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**Union formation and fertility in
Bulgaria and Russia:
a life table description of recent trends**

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UNION FORMATION AND FERTILITY IN BULGARIA AND RUSSIA: A LIFE TABLE DESCRIPTION OF RECENT TRENDS

Dimiter Philipov and Aiva Jasilioniene

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Abstract

The paper provides an extensive descriptive analysis and comparison of recent trends in union formation and fertility in Bulgaria and Russia. The analysis is based on data from the Generation and Gender Surveys (GGS) carried out in 2004. We generate a large number of single- and multi-decrement life tables describing various life course events: leaving home and separation from the parental family, entry into union, first and second childbirth, divorce. In addition, we provide information about the status of children within the family and changes in this status. Life tables are constructed for real cohorts as well as for synthetic cohorts. We study four real cohorts, born in 1940-44, 1950-54, 1960-64 and 1970-74. Synthetic-cohort life tables are constructed for three periods of time, referring to the pre-transitional demographic situation (1985-1989), the beginning of the transition (1990-1994) and recent demographic developments (1999-2003). We use the same approach of life table construction as Andersson and Philipov (2002), thus both studies complement each other and open wider opportunities for international comparison. Life tables are frequently supplemented with graphs of smoothed hazard curves. Complete life tables together with some summary indicators are presented in the Appendix.

Our findings suggest that societal transformation had a stronger impact on the family-related behavior in the Bulgarian population than in the population of Russia. There is evidence that in some aspects Bulgaria is lagging behind other former socialist and Western European countries where the second demographic transition is more advanced. Evidence also suggests that Russia is lagging behind Bulgaria. However, certain specific features distinctive to Russia, such as the low level of childlessness and a drastic drop in second and subsequent births, lead us to think that Russia may have a model of change particular to the country.

1. Introduction

To demographers, societal commonalities and differences between Bulgaria and Russia give rise to a natural question: How do they shape fertility and family formation in the two countries? Common cultural features include an orthodox religion and a Slavic language and alphabet. Both countries are situated in the East of Hajnal's line defining the Eastern European marriage pattern of early and nearly universal entry into marriage (Hajnal 1965). They have a common political history and were governed by similar political regimes, in Bulgaria until 1989 and in Russia until 1991. However, recent history starting in the early 90s is different. Bulgaria's transition to democracy is characteristic of a small society with an open economy, heavily dependent on external markets. The country is oriented towards western values and joined the European Union on the 1st of January, 2007. Russia's economy is large and not as dependent on the rest of the world as Bulgaria. *A priori* it can be expected that cultural determinants and long-lasting political, economic and societal trends may have a parallel effect on demographic change in the two countries. In fact, in his comparative study of recent fertility change in Central and Eastern European countries, Sobotka (2003) frequently contrasts Bulgaria, Romania, Russia and other former Soviet countries with the Czech Republic and other Central European countries. Philipov and Kohler (2001) report that the start of fertility decline in Bulgaria and Russia in the beginning of the 90s differed from the one observed in the Czech Republic, Hungary, and Poland.

However, the sweeping recent political, economic and social transformations may have exerted a strong effect on the demographic trends in the countries concerned and as a result may have included considerable diversities along with the commonalities. Societal change may have had an accumulating effect on demographic trends, thus possibly replacing with diversities the uniformity that has been observed until the

beginning of the 90s. Is this the case, however? Did demographic diversities emerge, or did common features prevail until today?

The purpose of this paper is to provide information and an extensive comparative descriptive analysis of recent changes in union formation and fertility in the two countries so far not available. The outcome of the analysis provides a solid approach to answering questions similar to those posed above. We use data from the Generation and Gender Surveys (GGS) carried out in 2004. They contain unique and rich information on the two populations, including demographic event histories. We construct a large variety of single- and multi-decrement life tables to describe real cohorts as well as synthetic cohorts constructed over different time-periods, starting from the mid-80s. The life-tables complement the study of Andersson and Philipov (2002) and hence open opportunities for broader international comparison.

The next chapter outlines recent demographic trends related to union formation and childbearing as reported in the literature and by the statistical agencies of the two countries. It provides the background necessary to understand the findings proposed in the following chapters. The third chapter describes the data and methods of analyses used, and the following chapters report the results for the demographic events in sequence. The summary discusses the findings of the analyses from the perspective of the questions above. The Appendix presents in full the tables discussed in the text, along with summary indicators.

2. Recent trends in family formation as reflected by population statistics

With the start of radical political and socio-economic transformation in the early 1990s, swift family and fertility changes have been observed in Bulgaria and Russia. They include a decrease in marriage and fertility rates, shifts in the age patterns of union formation and of childbearing, and an increase in cohabitation and non-marital births. However, the trends developed at a slower pace compared to Western states and some post-communist countries (Philipov and Dorbritz 2003, Sobotka 2003). Table 1.1 displays several principal demographic indicators. Demographic statistics in Russia have been reduced since 1997 and for this reason many indicators cannot be estimated for subsequent years.

Table 1.1: Demographic indicators for Bulgaria and Russia, 1980-2002

	1980	1985	1990	1992	1994	1996	1998	2000	2002
<i>Total female 1st marriage rate</i>									
Bulgaria	0.97	0.96	0.90	0.69	0.57	0.53	0.53	0.53	0.47
Russia	0.97	0.97	1.00	0.78	0.77	0.60			
<i>Mean age of women at 1st marriage</i>									
Bulgaria	21.3	21.4	21.4	21.6	22.3	22.8	23.2	24.1	24.5
Russia	22.4	22.2	21.9	21.8	21.9	22.1	22.3 ⁽¹⁾	22.6 ⁽¹⁾	23.0 ⁽¹⁾
<i>Total divorce rate</i>									
Bulgaria	0.18	0.21	0.16	0.15	0.13	0.18	0.20	0.21	0.21
Russia	0.42	0.41	0.40	0.46	0.51	0.43			
<i>Total fertility rate (TFR)</i>									
Bulgaria	2.05	1.98	1.82	1.55	1.37	1.23	1.11	1.30	1.21
Russia	1.86	2.05	1.90	1.56	1.39	1.28	1.25	1.21	1.32
<i>TFR for first birth⁽³⁾</i>									
Bulgaria			0.90	0.86	0.73	0.66	0.65		
Russia			1.00	0.90	0.84	0.76	0.72		
<i>Mean age of mothers at 1st birth</i>									
Bulgaria	21.9	21.9	22.2	21.9	22.2	22.6	22.9	23.5	23.9
Russia	23.0	22.9	22.6	22.6	22.5	22.9	23.1 ⁽²⁾	23.5 ⁽¹⁾	23.8 ⁽¹⁾

Data source: Council of Europe 2005; ⁽¹⁾Naselenie Rossii 2006; ⁽²⁾Naselenie Rossii 2004; ⁽³⁾Philipov and Kohler 2001.

Union formation: Bulgaria

Entry into first marriage in Bulgaria has been about the earliest in Europe, as indicated by the mean age at first marriage for women (Table 1.1). During the last three decades preceding 1990, it practically did not change and remained around the level of 21.3-21.4 years. Marriage was universal in that nearly all women and men ever have experienced the event. During the 1960-1990 period, the total first marriage rate was above 0.92. This level indicates that given the absence of sizeable period changes in the timing of marriage, less than 8 percent of women have never entered marriage before age 50. The observation on the universality and early timing of first marriage is also supported by cohort indicators: the proportion ever married by age 50 in the cohorts born before 1965 is 0.94, and the mean age at first marriage varies between 21.3 and 21.4 years for the cohorts born from 1945 to 1965 (Council of Europe 2005).

Since the start of the transition in 1990, the trends have been changing considerably. The level - as measured by the total first-marriage rate - dropped drastically just in a few years, reaching around 0.5 at the turn of the century. The mean age at first marriage increased by nearly 3 years over one decade. The latter observation indicates the existence of a tempo effect in the total first marriage rate. A correction of the tempo effect would increase the total rate but still it would remain below 0.90 (Philipov and Dorbritz 2003). The value of 0.90 can be taken as a boundary below which the existence of a voluntary restraint from entry into marriage can be assumed to exist. Thus, in Bulgaria the universality of marriage came to an end towards the end of the 90s. Although the postponement effect has been a persuasive one, first marriages are still entered earlier compared to Western European countries.

The spread of cohabitation is another new trend that emerged towards the end of the 90s. Survey data indicate that cohabitation was rare in that decade (some 2-3 percent; Koytcheva and Philipov 2006). The population census data of 2001 illustrate that around 8 percent of women aged below 35 lived in cohabitation.

Divorce in Bulgaria is rare, too. The total divorce rate is among the lowest in Europe (Council of Europe 2005). It dropped temporarily during the first half of the 90s, probably as a result of a sudden shock caused by the onset of transition. Its pre-transition level recovered and continues to persist (Table 1.1).

Union Formation: Russia

Russia, much in contrast to Western European countries (and much like Bulgaria), was characterized by early and universal marriage (Vishnevsky 1996, 1998-99, Zakharov 1997, 2003, Avdeev and Monnier 2000, Avdeev 2003, Scherbov and van Vianen 1999, 2004). Starting from the 1960s, when Western Europe began to experience the aging of marriage, the opposite process developed in Russia – the age at first marriage decreased (Table 1.1). The rejuvenation process in union formation continued until the early 1990s. Between 1960 and 1993, the mean age at first marriage dropped from 26.5 years for men and 24.7 years for women to 23.9 and 21.8 years respectively. It has been rising since then, in 2004 reaching 26.1 years for men and 23.3 years for women (Naselenie Rossii 2006, Avdeev and Monnier 2000).

Marriage at young age is a long-lasting social norm in Russia that has been observed over a number of generations (Vishnevsky 2006). The totalitarian regime may have contributed to the persistence of marriage at ever younger ages until the early 1990s.

In their sociological considerations, Philipov and Dorbritz (2003, pp. 156-157) suggested a "restricted choice" hypothesis and the related "high certainty" hypothesis to explain early family formation in former Soviet countries. By nature, the totalitarian regime restricted personal autonomy and hence the set of alternatives available for the choice of an individual's life path was narrow. As a result, the starting of family life did not compete with other individual life paths, for example those related to the choice or timing of education and work as much as it did in democratic societies. Mozny and Rabušić (1992) claim that autonomy was more restricted for men than it was for women owing to traditional gender differences. These considerations outline the hypothesis of restricted choice.

Restricted autonomy resulted in the predetermination of life paths. Education did not last long (about 10-11 year for secondary education and 14-16 years for higher education) and was usually uninterrupted. Upon its completion, there was a job assured. Thus, the future of young people in terms of employment and livelihood was secure and favorable for the creation of a family. In addition, the socialist state promoted a social policy that favored family life in diverse respects, which was another reason for the inducement of an early start of family under conditions of high certainty.

Some specific factors pushed early marriage. Given that young specialists were centrally appointed to their future places of work, (possibly in relatively remote

areas), motivation to marry someone who had a city residence, frequently from the city where the persons concerned studied, was strong as it guaranteed permission to reside and work there. Besides, many young couples did not want to be separated after study completion and married before being allocated a job and place of residence. Housing shortage in Russia provided an additional incentive to marry and have children early; it increased the opportunity to leave the parental home and acquire a separate dwelling. Furthermore, the spread of an increasingly earlier sexual debut along with the low availability of contraception resulted in unplanned premarital conceptions, which very often led to forced marriages in the background of a conservative society that hardly tolerated non-marital childbearing (e.g. Zakharov and Ivanova 1996). The pronatalist policy measures introduced in the beginning of the 1980s exerted an additional and very strong effect on the childbearing behavior of the population. Many cohorts produced their first and second births ahead of the usual schedule. The “echo” of this effect was observed in the beginning of the 90s (Zakharov and Ivanova, 1996; Zakharov, 1997, 1999; Avdeev and Monnier, 1995; Avdeev, 2003; et al.).

All of these factors can be attributed to earlier entry into marriage in all of the former socialist countries; Bulgaria included (Philipov and Dorbritz 2003). However, the impact of these factors depended on the country-specific functioning of the totalitarian regime and on country-specific conditions. For example, the above reasons behind entry into earlier marriage have mattered more in Russia than it did in Bulgaria. Country-specific differences may explain why the mean age at first marriage decreased in Russia while in the other former socialist countries they remained about constant.

The mid-1990s are considered a turning point in the family and fertility dynamics of Russia: the younger cohorts started a precipitous delay of marriage and increasingly preferred to begin a partnership by entering non-marital cohabitation. According to data from the Population Census 2002, about 10% of men and women lived in consensual unions (Tolts, Antonova, Andreev 2005).

Another indirect indication of the spread of cohabitation is the increasing proportion of children born out of wedlock, having risen from 14.6% to 29.8% during the 1990-2004 period. Meanwhile, an increasing number of children born out of marriage are registered by both parents instead of a single parent, usually the mother (Naselenie Rossii 2006). The fact that the increase in non-marital birth has been running parallel to growing accessibility of modern contraception makes it likely that many non-marital conceptions are intentional (Avdeev and Monnier 2000). According to the birth certificate information of the year 2002, more than 35% of all children born within marriage were born in less than nine months since the registration of marriage, i.e. most of these births must have been based on premarital conception (Tolts, Antonova, Andreev 2005).

Despite its increase, cohabitation is still far from becoming a substitute for marriage in Russia. Marriage is prevalent in this country and the proportion of people who never marry remains very low compared to Western Europe. According to 1994 Micro Census data, a mere 6% of males and 5% of females were never married at age 50 (Scherbov and van Vianen 2004). However, as Table 1.1 indicates the total first-marriage rate has been decreasing since the 90s. This can be largely explained by

marriage postponement, as indicated by the rising mean age at first marriage. In sum, the first-marriage rates remain high compared to Western European countries, and they indicate that universality of marriages is pertinent in this country.

Divorce is not as rare in Russia as it is in Bulgaria. The total divorce rate is 2-3 times as high according to available statistics (Table 1.1), representing a level that is closer to the average in Europe.

Fertility: Bulgaria

The first drop of the TFR below replacement level was registered during the second half of the 60s. The decline gave rise to a series of pronatalist policy measures. The TFR fluctuated between 2 and 2.3 all through 1960 to 1988. The year 1989 marked the beginning of a drastic decrease, and the lowest point of 1.09 was reached in 1997. During the first years of the new century, the TFR was between 1.2 and 1.3.

The mean age at first birth was stable until 1992 around 22.0 years. It swiftly increased to 24.3 years in 2004. The mean age at higher-order births increased as well. Postponement of fertility was evident, and it is one of the reasons for the decline in the period TFR. An application of the Bongaarts-Feeney (BF) formula (Bongaarts and Feeney 1998) shows that the quantum of fertility, i.e. the TFR adjusted for the tempo component, would be still as low as 1.5-1.6.

The first-birth TFR was above 0.90 until 1989 and started to decrease after that year. In the year 2001, it stood at 0.72 while the tempo-adjusted TFR was 0.89. This level has been observed throughout the years after the start of the transition.

The prevalence of a two-child family model until the beginning of the 90s is characteristic in Bulgaria. Since the transition, the one-child model has been prevailing. Childlessness was rare, as were families with more than 2 children.

Non-marital births increased drastically after the transition. Towards 2003 they reached the proportion of 46% of all live births. An important reason for the increase is the drop in *de jure* marriages that exist *de facto*. This is particularly frequently the case among some minorities, for example the Roma. *De facto* marriages are celebrated by the couple and their close network according to tradition, without official registration. Non-marital births within the context of cohabitation, i.e. not a *de facto* marriage, have also been rising. The latter case appears in premarital cohabitation that is also frequent by tradition. Non-marital births that can be attributed to a lone mother are rather rare; there is no information about its trend.

Fertility: Russia

The period TFR in Russia dropped below the replacement level in the late 1960s. During the 1970s, fertility was relatively stable, with the period TFR having been between 1.90 and 2.05. The 1980s witnessed the last notable fertility increase in Russia before the start of recent major societal changes: the TFR rose from 1.87 in 1980 to 2.23 in 1987. Beginning from 1988, the trend began to reverse and fertility

decline began to be resumed. The bottom was hit in 1999, when the TFR dropped to 1.16. Then, it has been gradually growing to reach 1.34 in 2004.

A number of studies show that the fertility increase of the 1980s was mainly the result of governmental policy intervention introduced in 1981-1983 (Zakharov and Ivanova 1996, Zakharov 1997, 1999, Avdeev and Monnier 1995, Avdeev 2003). The policy measures had a strong effect on the childbearing behavior of the Russian population – fertility rose at almost all reproductive ages. However, the ultimate family size did not change much. The measures introduced mainly changed the timing of births – first and second births were witnessed at earlier ages in life. As a result, an accelerated transition to a two-child family model was observed. Thus, the fertility decline that started after 1987 is assessed as a consequence of the previous increase and only the period since the mid-1990s is considered to be subject to a real fertility decline.

The advancement of fertility to earlier ages in life prevailed until the early 1990s. In 1990, the mean age of women at first birth was 22.6 years; in the early 1990s it dropped by 0.1. Since union formation and childbearing are closely interrelated life events, an explanation of the rejuvenation trend in first birth is likely to be the same as in the case of first marriage (see the previous section).

Since 1995, the mean age at first birth has been increase to reach 24 years in 2004 (Naselenie Rossii 2004, 2006). The postponement in fertility caused a tempo effect in the TFR. Due to the lack of data, the effect could be estimated only towards the onset of the postponement trend, i.e. at a time when the tempo effect was moderate. Philipov and Kohler (2001) estimated, for example, that the tempo-free TFR decreased from 1.63 to 1.45 in 1995 through 1997.

In Russia, the universality of childbearing prevailed until the 1990s. The total fertility rate for first childbirth dropped significantly during the 90s. Its tempo-free equivalent decreased from 0.98 in 1995 to 0.81 in 1997. The fertility decline observed during the second half of the 90s probably has caused a rise in moderate voluntary childlessness, although this is not evident yet from cohort fertility: the latter indicates that childlessness in the cohorts of women born in the mid 30s to the late 60s is stable and constitutes 7-8% (Vishnevsky 2006).

