Union formation in times of social and economic change:

Evidence from the Bulgarian and Russian GGS

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Chapter 1
Introduction

1.1   Union formation in a changing socio-economic context

At the end of the 1980s, central and eastern European countries faced a fundamental political transformation that was followed by significant transitions in all spheres of life — economic, institutional, and cultural. As a consequence of the restructuring, there was a drastic depreciation in the total value of goods and services. By the mid-1990s, the average value of the Gross Domestic Product (GDP) per capita in the central and eastern European countries decreased to about USD 2,000, which was the largest peacetime contraction since the Great Depression in 1929–33 (Milanovic 1998). The number of people living under the poverty line (of USD 4 per day) increased from 14 million to 140 million people in the period 1989–1996 (ibid., p.7). On top of such general trends, socio-economic reforms had different "speeds" and outcomes in the overall development of the countries in the region (EBRD 1994). By the mid-1990s, some of them were still under a severe economic recession with triple-digit inflation (like Bulgaria), while in others the economic landscape was changing for the better and inflation was reduced to single-digit levels (as in Slovenia and the Czech Republic).

In terms of speed and effectiveness of the economic reforms, Bulgaria and Russia were often grouped together with Romania, Moldova, Belarus, Ukraine, and other countries from the former Soviet Union (except the Baltic states) into the group of "laggers" among the countries in the region. The overall economic

situation in the two countries in the 1990s was characterized by an aggregate economic decline, high inflation, rising inequality, and general poverty (World Bank 1999). During the period of economic restructuring, numerous reforms were initiated, including reforms of the legislative system and social welfare, as well as of the education and healthcare systems. These significant macro-level institutional changes affected many different aspects of individual lives. Moreover, they were particularly important for central decisions in people's lives, such as the family life transitions — the timing and occurrence of family formation and entry into parenthood — and their interactions with other life domains like education and work career. The last decade of the 20th century witnessed swift development in the transition to first marriage and non-marital cohabitation, childbirth within and outside of marriage, and marital (union) dissolution in Bulgaria and Russia.

Data from official statistics and all available demographic observations confirm the remarkable decline in total fertility, accompanied by a rapid fall in marriage rates. At the end of the 1990s, total fertility rates (TFR) in Bulgaria and Russia fell from levels of around two children per woman (1.97–2.05 and 1.87–2.23, respectively) in the 1980s, to the lowest levels ever observed (in the range of 1.09–1.17) (Contextual database 2006). A slow recovery was manifest in the period 2000–05. The proportion of children born outside of marriage increased remarkably (from levels of about 10–12% in both countries in the 1980s to about 30% in Russia and 40% in Bulgaria at the beginning of the 2000s) (ibid.). Non-marital cohabitation emerged and became more widespread as a first union within a very short period: At the beginning of the 2000s, 9.7% of women in Russia and 13.1% of the population at reproductive ages in Bulgaria lived in a consensual union (NSI 2003b, RAS 2006). This rapid development of the pattern of family formation in the 1990s was in significant contrast to early and nearly

universal first marriage and the two-child family model prevailing in Bulgaria[1] and Russia[2] from the 1960s until the end of the 1980s. Avdeev and Monnier (2000) affirm that it was almost a mandatory stage in the passage to adulthood for a young Soviet woman or man to get married at the end of education or military service. Similar observations for Bulgaria can be found in Spasovska (2000). In both countries, legal marriage was the most common family form, and children were typically born within marriage.

In this study we investigate how the socio-economic transformations in Bulgaria and Russia at the end of the 20th century influenced the patterns of first union formation. We elaborate on the identification of *marriage* and *family* in the era of Socialism and on the emergence of *non-marital cohabitation* and its development between 1970 and 2004. Thus our main analytical focus is on the following questions:

- *Did changes in union formation behavior start with the collapse of the Socialist system at the end of the 1980s, or was the socio-economic transition an accelerator of an ongoing process?*

- *Who are the forerunners of the new family formation behavior in Bulgaria and Russia?*

- *At what stage of development did cohabitation arrive in each country: as a deviant behavior, as a stage in the partnership career leading to marriage, or as an alternative to marriage?*

In addition, we intend to study how the combination of family policy measures, economic conditions, and cultural norms affect the individual family formation behavior in the two countries. Thus, the second group of questions we intend to answer is:

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[1] See for example Spasovska (2000), Zhekova (2002), Philipov (2002), Belcheva (2003).
[2] See for example Volkov (1986), Zakharov and Ivanova (1996), Zakharov (1999), Ivanova (2002).

- *What differentials are there between Bulgaria and Russia in union formation behavior?*

- *Which factors play a major role in the union formation patterns — traditions, openness to new ideas and behaviors, changing economic systems, or a combination of all three?*

To answer these questions we look at the patterns of first union formation from a life course perspective (Giele and Elder 1998), which allows us to link individual behavior to macro-level social change. By means of event history analysis, we analyze how the occurrence of a particular event (first union formation) is affected by other events (e.g., school graduation or childbirth) that may have happened to the respondent over her lifetime. In order to evaluate the shifts in the family formation model in the two ex-Socialist countries, we model the effect of the changing role of the respondent's education and socio-economic background on the rates of entry into first union throughout the period before and after the start of the dynamic societal transformations (1970—2004). Also, to estimate the development of cohabitation, we model the effect of the same socio-economic characteristics on the stability of first non-marital cohabitation.

To attain comparability between the two countries, we have performed identical event history analyses using data from representative longitudinal surveys, carried out in Bulgaria and Russia in 2004. The two surveys were conducted within the framework of the international project Generations and Gender Programme (United Nations 2005). Generations and Gender Surveys (GGS) were designed as longitudinal panel surveys to include three waves spaced three years apart. In Bulgaria and Russia the first waves were conducted in 2004.

1.2   Outline of the study

In *Chapter 2* we present a macro-level description of the situation in the Bulgarian and Russian societies through the 1970—2004 period. First of all, we present the demographic developments of family formation in the two countries, with a particular emphasis on the emergence of non-marital cohabitation as a new form of family arrangement. In addition, we provide an overview of the institutional changes in the two societies under socialism (during the 1970s and 1980s) and in the period of social and economic transformations (in the 1990s and 2000s). Institutional changes are understood as changes in educational systems, labor market institutions, family-related policies, as well as in the general economic development of the countries. We mainly present indicators from the available official statistics. In neither country does vital statistics collect data concerning cohabitation, however. For this aspect we review cross-sectional results from recent census data. At the end of the chapter, we summarize the main differences and similarities between the two countries and outline our main research questions.

In *Chapter 3* we review the main conceptual frameworks that are used to explain the changes in *timing* and *nature* of the marital family and the emergence of non-marital cohabitation in Western Europe and North America. We discuss the applicability of these concepts in the Socialist and post-Socialist reality, and, in particular, to the cases of Bulgaria and Russia. Additionally, we present a theoretical discussion of the differences and similarities between the two former Socialist countries. We conclude the chapter with our general hypotheses in which we juxtapose Bulgaria and Russia in their union formation model during the period of observation.

Chapter 4 presents the methodological aspects of studying first union formation in Bulgaria and Russia. Initially, we review the definition of "first union formation" and its interaction with other events in the context of life-

course approach. We continue with a thorough description of our analytical methods and the advantages and disadvantages of the data sets used. In the second part of the chapter we lay out a detailed scheme of transitions under study, events of interest and the covariates in the model.

The empirical part of the study is described in *Chapters 5 and 6,* in which we present the model estimates of first union formation in Bulgaria and Russia separately. The two analytical chapters have identical structures. Each of them starts with hypotheses about the influence of several key factors on the emergence and further development of cohabitation for Bulgaria and Russia respectively. In the second part, we present our empirical results and give a short interpretation with respect to the country-specific developments. A particular emphasis is given to the timing of the emergence of cohabitation and to the shifts in the profile of people starting their partnership careers in cohabitation. In order to do so, we first analyze the transition to first direct marriage vs. first non-marital cohabitation separately, and the subsequent transformation of cohabitation into marriage. Furthermore, we apply an extension of the traditional event history technique, an extension that allows us to compare the rates of entry into first union across the two competing transitions. We conclude each chapter with a summary of our findings.

In the concluding *Chapter 7* we present our main findings in a country-comparative manner. In addition we link our empirical results to the initial theoretical discussion of determinants of first union formation. We complete the study with general concluding remarks on the changing pattern of family formation in Bulgaria and Russia during the period 1970–2004.

Chapter 2

Trends in union formation in Bulgaria and Russia in 1970-2004

2.1   Introduction

As former Socialist countries, Bulgaria and Russia had many similarities in terms of their family formation patterns before the change of the political regimes around 1990 (1989 in Bulgaria, 1991 in Russia). Family patterns in both countries were characterized by early and almost universal "legal" marriage; children were born predominantly within a marriage; the two-child family model was the most common family arrangement, and so on. Many similarities could be found at the institutional level as well. Bulgaria and Russia, for example, had comparable education systems; unemployment did not exist officially; female labor force participation remained at very high levels, accompanied by family policies in support of reconciliation of family and work; and the housing stock was owned and distributed by the state (Lutz et al. 1994, Stojanova et al. 1997, Pascall and Manning 2000, Deacon 2000, Katz 2001, Rostgaard 2003).

Yet there were also a number of differences between the two countries. For instance, unlike the case in Bulgaria, divorce in Russia remained at a very high level through the second half of the 20th century. During most of the Socialist era, the period of compulsory formal education in Russia was a year shorter than that in Bulgaria. Perhaps the difference in age of graduation from (high) school could account for differentials in the timing of family formation in the two countries. Furthermore, we suppose that the differences of size,

geographical location, and economic development could account for a widening divergence of Bulgaria and Russia in union formation after the collapse of Socialism.

In order to guide the reader through the demographic development of Bulgaria and Russia during the most recent four decades, we devote this chapter to a descriptive analysis of the pattern of union formation in the two countries. First of all, we portray the "universality" of marital family in the two societies during the Socialist era and the emergence of cohabitation as reported by the official statistical data (section 2.2). In addition, we provide an in-depth portrait of the institutional settings in the two societies in the period 1970—2004 (section 2.3). We conclude the chapter with a comparative summary of the demographic development of the two countries (section 2.4) and a formulation of our research questions (section 2.5). Data used for the overview come mainly from the vital statistics of Bulgaria and Russia.

2.2   Marital family and the emergence of cohabitation

The universality of marriage in Bulgaria and Russia in the second half of the 20th century is discussed widely in the literature (Volkov 1986, Vishnevskiy 1998, Willekens and Scherbov 1994, Ilyina 1994, Spasovska 2000, Philipov 2001, 2002). Marriage was often pointed out as the only accepted form of family living in the two countries under socialism. Similarly, non-marital births were not approved by public opinion; therefore, marriage was a precondition for having children in both countries (Rotkirsh 2000, Zhekova 2002).

In order to provide an explanatory framework for our analysis of the development of non-marital cohabitation in Bulgaria and Russia, we will initially trace the development of marriage formation back to the beginning of the 1970s. In addition, we provide an overview of the existing data on the emergence of

cohabitation in the two countries. Finally, we will use the trends in non-marital childbirth as a proxy for trends in non-marital union formation in Bulgaria and Russia from the 1970s through to the 1990s.

2.2.1   Marriage before and after the collapse of Socialism

Nuptiality patterns in Russia and Bulgaria (as in the other former Socialist countries) in the 1970s and the 1980s was characterized by early and almost universal marriage (Spasovska 2000, Vishnevskiy 2006). In Figure 2.1 we present the first-marriage formation trends among women in Bulgaria and Russia for the period 1970—2004. On the left Y-axis (black line) we plot the total female first marriage rates (TFFMR). Values in the range of 0.9 to 1.0 are indicative of the "value" of the marital family in both countries before the collapse of the Socialist regime.

In the first years after the beginning of the transition, first-marriage rates fell sharply. Unfortunately, due to reduced data collection in Russia (mainly for marriage and divorce), many of the indicators provided by the Russian Statistical Institute (*Goskomstat*) are available only until 1996 (as TFFMR). Thus, in order to show first-marriage trends in Russia for 1997—2004, we also plot the total number of first female marriages (grey line, corresponding to the right Y-axis).

Clearly, these two indicators bear witness to the sharp decrease in first marriages in Bulgaria in the first half of the 1990s. The values remained low thereafter. In Russia, the total number of women who married for the first time decreased gradually in the 1980s through the 1990s. Nevertheless, the TFFMR remained relatively stable (at about one marriage per woman) until 1991. The drop that followed was similar to that in Bulgaria. After a short stabilization period at the beginning of the 2000s we observe a recovery in first marriage formation in Russia. The total number of first marriages in 2004 was at the levels observed at the beginning of the 1990s (Nasselenie Rosii 2006).
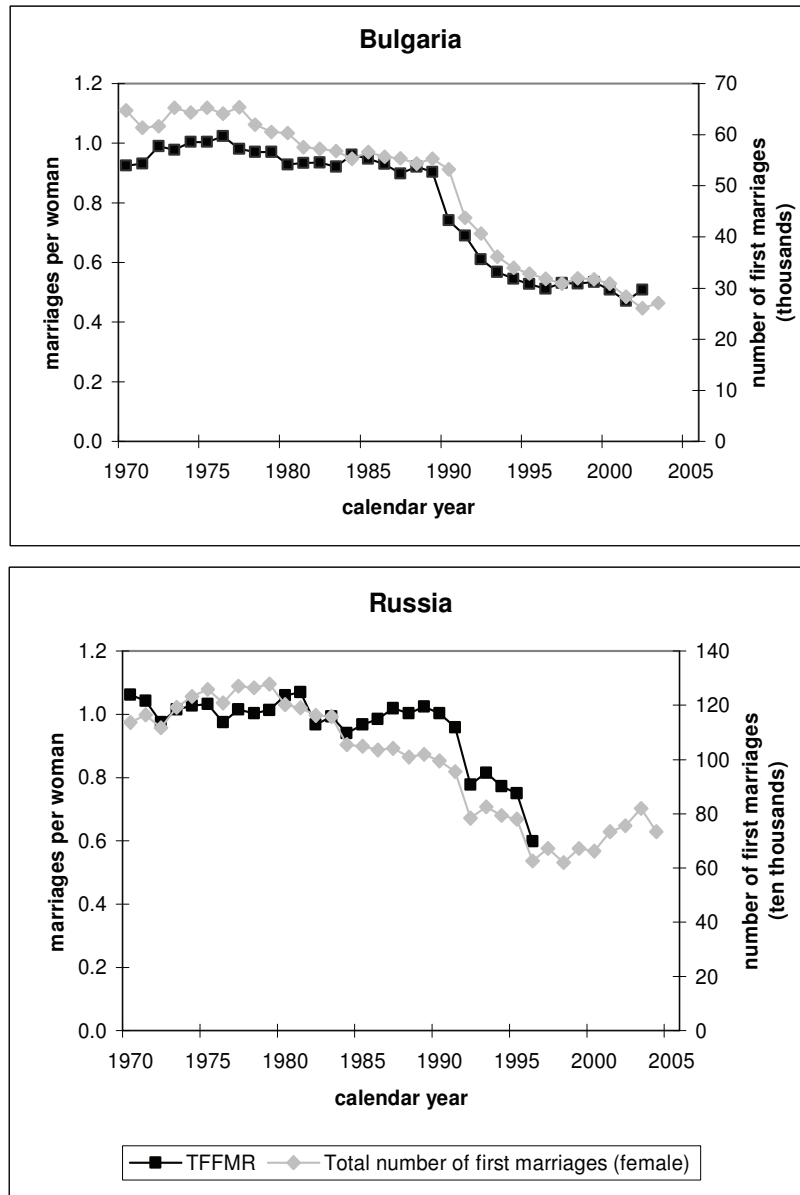
Figure 2.1 TFFMR and the total number of first marriages (female), Bulgaria and Russia, 1970—2004

Sources: (1) GGP Contextual database, 2006; (2) Council of Europe (Recent Demographic Developments, 2005)

Note: Due to reduced data collection in Russia, TFFMR for Russia is available only for the period before 1996.

In Figure 2.2 we present the trends in age-specific first-marriage rates in Bulgaria and Russia over the last 35 years. (Data for Russia are only available until 1996.) We observe a dynamic development in first-marriage formation, which in both countries was mainly concentrated in the younger age groups (16–19 and 20–24). In Russia, until the 1990s the decrease in first marriage rates to 20–24-year-old women was compensated by an increase among the very young (under 20). As a consequence, age at first marriage in the 1970s and the 1980s in Russia decreased (Figure 2.4). It dropped by 1.4 years in the period 1970-1991. From the beginning of the 1990s, age at first marriage increased somewhat and reached the levels recorded in the 1970s.

In Bulgaria, despite some small fluctuations, first-marriage rates remained constant in the 1970s and 1980s. Since the beginning of the 1990s, we observe a distinct decrease in marriage rates among the most "marriageable" age groups, and in particular among the youngest (aged 16—19). A partial compensation of the strong decrease in first marriages in the 1990s was the increase among woman at ages 25-29 in the 2000s. It seems that at the beginning of the 1990s, women were postponing first marriage. It would appear that the increase in marriage rates among women in their late twenties and early thirties confirms that the delayed first marriages were recovered in part. The delay in first marriage in Bulgaria is evident also in the increase of the mean age at marriage (Figure 2.4). After staying at a stable level of around 21.4 years in the 1970s and throughout the 1980s, it has increased by 3.5 years within the last decade and a half.

A number of explanations of the postponement of first marriage in central and eastern European countries after the collapse of socialism can be found in the literature (Avdeev and Monnier 2000, Kreyenfeld 2003, Kantorova 2004). We will emphasize the emergence of cohabitation as a novel form of family living and its role in the process of marriage delay in Bulgaria and Russia.
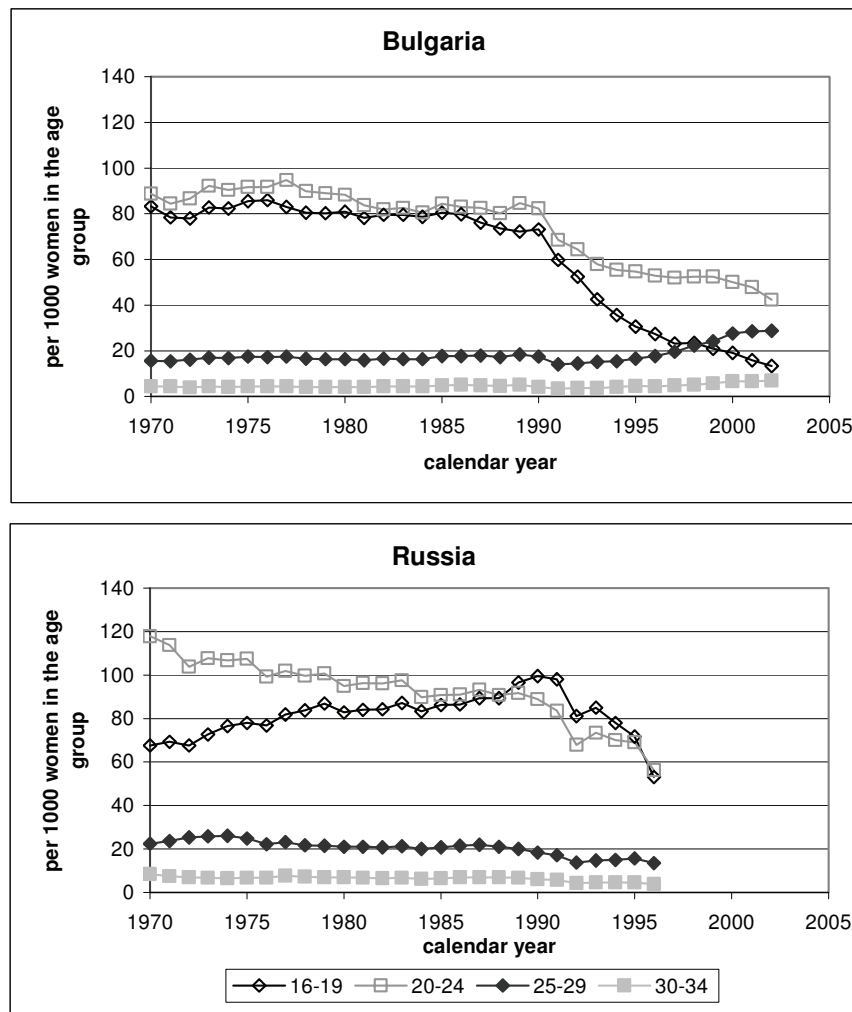
Figure 2.2 First marriages (per 1000 women), by age group, Bulgaria and Russia, 1970—2004

Source: Contextual database, 2006

Note: Due to reduced data collection in Russia, age specific first marriage rates for Russia are available only for the period through 1996.

2.2.2 Liberalization of the union formation model and the emergence of cohabitation

Official statistics in both countries only provide partial and very recent data on the emergence of cohabitation. The first representative data on consensual unions in Russia (the term Goskomstat used was *non-registered marriage)* was collected with the micro-census in 1994. The data revealed that in 1994, 4% of the women

of age 16 or more lived in a non-marital union (Nasselenie Rossii 2006, p. 228). However, the proportion increased to 6.7% if numbers were related only to women living in a union; it went to 14% if only young women under the age of 20 were considered (Table 2.1).

Table 2.1 Proportion of women living in cohabitation ("not registered" marriages) among all women, Bulgaria and Russia, census data by age groups

Age	Bulgaria* 2001	Russia** 1994	Russia** 2002
16-17	..	28.9	53.4
18-19	..	11.4	32.6
20-24	..	6.7	19.0
25-29	17.6	5.9	14.2
30-34	..	5.8	11.8
35-39	..	6.1	9.3
40-44	12.1	6.4	8.0
45-49	..	6.6	7.7
50-54	..	6.9	7.3
55-59	10.4	7.0	6.7
60-64	n.a.	6.7	6.3
65-69	n.a.	7.0	6.1
70+	n.a.	8.2	6.1
All ages	13.1	6.7	9.7

Source: (1) Nasselenie Rosii, 2003-2004; (2) Census data, 2001, Bulgaria.

Notes: (1) * for Bulgaria, data are aggregated for both sexes and age groups 15–29, 30–44, 45–59; "all ages" refers to ages 15–59 ; (2) ** for Russia, women in union only.

Eight years later, the 2002 Census reported an overall increase of 3%.Among young women under 20, the increase was much more substantial. In Bulgaria, the first official data were collected with the Fertility and Reproductive Behavior Survey, conducted in parallel to the 2001 Census. The survey was representative for women at reproductive ages (15-49) and men aged 15-59 years. Apparently, 13.1% of Bulgarian population at reproductive ages (Table 2.1) lived

with a partner without an officially registered marriage (National Statistical Institute 2003b).

Unfortunately, data availability does not allow us to present a picture of the development of non-marital cohabitation in Bulgaria. Instead, we attempt to estimate its spread during the period of study in both countries by investigating the interaction of first marriage and first childbirth.

2.2.3   First childbirth and union formation

In Figure 2.3 we plot the trends in non-marital births in Bulgaria and Russia for 1980–2004. We give the total number of births by non-married mothers and the proportion of all births. For about two decades (until the early 1990s), non-marital births in both countries comprised about 10% of all births. The increase in the last 15 years was much more pronounced in Bulgaria, where in 2004 non-marital births made up almost half of all births (48.7%). The comparable proportion for Russia in 2004 was 29.7%; i.e., almost every third child was born of a non-married mother. Philipov (2002) provides some explanation of the sharp increase in the proportion of non-marital births in Bulgaria in the 1990s. He points out that, together with the overall fertility drop and the heterogeneity of the population, the changing pattern of union formation is a possible explanation of the sudden changes in non-marital fertility. Apparently, due to an imperfect (outdated) family code, children born within consensual unions were (and still are) registered as non-marital births, in the same manner as births by single mothers.

The continuing increase in the number and percentage of non-marital births in both countries in the last 15 years (see Figure 2.3) is an indication that the increase of "*births outside of marriage* is not necessarily synonymous with

children being born outside a family union of some type" (Council of Europe 2001).
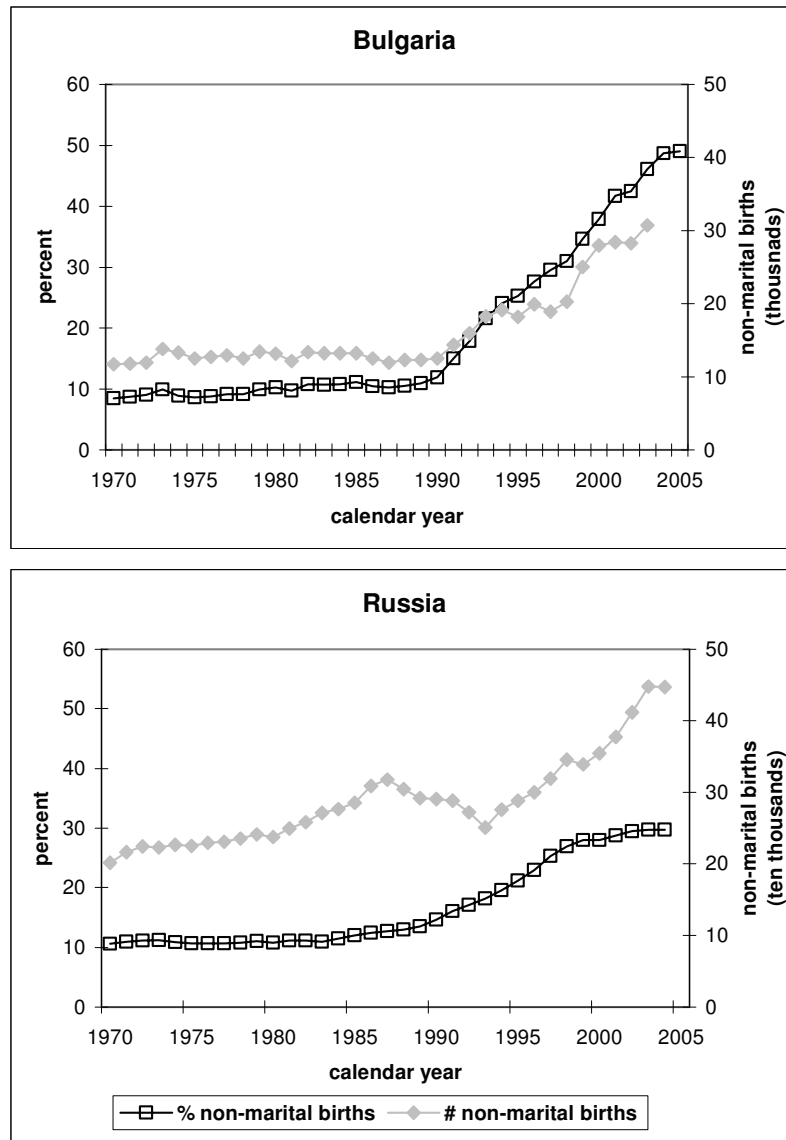
Bulgaria

Russia

Figure 2.3 Percentage and total number of non-marital births, Bulgaria and Russia, 1970–2004

Source: Contextual database, 2006

An indirect confirmation of the emergence of a new family pattern may be found in the timing of first birth and first marriage in Bulgaria (Figure 2.4)
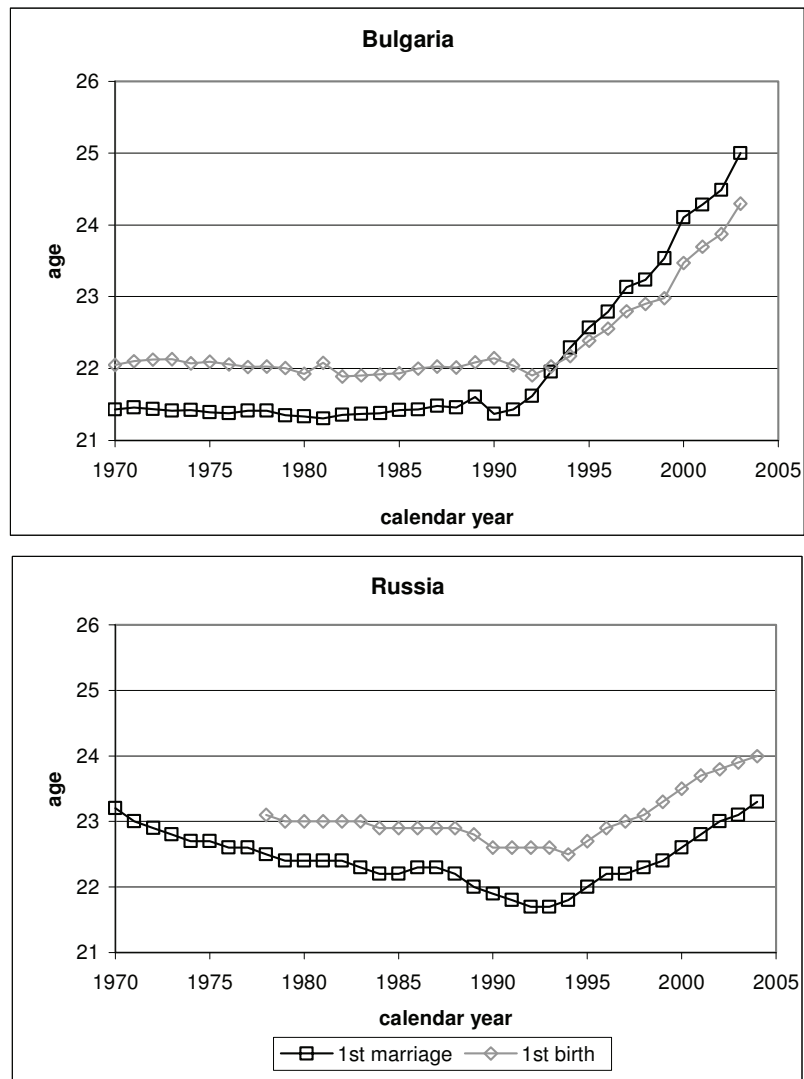
Figure 2.4 Mean age at first marriage and mean age at first birth, Bulgaria and Russia, women, 1970–2004

Sources: (1) GGP Contextual database, 2006; (2) Council of Europe (Recent Demographic Developments, 2005)

Notes: Data for Russia for the period 1991-2004 recalculated by S. Zakharov

As we already mentioned in section 2.2.1, in the Socialist era children were born predominantly within a marital family, and marriage was a precondition for having a child. As shown in Figure 2.4, in the 1970s and the 1980s, the interval

between the mean age of women at first marriage and the average age of mothers at first birth remained in the range of 7 to 10 months.

In the years since the transition, the average age at first marriage in Bulgaria has risen faster than the age at first birth. In particular, since 1994 the mean age at first birth has been lower than the average age at first marriage. This is an indication that the largest share of first births of mothers in their early twenties occurred out of legal marriage. It would appear that the proportion of non-marital births by mother's age, presented in Table 2.2, is evidence that some 83.9% of all births at ages below 20 were outside of marriage in 2003; the comparable proportion in 1990 was 53%.

An explanation of this trend can be found in the ethnic composition of the Bulgarian population and in the different models of family formation among ethnic groups in Bulgaria. The Bulgarian population consists of three main ethnic groups: ethnic Bulgarians, ethnic Turks, and Roma ('Gypsies'). According to the most recent census data (2001), 83.9% of the population in Bulgaria declared themselves as ethnic Bulgarians, 9.4% as ethnic Turks, and 4.7% as Roma (Contextual database 2006, "Culture" topic). Family formation behavior among the Roma population differs significantly from that of the ethnic Bulgarian population. An early start and high fertility rates as well as a high proportion of not-registered marriages are characteristics of the Roma in Bulgaria (Pamporov 2003, 2005; Philipov 2002, Koytcheva 2005). In her study on family formation in Bulgaria, Koytcheva (2006, p. 140) found that half the Roma women had conceived their first child by the age of 18, whereas the same proportion for ethnic Bulgarian women was only 7%. Thus, most probably, the largest proportion of teenage mothers are Roma (Table 2.2).

In Russia, the postponement of first marriages was parallel to the postponement of first births (Figure 2.4). The interval between the two events remained in the range of 7 to 10 months for the whole period of observation.

Thus, the aggregate data do not provide us with evidence that the birth of the first child preceded the entry into first marriage in Russia.

The official statistics of Bulgaria and Russia do not provide data on the distribution of non-marital births by birth order, so in Table 2.2 we present the trends in all non-marital births by the age of the mother (as a proportion of all births in the respective age group).

Table 2.2 Non-marital births in % of all births in the respective age group, by age of mother, Bulgaria and Russia, 1980-2003

	1980	1990	1995	2000	2003
Bulgaria					
Under 20	43.7	47.9	57.8	74.7	83.9
20-24	7.4	7.1	19.0	37.8	49.7
25-29	4.9	6.0	11.4	24.6	33.9
30-34	6.1	9.4	15.0	23.2	29.7
35-39	9.4	14.3	21.2	32.2	33.2
40-44	11.6	23.7	26.5	38.3	42.7
45+	12.8	37.7	37.5	44.8	30.0
All ages	**10.3**	**12.4**	**25.7**	**38.4**	**46.1**
Russia					
Under 20	18.7	20.2	27.0	41.0	46.4
20-24	7.9	11.0	17.6	25.6	28.3
25-29	9.4	11.8	18.9	24.7	25.8
30-34	13.5	17.3	22.9	26.4	26.5
35-39	21.5	25.5	30.2	31.2	30.2
40-44	23.8	34.8	36.5	34.9	33.2
45+	23.1	36.5	35.8	36.8	33.1
All ages	**10.8**	**14.6**	**21.1**	**28.0**	**29.7**
% recognized by the father	46.8*	42.8	43.1	47.2	48.4

Sources: (1) for Bulgaria – NSI Statistical yearbooks, various years, author's calculations; (2) for Russia - Nasselenie Rossii 1999, 2006

Note: *data for 1979

Despite the very high values for teenage mothers in Bulgaria (discussed in more detail above), non-marital births follow similar trends in both countries.

The highest increase in the proportion of non-marital births in Bulgaria was among the mothers in their twenties (by a factor of seven); the respective increase in Russia was by a factor of 3.5.

The Russian statistical office provides data on father's recognition for the children born outside of an officially registered marriage. *Father's recognition* denotes that the father's name appears on the child's birth certificate. Thus, the proportion of non-marital births registered by both parents has increased over time. We interpret this trend as an indirect indication that there has been an increase in the births within unions that are not legally registered as marriages.

Table 2.3 illustrates the interaction between non-marital conception and its manifestation in first childbirth (within or outside of a marriage) in Russia.

Table 2.3 Percentage of non-marital conceptions, realized in first childbirth, Russia, 2002

Age of mother	% conceptions out of marriage	Outcome of conception		
		Birth in a marriage*	Birth out of marriage (father's recognition)	Birth out of marriage (no father's recognition)
All ages	68	36	14	18
Up to 16	99	7	33	59
16	99	30	24	45
17	97	40	22	35
18	94	51	16	27
19	84	49	14	21
20-24	66	39	12	15
25-29	56	26	15	15
30-34	62	20	20	22
35-39	62	16	20	26
40+	61	14	21	26

Source: Tolts et al. (2005, Table 8, p.57)

Note: * incl. births before registration of marriage

In their study of non-marital conception in Russia, Tolts et al. (2005) reveal the interplay between childbirth and union formation in contemporary Russia. They focus on the age distribution of non-marital conceptions and their

manifestation in first childbirth. More than two-thirds of all first births in Russia in 2002 were conceived outside of a marriage; approximately half of them resulted in marital births. The proportion is even higher among mothers in their twenties. First of all, this table demonstrates the strength of the tradition in Russian society of converting a relationship into a marriage when a child is expected. Secondly, it reveals that almost half of non-marital births are registered by both parents (particularly among mothers at ages 20–29). Tolts et al. denote this development as a "transformation of the institution of marriage" in Russia (p. 59).

2.3   Institutional changes in the period of transition

To understand demographic behavior, we need to place demographic developments in a country-specific context. For two decades after the beginning of *Perestroika*, Bulgaria and Russia underwent intensive political, economic, and cultural transformations. In this section, therefore, we portray the main institutional changes in the process from state socialism to democracy and market economy in Bulgaria and Russia. We give an overview of aspects of the economic system in their relationship to union formation behavior; i.e., general economic development, labor force and unemployment, and the educational system. In addition, we describe the Socialist welfare system and its transformations through the 1990s. We cover a period from about ten years before the transition (so restricted due to data availability) until 2004 (first wave GGS).

2.3.1   Economic development

Bulgaria and Russia have faced many turbulent changes in the last 30 years: *Perestroika*, the fall of the Socialist regime, the dissolution of the Soviet Union, the

transition to a market economy, and in the case of Bulgaria, admission to the European Union. All these societal transformations were accompanied by economic restructuring and modernization. The economies of the two countries underwent a number of deep crises, followed by periods of stabilization.

Prior to the start of *Perestroika* in 1985, the centrally-planned Socialist economies were characterized by state-owned enterprises, absence of overt unemployment, synchronized commodity production, and trade markets within the Comecon (Milanovic 1998). Perestroika (1985–1991) marked the beginning of the democratization and liberalization of Russian society. The main objectives of the economic program were designed to begin fundamental economic modernization across the country; they included a law permitting private ownership of businesses, the virtual elimination of the state monopoly in foreign trade, allowance of foreign investments in the form of joint ventures, etc.).The structural reforms of the late 1980s resulted in a precipitous fall in real GDP throughout the 1990s (Figure 2.5). A similar development was observed in Bulgaria. After the economic stagnation of the 1980s (Sachs et al. 1994) and a short-term recovery (1986–1987), the GDP dropped severely in the 1990s.
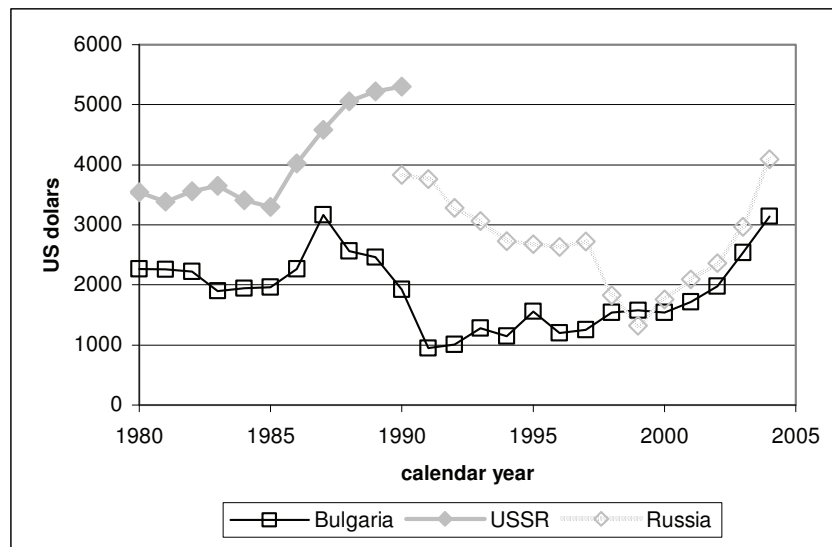
Figure 2.5 Real GDP per capita (Bulgaria and Russia, 1980–2004)

Sources: (1) UN Statistics Division, National accounts (for Russia); (2) GGP Contextual database, 2006 (for Bulgaria)

The structural reforms and monetary management after the collapse of the Socialist economic systems in Russia and Bulgaria were slow, mistimed, and inefficient (Bruno 1992, IMF 1996, Prokofieva and Terskikh 1998, Lokshin and Popkin 1999). Hyperinflation, a sharp rise in unemployment (the more pronounced in Bulgaria; see section 2.3.3), and devaluation of local currencies brought drastic reduction of living standards and widespread impoverishment of people in both countries. In the first half of the 1990s, the economies in transition faced several severe financial crises (in 1993 and 1998 in Russia; in 1991 through 1997 in Bulgaria; see Contextual database 2006, topic "Economy") followed by short periods of recovery. Thus, the overall economic situations in Bulgaria and Russia in that period were characterized by an aggregate economic decline (Figure 2.5), high inflation (up to 940% in Russia in 1993 and 1182% in Bulgaria in 1997; Contextual database 2006, var. 202), rising inequality and poverty (World Bank 1995, 1998).

In both countries, the first years of the 21st century were a period of economic stabilization and recovery. Following the deepest economic and political crisis in 1996/1997, Bulgaria launched a stabilization program in July 1997. Fundamental to this program were the introduction of a currency board (to prevent a further rise in inflation), stimulation of the process of privatization, tax reform, and other macroeconomic measures. In Russia, a stabilization program was initiated at the end of the 1998 and the beginning of 1999 to overcome the severe crisis of 1998. The program incorporated a set of measures such as accelerated privatization, a tax reform, a restructuring of the banking system, and a new international trade policy (IMF 2000).Since the year 2000, economic indicators in both countries have shown a steady growth.

Table 2.4 Per capita GDP at current prices (US Dollars), selected countries, 2004

Country	GDP per capita, 2004
Norway	55268
Sweden	38792
Netherlands	37399
Austria	35478
Germany	33168
France	33005
Greece	23842
Slovenia	16323
Czech Republic	10615
Hungary	10101
Poland	6592
Turkey	4193
Russian Federation	**4089**
Romania	3475
Serbia	3274
Bulgaria	**3117**
FYR Macedonia	2644
Albania	2408

Source: (1) UN Statistics Division, National accounts

In spite of the improvement in the macro-economic situation throughout the 2000s, Bulgaria and Russia held disadvantageous ranks in a Europe-wide comparative perspective in 2004 (Table 2.4). Income inequality and the share of people under the poverty line remained at significant levels (Contextual database 2006, topic "Economy").

In the following subsections (2.3.2 to 2.3.4) we present in more detail the development of some key economic indicators that have proved to be motivating forces for the changing behavior in union formation across Europe (Kravdal 1994, 1999, Marini 1995, Bracher and Santow 1998, Lewis 2001). Of special interest is the emergence of unemployment, changes in female labor force participation, and changes in the educational systems in Bulgaria and Russia throughout the various socio-economic regimes.

2.3.2   Unemployment

The concept of unemployment did not exist in either Bulgaria or Russia during the Socialist era. The "right to work" was a constitutional right of every citizen of the country (Constitution of the People's Republic of Bulgaria 1971, article 40(1); Constitution of USSR 1977, article 40(1)), guaranteed by the "Socialist economic system" (*Socialisticheskoi sistemoi hoziaistvo).*

However, with the onset of the structural reforms, many factories and enterprises in both countries closed down. Many people were dismissed and became unemployed. Because of lack of experience, the post-Socialist governments were not prepared with effective measures to manage the newly emerging phenomena.

In Bulgaria, unemployment started to rise with the beginning of the reforms in 1991. The National Statistical Institute (NSI) developed a methodology of registration of unemployment that was adjusted to international standards

and to the changing economic situation in the country in the course of the 1990s. Unemployment was a target of observation for the first time in the population census of 1992. In September 1993, NSI conducted a representative survey "Employment and Unemployment," which became a regular panel survey on labor force issues.

Similarly, from 1992 *Goskomstat* published systematized data on the unemployment level in Russia. In Figure 2.6 we present the level of unemployment by sex, estimated from the sample surveys on employment issues in both countries (Labor Force Survey). The first peak of high unemployment in Bulgaria coincided with the first wave of privatization (or bankruptcy) of the state-owned industrial enterprises in 1993–94. The unemployment ratio estimated by the first Labor Force Survey in September 1993 was 21.4% of the economically active population (and was slightly higher for women). Another peak of unemployment was observed at the turn of the century with the implementation of the program for economic modernization. Bulgaria faced one of the highest unemployment rates among the former Socialist countries; only Poland and the Slovak Republic have had such high levels of unemployment since the transition (UNECE Statistical Division Database).
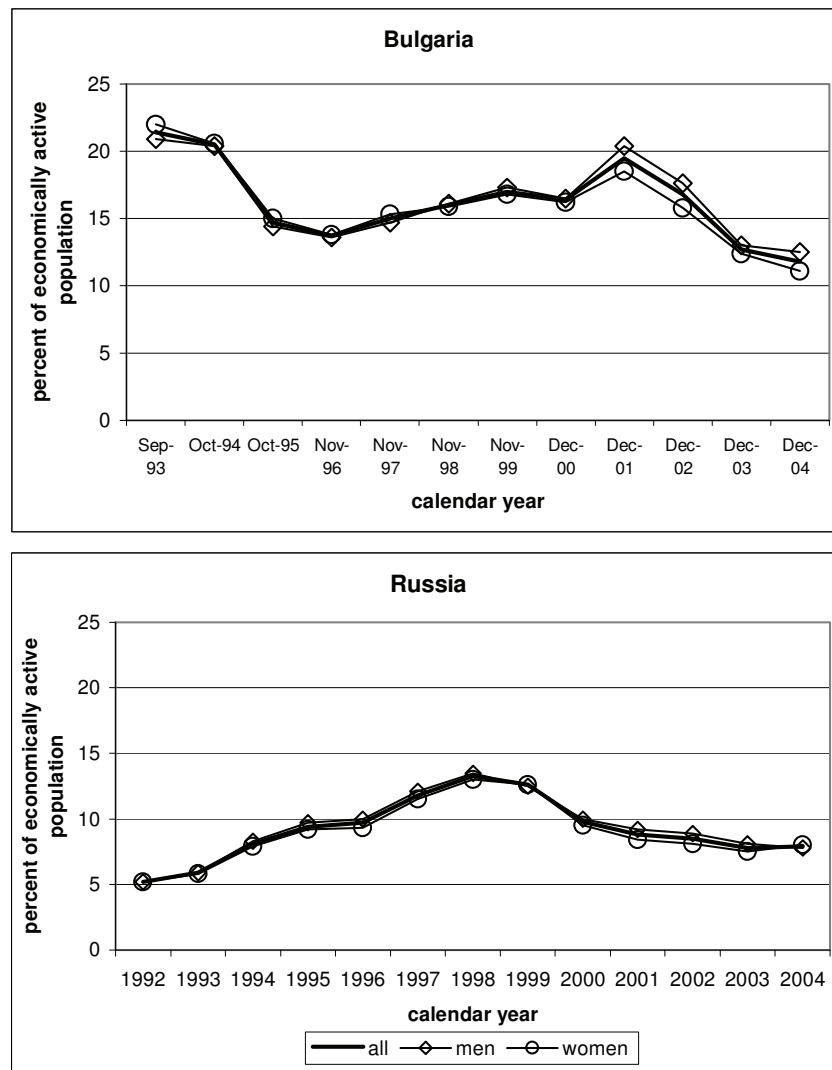
Bulgaria

Russia

Figure 2.6 Unemployment by sex, Bulgaria 1993–2004, Russia, 1992–2004

Sources: (1) Employment and unemployment, NSI, selected years (for Bulgaria); (2) Economic activity of the Russian population 2006, *Goskomstat* (p.129, Table 4.3) (for Russia)

Notes: The first Labor Force Survey in Bulgaria was conducted in September 1993

Several factors have influenced the decrease of unemployment rates in the years after 2001. Economic stabilization and a better investment climate in the country facilitated the opening of new job positions. In addition, the amendment of the Social insurance code (mid-2003) improved the system of labor force registration.

