks, in Part 7.3, on the partner's characteristics and in Part 0, I consider the woman and her partner's employment characteristics jointly.

7.1 Procedure of the Analysis

Theoretical Considerations

As discussed in Chapter 3, the decision to have a second child is, in many respects, different from the transition to the first child. Given that couples have decided to have one child, they are committed to a certain "life plan" (Huinink 1989). In other words, they have already become parents, have had experience with having a child and mostly adjusted their employment situation accordingly. Assuming that it is generally the woman who is responsible for childrearing, she will have particularly altered her labor market participation in response to the birth of her first child (Budig/ England 2001; Taniguchi 1999). Depending on the assumptions one makes regarding the compatibility of childrearing and employment, one can basically take two different stances on the role of women's employment in second birth risks.

First, one could argue that due to the lack of children's daycare most women (assuming traditional gender roles) give up their employment career on the birth of the first child. If this is indeed the case, the partner's employment situation should be most decisive for the decision to have a second child, while women's employment should not matter much. Although, this line of reasoning is very plausible for the West German situation, where women are subject to a lack of full-time daycare, in the East, the situation is still very different. Full-time daycare is more readily available and the very large majority of women return to full-time employment after the birth of the first child (Beckmann 2001; Engelbrech 1997).

If childrearing and employment is compatible, the woman's employment situation can play a decisive role in the household income. This implies that more highly educated women should have a higher incentive to have children than less educated women. They are better able to afford to pay for childcare arrangements and, most importantly, as they earn higher wages, they have the economic resources to support a larger family (Hoem/ Hoem 1989: 52; Kravdal 1992). Since the woman is contributing to the household income, this can also mean that the men's employment situation is not as decisive for fertility as it is in a "regime" where solely the male is providing the

household income. In other words, woman's employment can compensate for an insecure employment situation of the male partner (Oppenheimer 1994).

Against this background, the impact of male's employment on second birth risks should be less strong in the East than in the West. Besides this, while woman's employment should play no role in the West, it should *positively* affect second birth risks in the East. The crucial assumption one has to make in this context is that children's daycare is very effective in resolving "compatibility problems" and therefore allowing couples to reconcile the rearing of two children and proceeding with a full-time employment career.

Selection of the Sample

For the analysis of second births in East Germany, the German-Socio-Economic Panel provides a too small sample size for extensive data analysis. Particularly, if one takes into consideration that after Unification the East German population at risk of second birth is very heterogeneous (particularly with regards to age at first birth), it is simply not feasible to carry out any meaningful analysis with the SOEP (yet). In the following, I use the German micro-census (Mikrozensus).

The major advantage of the Mikrozensus is its relatively large sample size. One unfortunate disadvantage is that the Mikrozensus is a cross-sectional data set, which hardly provides any retrospective information. As already discussed in Chapter 5, one has to infer the "fertility biography" from the number of children who are still living in the household at the time of survey. In line with the previous analysis, I restrict the sample to the birth cohorts 1961 to 1980 and omit foreign nationals from the analysis. Since I am predominately interested in the fertility patterns in the "Post-Unification Area", I further limit the sample to women who had given birth to their first child between 1991 and 1996.[84] In doing so, I critically reduce the heterogeneity of the East German sample, which makes it more straightforward when comparing it to the West

84 I also exclude women with missing information on educational attainment and women who have a first and second birth in the same year. I assume that this mostly applies to twin births.

German one. However, in doing so, I ignore the "transition pattern" (see Chapter 5), i.e. East Germans who just had a first child, but not a second before Unification.

Covariates

The major drawback in using the Mikrozensus (instead of the SOEP) is that it basically contains no retrospective information, i.e. it is basically not possible to construct time-variant covariates. This is particularly unfortunate, since I assume that the woman's employment status after first birth crucially determines the decision to have a second child. As an indicator of the general labor market orientation, I use *educational attainment* at the date of interview. Other studies have shown that labor market chances critically depend on formal educational qualifications, which partially justifies this procedure (e.g., Brinkmann/ Wiedemann 1995).[85] Similar to the previous analysis, I distinguish four educational categories, i.e. no degree, vocational training certificate, college degree, and in education (for details, see Appendix). In all specifications, I use "vocational training certificate" as the reference category.

In addition, I construct a variable indicating whether the woman is *living with a partner* in the same household and whether she is *married* or not. For the male partner, I construct his educational attainment and his labor market status at the date of interview. The latter variable is slightly troublesome because the fertility decision was taken in the past and it is unlikely that the labor market status at the date of interview influenced a previous decision to have a second child. Nevertheless, I interpret the labor market status of the partner at the time of interview as a valid indicator of general labor market prospects. I classified the *partner's labor market status* into five categories: (1) employees in highly qualified positions, (2) employees in qualified positions, (3) unskilled and semi-skilled employees, (4) skilled workers, and (5) unskilled and semi-skilled workers. Unfortunately, the Mikrozensus does not provide sufficient information on the gross wage, which is why I am unable to take this variable into account.

Table 22: Composition of the Sample for the Multivariate Analysis of Second Births

	West	East
Age at First Birth		
Mean age at first birth	26.44	24.00
Education		
No degree	17%	7%
Vocational degree	73%	76%
College degree	9%	12%
In education	2%	5%
Partner		
Partner	88%	79%
No partner	12%	21%
Family Form		
Not married	12%	39%
Married	88%	61%
Partner's Education		
No partner	12%	21%
Partner		
-- In education	8%	3%
-- No degree	62%	62%
-- Vocational degree	15%	10%
-- College degree	2%	3%
-- Missing	1%	2%
Partner's Labor Market Status		
No partner	12%	21%
Partner		
-- Employee in highly qualified position	8%	5%
-- Employee in qualified position	15%	9%
-- Unskilled and semi-skilled employee	14%	7%
-- Skilled worker	25%	30%
-- Unskilled and semi-skilled worker	13%	13%
-- Others, missing, not employed	13%	15%
Sample Size		
Number of cases	*6,927*	*1,186*
Number of second births	*2,694*	*250*

Note: (1) Selection of the sample: women of the birth cohorts 1961-1980 where the first child was born between 1991 and 1996 (2) Source: Mikrozensus 1997

85 Using educational attainment as a time-constant covariate involves some major methodological problems. Although these problems seriously bias the analysis of first births, they are of little importance for the analysis of second births. Most respondents have completed their education before they have a first child. Therefore there should be only a few respondents who drop out of education because of a second pregnancy (Hoem/ Prskawetz/ Neyer 1999). Nor should there be much postponement of second births due to participation in the educational system.

Table 22 contains the composition of the sample. Since it contains basically no time-variant covariates (apart from the woman's current age), one can simply display the composition of the sample by the characteristics of the sample members at the time of censoring. There are 1,186 East German women in the sample who gave birth to 250 second children and 6,924 West German women who gave birth to 2,694 second children. East German women had their first child at a slightly younger age, they are less likely to be married and less likely to live with a partner in the same household. They are more highly educated than their West German counterparts, i.e. they are more likely to have a college degree and they are less likely to be without any formal educational qualifications. One could suspect that the relatively high educational attainment of East German women still reflects former GDR-educational policy, where women were strongly encouraged to proceed with an education. An important point here might be that college educated East German women are more likely to have a first child than their West German counterparts (see Chapter 6). The partner's education is slightly lower in the East. Furthermore, East German males are less likely to work as qualified or highly qualified employees.

Method

Similar to the previous chapter, I apply event history techniques to the analysis of second births. In contrast to the analysis of first births, the analysis of second birth risks is complicated by the fact that there are (at least) two important "time scales". This is the *age of the woman* and the *duration since the birth of the first child*. In the descriptive analysis (see Chapter 5), I displayed the transition rate to the second child by the age of the first child, i.e. the spacing of the second child. In a multivariate framework, it is possible to simultaneously consider the age of the respondent and the duration since the birth of the first child. In other words, it is possible to control for the differences in the age at first birth, which is of some importance particularly for an East-West comparison, since East German women are slightly younger at first birth, even after Unification.

In principle, I could simply estimate a piecewise constant model and add the age of the mother as a categorical covariate. A more flexible type of model is to insert the age of

the first child and the mother's age as a *piecewise linear spline*.[86] In the following, I take such an approach, i.e. I use a piecewise-linear baseline function (which is also known as generalized Gompertz). In addition, I add the age of the respondent as a piecewise linear spline. For this analysis I use the software aML, which allows for this kind of analysis (Lillard/ Panis 2000).

When *ln h(t*) is the natural log of the occurrence of the event, $\gamma T(t)$ the baseline hazard (represented as a piecewise linear spline), *x* the time-constant covariates, *y* the time-variant covariates, α and β the respective parameter estimates, one yields the following relationship

$$ln\ h(t) = \gamma T(t) + \Sigma \beta x + \Sigma \gamma z(t) \qquad (5)$$

(Note: Subscripts are omitted for the improved readability of the equation.)

Similar to the piecewise constant model, the parameter estimates reflect the impact of the covariates on the natural log of the hazard rate. For the categorical covariates, it makes sense to take the anti-log of the coefficients to interpret the results more easily. The coefficients of the linear splines represent the "slope parameters". In order to interpret them, it is useful to graph the splines. In all of the following specifications, I use the age of the first child as the baseline hazard. The only time-variant covariate is the age of the mother, which I insert as a linear spline.

86 A linear spline is a flexible form of representing the relationship between a dependent (Y) and a continuous independent variable (X). The continuous independent variable is basically "cut" into several segments. For each segment, the relationship between X and Y is assumed to be linear. However, across segments, the parameters (slopes) can be different (for details, see Lillard/ Panis 2000: 46).

Structure of the Analysis

The analysis of second birth risks contains basically three parts:

- In the first step, I concentrate on the role of *women's educational attainment* in the transition to the second child (Part 7.2).
- In the second step, I add the partner's characteristics, i.e. his *educational attainment,* and *his labor market status* (Part 7.3).
- In the third step, I consider the *joint effect* of the woman and her partner's educational attainment (Part 0).