This brief review suggests that demographic trends in Bulgaria and Russia have been similar. Both populations experienced universal and early entry into marriage and childbearing before the start of the transition; in both populations postponement of both events took place after the start of the transition. Cohabitation increased but remains moderate, and non-marital births increased, too.

3. Data and methods

Data used

We use the Generation and Gender Surveys (GGS) carried out in 2004 in both countries¹. The two surveys were organized as the first wave of a panel. The sample in the Bulgarian survey includes 5851 men and 7007 women, 12858 persons in all, with an age span ranging from 18 to 79 completed years. The sample size until age 45 is twice as large as that for the ages above 45. The sample is stratified. The sample size of the Russian GGS is 11261 persons (4223 men and 7038 women), and the age span is the same as in the Bulgarian survey. There is no age-specific over-sampling in the Russian survey. Both surveys were still in the process of cleaning at the time of writing this report. We have performed our own cleaning but do not report about it here because it affected less than 1% of the sample.

Kish weights were applied in the analysis on Russia to reduce the bias related to the sampling procedure. A multistage probability sample was employed for the country. First, a list of 2,029 raions (similar to counties) was created. They were assigned to 38 strata based on geographic factors, the level of urbanization and to a certain extent on ethnicity. Only some remote areas and Chechnya were eliminated. Moscow city, Moscow Oblast and St. Petersburg city constituted three self-representing strata and the remaining non-self-representing raions were allocated to 35 strata of relatively equal size. One raion was then selected from each non-self-representing stratum, using the method of “probability proportional to size”, i.e. the probability of a raion in a given non-self-representing stratum to be selected was directly proportional to its population size. Within each selected primary sample unit, the population was stratified into a urban and rural substrata, and the target sample size was proportional to the two substrata. The required number of dwellings was selected systematically, starting with a random address in the list. Finally, the Kish procedure was employed to select an adult from the household (Kosolapov, Zakharov et al. 2005).

Questions on the timing of specific events inform about the date at which the event took place. The date is measured in years and months. We consider the middle of the reported month as the exact timing of an event.

Life tables. Formal framework

We apply life tables as the main method of analysis. As to the transition process, we use two types of life tables: single-decrement and multi-decrement ones. The latter also are known also as competing-risk life tables. This section provides brief information on the basic formulae and methods of estimation used. The existing literature gives more details. Blossfeld and Rohwer (2002), for example, provide an

¹ For more details about the Generations and Gender Programme (GGP) and the Gender and Generation Surveys (GGS), see the website of the Population Activities Unit of the United Nations Economic Commission for Europe (UNECE PAU) (<http://www.unece.org/pau/ggp>), which is the coordinator of the Programme, and the website of the Max Planck Institute for Demographic Research (<http://www.demogr.mpg.de>).

introduction to the single-decrement case; Gichangi and Vach (2005) give a detailed introduction in the competing-risk perspective. Hoem (2001) provides a concise description of both cases.

Let T_i denote the time to transition experienced by individual i . For example, if the transition is entry into first union, T_i is the exact age of entry into this union experienced by individual i . We leave out index i to ease the notation. We also omit a discussion on censoring. T is a random variable with a cumulative distribution function $F(t)$, sometimes termed as failure function, and survival function $S(t)$ defined as follows:

$$(1) \quad F(t) = P[T \leq t], \quad S(t) = 1 - F(t).$$

$S(t)$ is the basis of a single-decrement life table. It is estimated from the data, using the help of the Kaplan-Meier estimator:

$$(2) \quad \widehat{S}(t) = \prod_{k=1}^t \left(1 - \frac{d_k}{n_k}\right).$$

Time is a discrete variable in the estimator. In the GGS data, each unit of time is equal to one month; hence the product is taken over the number of months from the time at which exposure begins until the time of the event. With entry into first union, time is measured since birth and $t=1$ denotes the first month of birth. The variable d_k is the number of transitions during the k -th month, and n_k is the number of persons who have not experienced the event until the beginning of the k -th month. More strictly, n_k is the number of person-months contributed by censored and non-censored observations.

We make use of the estimated values of the cumulative distribution function presented in percentages, in accordance with Andersson and Philipov (2002). For example, Table 5.2 shows that the cumulative percentage of Bulgarian men who ever have entered into first union by age 40 is 74 points, according to the life table estimated for the period 1999-2003, i.e. 74 out of 100 men aged exactly 40 years ever have been in union earlier in life.

In addition to the cumulative distribution function, we use the hazard rate $h(t)$, defined as:

$$(3) \quad h(t) = \lim_{\Delta \rightarrow 0} \frac{P(T \leq t + \Delta / T \geq t)}{\Delta},$$

where Δ is a narrow time interval. In the data, Δ equals one month. The numerator in the hazard rate denotes the conditional probability that the event of interest will take place during the month that starts at time t , given that the subject did not experience the event before exact time t . The hazard is a rate because the denominator is measured in units of time. The estimation of the hazard rate for the j -th month is simple:

$$(4) \quad \hat{h}(j) = \frac{d_j}{n_j} .$$

It is the ratio of the number of subjects d_j who experience the event to the number of all subjects n_j who are exposed to the event (more strictly, the number of person-months contributed by censored and non-censored subjects). In the example of entry into first union, it is the number of men aged exactly 40 who have entered first union during the following month divided by the number of all men aged exactly 40 who have never been in union before age 40.

The formulae above refer to the case of single-decrement. They can be extended for more than one decrement, say k in all. Decrements are also known as risks. For example, the entry into first union can either be into non-marital cohabitation or into first marriage (not preceded by non-marital cohabitation). Then the number of risks is $k=2$. Thus, non-marital cohabitation and first marriage are competing risks of entry into first union.

The cumulative distribution function $I_r(t)$ is the extension of $F(t)$, defined as:

$$(4) \quad I_r(t) = P[T \leq t, R=r] ,$$

where R is a random variable defined over the risk set k , and $r=1,2,\dots,k$. The function $I_r(t)$ is frequently termed as the cumulative incidence function.

The risk-specific hazard rate is:

$$(5) \quad h_r(t) = \lim_{\Delta \rightarrow 0} \frac{P(T \leq t + \Delta, R = r / T \geq t)}{\Delta} .$$

Its estimate is:

$$(6) \quad \hat{h}_r(t_j) = \frac{d_{rj}}{n_j} .$$

In the example of entry into union, let $r=1$ denote entry into non-marital cohabitation. Then d_{rj} is the number of men who have entered non-marital cohabitation during the month immediately after the exact age t_j , and n_j is the number of all men aged exactly t_j who have never been in any union before this age.

The cumulative incidence function is estimated as:

$$(7) \quad \hat{I}_r(t_j) = \sum_{k=1}^j \hat{h}_r(t_k) \hat{S}_{KM}(t_k) .$$

The summation is done over all relevant periods of time until time t_j . In the example of entry into first union at age 40, it is done over all of the $40 \cdot 12 = 480$ months since the birth of the subject surveyed. For each time-period, the survival function is

estimated with the Kaplan-Meier estimator disregarding the risk-specific transition, and it is multiplied with the estimate of the risk-specific hazard.

Formula (7) shows that the number of competing-risk life tables is equal to the number of risks. In the case of entry into first non-marital union or of entry into first marriage, the risks are two, and the life tables are two. One life table describes the process of transition to first non-marital union, with entry into first marriage as the competing risk, and the other life table refers to first marriage with first cohabitation as the competing risk.

Instead of using formula (7), it is possible to make a simplified life table estimation of one of the risks, using formula (2) by treating transitions caused by other risks as censored at the time of transition. Suppose the interest of study is in first marriages not preceded by prior cohabitation. Then first non-marital cohabitation before marriage is a competing event, and the observations for subjects who have experienced this event can be considered as censored at the time of transition to cohabitation. This approach is correct under very special conditions. A fundamental requirement to the censored observations is that the process leading to censoring should be independent of the process under study, i.e. that censoring does not have an effect on the outcome of the process. The requirement must be fulfilled in order to treat competing events as censored. This means that the competing risks should be independent. When the risks are not independent, using formula (2) instead of (7) may lead to significant bias in the estimation of the life table.

It can be seen from (5) that the sum of the risk-specific hazards over all risks is equal to the overall hazard, as specified in (3). Hence, the sum over all risks of the estimated risk-specific cumulative incidence functions defined in (7) is equal to the estimate of the overall “failure” function (the latter is equal to $\hat{F}(t) = 1 - \hat{S}(t)$). The cumulative incidence rate for entry into first non-marital cohabitation with first marriage as a competing risk among Bulgarian men in the period 1999-2003, expressed in percent is 57% (Table 5.6a); the incidence rate for their risk of entry into first marriage with cohabitation as a competing risk is 16% (Table 5.6b) and their summation gives the overall failure rate of 74% (table 5.2); a difference of 1% is due to rounding error.

Application of life table methods

We closely follow the life table construction approach developed by Andersson and Philipov (2002; hereafter, the acronym AP is used for Andersson and Philipov). The AP life tables were constructed to fit the FFS² data. Some of our life tables are equivalent to the corresponding AP life tables. Thus, we can make comparisons with the results reported for 14 European countries. Life tables can have a wider application in the GGS data because the sample size is larger and the age range is wider, too. Real cohort life tables can be constructed as well as synthetic ones for different time periods preceding the survey date.

² FFS is the acronym for Fertility and Family Surveys, carried out during the 90s in more than 20 countries in Europe, North America and New Zealand.

We make use of these opportunities. We construct synthetic-cohort life tables for three periods of time. The first one, 1985-1989 including, describes the pre-transition demographic status in the two populations. The second period, 1990-1994, refers to the beginning of the transition, and the third includes the years 1999-2003, thus showing the most recent patterns.

The AP life tables were constructed using a time period of six years prior to the survey date. This wide “window” assures that the number of observations is sufficiently large to make the results reliable. This was necessary because in some countries the minimum age of the FFS sample was higher than 18 (hence left censoring would have been problematic). We instead use a time period of five years. This is because our sample sizes are larger than those in the FFS surveys and the effect of left censoring is minor.

In addition to the three synthetic types of life tables, we construct life tables for real cohorts. We use four cohorts born in 1940-44, 1950-54, 1960-64, and 1970-74. They correspond to the following age groups at the time of interview: 60-64, 50-54, 40-44, and 30-34.

In the text, we frequently interpret the cumulative percent as the level of the corresponding event reached at the indicated age. When the level is not expected to increase after this age, we refer to it as the “ultimate” level reached by the real or the synthetic cohort (depending on the life table that has been applied). For example, the ultimate level of parenthood among Russian women according to the 1999-2003 period life table is 92% (i.e. 8% will remain childless).

All computations were performed using the statistical package *Stata*, Release 9 (StataCorp 2005) and our own programming in *Stata*. Competing-risk (multi-decrement) cumulative incidence functions were computed using the program `stcompet` (Coviello and Boggess 2004). E. Convello made available to us an improved version of the program.

We tested the calculation procedure by comparing our calculations with the published estimates from the 1994 Russian micro-census. We carried out the check-up of of the cumulative percentage of those who have never married, and of the interval between first marriage and first birth. In both cases, we received an excellent fit. A relative testing of the programs was done by comparisons with estimates done independently by G. Andersson for Russia, which also produced fitting results.

We frequently provide graphs of smoothed hazard curves. These curves are much easier to understand and to comment than cumulative curves of survival or failure, and they present in a concise manner a wide array of tabulated data. The schedules received this way are similar to those that would be obtained using age-parity-specific demographic rates for the same event. The schedules should be interpreted with care, however, since they are the result of a smoothing procedure, briefly described below.

The hazard rate, estimated either by (4) or (6), includes in the numerator the number of events that have occurred within a month to a population that is of equal age at the beginning of the month. The number is equal, usually 0 or 1 and rarely more than 1. The hazard, therefore, will be a very small number or zero, and its curve does not

make sense without previously having been smoothed. We apply the smoothing procedure elaborated by *Stata* (with the exception discussed below). It is based on weighted kernel-density estimates. The kernel density is a function that can be defined in diverse ways (details are found in the explanation of the command `kdensity`, StataCorp 2005). The estimate of the function at a specific point is computed by using the values of the hazard that lie, say, n years to the left of the point and n years to its right. Width n was estimated to be a value between one and two years. When it is equal to 1 year (12 months), for example, the estimate of the point is done by using all hazard values situated within 1 year to the left and 1 year to the right of the point. This method of smoothing may produce biased results for points of the kernel function whose distance from the start of time is smaller than the width. This is because the number of observed hazard values drops, i.e. the estimate is truncated on the left. This was observed when smoothing the hazard shown in Figure 7.1 for ages below 1 year with a width equal to 1 year. The hazard smoothed as of point 0 would show an increase from age 0 to age 1, and a subsequent decrease. The initial increase is the result of the smoothing procedure while the real schedule may have its highest value at age 0 or 1-2 months later and monotonously decrease thereafter. Specifically for this hazard, i.e. to handle truncation, we used the package `sthaz` developed by K. Simon (downloadable) No left or right truncation effect was found in all other smoothed hazards.

Changing the width improves the smoothness of the curve because a larger number of hazard values is included in the estimate. However, a large width may produce artifacts. For example, a mode may take an unrealistic position too far to the right and the curve would amplify postponement effect. When the curve is not smooth, it may contain more than one mode, or may exhibit partially unusual forms. We have studied diverse curves in detail and included in the text those that have been found stable and characteristic of the relevant data. *Please note that the schedules should be regarded with care.*

The number of individuals who have not experienced the event of study decreases with the advancement of age (or time). Hence, the number may become as low as a few persons, say three, although the sample sizes are large. Suppose that one of them experiences the event of interest at a certain age. Then the hazard will be equal to $1/3$: which is a very large value compared to those observed at earlier ages when the population at risk was larger. Analogously, the cumulative failure function, or the cumulative incidence function, will change significantly at this advanced age. This is a typical outlier effect. To avoid artifacts due to outliers in the text, we discuss life table values whose estimate is based on a population at risk not lower than 15 individuals. AP (2002) applied this approach as well. The tables in the Appendix include estimates, marked in red, when the population at risk is lower than 15. In addition, whereas AP removed events under age 15, we removed events under age 14 and did so because the mean ages of events such as entry into first union or first childbirth are very low in both countries and events at age 14 are not unlikely, particularly among the ethnic group of Roma in Bulgaria.

We make use of several indicators that summarize the information given by the life tables. One is the mean age at transition, conditional on transition until a certain age. For example, the mean age of entry into first union is the mean age of individuals (men or women) at the time of entry into first union. It is estimated until age 40 in

order to avoid the effect of outliers. The mean age at transition thus defined is conditional on the age at truncation. The age at truncation is indicated in all tables where this conditional mean is presented.

Diverse percentiles are additional summary measures included in the tables that follow. The 10% percentile, also known as the first decile, is the age at which 10% of the population has experienced the event. It is equal to t for which $\hat{F}(t) = 0.10$. This age can be interpreted as the age at which the event of interest has started proliferating in the population. The 50% percentile (the median), the 75% percentile, known as the third quartile, and the 90% percentile are also included in the tables. However, in a number of cases the higher deciles could not be estimated. This is because the population did not reach the corresponding level; their values were frequently affected by outliers. This is an additional reason not to include them in the tables.

We supply 95% confidence intervals for the cumulative percents and for the summary indicators. They were estimated directly by *Stata*. In some cases, the estimation is not a straightforward one. An interested reader will find more details on the case of single-decrement survival or failure function and summary indicators in the *Stata* handbooks (Statacorp 2005), and in Coviello and Bogess (2004) on cumulative incidence rates.

4. Separation from the parental family

The first substantive topic analyzed in this paper by using life tables is separation from the parental family. The demographic literature mostly focuses on physical separation in terms of leaving the parental home and moving to another dwelling. Leaving the parental home is one of two possible expressions of separation from the parental family. The other expression is the formation of an own family while staying in the parental home. In the latter case, the family of the parents and the family of the individual under study reside together for some time. Leaving the parental home after the start of first union is not the focus of the study of separation from the parental family as defined above; the earlier event, namely entry into union while staying in the parental home, is an event of major interest.

Some clarification about the terminology used in this chapter is due. Demographic studies on leaving the parental home usually focus on the first time a person involved leaves home and the reference to "first" is usually left out. We follow the practice in this chapter, both for leaving home and for entry into union or for starting an own family. The focus in this paper is on (first) separation from the parental family. It can be the result of (first) leaving the parental home or (first) entry into union. The latter is referred to as the formation of an own family to distinguish the new union from the family of the parents. The family of the parents may include only one parent if the other has died or has left home. We do not distinguish between non-marital and marital union.

Whatever the reason for the separation from the parental family, it marks a new stage in the life course of the young adult concerned. This is the moment at which the person starts thinking of his or her own household, independently of whether it is a single-person one, a new family household, or a collective household (such as a

boarding-house). Leaving home to another dwelling usually denotes the moment at which parental care is either fully interrupted or significantly decreased. Likewise, starting a new family while residing together with the parents means being cut off at least in part from parental care, insofar as the person exchanges care with the member of his or her own family. In Western European countries, the latter form of separation from the parental family is rare. It is common in Eastern Europe, however, where multi-family households have deep historical roots (Hajnal 1982). Traditionally, the new family resides with the man's parents in Bulgaria, while in Russia the choice between the man's and the woman's parental home is guided by the dwelling area.

We carry out the discussion by first focusing on the conventional type of separation from the parental family: leaving home. Next, we discuss a competing-risk approach where the risks for separation include the formation of an own family while staying in the parental home. We also discuss the overall life table reflecting the aggregated effect of risks, i.e. the single-decrement life table for separation from the parental family.