In comparison to the other eastern European economies in transition, the Russian labor market has some unique features of its own (Dmitriev and Maleva 1997). One of them concerns the amount of open unemployment, which was much lower than as suggested by the decline of production. As plotted in Figure 2.6, unemployment rates in Russia were far below the levels observed in Bulgaria. A peak was observed at the end of the 1990s (which coincides with the economic crisis in 1998). The economic stabilization program introduced in 1999 returned the unemployment rates to levels of around 8% of the economically active population.

In both countries, unemployment rates by sex do not differ greatly. Yet, the rates differ substantially by completed level of education (Figure 2.7). Women with a completed tertiary education had the lowest rates throughout the period 1992–2004 (1993–2004 for Bulgaria). Interestingly, at the beginning of the 1990s women with elementary or no education in Russia were among the least exposed to unemployment. During the severe crisis of 1997–1998 and in the years of radical reforms afterwards, women with little education (including primary education and a secondary school without professional training) experienced the highest unemployment rates. Following the general trend of very high unemployment, more than one third of women with low education (primary or lower) experienced being without a paid job in Bulgaria (at the beginning of the 1990s and in the early 2000s).
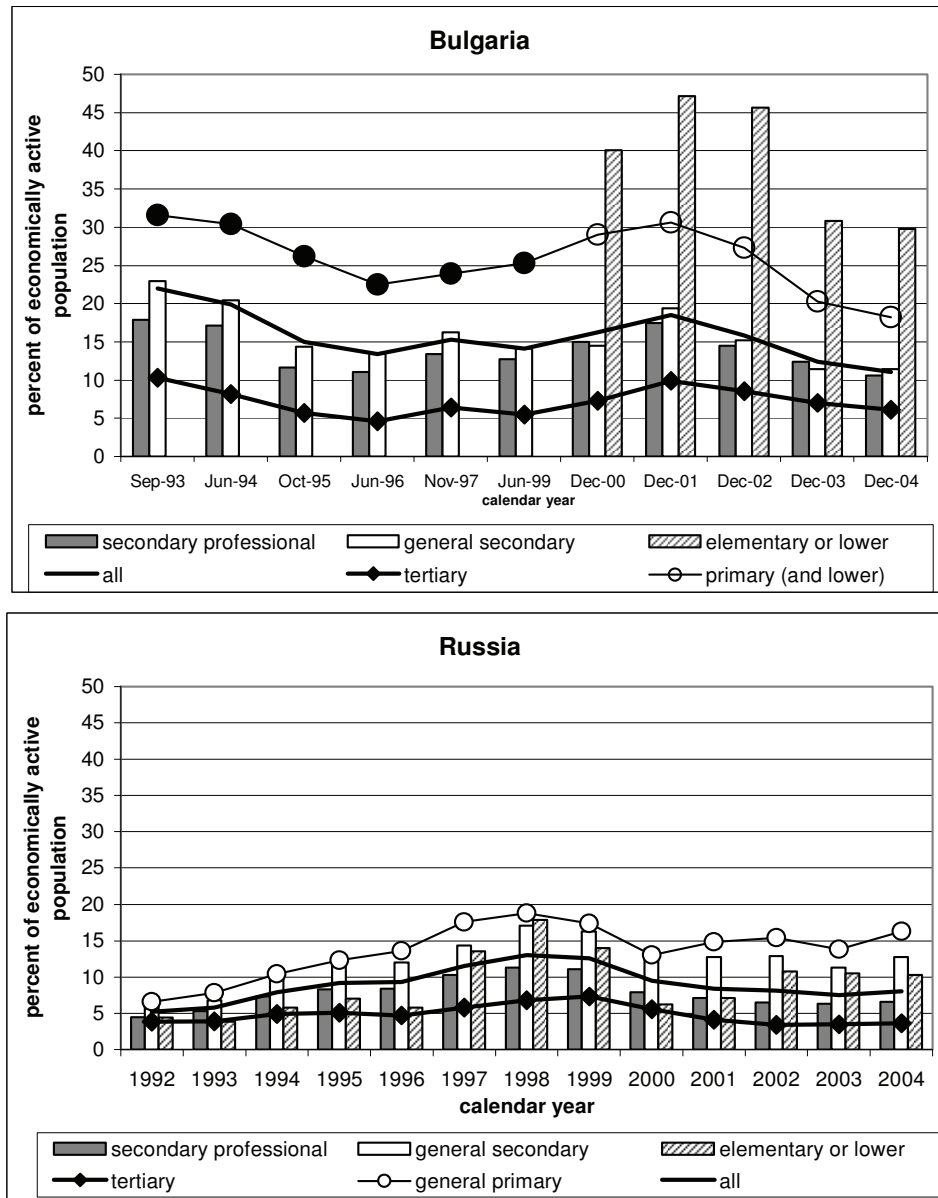
Figure 2.7 Female unemployment by level of education, Bulgarian women 1993–2004, Russian women 1992–2004

Sources: (1) Economic activity of the Russian population 2006, *Goskomstat* (p. 160, Table 4.8) (for Russia); (2) Employment and unemployment NSI, various years (for Bulgaria)

Notes: (1) Data on unemployment by sex and education for year 1998 for Bulgaria were not available; (2) The category "Primary education" for 1993–99 comprises women with a primary or lower education (including women without education); for the period 2000–04 a category was introduced for "elementary and lower" (including women without education).

2.3.3 **Female labor force participation**

The economic reforms of the early 1990s generated a fundamental transformation of the labor market in all former Socialist countries. Economic restructuring and the liberalization of the labor market produced essentially new types of employment and brought about essentially new requirements to the labor force.

Female labor force participation was at very high levels in the Socialist era (Gregory 1982, Svejnar 1992). Bulgaria and Russia were no exception. As we have already mentioned (section 2.3.2), the concept of unemployment did not exist in the Socialist economy. Thus, the official statistics on labor force participation date from the beginning of the 1990s (1992 in Russia and 1993 in Bulgaria). Rough estimates of the economically active population for 1970–1991, calculated as the total number of workers and employees divided by the total number of the population in the age-group 15-64 (Figure A1 in Appendix A), indicates that more than two-thirds of women in that age group were employed in Bulgaria in the late 1970s and the 1980s.

In Figure 2.8 we plot the distribution of the economically active female population by age in Bulgaria and Russia after the beginning of the economic reforms. A substantial decrease is observed in the younger age groups, which is mainly due to their prolonged stay in formal education (Kotzeva and Kostova 2004).
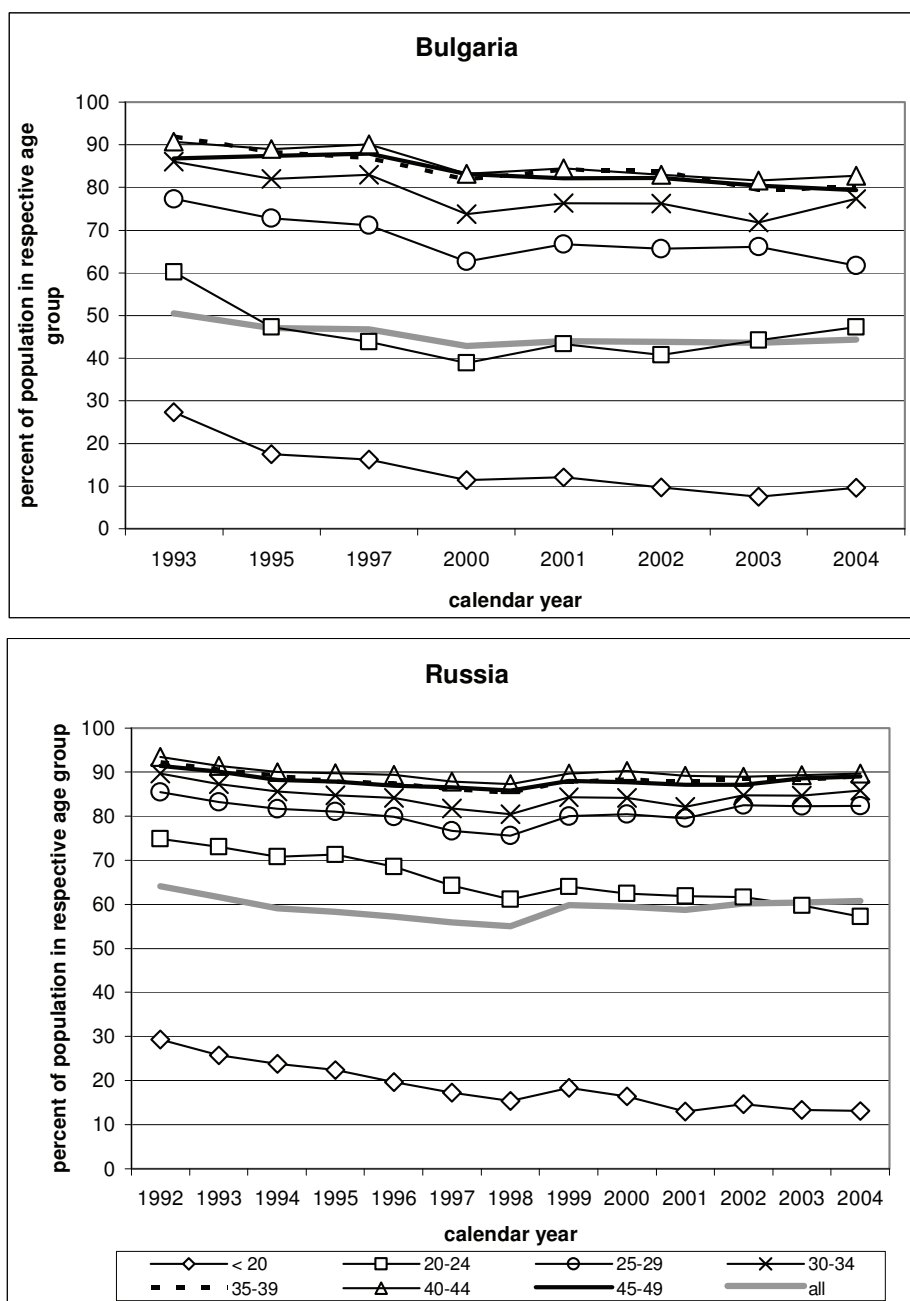
Figure 2.8 Economically active female population by age group, Bulgaria 1993–2004, and Russia 1992–20

Sources: (1) Employment and unemployment, NSI various years (for Bulgaria); (2) Economic activity of the Russian population 2006, *Goskomstat* (p. 19, Table 1.9)

Notes: (1) Data for the age groups 50-54, 55-59, and 60+ are not presented in the graph; (2) Data for Bulgaria for the years 1994, 1996, 1998, and 1999 are in a different format, thus are not presented here.

Overall, women's labor market activity was continuously high in the age groups over 25 in Russia during the 13-year-period of the study. The same indicator decreased in almost all age groups in Bulgaria in the 2000s. Due to the high unemployment rates, and in particular the high rates of long-term unemployment (which amounted to more than 60% throughout) in Bulgaria (Contextual database, "Unemployment" topic), many women dropped out of the labor force and moved to the group of "discouraged people" who did not have and did not search for a job.

2.3.4 Educational system and educational attainment

The organization of an educational system plays an essential role in individual demographic behavior. The length of compulsory education, as well as the opportunities for interruption and re-entry into education, are of particular importance for the timing of life-course events, such as household formation, marriage, and the birth of a child. From an economic perspective, education is a key determinant of human capital (Mincer 1958, Becker 1964). Thus, in market-based economies, there is a close interaction between attained level of education and economic success. Completed tertiary education is typically associated with improved chances on the labor market, higher income, and, therefore, better economic conditions.

Among the strengths of the Socialist educational system were the determination and the ability of the state to provide education for the majority of children up to the age of 16 (Gerber 2000a, 2000b). Secondary education in Bulgaria and in Russia was mandatory and tuition-free. Thus, at the end of the 1980s, more than 90% of people aged 20–29 in both countries had at least a basic secondary education (Vishnevskiy 1995, Gerber 2000).

The reforms and moves towards market-based economies in Bulgaria and Russia at the beginning of the 1990s and, in particular, the increasing

requirements of the labor market, gave highly educated people the advantage in finding a job (Figure 2.7). Thus, in both countries, there was a significant increase in the enrolment rates in tertiary education throughout the 1990s.

In Bulgaria at the end of the 1990s (school year 1989/90), the proportion of university students of the total population in the age group 19-23 was 22.9% (Table 2.5). The same proportion increased to 38.7% in 1999/2000. Among women, the growth was more notable: from 33.3% to 52.3% in the same period (Social tendencies 2000). Thus, at the end of the 1990s, almost half of the upper secondary school graduates (more distinct among girls) in Bulgaria continued on to post-secondary education.

The Russian educational system in the Soviet era had even wider coverage than the Bulgarian. At the beginning of the 1980s, about 99% of incomplete secondary (lower secondary) school graduates continued their education in upper secondary education (60% in general secondary schools, 33% in professional vocational schools, and 6% in specialized secondary schools, i.e., non-university level institutions of tertiary education (Gerber and Hout 1995). Soviet society promoted universities as the most prestigious of all institutions of higher learning. In 1990, Russia had the highest tertiary gross enrolment rate of 24.5% (the proportion of students in tertiary education among young people aged 19–24) among post-Socialist countries (Sobotka 2002, p.82, Table AP-6). That proportion further increased to 30.8% in 1999. Similar expansion in the tertiary gross enrolment rates is observed in all former Socialist countries (Sobotka 2002).

Table 2.5 Number of universities, numbers of students enrolled, and gross enrolment rates in tertiary education, Bulgaria and Russia, 1989–2004

	1989/90	1994/95	1999/00	2003/04
Bulgaria				
Number of universities[1]	30(29)	40(48)	41(4)*	42(9)*
incl. private universities	-	3(3)	4(2)	7(7)
Number of students (thousands)	127	223	261	236
Tertiary gross enrolment rate**	22.9	32.3	38.7	37.8
Russia				
Number of universities[2]	514	710	939	1046
incl. private universities	-	157	349	392
Number of students (thousands)	2824	2645	4073	6456
Tertiary gross enrolment rate	24.8	21.4	30.8	44.5

Sources: (1) NSI Statistical yearbook, various years (for Bulgaria); (2) Goskomstat Statistical yearbooks, various years (for Russia); (3) For gross enrolment rates – TransMONEE 2007 database

Notes: (1) Number of universities (number of independent colleges); (2) Including universities, colleges and equivalent institutions; (3) *A reform in the tertiary education system in 1999 in Bulgaria placed most of the previously independent colleges under the structure of existing universities; (4) Gross enrolment rate - proportion of students in tertiary education among young people aged 19–24; (5) **For Bulgaria, the estimates are for the age group 19–23.

Table 2.5 illustrates the increasing importance of tertiary education in Russia and in Bulgaria, as well as the rise of the private sector in education after 1991. These trends are evident in the substantial increase in the number of (private) universities, as well as in the total number and enrolment rates of students (much more pronounced in Russia) in tertiary education.

2.3.5 Family-related policies

A national family policy typically aims at creating optimal conditions for the functioning of the family, and for the harmonization of relations between an individual, family, and society. Family policy is an integral part of social policy, and its goals are closely associated with other fields, such as healthcare and social security, education, and employment. The organization of a national family policy is closely linked to the welfare state regime. One of the extremes

emphasizes opportunities for the reconciliation of work and family, and for female labor force participation (universalistic approach). Thus, full-time childcare services are provided by the state, starting with very young children. Examples of countries implementing this type of family policy are the Scandinavian countries, and, to a certain extent, France. At the other extreme, conservative states invest in generous maternity and parental leave systems that rely on the family (mostly women) as the main care providers. Childcare services for children under three years are very limited, so the opportunities for a woman to return to work after childbirth (maternity leave) are limited as well. Examples of such policy arrangements can be seen in Austria, (western) Germany, and Spain.

Countries in transition like Bulgaria and Russia generally do not fit into the standard classification of countries by welfare state regimes. During the Socialist era, family policies in both countries were oriented towards establishing the model of a *two-child marital* family. Wide networks of childcare institutions, encompassing kindergartens (*detski gradini, detskii sad)* for children of ages three to five, and nurseries (*iasli*) for babies from six months (two months in Russia) to three years old, were established; thus, institutional childcare was accessible to everyone. In addition, sets of measures aimed at promoting fertility were implemented in both countries in the 1970s and the 1980s (i.e., 1968–73 in Bulgaria and 1981–82 in the USSR/Russia).

Changes in political and economic systems in Bulgaria and Russia in the late 1980s (early 1990s) altered the mechanisms of family support. Hyperinflation in both countries in the 1990s drastically reduced the value of maternity leave financial compensation, as well as the value of childcare benefits. In addition, the economies in crisis could not support the wide network of tuition-free childcare institutions. Other types of support for young families with children (also part of the national program for family support), such as provision of housing, interest-

free bank loans, etc. were abolished in the course of economic reforms in the 1990s as well. Thus, people previously used to the security provided by the state (Sachs and Pistor 1997) had to adapt to a changing system of family support in the 1990s. We provide a more detailed description of the development of benefit leave systems in the two countries in sub-section 2.3.5.1. An overall picture of the changes in the childcare support and housing policies is given in sub-sections 2.3.5.2 and 2.3.5.3.

2.3.5.1 Child benefits, maternity leave, parental leave

The availability of liberal maternity (childcare) leave, as well as the wide network of tuition-free childcare facilities in the Socialist era, were two of the family policy instruments that gave parents (particularly the mother) the opportunity to combine having children and a career. The risk of losing a job because of time spent out of employment to nurture a child was virtually non-existent.

In Bulgaria, the duration of maternity (childcare) leave is governed by the Labor Code and its regulations. From the early 1970s through the end of the 1990s, the duration of maternity leave (due to pregnancy and childbirth) depended on the parity of the child. It ranged from 120 days for the first child to 180 days for the third child; a flat leave duration of 120 days was applied for fourth and higher order births. All mothers-to-be were entitled to take maternity leave, regardless of their labor market participation record. Following the end of maternity leave, the mother (or the father, or one of the grandparents) was entitled to take paid childcare leave until the second birthday of the child (six months for a child of fourth or higher parity). Another year (until the child's third birthday) of non-paid, job-protected childcare leave was provided under the same regulations. An amendment to the Labor Code in 2001 introduced some changes affecting the maternity and childcare leave system. It equalized the total duration of maternity leave to 135 days for all children. The two years of

childcare leave became applicable only to previously employed mothers (minimum of six months prior to childbirth), while all others were entitled to half the amount of leave (until the first birthday of the child). A flat rate compensation of one minimum salary (equal to 120 BGN, or 60 Euro in 2004) was applied in both cases. The period of maternity leave was compensated at 90% of the mother's mean earnings for the six-month period preceding the birth (or one minimum salary for non-employed mothers). The unpaid, job-protected childcare leave until the child's third birthday remained in force until July 2004, when it was shortened to six months. Mothers were, however, given the option of using the unpaid leave at any time until the child's seventh birthday.

In the 1990s—a decade marked by the beginning of economic reforms, the privatization of many state enterprises, and increasing unemployment—the proportion of women (parents) who actually used the entire length of the two-year childcare leave, and who took unpaid leave, decreased drastically. By the late 1990s and early 2000s, more than 70% of the economically active population worked in the private sector (NSI 2003a). Small and medium-sized private companies were less able to replace a person on a parental leave. Thus, the right provided by law was often violated by the employer (Spielauer et al. 2005).

In Russia (former USSR) until the end of the 1970s, family policy was confined to supporting families with many children (five and more). A threat of a related labor force deficit led decision-makers to pay more attention to family-related issues (Avdeev and Monnier 2000). In particular, policy measures introduced in the early 1980s were aimed at assuring the best conditions for population growth, including improvement of maternity and childcare leave and state support for all families with children.

The family policy package introduced in the USSR in 1981–83 included essentially new principles and measures for family support. Lump-sum grants were introduced for every live birth (previously only given for third and higher

order births), and financial support was gradually increased for the second and the third child. In addition, a paid childcare leave with flat-rate compensation until the first birthday of the child (irrespective of birth order, income, or other family characteristics) was introduced. Additional benefits, such as access to housing and public services, were given to 'mothers with many children' (i.e., three[3] or more). Working mothers were given additional days of paid vacation. Young families were also offered the opportunity to apply for interest-free loans from industrial enterprises and state organizations. Under the new regulations, up to 14% of the amount borrowed was reduced with the birth of second child, and an additional 20% reduction was applied with the birth of a third child. (A similar arrangement existed in Bulgaria in the 1980s and 1990s, as described in Sub-section 2.3.5.3).   In 1989–90, childcare leave was further extended until the child reached the age of one year and six months (and non-paid leave with job protection was extended until the third birthday of the child). The transition to a market economy at the beginning of the 1990s (which in some republics began before the collapse of the Soviet Union) changed the state approach to the family policy. Family allowances and compensation benefits were aimed at 'softening' the economic burden of the transitional period. All financial compensation was indexed for inflation, but declined in value and failed to achieve its objectives. In 1994–95, maternity leave was extended from 112 to 140 days (70 before and 70 after the birth). An income-related payment became available for previously employed mothers (calculated using the average income for the preceding 12 months), as well as flat-rate compensation (defined by the government as a percentage of the minimum salary) for non-employed mothers.

Later, in 2007, the Russian government introduced a national program for increasing the state support for families with children, including measures incorporating better medical care, pre-school education, as well as direct

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[3] Before 1981, the number of children as an eligibility criterion for being "mother with many children" was five.

financial compensation for childbirth (not described here in detail, as it is outside our period framework).

To summarize, in the Socialist era both countries had well-developed leave-and-care systems aimed at supporting mothers in reconciling work and family; the Bulgarian system was the more liberal. At the beginning of the 1990s, after the collapse of the Socialist regime, the support system evolved into a social protection 'safety net' for families with children in response to the economic crisis.

2.3.5.2 Childcare institutions

Childcare institutions were particularly well-developed in the former Socialist states to assure women's participation in the labor market. Over the last five decades (starting in late 1950s), a state-run network of preschool childcare institutions has guaranteed full coverage of children during the period after maternity leave, both in Bulgaria and in Russia (former USSR). The network consists of nurseries, kindergartens, residential institutions for children abandoned by state parental care (the so-called mother-and-child institutions), as well as institutions for social care.

The childcare systems in Bulgaria and in Russia had similar origins. *Nursery* generally referred to a pre-school establishment within the Ministry of Health responsible for providing care for babies from the ages of 10 months to three years (in Russia, the minimal entry age was two months; in Bulgaria, in an exceptional case, 10-week- old babies were admitted). Children between the ages of three to seven could attend *kindergarten* as part of their pre-school education. The last year of pre-school education (children ages six to seven) was mandatory, and the year could alternatively be spent at regular school. During the Socialist

era, childcare institutions were fully sponsored by the government, and tuition was free.

A steady decrease in the number of children enrolled in nurseries and kindergartens, as well as a decline in the number of institutions was observed both in Bulgaria and in Russia throughout the period 1990–2004. Starting in the early 1990s, the childcare system underwent administrative reorganization. Most of the nurseries and kindergartens were taken under municipal governance, and a small (increasing with time) monthly fee was introduced. Smaller numbers of children due to the sharp fertility drop in the 1990s, as well as the ongoing system restructuring and privatization, led municipalities to close down many childcare institutions. Thus, in the mid-2000s, many villages and small towns, as well as big cities such as Moscow and Sofia, have been incapable of providing sufficient childcare (Contextual database, "Childcare" topic).

2.3.5.3 Housing policies

Housing policies are closely related to, and are dependent on, other policy sectors, such as the taxation system, the banking sector, and so on. The general organization and (re-)distribution of the housing stock also has an influence on the timing of transition-to-adulthood processes. In particular, leaving the parental home, creating a common household (alone or together with a partner), and, to a certain extent, deciding to marry or have a child all depend on housing prospects. The former centrally planned economies serve as good examples for the ways in which housing policy can influence childbearing. Extensive building of multi-apartment, multiple-story housing from the 1960s through the end of the 1980s in Bulgaria and Russia provided the governments of the two countries with state-owned housing stock that enabled them to implement their housing policies. Priority was given to families with children in the distribution of housing; thus, in the 1970s and in the 1980s, "housing shortage paradoxically

resulted in earlier marriage and parenthood" (Avdeev and Monnier 1995, p.7). Another good example for the 'promotion of marriage and childbearing' through housing policy were the privileges awarded to young families in Bulgaria in the 1980s. Newly married couples could apply for a long-term, low-interest bank credit[4] to buy a house. In addition, up to 50% of the loan would be forgiven if the couple decided to have two or more children (20% with the birth of a second child, plus another 30% with the birth of a third child).

An accelerated process of privatization of state-owned houses accompanied the transition to the market economy in Bulgaria and Russia at the beginning of the 1990s. According to the 1992 census data, only 6.3% of the housing stock in Bulgaria was property of the state (8.5% in urban and 2.1% in rural areas). By 2001, the percentage had dropped to 3.3% (4.4% in urban and 1% in rural areas). In general, housing policies regulate access to public housing, and provide (subsidized) loans to households that are credit-rationed (i.e., do not have the credit ratings required by banks). None of these types of measures existed in practice in Bulgaria in the 1990s through the mid-2000s.

In Russia, where the privatization of the housing stock proceeded more slowly than in Bulgaria, the process of distribution of state (municipal) owned dwellings continued throughout the 1990s. A federal program known as "Dwelling" was launched in 2002. Part of this program was dedicated to housing grants for young families (Contextual database, 2006, section "Housing"). Yet, in 2004, the possibility of acquiring a rent-free state dwelling still existed (with an average waiting time of approximately 20 years).

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[4] Obtainable from the State saving fund, the **only** credit institution (bank) operating with private clients in Bulgaria before 1990

2.4   Differences and similarities between Bulgaria and Russia

The foregoing overview of the demographic processes related to union formation, as well as of the changes in the institutional settings in Bulgaria and Russia, revealed many interesting aspects of the development of the two countries through 1970–2004. Having already had much in common in the areas of religion, language, culture, and history, the experience of also having had similar socio-economic systems for a period of 45 years (1944-1989) brought the two Slavic countries even closer in terms of demographic behavior. However, by studying the long-term demographic trends (affected by a set of institutional arrangements, such as economic development, family policies, and long-standing norms and traditions), we were able to discern many variations at the country level that were not in line with the proclaimed goal of uniformity.

The socio-economic environment created by the Socialist system 'helped' Bulgaria and Russia to broaden the similarities they already shared due to their cultural proximity. Security provided by the state, such as absence of unemployment, job tenure positions, pension benefits, housing, etc. (Sachs and Pistor 1997); as well as wide-coverage family policy measures, such as a generous parental leave/childcare benefit system; and a well-developed network of affordable (mainly tuition-free) pre-school care facilities (Spielauer et al. 2005), were successful in promoting the two-child marital family model in the two countries.

After the collapse of Socialism, due to slow and ineffective reforms in the 1990s (IMF 1996, Milanovic 1998), both countries experienced severe economic crises characterized by hyperinflation and a rapid decline in the well-being of the population. Bulgaria and Russia were often grouped together when classifying the development of former Socialist countries during the 1990s through the mid-2000s (Philipov 2002, Lesthaeghe and Surkyn 2002).

Nevertheless, we have also demonstrated that there were many differences in the development courses of Bulgaria and Russia that might have affected the timing of the emergence, as well as the speed of diffusion of a new family formation behavior. In Table 2.6, we summarize the most distinctive differences between the two countries, which helps us to formulate our research questions for the empirical analyses (Section 2.5).

Table 2.6 Summary of the socio-economic and demographic development of Bulgaria and Russia in the 1970s throughout mid 2000s.

	Bulgaria	Russia
Socialist era (1970-1989/91)		
Demographic development Nuptiality trends	TFFMR ~ 0.9–1, mean age at 1 marriage ~ 21.4 years (→)	TFFMR ~ 0.95–1, mean age at 1 marriage ~ (22–23 years) (↓)
Non-marital births	8.5–11% (→)	10.6–16% (↑)
Emergence of cohabitation	no data	no data
Economic development		
General	Centrally planned, trade within COMECON, 1980s economic stagnation	Centrally planned, first signs of modernization with Perestroika (1986-1991) ;
Unemployment	Not existent	Not existent;
Education	Wide accessibility; secondary school	Wide accessibility; secondary school – 10 years;
Family policy	- 11 years	
Maternity leave		112 days
Childcare leave	120-180 days	1 year (1981)
Child allowance	1 year (1977); 2 years (1984)	No
Childcare institutions	Yes (16th birthday)	Wide coverage, tuition free
Housing	Wide coverage, tuition free Provided by the state/low-interest bank loans for young families with children	Provided by the state, advantage for families with children

Table 2.6 (continued)

	Bulgaria	Russia
Transitional period(1989/91-2004)		
Demographic development		
Nuptiality trends	TFFMR ~ 0.7–0.5 (↓), mean age at 1 marriage ~ 22–25 years (↑)	TFFMR ~ 0.8–0.6 (1996) (↓), mean age at 1 marriage ~ 22–23 years(↑)
Non-marital births	11.9–48.7% (↑)	17.1–29.8% (↑)
Emergence of cohabitation	13.1% (2001)	6.7% (1994), 9.7% (2002)
Economic development		
General	Transition to market economy; severe economic crises (1993-94 and 1996-97); recovery program with currency board	Transition to market economy; severe economic crisis (1998); recovery program
Unemployment	High (13-18%; 20% in 2001)	Low (5-10%; 13% in 1998)
Education	Widely accessible, secondary school - 12 years	Widely accessible, secondary sch. – 11 years
Family policy		
Maternity leave	135 days	140 days (1995)
Childcare leave	2 years	1 year; 1.5 years (1995)
Childcare allowance	Yes	Yes (1995)
Childcare institutions	Wide coverage, increasing tuition	Wide coverage, tuition free
Housing	Abolished (↓)	Diminished (→)

2.5   Research questions for the empirical analysis

The outline of the socio-economic and demographic development in Bulgaria and Russia presented in this chapter provides the reader with background information for two countries that underwent many turbulent transformations in the period of study. The changes in the political and economic systems of the two countries, as well as the opening of borders (literally and figuratively), provoked fast, non-reversible transformations in all aspects of life. Among other developments, family formation behavior showed remarkable evolution throughout 1970–2004. Non-marital cohabitation did not exist officially in the statistical registration systems in both countries. Nevertheless, the increase in non-marital births (as a percentage of all births, as well as a total number) and the decrease in marriage formation could be used as proxy measures for the emergence of a novel family arrangement in the late 1980s and at the beginning of the 1990s.

Therefore, in the present study we aim to answer the following questions: *Did changes in union formation behavior start with the collapse of the Socialist system at the end of the 1980s, or did the socio-economic transition simply accelerate an ongoing process? What are the forerunners of the new family formation behaviors in Bulgaria and Russia? At what stages of development has cohabitation in both countries evolved from representing a deviant behavior, to becoming a stage in the partnership career leading to marriage, to representing an alternative to marriage?*

In addition, we intend to discern to what extent union formation behavior is dominated by the socio-economic system, and how the combination of family policy measures, economic conditions, and cultural norms affect individual family formation behaviors. Thus, the second group of questions we wish to answer are as follows: *How different are Bulgaria and Russia in their individual union formation behaviors? Which of the following factors plays the biggest role in union*

formation patterns: traditions, openness to new ideas and behaviors, changes in the economic system, or a combination of all three?

Chapter 3

Theoretical discussion of trends in union formation

3.1   Introduction

Union status is determined by four dimensions. The *legal* dimension distinguishes the legislative arrangements of the partnership, with the options of being never married, married, divorced, or widowed. The *partnership* dimension refers to the actual presence of a partner independent of the legal arrangements. The *residential* dimension refers to partners' sharing or not sharing a common household. Last but not least, children born in a family (partnership, single mother) determine the fourth dimension (*offspring* dimension). Combining all four dimensions of the extended concept of union status, Prinz (2005) identifies 26 different states in which an individual may be located at different stages of life. It is necessary to account for the different states of *union status* provided by the detailed distinction among the four different dimensions, particularly in recent decades, when the legal dimension has loosened its dominating grip on the partnership and residential dimensions. Over the last 40 years, consensual union has become the most widespread *new* type of union formation in most Western European countries. While emerging at different speeds and with different intensities, cohabitation gained significance to the extent that it could not be ignored in analyses of family development.

In this conceptual chapter, we explore the nature of cohabitation as a form of family life. In addition, we present an overview of the theoretical background

of the changing timing and nature of the marital family, as well as the emergence of consensual unions in Western Europe and North America. Reviewing the theories will help us classify the potential factors that have influenced the process of changing union formation. We will also discuss the applicability of the theories developed to explain the changes in union formation in the 'Western World', as well as the shifts observed in former Socialist countries, particularly in Bulgaria and Russia.

3.2   Family, marriage, and the emergence of cohabitation

Several theories have been developed by family sociologists to explain the development of marital family formation in the second half of the 20th century (Shorter 1975, Klein and White 1996, Allan 1999, Waite et al. 2000). Cohabitation has become the most widespread first union in many of the Western European countries. Nonetheless, no theory has explicitly set out to understand and explain the process of non-marital union formation. In his book on cohabitation as an alternative form of family living, Wu (2000) proposes a combination of economic, sociological, and demographic approaches to discuss and explain the rise in non-marital cohabitation in Canada. Citing studies by Landale and Forste (1991) and Davis (1985), he argues that theoretical frameworks developed to explain the process of marital union can be applied to non-marital cohabitation as well.

The two forms of union formation offer different incentives for choosing to live in a union. The most important incentive is the sense of freedom 'offered' by cohabitation, which is closely related to the feeling of insecurity that is seen as one of the major disadvantages of living in a consensual union (McRae 1999). Many more differences exist, depending on the development of the society (social unacceptability, difficulties for common children, etc.) and the legislative system (problematic recognition of fatherhood, exclusion from the family

support system, financial disadvantages in case of breakdown, and many others). Nonetheless, marriage and non-marital cohabitation share many common characteristics as well. In both types of union, couples share a common household. Partners are additionally bound by love, affection, and intimate relations. Thus, cohabitation, in a similar way to marriage, offers the comfort of a family environment for the partners.

Ideally, non-marital cohabitation serves as a practical alternative to marriage for several reasons. First of all, it helps young people avoid the penalties of sexual isolation. Secondly, it provides a good opportunity for living in a family environment (Bumpass and Sweet 1991, Thornton 1988, Martin and Thery 2001, Ostner 2001). Cohabitation has also been viewed as a favored alternative to being single (Rindfuss and VandenHeuven 1990). Other researchers consider cohabitation mainly as a prelude to marriage (Leridon 1990, Manning 1995, Manting 1996). Apparently, the nature of cohabitation is diverse. For example, in Sweden cohabitation had become a well-established living arrangement by the middle of the 20th century (Trost 1979, Hoem 1986, Hoem and Hoem 1988). In the other Scandinavian countries, France, and the Netherlands, consensual unions gained publicity and became widespread and institutionalized in the 1980s (Kiernan 2001). In other Western European countries, as well as in the United States and Canada, the phenomenon started to become visible in the last three decades of the 20th century.

Analyzing the case of Sweden, Hoem and Hoem (1988) distinguished a number of stages in the development of cohabitation which were further denoted by Prinz (1995) as a cohabitation typology. In the *first stage*, cohabitation is recognized as a deviant (unaccustomed) phenomenon, practiced by a small group of people, while direct marriage is the prevailing form of union formation. In the *second stage*, consensual union is practiced as a last stage in a courtship process (a prelude) leading to marriage, where the relationship is possibly being

tested before proceeding with marriage. At this stage, cohabitation is mostly a childless relationship and conception usually transforms such a relationship into a marriage. In the *third stage,* cohabitation becomes a socially accepted family environment for bringing up children, and 'family' is no longer associated with 'marriage' only. Cohabitation as a union becomes institutionalized legally. In the final *fourth stage,* cohabitation and marriage are equally spread and accepted. Cohabitation in that fourth stage is described as an alternative to marriage. Lewin (1982) argues that cohabitation is, rather, a variation of traditional marriage: the increase in non-marital cohabitation does not pose a threat to it.

Considering cohabitation typology (as just described) and the development through its stages observed across Europe, Kiernan (2001) defines the phenomenon of cohabitation as an irreversible *process,* rather than an event. She concludes that, once the partnership transition in a society has arrived at a certain stage, it is unlikely that there will be a step back to previous stages. At any stage, all the previous types of co-residential unions may exist as well. However, the emergence of cohabitation at different stages and its evolution from one stage to another is a complex process which interacts with many other forces and processes in the society.

In the next two sections, we emphasize the economics of family (Section 3.3) and ideational change (Section 3.4) as two of the interpretive frameworks in the emergence of cohabitation most used to uncover the key factors influencing the changes that occurred in the institution of family in Western Europe and North America in the 1970s and the 1980s, and to explain the interaction between these factors at different stages of cohabitation development. Such an overview will help us to better understand the nature of the process of family development in Central and Eastern Europe in the last decade of the 20th century. In addition, it will provide us with a basis for estimating the current stage and future developments of the process.

3.3   Economics of family

3.3.1   Classic economic theories

The economic approach was introduced in the context of family formation by Gary Becker in 1973 (Becker 1973). Two major principles constitute the foundation of Becker's theory of gain-to-marriage. First, by getting married, a person expects *to raise* his (her) *utility level* above that of being single. Secondly, based on the existing competition in the process of mating, a *marriage market* can be assumed to exist. The central point in the theory of gain-to-marriage focuses on the biological differences between the two sexes; based on these differences, partners are assumed to gain from the traditional division of tasks within a common household. Single men and women are seen as trading partners who decide to marry (trade) only if each of them sees the marriage as beneficial in a sense that they gain from the other party's specialized skills. In traditional societies, women are specialized in domestic household activities and in providing care, while men are focused on market activities. The partnership persists as long as both partners recognize this exchange as beneficial.

Later, in an exemplary book, Becker (1981) developed his theory further by accounting for the changes in the economic system which brought about the advancement of modern society, and which have, in fact, radically changed family life and family structure. A decrease in marital formation intensity, increasing marital instability, and emergence of non-marital unions were to be found in most industrial societies at the end of 1960s, and were attributed to the rising earning power of women (Becker, 1981). According to the philosophy of the gain-to-marriage theory, whereby marital partners benefit from the marriage particularly because of the strict gender division of tasks in the family, the increase in female labor force participation cancels out the benefits from marriage for women (extended elaboration is given in Section 3.3.2).

Easterlin (1976, 1987) made a substantial contribution to the economics of family by drawing attention to the influence of economic cycles (i.e., economic growth vs. economic depression) on family formation and childbearing. The author argues that a *couple's outlook for supporting their material aspirations* is a very important factor (among others) in the couple's willingness to marry and to have children. If they have an optimistic outlook (for which high income is not always a precondition), they will have more freedom to marry and have children. If, on the other hand, their outlook is poor relative to their aspirations, a couple will be hesitant to marry and have children (Easterlin 1987, p.39). According to Easterlin, economic growth and positive economic prospects result in early marriages and many children; while delayed marriages and reduced childbearing are a reflection of economic depression and poor economic prospects. In his theory of relative economic deprivation, Easterlin sets out in particular to explain the periods of 'baby boom' and 'baby bust' by looking at the 20th century United States, where family formation (only marriage is considered) is generally considered to be a precondition for couples having children.

After Becker (1973, 1974, 1981) and Easterlin (1976, 1987), a number of econometric solutions to the marriage and household decision-making process followed that used bargaining analyses (Manser and Polanchek 1974, Manser and Brown 1980, Lundberg and Pollak 1996). In the former analytical strategy, the objective of the two individuals (whether single or a couple) was to maximize one's utility (consumption) function with respect to the household production function. There was an explicitly defined rule that the household maximizes one's individual utility function. In the later studies, authors allowed for different utility functions, as well as private and household (shared) goods, which put the two partners-to-be on a more equal basis: "two decision makers with well defined preferences choosing an action or strategy from a well-specified set of alternatives" (Lundberg and Polak 1996, p. 156). Furthermore,

'household' and 'partners' replace 'marriage' and 'wives and husband' in the latter studies.

3.3.2   Women's economic independence

When investigating the process of family formation from an economic perspective, it was helpful to assume that, predominantly, individuals act rationally to maximize their own welfare. The starting point in the theory of home economics is specialization in the division of tasks among family members. In traditional families, one of the partners (usually the woman) is devoted to home production and providing care, while the other (usually the man) is specialized in market work and providing goods.

With economic development in the 1960s, the expansion of female labor force participation and the increase in women's earning power, *women's exclusive role* as caregiver in the family, and, in particular, their dependency on the income provider (the breadwinner model) became less and less relevant. Following the theory's logic, the growing earning power and independence of women discourages entrance into marriage because of the reduced gains from such a step. If a woman takes part in the labor market, investing time and resources into getting a better job and higher earnings, she will benefit less from a traditional marriage 'contract', because (1) she will instead anticipate market returns from her investments, and (2) she will be economically independent, rendering the male-as-breadwinner model no longer favorable for her.

The effect of increased female labor force participation and the earning power of women on marital formation and marital stability, as well as on the functioning of the society and the welfare system, have been widely discussed in recent decades (for example, Oppenheimer 1977, 1988; Mason 1993, 1995; Chafetz 1995; Oppenheimer and Lew 1995; Tsuya and Mason 1995). Applying the theory of assortative mating, Oppenheimer (1988) conceptualizes the effect of increasing

female labor force participation (together with a variety of other factors) on the timing of marriage. The author highlights the applicability of the theory in two contrasting scenarios: when gender roles are highly segregated in a society (traditional society); and when the economic role of women starts to resemble that of men (modern society). In addition, she also challenges the popular notion that women's economic independence, acting throughout the decline in gains to marriage, is a preeminent factor in the increasing number of delayed marriages. In contrast, Oppenheimer elaborates on the idea that the increased economic independence of women will not decrease gains to marriage for economically independent women, but rather increase the *time* for finding a satisfactory marital match (because of women's higher expectations of the future partner).

In an earlier paper, Oppenheimer (1977) re-examines and interprets the effect of women's socio-economic position and, particularly, of women's occupation relative to husband's occupation for family stability. Specifically, she challenges Parsons' (1949) theory of marital instability, which contends that a woman's occupation might impose constraints on her ability to fulfil her role as a housewife and mother. Oppenheimer (1977, p. 404) concludes that families ought to be viewed, not as small groups faced with internal problems, but rather as units in the stratification system. In settings like that, "wives can have a potentially valuable socioeconomic contribution to their families' competitive position." Thus, if a woman can make a positive contribution to her family's socioeconomic position, her labor force participation is encouraged. Oppenheimer does not distinguish between marital and non-marital families in her considerations. However, having a job, and, moreover, working to achieve a financially advantageous position, requires investments (time, education); such investments would postpone family formation until a later stage in the life course.

Mason (1993) and Mason and Jensen (1995) raise another important question about the interrelation (or interplay) between the economic 'liberation' of women and the changes in the family model. Women's improved educational and employment opportunities result in a postponement of marriage, an increase in (premarital) cohabitation, a rise in divorce rates, and increased levels of non-marital childbearing. The authors argue that the interplay of these trends causes destabilization of the conjugal union as a lifelong arrangement, and further motivates women and men to alter their 'roles'. In her attempt to fully explore the interrelation between the gender system and demographic change, Mason (1995, p.12) states that the "pre-existing nature of the gender system will condition the impact that other changes have on demographic outcome." As a result, direct effects might not always be manifested.

Many authors (e.g., Blair and Lichter 1991, Clarkberg et al. 1995, Manting 1996) argue that declining gains from marital union may encourage people to form non-marital unions, as they offer benefits associated to both states — being single and being married. Individuals can gain from the creation of a common household while maintaining their relative independence (Bumpass et al. 1991). In the context of Oppenheimer's thesis, this means that union formation, particularly marital formation, is postponed until a woman (or both partners[5]) attain relative financial stability. In many countries, research has found evidence that, among university students, non-marital cohabitation is preferred to marital unions (Hoem 1986, Liefbroer 1991, Thornton et al. 1995). Thus, the most common explanation is that cohabitation serves as a good substitute for the single state during the period when knowledge and skills are being accumulated. Such a scenario assumes that cohabitation is an intermediate state in a process leading to marriage. However, *this view is applicable to societies in which*

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[5] In a later paper, Oppenheimer (1994) focuses explicitly on the role of young men's ability to establish independent households on the postponement of marriage.