7.2 Women's Education and Second Birth

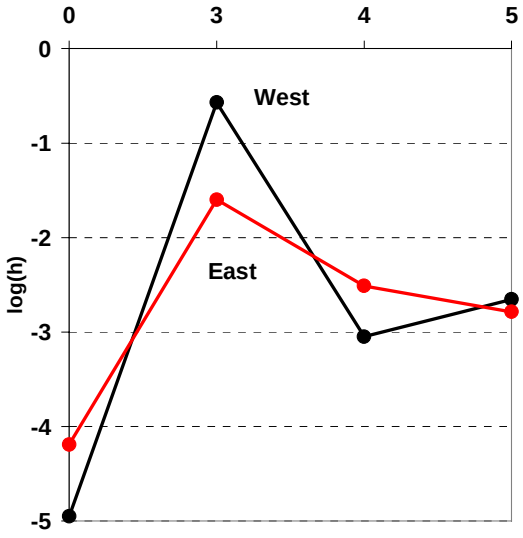
Table 23 displays the results of the role of women's educational attainment in the transition to the second child. The first model (Model A) only contains the baseline hazard and the effect of the woman's age. As said before, both are represented as piecewise linear splines. In order to be able to interpret the coefficients of the linear splines (i.e. the slopes), I display them in Figure 28.

Regarding the West German situation first: there is a gradual increase in second birth risks until age 30 and a rapid decline thereafter.[87] The baseline hazard has the expected shape: it rapidly increases in the first three years after the birth of the first child, decreases thereafter and levels off after four years. In East Germany, the baseline hazard is much flatter and second birth risks rapidly decline with the woman's age. However, the coefficients for the impact of mother's age (i.e. the slopes) are not significantly different from zero. In the following, I will not repeat the description of the baseline and the impact of the woman's age since the results do not alter in any substantial manner after changing the specification.

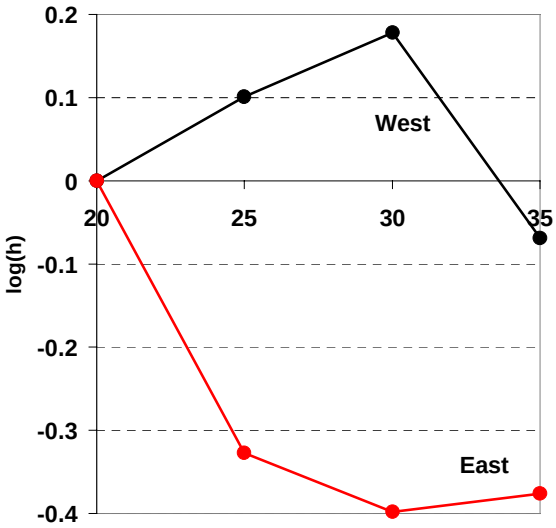
87 Actually, it is only after age 34, when second birth risks start declining in the West German sample. However, for comparative reasons I did not add any additional nodes. There are too few second births to women age 30 and over in the East German sample, which precludes me from adding additional nodes at higher ages.

Figure 28: Second Birth Risks by Current Age and Age of First Child (Linear Spline)

Panel 1: Second Birth Risks by Age of First Child (Baseline Hazard)



Panel 2: Second Birth Risks by Age of Woman



Source: see Table 23

Model B contains the results after including the woman's educational attainment. There are two important aspects which this model reveals. First of all, East German women without a formal educational degree have the highest transition rate to the second child. This finding matches the analysis of first births, which also showed a relatively high transition rate for women without any formal qualifications.

The most important and puzzling finding is the positive impact of women's college education on the transition to the second child for the *West* German sample. From what has previously been said, however, one would rather expect such an effect in the *East* where children's daycare is widely available. In the West, where there is only a very restricted supply of children's daycare, one would expect that the women's "earning potential" plays a less decisive role in the decision to have a second child. One possible explanation could be that highly educated women find ways of arranging childcare. They earn higher wages and they therefore encounter better chances of paying for childcare arrangements on the market. Since there is no functioning market for private daycare arrangements in Germany, this line of reasoning is, at closer examination, not

very convincing. I will come back to this issue after having added the partner's characteristics.

Table 23: Second Births & Women's Educational Attainment

Model (A)	**West**			**East**		
	b	exp(b)	t	b	exp(b)	t
Baseline (Spacing) [ls)]						
Intercept	-4.95		-32.38 ***	-4.19		-12.05 ***
0-3 years	1.46		27.31 ***	0.86		5.45 ***
3-4 years	-2.47		-11.31 ***	-0.91		-1.66 *
4+ years	0.39		1.92 *	-0.27		-0.48
Current Age [ls)]						
-25	0.020		0.76	-0.066		-1.20
25-30	0.015		1.04	-0.014		-0.30
30+	-0.049		-2.62 ***	0.004		0.05
Model (B)						
Baseline (Spacing) [ls)]						
Intercept	-4.85		-30.62 ***	-4.36		-11.93 ***
0-3 years	1.48		27.60 ***	0.87		5.44 ***
3-4 years	-2.48		-11.29 ***	-0.90		-1.63
4+ years	0.42		2.05 **	-0.26		-0.46
Current Age [ls)]						
-25	0.00		-0.01	-0.04		-0.71
25-30	0.01		0.55	-0.03		-0.59
30+	-0.06		-3.18 ***	0.00		0.03
Education						
In education	-1.01	0.36	-5.39 ***	0.07	1.07	0.23
No degree	-0.11	0.90	-1.94 *	0.61	1.84	2.65 ***
Vocational degree	0	1		0	1	
College degree	0.29	1.34	4.36 ***	0.32	1.37	1.57

Note: (1) Method: event history model (generalized Gompertz); dependent variable: transition to the second child measured in years since the birth of the first child (2) Selection of the sample: only women who had a first birth 1991-1996. Women who had a first and a second birth in the same year were omitted. (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (4) Source: Mikrozensus 1997

7.3 The Role of the Partner's Employment Status

Table 24 displays the results after adding partnership and marital status to the equation. The first model (Model A) only contains an indicator variable for whether the woman is living with a partner (at the time of interview). As expected, there is a strong positive

correlation between having a partner and having a second child. This impact is less strong in the East which either indicates that East German women have a higher disruption risk, or that they are less reluctant to have a second child as single mothers. Since the cohabitation status is only available for the date of interview, it is not possible to answer this question with the given data.

In the second specification (Model B), I distinguish women (1) who do not have a (cohabiting) partner, (2) who are married and live together with their partners and (3) who are unmarried and live together with a partner. The results reveal a strong positive correlation between the marital status and having a second child. Unmarried women, who are living with a partner, have basically the same second birth risks as single women. In the East, however, the situation looks completely different. Those women who are married to their partners have the same transition rates to the second child as women who are not married to their (cohabiting) partners.[88] This issue is of particular importance if one recalls that the legal framework around marriage is basically tailored to fit the "one-earner model" in Germany. This result supports the hypothesis that this model is of smaller importance in the East, which could also imply that the male's labor market status plays a less decisive role in the decision to have a second child. The subsequent two models address this issue more closely.

88 The significance was tested by using "partner (not married)" as a reference category. For the West German sample, "married" is then highly significant (on the 99-percent level), for the East German sample the coefficient is not significant at all.

Table 24: Second Births & the Partner's Labor Market Status

Model A	**West**			**East**		
	b	exp(b)	t	b	exp(b)	t
Baseline (Spacing) [ls)]						
Intercept	-5.82		-33.98 ***	-4.78		-12.41 ***
0-3 years	1.49		27.89 ***	0.86		5.37 ***
3-4 years	-2.37		-11.00 ***	-0.86		-1.55
4+ years	0.38		1.88 *	-0.29		-0.51
Current Age [ls)]						
-25	-0.02		-0.73	-0.05		-0.84
25-30	0.00		-0.27	-0.03		-0.65
30+	-0.06		-3.05 ***	0.01		0.11
Education						
In education	-0.88	0.42	-4.68 ***	0.17	1.18	0.58
No degree	-0.05	0.95	-0.91	0.68	1.97	2.88 ***
Vocational degree	0	1		0	1	
College degree	0.29	1.34	4.36 ***	0.28	1.32	1.38
Partner						
Partner	1.13	3.10	13.07 ***	0.55	1.73	2.88 ***
No partner	0	1		0	1	
Model B						
Baseline (Spacing) [ls)]						
Intercept	-5.79		-33.77 ***	-4.75		-12.28 ***
0-3 years	1.50		27.92 ***	0.86		5.37 ***
3-4 years	-2.35		-10.93 ***	-0.84		-1.51
4+ years	0.38		1.84 *	-0.31		-0.53
Current Age [ls)]						
-25	-0.03		-1.00	-0.06		-0.99
25-30	-0.01		-0.45	-0.03		-0.71
30+	-0.06		-3.14 ***	0.01		0.13
Education						
In education	-0.83	0.44	-4.45 ***	0.19	1.21	0.63
No degree	-0.05	0.95	-0.88	0.68	1.98	2.90 ***
Vocational degree	0	1		0	1	
College degree	0.30	1.35	4.53 ***	0.27	1.30	1.32
Marital Status						
Single	0	1		0	1	
Partner	0.24	1.27	1.51	0.40	1.49	1.79
Married	1.17	3.23	13.52 ***	0.62	1.85	3.15 ***

Note: (1) Method: event history model (generalized Gompertz); dependent variable: transition to the second child measured in years since the birth of the first child (2) Selection of the sample: only women who had a first birth 1991-1996. Women who had a first and a second birth in the same year were omitted. (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (4) Source: Mikrozensus 1997