Leaving the parental home

This process is measured by a question that asks the respondents about the date at which the individual left home for the first time to live separately from the parents. The reason for leaving is not specified. It may be a move to another settlement with the purpose to find work or a move to continue studies at a higher-level school or university not available in the settlement in which the parents reside. A specific reason for the men may be enrollment into the army, which is obligatory. Another reason may be moving to a different dwelling to start living with a partner. In the latter case, leaving the parental home coincides with the creation of an own family. In the former cases, the person will start living in a single-person household or in a collective household. The GGS data enables to distinguish between leaving home and starting to live with a partner from the other causes of leaving home. However, they do not differentiate between the reasons within the latter group, such as moving to another settlement to continue studies, or men's obligatory service in the army.

We start the analysis by an international comparison. Table 4.1 gives the cumulative percentage of individuals that have left home by exact ages 30 and 40, as well as the mean age of those who have left home before age 40, for the countries with FFS data as reported by AP (2002), and for Bulgaria and Russia. The 1990-1994 period for Bulgaria and Russia is compatible in time with the periods of the countries for which FFS data on leaving home are available. The measurement of the event in the FFS is the same as in the GGS, the estimation procedures are the same and hence the estimates are comparable.

Table 4.1: Cumulative percent ever leaving the parental home by age 30 and 40

Country	Reference period	At age 30		At age 40		Mean age*	
		Men	Women	Men	Women	Men	Women
Sweden	1978-93	98	99	98	99	20	19
Norway	1974-89	93	98	98	99	22	20
Finland	Men: 1983-92 Women: 1979-89	87	98	89	99	22	20
Austria	1990-96	82	93	91	97	23	22
Flanders (Bel)	1985-92	87	96	91	97	24	22
France	1988-94	86	94	91	94	23	21
Germany (W)	1986-92	90	96	93	98	23	21
Germany (E)	1984-89	90	93	93	95	23	21
Hungary	1988-93	65	80	75	84	25	22
Slovenia	1989-95	77	82	84	88	23	23
Latvia	1989-95	59	64	65	72	24	23
Lithuania	1989-95	66	71	71	73	23	21
Italy	1990-95	49	63	75	80	28	26
Spain	1989-95	64	77	83	87	26	25
Bulgaria	1990-94	74	86	85	90	23	20
Russia	1990-94	84	86	90	93	21	21

* at transition, conditional on transition before age 40

Sources: Bulgaria and Russia, Appendix Table A1; other countries, Andersson and Philipov (2002) Appendix Table 1.

Notes: In Belgium the FFS was carried out in Flanders only. The reference period for the life-table estimates in the FFS countries is defined for the six years preceding the survey year. The corresponding time period for Bulgaria and Russia is the 5-year period 1990-1994.

We make only brief notes for the purpose of comparisons with our countries. Billari et al. (2001) provide a detailed discussion on leaving home, using FFS data. Consider first the cumulative percentage by age 30. Its highest values are observed for men in the two Scandinavian countries and for women in the three Nordic countries. Both men and women in the two Southern European countries, Italy and Spain, are least likely to leave home by age 30, relatively to the other countries. Apparently, leaving home in these countries takes place at much later ages compared with the other countries, indicated by the mean ages. The cumulative percentages for women in Bulgaria and Russia are lower than those observed in Central-Western European countries but they are higher than the percentages observed in Central-Eastern European countries. The observations for men are slightly different: the cumulative percentage for Russian men is about as high as in the Central-Western European group of countries, and the one for the Bulgarian men stands between Central-Western and the Central-Eastern European groups. Thus, in our two countries leaving home before age 30 is more intensive than in the former socialist countries from an adjacent geographic region. The same inferences hold for mean ages.

Where leaving home by age 40 is considered, the comparisons among the countries do not change much. Leaving home has been very extensive during the fourth decade of life in some countries, including men in Bulgaria and Russia. The dynamics of change among women in the two countries is relatively more moderate.

Next, we turn to a comparison between the two countries. Table 4.2 gives the cumulative percent at age 40 and the mean ages at transition, for the periods 1985-1989, 1990-1994 and 1999-2003.

During the 1999-2003 period, the cumulative percentages in Bulgaria were lower than in the 1990-1994 period, but did not change much in Russia. These observations are statistically supported, as is shown by the confidence intervals included in Table 4.2. The mean ages in Bulgaria increased significantly. In Russia, the mean age rose for men but for women we do not find support for a change. Thus, the data in the table indicate a decrease in the rate of leaving home in Bulgaria, but not in Russia. In Bulgaria a postponement of this event is apparent both for men and women; in Russia for men only.

Table 4.2: Cumulative percent ever leaving the parental home by age 40, Bulgaria and Russia

	Experiencing the event by age 40		Mean age*	95% confidence intervals	
	Cumulative percent	95% confidence intervals			
BULGARIA					
Men					
1985-1989	86	82.7 88.8	21.9	21.4	22.4
1990-1994	85	82.0 88.4	22.7	22.2	23.2
1999-2003	81	77.3 84.1	23.0	22.5	23.5
Women					
1985-1989	93	90.2 94.5	19.9	19.6	20.2
1990-1994	90	87.6 92.2	20.0	19.7	20.3
1999-2003	83	80.0 86.3	21.6	21.2	22.0
RUSSIA					
Men					
1985-1989	92	89.3 94.6	21.5	21.0	22.1
1990-1994	90	86.8 92.7	21.3	20.8	21.8
1999-2003	92	88.6 93.9	21.6	21.2	22.1
Women					
1985-1989	94	92.2 95.8	21.3	20.8	21.7
1990-1994	93	90.2 94.8	21.2	20.7	21.7
1999-2003	93	90.3 94.6	21.2	20.8	21.6

* at transition, conditional on transition before age 40

Note: corresponding complete life tables are provided in the Appendix, see Table A1.

As described by level at age 40 and mean age at transition, leaving home in Bulgaria in the 1999-2003 period is considerably closer to the same process observed earlier in the other Central European countries included in Table 4.1. This observation suggests that the trend in Bulgaria develops in the same direction and with a time lag compared to the other former socialist countries. This cannot be stated for Russia, though.

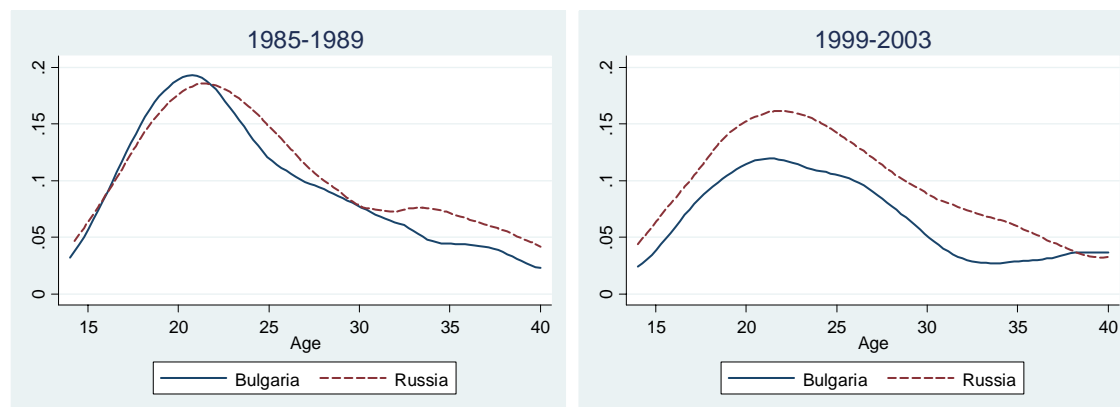
According to tradition, in both countries when a newly formed couple starts living in the home of one of the partner's parents, it is usually the home of the man (the husband, in case of marriage) in Bulgaria while in Russia the parental dwelling with the larger area is preferred. Hence it can be expected that the cumulative percentages

would be higher for women than for men in Bulgaria but not in Russia. The expectation is supported by the data in Table 4.2.

The impact of military service is of importance as well. Military service has changed considerably during the 90s in both countries. The changes were drastic in Bulgaria as the country joined NATO in 2004, calling for preliminary preparatory changes (for example the army was made professional as of 1997). The size of the army largely decreased and with it, the process of leaving the parental home for this reason has weakened or has been postponed to later years in life. In Russia, where obligatory service is considered, the changes were not as drastic³. Apparently, changes in the army service may have caused a specific trend of men leaving the parental home. For this reason, we focus on women in the remaining part of this section.

Figure 4.1 visualizes the smoothed hazard rates of leaving the parental home for the women in both countries. The schedules for the 1985-1989 period are not as different between the two countries; the Russian one is placed slightly to the right, reflecting a slightly higher mean age (Table 4.2). The 1999-2003 schedule for the Bulgarian women is lower than that for Russian women. After age 32, the cumulative percentage for Bulgarian women does not increase considerably as seen from the corresponding life table; the hazard on the figure after that age is low and its form is to be disregarded.

Figure 4.1: Smoothed hazard rates for leaving the parental home, by age, in 1985-1989 and in 1999-2003, Bulgarian and Russian females

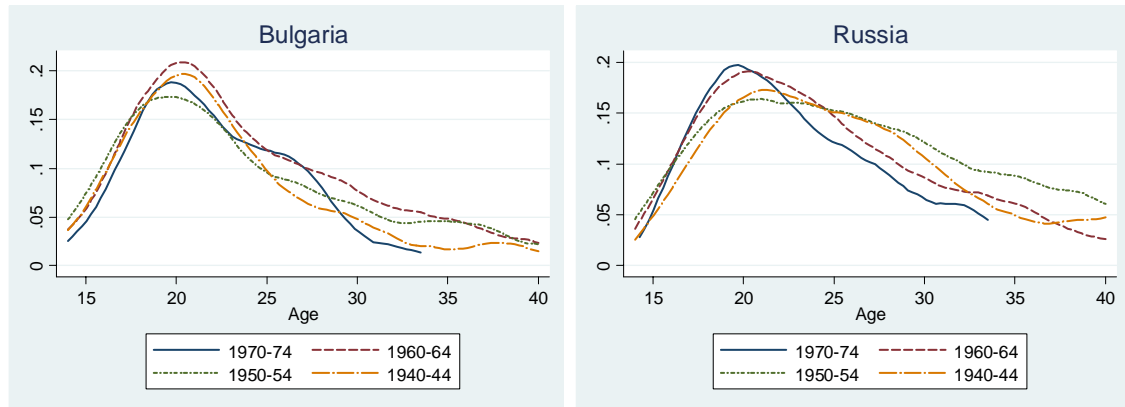


Next, we briefly turn to changes in leaving the parental home by cohorts. Figure 4.2 gives the smoothed hazards for four cohorts, born in 1966-1970, 1956-1960, 1946-1950, and 1936-1940. A log-rank test for the equality of the survival functions for the ages of leaving home before 30 indicates that in Bulgaria the four cohorts do not differ statistically. In Russia, the two younger cohorts exhibit a higher mode and a steeper decline with age after the mode. That is, younger Russian female cohorts tend to leave home earlier than do the older ones. This observation is in line with the

³ More details about the army service regulations can be found in the contextual database of the GGP (see the website of the Max Planck Institute for Demographic Research: <http://www.demogr.mpg.de>).

process of rejuvenation of entry into union that precipitated in this country until about the beginning of the 90s.

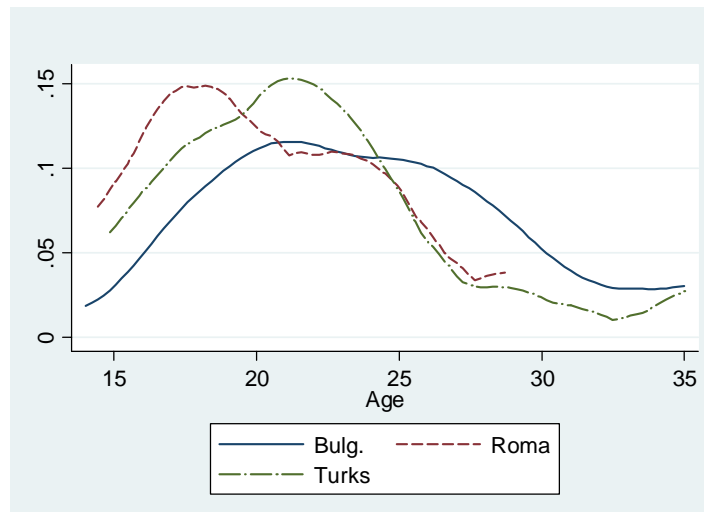
Figure 4.2: Smoothed hazard rates for leaving the parental home by age for four cohorts born in 1940-44, 1950-54, 1960-64, 1970-74, Bulgarian and Russian females



Note: corresponding life tables are provided in the Appendix, see Table A2.

Finally, we display in this section the differences in leaving home by ethnic groups among women in Bulgaria. Figure 4.3 shows that Roma leave home at the youngest age; apparently because of early entry into union. Since Roma make up about 5% of the population in this age group, and Turks form around 10%, it is no wonder that the hazard schedule for the Bulgarian ethnic group is much like the one for the overall population of Bulgarian women displayed in Figure 4.1.

Figure 4.3: Smoothed hazard rates for leaving the parental home by three ethnic groups in 1999-2003, Bulgarian females



Separation from the family of the parents: competing risks

As mentioned in the introduction to this chapter, separation from the parental family can be performed either by leaving the parental home or by starting one's own family while staying in the parental home. Evidently, the two events may coincide in time: this is true when the newly formed couple moves to live somewhere outside of the parental home of the individual whose life course is studied. The latter case can be considered as a separate competing risk in order to avoid time coincidence of the first two risks. Thus, the effect of the following three risks is considered: (i) leaving the parental home before starting a union; (ii) leaving the parental home with the start of a union, and (iii) starting a union while being in the home of the parents. We allow for a difference of one month between the two events in the second risk, i.e. if the two events have taken place in two successive months we consider them as having taken place at one and the same time and hence that the second risk has been experienced.

The pattern of leaving the parental home in the competing-risk approach to the study of separation from the parental family is not the same as the one studied above. First, from the perspective of competing risks, leaving home later than one month after entry into union is disregarded. Second, the estimates of the risks of leaving home before or at the time of entry into union depend on the assumption that the third risk may hold.

A life-table study of separation from the parental family has not been done before and for this reason we do not present comparisons with other results. Using FFS data, Billari et al. (2001) provide descriptive comparisons of leaving home in Europe before, at, and after first union.

Life table extracts are given in Table 4.3. The table displays the ultimate cumulative percents for the three risks; this is the percentage reached at the maximum age when the population exposed to any of the risks has decreased to 15 individuals but not fewer. The maximum age differs among periods, countries, and gender; it is usually between 28 and 35 years (Appendix Table A3 gives detailed information). The table provides the percentages for each risk separately as well as for all risks. The estimate for the aggregated risk was obtained using a single-decrement life table: it is the ultimate percentage reached at the maximum age, usually between 30 and 40 years, when the population at risk is still made up of 15 individuals and not fewer. Theoretically, the sum of the percents for the three risks at a given age should be equal to the estimate from the single-decrement life table at the same age, but they do differ in Table 4.3 because ultimate percentages for separate risks have been reached at different ages.

The cumulative percents for the third risk, starting an own family in the home of the parents, is significant in both countries, justifying the consideration of the event in the estimations. Billari et al. (2001) showed descriptively that this observable fact has been common to most Central and Eastern European countries. It is a topic that needs detailed deliberation; however, here we sketch only a few observations. In both countries, the ultimate level of starting an own family in the home of the parents has dropped drastically in the third period for men and for women. Probably tradition is giving way to a contemporary behavior; this is an important transformation and needs

rigorous consideration. In Bulgaria, the drop is due mainly to the relative increase in first risk: increasing mobility of the population during the transition period probably leads to a decline of tradition. Postponement of entry into unions may play a role as well. In Russia, there is indication of another tendency among men: a relative increase in starting an own family along with leaving home is observed. Where Russian women are considered, it is not as apparent to allocate the reason for the drop in the third risk.

The second risk is very low among Bulgarian men, but it is highest among women. This observation can be explained by the tradition that a new family is more likely to live with the parents of the man than with the parents of the woman. The same observation holds for Russia but is not as pronounced as in Bulgaria.

Table 4.3: Ultimate cumulative percents and mean ages for three competing risks for separation from the parental family (risk definitions are given under the table)

	Cumulative percent, ultimate				Mean ages, at transition before age 40			
	Risk 1	Risk 2	Risk 3	All, ultimate level *	Risk 1	Risk 2	Risk 3	All
BULGARIA								
Men								
1985-1989	38	11	40	96	20.3	22.9	23.0	21.8
1990-1994	36	11	41	94	21.4	23.4	22.9	22.4
1999-2003	44	12	26	88	23.1	24.9	23.9	23.6
Women								
1985-1989	26	43	25	97	18.6	20.1	20.6	19.8
1990-1994	24	40	27	97	19.3	20.0	20.5	20.0
1999-2003	33	34	21	92	21.9	21.4	23.1	22.0
RUSSIA								
Men								
1985-1989	43	13	36	93	19.1	23.7	22.1	21.1
1990-1994	40	15	37	95	19.9	23.1	22.4	21.4
1999-2003	36	20	24	94	21.0	22.3	22.6	21.8
Women								
1985-1989	35	21	40	96	18.8	21.2	20.4	20.0
1990-1994	25	29	41	96	19.6	19.8	20.4	20.0
1999-2003	27	26	36	95	20.0	20.8	20.9	20.6

Risk 1: ever leaving the parental home before starting a first union, competing events: leaving the parental home with a first union and starting a first union before leaving the parental home.

Risk 2: ever leaving the parental home with starting a first union, competing events: leaving the parental home before a first union and starting a first union before leaving the parental home.

Risk 3: ever starting a first union before leaving the parental home, competing events: leaving the parental home before a first union and leaving the parental home with a first union.