*cohabitation is at its **second** developmental stage, whereby consensual union is seen as a prelude to marriage.*

On the other hand, Wu (2000) and Ermisch (2003) argue that, even if Becker's theory of gain-to-marriage (1973, 1974, 1981) was originally developed to explain marriage, it is also relevant for consensual unions because marital and non-marital unions have an analogous rationale for the society at large, compared to the single state. Thus, the theory of union formation can be applied more broadly to demonstrate that women's economic independence reduces interdependence between the partners, and, therefore, the benefits women accrue from a union relationship. *This direction of thinking corresponds to societies where cohabitation has reached the **third or fourth** stage in its development, and is viewed either as an alternative to, or as a variation of, the marital family.*

3.3.3   The influence of schooling on cohabitation and marriage

An essential aspect of the economics-of-family notion is the role of education on the process of family formation. As mentioned above, better education is positively associated with better labor market opportunities, and, therefore, with a better occupational status for both men and women. From an economic perspective, if a woman invests in better education, she will be a more market-oriented (earner) and, as a consequence will invest less time in the household as a caregiver. Also, forming a union in general will be less beneficial for such a highly educated woman, compared to the gains from marriage (union) for a less-educated woman. On the other hand, women's higher education will be valued more in the assortative search process for a partner; that will result in a higher propensity to marry, but will also affect the timing of marriage (Oppenheimer 1988).

Another way in which schooling may influence marital behavior is discussed by Friedman et al. (1994) in their uncertainty reduction theory. The

central idea of this theory (originally used to explain parenthood) is that people always seek to reduce uncertainty in their lives; thus, they are making decisions and crafting strategies to reduce the uncertainty as a consequence of their actions. The principle global strategies for reducing uncertainty[6] in developed societies are associated with a stable career, a family (marriage), and parenthood. To achieve a favorable position on the labor market, a good (i.e., prolonged) education is needed. Therefore it is quite improbable that committed students will risk their career prospects by quitting or interrupting school for marriage reasons. As a result, the theory predicts that marriage is not compatible with studying and, moreover, that better educated women tend to delay marriage. Using the same approach, Wu (2000, p.15) argues that "when opportunities to marry are blocked, people may turn to cohabitation as an alternative, possibly compromised solution." The author's view is that cohabitation is an 'interim' strategy, easier to combine with pursuing an education, and that women who want to combine or balance the student role with the family role may be more likely to choose to cohabit.

In an attempt to combine classical economic theory with the idea of (in)compatibility of different life domains, Thornton et al. (1995) discuss in detail the influence of education on cohabitation and marriage, drawing particular attention to *role incompatibility* in early adulthood, as well as *opportunity costs* of higher education. Student and family roles are usually viewed as stages in life that are difficult to combine. Being a student is often associated with a move towards maturity when young adults are still financially dependent upon their parents (Thornton et al. 1995, p. 763). By contrast, family formation is widely accepted as an adult responsibility, which requires financial stability and

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[6] Authors distinguish clearly decision making under risk and decision making under uncertainty, and claim that an individual having the power to change an uncertain state to a certain (albeit risky) state will do so. These commitments reduce uncertainty by embedding actors in repeated social relations, yet it is not necessary that uncertainty reduction leads to a better set of instrumental outcomes.

independence from parents. The financial instability associated with a student role usually makes it difficult to combine being a student with an adult role, such as being a spouse (*and* employee *and* possibly a parent). Marital union (or union life as such) involves substantial commitment to family life, which students might not be able to devote without extensive institutional support. Moreover, the time spent on the family instead of studying would be generally very costly. It would result in a poorer standard of living *and/or* in postponement of other important life course transitions, such as graduating and finding a profitable job. Therefore, students might not be *willing* to combine family life and schooling.

Taking into account that there are at least two points of opposition between schooling and union behavior, the net effect of education on family formation may be difficult to disentangle. Schooling influences union formation through its two elements: school enrolment and school accumulation (Marini 1978, 1984, Hoem 1986, Goldscheider and Waite 1991, Liefbroer 1991, Thornton et al. 1995). As school enrolment is, with very few exceptions, negatively associated with union formation, school attainment, as discussed above, might have a puzzling effect, particularly if the union is analyzed without distinguishing between marriage and cohabitation.

The very different effect of schooling on union formation patterns, and particularly on cohabitation, as reported by various scholars (Liefbroer 1991, Manting 1994, Thornton et al. 1995, Kravdal 1999), depends broadly on the stage of development of consensual unions. Reaching one stage or another is a product of long-standing mores and traditions, family policies, and economic development in combination with the level of acceptance of non-marital cohabitation in the society. In most societies, non-marital cohabitation was, in its first stage of so-called *deviant behavior,* widespread among poor people (evidence found in the United States and Mexico (Berger 1971)) or among Swedish

workers,[7] but ***not*** as a campus phenomenon among students or well educated people. This phenomenon later became more 'trendy' and gained popularity among college and university students (Trost 1975). Clearly, if analyzing the effect of education on forming non-marital unions in a society where the development of cohabitation is in its very *first stage*, one would expect to have school accumulation as a negative gradient, meaning that less-educated women would be more prone to cohabit. In contrast, if non-marital unions are widely accepted and institutionalized as an alternative to (or variation on) the marital family in the society *(the fourth stage)*, then educational attainment should have a similar effect on forming marital and non-marital unions. Indeed, when it comes to the effect of enrolment in education on cohabitation—and cohabitation is in *one of the first three stages* of its development, for the reasons described above— cohabitation will be the more likely type of union (compared to marital union). Yet being a student would restrain the majority of young adults from making the step towards maturity and forming any union before finishing their education, particularly in the early years of their studies. Hoem (1986) reports interesting findings for Sweden which indicate that age interacts significantly with university enrolment. For instance, 24-year-old women enrolled in education have an elevated risk of entering cohabitation in comparison to non-student females. He also finds that the last year of university marks the transition from one life stage to the next; and, furthermore, that women usually have slightly older partners who have probably already finished their studies. Moreover, female students at the end of their studies are likely settling for the types of unions which have already been formed by their non-student coevals.

Therefore, we expect that school accumulation has *no* or very *little* net effect on the formation of cohabitation unions, while school enrolment would, in general, deter union formation. Educational attainment may indeed enhance the

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[7] Trost (1975) explicitly distinguishes *workers* and *poor* people as two categories and claims that no poor people exist in the 1970s Swedish society.

likelihood of the formation of consensual unions, while lessening the chances of marital union formation. It is, however, essential that we take into account in our analysis the country-specific institutional settings, as well as the role and development of the country-specific educational systems.

In short, economic theories provide a good framework for studying family formation development in a situation such as the one observed in the former Socialist countries, and in the transitional period from a state-run to market economy. The decline in marriage and fertility rates in Bulgaria and Russia in the 1990s was probably linked to the economic recession and the vast impoverishment of the populations (Philipov 2002, Koytcheva 2006). Emergence of non-marital cohabitation might be associated with the new (changed) role of women on the labor market (Section 3.3.2), as well as with the changed interaction between education and labor market in the course of the transition to a market economy (Section 3.3.3).

3.4   Theories of ideational and demographic change

The demographic changes that took place in the industrialized countries in the second half of the 20th century have been thoroughly covered by classic demographic transition theory(-ies). In this section, we will review the most influential contemporary concepts with reference to the changing model of union formation. Those principles draw parallels between social and demographic processes. Individual behavior is regulated by basic institutional arrangements created by the civil society: social norms and postulates. However, norms undergo changes that arise with a different power and pace within the timeframe. Normative adjustments are more likely to occur when a society is undergoing massive social, structural, and institutional changes. Thus, societal changes affect large groups of the population, influencing their lifestyles and thinking in various ways. While trying to adapt to the changed circumstances,

individuals tend to develop solutions that often start out as 'deviant behavior', meaning it is in conflict with widespread and more socially accepted behavior. In many cases, this 'solution' to the changed circumstances expands over a longer period. Gradually, it facilitates the breaking of the traditional behavior and replaces old values with new ones (respectively better accepted in society). Indeed, the development of cohabitation in Sweden (often held up as the only country in which the development of cohabitation went through all four stages, and described in detail by Hoem and Hoem (1998)) appears to have actually been a 'solution' to changes in Swedish society at the beginning and middle of the 20th century. Cohabitation subsequently played a role in changing norms and regulations in society, reaching levels of acceptance and diffusion as high as those of the marital family.

The notion of *diffusion of the new ideas* has its roots in Ansley Coale's "RWA" model, according to which three general prerequisites — Ready, Willing, and Able — have to be present in the society for the diffusion and legitimisation of certain demographic innovations to occur (Coale 1973). The model is proposed for the diffusion of contraceptive use, and explains in detail why the concurrence of the three prerequisites is necessary for the diffusion of demographic changes in the society. It served as an explanatory framework for the diffusion of demographic innovations within Europe (further improved with the idea of context-variation between countries) in the concept of the second demographic transition (Lesthaeghe 1998, Lesthaeghe and Neels 2000).

The term *second demographic transition*, or *SDT*, introduced in 1986 (Lesthaeghe and van de Kaa 1986) to describe changes in family formation, union dissolution, and patterns of family reconstruction in Western nations since World War II, links the theory of ideational shifts and the observed demographic development. Van de Kaa (1987) describes the 'ideal' standard sequence of shifts in family formation patterns across Europe, which, through the interrelation

between social and demographic changes, refaced the institutions of family and marriage in Europe. Four major shifts depicting the core of the SDT are summarized. Among them, a "shift from the golden age of marriage to the dawn of cohabitation" (van de Kaa, 1987, p. 11) is listed as one of the peculiarities of its manifestation. Further, ideational theory emphasizes the influence of changes in the value (normative) system in the society, and their direct impact on family change. The upsurge of individualism and the 'pill revolution' are often declared as the forces that created a new vision of sexuality, reproduction, and marriage that broke with traditional models. From the mid-20th century onwards, the traditional sequence of dating<marriage<sexual relationship<children was no longer an unbreakable norm in Western Europe. Changes in value orientations towards self-realization, career, leisure time, and education led to further shifts in the general concept of marriage, family, childbirth, and gender issues. Living arrangements and relationships between partners became more open and, in a way, experimental; thus aiding the diffusion of non-marital relationships, one-parent families, childlessness, and parental individualism. Lesthaeghe (1995) distinguishes three periods in which family changes happened in Western Europe. In the initial phase (roughly between 1955 and 1970), demographers registered substantially accelerated divorce rates, decline in fertility at all ages and all marriage durations, as well as postponement of entering a first marriage. In the second phase (covering the 1970-1985 period), non-marital cohabitation spread and largely compensated for declining proportions of marriage at young ages. Moreover, the spread of cohabitation resulted in a larger share of extra-marital births. In the third phase (starting from mid-1980s onwards), divorce rates reached their stability level, post-marital cohabitation and 'living apart together' relationships emerged, and, in particular, there were signs of recuperation of fertility after age 30, which was pushing the period fertility rates to slightly higher levels. However, not all Western nations have reached this

third stage (Lesthaeghe 1995, p. 18), which again raises the issue of context-variation between the countries in the frame of the SDT.

Ideational change and public manifestation of individual autonomy is believed to be a milestone in the changes that occurred in the family formation behavior in industrialized societies in the second half of the last century, and from the late 1980s onwards in Eastern European countries (Lesthaeghe 1995, p.22). Nevertheless, in reviewing demographic characteristics associated with the SDT and linking them to a set of economic and cultural factors, Lesthaeghe (1995) concludes that "economic and sociological theories are far more complementary rather than mutually exclusive" (p.58).

3.5   Emergence of cohabitation in Socialist and post-Socialist environments

In 1987, van de Kaa provided a systematic classification of European countries, categorizing them based on their association with the evolution of the SDT. In that classification, most of the former Socialist countries comprised one group, in which, due to their specific political development, the SDT has a "different shape" (van de Kaa 1987, p. 12). Van de Kaa portrays Central and Eastern European countries in the second half of the 20th century as different from the rest of Europe in many respects. For example, the manifestation of sexual freedom was much less distinct. Also, certain traditional values (towards marriage, parent-child relationship, the value of children in the life of a woman, etc.) had strong roots in people's personal lives. Such traditionalism in value orientation was in contrast to some well-established institutional arrangements, like the early legalization of abortions (except in Poland), and high levels of female participation in the labor market. In the following section, we elaborate on the specificity of family formation patterns in the former Socialist countries after

the societal transformations at the end of the 1980s. We focus mainly on the development of marriage and emergence of new family arrangements in Bulgaria and Russia. The new trends are presented with respect to the changing socio-economic environment in the two countries in the 1990s. In addition, we try to link the novel family formation behavior to the patterns that were well-established during the Socialist era.

3.5.1   Cohabitation in the context of post-Socialist environments

Dramatic changes in the family formation behavior that affected all countries in transition from state Socialism to a market-based economic system have been widely discussed over the past 18 years (e.g., Billari and Philipov 2001, Philipov 2002, Sobotka 2002, Kotowska and Jozwiak 2003). Postponement of marriage and fertility started and progressed during the 1990s, causing declines in the rates of entry into marriage and parenthood to levels far below those observed in the late 1980s. Additionally, extra-marital birth rates had increased, suggesting shifts in union formation behavior towards non-marital cohabitation. Most analysts in the first years after the transition to market economy were convinced that difficult economic conditions and impoverishment must have been the key factors influencing the changing demographic behavior. In particular, postponement of marriage and childbearing were directly linked to the increasing unemployment, huge inflation rates, and drops in real household incomes, as well as to weakened state support of families.

However, results from studies of these trends pointed in an unexpected direction. Most of the studies that tried to link the drop in fertility in Russia in the 1990s to the economic hardship in the country in that period (e.g., Zakharov 1997, Kohler and Kohler 2001, Kharkova and Andreev 2000, Roberts et al. 2003), could not prove a relationship between the disadvantageous economic conditions and the shifts in the demographic behavior in the post-transitional

period. Changes in values and goals, as well as moves towards different priorities and aspirations, among young adults, were broadly explored explanations for the swift changes in the family formation model in ex-Socialist countries (Zakharov and Ivanova 1996, Philipov 2001, 2002, Sobotka et al. 2003, Lesthaeghe 2002, Koytcheva 2006, Dimitrova 2005).

Lesthaeghe and Surkyn (2002) proposed an interesting scheme of mutual operation of economic and cultural factors on the demographic processes in the former Socialist countries during the transitional period. They suggest that, at its onset, the economic crisis had a stronger impact on people's lives and contributed more to the changes in demographic behavior. However, when the transitional recession was overcome and the economic situation improved, cultural factors became more influential, and allowed the demographic processes to preserve the direction of development. Thus, demographic behavior in the former Socialist countries started to be analogous to that observed in other industrialized countries. While Lesthaeghe and Surkyn do not assess the effect of economic factors, they show that, a decade after the transition took place, many features of the SDT were clearly visible in Central Europe. In the Eastern European countries, the actual union formation behavior (diffusion of new forms of household formation and postponement of marriage) has not reached levels of diffusion as high as those seen in Western Europe (Lesthaeghe and Surkyn 2002, p. 215). Nevertheless, important changes in traditional family values, as well as a broad social acceptance of new patterns of family formation, have already taken place. Opinions and attitudes recorded in the 1990 and 1999 European Value Surveys (EVS) indicate that the biggest change occurred in items directly related to tolerance of new living arrangements. In each of the three groups of countries — the Baltic states, Central Europe, and Eastern European countries — there was a substantial rise in the share of women who regarded marriage as an outdated institution (in the Eastern European countries, the percentage increased from 14.3

to 23.8).[8] Thus, a "further diffusion of the features of the second demographic transition [in the Eastern European countries] should no longer come as a surprise" (p. 216).

Philipov (2002) also discusses the balance between the two theoretical approaches in explaining the abrupt demographic changes in Central and Eastern Europe at the end of the 20th century. He identifies *discontinuity* and *disorderliness* as two of the fundamental characteristics of the transitional period which played substantial roles in the behavioral shifts. While discussing the mechanism through which discontinuity and anomy may have created conditions for *sudden* fertility changes as observed in the countries in the region, he places particular emphasis on the fact that, despite the similarities in the aggregated demographic records, "disorderliness in the countries from Central Europe is lower than in the South-East Europe, as well as the CIS countries; ideational change dominates in the former, while economic change dominates in the latter" (Philipov 2002, p. 23). In both papers cited above, Bulgaria and the Russian Federation (CIS countries in the second paper) are grouped together as going through similar phases in their family-specific demographic development after the turning point at the end of 1980s.

3.5.2   First union formation in Bulgaria and Russia – how similar are they?

A study by Philipov and Jasilioniene (2007) reveals some substantial differences in family formation patterns between the two countries. The authors state that changes in Bulgaria are *strong enough to indicate a departure from traditional behavior with respect to family formation, while in Russia, the changes have been considerably less pronounced: at the beginning of this century, high first marriage rates are still persistent, and first birth remains almost universal* (p.53). Moreover, while it continues to lag behind the Central European countries in some respects (e.g., spread of

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[8] Cited numbers are taken from Table 6.7.1 in Lesthaeghe and Surkyn 2002, p. 214

cohabitation and divorce) Bulgaria follows the general trends that have been observed in the rest of Europe. In contrast, Russian family formation behavior has its own model which, despite displaying some similarities with behaviors seen elsewhere, does not yet fully conform to broader tendencies.

Another recent paper by Hoem et al. (2007) looks at one of the manifestations of the SDT in Bulgaria and Russia (among four former Socialist countries): namely, the increase of non-marital cohabitation as a competitor to conventional marriage.[9] The authors found that the transition did not start simultaneously in all countries, and that, moreover, the transition began well before the fall of Communism. Bulgaria was described as a unique case where cohabitation did not show an increase over the studied period (1980-2004), but the risk of entry into cohabitation was much higher: twice as high as in Hungary and three times higher than in Russia and Romania, particularly for the age groups up to 29 (Hoem et al., 2007, p.5). The same trend of substantial decline in first union formation risks in Bulgaria after the turning point in 1989 was observed by Spielauer et al. (2007); their findings contrasted with the assumption of the SDT that decrease in marriage formation risks would be compensated for (to a large extent) by the formation of non-marital cohabitations, while total first union formation risk would remain a relatively stable trend over time.

To better understand the development of Bulgarian family formation patterns over the last two decades, it is useful to place them in the framework of institutional changes through the second half of the 20th century. Civil marriage was introduced in Bulgaria by decree in 1945, and with this law became the *only legal marital form* that was explicitly confirmed in the 1947 Constitution. The same 1945 decree regulated legal separation (divorce), which substantially facilitated the procedure of union separation. Divorce rates doubled within the first five years of the passage of the civil divorce legislation (Stefanov 1974). At the

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[9] First union examined only

beginning of the 1950s, prompted by this destabilization of the marital institution, the government initiated a new, more restrictive law on divorce. In the course of its rule, Socialist ideology in Bulgaria made many efforts to establish the institution of the marital family as one of the main educational institutions in Socialist society. Family had been burdened with the ideological function "to ensure education in communist ideals" (Nenova, 1977, p.21).

Another set of measures aiming at strengthening the Socialist family as the nucleus of the Socialist society was launched in 1968 when a Family Code was adopted. In the same year, a large-scale family policy, "Decree on encouragement of fertility" (*Ukaz za nasyrchavane na rajdaemostta*), which included both incentives and restrictive measures, went into effect. Along with favorable changes, such as increases in child benefits and allowances and in the duration of maternity leave; restrictions, such as a prohibition on induced abortions for families with less than two children and a new 'bachelor tax', were introduced. The bachelor tax was meant to sanction *single adults who did not form a marital family* by the age of 21 (tax rates were 5% of income for people aged 21–29 and 10% for people aged 30 and older). Financial sanctions were also envisaged for married couples with no children five years after getting married. Even though the family policy was in force until the end of the 1980s, an increase in fertility rates was recorded only in the first half of the 1970s (Philipov, 1993). Afterwards, the levels remained stable, with values close to replacement rate, maintaining an average of two children per family.

As reflected in this short overview, during its 45 years of in power, the Bulgarian Socialist State put a great deal of intentional effort into promoting the *stable marital family*, early marriage, and a two-child family model. An additional argument for the stability of the family model in Socialist Bulgaria was given by Dimitrova (2006b), who argued that the family became the institution that was

designated to fill the gap between official hypocrisy and control over the individual on the one hand, and real life on the other.

Some recent studies have focused on contemporary Bulgarian family formation, comparing the trends before and after 1990 (Koytcheva 2006, Di Giulio and Koytcheva 2007). They report an increase in the spread of cohabitation, particularly in the 1990s. Women from the lower socio-economic strata; those with lower levels of education or who came from large families with less-educated parents, as well as women from the Roma ethnic group, were found to be the forerunners of the new family formation behavior. Emergence of cohabitation in Bulgaria was interpreted primarily as a consequence of the difficult economic situation during the initial years of the transition period, whereas non-marital cohabitation was the preferred family form because it was less costly than a wedding. Koytcheva (2006) concludes her study with a reference to the 'two-horse' metaphor used by Lesthaeghe and Surkyn (2002, p. 198). In the case of Bulgaria, during the greater part of the 1990s, the horse of economic change was pulling the cart of demographic change much more strongly than the horse of cultural change.

On the other hand, in a study particularly aimed at revealing the diffusion of the SDT in Bulgaria and its premises, transformations, and consequences from sociological and demographic perspectives, Dimitrova (2006) focuses exclusively on shifts in values and norms in Bulgarian society in the second half of the 20th century. Exploring European (EVS) and World Value Surveys (WVS), the author argues that, at the beginning of the 1990s, there were relatively small differences between the 'conservative' and 'innovative' clusters of the Bulgarian population in their standards and ideals regarding family formation, childbearing, and the role of the child in the family, as well as the role of women in society. In general, at the beginning of the transition period, people were more traditional and

family-oriented. Lone motherhood, divorce, and liberal family forms were not well accepted.

The next WVS wave, held in Bulgaria in 1997, revealed a widening of the gap between the two groups in their values. Results indicated that the younger generations were far more tolerant than older people towards divorce, contraception, family planning, abortion, and lone motherhood. According to Dimitrova, the potential for these changes was already present in the first years after the collapse of the political system in 1989. However, the massive transformations in society (structural, economic, institutional, etc.) accelerated the liberalization of traditions and norms, thus marking the alteration and adaptation of values as a manifestation of diffusion of the SDT in Bulgarian society in the second half of 1990s (Dimitrova, 2006). Another very substantial conclusion reached by Dimitrova based on in-depth interviews with two generations — young 20–25 year olds and their mothers — is the "changing meaning of marriage," which is very difficult to capture by quantitative methods. According to the younger generation (and part of the parents' generation as well) marriage had lost its universality as an 'absolute' family norm. From being the only socially accepted family form, marriage had been transformed into a 'guarantee' for the welfare of mothers and children, while other factors, such as the quality of family life and partners' relationship, were valued more highly than a 'signature' in the City Hall (Dimitrova, 2006, p. 287).

In reviewing the development of family formation in Russia, it is essential to sketch major changes that occurred at the beginning of the 20th century because they shaped the Russian family system, preparing the ground for recent transformations. In his discussion of the "demographic and family revolution" in Russia (Vishnevskiy 1998, p.112), one of the leading theorists of demographic transition in Russia, Anatoly Vishnevskiy, explores the development of the Russian family through the 20th century. In a very short time, the Russian family

has undergone a process of modernization from the agricultural patriarchal family, in which individuals did not have individual rights and property (described by the author as "man for the family"), to the modern, westernized type of family. In the initial years after the October Revolution, the belief that the Communist society did not need the institution of the family was tested. This idea could not stay vital for long, and was abolished at the beginning of the 1930s. Nevertheless, the same idea of collectivization of everyday family life came to light many times through the conceptual development of the Communist ideology. One of the manifestations of this concept was the housing situation in urban USSR, where the practice was to place a number of families (usually two or three) together in shared apartments. While veering from one extreme to another, the modernization of the Russian family (called by Vishnevskiy "conservative modernization") was proceeding very slowly. The values of the patriarchal family remained prevalent in people's minds until the end of the 1980s: in the 1989 census, "having respect for parents" was rated as the most important feature that mothers wanted to see in their children's personality.

Vishnevskiy (1998) described the unprecedented sexual revolution in the urban Soviet Union in the 1920s (which was also considered to be a form of 'modernization' of the institution of family), as a consequence of the 1917 October Revolution. In fact, these changes were premature for the socio-cultural development of post-revolution Russia, and, as in many other spheres, there was a leap from one extreme to another. The era of so-called 'romantic love' followed the short period of liberalization, and Puritanism and continence became values manifested as Soviet morals for decades, long after the sexual revolution spread across Western Europe (Kon 1995).

Kon (1995) identifies four main periods of the Soviet sexual policy: *progressive sexual policy* (1917 to the mid-1930s); *repression* (until the early 1960s); *domestication* (until 1988) and *liberalization* (starting with Perestroika in 1987).

These periods were closely tied to political regimes in the Soviet Union, and played a substantial role in the formation of family values and the culture of family life.

Vishnevskiy (2006) provides another periodization of legal changes in family legislation which distinguishes periods according to the level of state control of the family system. *Until the mid-1930s*, the state had been very liberal towards marital and family matters. Civil marriage was introduced in 1917, and gained momentum very fast. At the same time, it became clear that not all de facto marriages were being registered, and in 1923 a survey counted approximately 100,000 unregistered marriages. In 1926, with the implementation of the new Family Code, both registered and de facto marriages were made equal in terms of recognition of children, the right to common property, and alimony after divorce, etc. Consensual unions became common among urban youth, particularly among students. Lass (1928) reported results from a survey which found that 16.5% of all male students and 31.7% of all female students lived in unregistered consensual union. The decree on divorce was introduced in 1917 (together with civil marriage legislation) and was further liberalized in 1926, leading to a rapid increase in the number of divorces. By 1935, the number of divorces was 68 times the 1913 value (Vishnevskiy 2006). This very early emancipation from patriarchal traditions created a vacuum in the value system and a degradation of the institution of family.

A rapid leap into restrictive and state-controlled family legislation followed in the 1930s, and lasted until the late 1950s. Unregistered marriages were not recognized. Moreover, they were declared to be invalid, and the term 'children born out of wedlock' was revived. Divorce became a time-consuming, costly procedure, which decreased the number of legal divorces but increased substantially the number of de facto separations. This period was characterized

by a high degree of state control in all spheres of Soviet life, including family and marriage.

The last period of Vishnevskiy's scheme (2006) revived the liberal framework of state regulations in the institution of marriage. The 1960s were marked as a starting point in the shift towards modern family behavior. Still, the official ideology of the 'Socialist family' was very different from the concepts that urbanized youth held about love and family. Rotkirsh (2000) draws particular attention to what she calls the "moral grey zone." She uses this term to distinguish the actual behavior of Russian youth in big cities from the prevailing social norms. From the late 1960s onwards, many Soviet women felt "obliged" to be sexually experienced before marriage, whilst in the official ideology of main social institutions, such as schools, mass media, etc., standards of marital sex (only) were preserved. This led to great ambivalence and confusion among young people. Vishnevskiy (2006) notes that a survey conducted in the Soviet Union in the second half of the 1960s showed that Soviet youth did *not* identify the two values "to meet the love of my life" and "to set up a family" as personal ideals. This was cited as an indication that young men and women did not see a spouse in each partner. They were coming value love in itself, and partnership did not necessarily lead to marriage anymore. At the same time, however, the official registration of marriage was very important for the organization of not only the family, but also of private life in general: official marriage was useful for getting accommodation, for traveling abroad, for moving from one region to another, and even for prolonging education. Thus, because of the high degree of state control in the Soviet Union (also with regards to private family matters), unregistered marriages, as well as fictitious marriages, existed alongside the "strong Soviet family" (Vishnevskiy 2006).

Even though it was not socially acceptable and official statistics did not register such unions, many demographers draw attention to the existence of

consensual unions (called in Russia *non-registered marriages*) during Soviet times (Zakharov 2005, Vishnevskiy 1998, Rotkirsh 2000, etc.). Harchev (1965) provides results from a survey conducted among students in the beginning of 1960s which showed that 65% of the young men and 28% of the young women surveyed had lived in a de facto marriage before they registered it officially. Yet the lack of official data compelled scholars to use proxy information, such as the rise in non-marital births, to estimate the scale of diffusion of non-registered marriages (Tolts et al. 2005). Using more recent data, Zakharov (2005) provided evidence that, among the cohorts born from the 1930s to 1950s, every fifth partnership started with cohabitation. In addition, he concluded that cohabitation was a long-standing and widespread practice in Russia.

3.6   Hypotheses

If we review the theoretical foundations of diffusion of new family formation behavior in industrialized countries, as well as the dramatic societal transformations in Bulgaria and Russia in the 20th century and their influence on transitions and shifts in the institution of marriage, we may discover a basis for comparing them. Historically, politically, and culturally, Bulgaria and Russia have been closely connected; sharing Slavic origins, the Orthodox religion, similar languages, common historical roots, and the same political regime after the Second World War. On the other hand, size, ethnic composition, and geographical location, as well as different roles in the historical development of Europe in the 20th century, may provide a basis for observing different demographic behaviors.

3.6.1   "Similar before, different after?"

Typically, in a multi-national comparison, countries from the former Socialist Bloc have been clustered together as having similar fertility and nuptiality trends. However, numerous dissimilarities appear upon deeper analysis, particularly of the years after the transition to a market economy in the late 1980s. In addition, Bulgaria and Russia are often considered similar in that they lag behind Central European countries in moving towards the Western type of family formation behavior (Philipov and Kohler 2001, Lesthaeghe 2002). In explaining these differences, Philipov and Kohler emphasized the deeper economic difficulties experienced in the two countries in the 1990s. In addition to citing economic factors, Lesthaeghe also addressed the stage in the ongoing shifts in value orientation in Bulgaria and Russia (grouped together with three other countries), which provided the first step towards further shifts in the patterns of union formation.

A more thorough analysis based on qualitative or individual level data (Rotkirsh 2000, Zakharov 2005, Vishnevskiy 2006, Dimitrova 2006, Koytcheva 2006, Hoem et al. 2007, and elsewhere) could lead to the conclusion that consensual unions (or non-registered marriages) already existed in both countries in the 1960s and 1970s. Through an intensive family policy, which covered only officially registered marriages, the official ideology slowed down the diffusion of the new ideas. Nevertheless, in Bulgaria (as shown in Chapter 2, Figure 2.1) the total number of marriages, as well as TFFMR, showed sizeable declines starting from the mid-1970s onwards. This also proved to be true for the first marriage rates among the very young age groups (Chapter 2, Figure 2.2). Thus, we believe that some changes in the values towards the choice of union type had already taken place in Bulgaria in the 1980s.

The Soviet Union, as discussed earlier, has had very confusing family policies throughout the 20th century, and has experienced several jumps from

one extreme to another. Even though it became more liberal after the 1960s, the Soviet ideology put considerable priority on endorsing the marital family as the only appropriate family form, and that kept the number of marriages and levels of TFFMR at a stable high level from the 1970s to the first half of the 1990s (Chapter 2, Figure 2.1).

Our *Hypothesis 1* states that the diminishing prevalence of the marital family, combined with an emerging new *union type*, could be observed in Bulgaria starting in the 1980s; while, in Russia, intensive family policies kept the prevalence of the marital family very high until the beginning of the 1990s. Despite displaying similar trends in fertility behavior, differences in union formation behavior, including the types and the degrees of stability of first unions, would remain between Bulgaria and Russia, and the differences observed before the collapse of the Socialist system grew even more pronounced in the period that followed.

3.6.2   Level of diffusion of cohabitation

At the end of Chapter 2, we formulated a research question about the stage of development and the level of diffusion of cohabitation in Bulgaria and Russia. Census data from 2001 reveal that 13.1% of all people of reproductive age in Bulgaria lived in consensual union. By comparison, 9.7% of the women in union in Russia in 2002 were living in non-registered marriage. However, the numbers are much higher when young age groups are observed (Chapter 2, Table 2.1). Zakharov (2005) has reported that cohabitation is a "long-standing tradition" in Russia, and, among women born from the 1930s to the 1950s, every fifth union starts in cohabitation. Similarly, Philipov and Jasilioniene (2007, p.31, Table 5.6a) and Hoem et al. (2007, p.10, Figure 3a) have shown that, in both countries, consensual unions existed long before the transition in 1989. Philipov and

Jasilioniene (2007, p.31) have also shown that the transformation of cohabitation into marriage is slowing down in both countries.

Among the cohabitations in Bulgaria in the synthetic cohort 1999-2003, 61% are transformed into marriage by the sixth year after union formation; the same pattern holds for 54% of the cohabitations in Russia. Even though the authors account for the possibility that cohabitation will end in separation (applying a competing risk life table method), separations were not studied in that paper due to the very small numbers in the Bulgarian sample. Indeed, Spielauer et al. (2007, p.10) report the most notable difference between the two countries are the values of first union dissolution. For instance, the baseline hazards are two to four times higher in Russia than in Bulgaria.

Therefore, we believe that the share of remaining cohabitations six years after union formation is higher in Bulgaria. Additional proxy information on extramarital births, often used to identify level of diffusion of consensual union, shows a steep increase in extramarital births in the two countries (Chapter 2, Figure 2.3). In 2004, 50% of all births in Bulgaria, and 30% in Russia, were to mothers without an officially registered marriage, while in both countries extramarital births had risen from levels of about 10% in the 1980s.

In our *Hypothesis 2,* we expect that, at the beginning of the 21st century, both countries had reached the stage at which living together without an official marriage is not considered to be a deviant behavior, and cohabitation is well incorporated in peoples' value system. Nevertheless, we assume that the diffusion of cohabitation has proceeded faster in Bulgaria than in Russia, which would place the Bulgarian family behavior closer to the third stage of its development, in which cohabitation becomes a socially accepted family environment for bringing up children, and 'family' is no longer associated only with 'marriage'.

Chapter 4

Methodological aspects of a study of first union formation

4.1   Introduction

In this chapter we describe a methodology for the study of first union formation from a life course perspective. Initially, we define "first union formation" as a transition from the status *never in a union* to *cohabitation* vs. *direct marriage*. Thus, a substantial part of the chapter (Section 4.2) is devoted to classical event history analysis and to its capacity to answer the research questions of the present study. We also elaborate on an extension of the event history technique which allows for the comparison of relative rates across the competing transitions under study. We present a description of the two datasets with their 'pluses' and 'minuses' (Section 4.3) and a detailed scheme of the transitions under study, the events of interest, and the covariates included in the analysis (Section 4.4) in the second part of the chapter.

4.2   Analytical method

Our overview of trends in union formation in Western Europe and North America, and our cohabitation typology (Chapter 3, Section 3.2) provide support for the hypothesis that cohabitation and marriage have meanings that depend on the socio-economic context and on the stage of development. There will therefore be a variety of interpretations across geographical regions and historical time.

To cope with the challenge of addressing both individual and environmental variations, Elder (1975) has proposed the idea of studying individual lives from a *life course perspective*. Generally, the concept of the *life course* is a way of representing the relationship between social and individual change; thus it invites the analyst to look at the changes in individual lives over time as a dynamic process (Elder and Caspi 1988). Giele and Elder (1998) identify four major components as shaping the individual life course. The first is to locate an individual in time and place (cultural background); the second is to identify the person in a social interaction (linked lives); the third is to recognize the individual's personal development (human agency); and the fourth and final component is the intersection of age, period, and cohort in personal development. Furthermore, all four elements are pooled through a *"funnel of timing"* (ibid. p.11). Thus, the main subject in the life course paradigm are *events* combined in *trajectories (event histories)*; and trajectories are further combined across persons by analyzing differences in timing, duration, and rates of change.

The event of interest in the present study is union formation, and, in particular, *first union formation* as a part of the individual life trajectory. Together with the end of formal education, the first job, leaving the parental home, and the birth of the first child, first union formation is one of the key events in the transition to adulthood (Liefbroer and de Jong Gierveld 1995, Corijn 1996, Billari 2001). We focus on first union formation for several reasons:

First of all, there is a 'gap' between official statistics and the actual patterns of union formation in Bulgaria and Russia after the societal transition at the end of the 1980s (Zakharov 2005, Koytcheva 2006, Philipov and Jasilioniene 2007).

Secondly, because of the low levels of divorce (and disruption) in Bulgaria, it is difficult to study patterns of second union formation with the

sample size of our dataset, so we concentrate on first unions. (Further details are presented in Section 4.3.)

Third, there are different incentives for entry into non-marital and post-marital cohabitation. Thus, in societies where early and (almost) universal marriage was a norm (like in Bulgaria and Russia), it is more valuable to study determinants of unmarried cohabitation as a 'competitor' of the direct first marriage and to leave post-marital cohabitation for some later study.

As the entry into first union, we consider the point in time when a woman has moved in to live together with a man (for the first time) either by direct marriage or by cohabitation. To better understand the underlying factors that lead people to enter non-marital union, one needs to study not only the entry into a first union, but also the further development of consensual unions. Once created, a consensual union may end up either in marriage or in dissolution; or else remain as union until the end of our observation. We therefore also study the transition out of a first non-marital cohabitation and into a subsequent marriage with the same partner (union conversion), or into dissolution.

In our study of first union formation, we apply the classical methods of event history analysis (Section 4.2.1) and a modification that allows us to compare the relative incidence rates *across* the two competing transitions (Section 4.2.2).

4.2.1 Classical Event History Method

Event history analysis constitutes a methodology to model *processes* that generate changes in outcomes and behaviors over time. Furthermore, the analysis provides a framework for investigation of causal relationships, in particular *how events are conditioned by other events*.

A proper study on transitions in the life course, as suggested in Espenshade and Braun (1982), should give consideration to age, historical time,

and duration of stay in a particular state. It should also be concerned with the patterns and correlates of the occurrences of events (Yamaguchi 1991). Thus, event history analysis studies the (possible) *occurrence* of the event of interest, and the *time* needed for its occurrence. In other words, the studied unit is the duration of the *time at 'risk'* until the actual occurrence of an event. In family studies (in contrast to mortality studies), numerous entries and re-entries between and among different statuses are possible (e.g., household formation, marriage, parenthood, divorce, remarriage etc.).The simplest situation is when the process under study consists only of one single episode and two states: origin and destination.

In the present analysis we use a continuous *time* axis to represent the waiting time from the age 14 until the time at first union formation. We also focus on the time since the start of a cohabitational union until its dissolution or conversion into a marriage. In the former case an individual remains in the origin state 'single, never in a union' until a transition to the destination state 'being in first union'. If there are several possible destinations from one state, then a multistate model (Espenshade and Braun 1982) is relevant. Hachen (1988) elaborates on a case in which the transition from one state to another can be viewed as governed by a set of mutually exclusive *competing risks*. The competing risk framework fits best to the present study, because an individual can exit from the state of origin (*never in a union*) either by starting a consensual union or by entry into a marriage.

Figure 4.1 First union formation transitions
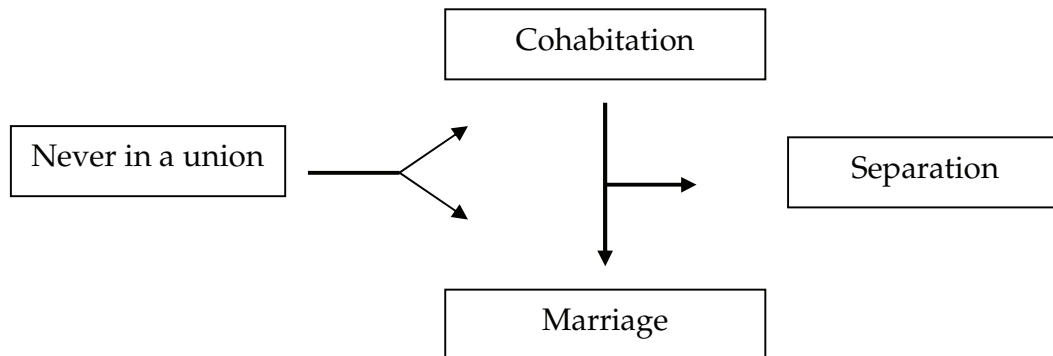
In Figure 4.1 we sketch the two transitions modeled in the present study of union formation, namely the transition from the status 'never in a union' into cohabitation vs. marriage, and the exit from the status 'in cohabitation' into subsequent marriage vs. dissolution.

As a statistical tool in the analyses of event history trajectories, we use an *intensity regression model* (or proportional hazard model). We estimate hazard rates that an event will occur in some small interval of time, given that the event has not occurred for that individual before the start of the small interval. In other words, the hazard function is defined as the conditional instantaneous probability of experiencing the event at operational time *t*, given that the individual has not experienced before time *t*.

The hazard model can incorporate various individual time-constant and time-varying characteristics. A general mathematical representation of the hazard function in the form that we use it is:

$$\ln h(t) = \gamma T(t) + \beta' X(t)$$

where $\ln h(t)$ is the logarithm of the risk of occurrence of the event at moment t, $\gamma T(t)$ is a representation of the baseline hazard duration dependence, $\beta' X(t)$ are effects of the observed covariates (time-constant and/or time-varying), and t is the time passed from the initial point of analysis until the end of the observation (at the occurrence of the event, or at censoring). The baseline hazard that we use in this dissertation is a piecewise log-linear spline. Each of the covariates in the model contributes proportionally to the shifts in the baseline; however, they cannot change its shape. In more complex specifications covariates can operate in interaction with each other and with process time t.

Kantorova (2004) summarizes a number of advantages of a hazard model in a study of family life transitions. The present study benefits from the use of such a model because we incorporate the effect of *multiple duration dependencies* in the baseline hazard. The concept of 'multiple clocks' (developed by Lillard (1993)) reflects the possibility that a process may depend on the duration of related processes in addition to itself. For example, in our analysis of first union formation, the effect of a woman's age is modeled together with a calendar time effect and an effect of giving birth to a first child (more precisely, the time since first conception); these effects are presented as continuous (piecewise-linear) duration patterns.

Another advantage of using a hazard model is the opportunity to control for *unobserved characteristics*[10] of the population and/or the individual under study. The procedure is to include an extra term (ε) as a random variable in the equation in order to capture variation that is not due to the observed characteristics included in the model.

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[10] The issue is well described in the literature and usually referred to as *unobserved heterogeneity of the population* (Vaupel et al. 1979, Manton et al. 1986, Horiuchi and Vilmoth 1998, Kravdal 2001, Kreyenfeld 2002). More on the application on the topic of family formation can be read in Lillard (1993), Lillard et al. (1995), Brien et al. 1999, Le Goff 2003)

$$\ln h(t) = \gamma T(t) + \beta' X(t) + \varepsilon$$

Typically, the residual ε is assumed to be normally distributed. [11]

Often in real life, processes are endogenous, meaning that the outcome of one process shapes the development of other processes (such as marriage formation and marriage dissolution, or, in our case cohabitation and its further transformation into marriage or dissolution). In such cases, a common procedure is to perform *multiprocess modeling* (Lillard 1993, Lillard et al. 1995). This means that two or more processes are modeled together, and the correlation across equations is captured by using multivariate normal distributions.

A mathematical representation could look like this:

$$\ln h^C(t) = \gamma^C T(t) + \beta' X(t) + \varepsilon$$

$$\ln h^M(t) = \gamma^M T(t) + \beta' X(t) + \delta$$

The two residuals ε and δ are allowed to have joint bivariate normal distribution with a term capturing the correlation between them. In the present study, multiprocess modeling is applied to account for the effect of 'entry selection' in the analyses of conversions of cohabitation into marriage (in Sections 5.3.3 and 6.3.3 for Bulgaria and Russia respectively).

Another advantage of applying these types of hazard models is that it allows the consideration of competing risks in a single analysis. We model the two competing risk equations jointly and further compare the strength of the parameter estimates. Such analyses are presented in our Sections 5.3 and 6.3 for Bulgaria and Russia respectively. Estimates are produced with the help of a

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[11] Other possibilities exist but we will not make use of them here.

statistical software called aML, developed by Lillard and Panis (2003). We have used version 2.09.

4.2.2 Joint analysis of two competing risks transitions

Further in our analyses, we apply an extension of the multiplicative intensity regression model with a piecewise constant baseline hazard to analyze competing risk transitions *jointly*[12] (e.g. entry into cohabitation and into direct marriage at the same time). Such a technique allows for a comparison of the processes *across* the two competing transitions, and to test whether the effect of social characteristics on the process of union formation vary according to the type of union. Technically, the 'trick' is to introduce the cause of decrement as an extra 'factor' and to operate with it in one or more interactions with the 'ordinary' factors, which may also interact with each other. In the mathematical expression, it is presented as an extra subscript l for the cause of decrement (type of union formed):

$$\mu_{ijkl} = a_{il} b_{jl} c_{kl}$$

μ_{ijkl} represents the transition intensity for an individual in age group i with level j on some factor B and level k on some other factor C for the intensity of decrement l, with $l=1$ for entry into a non-marital union and $l=2$ for entry into a marriage. The factors A, B and C are the baseline process time (age), a vector-valued "background" factor with time-constant and time-varying elements, and calendar time, respectively. Corresponding to the two competing processes, there will be two occurrence matrices, $D_1 = \{D_{ijk1}\}$ and $D_2 = \{D_{ijk2}\}$, and only one matrix of exposures R, as an individual has the same exposure time for both types of

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[12] For more detailed description of the method see Hoem and Kostova (2008). Same idea with different model specification was applied in Gomez de Leon and Potter (1989), Liefbroer (1991) and elsewhere.

transitions. Combined occurrence and exposure matrices $D_* = \begin{pmatrix} D_1 \\ D_2 \end{pmatrix}$ and

$R_* = \begin{pmatrix} R \\ R \end{pmatrix}$ will be used in the joint analysis of the two competing transitions. This

formally corresponds to including the type of decrement as an extra factor in the analysis, as we mentioned above. In this way, one can get the transition rate at a factor level on one intensity relative to the corresponding factor level on the other intensity.