Table 24 (continued): Second Births & the Partner's Labor Market Status

Model C	**West**			**East**		
	b	exp(b)	t	b	exp(b)	t
Baseline (Spacing) [ls)]						
Intercept	-4.68		-29.05 ***	-4.23		-11.27 ***
0-3 years	1.50		27.97 ***	0.87		5.35 ***
3-4 years	-2.32		-10.83 ***	-0.83		-1.48
4+ years	0.37		1.78 *	-0.29		-0.50
Current Age [ls)]						
-25	-0.03		-0.98	-0.05		-0.91
25-30	-0.01		-0.84	-0.05		-0.95
30+	-0.07		-3.46 ***	0.02		0.17
Education						
In education	-0.92	0.40	-4.82 ***	0.18	1.19	0.58
No degree	-0.02	0.98	-0.38	0.82	2.26	3.30 ***
Vocational degree	0	1		0	1	
College degree	0.12	1.13	1.64	0.10	1.10	0.44
Partner's Education						
No Partner	-1.10	0.33	-12.46 ***	-0.55	0.57	-2.85 ***
Partner						
-- In education	0.09	1.09	0.69	-0.16	0.85	-0.36
-- No degree	-0.10	0.91	-1.31	-0.59	0.56	-1.43
-- Vocational degree	0	1		0	1	
-- College degree	0.39	1.47	6.98 ***	0.49	1.63	2.28 ***
Model D						
Baseline (Spacing) [ls)]						
Intercept	-4.81		-29.32 ***	-4.53		-11.60 ***
0-3 years	1.50		27.91 ***	0.88		5.44 ***
3-4 years	-2.32		-10.83 ***	-0.87		-1.56
4+ years	0.36		1.73 *	-0.26		-0.46
Current Age [ls)]						
-25	-0.01		-0.45	-0.04		-0.69
25-30	-0.01		-0.94	-0.05		-0.96
30+	-0.06		-3.10 ***	0.01		0.10
Education						
In education	-0.96	0.38	-5.06 ***	0.06	1.06	0.21
No degree	-0.06	0.94	-1.04	0.64	1.91	2.74 **
Vocational degree	0	1		0	1	
College degree	0.17	1.18	2.54 ***	0.07	1.07	0.32
Partner's Labor Market Status						
No partner	-1.02	0.36	-11.01 ***	-0.26	0.77	-1.22
Employee						
-- Highly qualified employee	0.48	1.62	6.54 ***	0.84	2.32	3.05 ***
-- Qualified employee	0.17	1.19	2.76 ***	0.56	1.75	2.40 **
-- Unskilled and semi-skilled employee	0.06	1.06	0.91	0.42	1.52	1.67 *
Worker						
-- Skilled worker	0	1		0	1	
-- Unskilled and semi-skilled worker	-0.04	0.96	-0.68	0.22	1.25	1.02
Others, missing, not employed	0.31	1.36	4.71 ***	0.41	1.50	2.08 **

Note: (1) Method: event history model (generalized Gompertz); dependent variable: transition to the second child measured in years since the birth of the first child (2) Selection of the sample: only women who had a first birth 1991-1996. Women who had a first and a second birth in the same year were omitted. (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ (4) A flag variable for missing information on the educational attainment of the partner was also added to the regression. (5) Source: Mikrozensus 1997

The Partner's Educational Attainment

In Model C, I add the partner's educational attainment to the model. As mentioned before, educational attainment serves as an indicator of general labor market chances. If the male's labor market opportunities matter in the transition to the second child, the coefficients for his college education should be positive and significant.

In the West German sample, women who live with a partner who has a college degree, encounter a 50 percent higher chance of giving birth to a second child (than women whose partners only have a vocational degree). In other words, there is empirical evidence that the partner's economic status is of vital importance in the decision to have a second child. This apparently also applies to East Germany, where the chance of having a second child even increases by 65 percent when the woman is living with a college educated partner.

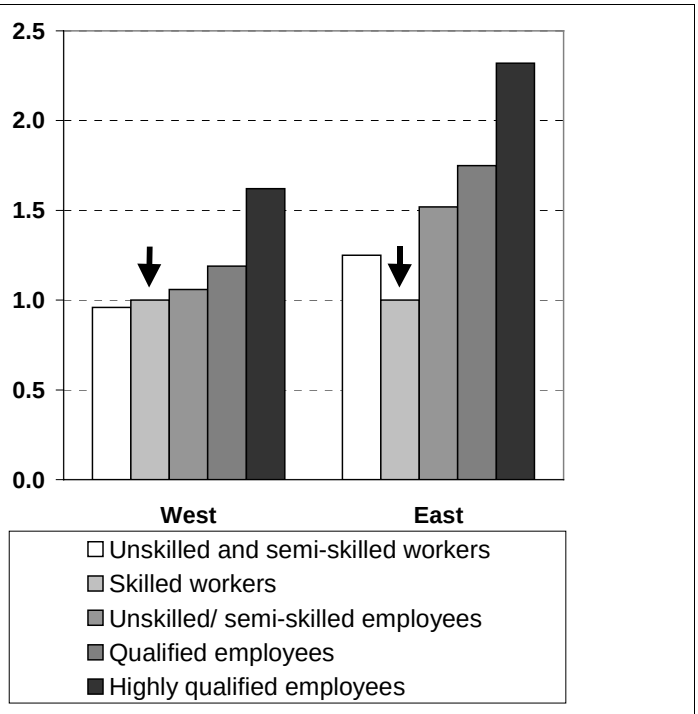
Coming back to the positive correlation between women's college education and second birth risks in the West German sample (see Model B), after adding the partner's characteristics, the positive effect of women's college education basically vanishes. This strongly goes against the hypothesis that more highly educated West German women find ways of arranging daycare and therefore are more likely opt for a second child. Instead, the results favor the hypothesis that this correlation was spurious in the first place. More highly educated women often have more highly educated partners who, at the same time, have the earning potential to afford a large family.

The Partner's Labor Market Status

However, using educational attainment as an indicator of the respondent's career prospects relies on rather strong assumptions regarding the role of educational attainment in the allocation of workers to jobs. In order to get some more empirical evidence on the role of the partner's economic situation in the transition to the second child, I add the partner's labor market status to the regression (Model D). Similar to the procedure in Chapter 6, I remove the partner's educational attainment from the regression, assuming that both variables are closely interrelated. The group of skilled workers constitutes the reference category.

In Figure 29, I display the relative risks for the various categories. The results on the labor market status partially support the previous findings, i.e. the higher the labor market status of the male partner, the more rapidly women opt for a second child. Particularly women, who are living with highly qualified employees, have the highest second birth risks. In East Germany, women who have a partner who is employed as a highly qualified employee, have a 50 percent higher chance of having a second child than those with partners in unskilled or semi-skilled employment. Compared to the group of unskilled and semi-skilled workers, the chances are even twice as high.

Figure 29: Relative Second Birth Risks by Partner's Labor Market Status



Note: (1) The arrow indicates the base category (2) Source: see Table 24

Finding a negative correlation between the partner's labor market status and second birth risks does not, however, completely transfer to the "blue-collar segment". Women, who are living with unskilled or semi-skilled workers, have about the same second birth risks as women living with skilled workers. In East Germany, unskilled workers even have a slightly higher (but insignificant) risk of having a second child. In

contrast to Model B, the impact of women's educational attainment does not completely vanish after inserting the partner's labor market status.[89]

7.4 The Joint Effect of the Woman and her Partner's Education

In the last step, I consider the joint effect of the woman and her partner's educational attainment on the transition to the second child. Again, I use educational attainment as an indicator of the general labor market prospects of the respondents. By "joint" effect I mean that I interact the woman and her partner's educational attainment. For this analysis, I omit women who do not have a partner, who are still in education or whose partner is still undertaking education at the time of censoring. So far, the analysis has provided strong evidence that it is rather the partner's educational attainment (and his labor market status), which matters in the transition to the second child. By interacting the woman and the partner's educational attainment, I attempt to gain more empirical support for this hypothesis.

Table 25 displays the mating patterns by educational attainment (for women who have a partner and at least one child age 1-6 in 1997). The very large majority of women live with partners who have the same level of educational qualifications (see also, Frick/ Steinhöfel 1991; Wirth 2000: 240). In the West, this applies to 73 percent and in the East, to 84 percent. Considering that most East German women have a vocational training degree and considering further that the ratio of East German males with a

89 It should further be noted that the "missing category" (not displayed in the figure) turns out to be highly significant. This category unifies a bundle of labor market statuses, including the unemployed, farmers and other small categories, which did not completely fit into the classification scheme. Although it is plausible that farmers, who generally live in more rural areas, have a higher second birth risk (see e.g., Hank 2001a: 245), it is does not completely fit into the frame that this also applies to the unemployed. It should be remembered in this context that the employment status is measured at the time of interview. Possibly, there are some males in the survey who withdrew from the labor market after the birth of the second child. It is also possible that there is a small group, with very poor labor market prospects, who display very high second birth risks. However, this issue cannot be investigated based on the given data.

college degree is relatively low, it is not too surprising that there are only few East German women who live with a more highly educated partner. While this applies to 20 percent in the West, it applies to only 10 percent in the East.

Table 25: Mating Patterns by Educational Attainment

Women	Partner	West	East
Homogamous			
No degree	No degree	5%	2%
Vocational degree	Vocational degree	62%	75%
College degree	College degree	6%	7%
Partner Higher			
No degree	Vocational degree	8%	3%
No/ vocational degree	College degree	11%	6%
Woman Higher			
Vocational degree	No degree	4%	1%
College degree	No degree/ vocational degree	3%	5%
Sample Size			
Number of cases		*5,837*	*857*
Number of second births		*2,462*	*197*

Note: (1) Selection of the sample: only women who had a first birth 1991-1996. Women who had a first and a second birth in the same year were omitted. Women who do not have a partner were excluded. Women in education or with a partner in education were also excluded. (2) Source: Mikrozensus 1997

Table 26 displays the results on the "joint effect" of the woman and her partner's educational attainment. The combination "both vocational degree" serves as the reference category. If it was solely the partner's labor market characteristics which mattered in the decision to have a second child, couples, where the *male partner* has a high educational attainment, should have a particularly high second birth risk. There are two aspects which favor this hypothesis. If only the male partner has a college degree, the chances of having a second child increases by 87 percent in the West German sample (compared to the reference group of homogamous couples with vocational degrees). If, however, only the woman has a college degree, the relative second birth risk is the same as for the reference category.

A counter argument is that "homogamous couples" with college degrees also have a relative risk of 73 percent (compared to the reference group). Obviously, in such cases it is not possible to separate the impact of the woman and her partner's educational attainment on the risks of having a second child. The results for the East German

sample are, in this respect, roughly the same. In other words, there is some evidence that the partner's economic situation is of vital importance in both East and West Germany. However, just based on the educational variable, it is not possible to completely separate the impact of the woman and the partner's economic situation on second birth risks.