Note: corresponding complete life tables are provided in the Appendix, see Table A3.

*) The sum of the percentages given for the three risks differs from the percentage given in this column because ultimate levels are achieved at different ages. Appendix Table A3 gives details.

All risks taken together describe the overall process of separation from the parental family. There is a notable drop in the ultimate level in Bulgaria, both among men and

women, towards the beginning of the 21st century. That is, there is a relative increase in individuals who have never had an own family and live with their parents. One reason for this observation may be postponement of entry into first union. Meanwhile, in Russia, the ultimate level remains relatively stable and exceeds 90% for both genders.

The mean ages in Bulgaria show an increasing postponement of the three events during the 90s, both for men and women. The postponement probably creates a tempo effect that lowers the cumulative percent during the same period. An adjustment for this tempo effect is likely to raise the ultimate levels for each risk, and for all risks combined it is likely that the tempo-adjusted level will get closer to the one observed in the 1990-1994 period. Changes in the mean ages in Russia are more varied. We do not discuss them here, although some signs of postponement may also be seen.

5. Marital and non-marital union

In this chapter, we provide a descriptive analysis of unions. We distinguish between non-marital and marital unions. We term the former “cohabitations”, and the term “union” denotes either cohabitation or marriage. We consider first unions only since the number of repeated unions is small in the two countries. The first section of this chapter concentrates on entry into first union, either marriage or non-marital cohabitation. In the second section, we study union duration.

5.1. Experience of union formation

Entry into first union: single-decrement perspective

First, we compare Russia and Bulgaria with other European countries (Table 5.1). The mean ages indicate that Russia and Bulgaria have the youngest age of entry into first union in Europe; there are a few exceptions for men whose mean age at first union rank with the mean age of men from a few other countries. Russian women have reached near-universality of entry into union at age 30, as indicated by a percentage level higher than 90. Bulgarian women aged 30 are close to universality; indeed, the latter is achieved towards age 40. The mean ages and levels observed in Bulgaria differ significantly from the corresponding observations for the two Southern European countries.

Table 5.1: Cumulative percent ever starting a first union by age 30 and 40

Country	Reference period yrs. inclusive	At age 30		At age 40		Mean age*	
		Men	Women	Men	Women	Men	Women
Sweden	1978-93	86	92	93	96	23	22
Norway	1974-89	86	93	95	96	24	22
Finland	Men: 1989-92 Women: 1979-83	78	90	88	95	25	22
Austria	1990-96	76	91	86	96	25	23
Flanders (Bel)	1985-92	80	89	86	93	25	23
France	1988-94	77	85	87	91	24	23
Germany (W)	1986-92	51	69	61	76	26	24
Germany (E)	1984-89	86	90	91	93	24	22
Hungary	1988-93	76	90	85	94	25	22
Slovenia	1989-95	88	94	96	97	25	22
Latvia	1989-95	87	92	87	95	23	21
Lithuania	1989-95	91	93	96	96	24	22
Italy	1990-95	42	62	78	83	30	27
Spain	1989-95	62	80	84	90	27	25
Bulgaria	1990-94	76	88	88	92	24	21
Russia	1990-94	91	93	98	96	23	21

* at transition, conditional on transition before age 40

Sources: Bulgaria and Russia, Appendix Table A4; other countries, Andersson and Philipov (2002) Appendix Table 6.

In all countries, the cumulative percent ever starting a first union towards age 30 is lower for men than for women, which is due to the higher men's mean age of entry into union. Towards age 40, the cumulative percents for men and women are nearly the same in some countries, including Russia but not Bulgaria. We will return to this issue below, where Table 5.2 is discussed.

Table 5.2 displays the cumulative percentages of ever starting a first union at age 40 and the mean ages of entering a first union with the corresponding confidence intervals. The levels reached at age 40 in Russia indicate that there has been no particular change in the universality of marriage when the three synthetic cohorts are considered. In Bulgaria, the levels mark a precipitated decline towards the turn of the century, although this decline was modest in the beginning of the 90s. The process apparently started in the beginning of the 90s and has gained considerable momentum towards the end of the decade.

We estimated life tables for the time-interval of 2001-2003, which comprises three calendar years (estimates not shown). The population at risk is slightly above our boundary of 15 person-months. The cumulative percentage ever starting a first union by age 40 among women in Bulgaria is 76 percentage points, with confidence intervals ranging from 70 to 81 points. This result indicates that the proportion of women who have ever been in union before age 40 is decreasing further below the 82 percentage points shown in Table 5.2. Remaining single has gained some popularity in Bulgaria. In Russia, the level of women ever in union by age 40 did not change over the same 3-year time interval. We do not find signs of rising preferences towards the avoidance of union formation in this country. These observations support the use

of cumulative percentages estimated for a population at risk below 15, discussed in the previous chapter.

The mean ages of entry into first union have grown in Bulgaria, by two years for women and slightly less for men. This trend indicates first union postponement to later years in life. Postponement is moderate in Russia and it is observed among women only. The mean age of Russian women for the 3-year time interval 2001-2003 was the same as that for the wider 5-year period from 1999-2003. The mean age of women in Bulgaria was 23.5, however, more than half a year higher compared to the 5-year period. Postponement of first union entry among Bulgarian women gained momentum at the beginning of the 21st century.

Table 5.2: Cumulative percent ever starting a first union by age 40, Bulgaria and Russia

	Experiencing the event by age 40		Mean age*	95% confidence intervals	
	Cumulative percent	95% confidence intervals			
BULGARIA					
Men					
1985-1989	91	87.7 93.0	23.7	23.4	24.1
1990-1994	88	84.4 90.6	23.8	23.5	24.2
1999-2003	74	69.3 77.7	25.2	24.8	25.7
Women					
1985-1989	93	91.4 95.2	20.8	20.6	21.1
1990-1994	92	89.8 94.0	20.9	20.6	21.1
1999-2003	82	77.8 84.9	22.8	22.4	23.2
RUSSIA					
Men					
1985-1989	96	93.2 97.6	23.5	23.1	23.9
1990-1994	98	96.3 98.7	23.4	23.0	23.9
1999-2003	94	91.1 96.2	23.3	22.9	23.7
Women					
1985-1989	97	95.6 97.8	21.9	21.5	22.2
1990-1994	96	94.8 97.6	21.1	20.7	21.5
1999-2003	96	94.3 97.6	21.6	21.2	22.0

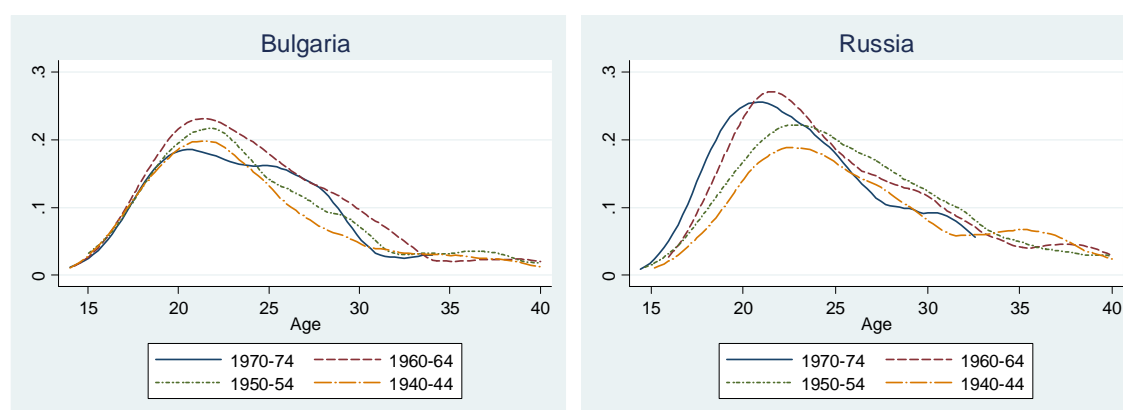
* at transition, conditional on transition before age 40

Note: corresponding complete life tables are provided in the Appendix, see Table A4.

Figure 5.1 displays the hazard curves for four cohorts. In Russia, the curves for the younger cohorts shifted to the left compared to the older ones, which is in line with our observations on the rejuvenation of entries into first marriage in this country described in Chapter 2 and with the results of our analysis of leaving the parental home. Statistical tests show that the two cohorts of women born in 1960-64 and in 1950-54 do not differ significantly. Log-rank tests show that in Bulgaria the youngest cohort differs statistically from the other three cohorts, while the schedules of the three older cohorts do not differ at all. The mode of the youngest cohort's schedule decreased, and a relative increase is observed in the age group 25-29. The change in the schedule is apparently the result of the postponement of the event to later years in life.

With the exception of the youngest cohort in Bulgaria, we do not notice drastic changes at the cohort level compared to the past. It seems that the societal changes need longer time to influence cohort behavior.

Figure 5.1: Smoothed hazard rates for starting a first union of four cohorts born in 1940-44, 1950-54, 1960-64, 1970-74, Bulgarian and Russian females



Note: corresponding life tables are provided in the Appendix, see Table A5.

Finally, we briefly look at the differentials of first union entry by ethnic group in Bulgaria (Table 5.3). The data indicate that there was no particular change in the timing of entry into union between the end of the 80s and the beginning of the 90s. As to the third period, postponement is evident in all three ethnic groups, as indicated by the rise in the mean ages in these groups. However, the confidence intervals show that the change is statistically insignificant for Turkish men and for Turkish and Roma women.

Table 5.3: Mean age* at entry into first union, ethnic groups in Bulgaria

	1985-1989			1990-1994			1999-2003		
	Mean	95% conf. interval		Mean	95% conf. interval		Mean	95% conf. interval	
Men									
Bulgarian	24.3	24.2	24.4	24.3	23.9	24.7	25.9	25.5	26.4
Turks	21.8	21.4	22.1	22.1	21.1	23.1	22.8	21.5	24.0
Roma	19.9	19.4	20.4	19.8	18.6	20.9	22.4	20.9	23.8
Women									
Bulgarian	21.2	21.1	21.3	21.2	20.9	21.5	23.4	23.0	23.8
Turks	19.2	18.9	19.5	19.7	19.0	20.3	20.0	18.8	21.2
Roma	17.9	17.6	18.3	17.8	17.0	18.7	18.6	17.6	19.6

* at transition, conditional on transition before age 40

Entry into first marriage: single-decrement perspective

In this section, we discuss first marriages independently of whether the persons involved have previously been in non-marital cohabitation or not. Thus, for some of

them, first marriage may be a second or even a third union that follows separation from the partner of a preceding non-marital union.

Table 5.4 compares life table results for first marriages in our countries and for the FFS countries studied by AP (2002).

Table 5.4: Cumulative percent ever entering first marriage by age 30 and 40

Country	Reference period yrs. inclusive	At age 30		At age 40		Mean age*	
		Men	Women	Men	Women	Men	Women
Sweden	1978-93	35	46	62	70	29	28
Norway	1974-89	61	71	79	83	27	25
Finland	Men: 1989-92 Women: 1979-83	51	67	69	79	28	25
Austria	1990-96	46	67	62	81	28	26
Flanders (Bel)	1985-92	67	80	--	--	26	24
France	1988-94	44	50	63	68	28	27
Germany (W)	1986-92	31	46	50	59	29	26
Germany (E)	1984-89	70	77	--	--	25	23
Hungary	1988-93	69	84	77	89	25	22
Slovenia	1989-95	68	79	86	85	27	24
Latvia	1989-95	76	79	--	84	24	22
Lithuania	1989-95	88	91	--	94	24	22
Italy	1990-95	39	58	72	81	30	27
Spain	1989-95	52	71	78	85	28	26
Bulgaria	1990-94	67	81	80	86	25	21
Russia	1990-94	81	83	90	88	24	21

* at transition, conditional on transition before age 40

Sources: Bulgaria and Russia, Appendix Table A6; other countries, Andersson and Philipov (2002) Appendix Table 7.

Entry into first marriage is a diverse process over Europe. In some countries, the mean age of its start is beyond age 25 for women and near age 30 for men; in other countries, the average age at first marriages is as early as 22 - 23 years for women and less than 25 for men. The earliest mean age among women is observed in Bulgaria and Russia.

The level of first marriage at age 40 is below 90 percent everywhere except for Lithuanian women. Where the mean age is high, it can be expected that the level will increase slightly beyond age 40; it is unlikely though to expect an increase above 90%. An adjustment for tempo effect is likely to raise the level to some extent but the adjusted level will hardly indicate a universal entry into marriage. Philipov and Dorbritz (2003) show that adjusted first-marriage total fertility rates do not raise to universality in a number of central and Eastern European countries; Winkler-Dworak and Englehardt (2005) compare several adjusted indicators and reach the same conclusion for Austria, Germany, and Switzerland.

The cumulative percentage at age 40 in Bulgaria is lower than that in Russia; the difference is small but it shows that the Bulgarian population is lagging behind the

universality of marriages more so than its Russian counterpart. More information is provided in Table 5.5.

Table 5.5: Cumulative percent ever entering first marriage by age 40, Bulgaria and Russia

	Experiencing the event by age 40		Mean age*	95% confidence intervals	
	Cumulative percent	95% confidence intervals			
BULGARIA					
Men					
1985-1989	88	84.8 90.8	24.4	24.0	24.7
1990-1994	80	76.0 84.2	24.6	24.2	25.0
1999-2003	49	44.4 54.4	26.4	25.9	26.9
Women					
1985-1989	90	87.8 92.5	21.1	20.8	21.3
1990-1994	86	82.7 88.4	21.2	21.0	21.5
1999-2003	62	57.9 67.0	24.1	23.7	24.6
RUSSIA					
Men					
1985-1989	90	86.6 92.9	24.1	23.7	24.4
1990-1994	90	86.9 92.7	23.9	23.4	24.3
1999-2003	78	72.9 82.2	24.7	24.2	25.2
Women					
1985-1989	94	91.8 95.1	22.2	21.9	22.6
1990-1994	88	84.7 90.4	21.5	21.0	21.9
1999-2003	79	75.3 82.9	22.5	22.1	22.8

* at transition, conditional on transition before age 40

Note: corresponding complete life tables are provided in the Appendix, see Table A6.

The confidence intervals for the 1985-1989 period surpass the boundary of 90% in both countries. It is safe to conclude that marriage was universal in this synthetic cohort. The confidence intervals for the next period suggest the same inference for Russia but not for Bulgaria: an end to the universality of entry into marriage has come in Bulgaria in the beginning of the 90s. Finally, in our last period, the level is apparently low in Bulgaria, and the end of marital universality has arrived in Russia. The trend has developed with a lag in Bulgaria compared to other European countries, and with a lag in Russia compared to Bulgaria.

Postponement of first marriage has been significant in Bulgaria. In Russia, we note the continuation of marriage rejuvenation during the first half of the 90s, and return to the pre-transition mean age towards the start of this century.

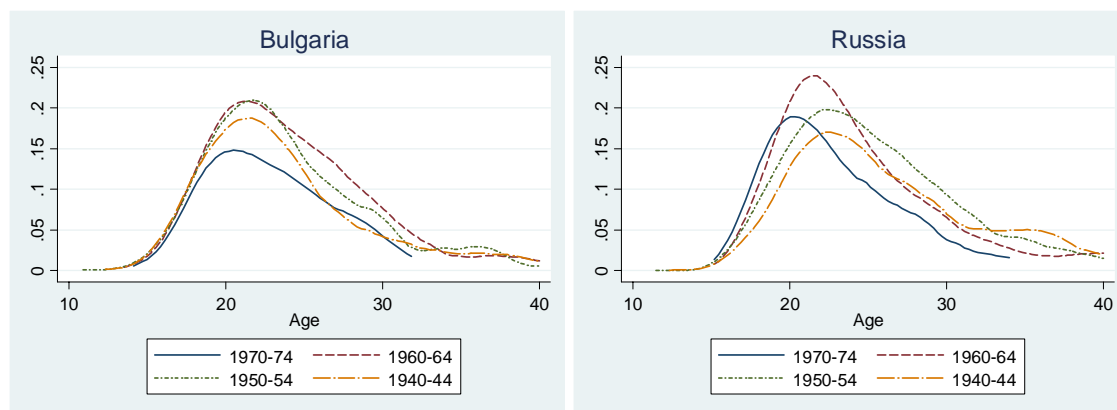
Figure 5.2 displays the hazards of entry into first marriage of four cohorts. The youngest cohort in both countries reveals a different behavior compared to the three older cohorts. This cohort has experienced a pronounced decline in the entry into marriage. In Russia, the curve is shifted to the left of those reflecting the experience of the cohorts born in 1940-44 and 1950-54, and slightly to the left but also downwards compared to the curve of the cohort born in 1960-64. This shift indicates that the

youngest cohort has experienced first marriage earlier than the preceding ones and illustrates the rejuvenation process discussed in the second chapter.

The curve of the youngest in Bulgaria has shifted downwards compared to the three older cohorts; however its part beyond age 25 does not decrease as much as the one that lies below age 25. This cohort probably has experienced modest postponement, although its mean age at first marriage has not changed (Appendix Table A7).

In Russia, the schedule of the youngest cohort's entry into first union did not differ significantly from those of the older cohorts. However, the schedule for its entry into first marriage is considerably lower. A likely explanation is that some non-marital unions do not result in marriage.

Figure 5.2: Smoothed hazard rates for entering first marriage of four cohorts born in 1940-44, 1950-54, 1960-64, 1970-74, females



Note: corresponding life tables are provided in the Appendix, see Table A7.

Entry into first marriage or non-marital cohabitation: competing risks

Tables 5.6a and 5.6b provide the cumulative percentages by age 40 for the two types of entry into first union: in marriage or in non-marital cohabitation, considered as competing risks. We learn that in Bulgaria the cumulative percentage for the first union being a non-marital cohabitation is considerably higher compared to marriage. This is mainly because couples often begin to cohabit a few months before marriage. It is common for this type of cohabitations to start at the time when a date of the forthcoming marriage is fixed. A similar inference is valid for Russia, although the pattern is not as pronounced as in Bulgaria. The observation is supported by the fact that the mean ages of entry into cohabitation are lower than those for marriage.