Joint analyses of transition to cohabitation vs. direct marriage in Bulgaria and Russia (Sections 5.3.3 and 6.3.3 of Chapters 5 and 6 respectively) are performed with the help of a computer program called EvHA (version 0.48) developed at the MPIDR. We have made all data preparation for the analyses presented in chapters 5 and 6 with the help of the STATA software package, version 9.1.

4.3   Data from national Generations and Gender Surveys, 1ˢᵗ wave, conducted in 2004

We have carried out our empirical analyses based on data from the first wave of the Generations and Gender Surveys (GGS) conducted in Bulgaria and Russia in 2004. The surveys, supplemented by a Contextual Database, constitute the Generation and Gender Programme (GGP), which is aimed at providing better knowledge of demographic and social developments across Europe. The Programme gives particular attention to the relationship between children, parents and grandparents (generations), as well as between partners (gender). The GGS are designed as three-wave longitudinal panel surveys[13] to combine the

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[13] More about survey design can be found in a UN report on GGP survey instruments (United Nations 2005) and in Vikat et al. (2007).

retrospective (collection of longitudinal data) and *prospective* (panel design) dimensions of data collection.

The first wave GGS provides comparative retrospective histories on partnership dynamics and childbearing, as well as a rich body of information on future intentions, present household situation, quality of partnership relations, parent-children relationship, etc.

The sampling procedure for the first wave GGS was designed to collect representative data for the non-institutional population of 18-79-year-old women and men in every country. Data collection was organized in face-to-face interviews with one person in a household. The first wave GGS questionnaire consists of a *core* questionnaire (required for country comparability), plus *optional sub-modules* (collecting information on nationality and ethnicity, previous partners, intentions of breaking up, and housing). Bulgaria and Russia were among the pilot countries to implement the GGP, thus both countries applied the complete questionnaire, including the core questionnaire plus the four optional modules.

4.3.1 **Bulgarian GGS**

The Generations and Gender Survey was conducted in Bulgaria from November 2004 through January 2005. The final sample consisted of 12,886 men and women aged 18-85. Originally, the sample size was planned to be 12,945. Of this sample, 8,614 persons were found and agreed to participate in the first stage of the survey (66.54%). In order to achieve the originally planned sample size, a supplementary sample of another 5,733 persons was drawn, of which 4,300 persons were interviewed (75% response rate). In this way, 12,914 persons were interviewed in two stages; only 28 of them were not included in the final data file because of incorrect interviewing procedure (Atanassov et al. 2005).

We narrow our analyses to women ages 18 to 49 at the time of the interview. We begin the observation at the 14th birthday of the respondents, and the period of observation then becomes 1969–2004. In this way, we can compare union formation development *before* and *after* the transition to a market economy at the end of the 1980s. GGS is the first dataset to enable studies of the emergence of cohabitation over such a long period of time in Bulgaria. In a study of social-demographic differences of fertility and union formation in Bulgaria, based on data from the 2002 Social Capital Survey, Koytcheva (2006) revealed very important determinants of cohabitation as a newly emerged phenomenon. Nevertheless, due to the very young age of the respondents in the survey, the period of observation was restricted to 1985–2002.

Furthermore, we exclude from the analyses women who defined themselves as belonging to ethnic minorities, and narrow our analyses to ethnic Bulgarians only. There are two reasons for doing so. First, the ethnic group of Roma ('Gypsies') has very different customs and traditions towards forming a family. They start family life very early: some 7.3% of them have entered their first union by the age of 14, and 15.6% by their 15th birthday. The same percentages among women of Bulgarian ethnicity is 0.25% and 0.6% by their 14th and 15th birthdays, respectively; among the Turkish ethnic group, 2.7% (6.3%) entered their first union by age 14 (15). Furthermore, Roma most often do not register their union with the authorities, even though the union is considered a marriage according to their customs and traditions (Pamporov 2003). Thus, in our dataset they would appear as cohabiting, although they regard themselves as married (had a wedding ceremony, etc.). Second, in the interviews with Roma respondents, there was very high percentage of missing data on the month and/or year of union formation. As Koytcheva (2006) notes, omissions are more likely to occur when reporting the time of entry into cohabitation. Thus, since Roma often do not obtain marriage certificates, they tend to forget or have difficulty in identifying the exact time of forming their first union.

We also exclude from the analyses cases with incomplete information on union formation histories, or missing data for the construction of time-varying covariates: school graduation, or date of birth of a first child. After re-defining our target population and using the cleaning procedure, the sample size for the analyses was reduced to 3,941 women. A summary of the cleaning procedure, as well as the basic sample distributions, are provided in Tables A1 to A3 in Appendix A.

4.3.2 **Russian GGS**

The original name of the GGS in Russia is "Parents and children, men and women in the family and in the society." The survey was conducted in the period February-August 2004 (including fieldwork performed between June and August). A multistage stratified probability sample of 20,240 dwellings (households) was drawn to assure 11,000 interviews, allowing for a substantial non-response. In the three large regions of the Moscow metropolitan area, Moscow city and St. Petersburg, where the greatest attrition of the sample was observed in previous surveys, oversampling was greater in proportion to the expected non-response rate. The final realized sample consisted of 11,203 women and men aged 18-79. The overall response rate was slightly over 44%, though it varied on the regional level from above 80% in the rural areas, through 50-57% in the regional centers, to 14.4% in the Moscow and St. Petersburg regions (Independent Institute for Social Policy 2004). Each of the interviewed persons (households) was assigned an initial base weight value[14] that reflected the probability of selection, with respect to the area of residence. The analytical weights are provided in the dataset, and we use them in all analyses.

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[14] Kish weights have been estimated and provided by the Independent Institute for Social Policy (2004, p.13).

To allow comparability between Bulgaria and Russia, we performed analogous sub-sampling procedures. Thus, the empirical analyses of first union formation in Russia included only women born after 1955 (aged 18 to 49 at the interview) who declared themselves as have Russian ethnicity (nationality). By excluding the cases with significant omissions, the sample size was further reduced to 3,225 usable cases.

The cleaning procedure, as well as the main sample distributions, are presented in Tables A4 to A6 in Appendix A.

4.4   Variables

4.4.1   Dependent variable(s)

As described in detail in Section 4.2, we study transition to first union as direct marriage vs. non-marital cohabitation. Subsequently, we follow cohabiting unions until they transform into marriage or end up in dissolution.

In the first set of transitions, we assume an individual to be "at risk" of entry into a first union (*dependent variable)* from her 14th birthday onwards. Thus the dependent variables accounts for the effect of age on the transition to first union. The observation ends at the occurrence of an *event* (non-marital cohabitation or direct marriage), *or* with censoring at the time of the interview, *or* 20 years after the beginning of observation. The reason for such censoring is the very young age at first marriage in both countries (at age 20 to 25 for the whole period of observation; see Figure 2.4, Chapter 2). Thus, there are virtually no observations of first union formation after the age of 34.

In the second set of models, the observation starts with the entry into non-marital cohabitation. Individuals are considered 'at risk' of an event until the occurrence of marriage or dissolution, or right censoring (at the time of interview). Therefore, dependent variable is *time since entry into first consensual*

union. The basic duration splines in the second part of our analysis account for the effect of union duration on its further transformations.

4.4.2   Time-varying covariates

One of our main research interests is to reveal changes in the family (union) formation behavior after the collapse of Socialism, as well as to answer the question of whether these changes started with the collapse of the system or whether the transition acted as an accelerator of an ongoing process. Thus, *calendar time* plays a key role in our analyses. It is constructed as a piecewise linear spline that covers the period from the *origin* (the 14th birthday of the respondent) until *occurrence* of event or censoring. The period of observation starts in 1969, when the oldest respondents in our samples turned 14, and covers some 35 years (1969-2004). Based on the political and economic development of Bulgaria and Russia, we divide the period of observation into sub-periods (Sections 5.2 and 6.2). Each of the sub-periods (periodization is slightly different in the two countries) is characterized with specific institutional settings. Therefore the *time* perspective will help us to reveal the effect of the overall country-specific developments on the changes in the pattern of first union formation.

Another key variable in our analysis is *education*, which influences first union formation through its two dimensions: time spent in education and completed level of education (Thornton et al. 1995). Unfortunately, the first wave GGS questionnaire does not include full education histories. Based on the development of educational systems in the two countries, we constructed an *education* covariate applying some assumptions and imputations. First, we assume that the concept of 'life-long learning' has not been consistently in practice in Bulgaria and Russia (OECD 2002, 2004), and that education in the two countries has instead been an uninterrupted process. Thus, we suppose that,

after graduation from the highest level of education, respondents were continuously *out of education,* and that the final educational level had been attained. Similarly, the period before graduation was categorized as *in education.* Secondly, we assume that the effect of being in education on the intensity of union formation is the same for all levels of education.

The quasi-time-varying education covariate comprises four categorical levels: *in education, low* (including no education, primary, basic, and incomplete secondary school), *middle* (completed secondary school with exam), and *high* (including every education higher than secondary). Constructed in this way, the educational covariate is rather anticipatory, as it features conditioning on the future, and it might be expected to give biased estimates of the regression parameters (Kravdal 2004, Hoem and Kreyenfeld 2006). Its major weakness is that it does not account for the possibility of returning for more education, i.e., it does not recognize interruptions in the process of obtaining education.

Evidently, educational systems and practice in Bulgaria and Russia (as described in Chapters 2 and 3) did not follow the 'life-long learning' concept. Moreover, there were programs aimed at supporting student families, and, in particular, serving the reconciliation of attending university and motherhood for student mothers (such as providing housing in a student campus, additional money paid to student-mothers, facilitated lecture and exam schedules, etc.). Furthermore, Zabel (2007), estimating regression coefficients based on imputed educational histories, concludes that "altogether, the bias caused by using imputed histories did not turn out to be very serious in the case of Germany"(p.10).

In order to evaluate the interaction between fertility and union formation in Bulgaria and Russia throughout the studied period, we include in the analyses a variable to account for the effect of *pregnancy-and-motherhood status* on the transition to first union. Such a variable will give us grounds to elaborate on the

stage of development of cohabitation in the two countries, whether it is a prelude to marriage or is approaching the third stage, becoming a well-accepted family environment for having children (an alternative to marriage).

There are at least two different ways to look at the effect of first birth (first conception) on first union formation. The first one is to consider the *pregnancy-and-motherhood* status as a combination of categorical states. In our case, we group them in three categories: *childless non-pregnant*, *childless pregnant* (with first child), and *mother* (after the birth of the first child). In this manner, the effect of the nine-month pregnancy period (or of the period after the birth of the child) is regarded as constant through the period. We apply this categorical representation in the model with a three-way interaction between the covariates *type of first union, calendar period,* and *pregnancy-and-motherhood status* (Sections 5.3.3 and 6.3.3). The second possibility is to represent the effect of pregnancy and birth of first child as a continuous function of time t (duration spline). The spline allows the effect of duration in the current state to vary across the time segment. We use division points (nodes) at the third and sixth months of the pregnancy, at birth, and at the child's age of three and six months in order to analyze differences in the effect of pregnancy and first childbirth through the period of nine months before the birth (pregnancy) until the child's first birthday. The effect of *pregnancy-and-motherhood* status estimated as a duration spline effect is presented in Sections 5.3.2 and 6.3.2.

4.4.3   Time-constant covariates

In order to account for the effects of the respondent's upbringing and parental family characteristics, we include in the analyses a group of variables to characterize the socio-economic status of the respondent in her childhood: parents' level of education, size of the parental family, the experience of living

with both biological parents in childhood, as well as the type of the settlement where the respondent grew up.

Parents' educational attainment is an important measure of the family well-being. It is also a good predictor of parents' openness towards new ideas and novel behavior (Schröder 2006). Thus, we use parents' level of education as an indicator of their willingness to accept a nontraditional family arrangement for their child. The covariate on parents' *educational attainment* is included in the analyses with categories *high*, *middle,* and *low* (analogous to the personal level of education described above).

Being raised by a lone parent is confirmed to have an impact on the personal view on necessity of marriage in modern society (Thornton 1991, Manting 1994). The experience of parental divorce could be reproduced in weaker attachment to marriage and 'lower' personal expectations for building one's own <u>marital</u> family. The questionnaire design of GGS gives us the opportunity to construct dichotomous covariate which account for whether a respondent was *living with both biological parents during most of her childhood until age 15* with outcomes "yes" and "no."

The size of the parental family is measured by the *number of siblings* of the respondent. The two-child family was the prevalent family model in Bulgaria and Russia during the time of our observation (Zhekova 2002, Spielauer et al. 2007). Thus, we distinguish between having *none or one*, and *two or more* siblings.

We also control for the *type of the settlement* in which the respondent grew up. In the Bulgarian survey, the question refers to "most of the time in childhood, until the age of 15," while in Russia, respondents are asked for their "place of birth." Although we wanted to distinguish large cities, like Moscow, St. Petersburg and Sofia, from the small and mid-sized ones, we were only able to make an urban/rural differentiation. Therefore, the covariate is included with categories *city* and *village.*

Chapter 5
First union formation in Bulgaria

5.1.   Introduction

As formulated in Chapter 2, our main research focus is the development of first union formation and the *meaning* of cohabitation in Bulgaria and Russia. In this chapter, we present the development of the union formation model in Bulgaria over the 1969–2004 period, and outline the differences between the profiles of people who cohabit and those who marry directly. We also attempt to clarify the stage of its development that cohabitation has attained. We use the term 'meaning' to distinguish between the two cases. First, we look at whether cohabitation is associated with tolerance for a sexual and affective relationship, though without a long-term plan for common life and/or family (i.e., developmental stages one or two); second, we attempt to establish whether cohabitation represents a 'long-term' relationship in which the partner is considered to be an informal spouse, and children are very often present (developmental stages three or four).

Based on the theoretical discussion of family formation development in Chapter 3, we first build our research hypotheses regarding the impact of several factors (found to be key factors in Western Europe and the United States) for the emergence of cohabitation in Bulgaria (section 5.2). Subsequently, in Section 5.3, we present our empirical findings. Particular emphasis is placed upon the timing of emergence of cohabitation in Bulgaria, and shifts over time in the profile of

people starting their partnership career in cohabitation. To conclude, in Section 5.4 we summarize and discuss results in relation to the formulated hypotheses.

5.2.   Research hypotheses

Under the former Socialist regime, countries underwent a particular economic and cultural development in the second half of the 20th century. Thus, as a group, they embody a specific situation to which most theories cannot be directly applied. Based on the social and economic developments in Bulgaria described in Chapter 2, we divide our period of observation (1969-2004) into three sub-periods: *Socialism* (up to 1989), a *period of economic restructuring* (1990-1997), and a *period of stabilization* (from 1998 onwards).

The first sub-period is characterized by state-secured economic development, lack of unemployment, high female labor force participation supported by the state, and a well-functioning family policy allowing for reconciliation of work and family. The early 1990s (period of restructuring) could be described as an intermediate period in which 'old' and 'new', 'state' and 'private', were functioning together. Reform of the economic system brought about the collapse of many enterprises, and thousands of people became unemployed. The country faced a deep economic and societal crisis. High inflation, high unemployment, low economic productivity, and, as a result, inability to provide a reasonable state family policy, were among the most essential characteristics of that period. The overcoming of a deep economic crisis in 1996/1997 marked the beginning of the third sub-period (stabilization period). It was characterized by gaining control over the inflation process, reducing unemployment, and raising economic productivity. Nevertheless, the system for childcare and family support did not manage to recover from the economic shock, and state support was insufficient. Later in our analysis, we address union formation developments and shifts in behavior with regard to this periodization.

5.2.1   **Effect of education on first union formation**

Theoretically, education influences people's behavior on two different axes: the time spent in education and the actual educational attainment (Thornton et al. 1995). Completed tertiary education is typically associated with better chances on the labor market, higher income, and, eventually, better economic conditions. Therefore from an economic perspective, a high level of education for a woman will result in emancipation from the traditional family and a higher propensity toward cohabitation.[15] Koytcheva (2006) found that this was not true in the case of Bulgaria. In her study, women with lower than secondary education showed the highest risk of entering consensual union. Her results largely suggest that the process of cohabitation in Bulgaria is still in its first stage of development (Chapter 3, Section 3.2). Yet, due to data restrictions, Koytcheva analyzed only the period after 1985. We assume that cohabitation underwent substantial development over the period 1969-2004. Thus, we expect to provide a more extensive overview of the interaction between education and development of cohabitation over time.

We expect that educational attainment has different effects on the process of first union formation in the three sub-periods defined above. During the Socialist era, education did not play a particularly important role in the process of finding a (well-paid) job. 'Social equality' and 'emancipation', particularly the emancipation of women were among the objectives of the Socialist system in Bulgaria. In 1947, with the adoption of the Constitution of the People's Republic of Bulgaria,[16] women were "granted equal access" to work, social security benefits, pension, and education (paragraph 47), which accelerated female labor force participation as well as female school enrolment (Sections 2.3.3 and 2.3.4 in

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[15] Extensive theoretical discussion on the effect of education (attainment and enrolment) is provided in Chapter 2, section 2.2.3.
[16] see Constitution of the People's Republic of Bulgaria, 1947,
http://www.parliament.bg/?page=history&lng=bg&hid=5

Chapter 2). The Socialist concept of 'social equality' was opposed to income inequality between different social strata. Therefore, using education as a proxy for economic prosperity in the 1970s and 1980s should be discussed with appropriate caution.

In the first half of the 1990s, reforms in the educational system were not synchronized with economic reforms. As a result, unemployment rates were particularly high among young and well-educated people. For instance, unemployment rates for the age group 18-24 were at levels around 50% for the whole sub-period, which was more than twice the level of the overall unemployment rate (Social tendencies 2002). As a consequence, having high education did not correspond to the 'value' it had in the developed market economies.

At the beginning of the third sub-period (1998-2004), a stabilization program was launched. As a result, macro-economic indicators showed steady growth. An increasing number of universities (including private institutions), along with the rise in the share of university students among the population aged 19-23 from 31.7% in 1990/1991 to 43% in the year 1998/1999, were signs that tertiary education started gaining significance in Bulgaria (the increase over the period was more pronounced among women: from 33.3% to 52.3%, respectively.)[17]

Following the changing role of education and development of cohabitation in Bulgaria over the studied period, in *Hypothesis 1* *we assume that*, *from the 1970s through the mid-1990s, there will be a negative association between the level of education and the intensity of entering into cohabitation as a first union. In the period of stabilization (from 1998 onwards) we expect that the negative effect of educational attainment on the intensity of entering into cohabitation as a first union will lessen. Furthermore, being in education will hinder the union formation process, and this effect will be more pronounced in the case of direct marriage.*

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[17] Social tendencies 2000

5.2.2   **Effect of family background on first union formation**

Parental family characteristics, as well as other socio-economic factors describing a respondent's childhood and youth, are often considered only as control variables. That is why their effect on the preferred type of union is not widely discussed. A study by Kernan (2001), which addresses the question of who cohabits in Western European societies, explores the issue of religiousness and experience of parental divorce as two substantial factors associated with the propensity to cohabit. Other studies (e.g., Schröder, 2005) investigate the role of parents' educational attainment for the diffusion of cohabitation. Parents' education is used as a proxy for their level of 'openness' towards non-traditional union formation behavior. Similarly, we use parental family characteristics (like parents' educational level, experience of parental divorce,[18] etc.) to investigate to what extent family environment in childhood influences the emancipation from traditional union formation behavior in Bulgaria.

Marriage has been the predominant union form in Bulgaria over the whole period of study (Chapter 2, section 2.2). Early and almost universal marriage was a well-embedded value in the society. Additionally, marriage has been a stable family construction, and divorce has never been a widespread practice in Bulgaria (Social tendencies, 2002). Thus, we expect our results to be similar to those found by Schröder (2005) in the case of Italy: namely, that parents' higher education (in particular, the mother's university degree) is positively associated with a higher intensity to form cohabitation as a first union. This is in agreement with our *Hypothesis 2* *that having parents with higher education will reflect in a higher risk of entering into cohabitation as a first union. We also expect that the experience of having an incomplete one-parent family in childhood*

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[18] In our case we use "living with both parents at the age of 15 of the respondent," because of the question structure which is slightly more general but still accounts for experiencing a complete nuclear family in childhood.

will be reflected in a weaker attachment to the traditional marital family, and therefore to a greater risk of entering into cohabitation as first union.

5.2.3 Effect of pregnancy-and-motherhood status on first union formation

Traditionally, marriage has been strongly rooted as a union form in Bulgarian society. In addition, marriage (in a church before 1945, by civil ceremony afterward) had been a social precondition for having children. Koytcheva (2006) found strong positive correlation between pregnancy within a relationship and transition to marriage in Bulgaria. We expect to confirm her findings, especially in the years before 1989, when social pressure was particularly strong for bringing up children in a legal family. Yet we expect that cohabitation as a dynamic process is no longer only a 'trial' period in union formation, but also a stable relationship for an increasing proportion of people. Thus, having children in such unions has become more and more acceptable in Bulgarian society. As discussed in Section 3.2 (Chapter 3), cohabitation is a process undergoing several stages. Development of cohabitation through its second and third stages is associated with a transformation from a 'mainly childless relationship' to a 'socially accepted family environment for bringing up children'. Since the beginning of the 1990s, vital statistics have shown a rapid increase in the number and share of non-marital births in Bulgaria, to almost 50% in 2004 (Figure 2.3, Chapter 2, section 2.2.3). These changes suggest that the interaction between childbearing and marriage has undergone a transformation, and that marriage is no longer the only acceptable environment for bringing up children. Thus, we expect that the positive effect of pregnancy on the risk of entering into cohabitation will increase over time.

Hypothesis 3 states that premarital conception will have a strong positive effect on entering into a first union as a direct marriage. We also expect that conception in cohabitation will transform the partnership into a marriage (cohabitation seen as being in

its second stage of development). Even if weaker, we expect to find a positive effect of pregnancy on the risk of forming a consensual union, and that this effect will become stronger over time.

5.3   Empirical findings

5.3.1   Descriptive results

Before discussing the analysis, we present some of the main descriptive results that characterize the union formation practice of our respondents. As we explained in Chapter 3, we restrict our analyses to women of Bulgarian ethnicity, aged 18-49 at the time of interview (born in the years 1955-1986). About one-third (31%) of respondents started their first union as a direct marriage, 43% moved in with a partner without an official marriage, and 26% have never been in a union (Figure 5.1).
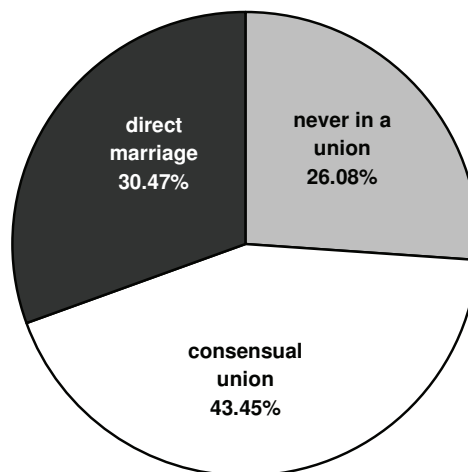
Figure 5.1 Distribution of women by type of first union

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

These are striking results for a society in which marriage, while losing its dominance, is still the traditionally prevailing form of union (Chapter 2, Section 2.2.1). In a study of union formation in Bulgaria, we must pay special attention to the particular practice of 'engagement' that was extremely popular even in the Socialist era. It was largely accepted that a couple could move in together as soon as they were engaged to be married, and until the wedding ceremony was arranged (Philipov and Jasilioniene 2007, Hoem and Kostova 2008). The questionnaire design, in which there is no explicit question about the purpose of moving in together with a partner, may result in registering as 'cohabitation' a number of unions for which a wedding ceremony had been already planned at the time of moving in together. Typically, the period between the time of engagement and registration of the marriage is not longer than a year, though it may vary at times. In Figure 5.2, we present the survival curves for the transition from first cohabitation into marriage by year of union formation. These estimates serve as good evidence of the development of the nature of cohabitation over time.

It is clear that, before 1989, consensual unions were quickly and almost universally transformed into marriage. About 80% of the non-marital cohabitations transformed into marriage within the first 12 months after union formation, and the median length before the official registration of the marriage was four months. Transformation of consensual union into marriage became less frequent and was delayed over time. The median length of cohabitation before its transformation into marriage became almost two years (22 months) for the non-marital unions formed after the year 2000.
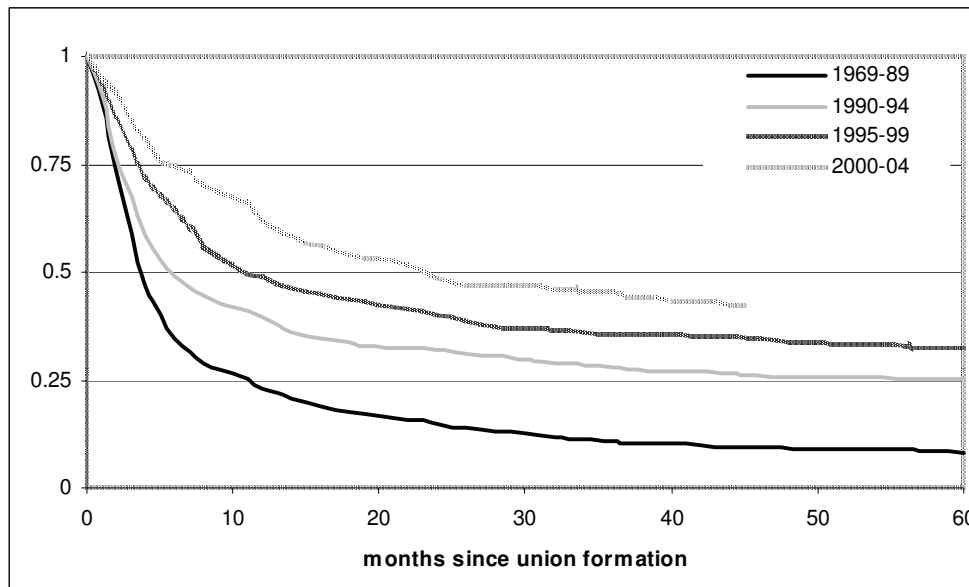
Figure 5.2 Kaplan-Meier estimation for the transformation of cohabitation into a marriage by year of union formation

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

Considering that more than one-half of all unions (Table B1, Appendix B) were formed in the years before 1989, and avoiding the analysis of 'misleading cohabitations', we consider four months (the median length of cohabitation before its transformation into a marriage in the years before 1989) as a threshold value to distinguish consensual unions in which a commitment for marriage had already been made.

In the descriptive results presentation, as well as in the multivariate analysis of the transition to first union in Bulgaria, we consider all cohabitations that transformed into marriage within four months after moving in together to be direct marriages. Sample statistics are presented in Table A2 in Appendix A.

In Table 5.1, we present the proportion of first unions that began with cohabitation, by the birth cohort of women. The proportion of first unions that

started as cohabitations increases over generations. Starting from levels of around 20% for women born in the 1955-64 decade, it increases to more than 50% for those born in the late 1970s. Due to the very young age of the respondents of the youngest cohort (aged 18-24 at the interview), only 22% of them had ever been in a union. Therefore, results are presented only for illustration. We will avoid making conclusions based on that cohort.

Table 5.1 Proportion of first unions beginning by cohabitation by birth cohort

Age at the interview	Cohort	Percentage
45-49	1955-59	19.6
40-44	1960-64	25.1
35-39	1965-69	28.9
30-34	1970-74	36.2
25-29	1975-79	53.7
18-24	1980-86	67.8

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

Similarly, the same proportion taken from a period perspective (Table 5.2) illustrates that cohabitation emerged well before the year of transition. Nevertheless, substantial development has been observed since 1990. In the 1970s and 1980s, about 25% of first unions started with non-marital cohabitation. In the late 1990s, cohabitation was chosen as a first union by 47% of the couples. This proportion increased by another 16% over the next five years.

Table 5.2 Proportion of first unions beginning in cohabitation over calendar time

Year of union formation	Percentage
1970-79	23.2
1980-84	24.1
1985-89	26.0
1990-94	33.8
1995-99	47.3
2000-04	63.8

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

To explore further the changes in the nature of cohabitation, we attach cohabitation to the first childbirth. In Table 5.3 we present the first births by the union status of the mother at birth (the event sequence in the woman's life trajectory). While classifying the union status, we distinguish between births in a cohabitation, direct marriage, and marriage preceded by cohabitation. We also take into account the timing of conception, i.e., whether it was before or after the marriage.

Table 5.3 First birth by union status of woman (women with children only)

(in %)

Cohorts	1955-59	1960-64	1965-69	1970-74	1975-79	1980-86
(age at the survey)	*(45-49)*	*(40-44)*	*(35-39)*	*(30-34)*	*(25-29)*	*(18-24)*
Union status at birth						
Lone motherhood	7.5	4.2	5.5	4.9	5.2	6.1
Cohabitation at first birth	4.4	4.7	5.8	7.4	14.9	31.1
Cohabitation/conception/marriage/birth	3.7	6.2	7.0	7.6	15.8	12.1
Conception/direct marriage/birth	12.2	13.9	16.4	17.3	17.8	11.4
Direct marriage/conception/birth	72.2	71.0	65.3	62.8	46.3	39.4
N	295	662	602	648	404	132

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

It is apparent that there are generational differences in the interaction between union status and first birth. Nearly 90% of women born in the late 1950s and in the 1960s had their children within a marriage. Traditionally, for the majority of women in this group (more than 65%), both conception and birth were preceded by marriage. Nonetheless, the proportion of pre-marital conceptions showed an increase over generations. About 33% of all first births in the cohort of 1975-79, were conceived before marriage, while this percentage was 15% for women born in the 1955-59 period. Apart from becoming more frequent, cohabitation has become a more acceptable family environment for bringing up children. Almost 15% of first births to women born in the late 1970s were in non-marital cohabitation.

5.3.2 First union formation: transition from being single to first union (cohabitation vs. direct marriage)

We performed an event history modeling, in which we were able to take into account the influence of calendar time, social and family background, as well as personal characteristics on the changes in the patterns of first union formation in Bulgaria. In this section, we present results from a separate modeling of the two competing risk transitions: to first direct marriage and first cohabitation. The procedure is described in detail in Chapter 4, Section 4.2. The results from the stepwise models are presented in Tables B2 and B3, Appendix B. In the text, we will mainly discuss the results of the final model, which accounts for the effect of all the covariates. Additionally, interactions will be presented when applicable.

Age patterns and period perspective to transition to first union

In Figure 5.3 we plot the age patterns (baseline intensities) of transition to first union as direct marriage or cohabitation. It is clear that union formation in Bulgaria starts at very young ages. Hence, transition to cohabitation is more

equally distributed over the lifetime while direct marriage is concentrated in the ages 19--23, followed by a steep decrease.
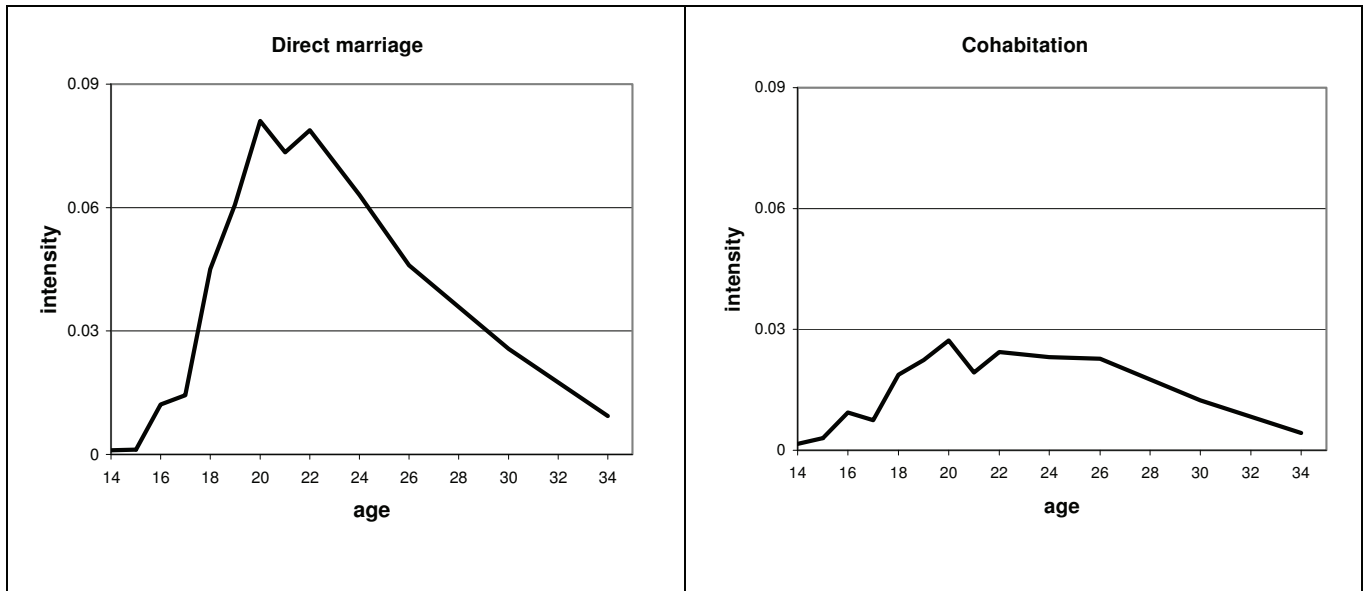
Figure 5.3 Piecewise-linear baseline intensity for transition to first union, standardized for the variables shown in Tables B2 and B3 in Appendix B.

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

The development of cohabitation and direct marriage over calendar time is plotted in Figure 5.4. Both curves show that the changes in the pattern of first union formation in Bulgaria did not start with the dramatic societal transformations of 1989. The intensity of direct marriage decreases through the whole period of observation. However, the decline after 1989 is much steeper, and there is no indication of it slowing down. Simultaneously, cohabitation as a first union was already evident in the 1970s and the 1980s. A significant increase in the intensity of entering consensual unions is observed in the second half of the 1980s and throughout 1990s. However, in the first years of the present decade, the process has shown a moderate decline.

Later in the presentation, we relate each of the explanatory covariates to the calendar time in order to disclose the changes in the profile of people who started their union in cohabitation.
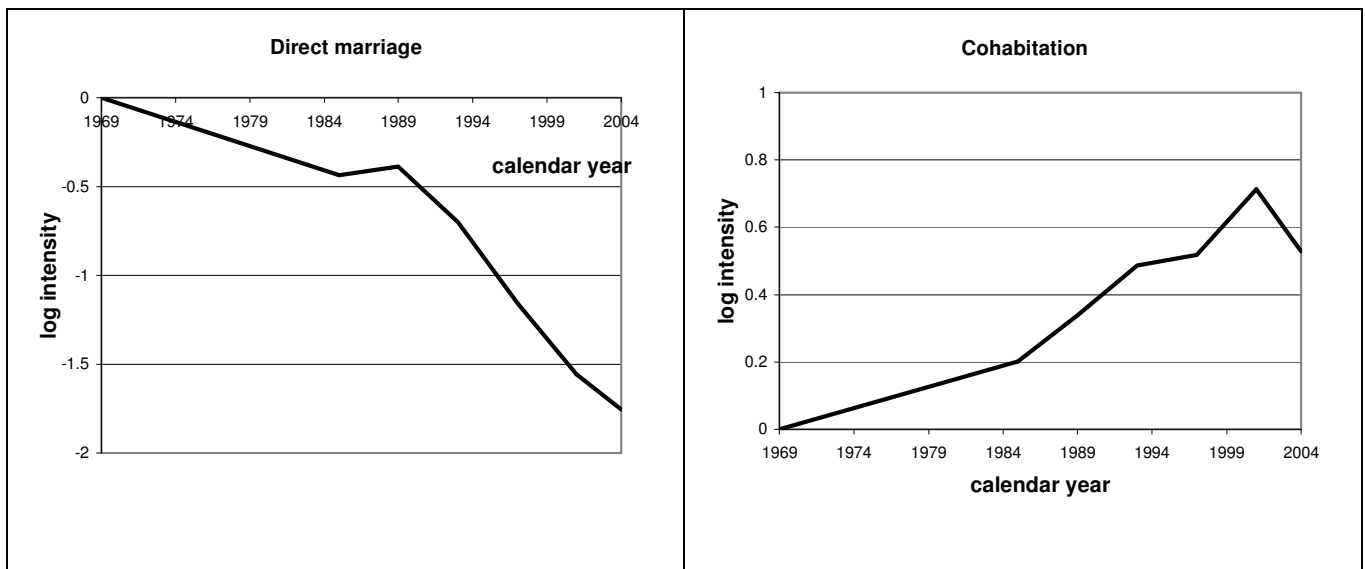
Figure 5.4 First union formation intensities by calendar year, standardized for the variables shown in Tables B2 and B3 in Appendix B.

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

Effect of education on first union formation

The effect of education on the transition to first union is presented in Table 5.4 (extracts from the Models 4, Tables B2 and B3 in Appendix B). As expected, being in education is shown to be an obstacle to the union formation process. It lowers the risk of forming a union by about 50% (compared to the women with completed secondary school). Furthermore, the level of education influences the risk of forming marital and non-marital unions in a different manner. Having low education (or none at all) increases the risk of entering cohabitation as a first union. However, there are no significant differences between women having secondary or higher education in their transition to first cohabitation. On the contrary, having a university degree increases the risk of direct marriage, while

the two categories of lower than tertiary education demonstrate rather similar risks of transition to direct marriage.

Table 5.4 The effect of level and enrolment in education on entering first union

	Cohabitation	Direct marriage
Level of education		
Still in education	0.57	0.49
Lower than secondary school (incl. no education)	1.68	0.95
Secondary school	1	1
University and higher	0.89	1.44

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: (1) Extracts from Models 4, Tables B2 and B3 in Appendix B; (2) Calendar year effect is presented in Figure 5.4; baseline intensity – in Figure 5.3.

The role of education has changed substantially in recent decades in Bulgaria. Consequently, we performed an interaction between the level of education and the calendar year to examine the changes in the effect of the educational level over the period studied. Based on the socio-economic and political developments in the country over the last 35 years (periodization is explained in more detail in Section 5.2), we divided the period of observation into three sub-periods.

As presented in Figure 5.5, the effect of education on union formation has been changing over time. Women with low levels of education have the highest risk of entering a first union as cohabitation over the whole period of the study. However, the risk remained relatively stable over time, while for the other two categories (secondary and higher education) the risk has increased considerably. In particular, attaining a higher level of education has gained importance as a factor for starting a union in cohabitation. It has increased 2.4 times in the 1998-2004 period, compared to the years 1969-1989.
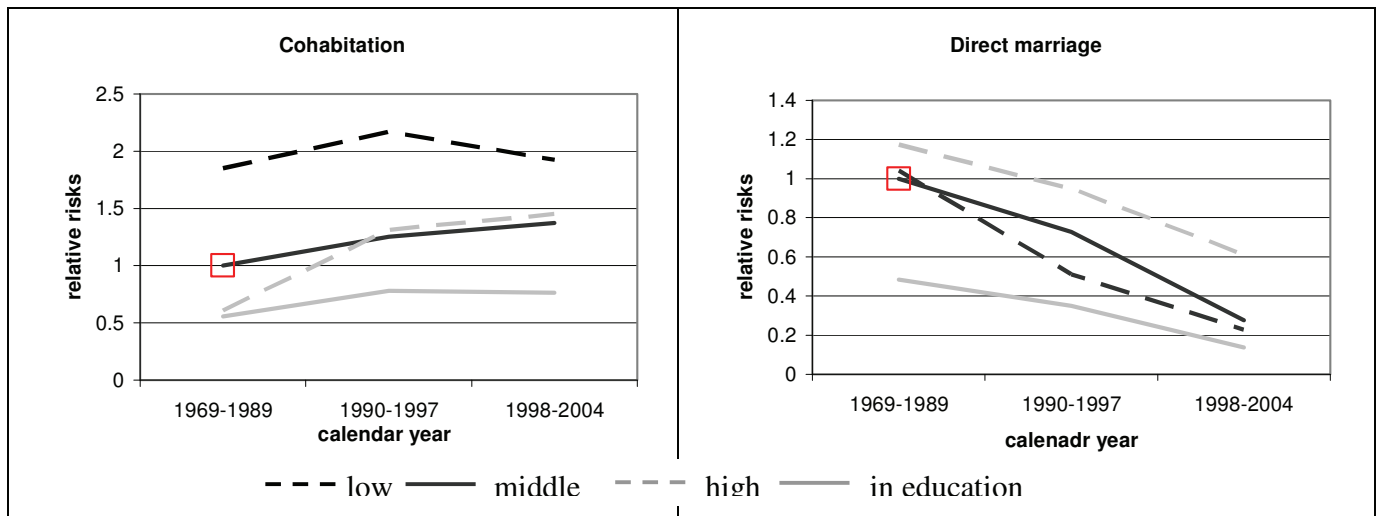
Figure 5.5 Trends in relative risks of union formation 1969-2004, by level of education

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Note: Reference category for each of the two models is secondary (middle) education before 1989.

Taking into account the effect of education on the risk of direct marriage over time, we do not observe substantial changes in the interaction between them. The decline in first marriage risks is apparent for all the categories of completed education. However, women with low levels of education experienced the fastest and most pronounced drop in first direct marriage risks in the first half of 1990s, while for women with secondary and higher education, the drop was almost linear.

Effect of family background on first union formation

In Table 5.5, we present an extract from the two final models: the transition to first cohabitation and the transition to first direct marriage (Models 4, Tables B2 and B3 in Appendix B), which account for the effect of the respondent's family background.

Evidently, the respondent's upbringing and the socio-economic status of the family of origin have played an important role in personal union formation

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behavior. Living with both biological parents before the age of 15 increases the risk of forming marital first union by 28%. In contrast, personal experience of living in an incomplete family in the childhood (living with one or none of the biological parents) increases substantially the risk of cohabitation. In addition, the size of the parental family adds to the difference between marriage and cohabitation as a first union. Growing up in a bigger family (having two or more siblings) elevates the risk of entering cohabitation by 21%, when compared to the traditional one- or two-child families.