Table 26: Second Births & Relative Educational Attainment

		West				East			
		b	exp(b)	t		b	exp(b)	t	
Baseline									
Intercept		-4.91		-26.8	***	-4.53		-10.1	***
0-3 years		1.55		27.1	***	1.08		5.71	***
3-4 years		-2.26		-10.1	***	-1.32		-2.05	***
4+ years		0.29		1.33		0.00		0.00	
Current Age									
-25		0.00		0.05		-0.09		-1.20	
25-30		-0.02		-0.99		-0.06		-0.99	
30+		-0.06		-3.32	***	0.06		0.60	
Education									
Female	**Male**								
Homogamous									
No degree	No degree	-0.09	0.91	-0.95		-0.33	0.72	-0.54	
Vocational	Vocational	0	1			0	1		
College	College	0.55	1.73	6.90	***	0.65	1.91	2.63	**
Partner higher									
No degree	Vocational	-0.15	0.86	-1.99	*	0.71	2.03	1.91	*
No/ vocational	College	-0.14	0.87	-1.30		0.55	1.74	0.90	
Woman higher									
Vocational	No degree	0.32	1.37	5.05	***	0.53	1.71	1.93	*
College	No/ vocational	-0.13	0.88	-0.97		0.17	1.18	0.51	

Note: (1) Method: event history model (generalized Gompertz); dependent variable: transition to the second child measured in years since the birth of the first child (2) Selection of the sample: only women who had a first birth 1991-1996. Women who had a first and a second birth in the same year were omitted. Women who do not have a partner were excluded. Women in education or with a partner in education were also excluded. (3) ***: $p \leq 0.01$ **: $0.01 \leq p \leq 0.05$ *: $0.05 \leq p \leq 0.10$ omitted (4) Source: Mikrozensus 1997

7.5 Conclusion

In this chapter, I investigated the role of the women and her partner's labor market characteristics in the transition to the second child in East and West Germany using data from the German micro-census of the year 1997. In this study, educational attainment

served as an indicator of general labor market chances. Due to data limitations, it was unfortunately not possible to utilize information on the woman and her partner's employment histories. In order to buttress the interpretation of the empirical findings on the role of the partner's educational attainment, I also took into account the partner's labor market status as an additional indicator of his general labor market prospects. For the woman, this information could unfortunately not be utilized, since the large majority were not employed at the time of interview, and furthermore, the woman's labor market status is widely regarded to be very responsive to the birth of the first child.

A major result from this analysis is that in East and West Germany, the *partner's labor market status plays a very decisive role* in the decision to have a second child. Women who live with partners, who have a college education and/or who are working as qualified or highly qualified employees, have substantially higher second birth risks than any of the other categories. There is a small group of *women without any formal qualification,* which display extremely high transition rates to the second child in the East (provided they are living with partners with a higher educational level). The analysis of first births already revealed a very high transition rate for this group of women. It seems straightforward to argue that women, who rapidly have a first and a second child before the completion of education, foreclose their chances of resuming education at a later stage in their lives. One can presumably talk of a "labor market discouragement" for this group of women.

Apart from the positive effect of having no formal qualifications, the analysis gives no support for the hypothesis that the *woman's labor market status* (measured by her educational attainment) has any statistically significant impact on having a second child. College educated women and women with a vocational degree do not differ in any substantial manner in their chances of having a second child (after controlling for the partner's characteristics).

In short, the empirical analysis reveals a strong positive correlation between the male's labor market status, his educational attainment and the chances of having a second child, but no impact of the woman's educational attainment. Assuming that the labor market status and educational attainment are valid indicators of general employment prospects, one is tempted to conclude that the unstable and insecure labor market situation of East

German males has suppressed second birth risks and ultimately contributed to the low fertility rates in the 1990s.

This line of reasoning, however, would be jumping to conclusions. It relies on the strong assumption that one can separate the woman and the man's employment situation. Furthermore, it assumes that "affordability" considerations are most decisive, while the "compatibility issue" does not matter anymore in the decision to have a second child. In the West German case, this line of argumentation might indeed be plausible if one argues that the large majority of women give up their (full-time) employment career on the birth of the first child. Given that the overwhelming majority of West German women choose the "homemaker-model" once the first child is born, the decision to have a second child should primarily be influenced by the question of whether the man's earnings are sufficient to afford a second child.

While the man's employment situation might indeed be the crux of the decision to have a second child in the West, this line of reasoning is, however, not convincing for the East German case. Most importantly, East German women are substantially more likely to return to full-time employment after the birth of the first child than their West German counterparts. In other words, they are contributing to the household income and therefore their employment situation should matter for the decision to have a second child. The fact that I do not find any statistically significant impact of the woman's educational attainment (and therefore of her "earning potential") on second birth risks, could indicate that she will be unable to carry out employment when she has two children. Data on the employment pattern of women partially support this hypothesis. In the East, full-time employment chances are cut by half for women with two children (see Chapter 2, Table 2). Given that a second child, even in a case where there is a high coverage of public daycare, is a serious impediment to the full-time employment career of a woman, couples might simply be unable to afford the woman's withdrawal from the labor market. In the end, it is not just the low male wages which suppress second birth risks, but the necessity of the woman to contribute to the household income and the incompatibility of full-time employment and the rearing of two children.

Chapter 8

Concluding Remarks

The aim of this study was to analyze East German fertility behavior in the 1990s and to investigate its linkage to labor market constraints and family policies. This final chapter seeks to summarize the key lines of thought and attempts to draw together the major empirical findings. In Chapter 1, I started off by discussing the arguments raised in the context of the so-called "East German fertility crisis". In this discussion, the unfavorable labor market situation was assigned a dominant role in the decline in birth rates. In the following theoretical parts (Chapter 2+3), I gave an overview of family policies and labor market constraints and I discussed specific hypotheses on the role of women and men's employment in fertility decisions in East and West Germany in the 1990s. A major precondition for understanding East German fertility behavior after Unification is to take a *life course perspective*. Large parts of the empirical analysis were devoted to clarifying and illustrating this issue (Chapter 4+5). In the final empirical parts, I investigated the role of women and men's employment in the transition to the first and second child (Chapter 6+7). In the following, I proceed by first summarizing the chief hypotheses regarding employment and fertility decisions. I then discuss the results of the East-West comparison of cohort and parity specific fertility rates. Thereafter, I present the main empirical findings on the role of women and men's employment in first and second birth risks. I conclude with some general remarks regarding the role of family policies in fertility decisions in a united Germany.

Family Policies, Labor Markets and Women's Employment in the 1990s

In Chapter 2, I summarized major family policies and labor market constraints in the GDR and FRG. Family policies in the GDR were out-spokenly pro-natalistic and offered a variety of incentives to set-up a family early in life. The high provision rate of public daycare fostered the compatibility of childrearing and employment. Furthermore, the East German labor market provided largely predetermined career paths which made it easy for the individual to assess his or her future employment career. With German Unification, East Germans did not only lose the predictability of their employment careers, but they were at an even greater risk of experiencing unemployment and labor market downward mobility than West Germans. This involved high unemployment rates, retraining programs and particularly unfavorable constraints on women's participation in the labor market.

However, due to peculiarities of daycare policies (which is a matter of the municipalities in Germany) and profiting from low East German birth rates, the provision of children's full-time care had remained relatively high throughout the 1990s. This basically means that East German women were, against a widespread belief, *not* subject to an incompatibility of childrearing and employment. Compared to their West German counterparts, they enjoyed *much better* chances of reconciling childrearing and full-time employment. As a result, East German women were exposed to an almost contradictory incentive structure to participate in the labor market in the 1990s. On the one hand, a tax and transfer system subsidized the non-employment of married women. Furthermore, unfavorable macro-economic constraints pushed women out of the labor market. On the other hand, a high provision rate of public daycare, low male wages and a high labor market orientation made it more likely that East German women combined childrearing and employment.

The primary aim of the subsequent chapter (Chapter 3) was to relate standard explanations of employment and fertility decisions to family policies and labor market constraints in East and West Germany in the 1990s. I started off with standard economic reasoning which postulates a positive correlation between men's employment and fertility and a negative correlation between that of women's. My main argument was that this (frequently cited as "stable") correlation subsides when taking family

polices into consideration. Most importantly, in a "regime", which provides extensive daycare for children, women are able to reconcile childrearing and employment and the woman's employment situation becomes important in supporting a family. This not only implies that women will postpone parenthood until they themselves have established a secure position in the labor market; it also means that women's employment may compensate for a precarious labor market situation of the male partner.

The hypotheses one derives on the role of women and men's employment in fertility decisions in East Germany strongly depends on the weight assigned to the labor market crisis, the career aspirations of women and the role of children's daycare in alleviating conflicts between childrearing and employment. In this context, there are two contradicting hypotheses which have been most pervasive. Particularly in the early 1990s, when the labor market situation worsened, researchers predicted that East German women would, discouraged from their labor market opportunities, soon withdraw from the labor market and follow the traditional West German family model (I titled this line of thought the "Discouragement Hypothesis"). If this had indeed been the case, the stability of the *male's* employment situation should have been most important for fertility decisions, while women's unfavorable employment situation could have even encouraged family formation. In contrast to this, it has been argued that East German women would not accept the role of an economically dependent housewife, which the first hypothesis implicitly assumes. Instead, East German women are seeking economic independence and this not only requires a high compatibility of childrearing and employment before opting for motherhood, but also a stable *female* employment situation. In this framework (titled "Independence Hypothesis"), the low East German birth rates are interpreted as a sign of women's reluctance to commit themselves to parenthood in precarious and uncertain employment situations.

I argued that the "Discouragement Hypothesis" relies too strongly on the resurgence of the "male bread-winner model" which is simply not adequately buttressed by empirical evidence. On the other hand, the "Independence Hypothesis" relies too strongly on the assumption that East German women have a high preference for economic independence. Although East German women are more likely to be employed, this does

not, for the majority of women, necessarily mean that they are striving for economic independence and self-actualization in the labor market.

The "Independence Hypothesis" focuses on the high female labor market orientation of East German women and this high female labor market orientation does indeed stand out as exceptional, particularly when compared to the West German situation. However, taken aback by the low TFR, researchers were "over-occupied" with the negative fertility implications of women's labor market orientation and ignored the fertility enhancing aspect of the "dual-earner model". From this perspective, East German couples are better able to have children more rapidly since they are not obliged to postpone parenthood until the male "breadwinner" has established himself in the labor market. Besides this, since childrearing and employment are compatible, "career-orientated" East German women should be more likely to have children than their West German counterparts who increasingly avoid parenthood altogether. In short, although unfavorable labor market constraints are likely to have a postponing effect on fertility, a wider availability of public daycare potentially works in the opposite direction.