The trend of first union formation is the same in both countries: union formation increasingly starts as cohabitation, confirming the findings and predictions of previous studies about establishing cohabitations as a new form of household formation in Central and Eastern Europe during the 90s (Lesthaeghe and Surkyn 2002). This observation is of primary significance for demographic analyses on union formation and fertility in the two countries.

Table 5.6a: Cumulative percent ever starting a first union as cohabitation, competing-risk life-table with entry into marriage as competing event

	Experiencing the event by age 40		Mean age*	95% confidence intervals	
	Cumulative percent	95% confidence intervals			
BULGARIA					
Men					
1985-1989	52	47.8 56.2	23.3	22.8	23.7
1990-1994	57	52.3 60.6	23.4	23.0	23.9
1999-2003	57	52.4 61.5	25.2	24.6	25.7
Women					
1985-1989	54	50.6 57.6	20.4	20.1	20.7
1990-1994	60	56.7 63.5	20.7	20.4	21.0
1999-2003	65	61.1 69.3	22.5	22.1	23.0
RUSSIA					
Men					
1985-1989	35	30.3 39.6	22.9	22.1	23.7
1990-1994	47	42.1 51.3	23.2	22.6	24.0
1999-2003	66	61.0 70.2	23.3	22.5	23.4
Women					
1985-1989	34	30.6 38.1	21.6	21.0	22.2
1990-1994	46	41.8 50.0	20.9	20.3	21.5
1999-2003	63	59.1 67.2	21.5	21.0	22.0

* at transition, conditional on transition before age 40

Note: corresponding complete life tables are provided in the Appendix, see Table A8.

Table 5.6b: Cumulative percent ever starting a first union as a marriage, competing-risk life-table with entry into cohabitation as competing event

	Experiencing the event by age 40		Mean age*	95% confidence intervals	
	Cumulative percent	95% confidence intervals			
BULGARIA					
Men					
1985-1989	39	34.4 42.6	24.5	23.9	25.0
1990-1994	31	27.2 35.1	24.6	23.9	25.2
1999-2003	16	13.4 19.7	25.4	24.6	26.2
Women					
1985-1989	39	35.9 42.7	21.3	20.9	21.8
1990-1994	32	28.6 35.1	21.2	20.8	21.6
1999-2003	16	13.2 19.4	23.8	22.9	24.7
RUSSIA					
Men					
1985-1989	61	55.9 65.4	23.9	23.5	24.3
1990-1994	51	46.2 55.5	23.6	23.0	24.2
1999-2003	28	23.5 32.1	24.0	23.3	24.8
Women					
1985-1989	63	58.7 66.3	22.1	21.7	22.5
1990-1994	50	46.2 54.5	21.3	20.8	21.8
1999-2003	33	28.9 36.8	21.8	21.2	22.3

* at transition, conditional on transition before age 40

Note: corresponding complete life tables are provided in the Appendix, see Table A8.

Another important trend is postponement of first union entry to a later age in life, as indicated by the mean ages given in the tables. Postponement has progressed at about an equal pace for the two types of unions; it is fast in Bulgaria and moderate in Russia since the 90s. In Russia, rejuvenation is again notable when the first and the second periods are compared.

5.2 Duration of first union

Does the drastic rise in the preferences to start a union with cohabitation indicate that cohabitation is an increasingly preferred stable form of union? We can approach this question by studying duration of cohabitation.

First, union is the unit of analysis in this section, i.e. it is the "individual" whose experience in time is studied. The date of origin i.e. the start of a life table, is defined at the date at which the union was formed. Distribution by sex of the respondents is disregarded; the unions are treated as a uni-sex unit. However, we consider only responses of women since advanced-age unions may come to an end owing to the death of the partner: as mortality is higher among males it is likely that the sample will include a larger number of widowed females than males.

Duration of first cohabitation

We start with a discussion on the duration of first non-marital cohabitations. They may later result into marriage, they may end with the separation of the two partners, or they may end because one partner dies. We estimated competing-risk life tables for the two risks: transition to marriage or separation. The estimates we produced were very sensitive because of the small number of observations made. For this reason, we omitted the life tables on the transition from cohabitation to separation with marriage as a competing event. Table 5.7 provides the cumulative percentages and their 95% confidence intervals at the exact number of years after the start of cohabitation, indicated in the left column of the table. The sixth year is the last one because the population at risk becomes too small after that year.

The table indicates that the transition to marriage as a very intensive one during the first period. At this time, most of the cohabitations were a start to living together several months before a planned marriage. In Bulgaria, nearly all cohabitations turned into marriage within six years after the start. In Russia, 19% of cohabitations did not result in marriages within six years.

Table 5.7: Cumulative percent of cohabitations that turn into marriages by the indicated exact year, with separation as a competing risk (based on the responses of female respondents)

Years	1985-1989			1990-1994			1999-2003		
	Cum. percent	Conf. Interval low	high	Cum. percent	Conf. Interval low	high	Cum. percent	Conf. Interval low	high
Bulgaria									
1	77	81	73	63	67	59	38	43	33
2	87	90	84	74	78	70	50	55	45
3	92	94	88	79	82	75	55	60	50
6	95	92	96	84	80	87	61	56	66
Russia									
1	53	59	46	44	50	38	27	31	22
2	67	73	61	57	63	51	40	45	35
3	72	77	65	62	67	55	48	54	43
6	81	75	86	65	58	71	54	48	58

Note: corresponding complete life tables are provided in the Appendix, see Table A9.

During the next two periods, fewer cohabitations resulted in marriage in both countries. The decrease in the second period indicates that in the synthetic cohort of Bulgaria approximately 16% of cohabitations will not turn into marriages (and will not end with a separation). The decrease is drastic during the third period. Nearly half of the cohabitations in the 1999-2003 synthetic cohort in Russia will not result in marriage, and the same holds for nearly 40% of cohabitations in Bulgaria. Hence, in this country cohabitation as an alternative to marriage emerged in the beginning of the 90s and extended thereafter. Russia has experienced a low level of cohabitation before the start of the transition (still higher than that in Bulgaria) but during the transition it experienced a precipitate spread. In both countries, cohabitation has come to be an alternative to marriage, although its traditional form of a prelude to marriage is also commonly observed.

The level reached in Bulgaria in the second period is commensurate with that observed in Russia during the first period, and a similar lag is observed when comparing the third period in Bulgaria with the second period in Russia. Thus, while in the events of union formation Russia lagged behind Bulgaria, the inverse is observed in the transformation of cohabitations to an alternative to marriage.

Duration of first marriage

In this section, we address the duration of first marriage. The starting time is the date of entry into first marriage. This date may (i) coincide with the start of a first union, (ii) follow after the start of a first cohabitation resulting in marriage, or (iii) follow the dissolution of one or more non-marital cohabitations. Here, we do not distinguish between the three origins of a first marriage.

We describe the duration of first marriage until separation, which may be a divorce or the death of the partner. Hence, we apply a competing-risk estimation approach. The death of the partner is a low risk among younger respondents; however its effect

grows with time elapsed after the start of the marriage, i.e. with advancing years into the marriage. Mortality is considerably higher among males, particularly during the beginning of the 90s in Russia, and therefore an estimate based on their responses is likely to show a higher level of marriage survival compared with the responses of women. For this reason, we consider the responses of the women only. Thus, the results are conditional on the survival of women to report the event of interest. Tables 5.8a, 5.8b and 5.8c display the results of the estimations.

Table 5.8a shows that an end of first marriage due to the death of the husband is a rare event before 30 years into marriage. Recall that the average age of women at first marriage is about 23 years. Hence, they are about 53 years old at the time of 30 years into marriage and the husbands are about 56 years old. In Bulgaria, about 7 to 9% of marriages end because of the male partner's death. This level did not change considerably from 1985-1989 to 1999-2004. In Russia, this percentage increased during the second period when a significant male over-mortality was recorded (Shkolnikov et al., 2004). The difference between the two countries is apparent.

Table 5.8a: Cumulative percent of first marriages ending because of the death of the partner, with divorce as competing event, in years after the start of the marriage (based on the responses of female respondents)

Years	1985-1989			1990-1994			1999-2003		
	Cum. percent	Conf. Interval low	High	Cum. percent	Conf. Interval low	high	Cum. percent	Conf. Interval low	high
Bulgaria									
10	2	1	3	1	0	2	1	0	2
15	2	1	3	2	1	4	2	1	3
20	3	2	5	3	2	4	3	2	4
25	6	4	9	5	3	7	5	3	7
30	9	7	12	7	5	10	9	6	11
35	15	11	19	14	11	18	12	9	15
40	21	16	26	20	16	24	19	16	23
Russia									
10	2	1	3	4	3	6	3	2	6
15	4	3	5	6	5	8	5	3	7
20	6	4	8	9	7	12	6	5	9
25	10	8	13	13	11	16	9	7	11
30	14	11	18	17	14	20	12	10	15
35	19	16	23	22	19	26	18	15	21
40	25	21	30	29	25	33	25	21	28

Note: corresponding complete life tables are provided in the Appendix, see Table A10.

Table 5.8b: Cumulative percent of first marriages ending because of divorce, with the death of the partner as competing event, in years after the start of marriage (based on the responses of female respondents)

Years	1985-1989			1990-1994			1999-2003		
	Cum. percent	Conf. low	Interval High	Cum. percent	Conf. low	Interval high	Cum. percent	Conf. low	Interval high
Bulgaria									
5	4	3	6	4	3	5	6	4	8
10	8	6	10	8	6	10	9	7	12
15	10	8	13	11	9	13	12	9	15
20	11	8	13	13	10	15	13	10	16
25	11	9	14	14	11	17	14	11	17
30	12	9	15	15	12	18	15	12	18
Russia									
5	10	8	13	13	10	16	16	13	20
10	14	12	17	20	17	23	26	22	30
15	20	17	23	24	21	28	32	27	36
20	23	19	26	27	24	31	35	31	39
25	25	21	28	29	25	33	37	33	42
30	26	22	30	30	27	34	38	34	43

Note: corresponding complete life tables are provided in the Appendix, see Table A10.

Table 5.8c: Cumulative percent of first marriages ending because of divorce or the death of the partner, in years after the start of the marriage (based on the responses of female respondents)

Years	1985-1989			1990-1994			1999-2003		
	Cum. percent	Conf. low	Interval high	Cum. percent	Conf. low	Interval high	Cum. percent	Conf. low	Interval high
Bulgaria									
5	5	4	7	5	3	6	6	4	9
10	9	7	12	9	7	11	10	7	13
20	14	12	18	15	13	19	16	13	19
25	18	15	22	19	16	22	19	16	22
30	21	18	26	22	19	26	24	21	28
40	33	28	39	35	31	40	35	31	40
50	--	--	--	(52) ⁽¹⁾	46	60	51	46	56
Russia									
5	11	9	14	15	12	18	18	14	22
10	16	14	19	24	21	28	29	25	34
20	29	25	32	37	33	40	41	37	46
25	35	31	40	42	38	46	46	42	50
30	40	36	45	47	43	51	51	47	55
40	53	47	59	59	55	64	64	60	68
50	--	--	--	(70) ⁽¹⁾	60	80	79	76	83

Note: corresponding complete life tables are provided in the Appendix, see Table A10.

⁽¹⁾The population at risk is lower than 15 individuals.

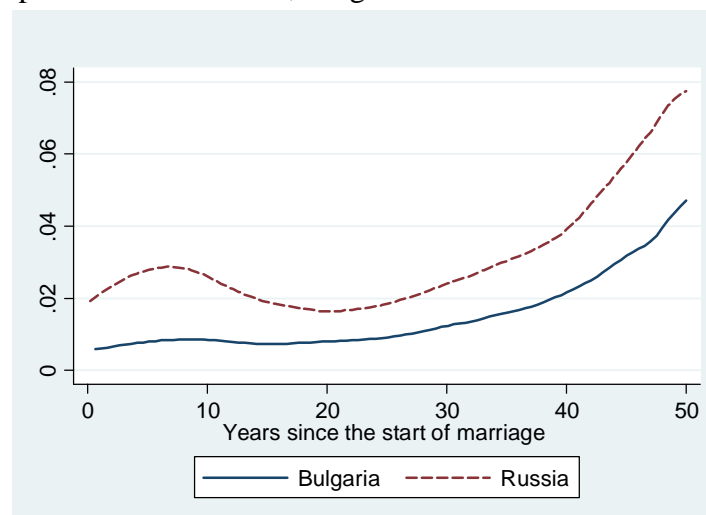
The risk of marriage breakdown due to divorce is considerably higher during the first decades of the marriage (Table 5.8b). Divorces in Bulgaria slightly declined during the 90-s while in Russia they were on the increase. We study divorces in more detail in the next section.

Table 5.8c demonstrates the effect of both risks together. We recall that the numbers in Table 5.8c should be equal to the sum of the numbers from the corresponding cells in Tables 5.8a and 5.8b. The table shows that the duration of marriage in Bulgaria did not change considerably. It decreased significantly in Russia. The previous two tables show a decrease in the effect of a husband’s death and an increase in divorces; the latter has dominated significantly.

It is curious to trace changes and compare the celebrated 25th and 50th wedding anniversaries, known as the “silver” and the “golden” weddings correspondingly. The estimates for the 50th anniversary in the second period are subject to accepting a small number of the population at risk. In Bulgaria, about 18-19 percent of these weddings will not survive to the silver one, and about half of the couples will not celebrate the golden wedding. In Russia 35%, 42% and 46% will miss the silver celebration in the first, second, and third period respectively, while the golden anniversary will be missed by some 80% of the couples in the third period. We recall that these numbers are interpreted using results for a synthetic cohort, conditional on the survival of the wife until the considered age of marriage.

Figure 5.3 presents the hazards for marital breakup by duration of the marriage. Note that the schedule looks like a mortality curve with high “child mortality”. The initial mode is due to the prevalence of divorce in the first years into the marriage. Later, mortality comes to prevail and the schedule approaches a shape typical for mortality. The hazard is considerably lower in Bulgaria, both because of lower divorces and lower mortality.

Figure 5.3: Smoothed hazard rates for the end of first marriages because of divorce or the death of the partner in 1999-2003, Bulgarian and Russian females



Divorce

The comparative analysis of first marriages revealed a significant difference in the intensities of divorces in the two countries. In order to highlight further this difference, we introduce a different competing-risk life table, where the other risk is treated as censoring, i.e. as if the partners do not die. Divorce is the only way to break-up an existing marriage. Table 5.9 demonstrates the results.

Table 5.9: Cumulative percent of ending first marriages by divorce, censored at the death of the partner, at indicated years after the start of the first marriage (based on the responses of female respondents)

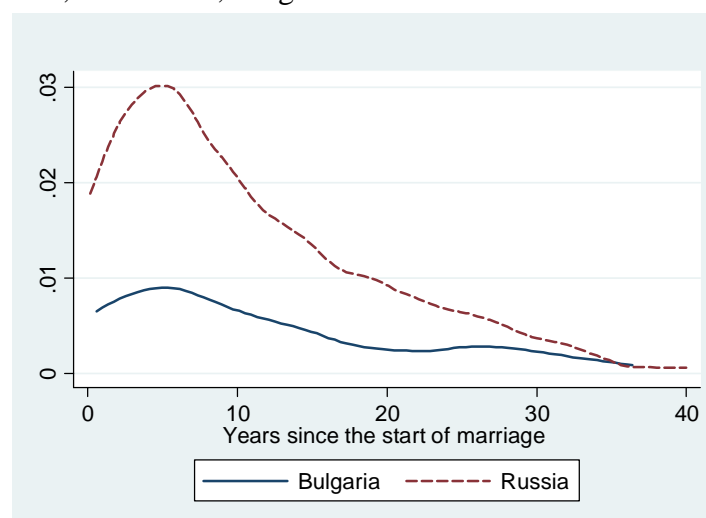
Years	1985-1989		1990-1994		1999-2003	
	Bulgaria	Russia	Bulgaria	Russia	Bulgaria	Russia
5	4	10	4	13	6	17
10	8	14	8	20	9	26
20	11	23	13	28	13	36
25	12	25	14	30	14	38
30	12	27	15	32	16	40

Note: corresponding complete life tables are provided in the Appendix, see Table A11.

Divorces have increased moderately in Bulgaria. In Russia, they have marked a significant rise in each subsequent period. Thus, in Russia the level is more than twice that observed in Bulgaria. We recall the review in Chapter 2, where the total divorce rate marked a similar difference (Table 2.1).

Figure 5.4 gives a visual idea of the divorce intensity observed in the last period, 1999-2003. As can be seen, the intensity during the first several years is much higher than the later years in both countries.

Figure 5.4: Smoothed hazard rates of ending first marriage by divorce, censored at the death of the partner, 1999-2003, Bulgarian and Russian females



6. The experience of childbearing

We describe in sequence the birth of a first child (transition to parenthood) and of a second child. The third section presents the results for the duration of unions until the birth of the first child.

6.1 Experience of transition to parenthood

Table 6.1 compares the indicators of entry into parenthood estimated for Bulgaria and Russia with those estimated by AP for the FFS countries. The cumulative percent at age 40 indicates which part of the population would have experienced parenthood by this age. It is indicative of the entry into parenthood ultimately achieved; this is because first births beyond age 40 are very rare. A percentage level above 90 points can be considered as indicative of the prevalence of universal parenthood in the population under study. The percentages in Table 6.1 estimated for the FFS countries include adopted children; hence the universality of parenthood should be indicated at a slightly higher percentage.

Universality of motherhood among women is observed in the Central-Eastern European countries as well as in Bulgaria and Russia. The latter observation supports the discussion on the universality of motherhood mentioned in Chapter 2. Universality is not observed in the other European countries, although an adjustment for tempo effects may change this inference for the countries where the observed percentage level is around 90.