Table 5.5 The effect of parental family characteristics on entering first union

	Cohabitation	Direct marriage
Lived with both parents in childhood		
Yes	1	1
No	1.59	0.78
Mother's highest level of education		
Low	1.14	1.20
Middle	1	1
High	1.07	0.85
Father's highest level of education		
Low	1.23	0.91
Middle	1	1
High	1.00	0.78
Number of siblings		
0 or 1	1	1
2 or more	1.21	0.91

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: (1) Extracts from Models 4, Tables B2 and B3 in Appendix B; (2) Calendar year effect is presented in figure 5.4; baseline intensity – in figure 5.3; (3) We control for missing information about parent's level of education (not displayed here)

With respect to the effect of parents' education, having less-educated parents elevates the intensity to begin union life in cohabitation. However,

having two parents with university degrees elevates the risk of entering cohabitation as well (Figure 5.6).
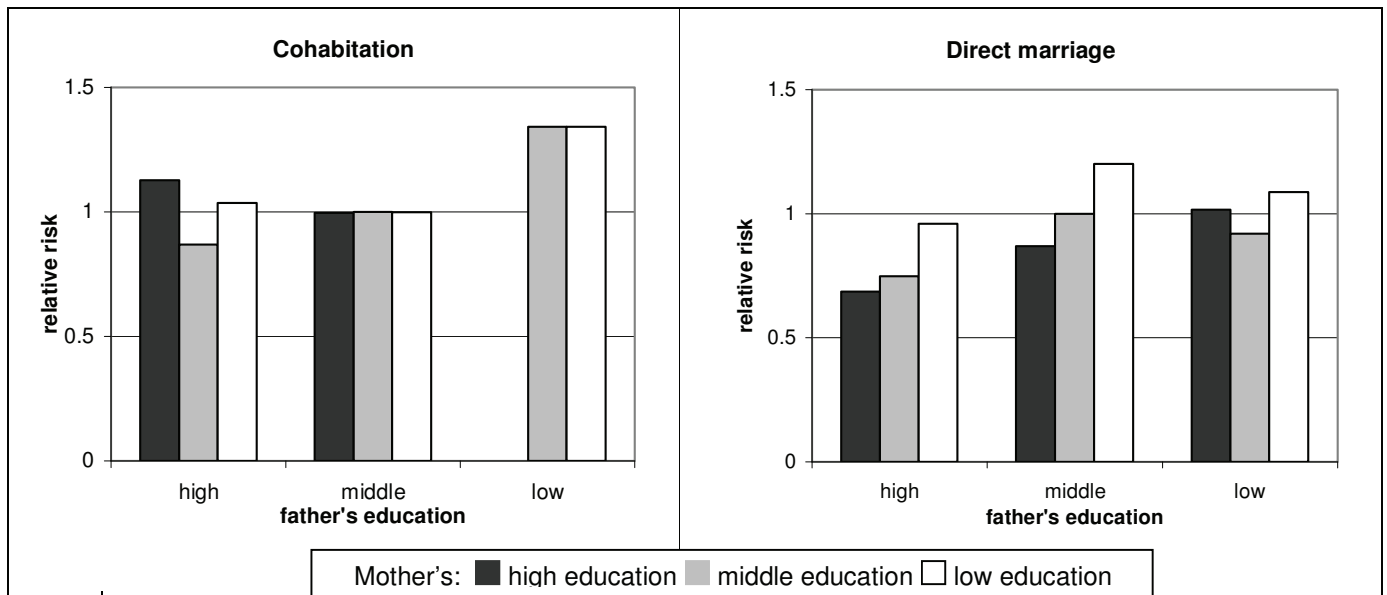
Figure 5.6 Relative risk of entering cohabitation as a first union. Effect of mother's and father's education. (Both parents with middle education as a reference group)

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: We control for missing information about parent's level of education (not displayed here)

To examine whether the effect of parental family characteristics on entering first union (especially on entering cohabitation as a first union) has changed over time, we performed an interaction between the variables characterizing respondent's upbringing and the calendar period. Most of the trends did not differ across the variable categories (presented in Tables B6 to B9 in Appendix B). Yet the effect of the mother's education has shown a significant development. As shown in Figure 5.7, before 1989 cohabitation was more common for women with less-educated mothers (as stated above). However, since the late 1980s, we witness a turnover that indicates a change in the profile

of people who chose cohabitation as a first union. Cohabitation became better accepted, and spread also among women with highly educated mothers.
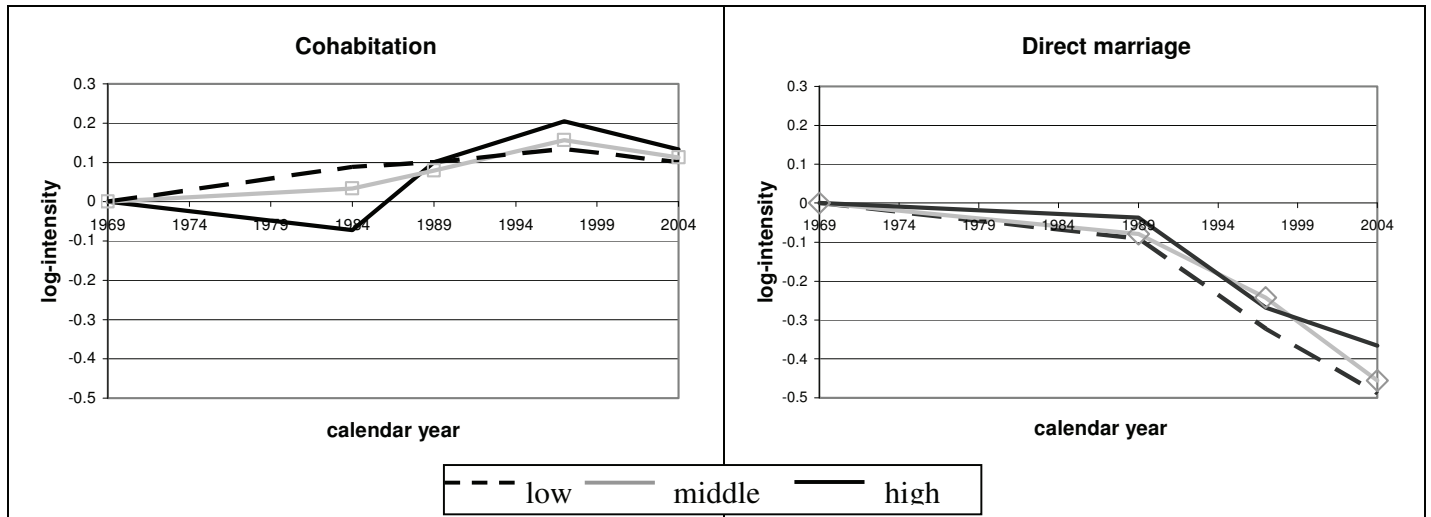

Figure 5.7 Trends in relative risks of union formation 1969-2004, by mother's education

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: We control for missing information about parent's level of education (not displayed here)

To summarize, family background has a substantial influence on first union formation in Bulgaria. In contrast to our expectations, women with two parents with low educational levels show a higher propensity to enter first union as cohabitation. However, from the late 1980s onwards, the likelihood of forming a cohabitation union has also been increasing among women with highly educated parents. Furthermore, the experience of having an incomplete family in childhood has resulted in a higher proneness to cohabitation.

Effect of pregnancy-and-motherhood status on first union formation

In this sub-section, we explore the connection between becoming a parent and the intensity of union formation in Bulgaria. We distinguish three categories of motherhood status: women without children, childless but pregnant women, and

women who already have a child. Evidently, pregnancy is highly motivational for transforming a relationship into a union, and, in particular, for marriage. Women who are expecting a child are 25 times more likely to get married than non-pregnant women without children. Moreover, as expected, pregnancy also increases the likelihood of entering into non-marital cohabitation, but to a lesser extent.

Table 5.6 The effect of pregnancy-and-motherhood status on entering first union

	Cohabitation	Direct marriage
Parity		
Childless, not pregnant	1	1
Childless, pregnant	5.23	25.74
Mother	0.56	0.83

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: (1) Extracts from the Models 4, Tables B2 and B3 in Appendix B; (2) Calendar year effect is presented in Figure 5.4; baseline intensity – in Figure 5.3; (3) Pregnancy is calculated as deducting seven months from the date of actual birth. Data on interrupted pregnancies are not available in the dataset

To determine the effect of pregnancy on union formation throughout the months of pregnancy, we replace the categorical time-varying covariate by a spline function. The spline is defined to 'kick-in' at the time of conception (calculated as nine months before the actual childbirth) only for the women who have experienced the pregnancy-and-motherhood states. The two plots (Figure 5.8) show a substantially different effect of the period of pregnancy on the intensity to form a marital or non-marital union.

In the first six months of the pregnancy, we register an increase in the marriage intensity, followed by a steep decrease. In other words, after becoming aware of the pregnancy, women (couples) quickly transform their partnership into marital union to provide a legal family environment for their child. Marriage intensity quickly decreases during the last three months of the pregnancy. This

might be explained by the difficulties a pregnant woman may face in going through a wedding ceremony.

Cohabitation

Direct marriage
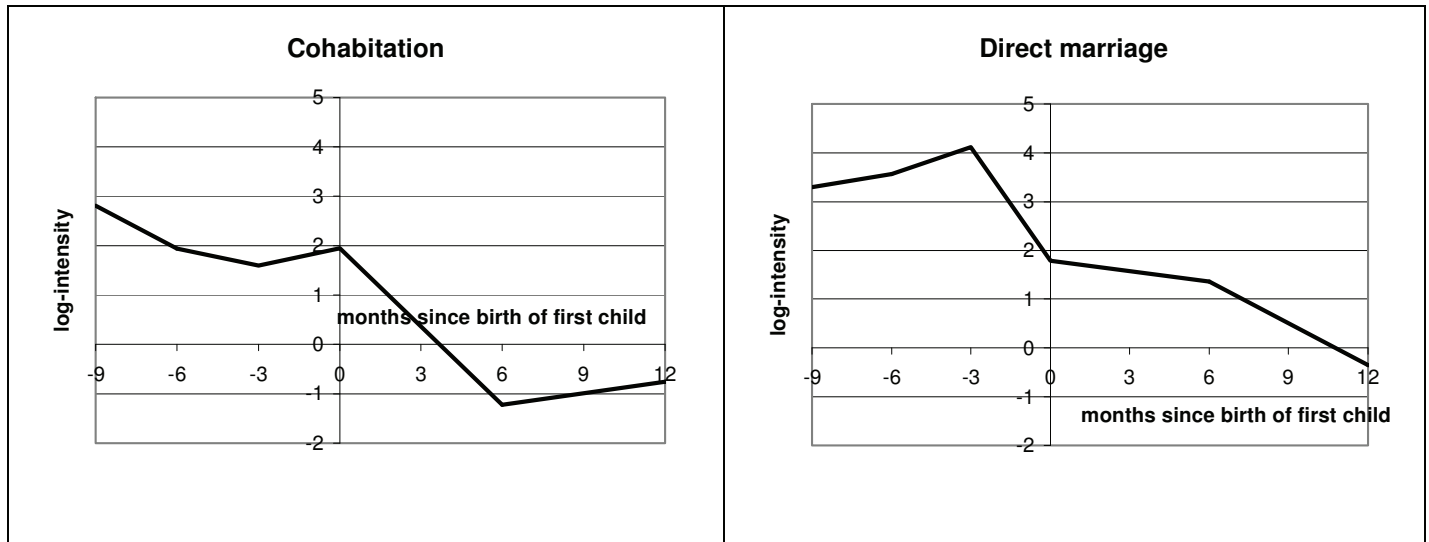
Figure 5.8 The effect of pregnancy and birth of the first child on the intensity of entering first union

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

Apparently, the period of pregnancy and non-marital cohabitation interact in a different manner. The intensity to enter cohabitation decreases in the first two trimesters of the pregnancy (corresponding to the increase in the marriage intensity). It then shows a moderate increase in the last three months before childbirth, followed by a steep decrease after the child is born.

In order to examine the changes in the effect of pregnancy-and-motherhood status on union formation over the period of observation, we computed the same model (Table 5.6) with an interaction between the two covariates. The results (Table 5.7) among pregnant women indicate an increase in the intensity to enter cohabitation; it has doubled through the period of study. There is also an increase of 35% among the non-pregnant women without children, while among mothers the change over time is very small. With respect to marital union formation, a decrease in the union formation over time is

observed among all three groups of women. The reduction between the two ultimate periods is more pronounced among the non-pregnant nullipara (76%) and mothers (68%), while among pregnant women it is reduced by 'only' 31%.

Table 5.7 Trends in relative risks of union formation 1969-2004, by pregnancy-and-motherhood status

	Cohabitation			Marriage		
Parity	**1969 – 89**	**1990 – 97**	**1998 –2004**	**1969 – 89**	**1990 – 97**	**1998 –2004**
Childless, non pregnant	1	1.35	1.35	1	0.65	0.24
Childless, pregnant	4.96	5.20	10.01	19.18	20.48	13.13
Mother	0.66	0.75	0.71	0.94	0.33	0.32

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

5.3.3 **Joint modeling of first non-marital cohabitation and first direct marriage**

In this section, we present results from an extension of the proportional hazard model described so far. We employ such a model to analyze the two competing transitions (entry into marital and non-marital union) jointly. The joint analysis uses a technique of introducing the cause of decrement as an extra 'factor', which is further interacted with the other explanatory factors. A more detailed description of the method is given in Chapter 4, Section 4.2.2. The advantage of modeling cohabitation and direct marriage jointly is that we can compare period development across the two competing transitions with respect to each explanatory variable.

The same technique was applied to the Bulgarian GGS data by Hoem and Kostova (2008). They found striking stability of entry into cohabitation after the early 1980s, and have concluded that non-marital cohabitation has a long tradition in Bulgaria, perhaps mostly as a precursor to formal marriage.

In the present study, we make an attempt to distinguish between couples who were already engaged to be married at the union formation, and those who did not have this level of commitment at the initial phase. Therefore, in this sub-

section we partially reproduce the analysis presented in Hoem and Kostova (2008); yet the transitions under study are defined in a different manner (described in detail in Section 5.3.1).

Period perspective of first union formation

The rates of entry into non-marital cohabitation and into direct marriage during the period 1969-2004, relative to the risk of marrying directly in the 1980-84 period, are plotted on Figure 5.9. Evidently, the risk of entry into cohabitation has been increasing throughout the whole period of observation. Its value in the 1998-2004 period is twice the value of the period before 1980. Moreover, since the end of the 1980s, cohabitation has become the more common first union in Bulgaria. However, it can not compensate for the steep decrease in the marriage formation rates in the 1990s. The trend in the relative risks of entry into cohabitation, presented in Figure 5.9, differ slightly from the one shown in Figure 5.4. That is due to the appearance of the *calendar period* as a grouped categorical covariate in the former case, instead of a continuous one (as in the later case).

Due to the particular definition of marriage and cohabitation in the present study, we obtained different results from the ones reported by Hoem and Kostova (2008, Figure 3). However, the curves plotted in Figure 5.9 appear consistent with the ones obtained for Russia, Hungary, and Romania (Hoem et al. 2007). Using the same modeling procedure in the analysis of first union formation in four former Socialist countries, Hoem et al. (2007) found that the patterns observed in Bulgaria are very different from those of the other three countries. Moreover, the authors described it as a deviation from (standard) patterns in the Second Demographic Transition.
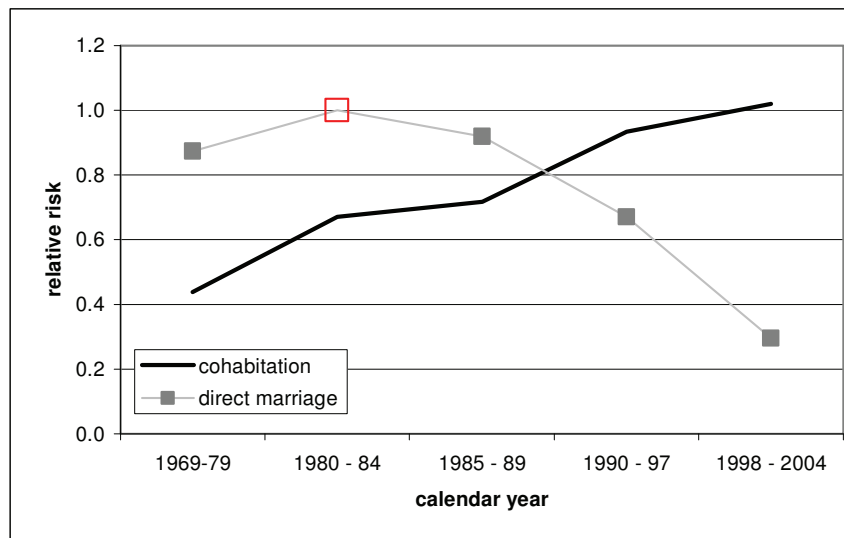
Figure 5.9 Trends in relative risks of union formation 1969-2004, by type of union, Bulgarian women, Bulgarian ethnicity

Notes: (1) own calculations based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity; (2) Rates calculated in a joint model of the two transitions; (3) Trends, relative to the rates of entry into marriage in the period 1980-84

We believe that the results discussed in the present study are more consistent with the actual process of emergence of cohabitation in Bulgaria. In particular, they are controlled for the widespread phenomenon of 'engagement practice'.

Effect of education on first union formation over the calendar time

The results from the three-way interaction between education, period, and type of first union presented in Figure 5.10 confirm our findings from the separate modeling of the two transitions (plotted on Figure 5.5). In addition, here we can relate the trend in the transition to cohabitation to that of entry into direct marriage. Evidently, cohabitation had already gained momentum among less-educated women in Bulgaria at the beginning of the 1980s. It then spread among women with completed secondary (at the beginning of the 1990s) and higher (in

the mid–1990s) levels of education. Consistent with our expectations, being in education proved to be an obstacle to the union formation process.
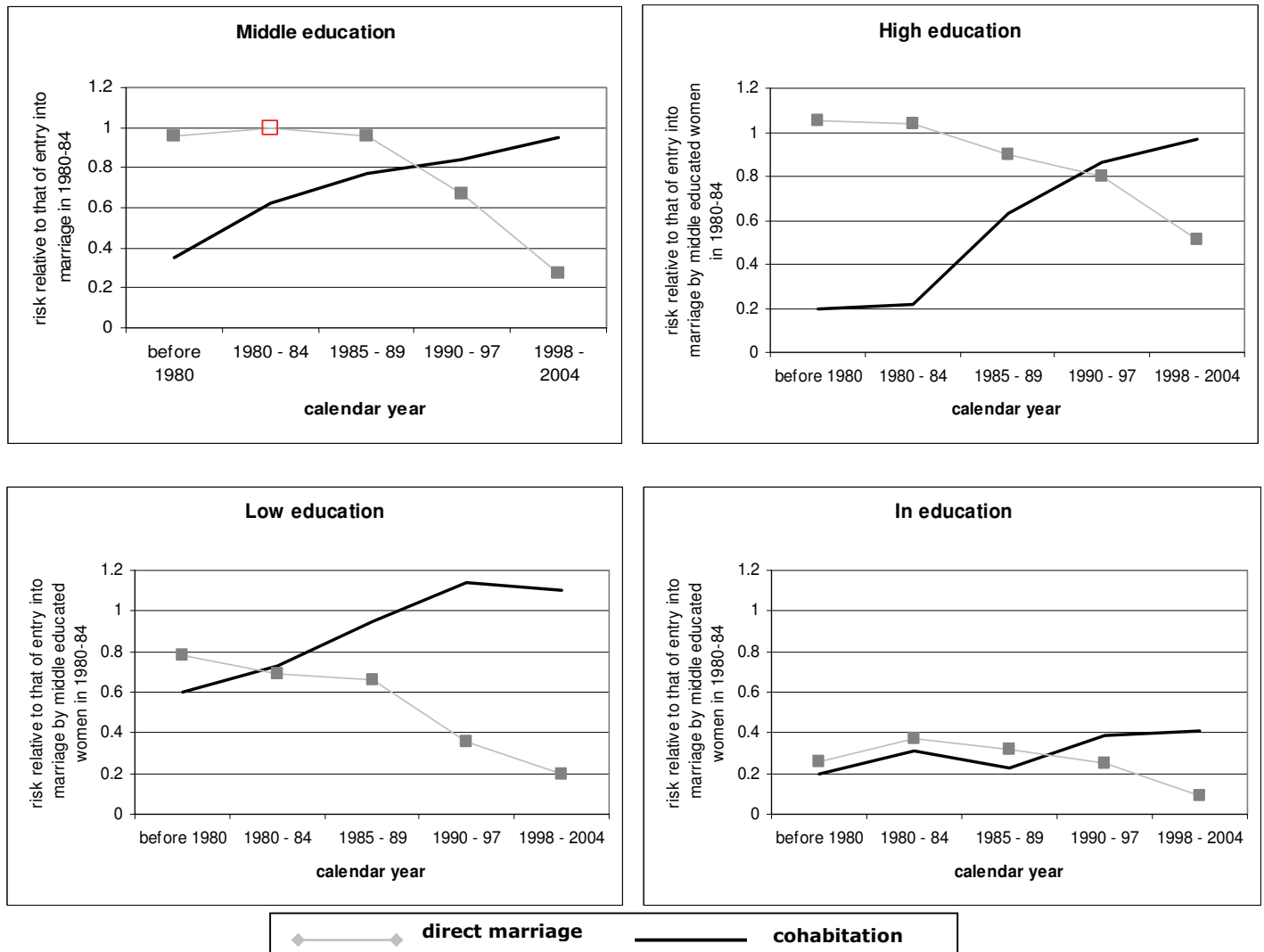
Figure 5.10 Trends in relative risks of union formation 1969-2004, by type of union and level of education.

Notes: (1) Own calculations based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity; (2) Rates calculated in a joint model of the two transitions; (3) Rates, relative to that of entry into marriage by middle educated women in 1980-84.

Rates of entry into first union, both for marriage and non-marital cohabitation, among women in education are substantially lower than for

women who had completed their studies over the 36-year period of observation (with the exception of entry into cohabitation of highly educated women in the 1980—84 period). In addition, the trends of the two competing risk transitions are very similar in the period before 1990. But from the late 1980s onwards, the rates of entry into cohabitation had shown a moderate increase, parallel with a decrease in marriage formation intensities. Thus, after 1990, women who were still in education tended to enter cohabitation as their first union, rather than marriage.

Effect of pregnancy-and-motherhood status on first union formation over calendar time

In this sub-section, we describe the period effect of the pregnancy-and-motherhood status on the first union formation behavior, across the type of union. As the non-pregnant women without children have the largest exposures[19] before any first-union formation (97.3%), the union formation trends presented in the left graph of Figure 5.11 mostly resemble those of the total sample (Figure 5.9). In contrast, the occurrence of pregnancy changes the shape of the union formation period development, both for non-marital cohabitation, as well for direct marriage. Marriage is by far the more preferred union when a woman is expecting a child. The marriage formation rates for pregnant women increase until 1989; thereafter, a substantial decrease is observed, in particular in the last sub-period (1998-2004). In contrast, the rates of starting a first union in cohabitation for pregnant women increase through the intact period of observation. Thus, in the 1998-2004 period, the risk of entry into marriage for first-time pregnant women is only 45% higher than that of entry into cohabitation. For purposes of comparison, the same rate was 721% calculated for the period before 1980, and 261% for the period 1985-89. Evidently, in the late

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[19] Sample statistics are presented in Table B1 in Appendix B

1990s and at the beginning of the 2000s, cohabitation had also become a well-accepted union choice when a child is expected. The union formation trends for mothers do not hold any particular characteristics, and are therefore not presented here.[20]
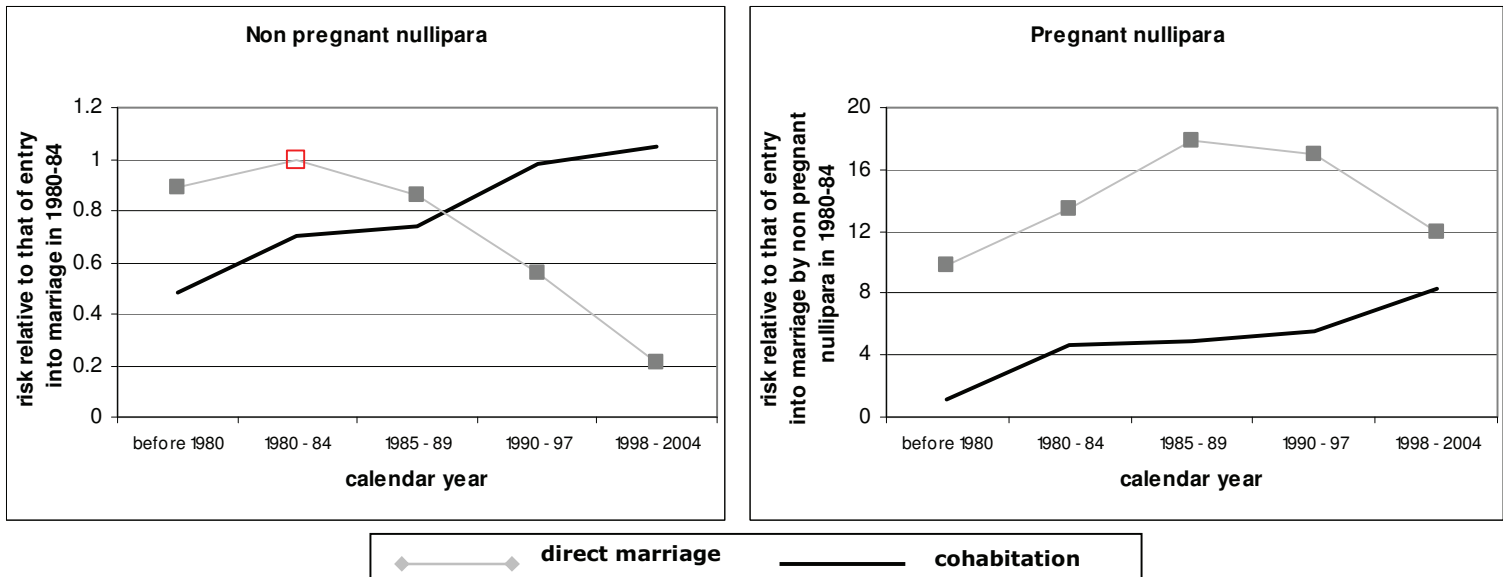
Figure 5.11 Trends in relative risks of union formation 1969-2004, by type of union and pregnancy-and-motherhood status.

Notes: (1) Own calculations based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity; (2) Rates calculated in a joint model of the two transitions; (3) Rates, relative to that of entry into marriage by non-pregnant nullipara in 1980-84

5.3.4 **First union formation – transformation of cohabitation into a marriage.**

As suggested in most previous studies (e.g. Spasovska 2000, Zhekova 2002), marriage was the only socially accepted union form in Bulgarian society before the change of regime in 1989. In contrast, we have found that more than one-half of all first unions begin in cohabitation. Our findings are confirmed by other studies based on GGS data (e.g., Philipov and Jasilioniene 2007 and Hoem and Kostova 2008). Both papers conclude that this is a result of the 'engagement

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[20] The outcome from the joint model of first non-marital cohabitation and first direct marriage is given in Tables B11 to B13 in Appendix B

phenomenon' in Bulgaria, in which couples often move in together when they are engaged to be married, before the official wedding ceremony. By estimating the rates of conversion of consensual unions into marriage by duration of cohabitation, Hoem and Kostova (2008) discovered a "quick entry into marriage before 1990 and the strong subsequent decline in the conversion rates" as well as "a considerable lengthening of cohabitation before marriage is contracted" (p. 19, Figure 4).

At this juncture, we present an analysis of the 'exit' from the status 'in cohabitation'. Once the consensual union is formed, there are three possible outcomes: subsequent marriage, dissolution, or no change in the state. Studying the transformations of cohabitation will allow us to understand better the nature of the phenomenon in Bulgaria. It will also help us to identify the developmental stage (Prinz 1995) at which non-marital cohabitation in Bulgaria has arrived.

In the present study, we use the threshold of four months in an attempt to differentiate between cohabiting couples who had already made a commitment to marriage, and the couples who created a union without immediate plans for marriage. In the rest of this section, we analyze the transition out of the consensual unions that lasted longer than four months.

Table 5.8 Transition out of first cohabitation

	Outcome in:			
	Marriage	Dissolution	Still in cohabitation	Total
All cohabiting women	720	52	239	1011
	71 %	5 %	24 %	100 %

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

As seen from the descriptive statistics (Table 5.8), the majority of cohabitations transform into subsequent marriage (71%). About one-fourth (24%) of the cohabiting women remain in the same partnership at the end of the

observation,[21] whereas, to our surprise, only 5% of all cohabitations end up in dissolution. Thus, we can speculate that the first cohabitation in Bulgaria is a rather stable union, which either transforms into marriage or remains as cohabitation. Evidently, there are not enough cases to model the transition to dissolution; for that reason, we will present only results from the analysis of transition from non-marital cohabitation to marriage. In the following material, we draw attention to the effect of social and family background, personal characteristics, as well as the period effect on the changes in the transformation of cohabitation into marriage.

Period perspective of the transformation of cohabitation into a marriage
Evidently, the conversion rates (Figure 5.12) remained quite stable in the 1970s and the 1980s. However, since the beginning of the 1990s, there has been a very pronounced and steep decline, which conforms to the findings of Hoem and Kostova (2008) that, over the last 15 years, cohabitation has become a more stable union that transforms into marriage less frequently.

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[21] Observations are censored at the interview, or five years after forming the first cohabitation.
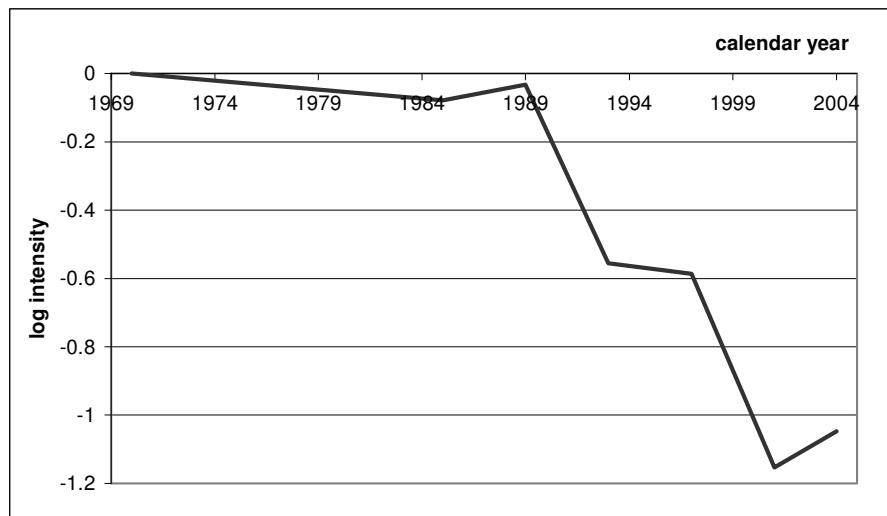
Figure 5.12 Transformation of cohabitation into marriage, by calendar year.

Notes: (1) own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity; (2) Extract from Model 4, Table B14 in Appendix B

Effect of education on the transformation of cohabitation into marriage

The effect of level and enrolment in education on the transition from cohabitation to marriage is presented in Table 5.9 (extract from Model 4, Table B14 in Appendix B). As with the results from the entry into first union, lower-educated women are less attached to marriage.

Table 5.9 The effect of level and enrolment in education on transformation of cohabitation into a marriage

	Marriage after cohabitation
Level of education	
Still in education	0.76
Lower than secondary school (incl. no education)	0.48
Secondary school	1
University and higher	1.20

Source: own calculations, based on GGS data (2004) (Bulgarian women, Bulgarian ethnicity)
Notes: (1) Extract from Model 4, Table B14 in Appendix B; (2) Calendar year effect is presented in Figure 5.12.

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Women with lower levels of education are more inclined to start first union in cohabitation, and are less prone to marry afterwards. In contrast, highly educated women have higher first marriage intensities, which corresponds to both direct marriage and marriage preceded by cohabitation.

We are also interested in the consistency of the effect of education over time. In Figure 5.13, we plot the trends in the relative risks of transformation of cohabitation into marriage. Evidently, the decline in the transition rates among women with university education is steeper. Moreover, there is a tendency for the effects to equalize toward the end of the period. Apparently, the effect of being a student on the transformation of consensual union into marriage declines in the 1998-2004 period. This is an indicator of the increasing negative effect of enrolment in education on the union formation process in Bulgaria toward the end of the period of observation.
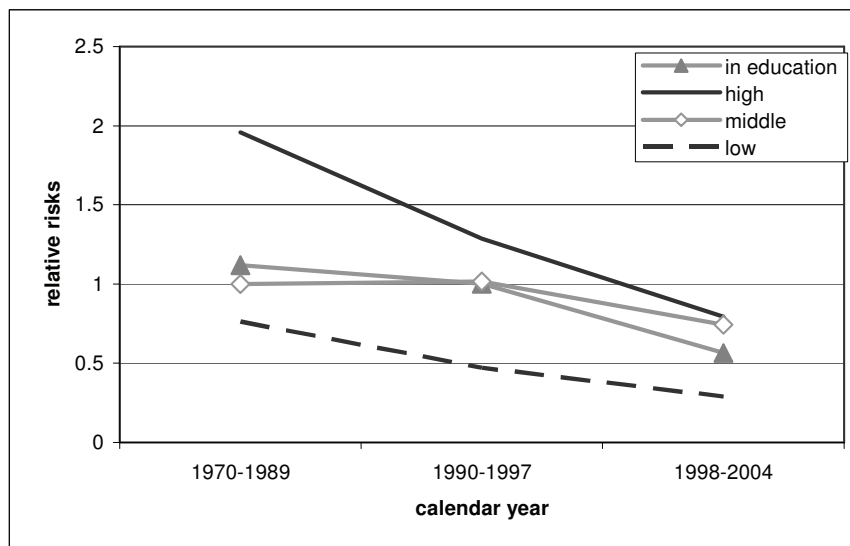
Figure 5.13 Trends in relative risks of transformation of cohabitation into marriage 1970-2004, by level of education (Reference category – secondary education before 1989)

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity

Effect of family background on transformation of cohabitation into marriage

In Table 5.10, we display the effect of family background diversity on the transition to marriage by cohabiting women (extract from Model 4, Table B14 in Appendix B). We expected that the rates of transformation of cohabitation into marriage would resemble to a certain extent that of the transition to direct marriage. Apparently, family background characteristics play a more important role in the choice of the type of first union, rather than in its subsequent development. The interaction between the mother's and the father's levels of education, as well as their interaction with the period, have not yielded any further results of interest, and are therefore not presented.[22]

Table 5.10 Relative rates of transformation of cohabitation into marriage, by parental family characteristics

	Marriage after cohabitation
Lived with both parents to the age of 15	
Yes	1
No	1.04
Mother's highest level of education	
Low	0.81
Middle	1
High	0.95
Father's highest level of education	
Low	1.10
Middle	1
High	0.93
Number of siblings	
0 or 1	1
2 and more	0.86

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: (1) Extract from Model 4, Table B14 in Appendix B; (2) Calendar year effect is presented in figure 5.12

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[22] Tables B15-B18 in Appendix B

Effect of pregnancy-and-motherhood status on transformation of cohabitation into marriage

As stated in Hypothesis 3, we expect that an occurrence of pregnancy within cohabitation will increase the likelihood of transformation into marriage. The results (Table 5.11) confirm our expectations. Women who are pregnant are three times more likely than non-pregnant women without children to convert cohabitation into marriage.

Table 5.11 Relative rates of transformation of cohabitation into marriage, by pregnancy-and-motherhood status

	Marriage after cohabitation
Pregnancy-and-motherhood status	
Childless, not pregnant	1
Childless, pregnant	3.07
Mother	0.67

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Notes: (1) Extract from Model 4, Table B14 in Appendix B; (2) Calendar year effect is presented in Figure 5.12

Just as rates of first direct marriage rise with pregnancy, the rates of marriage among cohabiting women increase significantly in the first two trimesters of the pregnancy (Table B21 in Appendix B). This trend is followed by a steep decrease in the last three months of the pregnancy, as well as after the childbirth.

The trends in the relative risks of transformation of cohabitation into marriage in 1970-2004, by pregnancy-and-motherhood status (Table 5.12) illustrate a substantial relative increase in the conversion rates of pregnant women, compared to the non-pregnant women without children. Apparently, the practice of getting married when expecting a child remains quite stable in Bulgarian society. However, even if to a lesser extent, the transition to marriage among the pregnant cohabiting women decreases as well.

Table 5.12 The effect of pregnancy-and-motherhood status on transforming cohabitation into marriage over calendar time

	1970 - 1989	1990 - 1997	1998 - 2004
Pregnancy-and-motherhood status			
Childless, not pregnant	1	0.57 (1)	0.28 (1)
Childless, pregnant	1.94	1.68 (2.67)	1.75 (6.21)
Mother	0.91	0.30 (0.47)	0.17 (0.60)

Source: own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity
Note: Numbers in brackets present rates, relative to the category "childless, non pregnant" in each period.

Accounting for selectivity in the process of transforming cohabitation into marriage

While studying the process of transformation of cohabitation into marriage, we need to keep in mind that women who did not marry directly, but decided to cohabit instead, might be a select group of people who are more individualistically (i.e., non-family) oriented. Yet the process of marriage after cohabitation might be influenced by the selection process of forming cohabitation. By modeling simultaneously the transition to cohabitation and the transformation of cohabitation into a marriage, we are able to control for this 'entry selection'.

We introduce a model with two heterogeneity components (for the processes of entering cohabitation and for the subsequent marriage) which would capture the effect of unobserved characteristics of the women (e.g., values about marital family). In order to control for the process of entry into a cohabitation being endogenous for the process of transforming cohabitation into a marriage, we allow the two components to be correlated (detailed description of the model is presented in Chapter 4, Section 4.2.1). We suppose that the residuals will be negatively correlated, as they account for the values toward family in two rather competitive family formation processes. The results (presented in Table B22 in Appendix B) largely confirm our expectations. The

unobserved factors are highly significant and negatively correlated. However, there is no substantial change in the effect of the other factors presented up to this point.

In Figure 5.15, we present the effect of the calendar period on the transition to marriage after cohabitation, which deserves emphasis. When controlling for entry selection (in the joint model), the decrease in the conversion rates of cohabitation into marriage becomes even stronger. Apparently, we obtain a more precise image of the development of the transition to marriage among the cohabiting women over time.
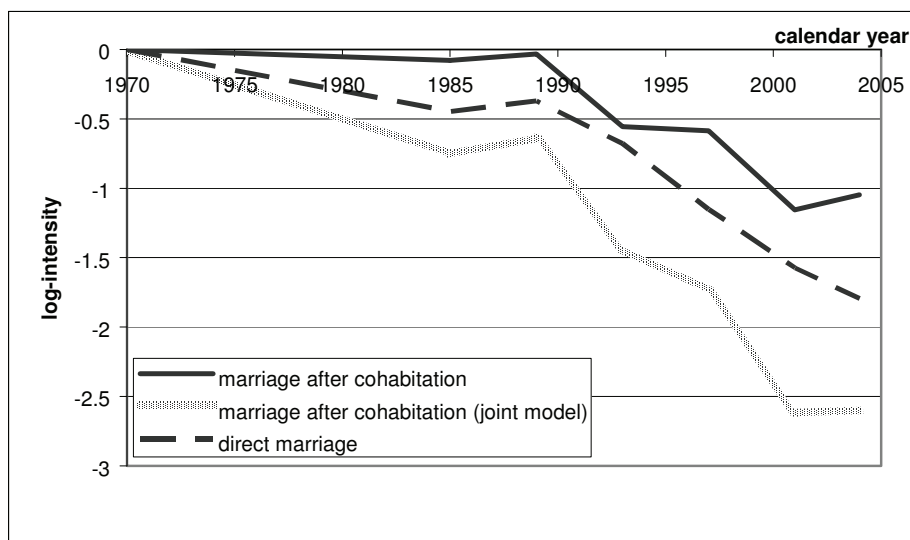
Figure 5.15 First marriage intensities, by calendar year

Notes: (1) own calculations, based on 2004 GGS data, Bulgarian women, Bulgarian ethnicity; (2) results from the joint model presented in Table B22 in Appendix B

5.4   Summary of the results

The aim of this chapter has been to highlight the changes in first union formation in Bulgaria during the 1969-2004 period, as well as to investigate the differences in the profiles of women who cohabit (or marry directly). There has been a

considerable change in union formation behavior in Bulgaria which started before the 1989 change. Cohabitation as a first union was already evident in the 1970s and 1980s (Figure 5.4). Since the late 1980s, non-marital cohabitation has become the more common first union in Bulgaria (Figure 5.9). Hence, it was only partially compensating the strong decrease in first marriage formation risks. Together with the outline of first union formation development, we accentuated the changes in the nature of cohabitation, which would help us to place consensual unions in Bulgaria in the cohabitation typology (Prinz 1995). In the following, we summarize our findings on the effect of several factors (found to be key factors in Western Europe and the United States) on the first union development in Bulgaria over the 1969-2004 period. Later, in Chapter 7, we will discuss these results in a comparative framework, bringing in the analytical results of first union formation in Russia (Chapter 6).

Effect of education on first union formation

Our analysis confirmed that education is an essential factor in union formation behavior in Bulgaria. Its effect has been changing throughout the period of observation. As expected, during the Socialist era (1969-1989), as well as in the period of economic restructuring (1990-1997), cohabitation was more common among women with lower than secondary education. Similarly, less-educated women had the weakest transition from cohabitation to marriage. Additionally, we have found evidence that cohabitation in Bulgaria emerged among women with low education as early as the 1980s (Figure 5.10). Since the beginning of the 1990s, cohabitation has also started to diffuse among women with middle and higher education. As a result the differences, in the levels of education among the cohabiting women began to loosen. Thus we consider this development as a sign that, in the 1990s, cohabitation in Bulgaria proceeded to the second stage of its development.

As with previous research on cohabitation in Bulgaria (Koytcheva 2005), we have found a support to the negative association between the level of education and the rates of starting union in cohabitation. To summarize, in the 1969-1989 period as well as in the early 1990s (period of restructuring), cohabitation was attributed to less-educated women. They had the lowest rates of transforming cohabitation into marriage as well. In contrast, highly educated women were more prone to marry (directly, as well as preceded by cohabitation). From the beginning of 1990s, the nature of cohabitation in Bulgaria has undergone changes. It became widespread among a broader group of people and the educational differences among the cohabiting women began to lessen.

Effect of family background on first union formation

Parental family characteristics proved to be an important group of factors, highly associated with first union formation in Bulgaria. Our results confirmed the hypothesis that cohabitation has gone through several different stages of development. In the first sub-period, cohabitation was more common among women with less-educated parents. Since the late 1980s, cohabitation rates have also been increasing for women with highly educated parents. Similar results are reported by Speder for Hungary (Speder 2005, p. 100). He claims that cohabitation in Hungary spread from the lower strata in the society, and that, in the later phases, "groups with social privileges also came to assume an active role." The results also support our expectation that the experience of incomplete one-parent family in the childhood will increase the proneness to form cohabitation as first union. Those women (and their parents) probably have a weaker attachment to the traditional marital family, making it is easier for them to accept cohabitation as an alternative union.

Effect of pregnancy-and-motherhood status on first union formation

Analyzing the effect of education and parental family characteristics, we have found support for the view that cohabitation in Bulgaria has undergone substantial development, and is thus no longer associated with a form of deviant (unaccustomed) behavior practiced by a small group of people. Apparently, the marital family is the preferred type of union for bringing up children (Table 5.3). About 80% of all first children of mothers born in the late 1970s are born in a marital union; moreover, the occurrence of pregnancy elevates the rates of transition to first marriage 25 times (Table 5.6). Thus, the analyses confirm our hypothesis about the strong positive association between childbirth and marriage. Most of the studies on emergence of cohabitation in Central and Eastern Europe confirm that rates of marriage rise when pregnancy occurs (Kantorova 2004, Kulik 2005, and Koytcheva 2006). Similar results are found in other countries (United States in the 1990s, Canada, and others), in which cohabitation is in its second stage of development, seen as a prelude to marriage (Manning 1995, Wu 2000).

Yet we have found an increasing, positive effect of pregnancy on cohabitation as well. It increases more than twice in the 1998-2004 period, compared to the initial stage (1969-1989). Therefore we assume that non-marital cohabitation in Bulgaria will undergo a rapid transformation toward the next, third stage, in which it is a socially accepted family environment for bringing up children.

Chapter 6

First union formation in Russia

6.1   Introduction

In Chapter 6, we focus on the empirical investigation of first union formation in Russia. We analyze the development of first union formation over the 1969-2004 period to illuminate the timing of emergence of cohabitation, as well as its evolution through the different stages of development (Chapter 3, Section 3.2) in Russian society.

Before proceeding with the analysis, in Section 6.2 we formulate our research hypotheses about the influence of several key factors in the emergence and further development of non-marital cohabitation in Russia. Our analytical strategy is identical to the one used for the analysis of union formation behavior in Bulgaria. First, we analyze separately the transition to first non-marital cohabitation vs. first direct marriage (Section 6.3.2), as well as the transition to subsequent marriage vs. dissolution (Section 6.3.4) in a competing risk framework. We apply an extension of the traditional event-history technique (Section 4.2.2), which allows us to compare the rates of entry into first union across the competing transitions (Section 6.3.3). We summarize our findings in Section 6.4.

6.2.   Research hypotheses

Russian society underwent many turbulent changes throughout the 20th century. In particular, in the 1980s and the 1990s, Russia faced several distinct social transformations: *Perestroika*, the fall of Socialism, the dissolution of the Soviet Union; with each change accompanied by a deep economic crisis and the need for reconstruction. To reflect the differences in the socio-economic conditions in Russian society, in our analysis we divide the period of observation into four sub-periods: *Socialism* (until 1985), *Perestroika* (1986-1991), *period of economic restructuring* (1992-1998), and *period of stabilization* (from 1999 onwards).

In the first sub-period (Socialism), the Russian economy was state-owned and centrally planned; unemployment did not exist, and the high level of female labor force participation was supported by a well-functioning family policy for the reconciliation of work and family. In 1986, a program of economic, political, and social restructuring was launched. The period of 1986-1991, widely known as *Perestroika*, marked the beginning of the democratization of Russian society. The program was designed to begin establishing a market economy by encouraging limited private ownership and profitability in Soviet industry and agriculture. It had great political influence worldwide, particularly for the former Socialist countries, as it brought to Russian society the freedom of assembly, speech, and religion; the right to strike; and multi-candidate elections. The collapse of the Soviet Union in 1991 marked the beginning of the third sub-period (period of economic restructuring). It included several financial crises followed by short recovery periods. Yet the overall economic situation was characterized by years of aggregate economic decline, high inflation, rising inequality and poverty (World Bank 1995, 1998). Thus, family policies, designed to have a very wide coverage, did not have the resources to provide reasonable family support. The structural reforms introduced at the end of 1998 and the beginning of 1999 to help the Russian economy recover from the severe 1998 crisis marked the

beginning of the stabilization period (1999 onwards) for the Russian economy. Privatization, tax reform, bank restructuring, as well as international trade policy were among the measures implemented (International Monetary Fund 2000). Since the year 2000, economic indicators have shown steady growth (Chapter 2, Section 2.3.1). However, family policies have not undergone a corresponding change. A package of measures aimed at encouraging families to have children, as well as supporting families with children, was introduced in 2007, which is outside the horizon of the present study.

We will incorporate this periodization in our empirical analysis to disentangle the changes in the first union formation in Russia in the 1969-2004 period.

6.2.1   Effect of education on first union formation

Many studies on the emergence of cohabitation in Western Europe and the United States elaborate on the issue of women's high educational attainment; it is often viewed as a proxy for a long-term economic potential, as well as a 'force' for emancipation from the traditional marital family (detailed discussion is provided in Chapter 3, Sections 3.3.2 and 3.3.3).

Education in Russia (as described in more detail in Chapter 2) has been generally accessible to all citizens. The governmental plan for equal access to education for all social groups (Zhukov 2001, Volohova 2002) increased the share of population with at least basic secondary education. According to the 1994 Microcencus data (Goskomstat 1994), the share of people with at least a secondary education among the 1965-1969 cohorts was more than 90% (compared to 60% for the 1940-1945 generation). Gerber and Hout (1995) describe the educational system in Soviet Russia as "one of the few successful lines." In the 1990s, there was further expansion in the number of universities, as well as

people enrolled in tertiary education (Chapter 2, Section 2.3.4). Nevertheless, the economic system and the socio-economic conditions in Russia have varied significantly throughout the four sub-periods of this study. Thus, the importance of the level of education as a proxy for economic potential may have changed as well.