The "Fertility Crisis" Reconsidered

Before, I empirically investigated the hypotheses on the role of women and men's employment in fertility decisions, it was important to "clarify the explanandum", i.e. to get a general idea of the differences in East and West German fertility patterns before and after Unification. In the first empirical chapter (Chapter 4), I discussed specific features of the "fertility regimes" in the former East and West Germany. The most distinct aspects about former East German fertility was a relatively low age at first birth, a low variance around the mean age at first birth, a high progression ratio to the first and second child, but a low one to the third. West German fertility patterns, on the other hand, can be characterized by a high age at first birth, a high variance around the mean age at first birth and a high ratio of childlessness. For the cohorts born after 1960, the ratio of childlessness increased to 25 percent, while it remained at around 10 percent in the East. The median age at first birth increased to more than 27 in the West, but fluctuated at around only 22 in the East.

The huge differences in fertility patterns before Unification are interesting from the perspective of the effectiveness of public policies, since they clearly show how strongly socio-economic constraints shape fertility decisions. Moreover (and most important for this study), the East-West differences in fertility behavior *before* Unification have important implications for the analysis of fertility behavior *after* Unification. They imply that the East and West German population at risk of childbirth substantially differed at the eve of Unification. This aspect makes it imperative, if one undertakes an East-West comparison, to examine different birth parities separately and it necessitates the consideration of fertility history prior to 1990 as well.

In Chapter 5, I analyzed *parity-specific cohort fertility rates* using data from the German Socio-Economic Panel 1999 and the German micro-census 1997. This analysis showed that those East German cohorts whose employment careers were most severely affected by the economic upheavals around Unification (cohorts 1961-1970), had mostly already set up a family before 1990. However, even those who were still childless in 1990, were nevertheless more quick to have a *first* child in the subsequent years than their counterparts in the West. Regarding *second* and higher parity births, however, the picture looks completely different. I suspected that particularly East Germans who just had a first child before Unification must have postponed second birth decisions during the upheavals of German Unification in the period 1990 to 1992. In other words, there should be an "enormous" increase in the spacing of the second child for this group. However, the analysis neither showed a big increase in the spacing of the second child, nor did it reveal a "period effect of Unification". Instead, East Germans are increasingly forgoing second and higher parity births. This does not only apply to women who had their first children before Unification, but also to those who set up a family after 1990.

The major conclusion I have drawn from this analysis is that the so-called "East German fertility crisis" is, from the cohort perspective, a "timing issue" regarding first parity births, but a "quantum phenomenon" concerning second and higher parity births. In other words, the East German fertility crisis is less a first birth crisis, but more a crisis of the second child and, equally important, this "second birth crisis" is *not* restricted to the phase of the major reconstruction of the labor market in the period 1990-1992.

Employment and Fertility in the 1990s

The empirical investigation on the role of women and men's employment in the transition to the first (and second) child (Chapter 6+7) revealed a very expected pattern for the West German sample. In line with other empirical studies, I found a strong *institutional effect of education*. In other words, childrearing and undergoing education are not compatible, and fertility decisions are not undertaken while the woman (or her partner) is receiving vocational training or undergoing college education. However, even after having completed education, there is a strong *level effect of education*, indicating that more "career-orientated women" are more likely to avoid or postpone parenthood. In light of the unfavorable institutional constraints reconciling full-time employment and childrearing, this finding is very comprehensible. While women's employment (or educational attainment) is negatively correlated with the transition to the first child, the impact of men's employment is reversed. Women who are living with a partner who earns higher wages, occupies a higher labor market status and does not experience unemployment, opt more rapidly for parenthood.

The pattern completely transfers to the analysis of second births. If the analysis is conducted without other covariates, more highly educated women appear to be more likely to have a second child. A closer examination of this impact revealed, however, that this correlation is largely produced by the fact that more highly educated women more often live with more highly educated partners who have the "earning potential" to afford a larger family. In the decision to have a second child, the woman's employment is basically of no importance, while the man's economic situation is most decisive. The analysis of employment rates of West German women with two children very much supports this view, showing only a small fraction of less than 10 percent returning to full-time employment once the second child is born (see Table 2). The strong role of the *partner's employment situation* in the transition to the first and second child does not only suggest that West German couples postpone parenthood until the "male breadwinner" has established himself in the labor market, but furthermore, it is a sign of the *persistence of traditional family forms* as the major institution for raising children in the West.

The analysis of fertility patterns in East Germany in the 1990s provided equivocal results. On the one hand, very bleak employment prospects, unemployment and a very low labor market position among East German women turned out to encourage family formation. In line with the "Discouragement Hypothesis", I argued that unfavorable labor market conditions made women opt for parenthood quickly. This hypothesis is supported by the fact that women without any formal qualifications are also very likely to have second children, provided they live with more highly educated partners. Furthermore, compared to more highly educated women, they expressed a relatively smaller desire to return to full-time employment. Women who have a low labor market status, no educational degree and who rapidly opt for a first and a second child most likely foreclose their chances of returning to the labor market and it seems straightforward to talk of a labor market discouragement regarding this group. However, women without any formal educational qualifications constitute a small fraction of the East German population and I therefore did not attach very much significance to this group.

If one blends out women without any secondary educational or vocational qualifications, the East German fertility pattern is very homogenous. Women with a college degree and those with a vocational training certificate hardly differ in their transition rate to the first child (after controlling for the duration of education). I argued that this finding supports the hypothesis that an employment career is, due to a relatively greater abundance of public full-time care, more compatible. Since the *partner's employment status* exercises hardly any impact on the transition rate to the first child, this gives rise to the hypothesis that both partners contribute to the family income. Therefore, an unstable male employment situation does not necessarily entail a postponement of first birth.

However, the analysis of second births does not completely fit into this frame. The decision for the second child is, similar to the situation in the West, crucially determined by the male partner's labor market situation. In the West German case, I argued that this is quite comprehensible, since women often drastically reduce their labor force participation after the birth of the first child. Since the woman is not employed, the decision for the second child is influenced by the consideration of whether the man's

income is sufficient to support a larger family. For East Germany this interpretation is, however, not satisfying since the large majority of women return to full-time employment after childbirth. I expected that in a regime that provides extensive public full-time care, the woman's employment situation should foster the decision to have a second child. One explanation for why the woman's "earning potential" does not matter for second birth risks is that the woman would have to critically reduce her working hours after the birth of the second child. In other words, it is likely to assume that *two* children are a serious impediment to the women's full-time employment career, even in a regime which provides extensive daycare for children. From this perspective, the low second birth risks in the East not only reflect that wages are too low and employment situations too unstable to afford the second child, but also that couples are not able to afford the woman's withdrawal from the labor market.

Policy Outlook

The analysis of second birth risks particularly highlights that the *affordability* of children is closely related to the *compatibility* of childrearing and employment. A woman's withdrawal from the labor market ultimately reduces the household income, and vice versa, women's employment contributes to the household income and fosters fertility. In the 1990s, East German couples faced relatively favorable "compatibility constraints" due to a still wider availability of children's full-time daycare. However, once birth rates increase again, East German communities will most likely be unable to expand daycare at the same magnitude and at the same pace. A restricted *supply of children's full-time daycare* will most certainly have repercussions on fertility and it might even trigger a "first birth crisis".

Moreover, one has to take into consideration that even in a system with high daycare coverage, East German couples refrained from having a larger family. This not only raises the question, to what extent public daycare is able to alleviate conflicts between working life and childrearing, it also underlines the fact that one cannot separate the "daycare regime" from other institutional constraints such as the parental leave system and the institutions of the labor market. In other words, a high coverage of children's

daycare enables women to reconcile full-time employment and the raising of *one* child. However, the second child will, in most cases, mean that women would have to juggle around additional organizational burdens and that children's daycare alone will not enable them to proceed with their full-time work, nor develop any sort of a labor market career.

Finally, placing these arguments within the context of "welfare states" means that the "daycare system" is only embedded in a more comprehensive welfare regime. West Germany is widely acknowledged as the prototype of the one-earner/ male-breadwinner model. This model has been incorporated into the institutions of the German welfare state, including the health care system, the tax system and the pension system. In the past, this model might have indeed been "partly functional" in guaranteeing "social reproduction" (Crompton 1999: 203). However, through changing gender roles and also through the growing precariousness of male employment, it has becomes essential to provide alternative institutional arrangements to the traditional family forms. To phrase it in Esping-Andersen's (1999: 70) typology of *familializing* welfare states: "(c)ontemporary welfare states can no longer count on the availability of housewives and full-time mothers. The more they do so, either by actively encouraging familialism or by passively refraining from providing an alternative, the more they diminish welfare at both the micro- and macro level". At the micro level this means that couples are unable to realize their desires for children. At the macro level, low fertility rates entail a population decline and cause the widely known problems in the pay-as-you-go social security system.

Transferred to German family policies, there is no general "structural neglect of families" (Kaufmann 1995: 169; Lampert 1996: 259; Wingen 1997b: 565), but a one-sided focus on the "one-earner model" and a disregard of *modern family forms.* German family policies have remained at an "Institutionenstarre" (institutional rigidity), which ultimately suppresses fertility (Strohmeier 1997: 290). Particularly the East German situation and also, in cross-national comparison, the low West German fertility rates challenge the current institutional framework and call for alternatives to the "one-earner" family model.

Appendix

A.1 The German Socio-Economic Panel (SOEP)

A.1.1 Description of the SOEP

It has become common to distinguish the German Socio-Economic Panel (SOEP) by five subsamples (Deutsches Institut für Wirtschaftsforschung 2000; SOEP Group 2001; Wagner/ Burkhauser/ Behringer 1993).