The mean age at first birth in Bulgaria and Russia is lower than elsewhere. Transition to parenthood sets in at an earlier stage in life compared to other European countries. This observation is in line with the early union entry mentioned in the previous section.

Table 6.1: Cumulative percent ever having a first child by age 30 and 40

Country	Reference period yrs. inclusive	At age 30		At age 40		Mean age*	
		Men	Women	Men	Women	Men	Women
Sweden	1978-93	54	68	79	87	28	26
Norway	1974-89	61	75	83	88	27	25
Finland	Men: 1983-92 Women: 1979-89	45	67	73	82	29	26
Austria	1990-96	45	79	72	91	29	25
Flanders (Bel)	1985-92	55	69	78	80	28	26
France	1988-94	50	64	76	83	29	27
Germany (W)	1986-92	26	49	47	64	29	27
Germany (E)	1984-89	72	87	83	91	26	23
Hungary	1988-93	63	84	79	93	26	24
Slovenia	1989-95	77	89	93	96	27	24
Latvia	1989-95	77	85	82	92	25	23
Lithuania	1989-95	79	87	88	92	25	23
Italy	1990-95	26	51	62	79	31	28
Spain	1989-95	41	61	74	86	29	27
Bulgaria	1990-94	68	86	85	92	25	22
Russia	1990-94	79	89	89	95	25	23

* at transition, conditional on transition before age 40

Sources: Bulgaria and Russia, Appendix Table A12; other countries, Andersson and Philipov (2002) Appendix Table 8. AP (2002) include the arrival of biological as well as adopted children.

The percentages of men who have ever experienced fatherhood is lower and reaches universality in Slovenia only. A possible explanation is linked to the higher age at which men become fathers. Our data indicate that Russian men will reach the percentage level of 0.91 at age 50, and it will not increase any further. This indicates that universality of fatherhood has been attained in this country. This is not the case in Bulgaria, however, where the increase in the percentage level beyond age 40 is modest. It remains unclear why motherhood may be universal but why this does not apply to fatherhood. Men probably do not report children who have been born out of cohabitation or wed-lock, or they simply do not know about the existence of some of their children (Alich 2005). These children have remained with lone mothers. As we show later, the proportion of these children is around 7-8 percent, and this may well explain the difference between the levels of transition to fatherhood and the transition to motherhood. Since transition to fatherhood raises questions that are outside the scope of this paper, we continue the discussion by focusing on women only.

Table 6.2 informs about the two major trends in the transition to motherhood observed in Bulgaria: a decrease in fertility and birth postponement, trends that have emerged in the 90s. They are supported by population statistics (Table 2.1). The fall in first births by 11 percentage points from 1990-94 to 1999-2003 is considerable. The level reached in 1999-2003 is similar to that observed earlier in several FFS countries (Table 6.1), namely Belgium, France, Finland, and Italy. When this value is subtracted from 100, we get an indicator of childlessness. It stood at 19% in the 1999-2003 period in Bulgaria, indicating that voluntary childlessness proliferated in this country with a delay relative to Western, Southern and Northern Europe.

In Russia, the level of entry into motherhood did not fall below 90%. Childlessness remained below 10% for each of the three periods; hence there is no indication of rising voluntary childlessness. The mean age at entry into motherhood decreased in the beginning of the 90s compared with the second half of the 80s. This observation supports the rejuvenation trend discussed in Chapter 2. At the turn of the century, the mean age resumed the level observed in the 80s. A more detailed study is necessary to find out whether this resumption is the result of a population policy effect becoming less pronounced or whether it indicates the emergence of first birth postponement, a phenomenon that has been observed in nearly all European countries.

Russia and Bulgaria well illustrate that along with similarities in recent trends, childbearing patterns among Central and Eastern European countries are diverse. Bulgaria is likely to surpass Russia in terms of a lowering level of entry into motherhood as well as first birth postponement. At the same time, they are both lagging behind the European countries situated to the West where the process of the second demographic transition is more advanced. One may foresee that because childbearing is still relatively early, intensive first birth delay and fertility decline in countries such as Bulgaria and Russia will persist for a relatively long time (Kohler et al. 2002, Sobotka 2004).

Table 6.2: Cumulative percent of women who ever have had a first child by age 40, Bulgaria and Russia

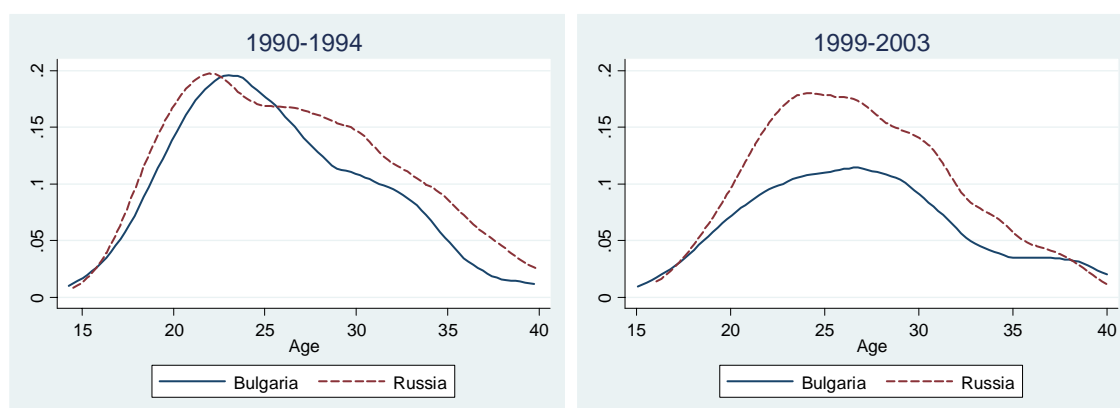
	Experiencing the event by age 40		Mean age*	95% confidence intervals	
	Cumulative percent	95% confidence intervals			
BULGARIA					
1985-1989	93	90.6 94.8	22.0	21.8	22.3
1990-1994	92	89.9 93.9	22.0	21.8	22.3
1999-2003	81	77.7 84.4	23.9	23.6	24.3
RUSSIA					
1985-1989	97	95.6 97.8	23.4	23.0	23.7
1990-1994	95	93.3 96.5	22.7	22.3	23.1
1999-2003	92	88.7 93.9	23.3	23.0	23.7

* at transition, conditional on transition before age 40

Note: corresponding complete life tables are provided in the Appendix, see Table A12.

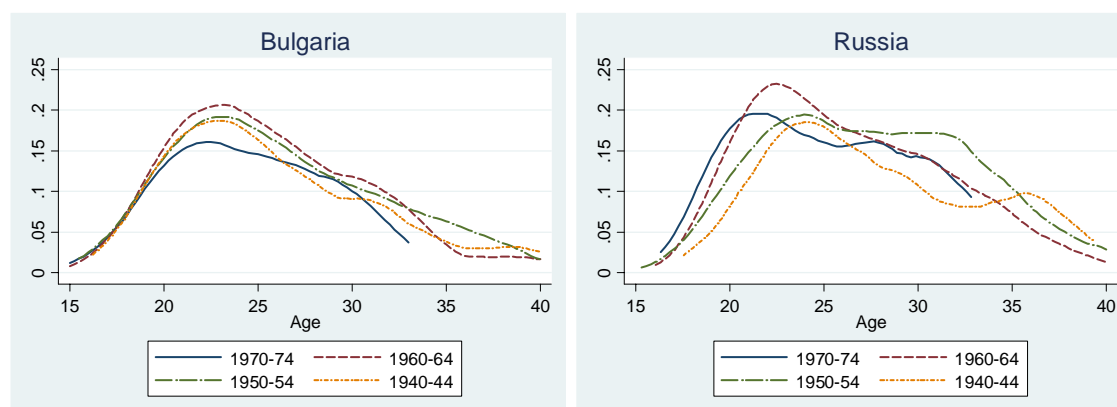
Figure 6.1 depicts the hazard schedules of first births. The schedules for the two countries were approximately equal in 1990-1994, but in the second period (1990-1994) the Bulgarian schedule was lower than the Russian one and its mode stands to the right of the Russian one. The Bulgarian schedule has become wider as a result of an increase in the variance by age of transition to motherhood.

Figure 6.1: Smoothed hazard rates for having a first child in 1990-1994 and 1999-2003, Bulgarian and Russian females



Following our usual plan, we expose the hazard schedules for the four cohorts in Figure 6.2. In Bulgaria, the youngest cohort behaves differently from the other three. This cohort has been influenced most by the recent changes in the level and postponement of first births. For Russia, we again notice an effect of fertility rejuvenation that is similar to that of the entry into marriage discussed in Chapter 2. The youngest cohort does not display a specific behavior different from the other three cohorts. The shift of fertility to earlier years of childbearing starting with the birth cohorts of the 1930s in Russia has also been noted by Frejka and Sardon (2004).

Figure 6.2: Smoothed hazard rates for having a first child of four cohorts born in 1940-44, 1950-54, 1960-64, 1970-74, Bulgarian and Russian females



Note: corresponding life tables are provided in the Appendix, see Table A13.

Table 6.3 gives the mean ages at entry into parenthood by ethnic groups in Bulgaria. The mean ages have increased significantly among Bulgarians as well as among Turks. The increase by about 1 year in the Roma population is not statistically significant, although from a demographic point of view it can be assessed as existing and being moderate. The table also provides the cumulative percent of women who

ever have had a first child by age 40. The ethnic group of the Bulgarians is the only such group who has done so, and they did so only in the last period, where universality of parenthood is not observed. Confidence intervals play an important role from this inference. Koytcheva (2006) reports similar findings, using another data set.

Table 6.3: Mean age* at having a first child and cumulative percent of women who ever had a first child by age 40, Bulgarian ethnic groups

Mean ages:	1985-1989			1990-1994			1999-2003		
	Mean	95% conf. interval		Mean	95% conf. interval		Mean	95% conf. interval	
Men:									
Bulgarian	25.6	25.2	26.0	25.9	25.4	26.3	27.3	26.8	27.8
Turks	23.5	22.7	24.3	23.5	22.6	24.5	24.6	23.2	26.1
Roma	21.7	20.3	23.1	22.8	20.8	24.8	23.3	21.6	25.0
Women:									
Bulgarian	22.4	22.1	22.6	22.5	22.2	22.8	24.7	24.3	25.1
Turks	20.6	19.8	21.3	20.6	19.8	21.4	22.0	20.7	23.2
Roma	18.9	17.8	20.0	19.1	18.0	20.2	20.0	19.1	21.0
Cumulative percent:									
Bulgarian	92	90	95	91	88	93	79	75	83
Turks	97	90	99	97	92	99	94	86	98
Roma	87	71	99	94	85	98	91	80	97

* at transition, conditional on transition before age 40

6.2. Second birth

We analyze second births from two perspectives: first, by studying the time elapsed since first childbirth, and second, by studying second-order births in the four cohorts.

Time since first childbirth

The life table given in Table 6.4 refers to women who have ever had a first birth. The origin of time is the date of the birth of the first child.

The cumulative percentages for the 1985-89 period grow faster in Bulgaria: 3 years after first childbirth 37% of the mothers concerned have a second child, while in Russia this percentage reaches 30 points. However, 16 years after the birth of the first child, the cumulative percents in the two countries are about equal, i.e. the ultimate level of having a second child is about the same. During the subsequent years, the ultimate level decline considerably in both countries. The data for the 1999-2003 period indicate that in Russia barely 50% of the women who ever have had a first child will ever have a second one; the corresponding figure for Bulgaria is 60%.

The means represent the average interval between first and second birth. In the 1985-1989 period it was lower in Bulgaria and increased considerably during the 1999-2003 period in both countries. This increase indicates a postponement of second birth relative to the date of the birth of the first child.

Table 6.4: Cumulative percent of second births, by years after the first birth, and means of the interval between the first and the second birth, Bulgarian and Russian females

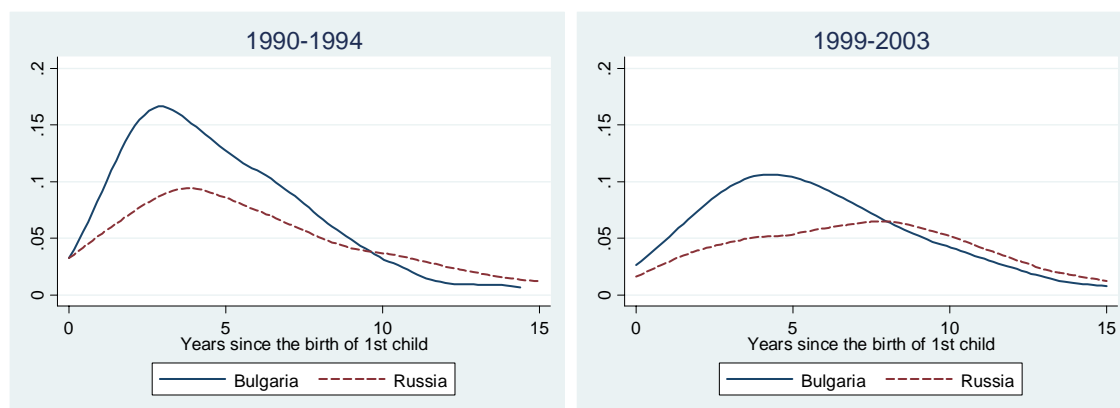
Year after first birth	Bulgaria			Russia		
	1985-1989	1990-1994	1999-2003	1985-1989	1990-1994	1999-2003
1	2	2	2	4	2	1
2	21	17	9	18	11	7
3	37	31	18	30	20	11
5	59	48	35	53	34	18
10	75	65	54	73	50	41
16	77	68	59	78	56	49
95% conf. interval at 16 th year	73-80	64-71	56-63	75-81	52-60	45-54
Mean*	3.5	3.6	5.2	4.6	4.8	6.6
95% conf. interval	3.3-3.7	3.4-3.8	4.9-5.5	4.4-4.9	4.5-5.2	6.1-7.1

* at transition, conditional on the birth of the second child before 16 years

Note: corresponding complete life tables are provided in the Appendix, see Table A14.

The official statistics in both countries give a total fertility rate of about 1.3 in the beginning of the present century. Our data indicate that first birth is universal in Russia while voluntary childlessness has precipitated in Bulgaria. However, second births are lower in Russia and for this reason the overall average number of first and second children is approximately the same in the two countries. Avdeev and Monnier (1995) summarize their description of the peculiar Russian fertility model with the statement “at least one child, at most two”, which implies that almost all Russian women want to be mothers and make efforts to become mothers, but at most one out of two women would have more than one child. Figure 6.3 visualizes the hazard schedules. The shapes illustrate these differences between the two countries.

Figure 6.3. Smoothed hazard rates for the birth of a second child, in years since the birth of the first child, Bulgarian and Russian females

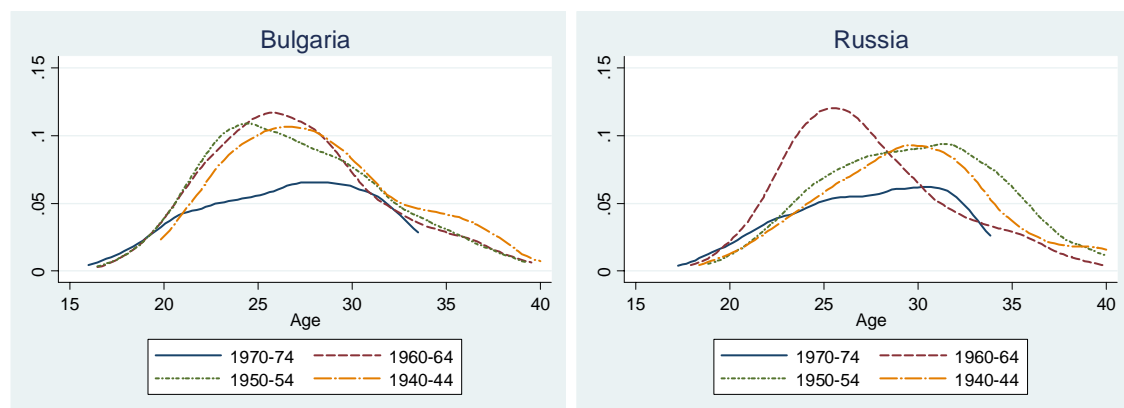


Note: corresponding life tables are provided in the Appendix, see Table A14.

Second births in four cohorts

The estimates discussed in this section have been made by using a life table where time is measured since the birth of the women involved, the event of interest is the birth of a second child, and the population at risk is formed by women who have ever had a first child. Figure 6.4 shows the smoothed hazard rates. The hazard schedule of the youngest cohort in each country differs significantly from those of the other three cohorts. However, both of them look remarkably similar and both illustrate a marked decline in the intensity of second births. The schedule observed in Bulgaria shows that the mean age of second birth is higher for this cohort compared to the older cohorts in the same country, subject to the correction of the censoring of this cohort, aged 30-34 years at the time of survey. The 1960-64 Russian cohort has a pronounced juvenile shape, and its mean is lower by about 2 years than that of the two older cohorts, as shown in Table 6.5. The cohort witnessed its second births mainly in the mid- and the second half of the 80s, a period during which fertility in Russia reached high levels, as discussed in Chapter 2.

Figure 6.4. Smoothed hazard rates for having a second child of four cohorts born in 1940-44, 1950-54, 1960-64, 1970-74, Bulgarian and Russian females



Note: corresponding life tables are provided in the Appendix, see Table A15.

Table 6.5 displays the mean ages of women at second childbirth. The youngest cohort is censored from the right: at the time of the survey, it was 30-34 years of age. Apparently, second births are likely to be witnessed in later years in this cohort. The censoring may bias the mean age given in the table by making it too low.