During the 1980s, women in Russia were better educated than men. Yet they faced limited career opportunities, and were primarily restricted to jobs in the state service sector (Konietzka and Buehler 2007). In her study on the life course of the Soviet family, Rotkirch (2000) found an association between higher levels of education among women and marital instability; however, she did not find any evidence that highly educated women consciously rejected the notion of marrying. There were few social obstacles to marriage in Soviet society, and economic dependence and the widespread shortage of housing were not major issues. On the contrary, marriage would increase the chances of receiving an apartment from the state (Avdeev and Monnier 2000). Thus, because marriage was almost universal in the 1970s and the 1980s, we would expect that educational attainment would not influence significantly the likelihood of marrying in the first or second sub-periods. Nonetheless, marriage may be preceded by premarital cohabitation. Given this context, we would expect to see repeats of the results of other studies on first union formation in the former Socialist countries (e.g., Kantorova 2004, Kulik 2005, Speder 2005, and Koytcheva 2006); namely, that cohabitation spread from the lower socio-economic strata (where educational attainment was used as a proxy).

For the period after the dissolution of the Soviet Union, Konietzka and Buehler (2007) have found that a higher educational degree and a skilled first job significantly reduced labor market instability (both for men and women). Thus, we may expect that the higher educated women would, because of their better labor market opportunities, tend to be more career-oriented and, therefore,

emancipated from the traditional family model. In particular, we would expect them to be more prone to start their first union in cohabitation, compared to women with lower levels of education.

As a result of the changing 'meaning' of education for individual financial stability over the period of study, in **Hypothesis 1** *we expect that, during the Socialist era, non-marital cohabitation would be more widespread among women with lower than with secondary education, but that most consensual unions would be quickly transformed into marriages. Starting in 1986, and, in particular, during the period of stabilization, we expect to find evidence that cohabitation as a first union also becomes prevalent among highly educated women.*

6.2.2   Effect of family background on first union formation

Parental family characteristics (specifically, mother's education, family size, and having spent childhood in a 'complete' two-parent/'incomplete' lone-parent family) proved to be important predictors of first union formation behavior in Bulgaria (Chapter 5, section 5.3.2). Kantorova (2004) and Kulik (2005) have also shown that the experience of parental divorce and larger family size in the Czech Republic and Hungary were associated with entry into first union as non-marital cohabitation.

Unlike in other former Socialist countries, divorce and remarriage rates were very high in Soviet Russia (Nasselenie Rossii, 2003). In spite of its universality, marriage in Russia was not a very stable union construction. The total divorce rates had values in the range of 0.34-0.41 through the 1970s and the 1980s. A further increase was observed in the 1990s (1996 being the last year for which official data exist). Thus, the experience of parental divorce was probably not uncommon. Yet being raised by a lone parent has also been proved to have impact on views about the necessity of marriage in societies where divorce rates

are similar to those in Russia (e.g., Villeneuve-Gokalp 1991, Thornton 1991, Manting 1994).

Another aspect of the interaction between family background and personal family prospects is presented in a qualitative study of the life course of the Soviet family (Rotkirch 2000). Rotkirch identifies the desire to "get away" as among the most influential factors for transforming love and lust into marriage in Soviet Russia (besides the wish to follow social conventions and the desire to have children). With the expression "getting away," she summarizes wish to the escape from three specific situations: difficult relatives, cramped housing, and an undesirable social milieu. All three situations characterize the family and social environment of childhood and youth. Thus, we may assume that, in Soviet times, for many people marriage was a way out of a disadvantageous social and family environment. We use parents' education, place of residence in childhood, and number of siblings as a proxy for unfavorable family background.

Given these considerations, in our ***Hypothesis 2*** *we assume that the experience of incomplete one-parent family in childhood will have an impact on the proneness to enter a first union as cohabitation. In addition, we expect women with a more disadvantageous family background (such as having less-educated parents or/and many siblings) to reflect in higher rates of entering marriage as a first union.*

6.2.3   Effect of pregnancy-and-motherhood status on first union formation

Common ethics in the Soviet Union implied that the occurrence of pregnancy in a relationship obliged the man to marry the woman (Rotkirch 2000, p.85). The very low percentage of extramarital births, as well as the high percentage of children born within the first six months of marriage in the 1970s and the 1980s (numbers and more detailed information given in Chapter 2, Section 2.2.3) suggest that, in Socialist times, marriage was a precondition for having children.

However, the increasing share of children born outside of marriage and, in particular, the percentage of non-marital births with the father's recognition in the 1990s and in the 2000s, provides evidence of a change in the interaction between fertility and union formation in Russia. As Toltz, Antonova, and Andreev (2005) conclude, there has been an ongoing transformation of the institution of family in contemporary Russia, and having a child within a non-marital cohabitation is no longer exceptional. Therefore our **Hypothesis 3** *states that, in the period before 1991, the occurrence of conception within a relationship will be a strong incentive for the couple to marry. While it may be weaker, we also expect to find evidence that pregnancy will increase the rate of entry into cohabitation as a first union (compared to non-pregnant women and over time).*

6.3 Empirical findings

6.3.1 Descriptive results

Let us first present some of the main descriptive results to characterize the union formation behavior of our respondents. The sub-sample consisted of 3,225 women of Russian nationality, born in the years 1955-1986, with complete data on union formation histories (the process of narrowing our analysis is described in Chapter 4, Sections 4.3 and 4.4; data cleaning procedure is presented in Table A4 in Appendix A).
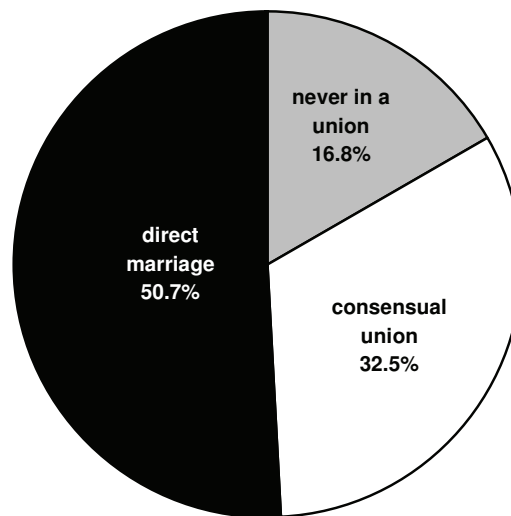
Figure 6.1 Distribution of women by type of first union

Source: Own calculations, based on GGS data, Russian women, Russian nationality

About 84% of women in the sub-sample had entered into a union (Figure 6.1). Among them, more than half (59%) had started their first union in a direct marriage, while the other 41% had entered non-marital cohabitation. These results show that despite being often described as a 'new phenomenon', cohabitation was chosen as a first union by a substantial proportion of women in Russia.
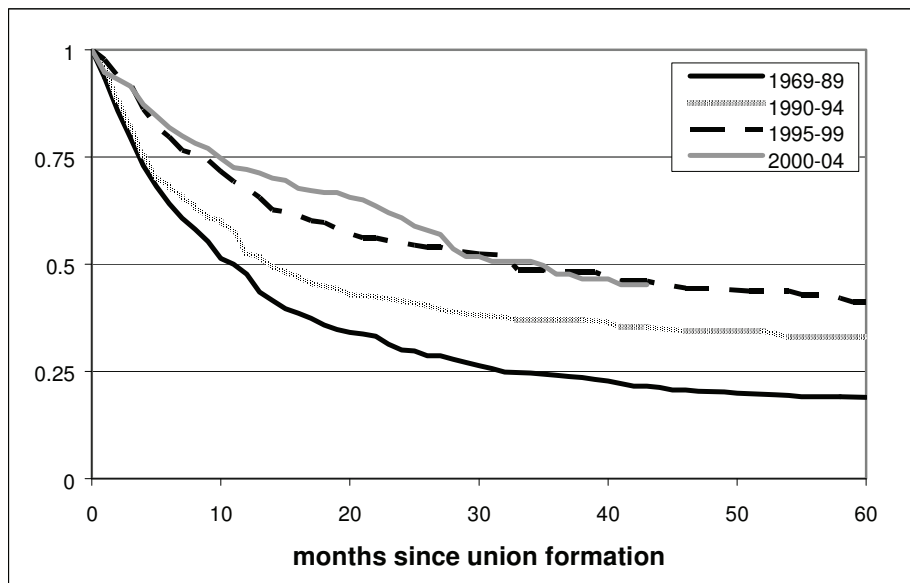
Figure 6.2 Kaplan-Meier estimation for the transformation of cohabitation into marriage by year of union formation

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality

We found similarly striking results for Bulgaria (Chapter 5, Figure 5.2). Yet, in the case of Bulgaria, we have shown that, before 1989, consensual unions were very quickly (median length of four months) transformed into marriage. The Kaplan-Meyer estimations for the transition of first cohabitation to a subsequent marriage in Russia (Figure 6.2) demonstrate that, in addition its development over time, cohabitation had come to represent a rather durable union as early as the 1970s and 1980s. The median length of cohabitation before its transformation into marriage increased from 12 months in the initial sub-period, to almost three years in the period 2000-2004.

Thus, in the presentation of the descriptive results, as well as in the multivariate analysis, we classify as a 'direct marriage' all unions for which starting to live together and official marriage registration occurred in one and the same month. The month and the year in which a couple moved in together

(without getting married in the same month) were regarded as the initial time of entering cohabitation. Sample statistics are presented in Table A5 in Appendix A.

To portray the spread of cohabitation as a first union over generations as well as over time, we present in the following two tables (6.1 and 6.2) the proportion of first unions that began as non-marital cohabitation from the cohort perspective, as well as from the period perspective.

Table 6.1 Proportion of first unions beginning by cohabitation, by cohorts

Age at the interview	Cohort	Percentage
45-49	1955-59	22.2
40-44	1960-64	26.8
35-39	1965-69	38.0
30-34	1970-74	46.0
25-29	1975-79	54.4
18-24	1980-86	70.9

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality

The proportion of first unions that started in a consensual union increased substantially over generations (Table 6.1). About 20% of all first unions of women born in the late 1950s began in cohabitation; the proportion increased to more than 50% among women born 20 years later. Despite the very young age of the respondents of the youngest cohort (18-24 years at the time of the interview), almost 45.7% of them already had the experience of union formation. Thus, more than 70% had not officially registered their marriage.

We discover a similar development from a period perspective as well (Table 6.2). Twenty percent of the first unions formed in the 1970s were cohabitations; the proportion gradually increased through the last two decades of the 20th century to reach 67% in the 2000-2004 period.

Table 6.2 Proportion of first unions beginning in cohabitation over calendar time

Year of union formation	Percentage
1970-79	21.0
1980-84	22.7
1985-89	34.8
1990-94	46.6
1995-99	54.6
2000-04	67.4

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality

To illustrate the development of the *nature* of non-marital cohabitation over the generations in Russia, in Table 6.3 we present the interaction of first union formation and first childbirth. We outline the most common combinations of event-sequences of union status, conception, and childbirth. The proportion of first births by the mother's union status at birth changes substantially across cohorts. The most traditional sequence of direct marriage/conception/birth (almost 75% among mothers of the 1955-59 cohort) is losing its dominance among younger women. Likewise, cohabitation as a family environment for raising children gains popularity. More than 15% of the first births to women born in the late 1970s were within a non-marital consensual union; the same proportion doubled compared to the cohorts of their mothers (born 1955--59).

Evidently, there are great generational differences in the interaction between the first birth and the union status of the mother at birth in Russia. In addition to becoming the more frequent first union, cohabitation has developed into a better accepted family environment for bringing up children.

Table 6.3 First birth by union status of the woman (women with children only)

(in %)

Cohorts *(age at the survey)*	1955-59 (45-49)	1960-64 (40-44)	1965-69 (35-39)	1970-74 (30-34)	1975-79 (25-29)	1980-86 (18-24)
Union status at birth						
Lone parenthood	7.3	8.5	9.7	11.6	7.7	11.7
Cohabitation at first birth	7.3	8.1	13.0	14.0	16.2	22.9
Cohabitation/conception/marriage/birth	3.1	6.9	6.9	7.2	10.5	12.2
Conception/direct marriage/birth	7.8	7.9	7.8	7.9	9.0	9.4
Direct marriage/conception/birth	74.7	68.6	62.6	59.4	56.6	44.1
N	587	573	423	458	389	188

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality

6.3.2 First union formation: transition from being single to first union (cohabitation vs. direct marriage)

In the following analysis, we apply an intensity regression model to the transitions to direct marriage and non-marital cohabitation (separate models for the two transitions; explained in detail in Chapter 4, Section 4.2). Our purpose is to analyze the effect of personal characteristics, as well as social and family background, on first union formation in Russia in the 1969-2004 period. In particular, we are interested in identifying the characteristics of the women who chose cohabitation as their first union, as well in investigating the development of the union formation process over time. Here we present mainly the results from the final model, which accounts for the effect of all explanatory variables. Additionally, we perform and discuss interaction models to explain the period changes. The complete stepwise modeling procedure is presented in Tables C2-C3, Appendix C.

Age patterns and time perspective to transition to first union

The first union formation intensities (baseline intensities) by age, presented in Figure 6.3 reveal that cohabitation in Russia starts at an earlier age than marriage. The first peak is observed at the age of 17 years, followed by its highest values in the early twenties, after which the intensity of entering into cohabitation decreases substantially. Nevertheless, the pattern of entry into cohabitation is more evenly distributed over age than that of direct marriage. Direct marriage intensities are concentrated in the age interval of 19-24 years. The rates of entry into direct marriage before and after that narrow age interval (especially after the age of 25) are minimal.
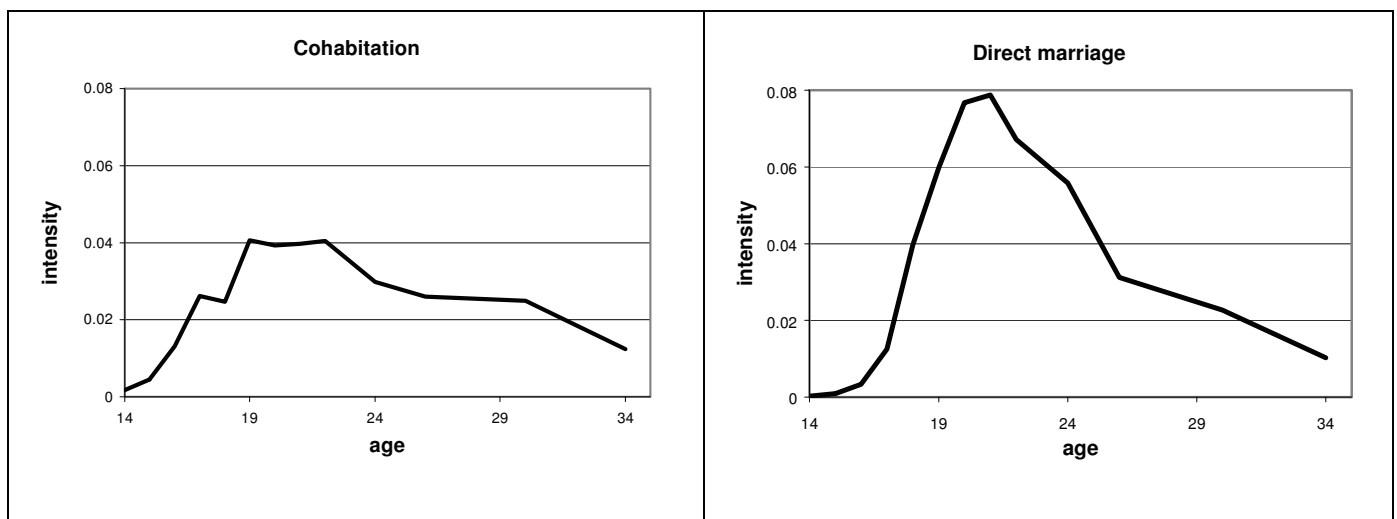
Figure 6.3 Piecewise-linear baseline intensity for transition to first union
Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: Standardized for the variables shown in Tables C2-C3 in Appendix C

The first union formation developments over time, plotted in Figure 6.4, suggest that cohabitation had its efflorescence in Russia as early as the 1970s and 1980s, followed by further increases in the late 1990s. At the same time, direct marriage intensities also increased until 1989, followed by a steep, but, in

comparison to Bulgaria, a less striking decrease (Figure 5.3). Our results are compatible with the findings that Spielauer et al. (2007) reported on union formation development during the years of transition in both countries. According to their research (p. 9), in Bulgaria a substantial drop in first union formation risks is observed in the 1990s and 2000s, while in Russia it seems that only the type of union has changed rather than the risk of entering first union.
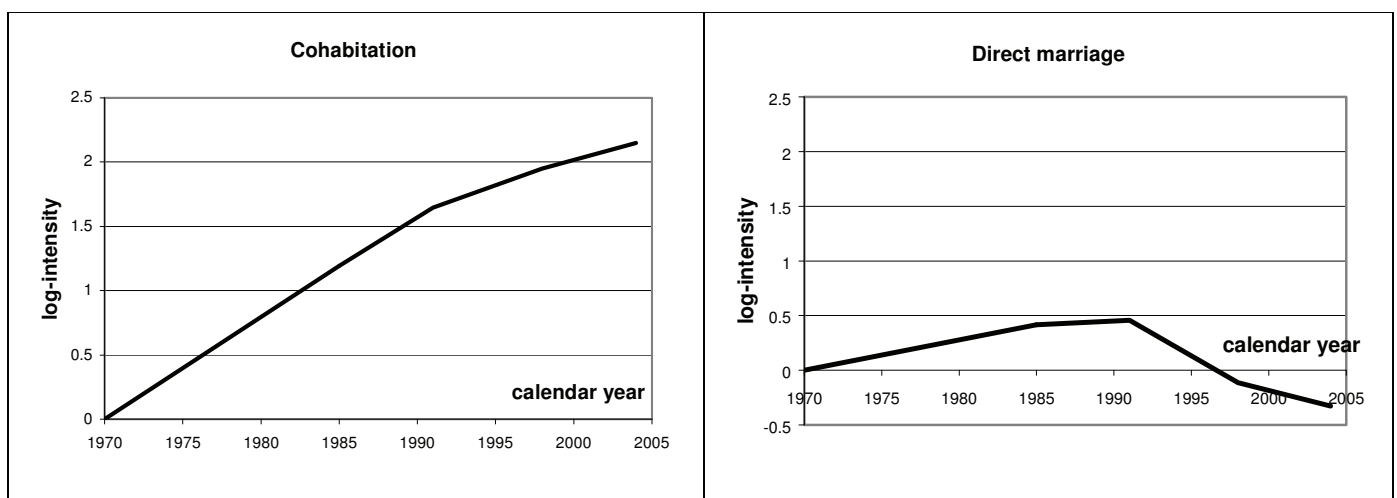
Figure 6.4 First union formation intensities by calendar year

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: Standardized for the variables shown in Tables C2-C3 in Appendix C

Effect of education on first union formation

The effect of education on first union formation in Russia, presented in Table 6.4 (extract from Models 4 in Tables C2-C3, Appendix C), contradicts our expectations that less-educated women would be more prone to cohabit than women with secondary and higher education. To the contrary, women with university and higher education have 40% higher rates of entry into cohabitation than those who only graduated from a secondary school. Regarding the effect of education on the rates of entry into direct marriage, it seems that the level of education did not play a substantial role. However, women with lower levels of

education were more prone to enter a first union as a direct marriage than women with secondary and higher education. Besides, even if high values were attained, being enrolled in education was an obstacle to forming a union (compared to women who completed their education).

Table 6.4 The effect of level and enrolment in education on entering first union

	Cohabitation	Direct marriage
Level of education		
Still in education	0.82	0.70
Lower than secondary school (incl. no education)	1.09	1.15
Secondary school	1	1
University and higher	1.40	0.91

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Extracts from Models 4 in Tables C2-C3, Appendix C; (2) Calendar year effects are presented in Figure 6.4; baseline intensity – in Figure 6.3.

In addition, it is necessary to analyze the effect of education on first union formation in Russia from a calendar period perspective. As suggested in Gerber (2000), there are at least two reasons to do so: first, because of the different economic, political, and social conditions before and after the collapse of the Soviet Union, in which the process of family formation was taking place; second, due to the dynamic changes in the role of education in Soviet (later Russian) society. Consequently, in Figure 6.5, we present the trends in the rates of entry into first union by women's educational levels and enrolment in education. Evidently, the effect of education on union formation in Russia has been changing over time. During the initial period 1969-1985 (or as we called it, the period of Socialism) highly educated women had about 60% higher rates of entry into cohabitation than women with secondary school education only; the rates were two and a half times higher when compared to women with less than a secondary school education. During the years of *Perestroika* (1985-1991), women of lower than tertiary education experienced higher relative increase in the risk

of forming a first union as cohabitation; as a result, all educational groups arrived at similar rates of entry into non-marital cohabitation. Overall, women with university degree have had higher rates of entry into cohabitation, compared to the other educational groups throughout the 1969-1998 period. Yet if we compare trends within each of the educational groups, less-educated women experienced the highest increase in non-marital cohabitation risks over time (rates increased more than seven times throughout the 1969-2004 period).
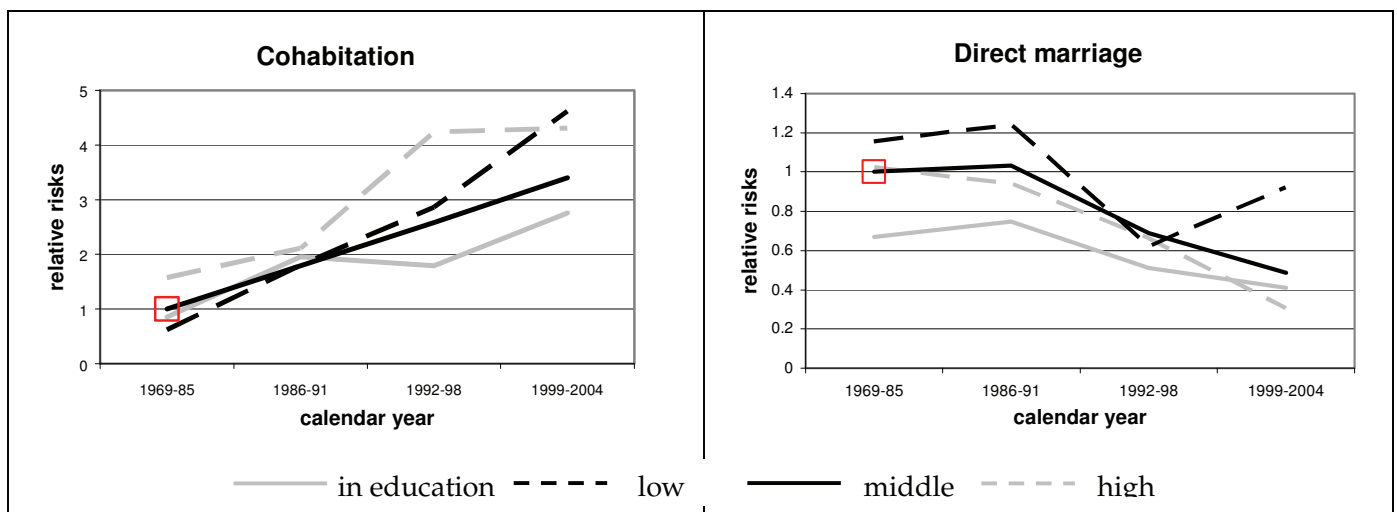
Figure 6.5 Trends in relative risks of union formation 1969-2004, by level of education

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Note: The reference category for each of the two models is: women with secondary (middle) education in the period 1969-85.

Regarding the entry into first union as direct marriage, during the first two sub-periods (1969-1991) less-educated women had the highest marriage rates, while women with secondary and higher educational levels did not differ considerably in their marriage formation behaviors. After the socio-economic changes at the beginning of the 1990s, the effect of educational attainment on first marriage risks diminished; differences between the educational groups for the period 1992-1998 became very small and insignificant.

Later on in our analysis (Section 6.3.3), by using an extension of the traditional event-history analysis, we investigate the effect of educational attainment on first union formation over time, as well as across the two competing transitions: direct marriage and non-marital cohabitation.

Effect of family background on first union formation

As described in Section 6.2.2, parental family characteristics are often considered an important determinant of family formation behavior. The GGS data provide information about the characteristics of the parental home in respondents' childhood (e.g., parents' highest level of education, number of siblings, whether the respondents lived with both biological parents most of the time during childhood, as well as whom they lived with if not with both biological parents).

In Table 6.5 we present the effect of parental family characteristics on first union formation behavior in Russia (extract from Models 4 in Tables C2-C3, Appendix C). Due to a multicollinearity problem (high correlation between mother's and father's level of education, as well as between father's level of education and the covariate "respondent lived with both biological parents")[23] we exclude father's level of education from the analysis. Evidently, family background plays an important role in the proneness to form a first union as cohabitation. Respondents who did not live with both biological parents in their childhood, had lower-educated mothers, or had more than two siblings, were more prone to start a first union as cohabitation. Contrary to our expectations, the family environment in childhood does not have a great impact on direct marriage behavior. Apart from the type-of-settlement effect, the rates of entry into first union as direct marriage did not differ across the variable categories.

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[23] Because of a high proportion of respondents who did not know their father, the covariate for father's level of education would also catch the effect of not knowing the father at all.

Table 6.5 The effect of parental family characteristics on the entry into first union

	Cohabitation	Direct marriage
Lived with both biological parents in childhood		
Yes	1	1
No	1.31	0.92
Mother's highest level of education		
Low	1.17	0.93
Middle	1	1
High	0.95	1.01
Number of siblings		
0 or 1	1	1
2 or more	1.34	1.05
Type of settlement at birth		
City	1	1
Village	0.72	1.13

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Extracts from Models 4, Tables C2-C3 in Appendix C; (2) Calendar year effects are presented in Figure 6.4; baseline intensity – in Figure 6.3; (3) We control for missing information about mother's level of education (not displayed here).

To examine the changes (if any) in the effect of the family background on the entry into first union over time, we estimated models with an interaction between the calendar time spline and each of the parental family characteristics in the initial model. In Figure 6.6, we plot the changes in the effect of the mother's education on the trends of entry into direct marriage, as well as into non-marital cohabitation over the period of observation. Women with less-educated mothers had a substantially different pattern of first marriage formation (compared to the other two categories presented in Figure 6.6). In the period of Socialism before *Perestroika* (1970-1985), they had the highest first marriage intensity. Yet they were also the first ones to be affected by the drop in the first marriage rates. In addition, the drop they experienced was sharper than the decrease among women whose mothers had middle and high levels of education.
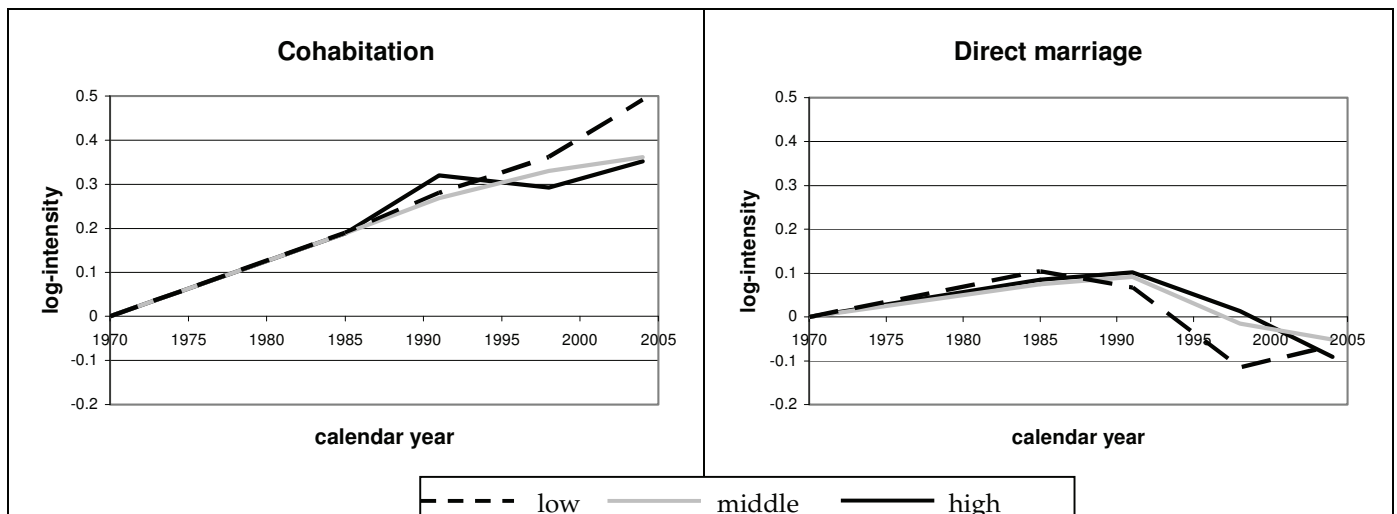
Figure 6.6 Trends in union formation intensities in the period 1970-2004, by mother's education

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Note: Controlled for missing information about mother's level of education (not displayed here)

Considering the entry into cohabitation, during the first two sub-periods (1969-1985 and 1986-1991) mother's education did not have a great influence on the intensity of forming a consensual union. Yet women with highly educated mothers had an elevated cohabitation rates during the period of *Perestroika*. In the years of economic stabilization (1999-2004) women with less-educated mothers showed increasing first union formation intensities, both for direct marriage and non-marital cohabitation. This might be an indication that women coming from the lower socio-economic strata did not postpone their entry into first union for as long as the women with highly educated mothers.

To summarize, parental family characteristics have an important influence on personal union formation behavior. Experience of incomplete family in childhood, particularly living with only one of the biological parents (or neither of them), elevates the proneness of entry into first union as cohabitation. In addition, in the years of economic stabilization, coming from a family with less-educated parents elevates the rates of entry into first union, both for direct marriage and non-marital cohabitation.

Effect of pregnancy-and-motherhood status on first union formation

Here we examine the interaction between pregnancy and motherhood on the one hand, and union formation on the other. As expected (Section 6.2.3), the risk of transforming a non-residential relationship into a marriage is much higher (nine times) among pregnant than among non-pregnant women (Table 6.6). We observe similar, but weaker, interactions between pregnancy and entry into non-marital cohabitation.

Table 6.6 The effect of pregnancy and birth of first child on entering first union

	Cohabitation	Direct marriage
Parity		
Childless, not pregnant	1	1
Childless, pregnant	4.22	9.09
Mother	0.66	0.71

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Extracts from Models 4, Tables C2-C3 in Appendix C; (2) Calendar year effect is presented in Figure 6.4; baseline intensity – in Figure 6.3; (3) Time of conception is calculated by deducting seven months from the date of actual birth. Data on interrupted pregnancies are not available in the dataset.

As pregnancy is a process that has various phases, further refinement of its effect on the union formation is plotted in Figure 6.7. The two lines present the log-linear intensity to form a first union as a marriage or a consensual union in the period of nine months before the child was born, and until the child's first birthday. The spline function is conditional on having a child. The two plots verify the elevated risk of union formation during the nine months preceding the birth of the first child. Furthermore, they also show two very different patterns. Direct marriage intensity is much higher in the first six months of the pregnancy (especially during the first trimester) and decreases sharply thereafter.
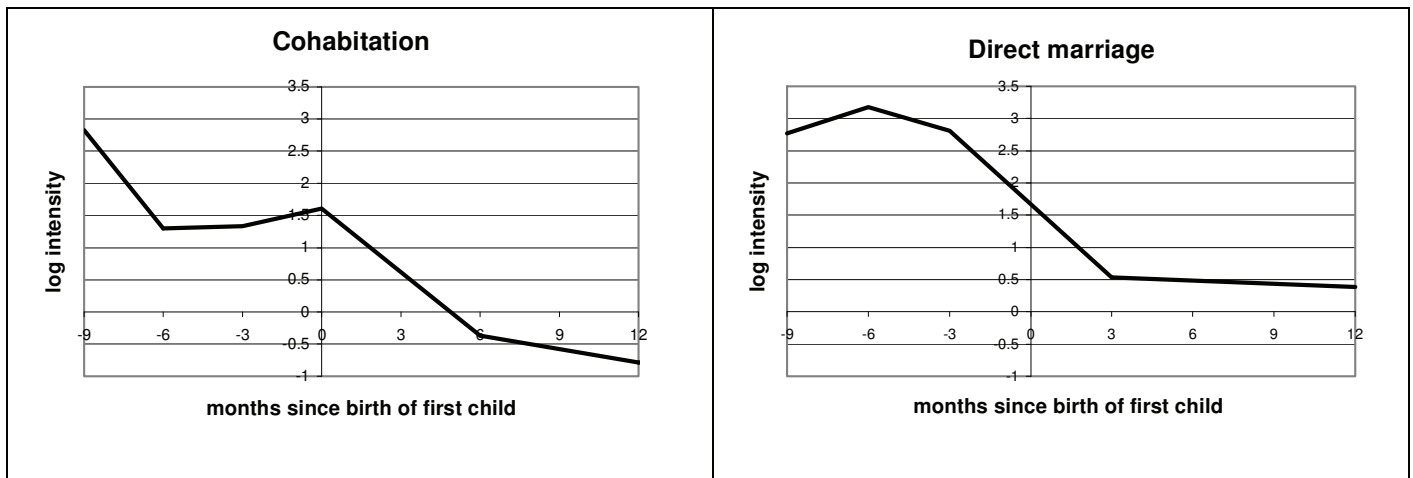
Figure 6.7 The effect of pregnancy and birth of first child on the intensity of entering first union

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: Table C10 in Appendix C

On the contrary, the intensity of forming a consensual union drops substantially in the first three months of pregnancy (in correspondence with the elevated direct marriage intensity in the first trimester); while in the last three months before giving birth, the intensity increases slightly. For mothers, the rate of entry into a first union shows a considerable decrease in both models.

Other studies on fertility and family formation in the former Socialist countries (Koytcheva 2005, Kulik 2005) as well as our results on Bulgaria (Chapter 5, section 5.3.2) have also shown that the occurrence of pregnancy would most probably transform a partnership into marriage; the marriage usually takes place in the first two trimesters of pregnancy.

In order to examine the trends in the effect of pregnancy-and-motherhood status on first union formation over time, we estimated a model with interaction between the two covariates (Table 6.7).

Table 6.7 Trends in relative risks of union formation 1969-2004, by pregnancy-and-motherhood status

Parity	Cohabitation				Marriage			
	1969 – 85	1986 – 91	1992 –98	1999-04	1969 – 85	1986 – 91	1992 –98	1999-04
Childless, non pregnant	1	1.96	2.49	3.67	1	1.09	0.72	0.53
Childless, pregnant	5.79	8.87	12.24	9.92	9.57	8.17	6.44	5.00
Mother	0.83	1.42	2.01	1.47	0.74	0.68	0.32	0.39

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Table C9 in Appendix C; (2) Time of conception is calculated by deducting 7 months from the date of actual birth. Data on interrupted pregnancies are not available in the dataset.

Evidently, the decrease in the direct marriage rates was proportional for the categories of the pregnancy-and-motherhood status of the woman. Similarly, we estimated a proportional increase in the rates of entry into non-marital cohabitation over the period 1969-1998. In the last sub-period, with the exception of the childless non-pregnant women, cohabitation risks have declined slightly.

Next, we compare the effect of expecting a child over time across the two competing transitions: direct marriage and non-marital cohabitation

6.3.3 **Joint modeling of first non-marital cohabitation and first direct marriage**

Here we present a model in which the transitions to non-marital cohabitation and to direct marriage are analyzed jointly. Applying such a technique makes it possible for us to compare trends in union formation across the two competing transitions. Such a comparison was impossible with the standard event-history analysis discussed earlier.

Hoem et al. (2007) applied the same technique in a comparative study on union formation in four Central and Eastern European countries (including Russia). In this sub-section, we extend their study by analyzing the effect of education, as well as the effect of pregnancy-and-motherhood status, on the

trends in first union formation. A detailed description of the model specification is given in Chapter 4, Section 4.2.2.

Period perspective of first union formation

In Figure 6.8 we present the development of direct marriage and non-marital cohabitation over time, relative to the rates of entry into cohabitation in the period 1969-1979.
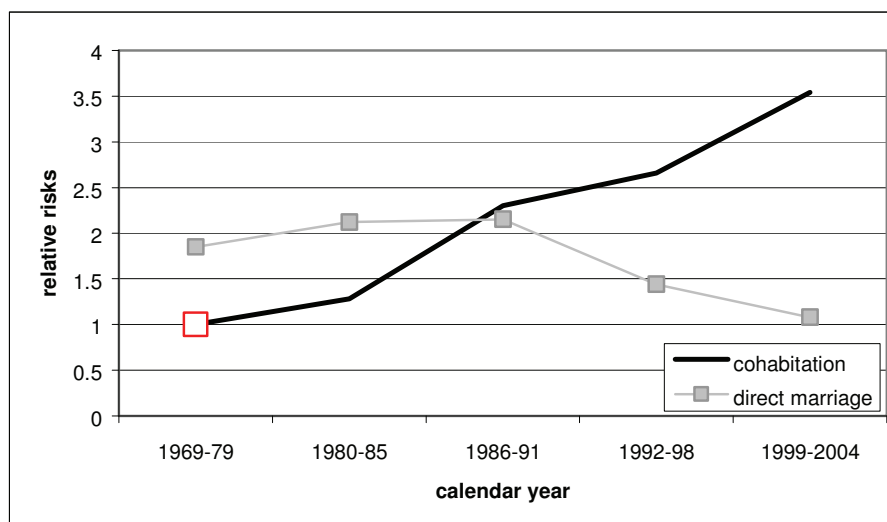
Figure 6.8 Trends in relative risks of first union formation 1969-2004, by type of union

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Rates calculated in a joint analysis of the two transitions; (2) Rates, relative to that of entry into cohabitation in 1969-1979.

Evidently, non-marital cohabitation rose substantially during *Perestroika*. Starting in the late 1980s, it became the most common first union in Russia, even though the rates of entry into marriage in that period were increasing as well. Since the beginning of the 1990s, the increasing risk of entry into consensual union was compensating for the decreasing direct marriage rates. A similar trend can be found in Hoem et al. (2007, Figure 1). We were, however, also interested

in understanding the development of the two competing transitions with respect to the periodization made at the beginning of the present chapter (Section 6.2).

Effect of education on first union formation over calendar time

We proceed by presenting the effect of education throughout the period of observation, across the two types of first union (a model with a three-way interaction between education, period, and the type of first union, as in Figure 6.9). Results show considerably different first union behaviors among women, depending on their levels of education. Highly educated women in Russia had already experienced a decrease in first marriage rates at the beginning of the 1980s. In addition, there was a steep increase in the rates of entry into non-marital cohabitation in the period of *Perestroika* (1986-1991). Thus, highly educated women had already experienced the shifts towards non-marital first union in the early 1980s. For women with less than a university degree, the 'compensation effect' emerged at the beginning of the 1990s. Enrolment in education was found to have (as shown in Figure 6.5) a hindering effect on union formation in Russia throughout the period of study. However, from the late 1980s, women who were still in education tended to enter non-marital cohabitation as a first union, instead of the traditional marriage.
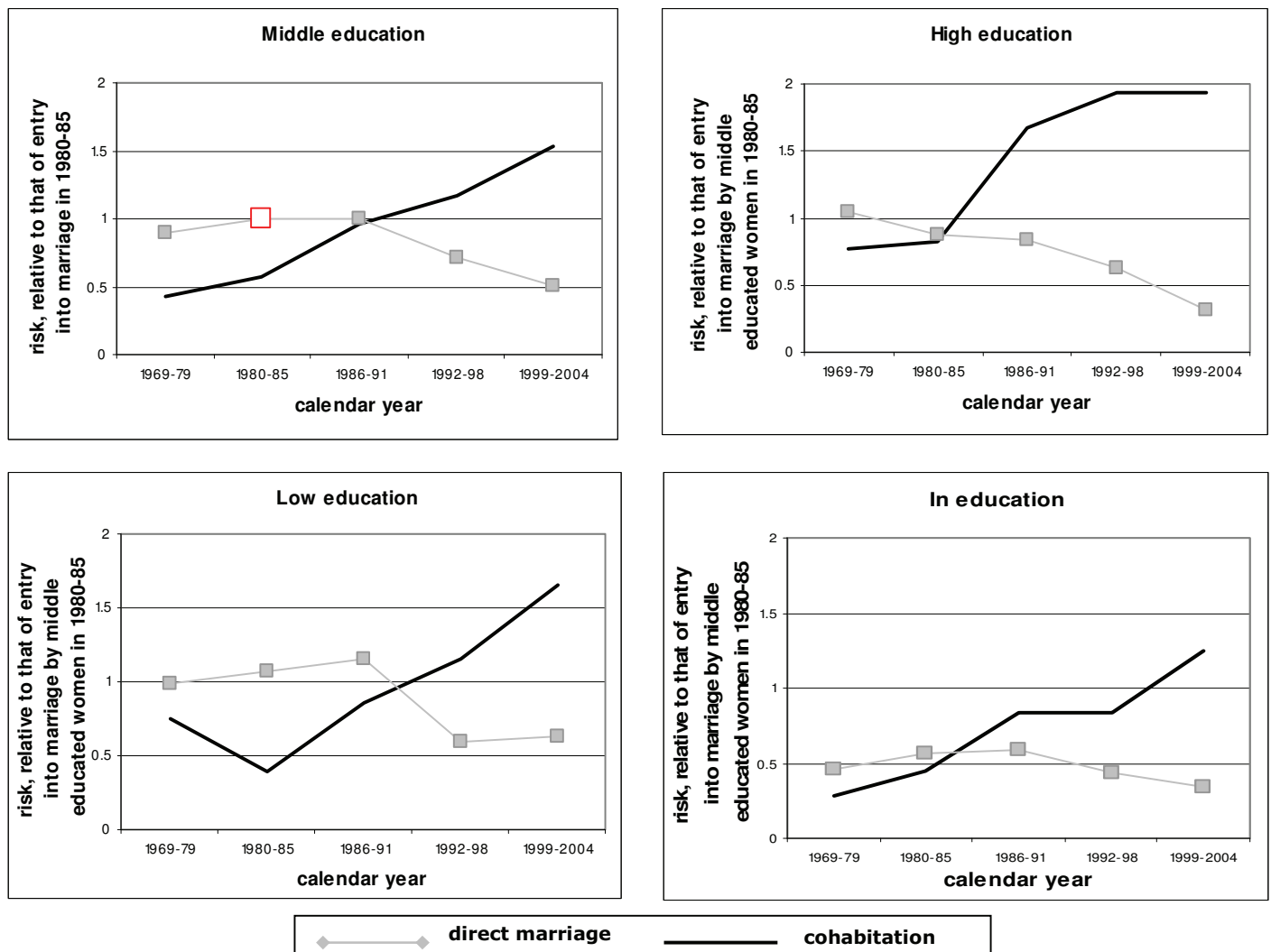
Figure 6.9 Trends in relative risks of union formation 1969-2004, by type of union and level of education

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: Rates calculated in a joint analysis of the two transitions

The model with three-way interaction between level of education, calendar period, and type of first union (Figure 6.9) illustrates the different timing with respect to the level of education in the shifts towards novel union formation behavior. It is evident from the crossover points that, in Russia, cohabitation became the preferred choice for highly educated women between

five and 10 years earlier than for women with middle and lower levels of education.

Effect of pregnancy-and-motherhood status on first union formation over calendar time

In this section, we present a model with a three-way interaction between pregnancy-and-motherhood status, period, and type of first union. In this way, we examine to what extent the occurrence of a pregnancy would be an incentive for transforming a partnership into non-marital cohabitation. Moreover, we reveal the interaction trends for the entry into cohabitation, associated with the effect of pregnancy-and-motherhood status on the marriage formation rates. The results, presented in Figure 6.10, illustrate that the interaction between marriage and childbirth persists throughout the 36-year period of observation. Unlike the non-pregnant women without children, those who expect a child still prefer 'traditional' marriage to non-marital cohabitation. Nonetheless, from the beginning of the 1990s, following the general trend of first marriage formation, rates of entry into marriage dropped among pregnant nullipara as well.