- **The West German Sample** (sample A): This sample is a representative sample of households, where the "head of the household" is living in West Germany in 1984, and is not of any nationality surveyed in sample B. It was surveyed first in 1984 and contained roughly 4,500 households at that time.
- **The Foreigner Sample** (sample B): This sample is a representative sample of households, where the "head of the household" is either of Turkish, Greek, Italian, Yugoslavian, or Spanish nationality in 1984. It was surveyed first in 1984 and contained roughly 1,500 at that time.
- **The Eastern German Sample** (sample C): This sample is a representative sample of households, where the "head of the household" is living in the territories of former East Germany (GDR) in 1990. It was surveyed first in 1990 and contained roughly 2,000 households at that time (for details, see e.g., Schupp/ Wagner 1991).
- **The Immigrant Sample** (sample D): The Immigrant Sample contains households, where the "head of the household" has migrated to West Germany since 1984. It was surveyed first in 1995, and contained roughly 500 households at that time (for details, see e.g., Burkhauser/ Kreyenfeld/ Wagner 1997).
- **The Refreshment Sample** (sample E): In 1998, the SOEP was extended by a refreshment sample, which contains roughly 1,000 households. One major motivation behind introducing the "refreshment sample" was to increase the overall number of cases of the SOEP (for details, see Projektgruppe "Das Sozio-Oekonomische Panel" 1998).

Panel and Calendar Information

The SOEP is a panel data set, which means that the same individuals are re-interviewed on an annual basis. Although the focus of the SOEP is on its panel characteristics, it also provides retrospective information. First, it provides retrospective *annual calendar information* on the activity and fertility history of the respondents, beginning at age 15. Second, it provides *monthly calendar information* on employment periods since the entry of individuals into the sample. Each time respondents are interviewed they are asked to recall their activities of the previous year. Moreover, monthly information on demographic events is available, such as the start of a conjugal union, date of disruption, date of divorce and the date of birth of a child. Table A1 gives an overview of the availability of variables in terms of panel information, monthly and annual calendar information. By *panel information*, I understand information that refers to the date of interview. By calendar information, I understand information constructed from retrospective information given by the respondent.

Table A1: Extract of Variables Available in the SOEP

	Panel	Calendar (month)	Calendar (annual)
Labor Market	• employment status • position in job • salary • gratification payments • unemployment benefits • social benefits	• activity status • source of income	• activity status
Education	• educational attainment	• educational attainment	
Birth	• no. of children in household • Id number of child	• birth of child	• parity of birth • sex of child
Attitudes	• security of job • child care availability • economic security		
Partner	• family status • cohabitation status • Id number of partner	• partner moved in/out • divorce • marriage	• family status

Naturally, panel information and monthly calendar information is only available for the time individuals are part of the sample. Since the different subsamples are surveyed first at different points in time, data availability differs by subsamples. As can be seen from Table A2, for the West German subsample, panel information is available for the period since 1984. For the Eastern German subsample, information is available for the period since 1990.

Table A2: Panel and Calendar Information by Subsamples

	Sample A+B	**Sample C**	**Sample D**	**Sample E**
Panel	since 1984	since 1990	since 1995	since 1998
Calendar (month)	since 1983	since July 1989	since 1993	since 1997
Calendar (year)	since age 15	since age 15	since age 15	since age 15

Table A2 highlights two important aspects: for the time prior to entry into the panel, I only have annual information for the activity and fertility history. For other variables (such as attitudes of the respondents), no information is available at all for the "pre-panel time". When analyzing fertility decisions as a life course event, there are basically three ways one can proceed:

- One can limit the analysis to the available time window of the panel.
- One analyzes the entire life course of individuals, but one only uses variables which are available for it. This restricts the analysis to a few variables, which are the age at birth, activity status and marital status. Furthermore it restricts the analysis to an annual time scale.
- All variables are used for the entire life course of respondents. An indicator variable is added to the regressions, which controls for the periods where one only has annual information at one's disposal. For variables that were not surveyed retrospectively at all, a time-variant dummy variable for "missing information" is added to the regressions (see e.g., Drobnič/ Blossfeld/ Rohwer 1999: 138).

I primarily follow the latter approach.

A.1.2 Selection of the Sample

In this study, East and West Germans of the birth cohorts 1961-1980 are used. In order to reduce the heterogeneity of the West German comparison group, I omit foreign nationals and ethnic Germans ("Aussiedler") from the analysis. Furthermore, I omit individuals from sample E. The major reason for doing so, is that sample E was surveyed first in 1998 and there is hardly any monthly information available for this sub-population. I also omit respondents who report a birth before age 17 and respondents with missing information on their "fertility history" from this analysis. Altogether there are 3,063 valid cases in the remaining sample (1,098 East and 1,965 West Germans).[90]

Table A3: Sample Size SOEP

	Sample Size
Total number of women in SOEP	13,547
Birth cohort 1954 and older or 1981 and younger	8,797
Sample E	308
Censoring or first birth before age 17	179
Missing birth biography	1
Foreign nationals or ethnic Germans	1,199
Total	**3,063**

A.1.3 Description of the Variables

Observation Time

The "observation time" starts in the January of the year the respondent turns age 17 and ends at the last date of interview.

90 It should be noted that for the multivariate analysis (Chapter 6), I furthermore restrict the sample to the respondents at risk of first birth in the 1990s. For the descriptive analysis (Chapter 5), I omit "sample D members" from the analysis. The major reason for doing so, is that East-to-West migrants are over-sampled in the SOEP which might distort the representativity of the analysis.

Fertility History

The year of birth of the child and parity information is obtained from the file BIOBIRTH, which is generated by the German Institute for Economic Research (Frick/ Otto 2000). Unfortunately, this file only contains information on the year of birth of a child, but it does not contain information on the month of birth. However, this information can easily be added to the data, since each year respondents are requested to update the "demographic events" which have occurred in their household in the previous year. The underlying question is: "Has your family situation changed since the beginning of 1990? Please answer whether any of the following apply to you, and if so, when." "Child born _____Month 1990 _____Month 1991"

If this information is not available, the month of birth is imputed. I assume that the birth took place in June of the year. For all cases, where I have to impute the date of birth, I construct a flag variable, which I add to all the regressions. It is also important to note that I *backdate the date of birth by nine months*. If a woman does not have a child, I censor her nine months before the last interview was conducted. The main reason for this is that I am primarily interested in how the employment career affects fertility decisions. By backdating the date of birth by nine month, I make sure that changes in the independent variables precede the decision to have a child. Since I backdate the date of birth by nine month, I have to omit all cases in the sample, where the birth happened at age 17 (or more precisely before October of the year the women turned age 17).

East/ West German

A respondent is treated as East German, if she lived in East Germany in 1990. A West German is a respondent who is of German nationality and was living in West Germany when the German Socio-Economic Panel (SOEP) undertook the first survey in 1984. For East-to-West migrants, I construct a time-variant covariate for "having migrated to West Germany".

Activity History

The "activity status" is gathered from retrospective monthly information given by the respondent, which is stored in the generated file ARTKALEN.

I distinguish the following activity states:

- Employed full-time
- Schooling (including vocational training and military service)
- Employed part-time (including short-term work and secondary job)
- Unemployed (including housewife and retired)

It should be noted that some episodes have to be "aggregated". When there is an overlap of activities, I assign the following hierarchy: 1. employed full-time, 2. schooling, 3. employed part-time, 4. unemployed. For this procedure, I use the program NEWSPELL (version 1.2) (Pischner 2001). It should further be noted that for the male partner, I only use annual information on his activity status in a given year (see below).

Labor Market Entry

I define the labor market entry as the first full-time employment episode after completion of education. For respondents who have not received a degree (and who are not in education at censoring), this is the first full-time employment episode after leaving the educational system.

Since 1992, respondents are asked to report the exact month of completion of education. This means that for the majority of respondents who received their educational certificates during the "panel time", I know the exact date of completion of education. If the degree was however earned before the "panel time", I do not have this information. For the time prior to entry into the panel, I have (at least) annual information on the activity status of the respondent. I assume that the degree was earned when the respondent left the educational system for the first time. If I am not able to identify the month when a degree was earned (this relates to the majority of cases), I assume that the degree was earned in June of the year.

Educational Attainment

There are three binary time-variant variables indicating the educational attainment of the respondent.

- College degree encompasses the German "Fachhochschulabschluß" (technical college) and a university degree received in Germany or another country.
- Vocational degree encompasses all German vocational certificates surveyed by the SOEP ("Lehre", "Berufsfachschule", "Schule des Gesundheitswesen", "Fachschule", "Beamtenausbildung", other "Ausbildung") and vocational certificates from a foreign country.
- No degree encompasses respondents who do not hold a college degree or a vocational certificate.

Monthly Gross Wage

I classify the monthly gross wage into three categories (0-3,000DM, 3,000-5,000DM, 5,000DM+) and deflate it by the price index provided by the Statistisches Bundesamt (20001c).[91] In contrast to the activity status or the date of labor market entry, the monthly gross wage is only measured on an "annual basis", i.e. whenever an interview is conducted, the respondents are requested to report the gross wage, they earned in the previous month.

Labor Market Status

Similar to the monthly gross-wage, the labor market status is only measured annually. I classify it into the following five categories:

- Employees in highly qualified positions
- Employees in qualified positions
- Employees with routine duties
- Skilled workers (including foremen and master craftsmen)

91 It should be noted that I use the inflation index for the western German states, since there is a complete time series available for it (also for the time prior to Unification). In the 1990s, the price developments in the eastern and western parts of Germany only slightly differed.

- Unskilled and semi-skilled workers

For the male partner, this variable is constructed as a time-variant covariate, which changes its value whenever the partner experiences an upward or downward move in the labor market. For the female respondent, I use the "cumulated" labor market status, i.e. the highest labor market status acquired so far.

Marital Status

Marital status is constructed as a time-variant covariate, which changes its value whenever the respondent changes her family status. This variable equals one when a woman is married, zero when she is not married (including divorced, widowed or single). It is constructed based on the file BIOMARY and BIOMARSM, provided by the DIW.

Partner's Characteristics

A dummy variable indicates whether a woman is living with a male partner in the same household. In order to identify the cohabiting partner, I use the generated variable PARTNR(WAVE), provided by the DIW. This variable is the identification number of the male partner the woman is cohabiting with. If there is a male partner living in the same household, but it is not possible to ascertain his identification number, a dummy variable for "missing information" is constructed. The identification number of the male partner is only surveyed annually. This means that the partner's characteristics are only allowed to change their value once a year. This is always at the date of survey. It is assumed that the characteristics were stable for the previous year.