Table 6.5: Mean ages at second childbirth, four cohorts of Bulgarian and Russian females

Cohort born in:	1940-44	1950-54	1960-64	1970-74
Bulgaria	26.5	25.5	25.5	(25.1)
Russia	28.1	28.2	26.0	(26.0)

Note: the mean ages for the youngest cohorts are censored at the time of interview at age 30-34.

We conclude this chapter with brief information on the ethnic groups in Bulgaria (Table 6.6). Progression to second birth has been universal among the Romas and nearly universal among the Turks in the beginning of the 90s. It has fallen significantly in both ethnic groups about 10 years later. Note that Roma and Turkish families increasingly chose to have one child only, which is remarkable. It is equally remarkable that progression to second child among this Bulgarian ethnic group for the 1999-2003 period (52%) is very close to that observed in Russia (49%, Table 6.4). The mean duration since first birth also has increased significantly. A decrease and postponement has been observed at higher levels for the Bulgarian ethnic group.

Table 6.6: Cumulative percent of second births and mean interval between the birth of the first and the second child, by ethnic groups, Bulgarian females*

	1985-1989		1990-1994		1999-2003	
	Cum. percent	Mean	Cum. percent	Mean	Cum. percent	Mean
Bulgarians	74	3.6	62	3.7	52	5.5
Turks	89	3.2	87	3.5	77	5.0
Roma	92	2.9	86	2.5	84	3.2

* The cumulative percent is estimated until the 15th year following the birth of the first child for Bulgarians and Turks, and until the 10th year for Roma; the mean is at transition before the 15th year for Bulgarians and Turks and before the 10th year for Roma.

6.3 Duration of childlessness

This section considers the duration of childless life of a couple since the time the union was formed. The unit of analysis is a union, independent of whether it is cohabitation or marriage. The process time starts at the date at which the union was formed. Cohabitations turned into marriage are considered as a union whose life has started at the time of cohabitation formation. The event of interest is the birth of the first child, union disruption is considered as a competing risk. An end to the union owing to the death of the partner is a rare event, hence it is disregarded. Table 6.7 gives the estimated cumulative percentages of couples who have become parents, by union duration. The tables also provide the average time to transition to parenthood.

The 1985-89 synthetic cohort of unions reached near-universal parenthood in both countries. The mean duration of childlessness is about the same: 1.7-1.8 years after the formation of the union. While the same observations hold for Bulgaria in the early 90s, we note for Russia a decline in the level of transition to parenthood. The decline

can be observed in both countries at the turn of the century, when the interval after the entry into union has increased.

Table 6.7: Cumulative percent of couples who ever have had a first child by the year after the start of the union, with separation as competing risk (based on the responses of both male and female respondents)

Duration (years)	Bulgaria			Russia		
	1985- 1989	1990- 1994	1999- 2003	1985- 1989	1990- 1994	1999- 2003
1	39	37	27	42	32	22
2	74	71	56	72	64	45
3	84	81	69	80	74	57
5	91	89	80	86	80	69
10	95	92	86	89	85	73
Mean*	1.7	1.7	2.1	1.8	1.8	2.0

* at transition, conditional on first childbirth before the year 15th year

Note: corresponding complete life tables are provided in the Appendix, see Table A16.

Additional estimates indicate that the proportion of childlessness among Turkish and Roma couples in Bulgaria was around 7% in the 1999-2003 period. It is the Bulgarian ethnic group only that has witnessed an increase in childlessness during the 90s.

7. Children's experience by union status at birth

Descriptive data

In this chapter, we make a short presentation of demographic trends regarding the position of children in the family. Table 7.1 provides the observed distributions of the children at the time of their birth by parental union status.

The table displays a mass of information, of which we mark the most conspicuous observations. The information is very rich and each information unit is in need of detailed analysis.

Lone parenthood. This is represented by two rows: births to a lone parent (who never has been in union), and births to a separated parent. Lone parenthood is more frequent at first childbirth, it is more frequent among mothers than among fathers, and it is more frequent in Russia than in Bulgaria. Bulgaria witnesses a rise in lone motherhood towards the new century; the rise is modest in Russia.

Births within the context of cohabitation. Bulgaria has seen a continuous rise in these births, reaching a quarter of all births at the beginning of this century. The climb concerns three birth orders. In Russia, the increase is drastic for first birth and modest for the other birth orders.

Births within the context of first marriage. The level of these births has declined over the last two decades in Bulgaria. In Russia, such decline is notable when the last period is compared to the previous one. First births in both countries have fallen to similar levels, below 70%. Second childbirth within first marriage takes place more frequently than first childbirth, while the lowest proportion is observed for third-order births. The latter has decreased to below 50% in Bulgaria and to below 60% in Russia.

Births within the context of a repeated union. Both countries have witnessed an increase in births within repeated unions, particularly in third-order births. The proportion of third births to fathers has more than doubled in Bulgaria and it has nearly doubled in Russia. A significant increase is observed for mothers as well. The levels are considerably higher in Russia compared to Bulgaria. Recalling that separation is more frequent in the former country, we may assume that repeated entries into union are more frequent in this country and that the partners wish to have a common biological child aside of step-children. Studies show that couples living in repeated unions desire shared biological children regardless of how many children they had from their previous union(s); the shared child serves as a proof of commitment to the union (Vikat et al. 1999). Besides, we need to bear in mind that first unions are formed relatively early in life in Bulgaria and Russia, and that most women entering a repeated union are still of childbearing age.

Table 7.1: Distribution of children at the time of their birth by union status of their parents, in percent

Bulgaria	Sex of parent:	1st child		2nd child		3rd child	
		Male	Female	Male	Female	Male	Female
1985-1989							
to a lone parent		4.4	5.0	3.2	1.9	1.9	0.0
in a 1st cohabitation		8.8	8.1	3.5	3.5	9.3	10.3
in a 1st marriage		84.8	85.5	90.6	91.0	75.9	73.6
to a separated parent		0	0.5	0.3	0.6	0	3.5
in a repeated union		2.0	0.9	2.4	3.1	13.0	12.6
Total		100	100	100	100	100	100
N.		501	764	340	522	54	87
1990-1994							
to a lone parent		3.8	4.8	1.3	2.6	1.8	2.6
in a 1st cohabitation		12.1	11.9	7.7	7.6	12.5	10.5
in a 1st marriage		82.2	81.8	85.9	84.4	75.0	72.4
to a separated parent		0.6	0.7	0.6	1.0	0	0
in a repeated union		1.3	0.7	4.5	4.4	10.7	14.5
Total		100	100	100	100	100	100
N.		478	807	312	501	56	76
1999-2003							
to a lone parent		3.2	7.2	1.3	2.6	2.7	3.5
in a 1st cohabitation		26.0	24.6	23.8	19.4	24.3	37.9
in a 1st marriage		69.2	64.3	71.9	71.1	43.2	39.7
to a separated parent		0	1.0	0	1.8	2.7	1.7
in a repeated union		1.6	2.9	3.0	5.0	27.0	17.2
Total		100	100	100	100	100	100
N.		312	513	235	381	37	58
Russia							
	Sex of parent:	1st child		2nd child		3rd child	
		Male	Female	Male	Female	Male	Female
1985-1989							
to a lone parent		5.1	8.5	1.3	2.1	0	4.0
in a 1st cohabitation		8.3	9.4	3.0	2.6	1.4	0.8
in a 1st marriage		79.3	76.1	83.4	79.1	71.4	65.3
to a separated parent		0.8	3.0	1.7	1.5	4.3	1.6
in a repeated union		6.5	3.0	10.6	14.7	22.9	28.2
Total		100	100	100	100	100	100
N.		372	669	301	532	70	124
1990-1994							
to a lone parent		5.7	9.0	1.4	1.5	0	4
in a 1st cohabitation		8.5	11.4	4.7	3.3	4.6	1.2
in a 1st marriage		77.9	74.0	77.2	73.8	65.9	69.9
to a separated parent		1.5	2.8	1.4	1.2	4.6	3.6
in a repeated union		6.4	2.9	15.4	20.2	25.0	21.7
Total		100	100	100	100	100	100
N.		389	580	215	332	44	83
1999-2003							
to a lone parent		4.7	10.4	0.7	2.2	2.6	0
in a 1st cohabitation		15.3	13.6	7.7	7.5	2.6	2.2
in a 1st marriage		67.3	64.5	73.4	64.3	51.3	57.8
to a separated parent		1.5	4.3	0.7	1.3	0.0	11.1
in a repeated union		11.3	7.2	17.5	24.7	43.6	28.9
Total		100	100	100	100	100	100
N.		275	442	144	227	38	45

Notes: a lone parent has never been in union; separation can be either divorce or dissolution of cohabitation; union can be either marriage or cohabitation; N=number of observations.

Children born in and out of union: life table results

Next, we discuss the life table results for the status duration children have within the family at the time of their birth. In other words, we check for the presence of both parents in the family, which is of primary importance in studies of child development.

Table 7.2 displays the cumulative percent of children ever in union, in years following the birth to a lone parent. We do not distinguish between single motherhood and single fatherhood at the time of childbirth. We also do not differentiate between lone parenthood and separated parenthood.

Table 7.2: Cumulative percent ever in a parental union by age of child, for children born to a lone parent (based on the responses of both male and female respondents)

Age of Child	Bulgaria			Russia		
	1985-1989	1990-1994	1999-2003	1985-1989	1990-1994	1999-2003
1	19	20	21	16	20	14
2	26	21	26	25	25	22
3	29	28	26	28	28	23
4	36	31	30	29	34	25
6	42	35	35	35	40	34
9	49	46	38	46	47	50
12	51	47	42	53	54	57
15	51	50	43	54	58	61
95% conf. interval at 15 th year	41-61	40-60	33-55	45-63	49-68	51-72
Mean age*						
1 st child	2.9	3.1	3.0	3.9	3.6	4.8
2 nd child	3.1	4.7	3.0	4.3	8.7	6.5

* at transition, conditional on transition before age 15

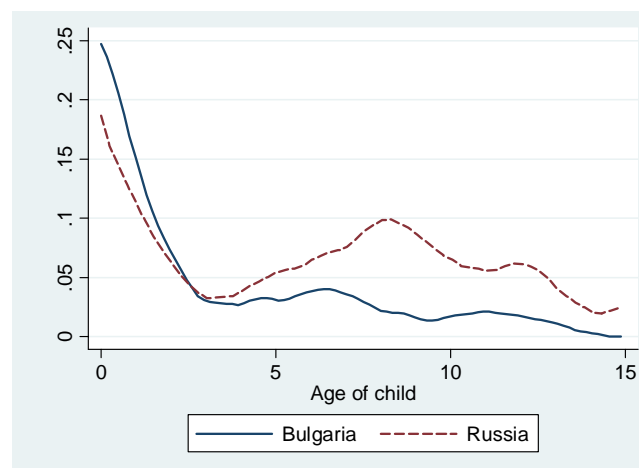
Note: corresponding complete life tables are provided in the Appendix, see Table A17.

The cumulative percentage rises steeply within one year after the birth of the child. During the subsequent years, it rises moderately. The confidence intervals show that towards the 15th year following first childbirth, the different levels achieved in each country over the three periods cannot be accepted as being different from the point of view of statistical inference.

The mean ages indicate the average time children spend in an incomplete family composed of one parent. In Russia, second children are likely to spend longer time having this family status than first children, although the confidence intervals (see Appendix Table A17) would rule out a statistically significant difference. We show the result nevertheless, because it is worth being considered for a more detailed study, which is outside the frame of this presentation, however.

Figure 7.1 gives a visual idea of the intensity of children's transition to a family with two adults. In both countries, the intensity is highest immediately after birth and falls down significantly during the next 2-3 years. The hazard rate close to the birth of the child is higher in Bulgaria, while hazards several years apart are higher in Russia.

Figure 7.1: Smoothed hazard rates for the transition to a parental union, for children born to a lone parent, 1999-2003



The next issue is the inverse of the previous one: children are born in union and the life table follows the length of life until union disruption (Table 7.3). The death of a parent is considered as a censoring event. The confidence intervals are wide and hence the changes in the levels at age 15 within a country are due to random factors. The level is higher in Russia, where every fourth child can be expected to experience a break-up between his/her parents' union before age 15: divorces are more frequent in this country also when there is a child in the family.

Table 7.3: Cumulative percent ever out of union by age of child, for children born in union (based on the responses of both male and female respondents)

Age of Child	Bulgaria			Russia		
	1985-1989	1990-1994	1999-2003	1985-1989	1990-1994	1999-2003
1	1	1	1	1	2	3
3	2	2	3	5	6	10
6	5	5	5	9	10	17
9	7	7	7	13	14	22
12	10	10	8	21	19	25
15	13	12	10	27	24	29
Conf. interval at 15 th year	11-15	11-14	9-12	24-30	22-26	26-31
Mean age*						
1 st child	5.8	6.2	7.3	6.1	6.3	5.9
2 nd child	8.5	6.6	7.0	6.6	7.7	8.0

* at transition, conditional on transition before age 15

Note: corresponding complete life tables are provided in the Appendix, see Table A18.

8. Recent trends and the second demographic transition: a schematic comparison

Our detailed study of diverse trends related to family formation and fertility gives rise to the question: Have Bulgaria and Russia witnessed the second demographic transition?

The second demographic transition comprises a number of changes in the demographic trends first observed since the mid-60s in the Nordic countries and later in all other European countries (Van de Kaa 1987). Van de Kaa (1997, p.8) describes 15 stages of its development, based on an empirical examination of data for European countries for the 1965-1995 period. It is convenient to use this classification for our two countries. The stages are listed below in italics as they appear in the original, and each is followed by a comment about its applicability to Bulgaria and Russia.

1. *Decline in total period fertility due to reduction in fertility at higher ages of childbearing: decline in high-order birth rates.*

- We observed a decline in second births in both countries since the second half of the 80s, reflected in Table 6.4.

2. *Avoidance of pre-marital pregnancies and "forced" marriages.*

- We did not consider this topic.

3. *Notwithstanding that the mean age at first marriage continues to decline.*

- The mean age at first marriage remained low in Bulgaria until the first half of the 90s and it did decline in Russia (Table 5.5).

4. *Postponement of childbearing within marriage, fertility among young women declines, lower-order birth rates decline, this accentuates decline in total fertility*

- Table 6.7 shows that postponement of first birth within a union context was not observed before the first half of the 90s; a rising mean ages is observed in later years but cannot be verified statistically. Table A12 shows that first births among young women have declined.

5. *Increase in judicial separation and divorce (when allowed).*

- Table 5.9 shows that divorces increased moderately in Bulgaria and more significantly in Russia.

6. *Postponement of marriage largely replaced by pre-marital cohabitation, increase in age at first marriage.*

- The replacement of first marriage by cohabitation is depicted in Table 5.7, which shows a decline in the cumulative percentage from the first to the second period (the further decline refers to Stage 10). Tables 5.5 and 5.6b show an increase in the age at first marriage in Bulgaria but no such increase in Russia as far as the periods 1985-1989 and 1999-2003 are compared.

7. *Cohabitation becomes more popular, marriage postponed until bride is pregnant, increase in pre-marital births, increase in mean age at first birth.*

- Tables 5.6a and 5.6b display the relative increase in cohabitation, showing that this type of union is preferred when the first two periods are compared. An increase in the mean age at first birth is observed in Bulgaria in the second half of

the 90s; no increase was observed in Russia during the period 1999-2003 relative to 1985-89 (Table 6.2).

8. *Legislation of sterilization and abortion further reduce unwanted fertility; fertility at border ages of childbearing declines further.*

- This topic has not been discussed in the present paper.

9. *Cohabitation gains further support, is frequently also preferred by the widowed and the divorced.*

- Tables 5.6a and 5.6b show the relative increase in cohabitation as a preferred form of first union when the last two periods are compared.

10. *Cohabitation increasingly seen as alternative to marriage, non-marital fertility increases.*

- Table 5.7, also mentioned in Stage 6, shows the change in the union status for the second to the third period. Table 7.1 displays the increase in non-marital fertility, particularly apparent for the status of cohabitation.

11. *Total fertility rates tend to stabilize at low level.*

- This is shown by the vital statistics in Table 1.1.

12. *Total fertility rates increase slightly where women who postponed births start a fertility career; increase of lower order birth rates at higher ages of childbearing.*

- Figures 6.1 and 6.3 show that for the higher ages did not increase but also did not decrease as much as the first and second-order birth rates for the lower ages.

13. *Not all postponed births can be realized at later reproductive ages.*

- This topic has not been discussed in the present paper.

14. *Voluntary childlessness becomes increasingly significant.*

- This was observed in Bulgaria towards the turn of the century, but not so in Russia (Table 6.2).

15. *Cohort fertility appears to stabilize below replacement level.*

- Figures 6.2 and 6.4 show that the youngest cohort in Bulgaria has a lower fertility compared to the older cohorts; this is evident for Russia only for second births. Stabilization of low cohort fertility is not yet observed, although it is likely to be expected, based on the observation for the youngest cohort.

The information supplied shows that most of the stages have taken place in both countries. In Bulgaria, only the last stage and in Russia the last two stages are not supported by the data. The second demographic transition seemingly is not completed yet in the two countries and the trends described in the last two stages can be expected to emerge in the near future. In addition, note that all of our inferences are valid under the condition that the tempo effect on the values of life tables is not too large.

The persistent lack of voluntary childlessness in Russia, however, casts doubt on the emergence of this trend in the near future. It can be conjectured that social norms on entry into parenthood continue to be very strong in this country and it is hard to

expect their weakening in the short run. Moreover, the persistence of a traditional attitude towards parenthood indicates that ideational changes - the motor assumed to drive the second demographic transition, have a specific stand in this country.