Thus, in the last sub-period, the rate of entry into marriage of first-time pregnant women is only 19% higher than the rate for entry into cohabitation; the same rate, calculated for the period before *Perestroika*, was 223%. Apparently, from the beginning of the 1990s, it became more acceptable to raise children within a union without an officially registered marriage. The union formation trends of women who have had their child(-ren) prior to their first union did not undergo distinct changes. The respective results are shown in Table C13 in Appendix C.
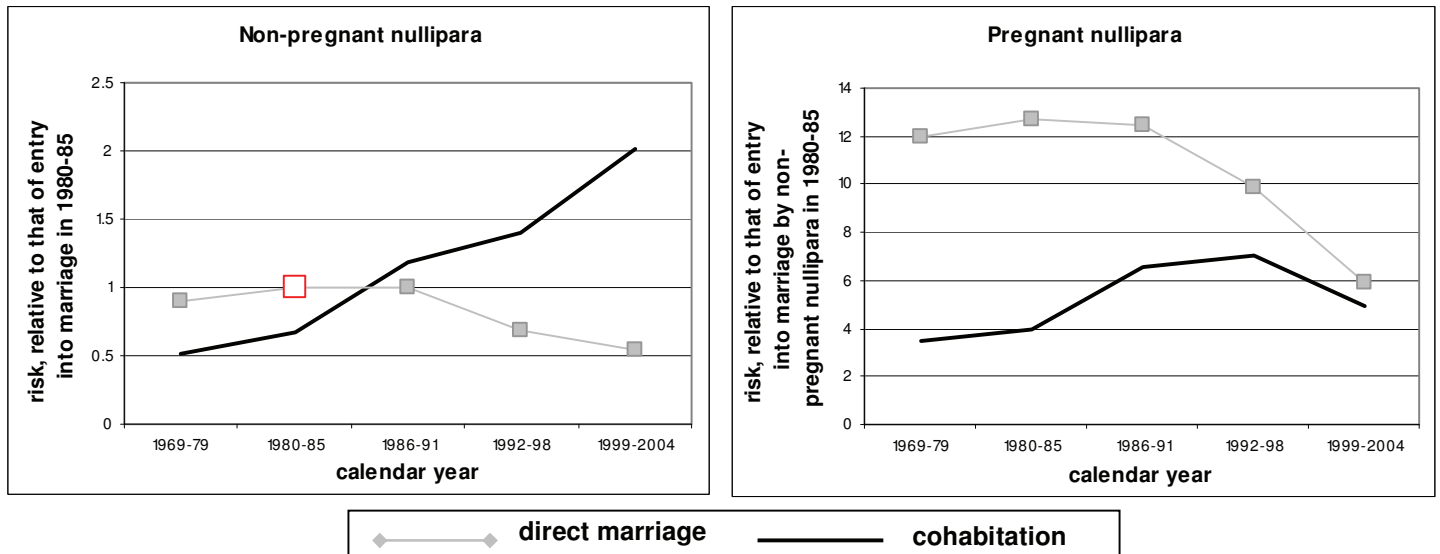
Figure 6.10 Trends in relative risks of union formation 1969-2004, by type of union and pregnancy-and-motherhood status

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Rates calculated in a joint analysis of the two transitions; (2) Full model without interaction with calendar time can be found in Hoem el al. (2007, Table 2)

6.3.4 **First union formation – transition from cohabitation to subsequent marriage.**

As in the case of Bulgaria, in most previous studies on family formation (e.g., Avdeev and Monnier 2000) marriage was found to be the only accepted family form in Russian society during Soviet times. Yet we have found that, in the period before *Perestroika* (1969-1985), one in five first unions in Soviet Russia was not officially registered; in total, about 40% of all first unions over the 1969-2004 period started as non-marital cohabitation. Other studies using GGS data (e.g., Zakharov 2005, Philipov and Jasilioniene 2007, Hoem et al. 2007, Spielauer et al. 2007) found similar results. For instance, Zakharov (2005) concluded that "cohabitation is a long-standing and widespread practice in Russia." In addition, he pointed out that at present "Russia shares the American model, but is evolving fast towards the Swedish pattern." One of our goals is to evaluate the

development of the nature of cohabitation in Russia. That is why we study the "transition out" of consensual unions in the next five years following their formation over the period 1970-2004. There are three possible outcomes of the cohabitation state: marriage, dissolution, and no subsequent transformation. In Table 6.8, we present the descriptive statistics of the development of consensual unions (until the occurrence of an event, or censoring).[24]

Table 6.8 Transition out of first cohabitation

	Marriage	Dissolution	Still in cohabitation	Total
All cohabiting women	628	198	188	1065
	59 %	19%	22%	100 %

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: All observations are censored five years after the formation of first cohabitation.

About 19% of the non-marital cohabitations were dissolved within five years after the formation of first cohabitation. But for the others (about 81%), first cohabitation appeared to be quite a stable union; it was either transformed into marriage (59%) or remained as non-marital cohabitation (22%). Evidently, in Russia there were more cohabitations that ended up in dissolution (compared to the development of first cohabitation in Bulgaria, Chapter 5, Table 5.8). In the rest of this section, we present the analysis of the transformation of cohabitation into marriage, followed by a sub-section devoted to dissolution of the first non-marital cohabitation in Russia. The method and the model specifications are explained in details in Chapter 4, Section 4.2.1.

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[24] An observation is censored at the time of the interview, at the occurrence of the competing transition, as well as at partner's death. Additionally all observations are censored five years after the union formation.

Period perspective of the transition from cohabitation to subsequent marriage

In Figures 6.11 and 6.12, we present two aspects of the period changes in the transition from cohabitation to marriage. The conversion rates, relative to those in 1970 (time is modeled as a spline function) are plotted in Figure 6.11 and show slight fluctuations during the Soviet era, followed by a drastic decrease after the collapse of the Soviet Union in 1991. However, the trend was largely stable after 1998.
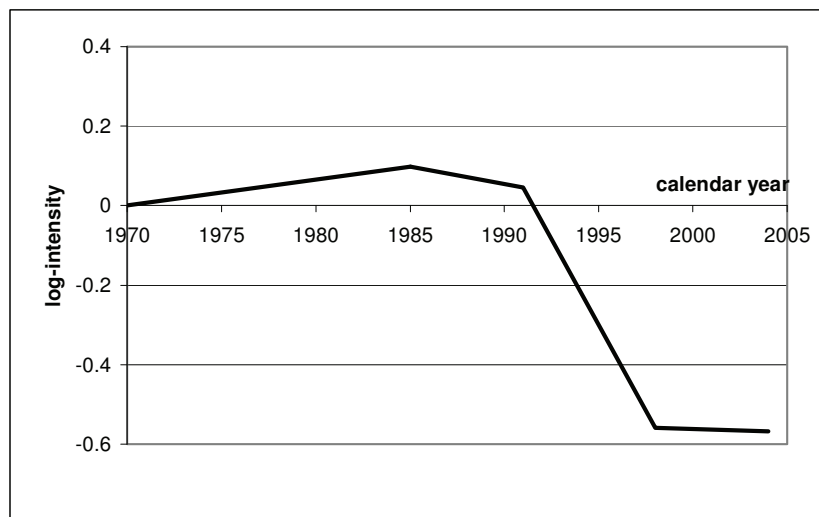
Figure 6.11 Transformation of cohabitation into marriage, by calendar year.

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Time is modeled as a spline function; (2) Standardized for the covariates in Table C14 in Appendix C.

In addition, we present the trends in conversion rates by the duration of cohabitation before its transformation into marriage (Figure 6.12). The rates of transformation of the cohabitation into marriage within the first two years after union formation decreased in parallel during the period of observation. In addition, we observe an increase in the conversion rates of the more lengthy cohabitations (two to five years) towards the end of 1990s and the beginning of the 2000s.

Both figures (6.11 and 6.12) indicate that, with time, cohabitation became a more stable union which transformed less often into marriage. In addition (as shown in Figure 6.12), it became a longer-lasting union (before a further transition).
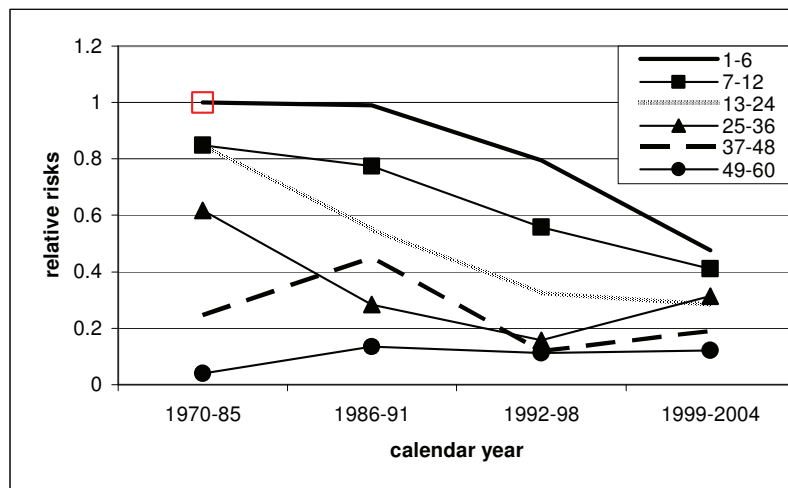
Figure 6.12 Relative rates of transformation of cohabitation into marriage, by time since entry into cohabitation and calendar year.

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: Rates, relative to a transformation within the first 6 months in the period 1970-1989.

In the rest of this sub-section, we discuss the effect of socio-economic factors and family background characteristics on the transition from cohabitation to marriage in Russia.

Effect of education on transformation of cohabitation into marriage

In Table 6.9, we display the effect of the level and enrolment in education on the transformation of cohabitation into marriage (extract from Model 4, Table C14 in Appendix C). Highly educated women were less prone to transform their non-marital cohabitation into marriage. In addition, they were more inclined than the women with secondary and lower education to start their first union in

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cohabitation (Table 6.4). In addition, being enrolled in education would still prevent women from making a transition into marriage.

Table 6.9 The effect of level and enrolment in education on the transformation of cohabitation into a marriage

	Marriage after cohabitation
Level of education	
Still in education	0.71
Lower than secondary school (incl. no education)	0.89
Secondary school	1
University and higher	0.76

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Extract from Model 4, Table C14 in Appendix C; (2) Calendar year effect is presented in Figure 6.12.

The effect of enrolment in education remains quite stable over the 1970-1998 period (Figure 6.13); however, in the stabilization period (1999-2004), the conversion rates dropped substantially.

With respect to the education level effect over time, marriage rates of women with secondary and higher education decreased throughout the whole period of observation (most considerably in the 1990s). In contrast, conversion rates among less-educated women stayed at an approximately stable level, so that in the period 1999-2004 they had the highest risk of transition to marriage among cohabiting women. Evidently, the effect of education on the transition from cohabitation to marriage has undergone substantial changes over the period of study.
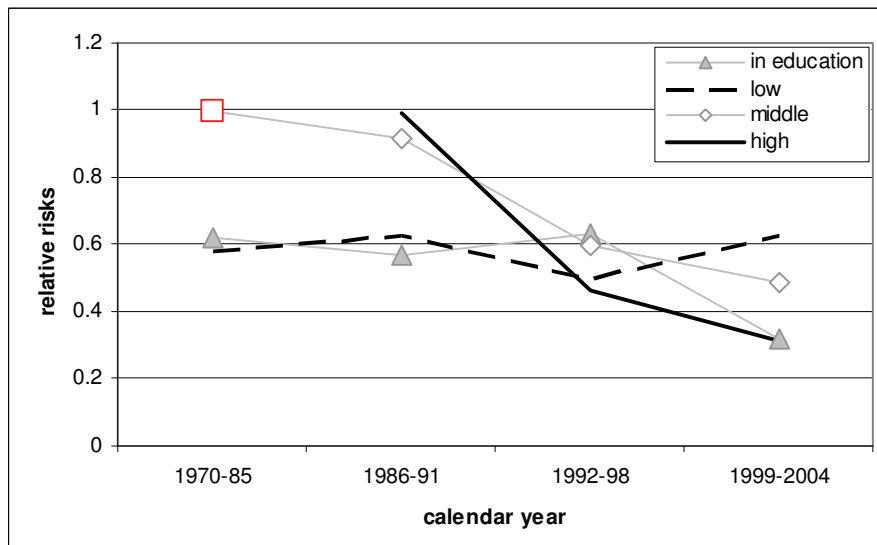
Figure 6.13 Trends in relative risks of transformation of cohabitation into marriage 1970-2004, by level of education

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Reference category - women with secondary education in the period 1970-1985; (2) Results for highly educated women in the period 1970-1985 are not presented due to very few observations (Table C15 in Appendix C).

Effect of family background on transformation of cohabitation into marriage

We have shown in the previous section (Table 6.5 and Figure 6.6) that parental family in Russia does have a substantial influence on the choice of first union type. The results presented in Table 6.10 indicate that family background also plays a role in the transformation of a consensual union into a marital one. In particular, the type of settlement at birth, living with both biological parents during childhood, as well as the mother's level of education, interact with the transformation of cohabitation into marriage. The effects are largely the same as the ones for the transition to a direct marriage. Women who grew up in a complete two-parent family have higher rates of transition to marriage; similarly, women born in a village are more prone to form a marital union. As far as the mother's education is concerned, it has a substantial influence on the transition from cohabitation to a marriage. Women with less-educated mothers have 25%

lower rates of transformation of cohabitation into a marriage (compared to the women whose mothers have graduated from secondary school).

Table 6.10 Relative rates of transformation of cohabitation into marriage, by parental family characteristics

	Marriage after cohabitation
Lived with both biological parents in childhood	
Yes	1.10
No	1
Mother's highest level of education	
Low	0.75
Middle	1
High	1.09
Number of siblings	
0 or 1	1
2 and more	1.03
Type of settlement at birth	
City	1
Village	1.13

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Extract from Model 4, Table C14 in Appendix C; (2) Calendar year effect is presented in Figure 6.12.

In addition, we tried interaction models with the covariates characterizing the family background and the period. Nevertheless, the results are mostly the same as those for the transition to a direct marriage, and are therefore not presented in the text (see Tables C16-C19 in Appendix C).

Effect of pregnancy-and-motherhood status on transformation of cohabitation into marriage

As discussed earlier in this chapter, the occurrence of pregnancy typically elevates the rates of union formation. However, in Russian society expecting a child would still more often transform a non-residential partnership into a marital union (Tables 6.6 and 6.7; Figure 6.7).

The association between childbearing and the transformation of cohabitation into a marriage is an essential predictor of the development stage of non-marital cohabitation. Apparently, if the occurrence of pregnancy within a non-marital cohabitation is a stimulus for its transformation into a marriage, cohabitation can still be viewed as a prelude to marriage (the second stage according to the classification suggested by Prinz (1995)).

Table 6.11 Relative rates of transformation of cohabitation into marriage, by pregnancy-and-motherhood status

	Marriage after cohabitation
Pregnancy-and-motherhood status	
Childless, not pregnant	1
Childless, pregnant	3.38
Mother	1.03

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Extract from Model 4, Table C14 in Appendix C; (2) Calendar year effect is presented in Figure 6.12; (3) Time of conception is calculated by deducting seven months from the date of actual birth. Data on interrupted pregnancies are not available in the dataset.

In Table 6.11, we present the effect of pregnancy-and-parity status on the risk of transformation of non-marital cohabitation into marriage. The conversion rates are three times higher for pregnant women than for non-pregnant women without children. The respective relative risks for the transition to cohabitation and direct marriage are 4.22 and 9.09 (Table 6.6). Even though we cannot directly compare the effects of pregnancy across the three types of first union formation, we can speculate that pregnancy is not as influential for the transition to marriage if partners were already living together in a union.

In an analysis similar to the one we conducted of the transition to first union as direct marriage or cohabitation (Figure 6.7), we looked at the effect of pregnancy on the transformation of cohabitation into marriage as a process that starts nine months before the birth of the child. The effect is very similar to the effect that pregnancy has on the transition to a direct marriage: i.e., an increase in

the conversion rates in the first two trimesters, followed by a steep decrease. The conversion rate becomes particularly low after the child is born, but it does not go below the corresponding risk for non-pregnant women without children (Table C21 in Appendix C).

Table 6.12 The effect of pregnancy-and-motherhood status on the transformation of cohabitation into marriage over the calendar time

	1970 - 1985	1986 - 1991	1992 - 1998	1999 - 2004
Pregnancy-and-motherhood status				
Childless, not pregnant	1	1.16 (1)	0.88 (1)	0.47 (1)
Childless, pregnant	3.81	2.92 (2.51)	2.39 (2.72)	2.72 (5.76)
Mother	1.49	1.37 (1.18)	0.50 (0.57)	0.59 (1.26)

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Table C20 in Appendix C; (2) Numbers in brackets present rates, relative to the category "childless, non pregnant" in each period; (3) Time of conception is calculated by deducting seven months from the date of actual birth. Data on interrupted pregnancies are not available in the dataset.

The results from the interaction model of the pregnancy-and-motherhood status with the calendar period (Table 6.12) reveal very interesting trends. Conversion rates for pregnant nullipara steadily decreased through the period 1970-1998; similar developments are evident for women who had one or more children before transforming cohabitation into marriage. In contrast, during that period, non-pregnant women without children have had relatively stable rates of 'legalizing' their cohabitation. However, in 1999-2004, the relative rate of transforming cohabitation into marriage among pregnant women (relative to non-pregnant nullipara) had even higher values than in the initial period (numbers in brackets). This trend is due to the drop (by approximately 50%) in the conversion rates among non-pregnant women without children in the stabilization period compared with the early 1990s. Apparently, in Russian society marriage and childbirth (or expecting a child) are still closely interrelated.

Thus, while losing its ascendancy, the tradition of marriage soon after the pregnancy occurs was still vital in the mid-2000s.

Accounting for selectivity in the process of transforming cohabitation into marriage

In our study of transition 'out' of cohabitation, we need to keep in mind that the population under at 'risk of event' consists only of women who choose to cohabit rather than marry directly. As shown in Table 6.2, the proportion of cohabitations as first unions has increased over time. While in the 1970s and the 1980s, cohabitations represented 20%-30% of all first unions, it has increased to almost 70% in the 2000s. It is possible that, at the beginning of our period of investigation, women who did not marry directly, but decided to cohabit instead, were a selective group (e.g., with more individualistic values). Thus, the transition from cohabitation to marriage might be additionally affected by the pre-selection of women into cohabitation. To control for such 'entry selection' we model simultaneously the two transitions: transition to cohabitation and the transformation of cohabitation into marriage (as described in detail in Chapter 4, Section 4.2.1). We introduced two heterogeneity components (one for each model) to account for the unobserved characteristics of the women in the two transitions; we also allow the two residuals to be correlated. The results largely reproduce the effects that we presented in this chapter (Table C22 in Appendix C). Like the pattern in Bulgaria, the two unobserved heterogeneity factors are highly significant and negatively correlated.

In Figure 6.14, we present the period effect of the transition from cohabitation to marriage (time presented as a spline function). We observe a very different pattern in the Soviet era (1970--1991) when controlling for the entry selection effect (the joint model). There was a strong decrease in the conversion rates already in the 1970s and the first half of the 1980s.

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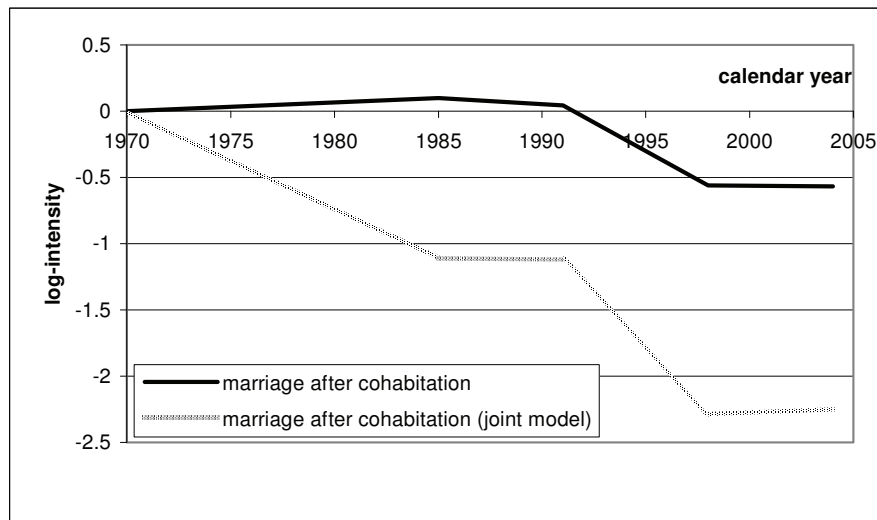
Figure 6.14 First marriage intensities by calendar year

Source: Own calculations, based on 2004 GGS data, Russian women, Russian nationality
Notes: (1) Standardized for the variables shown in Table C22 in Appendix C

6.4   Summary of the results

In this chapter, we have presented the outcome of the empirical investigation of first union formation development in Russia over the 1970-2004 period. The results of our analysis confirm that the changes in the union formation patterns in Russia started before the collapse of the Soviet Union, roughly around the time of *Perestroika* (second half of the 1980s). In addition, education and parental family characteristics proved to be important predictors of personal union formation behavior in Russia. In the rest of this section, we will summarize the main findings of our empirical investigation. We place special emphasis upon the effect of personal and socio-economic characteristics on the emergence of non-marital cohabitation in Russia, as well as on its development under the changing environment of Russian society over the 34-year period. In Chapter 7, we provide a discussion of the results of the analysis of first union formation in Bulgaria and Russia in a comparative framework.

Effect of education on first union formation

Taking into account the specific development and goals of the education system in Russia (Zhukov 2001), we expected educational attainment to have a moderate effect on the pattern of family formation during the Socialist era. In addition, we assumed an increasing importance of tertiary education for the emancipation from traditional family values over time. In particular, we expected to see small differences between educational levels in the transition to first cohabitation during the first sub-period (*socialism)* and a "speed-up" in the process of entry into cohabitation as a first union among highly educated women in the sub-periods after the beginning of *Perestroika*.

In fact, the results from the multivariate analysis show that women with tertiary education had higher rates of entry into cohabitation throughout the period of observation (Table 6.4 and Figure 6.5). Similarly, highly educated women experienced a decrease in the marriage formation rates already in the early 1980s, compensated by an entry into non-marital cohabitation (Figure 6.9). In addition, in the period 1970-1991, women with secondary and higher education had elevated rates of transforming cohabitation into marriage compared with less-educated women. After the collapse of the Soviet Union, the conversion rates among highly educated women dropped, suggesting that non-marital cohabitation became a more stable and lengthy union (Figure 6.13).

Overall, the period of *Perestroika* (1986-1991) was the time when non-marital cohabitation became the most common first union in Russia. However, changes did not happen simultaneously for all women. Russian university graduates had already shifted their union formation behavior towards entry into cohabitation instead of a direct marriage in the early 1980s. Women with lower than tertiary education made this shift five to 10 years later. In addition, since the mid-1990s, the rates of conversion of cohabitation into marriage have dropped,

suggesting that cohabitation has changed its role from a prelude to marriage to a long-lasting and more stable union; first among university graduates, and then among women with lower than tertiary education.

Effect of family background on first union formation

Our study has confirmed that there is an interaction between the characteristics of family background and personal union formation behavior. In particular, characteristics such as childhood spent with only one of the biological parents (or neither of them), coming from a large family with three or more children, as well as having a mother with a lower level of education, are all associated with a higher proneness to enter cohabitation as a first union. In contrast to our expectations, family background has no effect on the entry into first marriage; it does, however, influence the transformation of cohabitation into marriage. In general, the impact of parental family characteristics on personal union formation did not change substantially over time. In the years of economic stabilization (1999-2004), having a less-educated mother is reflected in higher rates of entry into a first union (indicative of a faster first union formation among women from the lower socio-economic strata).

Effect of pregnancy-and-motherhood status on first union formation

Expecting a child has been studied as one of the most influential factors for union formation in all societies. Many studies on Central and Eastern Europe (e.g., Kantorova 2004, Kulik 2005, Mynarska 2005, Koytcheva 2006, Muresan 2007) have confirmed the elevated aptitude to marriage when a child is expected. Similarly, we observe substantially higher rates of entry into marriage as a first union during the period of pregnancy in Russia. We use the pregnancy-and-parity status to examine whether the development of cohabitation in Russia

approached the third stage of cohabitational typology in which it becomes a socially accepted family environment for bringing up children (Hoem and Hoem 1998, Prinz 1995).

The proportion of first births within a non-marital cohabitation have doubled (Figure 6.3) between mothers born in late 1970s and their mothers (1955--59 cohort). In addition, we discovered that, in 1999-2004, the rates of entry into marriage among women who were pregnant for the first time was only 19% higher than that of entry into cohabitation (Figure 6.10); note that the same rate in the period before *Perestroika* was 223%.

To summarize our results, expecting a child motivates couples to transform their partnership into a marital union, either preceded by a consensual union or not. Yet the effect decreases over the years of this study (Table 6.7). Similarly, in the late 1980s and in the 1990s, the effect of occurrence of pregnancy on the transformation of cohabitation into marriage decreased. Thus, the rapid changes in the first union formation model in Russia in the 1970-2004 period lead us to assume that cohabitation has reached the second stage of its development. There is evidence that it is developing quickly toward the next stage, in which children are often present in such relationships, and 'family' is no longer associated only with 'marriage'.

Chapter 7
Summary and conclusion

7.1   Introduction

The empirical analysis of first union formation in Bulgaria and Russia before and after the turnaround in the political and economic systems around 1990 (1989 in Bulgaria, 1991 in Russia) provided a large number of findings. We applied event-history analysis to the 2004 Generations and Gender Survey datasets to study the effects of education, family background, and some other personal characteristics on the transition to first marriage vs. non-marital cohabitation, as well as on the transformation of non-marital cohabitation into marriage. We provided general summaries of the in-depth analysis of first union formation in Bulgaria and Russia in Chapters 5 and 6, respectively.

In this chapter, we summarize our main findings in a comparative manner (Section 7.2). In addition, we link our empirical results to the initial theoretical discussion of the determinants of union formation development (Section 7.3). We conclude our study with a general overview of the changing family formation model in Bulgaria and Russia during the period 1970-2004 (Section 7.4).

7.2   Summary of empirical findings

The first wave of the Generations and Gender Survey from 2004 enabled us to select a very dynamic episode of structural socio-economic and political transformations in both countries (1970-2004). The selected time segment

comprises the period of 'developed Socialism' (1970s to the mid-1980s), *Perestroika* (1986-1991), the years of structural reforms accompanied by deep economic crises (the 1990s), as well as the years of economic stabilization in the beginning of the 2000s. Results of event-history analysis of first union formation in Bulgaria and in Russia revealed that the two Eastern European countries have undergone considerable development in the study period, with many variations at the country level. Here we present our main empirical findings in a country-comparative framework.

7.2.1   Effect of education on first union formation

The results from our empirical analysis demonstrated that education was an essential factor for the timing of entry, as well as for the type of the first union in Bulgaria and Russia. We have shown that, in both countries, cohabitation emerged well before the collapse of Socialism, but <u>not simultaneously</u> for all education groups. Moreover, we found substantial differences between the two countries in the effect of education on first union formation development.

Our results confirmed that in Bulgaria less-educated women (with completed primary or lower level of education, including "no education") were the forerunners of the novel union formation behavior (Koytcheva 2006). Among this group, cohabitation was the most common form of first union as early as the mid-1980s. In addition, these women had the lowest rates of transforming cohabitation into marriage. In contrast, highly educated women were more prone to marry (directly, as well as preceded by cohabitation). From the beginning of the 1990s, the educational differences among cohabiting women began to disappear. Non-marital cohabitation also became a widespread choice of first union formation among women with secondary and higher education.

A substantially different effect of education on first union formation developed in Russia. The results from the multivariate analysis show that

women with tertiary education had higher rates of entry into cohabitation (compared to the women with secondary and lower levels of education) over the whole period of observation. In addition, they shifted their union formation behavior toward entry into cohabitation instead of direct marriage in the early 1980s. Women with less than a university education followed the trend five to 10 years later.

Thus, in both countries we found support for Coale's notion (Coale 1973) of the *diffusion of new ideas,* according to which a novel demographic behavior would occur among the segment of population that is *ready*, *willing,* and *able* to perform the action. A further diffusion will be observed if all the three prerequisites become true for other strata of the population. In the Russian context, we found support for the argument that the greater value of independence and autonomy among higher educated women would induce them to postpone marriage for a later episode in their life trajectories (Liefbroer 1991, Kantorova 2004). Thus, they would more often start a partnership career with a non-marital cohabitation. It is essential to note that such behavior gained momentum among more highly educated women *before Perestroika*. By contrast, the effect of educational attainment on first union formation in Bulgaria confirmed the concept of *accumulation of skills and credentials* (Thornton et al. 1995), according to which less educated individuals will tend to substitute cohabitation for marriage, while those with longer accumulation of schooling will be more likely to marry. Similar findings were reported for Hungary (Speder 2005), while no effect of educational attainment on the type of first union was found in the Czech Republic (Kantorova 2004).

7.2.2   Effect of family background on first union formation

Introducing family background characteristics to the analysis allowed us to evaluate the effect of social milieu and early-childhood socialization on the

development of personal union formation behavior and emergence of cohabitation in Bulgaria and Russia. We found considerable period development in the transition to first marriage vs. first non-marital cohabitation due to the different socio-economic background of the respondents. We also observed substantial differences in the trends of the effect of the parental family characteristics, and, in particular, the mother's level of education, on first union formation between the two countries. As Bracher and Santow (1998, p.16) summarize it, social background is a "characteristic that is deeply context-specific."

We examined the effect of characteristics such as size of the parental family (number of siblings), parents' levels of education, whether the respondent grew up with both biological parents, as well as the type of settlement in childhood.[25] We found that, in both countries, a disadvantageous social background, such as growing up with only one of the biological parents (or neither of them), being in a large family, or having had less-educated parents (mother), are associated with a higher likelihood of entry into cohabitation as a first union. Similar results were reported for other former Socialist countries (Speder 2005, Kulik 2005, Koytcheva 2006).

The relationship between parents' education and the type of first union reveals different period developments in the two countries studied. In Bulgaria in the 1970s and 1980s (when cohabitation was officially a non-existent, 'deviant' form of family living (see Section 3.5.2)), it was mainly practised by women with less-educated mothers. Substantial change in the profile of women who started their partnership careers in non-marital cohabitation was observed in the late 1980s. A reversal of the effect of the mother's higher education on the rates of entry into consensual union suggested that, in the 1990s, cohabitation developed into a more accepted union among a larger segment of the population.

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[25] In the Russian GGS, the question on the type of the settlement was addressed to the time of birth

In Russia, the interaction between parents' education and first union formation was not so indicative of the development of non-marital cohabitation. Nonetheless, in the years of economic stabilization (1999-2004), having less-educated parents resulted in higher rates of entry into union (both marital and non-marital). These results suggest that, in the period of more established market economy arrangements, women who came from the lower socio-economic strata in Russia tended to start their first co-residential partnerships earlier. Furthermore, our results also support the idea that, together with love and affection, the avoidance of undesirable socio-economic milieu is a potential motive for early family formation in Russia (Rotkirsh 2000).

7.2.3   Effect of pregnancy-and-motherhood status on first union formation

Many studies on union formation across Europe and the United States confirm the inflating effect of anticipated parenthood on union formation. The effect of parenthood is greatly significant for the rates at which single people marry directly (Haskey and Kiernan 1989, Leridon and Villeneuve-Gokalp 1989, Bracher and Santow 1998, Kantorova 2004, Kulik 2005, Mynarska 2005, Koytcheva 2006, Muresan 2007). It also raises the rates at which single people move in together without marriage (Brien et al. 1999, Kravdal 1997), particularly from the mid-1980s onwards, and in societies in which cohabitation has advanced in its development.

For Bulgaria and Russia, we studied the effect of pregnancy-and-motherhood status to evaluate the prevalence of the traditional marital family during the 1970-2004 period, as well as to examine the development of cohabitation through the stages of cohabitational typology (Hoem and Hoem 1988, Prinz 1995). In both countries, we observe substantially higher rates of entry into marriage during the time of pregnancy (compared to non-pregnant

women without children). However, the strength of the effect and its development differ in the two countries.

In Bulgaria, the occurrence of pregnancy elevated the rates of entry into direct marriage by 25 times. Rates were very high (and increasing) in the period before 1989, followed by a moderate decrease thereafter. However, the 'motivation' effect of anticipated motherhood on the rates of entry into non-marital union became stronger over time. It increased more than twice in the period 1998-2004 compared to the initial stage (1969-1989). Therefore, this finding supports the suggestion that cohabitation in Bulgaria underwent a rapid development towards the third stage, in which it is a socially accepted arrangement for bringing up children. However, we also detected a relative increase in the conversion rates (of cohabitation into marriage) among pregnant women throughout the period of observation. This increase reveals that, for many of the cohabiting couples, cohabitation was seen as a prelude to marriage.

As in Bulgaria, the norm that a couple transforms their relationship into marriage when expecting a child is still common in Russia. Overall, the rates of entry into marriage for pregnant women were nine times higher than those of non-pregnant women without children. Nevertheless, unlike in Bulgaria, the effect of anticipated motherhood on first union formation did not show period development. The decrease in first marriage rates was proportional for the two categories of the *pregnancy-and-motherhood status* covariate. Similarly, a proportional increase in the rates of entry into non-marital cohabitation was estimated. In the case of Russia, we did not find evidence that the relationship between parenthood and union formation underwent substantial development throughout our period of observation. Results from the analysis of transformation of cohabitation into marriage are in line with this argument. Apparently, in Russian society marriage and childbirth (or expecting a child) are

still very closely interrelated. Therefore, while losing its ascendancy, the tradition of marriage soon after conception was still vital in the mid-2000s.

7.3   Synthesis with theoretical concepts

Over the past ten years, there has been an extensive discussion about the determining forces of the demographic transformations in Central and Eastern European countries. In our attempt to place the significant changes in the *union formation model* in Bulgaria and Russia within an effective theoretical framework, we engaged two theoretical concepts: namely, the neoclassical economic framework and the notion of ideational change.

One set of arguments for the transformation in the family formation behavior in the former Socialist countries is that the new economic mechanisms imposed by the transition to the market economy in the 1990s led women to postpone family formation to a later stage in their life trajectories. Thus, the traditional family model of early and universal marriage is weakened, giving way to a variety of other forms of family arrangements.

Our second set of arguments rests on the theories of ideational change, central to which is the notion of the Second Demographic Transition (SDT). The core of the SDT concept is the interaction between demographic shifts and value transformations, such as growing individualism, a decrease in normative control, and a shift in individual preferences. Therefore, the emergence of such value transformations would be of central importance for the changes in the institution of family and marriage. In the following, we interpret changes in the union formation behavior in Bulgaria and Russia with respect to our theoretical framework.

7.3.1   **Economics of family**

Our first objective was to investigate first union formation in Bulgaria and Russia over the last 35 years within the context of the neoclassical economic framework. The central point of this theory (Becker 1973) is that high economic independence of women reduces their gains from marriage. A high level of women's educational attainment should lead to a lower marriage rate. As cohabitation is seen both as a prelude (or alternative) to marriage, as well as an alternative to being single (Rindfuss and VandenHeuvel 1990), there are two directions of further theoretical reasoning to first union formation. On the one hand, the declining gains from marriage may encourage highly educated women to enter into non-marital cohabitation, as this arrangement offers benefits of the both states; i.e., being single and being in a marriage. On the other hand, Wu (2000) and Ermisch (2003) argue that the theory of gain-to-marriage can be extended to union formation in a broader sense. Thus, women's economic independence would lead to a lower union formation rate in general.

Neither of the suggested scenarios was supported by our findings for Bulgaria. On the contrary, we found that women who had finished university education had particularly high rates of transition to first marriage. In addition, we found that cohabitation, especially in its initial stage, was more common among women with primary or no education. Unlike in Bulgaria, our empirical results for first union formation in Russia demonstrate elevated rates of entry into first marriage among less-educated women. In addition, cohabitation was confirmed to be more common among highly educated women in Russia. Furthermore, we found a substantial increase in first union formation rates (both for marriage and non-marital cohabitation) in the years of economic stabilization (1999-2005).

In the interpretation of our results, we need to take into consideration that the contextual framework for which the neoclassical economic theory has been

developed was different from the conditions of state Socialism in Bulgaria and Russia. Both countries were characterized by high participation of women in the labor market, a widespread dual-earner family model, and a very high coverage of education systems as early as the 1960s and 1970s. Yet women's participation in the labor market was to a certain extent normative. It was an imposed behavior, rather than a self-determined decision (Kotzeva and Todorova 1994). In addition to their labor market activities, women's exclusive role as care-giver in the family was preserved. Therefore, women were facing a 'double burden' phenomenon (ibid. p.25).

In such conditions, the higher marriage rates of highly educated women in Bulgaria can be interpreted in terms of assortative mating theory (Oppenheimer 1988). Women with higher education usually have better economic prospects in life, thus they may be more attractive on the 'marriage market'. The observed substantial change in union formation behavior in Bulgaria after the change in the political and economic systems was additionally affected by the changes in the labor market and education systems, and their increased interdependence.

In Russia, in a similar institutional background, we observed a very different effect of educational attainment of first union formation. In the era of Socialism, differences in union formation behavior between women with different educational backgrounds were small and insignificant. Thus, the normative participation of women in the labor force imposed by the state did not influence the relation between education and union formation. In the period of economic restructuring and transition from a state-run to market economy, we observe steeper decreases in the marriage formation rates among women with less than a secondary education, compared to their better educated peers. This trend could be seen as a rational response to the economic uncertainty in the 1990s, since it was probably more difficult for less-educated women to adapt to the new requirements of the labor market.

7.3.2   **Theories of ideational change**

Our second objective was to review the applicability of the Second Demographic Transition as an explanatory framework for the changes in union formation behavior in Bulgaria and Russia in 1970-2004. Ideational change and public manifestation of individual autonomy is believed to be a milestone in the changes that occurred in family formation behavior in industrialized societies in the second half of the 20th century, and, in particular, after the late 1980s in the Eastern European countries (Lesthaeghe 1995). An increase in divorce rates, decline in fertility and marriage duration, postponement of entry into marriage, a spread of non-marital cohabitation, an increase in the share of non-marital births, etc., are among the manifestations of the Second Demographic Transition (Lesthaeghe and van de Kaa 1986).

Using vital statistics as a basis, most studies in the 1990s assumed that changes in fertility and family models in the countries from Central and Eastern Europe emerged after the collapse of Socialism (Richtarikova 1994, Najdenova 1997, Zhekova 2000, Kostova 2000, Sobotka 2002, Philipov 2001, 2002). Our results reveal that changes in the union formation model in Bulgaria and Russia started well before the societal transitions at the beginning of the 1990s. Similar findings have been reported for Hungary (Speder 2005). Other studies on Bulgaria and Russia using the GGS datasets have reported that "cohabitation is a long-standing and widespread practice in Russia" (Zakharov 2005, p.29), and that "rate of entry into cohabitation [in Bulgaria] increased since the early 1960s" (Hoem et al. 2007, p.1).

Therefore, we will interpret our results through the prism of three of the manifestations of the Second Demographic Transition: (1) the emergence of cohabitation as a new form of family living, (2) the prolongation of the duration

of cohabitation (before any further transition), and (3) the development of non-marital cohabitation as a partnership context for having a child.

In both Bulgaria and Russia, the emergence of cohabitation was not a unitary movement. It had already become the more common first-union form among some socio-economic groups at the beginning of the 1980s. But in Bulgaria, these were women with less than a secondary education, while in Russia, cohabitation first emerged among highly educated women. A steep increase in the rates of entry into cohabitation among the other educational groups was observed after the second half of the 1980s. Towards the end of our period of observation, there were no substantial differences in either country between the different educational groups. Thus, from the 1980s through the beginning of the 2000s, non-marital cohabitation developed from its (first) stage of being viewed as a 'deviant' behavior, into its second phase of becoming a widespread, prevalent type of first union in both Bulgaria and Russia. Also, we have found that cohabitation is becoming a more durable arrangement; its median duration before any further transformation in 1970-2004 increased by approximately two years. Furthermore, cohabitation has undergone a rapid development towards its third phase of becoming a socially accepted family form (alternative to marriage) in which couples live together and raise children without being legally married (more pronounced in Bulgaria).

We have not directly investigated the relationship between women's value orientations and the patterns of union formation due to a lack of appropriate data. The second wave of the GGS would allow us to address this issue. In the period between the two waves (2004-2007), the major institutional and economic transformations and the shift in union formation behavior would already be completed in Bulgaria and Russia.

In summary, we found that the transformation of union formation behavior in Bulgaria and Russia did *not* start *after* the breakdown of the

Socialism. The forerunners of the new family model in the two countries had different characteristics. However, we believe this was due to different institutional arrangements (such as higher social benefits for single mothers in Bulgaria, very restrictive legislation, social pressure on single mothers in Russia, etc.). Thus, cohabitation emerged as a 'deviant' or unconventional solution to particular country-specific circumstances; and, gradually, by breaking with traditional behavior, became a socially accepted union form. We argue that our analysis reflects the complexity of the value change process and its interaction with cultural background and economic uncertainty in periods of dynamic societal transformations.

7.4   Evaluation and further research directions

A central reason for studying the emergence of cohabitation in Bulgaria and Russia was to understand the *nature* of this rather recent phenomenon in the two countries, its relation to the existing marital family, and its interaction with other domains in the life-course trajectory, such as education and childbearing. Our findings shed light on first union formation process developments in the two ex-Socialist countries and suggest a number of theoretical explanations for these developments. In addition, our study has also uncovered several research problems which we must leave for future investigation.

One issue that arose was related to the substantially different trends in the effect of education on the entry into first cohabitation between the two ex-Socialist countries. Thus, in order to better understand *why* these effects differ in countries with similar socio-economic contexts, it will be useful to explore further the effect of other 'economic' factors, such as housing availability, labor force participation, and unemployment on the emergence of cohabitation in Bulgaria and Russia. The second wave of the Generations and Gender Survey will provide data for the inclusion of such factors in the analysis.

Another interesting finding in the present study which needs further investigation is the decrease in the intensity of entry into first cohabitation in Bulgaria after the year 2000. One feasible strategy for learning more about this unexpected trend in Bulgaria can be to analyze the development of LAT (living apart together) relationships over time. Again, research can benefit from the second wave of the Bulgarian GGS (2007) as data become available for the more recent calendar period. The second wave GGS also provides richer information, particularly in combination with the data from the first wave.

7.5   Conclusion

In this study we have compared first-union formation behavior in Bulgaria and Russia in a period of dramatic societal change. By applying the event-history method to the 2004 Generations and Gender Surveys data, we have presented a detailed overview of the trends before and after the start of the political and economic transformations at the beginning of the 1990s. Even though the two countries share many characteristics (in their cultural and political backgrounds, institutional settings, etc.), we have found many differences in the first-union formation model. However, despite the context-specific determining forces of the demographic transformation in Bulgaria and Russia, we observe analogous general trends (similar to the development of cohabitation described in Hoem and Hoem (1988); further denoted as cohabitation typology by Prinz (1995)).

Changes in union formation behavior in both countries started well before the collapse of Socialism. Thus, the economic and institutional transformations at the beginning of the 1990s acted as accelerators of an ongoing process. Within a short period of time, cohabitation underwent substantial development from an 'unconventional union type' at the beginning of the 1980s to become a well-established form of family living at the beginning of the 2000s. It now approaches

its third phase, in which non-marital cohabitation becomes a socially accepted family environment for raising children.

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Appendix A

(to Chapters 2 and 4)
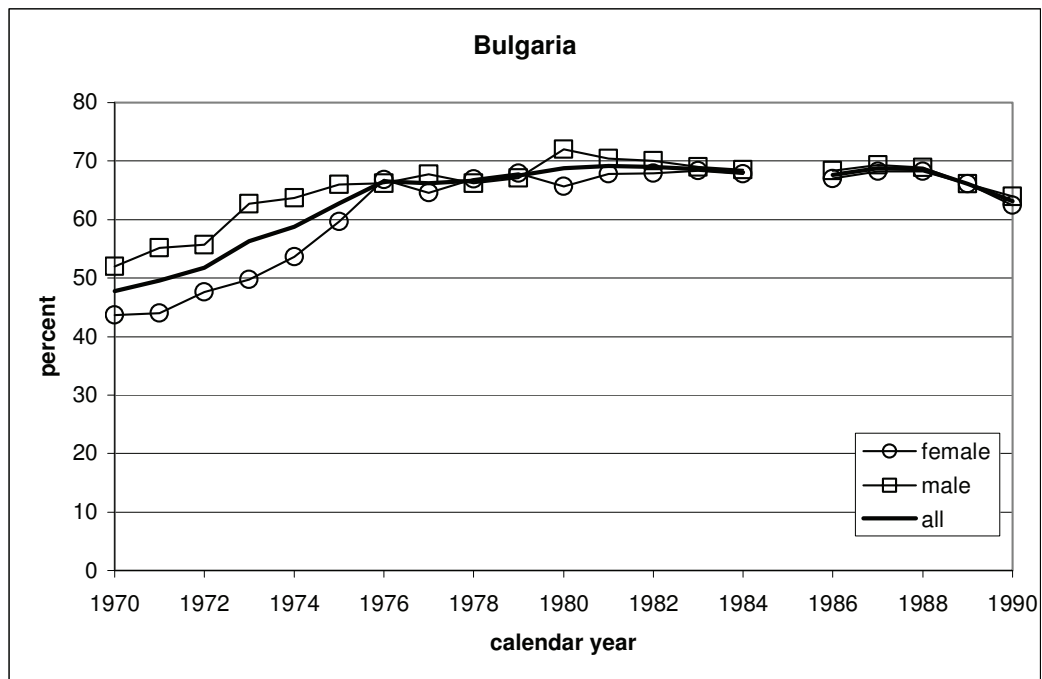
Bulgaria

Figure A1 Economically active population in Bulgaria, 1970-1990

Source: Contextual database 2006

Note: Data for 1985 come from a different data source (Census data) and are not presented here.

Table A1 Entry into first union, Bulgarian women. Case elimination.