A.2 The German Micro-Census (Mikrozensus)

A.2.1 Description of the Mikrozensus

The German micro-census (Mikrozensus) is a one-percent sample of the population residing in Germany. For West(ern) Germany, it has been conducted annually since the year 1957 (except for the years 1975, 1983 and 1984). For Eastern Germany, the first survey was conducted in 1991 (for details, see e.g Emmerling/ Riede 1997; Schimpl-Neimanns 1998; Lechert/ Staudenmaier/ Schmidt 1997). It covers standard demographic characteristics (such as age, nationality, region of residence), employment status, educational attainment, etc. For the years 1989, 1991 and 1993-1997, the German Statistical Office provides a "scientific use file" of the Mikrozensus, which is a 70 percent sample of the original sample (drawn on the household level). For the year 1997, the public use file of the Mikrozensus comprises 509,892 respondents.

The Mikrozensus is a cross-sectional data set, which hardly provides any retrospective information. This particularly applies to the "fertility history" of the respondents. The "fertility history" of a woman can only be inferred from the number of children who live in the household at the time of survey. This involves a variety of problems:

- The older a women, the more likely it is that her children have already moved out of the parental home. Put the other way round: the older a child, the more likely it has already found its own household. Schimpl-Neimann (1998: 109) reckons that 22 percent of the children age 20 have already moved out of the parental home. For the children age 15, he estimates that only two percent do not live in the parental home anymore.
- It is not possible to account for children who died in the period before 1997. Moreover, it is not possible to account for children who moved out of the mother's home due to divorce or other such reasons.
- It is also not possible to clearly identify the biological mother of a child. E.g., children in remarriages might be wrongly classified as belonging to the female adult in the household.

A.2.2 Selection of the Sample

In this study, I restrict the analysis to females born between 1961-1980, i.e. respondents who were between age 16 and 36 at the time of interview (which was between April 21st and April 27th, 1997). If one assumes that hardly any births occur before age 18, the children of these cohorts were at a maximum age of 18 at the time of interview. I only use persons who live in private households. (This means I omit all respondents who live in institutions such as mental asylums). Furthermore, I omit all cases, where a birth occurred before age 17. The total sample comprises 12,012 East and 53,811 West German women. Table A4 displays the sample size.

Table A4: Sample Size Mikrozensus

	Sample Size
Respondents in public use file of Mikrozensus	509,892
Respondents in institutions	11,414
Males	240,541
Respondents born after 1980 or before 1961	191,686
First birth before age 17	428
Total	**65,823**

A.2.3 Description of the Variables

Fertility History

A woman is assumed to have given birth, if she is labeled as "head of the family" or "partner of the head of the family" and if she is living in the same family with a person who is labeled as "child in the family". The age and order of the birth is inferred from the age and the number of children in the family, i.e. it is the difference between the year of birth of the mother and the age of the child.

East/ West German

An East German is a respondent who lived in the five new "Länder" or East Berlin in 1997. A West German is a respondent who lived in the territories of former West Germany in 1997.

Family Form

- Married refers to all women who report that they are married. This is irrespective of whether they are living with their partners.
- Cohababiting refers to all unmarried women who are living in a cohabiting union.
- Single refers to all single, widowed and divorced women, who do not live with a partner in the same household.

Educational Attainment

There are three binary variables that indicate the highest degree obtained at the time of interview. A distinction is made by:

- No degree includes respondents who did not earn a degree and respondents who only received training on the job ("Anlernausbildung").
- Vocational degree includes "Lehrausbildung", "Meister", "Fachschulabschluß".
- College includes a university or a college degree ("Universitäts"-/ "Fachhoschulabschluß").

Labor Market Status

I reclassify the occupation code in the Mikrozensus along the lines of the Golthorpe and Erikson classification scheme (for details see Ernicke 1997). I distinguish the following groups:

- Employees in highly qualified positions
- Employees in qualified positions
- Unskilled and semi-skilled employees
- Skilled workers
- Unskilled and semi-skilled workers

A.3 The Family and Fertility Survey (FFS)

The German Family and Fertility Survey (FFS) is part of a project initiated by the United Nations, which was set up to collect micro level data on fertility related aspects for cross-national comparisons.[92] Usually, two FFS versions are available: an international version with standardized variables for a cross-national comparison, and a national version with additional country specific variables. For this analysis, the German version was used.[93]

The German FFS is a cross-sectional data set. It was surveyed in 1992, and consists of a sample of about 10,000 Germans (in private households) age 20 to 39 at the time of interview (respectively the birth cohorts 1952-1972). It was surveyed in four representative subsamples distinguished by sex and region of residence (meaning East or West Germany). Major aspects that were surveyed are, e.g., attitudes towards social policy measures, the fertility and cohabitation history of the respondent, standard variables on education, migration and employment, etc. Table A5 displays the sample sizes for the four subgroups.

Table A5: Sample Size FFS

	East	West
Males	1,992	2,024
Females	2,984	3,012
Total	**4,976**	**5,036**

92 More precisely, the FFS was initiated by the Population Activities Unit and the United Nations Economic Commission for Europe with financial assistance from the United Nations Population Fund. For a detailed description of the German FFS, see Pohl (1995).

93 The author wishes to thank the Advisory Group of the FFS program of comparative research for its permission, granted under identification number 26, to use the FFS data on which parts of this study is based.

A.4 Estimating Parity Specific Birth Rates for West Germany

In contrast to the large majority of other western European countries, German vital statistics do not include birth rates by order of births. Instead, the Statistical Office provides births by order in the *current marital union* only. This practice entails a lack of rather crucial indicators for (West) Germany such as the mean age at first birth and the extent of childlessness. What is known on fertility patterns in Germany comes predominantly from the analysis of survey data (e.g., Blossfeld/ Huinink 1991). The survey data used most often in this context are probably the German Socio-Economic Panel (SOEP), the Familiensurvey, the Family and Fertility Survey (FFS) and the German Life History survey.[94] Survey data are certainly crucial in order to understand how socio-economic factors determine family formation patterns. However, as a means to display long time trends, they are of limited value only. Sample sizes are either too small, time periods too short, or too few birth cohorts are covered. The German micro-census provides a larger sample size. Unfortunately, it has only become a standard public use file since the year 1989. For the time before, information could possibly be inferred from the number and the age of the children who live in the household. However, the older the birth cohort, the more likely it is that children have already moved out of the parental home (see above).

In the following, I combine vital statistics and survey data in order to obtain parity specific birth rates for West Germany. The procedure is structured as follows: Firstly, I discuss the lack of parity specific birth rates in (West) Germany. Secondly, I explain the estimation technique. Thirdly, I compare my own estimations with findings from other studies. As a basis for the computation, I use non-marital births and births by order in the current marriage from vital statistics. Additional information is gathered from the German Socio-Economic Panel (SOEP). It should be noted that the procedure draws

94 For the SOEP, and the German Mikrozensus see above. The Familensurvey is provided by the German Youth Institute (DJI) (Bien 1996). The Berlin Life History Survey is monitored by the Max-Planck Institute for Human Development in Berlin (Mayer/ Brückner 1989). The FFS was initiated and coordinated by the United Nations and the Economic Commission for Europe. In Germany, it is monitored by the Federal Institute for Population Research (BiB) (Pohl 1995).

very much on a study conducted by Birg, Filip and Flöthmann (1990).[95] They also used information on the order of marital births and they added additional information from survey data. Combining these two data sources, they estimated parity specific birth rates for West Germany for the period 1960-1985.

A.3.1 Lack of Birth Parity Information for Germany

German vital statistics explicitly distinguish non-marital ("nicht-ehelich") and marital ("ehelich") births. Marital and non-marital births are defined according to the German civil code ("Bürgerliches Gesetzbuch § 1591f."). Non-marital births are basically births to women, who are not married when they have a child. In addition, non-marital births are births to women who are divorced or widowed and have a child with a new partner who they are not married to. Accordingly, marital births are births to women who were married when they gave birth. For non-marital births, only the age of the woman is recorded, but no information of the order of the child is available. The way the parity of a marital birth is recorded, is rather complicated and I explain it in more detail below.

Marital births are assigned according to the order in the current marital union ("in der bestehenden Ehe"). One would expect that with each new marriage, the "birth parity clock" is set to zero. Unfortunately, this is not always the case. If the woman has a first child, separates from her partner, finds a new partner and has another child, the new child is counted as the first child in the current marital union. However, if a woman has a first child, gets married and has a second child with the *same* partner, the second child is counted as the second child in the current marriage. This means (more or less) that the marital birth distribution gives the order of the birth in the current partnership.[96]

95 See also Handcock, Huovilainen and Rendall (2000), who combine English and Welsh register and survey data in order to estimate parity specific birth rates.

96 However, this logic is not followed in a very consistent manner. Until recently, it was the case that, in situations where women were in the process of divorce but not yet legally separated and then had a child from a new partner, the parity of the child was still assigned according to the "old" marriage. The same applies to children from married women who have a child with another partner.

This also means that in the very large majority of cases, marital births are assigned according to their biological order. Cases are only classified wrongly when a woman has a child, splits up with her partner, gets married and has another child after getting married to the new partner.

In the following, I "redistribute" non-marital births to the different birth parities. However, I will *not* correct the given parity distribution for marital births. I assume that in the large majority of cases the birth order given for "marital births" is the biological birth order. Clearly, I classify children wrongly, who are born to couples who already have stepchildren.[97]

A.3.2 Estimation Procedure

The aim of this procedure is to estimate parity specific birth rates for West Germany for the period 1985-1995. Clearly, once the number of births is obtained, rates can easily be estimated by using the population at risk of childbirth. Therefore, my main concern is to obtain the number of births by age of the mother and order of the birth. It should be pointed out that I use period data, but not cohort data. In other words, I want to obtain the number of births by the age of the mother and order of birth in a given year.