9. Summary

Our main task was to provide a thorough descriptive analysis of recent demographic trends in family formation in Bulgaria and Russia. To this end, we applied a survival analysis and used information derived from more than 50 single-decrement and competing-risk life tables, constructed for synthetic cohorts for the periods 1985-1989, 1990-1994, and 1999-2003, and for real cohorts born 1940-44, 1950-54, 1960-64, and 1970-74. We used GGS data; the surveys were carried out in 2004. The construction of the life tables complies with that applied by Andersson and Philipov (2002); hence they are comparable and can be used for a wider range of international comparisons.

We followed events that take place in the life course of young adults: leaving home and separation from the parental family, entry into union, union duration, having a first and a second child, divorce. We complemented the picture by providing information on the structural position of the children within the family.

Leaving the parental home takes place relatively early in life in both countries; however, the trend towards leaving the nest later is all the time more evident, particularly in Bulgaria. During the 90s, the rate of leaving home considerably declined in Bulgaria and the mean age at leaving significantly increased. In Russia, the intensity of leaving home remains high and the proportion of those still living in the parental home at age 40 is very small (7-8 percent). A moderate increase in the mean age at leaving home is observed among Russian men, whereas the female pattern of nest leaving remains stable.

We extended the description of the process of leaving the parental home to separation from the parental family, where the new issue is the formation of an own union while remaining in the home of the parents. The extended view of separation from the parental family discussed above rarely has been addressed by the demographic literature and it needs a more deliberate consideration, not only within the context of the two countries considered in this paper.

Starting an own family in the home of the parents has been traditional and widely spread in the past in Russia and Bulgaria. However, since the early 90s the rate of starting a first union before leaving the parental home has been dropping drastically for men and women in both countries. This observation points to the emergence of a new pattern of behavior, requiring in-depth analysis. In Bulgaria, along with this fall we observe a simultaneous increase in the risk of leaving home before forming a first union. Both newly established trends run in parallel with the growing individualization and increasing popular mobility during the transition period, modifying traditional behavior. In Russia, a relative increase in forming an own family along with leaving home is observed for men, whereas for women the reason for the decline in the rate of forming a union before leaving the parental home is much less apparent.

The trends in union formation and childbearing in Bulgaria and Russia were relatively uniform during the 80s and in the beginning of the 90s. They show that nearly all women ever have been married and ever have had at least one child in their life. Besides, people timed these events early in life. The two countries were among those with the lowest mean ages of first marriage and entry into parenthood in Europe. In short, marriage and births were characterized by early timing and universality. Non-marital cohabitation was more spread in Russia and was mostly practiced in a traditional manner, as a prelude to marriage. The two countries differed in terms of divorce, though: in Russia it was twice as high.

The universality of marriage and parenthood also featured among a number of other former socialist countries. However, just within a couple of years following the onset of transition, universality came to an end and speedy postponement of entry into marriage and childbirth started in most of former socialist countries (Philipov and Dorbritz 2003). The latter trends were observed in Bulgaria as well. Postponement of first marriage has been significant and first unions have been increasingly formed as non-marital cohabitations, which no longer can be seen as a prelude to marriage. Fertility has declined, the mean age at childbearing has increased, and the level of voluntary childlessness has grown. To our estimates for the synthetic cohort of the 1999-2003 period, nearly 20 percent of women have never entered motherhood and they have stayed childless; an adjustment for tempo effect will hardly raise the figure above 90%. Thus, towards the turn of the century the demographic changes in Bulgaria are strong enough to indicate a departure from traditional behavior with respect to family formation.

The latter inference does not hold for Russia, though, as the changes have been considerably less pronounced in this country. Although an increasing number of non-marital unions seem to remain in this status for a long, a high rate of first marriage has continued until the beginning of this century. First births still are universal – almost all women ever have had a first child in Russia (more than 90 percent by age 40) in the 1999-2003 period. As far as the mean ages indicate, there too is no significant postponement of entry into motherhood.

The trends in second birth present a different picture. Second births have witnessed a decline in both countries since the beginning of the 90s, but the fall has been much more pronounced in Russia than in Bulgaria. In addition, the birth of a second child increasingly has been delayed, and in Russia the delay has been more noticeable than in Bulgaria.

As regards family disruption, differently from Bulgaria, universality of marriages as one of the main features of the union formation pattern has for many years been accompanied by high rates of divorce in Russia. The trend continues to date: while Bulgaria has been seeing moderately increasing divorces, in Russia a significant rise in divorces is observed in every later period under study. Correspondingly, the duration of marriage in Bulgaria did not change considerably during the 90s, whereas in Russia it experienced a major reduction. The reduction was predominantly due to an increase in divorce compared to the death of the partner as the other reason behind an end to marriage.

The dynamic changes in family formation also are reflected in the experience of having children. An increasing number of children have been born to a lone parent, usually a mother, in both countries. In parallel to the increase in consensual unions, there has been a continuous rise in the proportion of children born to cohabiting couples and a corresponding decline in the proportion of children born within marriage. Our estimates indicate that in Russia children who have only one parent (until s/he forms a union) live longer than their counterparts in Bulgaria.

The summary of our findings presented above indicates that the societal transformation has influenced the family-related demography of the Bulgarian population considerably more so than it did so in Russian. The Bulgarian family formation pattern resembles the Central and East European one, while Russia keeps closer to the traditional pattern, a few exceptions apart, such as the drastic decline in childbearing after first childbirth. We conclude that the impact of tradition has remained more pronounced in Russia. However, in Russia we have found signs of new patterns developing that have already been observed in Bulgaria, such as a slowly emerging postponement of events. Hence, it can be expected that traditional behavior is giving way to a new one observed elsewhere in Europe.

The new trends seen in Bulgaria and Russia have been witnessed elsewhere as part of broader changes, expressed in declining marriages and later transition to parenthood. We can expect that they will continue in the two countries, too. The former socialist countries are lagging behind their Western European counterparts in the expression and proliferation of new family-related demographic behavior. Bulgaria is lagging in some trends, such as the spread of cohabitation and divorce, behind the former socialist countries, and our results indicate that Russia is lagging behind Bulgaria. Note that our conclusions do not consider the tempo effect.

How can our observations be explained? An application of explanatory methods was not the purpose of this study; however it is tempting to conjecture on some possible approaches towards the construction of an explanatory framework. The population in both countries experienced significant economic hardship during the transition period and during the 90s in particular. At the same time, the collapse of the totalitarian regime opened the way to new modes of behavior that did not need to comply with any institutions. Hence, both economic and ideational changes were underway. We can assume that economic development has caused the delay in leaving home. The modest emergence of non-marital cohabitation as marriage replacement indicates a modest effect of ideational changes (Lesthaeghe and Surkyn 2002). However, the rise in voluntary childlessness in Bulgaria demonstrates that traditional social norms are not as powerful as they have been in the past in the country. How can we understand postponement? Did it emerge because individualization and autonomy increased the set of life course choices and hence stimulated the postponement of crucial events such as entry into marriage and childbearing? Or is it because of the lack of resources or uncertainty in their availability at later times? We have no answer to similar questions.

In general, the recent demographic changes in Bulgaria are similar to those observed earlier in other European countries, as indicated also in Chapter 8. The country intensified its links to Western Europe when it became a member of NATO and the EU. We can assume that values preponderant in the West have become diffused in

Bulgaria. What we observe in Russia is specific to this country; suffice it to mention the observation that falling fertility and birth postponement take place for the second and following births but not for the first one. Voluntary childlessness is not rising. Thus we can hypothesize that Russia has its own model of recent demographic change that deserves special attention.

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References:

1. Alich D. (2005). Fatherhood in Russia: the Transitions to the First, Second and Third Child. Paper presented at the GGS Workshop, Rostock, Germany, 3-4 November 2005.
2. Andersson G., Philipov D. (2002). Life-table representations of family dynamics in Sweden, Hungary, and 14 other FFS countries: A project of descriptions of demographic behaviour. *Demographic Research*, Vol. 7, Article 4, Published 02 August 2002, pp. 67-270.
3. Avdeev A., Monnier A. (1995). A Survey of Modern Russian Fertility. *Population: An English Selection*, Vol. 7 (1995), pp. 1-38.
4. Avdeev A., Monnier A. (2000). Marriage in Russia: A Complex Phenomenon Poorly Understood. *Population: An English Selection*, Vol. 12 (2000), pp. 7-49.
5. Avdeev A. (2003). On the Way to One-Child-Family: Are We Beyond the Point of No Return? Some Considerations Concerning the Fertility Decrease in Russia; in I.E. Kotowska and J. Jozwiak (Eds.) *Population of Central and Eastern Europe. Challenges and Opportunities*. European Population Conference, Warsaw, 26-30 August 2003. Warsaw: Statistical Publishing Establishment, pp. 139-163.
6. Billari F.C., Philipov D., Baizán P. (2001). Leaving Home in Europe: The Experience of Cohorts Born Around 1960. *International Journal of Population Geography*, Vol. 7, Issue 5 (Sept., 2001), pp. 339-356.
7. Blossfeld H.-P., Rohwer G. (2002). *Techniques of Event History Modeling: New Approaches to Causal Analysis*, 2nd ed. Mahwah, NJ: Lawrence Erlbaum, 310 p.
8. Bongaarts J., Feeney G. (1998). On the Quantum and Tempo of Fertility. *Population and Development Review*, Vol. 24, No. 2 (Jun., 1998), pp. 271-291.
9. Council of Europe (2005). *Recent Demographic Developments in Europe*. Strasbourg: Council of Europe Publishing.
10. Coviello M., Boggess M. (2004). Cumulative Incidence Estimation in the Presence of Competing Risks. *Stata Journal*, Vol. 4, No. 2, pp. 103-112.
11. Frejka T., Sardon J.-P. (2004). *Childbearing Trends and Prospects in Low-Fertility Countries*. Dordrecht et al.: Kluwer Academic Publishers.
12. Gichangi, Anthony and Werner. Vach (2005). The analysis of competing risks data: A guided tour. Unpublished manuscript.
13. Hajnal J. (1965). European Marriage Patterns on Perspective; in D.V. Glass and D.E.C. Eversley (Eds.), *Population in History: Essays in Historical Demography*. London: Edward Arnold, pp. 101-143.
14. Hajnal J. (1982). Two Kinds of Preindustrial Household Formation System. *Population and Development Review*, Vol. 8, No. 3. (Sep., 1982), pp. 449-494.
15. Hoem J. (2001). "Life table", pp. 8832-8836 in Smelser N., and Baltes P., eds., *International Encyclopedia of the Social and Behavioral Sciences*. Elsevier.
16. Kohler H.-P., Billari F.C., Ortega J.A. (2002). The Emergence of Lowest-Low Fertility in Europe during the 1990s. *Population and Development Review*, Vol. 28, No. 4 (Dec., 2002), pp. 641-680.
17. Kosolapov M., Zakharov S. et al. (2005). *The Report on Response Rate in Russian GGS*. Rostock, Max Planck Institute for Demographic Research, 25 p.
18. Koytcheva E. (2006). *Social-Demographic Differences of Fertility and Union Formation in Bulgaria Before and After the Start of the Societal Transition*. Doctoral thesis, University of Rostock.
19. Koytcheva E., Philipov D. (2006). Fertility trends, policy trends, and societal transformation: the case of Bulgaria. (Unpublished manuscript).
20. Lesthaeghe R., Surkyn J. (2002). New Forms of Household Formation in Central and Eastern Europe: Are They Related to Newly Emerging Value Orientations? *Economic*

- Survey of Europe 2002*, No. 1, pp. 197-216. New York, Geneva: Economic Commission for Europe, United Nations.
21. Mozny I. and L. Rabušic (1992) Unmarried cohabitation in Czechoslovakia. *Czechoslovak Sociological Review, Special Issue*; 28: pp. 107-17.
 22. Naselenie Rossii 2002 [Russian Population 2002] (2004). Moskva, 223 p.
 23. Naselenie Rossii 2003-2004 [Russian Population 2003-2004] (2006). Moskva, 356 p.
 24. Philipov D., and Dorbritz J. (2003). Demographic Consequences of Economic Transition in Countries of Central and Eastern Europe. *Population Studies*, No. 39. Strasbourg: Council of Europe Publishing. 208 p.
 25. Philipov D., Kohler H.-P. (2001). Tempo Effects in the Fertility Decline in Eastern Europe: Evidence from Bulgaria, the Czech Republic, Hungary, Poland, and Russia. *European Journal of Population*, Vol. 17, No. 1 (Mar., 2001), pp. 37-60.
 26. Scherbov S., van Vianen H. (1999). Marital and Fertility Careers of Russian Women Born between 1910 and 1934. *Population and Development Review*, Vol. 24, No. 1. (Mar., 1999), pp. 129-143.
 27. Scherbov S., van Vianen H. (2004). Marriage in Russia. A Reconstruction. *Demographic Research*, Vol. 10, Article 2, published 26 February 2004, pp. 27-60.
 28. Shkolnikov V.M., Andreev E.M., Leon D.A., McKee M., Meslé F., Vallin J., (2004). Mortality reversal in Russia: the story so far. *Hygiea Internationalis*, Vol.4, No.4, pp.29-80.
 29. Sobotka T. (2003). Re-Emerging Diversity: Rapid Fertility Changes in Central and Eastern Europe after the Collapse of the Communist Regimes. *Population* (English Edition), Vol. 58, No. 4/5 (Jul.-Oct., 2003), pp. 451-485.
 30. Sobotka T. (2004). Postponement of Childbearing and Low Fertility in Europe. Amsterdam: Dutch University Press, 298 p.
 31. StataCorp. 2005. *Stata Statistical Software: Release 9*. College Station, TX: StataCorp LP.
 32. Tolts M., Antonova O., Andreev E. (2005). Rozhdaemost i transformaciia instituta sem'i v sovremennoi Rossii [Fertility and Transformation of the Institution of Family in Contemporary Russia]. *Voprosy statistiki* (Moscow), No. 7, pp. 51-60.
 33. Van de Kaa, D.J. (1987). Europe's Second Demographic Transition. *Population Bulletin* Vol. 42, No 1. Washington, DC: Population Reference Bureau.
 34. Van de Kaa, D. J. 1997. "Options and sequences: Europe's demographic patterns. *Nethur Demography Paper* 39.
 35. Vikat A., Hoem, J.M., Thomson, E. (1999). Stepfamily fertility in contemporary Sweden: The impact of childbearing before the current union. *Population Studies* 53: 211-225.
 36. Vishnevsky A.G. (1996). Family, Fertility, and Demographic Dynamics in Russia: Analysis and Forecast; in J. DaVanzo and G. Farnsworth (Eds.) *Russia's Demographic "Crisis"*. RAND Conference Proceedings, 25 p.
http://www.rand.org/pubs/conf_proceedings/CF124/CF124.chap1.html
 37. Vishnevsky A.G. (1998-1999). Demographic Changes in Russia – Past and Future. *Yearbook of Population Research in Finland*, 35, pp. 39-57.
 38. Vishnevsky A.G. (Ed.) (2006). *Demograficheskaia modernizaciia Rossii, 1990-2000*. Moskva: Novoe Izdatelstvo, 599 p.
 39. Winkler-Dworak M., Engelhardt M. (2004). On the Tempo and Quantum of First Marriages in Austria, Germany, and Switzerland: Changes in Mean Age and Variance. *Demographic Research*, Vol. 10, Article 9, published 18 May 2004, pp. 231-264.
 40. Zakharov S.V. (1997). Fertility trends in Russia and the European New Independent States: crisis or turning point? *Population Bulletin of the United Nations*, 40/41, pp. 292-317.
 41. Zakharov S.V. (1999). Unlike Their Parents, the Russian Youth Are Less Eager to Form Families at Young Ages: Basic Outcomes from the Analyses of Period and Cohort Parity-

- Specific Fertility Tables, 1979-1997. Second Workshop on Lowest Low Fertility, Max Planck Institute for Demographic Research, 2-3 December 1999.
42. Zakharov S.V. (2003). The First and the Second Demographic Transition in Russia: the Newest Tendencies against Historic Experience. Paper presented at the conference "Childlessness and fertility development in Europe", 9-10 October 2003, University of Münster, Germany, 20 p.
 43. Zakharov S.V., Ivanova E.I. (1996). Fertility Decline and Recent Changes in Russia: On the Threshold of the Second Demographic Transition; in J. DaVanzo and G. Farnsworth (Eds.) Russia's Demographic "Crisis". RAND Conference Proceedings, 32 p. http://www.rand.org/pubs/conf_proceedings/CF124/CF124.chap2.html

APPENDIX

Table A1. Cumulative percent ever leaving the parental home

Table A2. Cumulative percent ever leaving the parental home of four cohorts of women

Table A3. Cumulative percents for three competing risks for separation from the parental family; competing events: leaving the parental home before, simultaneously with or after forming a first union

Table A4. Cumulative percent ever starting a first union

Table A5. Cumulative percent ever starting a first union of four cohorts of women

Table A6. Cumulative percent ever entering first marriage

Table A7. Cumulative percent ever entering first marriage of four cohorts of women

Table A8. Cumulative percents for two competing risks for starting a first union; competing events: cohabitation and entry into marriage

Table A9. Cumulative percent of cohabitations that turn into marriages with separation as competing risk (*based on the responses of female respondents*)

Table A10. Cumulative percents for two competing risks for ending a first marriage; competing events: death of the partner and divorce (*based on the responses of female respondents*)

Table A11. Cumulative percent ever ending a first marriage, censored at the death of the partner (*based on the responses of female respondents*)

Table A12. Cumulative percent ever having a first child

Table A13. Cumulative percent ever having a first child of four cohorts of women

Table A14. Cumulative percent ever having a second child (*based on the responses of female respondents*)

Table A15. Cumulative percent ever having a second child of four cohorts of women

Table A16. Cumulative percent of couples who have had a first child after the start of the union, with separation as a competing risk

Table A17. Cumulative percent ever in a parental union for children born to a lone parent (*based on the responses of both male and female respondents*)

Table A18. Cumulative percent ever out of union for children born within union (*based on the responses of both male and female respondents*)