The German Statistical Office provides the total number of births by age of the woman $({}_nB_x)$. Additionally, they provide the number of non-marital births by the age of the woman $({}_nN_x)$ and the number of marital births by the age of the woman and the order of

97 In order to get an idea of the ratio of "stepfamily fertility", I calculated a simple measure with data from the German Family and Fertility Survey of the year 1992. This measure relies on the hypothesis that a child usually stays with the mother after divorce. If this is the case, "stepfamily fertility" can be measured by the number of stepchildren a man has. According to my own estimations, less than one percent of the West German men who report that they have more than one child, have at least one stepchild. By ignoring "stepfamily fertility", I should underestimate childlessness and overestimate the mean age at first birth. Possibly, one could "correct" the vital statistics for this aspect also, using survey data such as the Family and Fertility Survey which provides such information. However, there are too few "stepfamily births" in the data set which allow for any reasonable inference.

birth in the current marital union ($_nM_x^j$).[98] Of course, non-marital births and marital births add up to the total number of births:

$$(1) \qquad {}_nB_x(t) = \sum_{j=1}^{k} {}_nM_x^j(t) + {}_nN_x(t) \qquad \text{for} \quad t = 1985,\ldots,1995;\ n = 1;\ x = 15,\ldots,45;\ j = 1,\ldots,k.$$

In order to obtain the number of births by biological order ($_nB_x^j$), I have to re-weigh the distribution of non-marital births. In other words, I must find a system of weights that allows me to "redistribute" non-marital births to the different birth parities. (As said before, for marital births, I do not apply any weights.) If μ_j is the probability of a non-marital birth to be a birth of order *j*, I obtain the following relationship:

$$(2a) \qquad \hat{B}^1 = \mu^1 N + M^1$$

$$(2b) \qquad \hat{B}^2 = \mu^2 N + M^2$$

$$(2c) \qquad \hat{B}^3 = \mu^3 N + M^3$$

$$(2d) \qquad \hat{B}^{4+} = \sum B - \left[\hat{B}_1 + \hat{B}_2 + \hat{B}_3\right]$$

(Note: Subscripts for age and period are omitted for the improved readability of the equations.)

98 The data was collected from Statistisches Bundesamt (1994, 1995a, 1995b, 1996a, 1997).

SOEP-Estimations

As explained above, I am using the German Socio-Economic Panel (SOEP) to estimate μ_j. For this analysis, I only use the "West German sample" (sample A) and the "foreigner sample" (sample B). The major aim is to estimate a system of weights that can be used for the whole period of 1985-1995. Therefore, I am only interested in non-marital births that happened within this time frame. Altogether, there are 928 non-marital births in the sample, 859 are first births, 52 second and 17 third parity births.

Using a multinominal logit model, I estimate the probability of whether a non-marital birth is a first, second or third parity birth. This probability clearly depends on the age of the woman. To allow the age variable to vary more flexibly, I also insert it as a quadratic term. I also insert the calendar year into the regression to allow for potential time trends. Table A6 displays the results from the multinominal logit model on the probability of having a first, second or third parity birth. The coefficients from the model are then used to obtain μ_j (which is the predicted probability of whether a non-marital births is a first, second or third parity birth).

Table A6: Multinominal Logit Model on First, Second and Third Birth Probability

	b	exp(b)	t	
Second Birth				
Intercept	-3.82	0.02	-0.60	
Age	0.20	1.23	-0.27	
Age squared	0.00	1.00	-0.27	
Year	-0.02	0.98	0.65	
Third Birth				
Intercept	-20.87	0.00	-2.03	**
Age	0.21	1.23	-0.14	
Age squared	0.00	1.00	1.70	*
Year	0.16	1.17	0.42	
Sample Size				
First births	*143*			
Second births	*45*			
Third births	*18*			
Total	*206*			

Note : Method: Multinominal logit model
Dependent variable: first, second or third order birth; reference category: first birth
Population: only women who had a non-marital births in the period 1985-1995

A.3.3 Comparison with other Estimations

The crucial question is how reliable my own estimations (in the following the "SOEP-estimations") are. An external validation of the estimations is complicated by the fact that there is no consistent data source which I can compare them with. (If there was such a data-set, there would have been little reason to undertake the effort and estimate parity specific rates for Germany in the first place.) However, there are various survey data sets which contain valuable information on fertility patterns in Germany. To get an idea of how reliable the SOEP-estimations are, I compare the *final number of children* by birth cohort with other estimations. For external validation, I use

(1) estimations done by Dorbritz and Schwarz (1996),

(2) the German micro-census of the year 1997, and

(3) the German Family and Fertility Survey of the Year 1992 (see above).

Comparison with Estimations by Dorbritz and Schwarz (1996)

In the first step, I compare the SOEP-estimations with the ones conducted by Dorbritz and Schwarz (1996). Unfortunately, Dorbritz and Schwarz (1996) do not explain their estimation technique in detail. They only note that their estimations are based on a study conducted by Birg and Flöthmann from the year 1993, which they correct for population growth. They furthermore note that they impute missing fertility information for cohorts who were still of childbearing age at censoring using the Calot method. Table A7 displays the results from the SOEP-estimations, the estimations by Dorbritz and Schwarz (1996) and the difference between the two estimations. The SOEP-estimation on the ratio of women with two children is substantially lower; the ratio of women with three children higher. Both estimations reveal an almost identical pattern of childlessness.

Table A7: Family Size by Birth Cohort, Comparison with Estimations by Dorbritz and Schwarz (1996)

	1940	1945	1950	1955	1960
Dorbritz/ Schwarz					
0	10%	13%	15%	19%	23%
1	24%	27%	27%	24%	22%
2	39%	39%	40%	39%	37%
3+	27%	20%	19%	18%	18%
Total	100%	100%	100%	100%	100%
SOEP-estimations					
0	11%	13%	15%	19%	24%
1	26%	31%	31%	28%	27%
2	34%	35%	35%	35%	34%
3+	29%	22%	20%	18%	15%
Total	100%	100%	100%	100%	100%
Difference					
0	-1	0	0	0	-1
1	-2	-4	-4	-4	-5
2	+5	+4	+5	+4	+3
3+	-2	-2	-1	0	+3

Note: (1) SOEP-estimations: family size measured at age 40; for the birth cohort 1960 at age 35 (2) Source: Dorbritz/ Schwarz (1996); own estimations

Comparison with Data from the Mikrozensus 1997

In the second step, I compare the SOEP-estimations with results from the public use file of the German micro-census (Mikrozensus) of the year 1997. The major drawback of the Mikrozensus is that the "fertility history" is not surveyed. The age at childbirth and the parity of the children can only be inferred from the age and number of the children who still live in the household of the parents. Naturally, the older a respondent, the more likely that the respondent's children have already moved out of the parental home. Therefore, for the analysis of fertility patterns, the Mikrozensus can only be used for "relatively young" respondents (see above). Below, I display the family size of the cohorts 1956 to 1960. In contrast to the comparisons with the data from Schwarz and Dorbritz (1996), there is now a large difference in the ratio of childlessness, but hardly any difference in the ratio of women with two children.

Table A8: Family Size by Birth Cohort, Comparison with the Mikrozensus 1997

	1956	**1957**	**1958**	**1959**	**1960**
Mikrozensus					
0	27%	27%	27%	26%	27%
1	27%	24%	25%	24%	24%
2	33%	36%	35%	35%	35%
3+	13%	13%	13%	15%	14%
Total	100%	100%	100%	100%	100%
SOEP-estimations					
0	22%	23%	23%	23%	24%
1	28%	28%	27%	27%	27%
2	34%	34%	34%	34%	34%
3+	16%	16%	15%	15%	15%
Total	100%	100%	100%	100%	100%
Difference					
0	+5	+4	+4	+3	+3
1	-1	-4	-2	-3	-3
2	-1	+2	+1	+1	+1
3+	-3	-3	-2	0	-1

Note: (1) SOEP-estimations: family size measured at age 35; Mikrozensus: family size measured at age 35 as well (2) Source: own estimations

Comparison with Data from the Family and Fertility Survey 1992

In the final step, I compare the SOEP-estimations with the family size distribution from the German Family and Fertility Survey of the year 1992. The Family and Fertility Survey is a survey data set. It contains roughly 10,000 German respondents who are age 20 to 39 at the date of interview; i.e. most of the respondents are still of childbearing age at censoring. I took this aspect into account by censoring the SOEP-estimations in the year 1992 as well. There are huge differences between my estimations and the one from the FFS. In contrast to the previous two examples, there is, however, no general pattern. For the cohort 1955, I underestimate the ratio of women with two children and for the cohort 1956, I overestimate them.

Table A9: Family Size by Birth Cohort, Comparison with the FFS 1992

	1953	1954	1955	1956	1957
FFS					
0	24%	24%	25%	23%	26%
1	25%	32%	22%	31%	30%
2	39%	34%	41%	30%	30%
3+	13%	10%	11%	15%	13%
Total	100%	100%	100%	100%	100%
Own estimations					
0	18%	20%	20%	21%	23%
1	29%	28%	28%	28%	28%
2	35%	35%	35%	35%	34%
3+	18%	18%	17%	17%	16%
Total	100%	100%	100%	100%	100%
Difference					
0	+6	+4	+5	+2	+3
1	-4	4	-6	+3	+2
2	+4	-1	+6	-5	-4
3+	-5	-8	-6	-2	-3

Note: (1) Censoring is the year 1992, i.e. for the cohort 1953 this is age 39 (2) Source: own estimations

What is the "true" family size distribution in (West) Germany?

The ratio of childlessness is fairly similar in the SOEP-estimations and the ones from Dorbritz and Schwarz (1996). The estimation from the FFS and the Mikrozensus strongly deviates (see also Dorbritz/ Schwarz 1996: 237; Schwarz 1999: 16). Regarding higher parity births, there are also large differences between the SOEP-estimations, the ones from the Mikrozensus and the ones by Dorbritz and Schwarz (1996). E.g., for the cohort 1950, Dorbritz and Schwarz (1996) estimate that the ratio of women with two children amounts to 40 percent. The SOEP-estimations indicate a ratio of only 35 percent. In a more recent study, Dorbritz (2001: 11) reports a ratio of only 32 percent for the same cohort.

Without any indicators for whether the estimations are representative and reliable, it is, however, hard to tell, which one of the estimations is closer to the "true" fertility distribution in Germany. So far, few efforts have been undertaken to compare the various, often contradicting, results and to assess how sensitive the results are regarding the methods applied and data sets used (for an exception, see Huinink 1988).

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VERSICHERUNG

Ich erkläre hiermit, daß ich die vorliegen Arbeit ohne unzulässige Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe; die aus fremden Quellen oder indirekt übernommenen Gedanken sind als solche kenntlich gemacht.

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