Original sample size	**12886**
Exclusions:	
men	**5862**
non-Bulgarian ethnic groups	**1157**
(ethnic Turks, ethnic Roma, others)	
women born before 1955	**1902**
first union before age 14	**13**
Missing items:	
year of first union formation	**10**
birth date of respondent's child	**1**
Final sample size	**3941**

Table A2 Basic characteristics of the sample for entry into first union, Bulgarian women born 1955-1986

Characteristics	Total		First cohabitation		First direct marriage	
	Number	%	Number	%	Number	%
Age at first union formation						
14-19			328	32.8	556	29.6
20-24			479	48.0	1068	56.7
25-29			161	16.1	217	11.5
30-34			31	3.1	42	2.2
Calendar time at first union formation						
1969-1979			76	7.6	245	13.0
1980-1984			131	13.1	415	22.0
1985-1989			163	16.3	452	24.0
1990-1994			206	20.6	400	21.3
1995-1999			235	23.5	264	14.0
2000-2004			188	18.9	107	5.7
Level of education (t.v.)						
Still in education			380	38.0	620	32.9
Lower than secondary			111	11.1	93	5.0
Secondary school			414	41.5	978	51.9
University and higher			94	9.4	192	10.2
Lived with both parents throughout childhood						
Yes	3618	91.8	899	90.0	1778	94.4
No	323	8.2	100	10.0	105	5.6
Mother's highest level of education						
Low	631	16.0	341	34.1	762	40.5
Middle	1973	50.1	457	45.8	891	47.3
High	1230	31.2	160	16.0	187	9.9
Does not know	107	2.7	41	4.1	43	2.3
Father's highest level of education						
Low	522	13.3	347	34.7	707	37.5
Middle	1891	48.0	423	42.4	876	46.5
High	1195	30.3	134	13.4	182	9.7
Does not know	333	8.4	95	9.5	118	6.3
Number of siblings						
0	577	14.6	127	12.7	270	14.3
1	2516	63.9	607	60.8	1216	64.6
2	453	11.5	148	14.8	216	11.5
3+	395	10.0	117	11.7	181	9.6
Type of settlement during childhood						
City	2819	71.5	672	67.3	1268	67.3
Village	1076	27.3	313	31.3	598	31.8
Abroad	15	0.4	6	0.6	4	0.2
Unknown	31	0.8	8	0.8	13	0.7
Pregnancy-and-parenthood status (t.v.)						
Childless, not pregnant			942	94.3	1581	83.9
Childless, pregnant			35	3.5	267	14.2
Mother			22	2.2	35	1.9

Table A3 Basic characteristics of the sample for entry into first marriage after cohabitation, Bulgarian women born 1955-1986

Characteristics	Total		First marriage preceded by cohabitation	
	Number	%	Number	%
Months since entry into cohabitation				
1-6			203	28.7
7-12			238	33.6
13-24			163	23.0
25-36			63	8.9
37-48			29	4.1
49-60			12	1.7
Calendar time at first union formation				
1970-1979			45	6.4
1980-1984			108	15.2
1985-1989			135	19.1
1990-1994			155	21.9
1995-1999			139	19.6
2000-2004			126	17.8
Level of education (t.v.)				
Still in education			189	26.7
Lower than secondary			68	9.6
Secondary school			353	49.9
University and higher			98	13.8
Lived with both parents throughout childhood				
Yes	898	89.9	639	90.3
No	101	10.1	69	9.7
Mother's highest level of education				
Low	341	34.1	252	35.6
Middle	457	45.8	317	44.8
High	160	16.0	109	15.4
Does not know	41	4.1	30	4.2
Father's highest level of education				
Low	347	34.7	263	37.2
Middle	423	42.4	292	41.2
High	134	13.4	92	13.0
Does not know	95	9.5	61	8.6
Number of siblings				
0	128	12.8	94	13.3
1	606	60.7	437	61.7
2	148	14.8	100	14.1
3+	117	11.7	77	10.9
Type of settlement during childhood				
City	672	67.3	462	65.3
Village	313	31.3	234	33.0
Abroad/Unknown	14	1.4	12	1.7
Pregnancy-and-parenthood status (t.v.)				
Childless, not pregnant			414	58.5
Childless, pregnant			226	31.9
Mother			68	9.6

Table A4 Entry into first union, Russian women. Case elimination.

Original sample size	**11261**
Exclusions:	
men	**4223**
non-Russian nationality groups	**539**
(Tatars, Komi, Kabardin, others)	
women born before 1955	**3247**
first union before age 14	**6**
marriage preceding first union formation by more than one year	**12**
Missing items:	
year of first union formation	**9**
birth date of respondent's child	**-**
Final sample size	**3225**

Table A5 Basic characteristics of the sample for entry into first union, Russian women born 1955-1986

Characteristics	Total		First cohabitation		First direct marriage	
	Number	%	Number	%	Number	%
Age at first union formation						
14-19			389	37.1	418	25.6
20-24			483	46.0	1023	62.6
25-29			131	12.5	166	10.2
30-34			46	4.4	28	1.7
Calendar time at first union formation						
1969-1979			99	9.4	354	21.5
1980-1984			113	10.8	396	24.2
1985-1989			191	18.2	349	21.3
1990-1994			213	20.3	256	15.7
1995-1999			222	21.2	177	10.8
2000-2004			211	20.1	106	6.5
Level of education (t.v.)						
Still in education			341	32.5	394	24.1
Lower than secondary			142	13.5	151	9.2
Secondary school			488	46.5	968	59.2
University and higher			78	7.5	122	7.5
Lived with both parents throughout childhood						
Yes	2564	79.5	782	74.5	1353	82.8
No	661	20.5	267	25.5	282	17.2
Mother's highest level of education						
Low	1206	37.4	354	33.7	743	45.4
Middle	1358	42.1	470	44.8	599	36.6
High	425	13.2	135	12.9	176	10.8
Does not know	236	7.3	70	8.6	117	7.2
Father's highest level of education						
Low	1198	37.1	350	33.4	732	44.8
Middle	921	28.6	309	29.5	400	24.5
High	369	11.4	111	10.6	1519	9.7
Does not know	737	22.9	279	26.6	344	21.0
Number of siblings						
0	530	16.4	167	15.9	246	15.0
1	1512	46.9	471	44.9	754	46.1
2	624	19.4	217	20.7	330	20.2
3+	559	17.3	194	18.5	305	18.7
Type of settlement at birth						
City	1945	60.3	668	63.7	916	56.0
Village	1045	32.4	289	27.5	634	38.8
Unknown	235	7.3	92	8.8	85	5.2
Pregnancy-and-parenthood status (t.v.)						
Childless, not pregnant			955	91.0	1385	84.7
Childless, pregnant			46	4.4	205	12.5
Mother			48	4.6	45	2.8

Table A6 Basic characteristics of the sample for entry into first marriage after cohabitation, Russian women born in 1955-1986

Characteristics	Total		First marriage preceded by cohabitation	
	Number	%	Number	%
Months since entry into cohabitation				
1-6			2	0.8
7-12			2	0.8
13-24			16	6.5
25-36			58	23.6
37-48			87	35.4
49-60			81	32.9
Calendar time at first union formation				
1970-1979			12	4.9
1980-1984			36	14.6
1985-1989			40	16.3
1990-1994			65	26.4
1995-1999			49	19.9
2000-2004			44	17.9
Level of education (t.v.)				
Still in education			39	15.8
Lower than secondary			54	22.0
Secondary school			144	58.5
University and higher			9	3.7
Lived with both parents throughout childhood				
Yes	782	74.5	67	27.2
No	267	25.5	179	72.8
Mother's highest level of education				
Low	354	33.7	83	33.7
Middle	470	44.8	118	48.0
High	135	12.9	21	8.5
Does not know	70	8.6	24	9.8
Father's highest level of education				
Low	350	33.4	82	33.3
Middle	309	29.5	72	29.3
High	111	10.6	23	9.3
Does not know	279	26.6	69	28.1
Number of siblings				
0	167	15.9	33	13.4
1	471	44.9	99	40.2
2	217	20.7	69	28.1
3+	194	18.5	45	18.3
Type of settlement at birth				
City	668	63.7	154	62.6
Village	289	27.5	76	30.9
Unknown	92	8.8	16	6.5
Pregnancy-and-parenthood status (t.v.)				
Childless, not pregnant			55	22.4
Childless, pregnant			6	2.4
Mother			185	75.2

Appendix B

(to Chapter 5)

Table B1 First union formation, Bulgarian women born 1955-1986. Sample statistics: Person months (exposures) and first unions (cohabitation or direct marriage)

Variable	Exposures	Occurrences	
		Cohabitation	Direct marriage
Residence			
City	284471	672	1268
Village	92854	313	598
Abroad/Unknown	4599	14	17
Parents together			
No	27731	100	105
Yes	354193	899	1778
Mother's education			
Low	104561	341	762
Middle	197128	457	891
High	71357	160	187
Don't know	8878	41	43
Father's education			
Low	102315	347	707
Middle	187601	423	876
High	62243	134	182
Don't know	29765	95	118
Siblings			
0 or 1	306525	734	1486
2 or more	75399	265	397
Level of education			
In education	260130	380	620
Low	13873	111	93
Middle	83862	414	978
High	24059	94	192
Parity			
Childless, not pregnant	371542	942	1581
Childless pregnant	1634	35	267
Mother	8748	22	35
Calendar year			
1969-1979	54918	76	245
1980-1989	126494	294	867
1990-1999	139131	441	664
2000-2004	61381	188	107
TOTAL	381924	999	1883

Table B2 Stepwise model for entry into first cohabitation, Bulgarian women born 1955-1986

	Model 1		Model 2		Model 3		Model 4	
	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	-8.5338	(0.000)	-8.7465	(0.000)	-8.7913	(0.000)	-6.4594	(0.000)
Age (baseline)								
14 years (slope)	0.0608	(0.269)	0.0604	(0.276)	0.0588	(0.283)	0.0522	(0.351)
15 years (slope)	0.0994	(0.001)	0.0985	(0.001)	0.0982	(0.002)	0.0946	(0.003)
16 years (slope)	-0.0198	(0.397)	-0.0204	(0.385)	-0.0201	(0.401)	-0.0190	(0.423)
17 years (slope)	0.0883	(0.000)	0.0892	(0.000)	0.0887	(0.000)	0.0768	(0.000)
18 years (slope)	0.0258	(0.091)	0.0251	(0.101)	0.0261	(0.090)	0.0154	(0.319)
19 years (slope)	0.0167	(0.253)	0.0156	(0.287)	0.0165	(0.271)	0.0160	(0.276)
20 years (slope)	-0.0294	(0.075)	-0.0300	(0.071)	-0.0299	(0.074)	-0.0286	(0.086)
21 years (slope)	0.0210	(0.211)	0.0202	(0.230)	0.0193	(0.249)	0.0197	(0.243)
22-23 years (slope)	0.0019	(0.822)	0.0010	(0.907)	0.0006	(0.907)	-0.0022	(0.794)
24-25 years (slope)	0.0010	(0.904)	0.0010	(0.908)	0.0008	(0.913)	-0.0009	(0.912)
26-29 years (slope)	-0.0119	(0.047)	-0.0115	(0.057)	-0.0131	(0.030)	-0.0123	(0.042)
30-34 years (slope)	0.0212	(0.100)	-0.0225	(0.082)	-0.0235	(0.069)	-0.0226	(0.088)
Calendar year								
1969-1984 (slope)			0.0009	(0.667)	0.0016	(0.432)	0.0010	(0.606)
1985-1989 (slope)			0.0015	(0.583)	0.0027	(0.716)	0.0029	(0.284)
1990-1993 (slope)			0.0015	(0.661)	0.0034	(0.320)	0.0031	(0.366)
1994-1997 (slope)			0.0003	(0.034)	0.0009	(0.786)	0.0006	(0.846)
1998-2001 (slope)			0.0042	(0.208)	0.0049	(0.142)	0.0041	(0.244)
2002-2004 (slope)			-0.0167	(0.000)	-0.0235	(0.000)	-0.0153	(0.001)

	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Place of residence								
City (Ref.)					1		1	
Village					1.23	(0.005)	1.17	(0.028)
Number of siblings								
0 or 1 (Ref.)					1		1	
2+					1.32	(0.000)	1.21	(0.008)
Mother's education								
Low					1.25	(0.032)	1.14	(0.200)
Middle (Ref.)					1		1	
High					0.98	(0.842)	1.07	(0.559)
Don't know					1.77	(0.000)	1.63	(0.004)
Father's education								
Low					1.36	(0.002)	1.23	(0.041)
Middle (Ref.)					1		1	
High					0.94	(0.842)	1.00	(0.987)
Don't know					0.83	(0.237)	0.82	(0.220)
Lived with both parents								
Yes (Ref.)					1		1	
No					1.64	(0.000)	1.59	(0.001)

Table B2 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Level of education (t.v.)								
In education							0.57	(0.000)
Low							1.68	(0.000)
Middle (Ref.)							1	
High							0.89	(0.740)
Pregnancy-and-parity status (t.v.)								
Childless, non pregnant (Ref.)							1	
Childless, pregnant							5.23	(0.000)
Mother							0.56	(0.000)
ln-L	-6772.46		-6762.20		-6696.92		-6612.80	

Table B3 Stepwise model for direct entry into first marriage, Bulgarian women born 1955-1986

	Model 1		Model 2		Model 3		Model 4	
	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	-9.2952	(0.000)	-8.8768	(0.000)	-8.8033	(0.000)	-4.6493	(0.000)
Age (baseline)								
14 years (slope)	0.0150	(0.862)	0.0163	(0.851)	0.0168	(0.848)	0.0153	(0.861)
15 years (slope)	0.1997	(0.000)	0.2034	(0.000)	0.2027	(0.000)	0.1962	(0.000)
16 years (slope)	0.0070	(0.768)	0.0106	(0.654)	0.0104	(0.661)	0.0139	(0.562)
17 years (slope)	0.1207	(0.000)	0.1251	(0.000)	0.1251	(0.000)	0.0951	(0.000)
18 years (slope)	0.0432	(0.001)	0.0467	(0.000)	0.0472	(0.000)	0.0247	(0.023)
19 years (slope)	0.0168	(0.086)	0.0207	(0.034)	0.0216	(0.028)	0.0242	(0.012)
20 years (slope)	-0.0093	(0.369)	-0.0042	(0.683)	-0.0038	(0.715)	-0.0081	(0.420)
21 years (slope)	0.0000	(0.997)	0.0041	(0.692)	0.0044	(0.677)	0.0057	(0.577)
22-23 years (slope)	-0.0028	(0.614)	0.0013	(0.825)	0.0010	(0.854)	-0.0092	(0.089)
24-25 years (slope)	-0.0200	(0.002)	-0.0158	(0.016)	-0.0163	(0.013)	-0.0131	(0.050)
26-29 years (slope)	-0.0111	(0.028)	-0.0099	(0.052)	-0.0103	(0.041)	-0.0122	(0.016)
30-34 years (slope)	-0.0238	(0.050)	-0.0203	(0.095)	-0.0209	(0.085)	-0.0211	(0.075)
Calendar year								
1969-1984 (slope)			-0.0018	(0.107)	0.0014	(0.233)	-0.0023	(0.048)
1985-1989 (slope)			0.0003	(0.852)	0.0013	(0.409)	0.0010	(0.514)
1990-1993 (slope)			-0.0068	(0.003)	-0.0058	(0.013)	-0.0066	(0.005)
1994-1997 (slope)			-0.0124	(0.000)	-0.0118	(0.000)	-0.0095	(0.001)
1998-2001 (slope)			-0.0062	(0.084)	-0.0059	(0.101)	-0.0083	(0.026)
2002-2004 (slope)			-0.0223	(0.000)	-0.0221	(0.000)	-0.0166	(0.005)
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Place of residence								
City (Ref.)					1		1	
Village					1.16	(0.003)	1.11	(0.030)
Number of siblings								
0 or 1 (Ref.)					1		1	
2+					0.99	(0.904)	0.91	(0.075)
Mother's education								
Low					1.25	(0.001)	1.20	(0.005)
Middle (Ref.)					1		1	
High					0.69	(0.000)	0.85	(0.096)
Don't know					1.03	(0.832)	1.25	(0.151)
Father's education								
Low					0.99	(0.873)	0.91	(0.135)
Middle (Ref.)					1		1	
High					0.71	(0.000)	0.78	(0.010)
Don't know					0.84	(0.196)	0.71	(0.006)
Lived with both parents								
Yes (Ref.)					1		1	
No					0.78	(0.055)	0.78	(0.051)

Table B3 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Level of education (t.v.)								
In education							0.49	(0.000)
Low							0.95	(0.459)
Middle (Ref.)							1	
High							1.44	(0.000)
Pregnancy-and-parity status (t.v.)								
Childless, non pregnant (Ref.)							1	
Childless, pregnant							25.74	(0.000)
Mother							0.83	(0.156)
ln-L	-11290.95		-11026.98		-10953.44		-9936.27	

Table B4 Relative risk of first union formation. Effect of education and calendar period, Bulgarian women born 1955-1986. Separate models by type of union.

	Cohabitation			Direct marriage		
Levels of education	1969-89	1990-97	1998-2004	1969-89	1990-97	1998-2004
Still in education	0.56 *(0.000)*	0.78 *(0.060)*	0.77 *(0.061)*	0.49 *(0.000)*	0.35 *(0.000)*	0.14 *(0.000)*
Low (lower than secondary)	1.85 *(0.000)*	2.17 *(0.000)*	1.93 *(0.000)*	1.04 *(0.653)*	0.51 *(0.000)*	0.23 *(0.000)*
Secondary school	**1**	1.26 *(0.057)*	1.38 *(0.011)*	**1**	0.73 *(0.000)*	0.28 *(0.000)*
University and higher	0.61 *(0.119)*	1.31 *(0.199)*	1.45 *(0.077)*	1.18 *(0.214)*	0.95 *(0.715)*	0.61 *(0.001)*

Notes: (1) Reference category for each of the two models is secondary (middle) education and period before 1989; (2) p-values in brackets

Table B5 Relative risk of first union formation. Effect of mother's and father's levels of education, Bulgarian women born 1955-1986. Separate models by type of union.

Father's education	Low	Secondary	University	Don't know
Mother's education	Cohabitation			
Low (lower than secondary)	1.34 *(0.001)*	0.99 *(0.994)*	1.03 *(0.969)*	0.69 *(0.000)*
Secondary school	1.34 *(0.045)*	**1**	0.87 *(0.446)*	0.91 *(0.872)*
University and higher	-	0.99 *(0.978)*	1.13 *(0.341)*	3.85 *(0.005)*
Don't know/no answer	1.35 *(0.387)*	1.30 *(0.754)*	n.a.	1.17 *(0.657)*
	Direct marriage			
Low (lower than secondary)	1.09 *(0.181)*	1.20 *(0.033)*	0.96 *(0.987)*	0.35 *(0.008)*
Secondary school	0.92 *(0.439)*	**1**	0.75 *(0.020)*	1.79 *(0.034)*
University and higher	1.02 *(0.963)*	0.87 *(0.303)*	0.69 *(0.001)*	2.04 *(0.585)*
Don't know/no answer	0.93 *(0.859)*	2.43 *(0.285)*	n.a.	1.06 *(0.735)*

Notes: (1) Reference category for each of the two models is both parents with middle education; (2) p-values in brackets; (3) 'n.a.' means no exposures in that category

Table B6 Relative risk of first union formation. Effect of mother's level of education and calendar period, Bulgarian women born 1955-1986. Separate models by type of union.

	Cohabitation			Direct marriage		
Mother's education	1969-89	1990-97	1998-2004	1969-89	1990-97	1998-2004
Low (lower than secondary)	1.11 *(0.434)*	1.20 *(0.224)*	1.37 *(0.057)*	1.31 *(0.000)*	0.83 *(0.046)*	0.48 *(0.000)*
Secondary school	**1**	1.31 *(0.018)*	1.26 *(0.056)*	**1**	0.75 *(0.000)*	0.31 *(0.000)*
University and higher	0.88 *(0.540)*	1.31 *(0.123)*	1.48 *(0.014)*	0.94 *(0.675)*	0.56 *(0.000)*	0.24 *(0.000)*
Don't know/no answer	0.78 *(0.509)*	2.06 *(0.094)*	2.02 *(0.158)*	1.63 *(0.011)*	0.75 *(0.564)*	0.53 *(0.065)*

Notes: (1) Reference category for each of the two models is secondary (middle) education and period before 1989; (2) p-values in brackets

Table B7 Relative risk of first union formation. Effect of father's level of education and calendar period, Bulgarian women born 1955-1986. Separate models by type of union.

	Cohabitation			Direct marriage		
Father's education	1969-89	1990-97	1998-2004	1969-89	1990-97	1998-2004
Low (lower than secondary)	1.43 *(0.004)*	1.69 *(0.000)*	1.67 *(0.002)*	1.01 *(0.891)*	0.63 *(0.000)*	0.33 *(0.000)*
Secondary school	**1**	1.50 *(0.000)*	1.62 *(0.000)*	**1**	0.77 *(0.000)*	0.32 *(0.000)*
University and higher	0.99 *(0.943)*	1.40 *(0.077)*	1.77 *(0.001)*	0.80 *(0.077)*	0.59 *(0.000)*	0.33 *(0.000)*
Don't know/no answer	0.70 *(0.398)*	1.93 *(0.095)*	1.10 *(0.890)*	0.79 *(0.164)*	0.82 *(0.583)*	0.38 *(0.122)*

Notes: (1) Reference category for each of the two models is secondary (middle) education and period before 1989; (2) p-values in brackets

Table B8 Relative risk of first union formation. Effect of living with both biological parents in childhood and calendar period, Bulgarian women born 1955-1986. Separate models by type of union.

	Cohabitation			Direct marriage		
Lived with both biological parents in childhood	1969-89	1990-97	1998-2004	1969-89	1990-97	1998-2004
Yes	**1**	1.32 *(0.000)*	1.46 *(0.000)*	**1**	0.69 *(0.000)*	0.32 *(0.000)*
No	1.90 *(0.003)*	2.57 *(0.000)*	1.60 *(0.028)*	0.89 *(0.071)*	0.77 *(0.052)*	0.18 *(0.000)*

Notes: (1) Reference category for each of the two models is 'respondent lived with both biological parents' and period before 1989; (2) p-values in brackets

Table B9 Relative risk of first union formation. Effect of number of siblings and calendar period, Bulgarian women born 1955-1986. Separate models by type of union.

	Cohabitation			Direct marriage		
Number of siblings	1969-89	1990-97	1998-2004	1969-89	1990-97	1998-2004
0 or 1	**1**	1.29 *(0.006)*	1.38 *(0.001)*	**1**	0.67 *(0.000)*	0.29 *(0.000)*
2 or more	1.17 *(0.148)*	1.70 *(0.000)*	1.59 *(0.000)*	0.89 *(0.055)*	0.62 *(0.000)*	0.29 *(0.000)*

Notes: (1) Reference category for each of the two models is 'having no siblings or one sibling' and period before 1989; (2) p-values in brackets

Table B10 Relative risk of first union formation. Effect of parity-and-pregnancy status and calendar period, Bulgarian women born 1955-1986. Separate models by type of union.

Parity-and-pregnancy status	Cohabitation			Direct marriage		
	1969-89	1990-97	1998-2004	1969-89	1990-97	1998-2004
Childless, not pregnant	**1**	1.35 *(0.000)*	1.35 *(0.000)*	**1**	0.65 *(0.000)*	0.24 *(0.000)*
Childless, pregnant	4.96 *(0.000)*	5.20 *(0.000)*	10.01 *(0.000)*	19.18 *(0.000)*	20.48 *(0.000)*	13.13 *(0.000)*
Mother	0.66 *(0.331)*	0.75 *(0.336)*	0.71 *(0.358)*	0.94 *(0.718)*	0.33 *(0.000)*	0.32 *(0.000)*

Notes: (1) Reference category for each of the two models is 'childless, not pregnant' and period before 1989; (2) p-values in brackets

Table B11 Joint model of entry into cohabitation vs. direct marriage as competing risks, Bulgarian women born 1955-1986

	Cohabitation	Marriage
Age (baseline)		
14-19	*2.74*	*2.49*
20-24	*3.48*	*3.93*
25-29	*2.54*	*2.07*
30-34	*1.06*	*1.00*
Calendar year (t.v.)		
1969-1979	0.44	0.88
1980-1984 (Ref.)	0.67	**1**
1985-1989	0.72	0.92
1990-1997	0.94	0.67
1998-2004	1.03	0.30
Place of residence		
City (Ref.)	0.44	**1**
Village	0.54	1.13
Number of siblings		
0 or 1 (Ref.)	0.94	**1**
2+	1.09	0.90
Mother's education		
Lower than secondary school	1.08	1.19
Secondary school (Ref.)	0.98	**1**
University and higher	1.08	0.82
Don't know	1.42	1.29
Father's education		
Lower than secondary school	1.03	0.89
Secondary school (Ref.)	0.85	**1**
University and higher	0.88	0.80
Don't know	0.76	0.73
Lived with both parents		
Yes (Ref.)	0.98	**1**
No	1.36	0.92
Level of education (t.v.)		
In education	0.40	0.33
Lower than secondary school	1.20	0.76
Secondary school (Ref.)	0.90	**1**
University and higher	0.82	1.11
Pregnancy-and-parity status (t.v.)		
Childless, non pregnant (Ref.)	1.10	**1**
Childless, pregnant	6.61	20.83
Mother	0.58	0.49

Note: Rates relative to that of entry into marriage for the reference category for each covariate.

Table B12 Effect of education and calendar period. Joint model of transition to cohabitation vs. direct marriage, Bulgarian women born 1955-1986

	1969-79	1980-84	1985-89	1990-97	1998-2004
Direct marriage					
In education	0.26	0.37	0.32	0.25	0.09
Lower than secondary school	0.77	0.68	0.66	0.37	0.20
Secondary school	0.96	**1**	0.96	0.67	0.27
University and higher	0.84	1.03	0.90	0.80	0.51
Cohabitation					
In education	0.20	0.31	0.23	0.39	0.41
Lower than secondary school	0.60	0.72	0.95	1.15	1.11
Secondary school	0.35	0.62	0.77	0.84	0.95
University and higher	0.26	0.22	0.62	0.86	0.97

Note: Rates relative to that of entry into marriage by women with completed secondary school in 1980-84.

Table B13 Effect of parity-and pregnancy status and calendar period. Joint model of transition to cohabitation vs. direct marriage, Bulgarian women born 1955-1986

	1969-79	1980-84	1985-89	1990-97	1998-2004
Direct marriage					
Childless, not pregnant	0.89	**1**	0.86	0.56	0.22
Childless, pregnant	9.75	13.59	17.84	16.93	12.02
Mother	0.27	0.72	0.38	0.30	0.20
Cohabitation					
Childless, not pregnant	0.48	0.70	0.74	0.98	1.05
Childless, pregnant	1.18	4.43	4.95	5.54	8.28
Mother	0.11	0.15	0.54	0.67	0.59

Note: Rates relative to that of entry into marriage by non-pregnant nullipara in 1980-84

Table B14 Stepwise model for conversion of cohabitation into marriage, Bulgarian women born 1955-1986

	Model 1		Model 2		Model 3		Model 4	
	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	-2.2744	(0.000)	-2.0164	(0.000)	-2.0382	(0.000)	--1.8190	(0.000)
Duration (baseline) (months since entry into cohabitation)								
1-6 (slope)	0.0716	(0.000)	0.0988	(0.000)	0.1057	(0.000)	0.0862	(0.000)
7-12 (slope)	-0.2350	(0.000)	-0.2243	(0.000)	-0.2222	(0.000)	-0.1888	(0.000)
13-18 (slope)	-0.0346	(0.322)	-0.0277	(0.427)	-0.0282	(0.418)	-0.0207	(0.363)
19-24 (slope)	-0.0595	(0.113)	-0.0541	(0.151)	-0.0546	(0.147)	-0.0445	(0.318)
25-48 (slope)	-0.0469	(0.000)	-0.0433	(0.000)	-0.0422	(0.000)	-0.0378	(0.004)
49-60 (slope)	-0.0050	(0.908)	-0.0066	(0.897)	-0.0060	(0.890)	-0.0094	(0.831)
Calendar year								
1970-1984 (slope)			-0.0003	(0.784)	-0.0006	(0.626)	-0.0017	(0.144)
1985-1989 (slope)			0.0014	(0.529)	0.0013	(0.559)	0.0001	(0.958)
1990-1993 (slope)			-0.0082	(0.001)	-0.0077	(0.003)	-0.0073	(0.005)
1994-1997 (slope)			-0.0053	(0.059)	-0.0056	(0.050)	-0.0050	(0.091)
1998-2001 (slope)			-0.0097	(0.003)	-0.0097	(0.002)	-0.0110	(0.001)
2002-2004 (slope)			0.0006	(0.899)	-0.0001	(0.984)	0.0002	(0.963)
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Place of residence								
City (Ref.)					1		1	
Village					1.06	(0.249)	1.09	(0.372)
Number of siblings								
0 or 1 (Ref.)					1		1	
2+					0.75	(0.000)	0.86	(0.084)
Mother's education								
Low					0.97	(0.107)	0.81	(0.116)
Middle (Ref.)					1		1	
High					0.84	(0.839)	0.95	(0.748)
Don't know					1.15	(0.523)	1.15	(0.531)
Father's education								
Low					0.93	(0.455)	1.10	(0.457)
Middle (Ref.)					1		1	
High					0.82	(0.299)	0.93	(0.657)
Don't know					0.87	(0.328)	0.79	(0.349)
Lived with both parents								
Yes (Ref.)					1		1	
No					1.04	(0.827)	1.04	(0.845)

Table B14 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Level of education (t.v.)								
In education							0.76	(0.005)
Low							0.48	(0.000)
Middle (Ref.)							1	
High							1.20	(0.171)
Pregnancy-and-parity status (t.v.)								
Childless, non pregnant (Ref.)								
Childless, pregnant							1	
Mother							3.07	(0.000)
							0.67	(0.005)
ln-L	-5376.22		-5262.30		-5238.94		-5080.92	

Table B15 Relative risk of conversion of cohabitation into marriage. Effect of education and calendar period, Bulgarian women born 1955-1986

	Marriage after cohabitation		
Levels of education	1970-89	1990-97	1998-2004
Still in education	1.12 *(0.098)*	1.00 *(0.989)*	0.56 *(0.000)*
Low (lower than secondary)	0.76 *(0.000)*	0.47 *(0.000)*	0.29 *(0.000)*
Secondary school	**1**	1.02 *(0.877)*	0.74 *(0.001)*
University and higher	1.96 *(0.000)*	1.29 *(0.008)*	0.79 *(0.007)*

Notes: (1) Reference category is secondary education and period before 1989; (2) p-values in brackets

Table B16 Relative risk of conversion of cohabitation into marriage. Effect of mother's level of education and calendar period, Bulgarian women born 1955-1986

	Marriage after cohabitation		
Mother's level of education	1970-89	1990-97	1998-2004
Low (lower than secondary)	0.84 *(0.300)*	0.45 *(0.000)*	0.32 *(0.000)*
Secondary school	**1**	0.62 *(0.001)*	0.37 *(0.000)*
University and higher	0.64 *(0.153)*	0.68 *(0.073)*	0.34 *(0.000)*
Don't know/no answer	1.06 *(0.868)*	0.84 *(0.568)*	0.41 *(0.072)*

Notes: (1) Reference category is secondary education and period before 1989; (2) p-values in brackets

Table B17 Relative risk of conversion of cohabitation into marriage. Effect of father's level of education and calendar period, Bulgarian women born 1955-1986

	Marriage after cohabitation		
Father's level of education	1970-89	1990-97	1998-2004
Low (lower than secondary)	1.29 *(0.155)*	0.61 *(0.010)*	0.47 *(0.001)*
Secondary school	**1**	0.70 *(0.020)*	0.39 *(0.000)*
University and higher	0.68 *(0.155)*	0.82 *(0.383)*	0.40 *(0.000)*
Don't know/no answer	0.84 *(0.605)*	0.58 *(0.076)*	0.28 *(0.000)*

Notes: (1) Reference category is secondary education and period before 1989; (2) p-values in brackets

Table B18 Relative risk of conversion of cohabitation into marriage. Effect of living with both biological parents in childhood and calendar period, Bulgarian women born 1955-1986

Lived with both biological parents in childhood	Marriage after cohabitation		
	1970-89	1990-97	1998-2004
Yes	**1**	0.63 *(0.000)*	0.37 *(0.000)*
No	1.01 *(0.981)*	0.61 *(0.088)*	0.44 *(0.015)*

Notes: (1) Reference category is 'lived with both biological parents' and period before 1989; (2) p-values in brackets

Table B19 Relative risk of conversion of cohabitation into marriage. Effect of number of siblings and calendar period, Bulgarian women born 1955-1986

Number of siblings	Marriage after cohabitation		
	1970-89	1990-97	1998-2004
0 or 1	**1**	0.93 *(0.448)*	0.48 *(0.000)*
2 or more	1.34 *(0.111)*	0.90 *(0.639)*	1.14 *(0.611)*

Notes: (1) Reference category 'having no siblings or one sibling' and period before 1989; (2) p-values in brackets

Table B20 Relative risk of conversion of cohabitation into marriage. Effect of parity-and-pregnancy status and calendar period, Bulgarian women born 1955-1986

Parity-and-pregnancy status	Marriage after cohabitation		
	1970-89	1990-97	1998-2004
Childless, not pregnant	**1**	0.57 *(0.000)*	0.28 *(0.000)*
Childless, pregnant	1.94 *(0.000)*	1.68 *(0.000)*	1.75 *(0.000)*
Mother	0.91 *(0.658)*	0.30 *(0.000)*	0.17 *(0.000)*

Notes: (1) Reference category is 'childless, not pregnant' and period before 1989; (2) p-values in brackets

Table B21 The effect of length of pregnancy and birth of the first child (as a spline function) on the intensity of conversion of cohabitation into marriage, Bulgarian women born 1955-1986

Months since birth of first child	Spline gradient	p-value
Constant (kicks in at -9 months)	0.8588	0.000
-6 (slope)	0.1784	0.052
-3 (slope)	0.0619	0.382
0 (slope)	-0.4359	0.000
6 (slope)	-0.0906	0.186
12 (slope)	-0.0432	0.525
12+ (slope)	0.0005	0.564

Table B22 Entry into first cohabitation and subsequent conversion to marriage in a joint model, Bulgarian women born 1955-1986

	Entry into cohabitation		Conversion of cohabitation into marriage	
	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	-7.8300	*(0.000)*	-7.6319	*(0.000)*
Age (baseline)				
14 years (slope)	0.0449	(0.438)		
15 years (slope)	0.1103	(0.001)		
16 years (slope)	-0.0060	(0.811)		
17 years (slope)	0.0909	(0.000)		
18 years (slope)	0.0357	(0.035)		
19 years (slope)	0.0341	(0.031)		
20 years (slope)	-0.0145	(0.402)		
21 years (slope)	0.0261	(0.134)		
22-23 years (slope)	0.0074	(0.398)		
24-25 years (slope)	0.0041	(0.668)		
26-29 years (slope)	-0.0010	(0.891)		
30-34 years (slope)	-0.0008	(0.933)		
Duration (baseline)				
(months since entry into cohabitation)				
1-6 (slope)			1.3748	(0.000)
7-12 (slope)			-0.0454	(0.259)
13-18 (slope)			0.0001	(0.998)
19-24 (slope)			-0.0063	(0.879)
25-48 (slope)			-0.0217	(0.127)
49-60 (slope)			-0.0053	(0.906)
Calendar year				
1970-1984 (slope)	0.0008	(0.720)	-0.0042	(0.266)
1985-1989 (slope)	0.0037	(0.360)	0.0025	(0.685)
1990-1993 (slope)	0.0053	(0.202)	-0.0167	(0.011)
1994-1997 (slope)	0.0025	(0.521)	-0.0063	(0.306)
1998-2001 (slope)	0.0046	(0.229)	-0.0183	(0.004)
2002-2004 (slope)	-0.0167	(0.001)	0.0004	(0.958)
	Relative risk	p-value	Relative risk	p-value
Place of residence				
City (Ref.)	1		1	
Village	1.31	(0.015)	1.00	(0.992)
Number of siblings				
0 or 1 (Ref.)	1		1	
2+	1.41	(0.002)	0.78	(0.109)
Mother's education				
Low	1.32	(0.066)	0.71	(0.126)
Middle (Ref.)	1		1	
High	1.07	(0.694)	0.81	(0.401)
Don't know	2.49	(0.002)	0.97	(0.936)

Table B22 (continued)

	Entry into cohabitation		Conversion of cohabitation into marriage	
	Relative risk	p-value	Relative risk	p-value
Father's education				
Low	1.35	(0.048)	1.14	(0.561)
Middle (Ref.)	1		1	
High	0.98	(0.896)	0.81	(0.421)
Don't know	0.80	(0.396)	0.79	(0.571)
Lived with both parents				
Yes (Ref.)	1		1	
No	1.89	(0.000)	1.20	(0.643)
Level of education (t.v.)				
In education	0.52	(0.000)	0.67	(0.013)
Low	2.32	(0.000)	0.32	(0.000)
Middle (Ref.)	1		1	
High	0.75	(0.121)	1.31	(0.225)
Pregnancy-and-parity status (t.v.)				
Childless, non pregnant (Ref.)	1		1	
Childless, pregnant	5.79	(0.000)	4.36	(0.000)
Mother	0.72	(0.058)	0.93	(0.704)
Sigma (V_i)	1.67	(0.000)		
Sigma (U_i)			1.39	(0.000)
Correlation (ρ)		-0.30 (0.015)		

Appendix C

(to Chapter 6)

Table C1 First union formation, Russian women born 1955-1986. Sample statistics: Person months (exposures) and first unions (cohabitation or direct marriage)

Variable	Exposures	Occurrences	
		Cohabitation	Direct marriage
Residence at birth			
City	179065	668	916
Village	93725	289	634
Unknown	20767	92	85
Parents together			
No	56890	267	282
Yes	236667	782	1353
Mother's education			
Low	112901	354	743
Middle	121919	470	599
High	39261	135	176
Don't know/no answer	18510	70	117
Father's education			
Low	111762	350	732
Middle	82197	309	400
High	35151	111	159
Don't know/no answer	59860	279	344
Siblings			
0 or 1	191465	638	990
2 or more	102092	411	635
Level of education			
In education	134352	341	394
Low	16405	142	151
Middle	129233	488	968
High	13567	78	122
Parity			
Childless, non pregnant	278619	955	1385
Childless pregnant	2124	46	202
Mother	12814	48	45
Calendar year			
1969-1979	76370	99	354
1980-1989	98735	304	754
1990-1999	88551	435	433
2000-2004	29901	211	106
TOTAL	293557	1049	1635

Table C2 Stepwise model for entry into first cohabitation, Russian women born 1955-1986

	Model 1		Model 2		Model 3		Model 4	
	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	-8.7714	(0.000)	-9.8501	(0.000)	-9.7895	(0.000)	-9.7370	(0.000)
Age (baseline)								
14 years (slope)	0.0817	(0.194)	0.0765	(0.228)	0.0755	(0.224)	0.0755	(0.237)
15 years (slope)	0.0944	(0.003)	0.0902	(0.005)	0.0900	(0.005)	0.0881	(0.007)
16 years (slope)	0.0633	(0.001)	0.0602	(0.002)	0.0598	(0.002)	0.0581	(0.003)
17 years (slope)	0.0005	(0.975)	-0.0030	(0.849)	-0.0026	(0.873)	-0.0052	(0.747)
18 years (slope)	0.0475	(0.000)	0.0461	(0.001)	0.0464	(0.001)	0.0417	(0.003)
19 years (slope)	-0.0012	(0.936)	-0.0032	(0.831)	-0.0029	(0.847)	-0.0035	(0.816)
20 years (slope)	0.0051	(0.755)	0.0028	(0.865)	0.0022	(0.893)	0.0007	(0.964)
21 years (slope)	0.0054	(0.744)	0.0031	(0.851)	0.0035	(0.833)	0.0021	(0.899)
22-23 years (slope)	-0.0106	(0.268)	-0.0119	(0.212)	-0.0121	(0.207)	-0.0125	(0.194)
24-25 years (slope)	-0.0034	(0.749)	-0.0051	(0.638)	-0.0052	(0.634)	-0.0055	(0.615)
26-29 years (slope)	0.0002	(0.972)	-0.0024	(0.709)	-0.0021	(0.741)	-0.0001	(0.984)
30-34 years (slope)	-0.0108	(0.321)	-0.0131	(0.230)	-0.0149	(0.172)	-0.0145	(0.184)
Calendar year								
1969-1985 (slope)			0.0060	(0.000)	0.0062	(0.000)	0.0062	(0.000)
1986-1991 (slope)			0.0056	(0.004)	0.0057	(0.004)	0.0055	(0.006)
1992-1998 (slope)			0.0037	(0.023)	0.0038	(0.018)	0.0039	(0.017)
1998-2004 (slope)			0.0015	(0.468)	0.0021	(0.288)	0.0023	(0.261)
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Place of residence								
City (Ref.)					1		1	
Village					0.76	(0.000)	0.72	(0.001)
Number of siblings								
0 or 1 (Ref.)					1		1	
2+					1.42	(0.000)	1.34	(0.000)
Mother's education								
Low					1.14	(0.090)	1.17	(0.311)
Middle (Ref.)					1		1	
High					0.86	(0.162)	0.95	(0.840)
Don't know					1.55	(0.001)	1.53	(0.004)
Lived with both parents								
Yes (Ref.)					1		1	
No					1.38	(0.000)	1.31	(0.071)

Table C2 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Level of education (t.v.)								
In education							0.82	(0.009)
Low							1.09	(0.477)
Middle (Ref.)							1	
High							1.40	(0.000)
Pregnancy-and-parity status (t.v.)								
Childless, non pregnant (Ref.)							1	
Childless, pregnant							4.22	(0.000)
Mother							0.66	(0.066)
ln-L	-6494.81		-6386.91		-6348.12		-6298.02	

Table C3 Stepwise model for direct entry into first marriage, Russian women born 1955-1986

	Model 1		Model 2		Model 3		Model 4	
	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	-8.7714	(0.000)	-8.6581	(0.000)	-8.4715	(0.000)	-8.2832	(0.000)
Age (baseline)								
14 years (slope)	0.1042	(0.314)	0.1055	(0.308)	0.1050	(0.312)	0.1046	(0.313)
15 years (slope)	0.1132	(0.018)	0.1130	(0.018)	0.1127	(0.188)	0.1101	(0.022)
16 years (slope)	0.1143	(0.000)	0.1145	(0.000)	0.1143	(0.000)	0.1101	(0.000)
17 years (slope)	0.1029	(0.000)	0.1038	(0.000)	0.1036	(0.000)	0.0963	(0.000)
18 years (slope)	0.0382	(0.000)	0.0383	(0.000)	0.0382	(0.001)	0.0339	(0.000)
19 years (slope)	0.0233	(0.007)	0.0236	(0.006)	0.0235	(0.066)	0.0208	(0.015)
20 years (slope)	0.0027	(0.758)	0.0028	(0.749)	0.0030	(0.733)	0.0019	(0.828)
21 years (slope)	-0.0125	(0.167)	-0.0119	(0.189)	-0.0118	(0.191)	-0.0140	(0.117)
22-23 years (slope)	-0.0084	(0.098)	-0.0083	(0.100)	-0.0084	(0.096)	-0.0088	(0.080)
24-25 years (slope)	-0.0244	(0.000)	-0.0250	(0.000)	-0.0249	(0.000)	-0.0245	(0.000)
26-29 years (slope)	-0.0088	(0.032)	-0.0084	(0.043)	-0.0085	(0.039)	-0.0064	(0.123)
30-34 years (slope)	-0.0203	(0.006)	-0.0185	(0.120)	-0.0190	(0.106)	-0.0168	(0.027)
Calendar year								
1969-1985 (slope)			0.0027	(0.001)	0.0027	(0.001)	0.0023	(0.005)
1986-1991 (slope)			0.0018	(0.095)	0.0021	(0.057)	0.0006	(0.595)
1992-1998 (slope)			-0.0080	(0.000)	-0.0077	(0.000)	-0.0067	(0.000)
1998-2004 (slope)			-0.0029	(0.079)	-0.0028	(0.087)	-0.0030	(0.076)
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Place of residence								
City (Ref.)					1		1	
Village					1.16	(0.000)	1.13	(0.012)
Number of siblings								
0 or 1 (Ref.)					1		1	
2+					1.09	(0.057)	1.05	(0.297)
Mother's education								
Low					0.97	(0.498)	0.93	(0.208)
Middle (Ref.)					1		1	
High					0.88	(0.071)	1.01	(0.850)
Don't know					0.97	(0.133)	0.94	(0.437)
Lived with both parents								
Yes (Ref.)					1		1	
No					0.99	(0.783)	0.92	(0.224)

Table C3 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Level of education (t.v.)								
In education							0.70	(0.000)
Low							1.15	(0.085)
Middle (Ref.)							1	
High							0.91	(0.102)
Pregnancy-and-parity status (t.v.)								
Childless, non pregnant (Ref.)							1	
Childless, pregnant							9.09	(0.000)
Mother							0.71	(0.000)
ln-L	-14186.89		-14100.27		-14083.54		-13488.22	

Table C4 Relative risk of first union formation. Effect of education and calendar period, Russian women born 1955-1986. Separate models by type of union.

Levels of education	1969-85	1986-91	1992-98	1999-2004
	Cohabitation			
Still in education	0.85 *(0.286)*	1.96 *(0.000)*	1.79 *(0.000)*	2.76 *(0.000)*
Low (lower than secondary)	0.62 *(0.311)*	1.80 *(0.085)*	2.86 *(0.000)*	4.62 *(0.000)*
Secondary school	**1**	1.79 *(0.000)*	2.58 *(0.000)*	3.40 *(0.000)*
University and higher	1.58 *(0.027)*	2.11 *(0.003)*	4.24 *(0.000)*	4.31 *(0.000)*
	Direct marriage			
Still in education	0.67 *(0.000)*	0.75 *(0.006)*	0.51 *(0.000)*	0.41 *(0.000)*
Low (lower than secondary)	1.16 *(0.318)*	1.24 *(0.131)*	0.62 *(0.005)*	0.92 *(0.565)*
Secondary school	**1**	1.03 *(0.637)*	0.69 *(0.000)*	0.49 *(0.000)*
University and higher	1.02 *(0.779)*	0.94 *(0.622)*	0.66 *(0.002)*	0.30 *(0.000)*

Notes: (1) Reference category for each of the two models is secondary (middle) education and period before 1985; (2) p-values in brackets

Table C5 Relative risk of first union formation. Effect of mother's level of education and calendar period, Russian women born 1955-1986. Separate models by type of union.

Mother's education	1969-85	1986-91	1992-98	1999-2004
	Cohabitation			
Low (lower than secondary)	0.67 *(0.002)*	1.11 *(0.526)*	1.62 *(0.002)*	3.03 *(0.000)*
Secondary school	**1**	1.27 *(0.121)*	1.50 *(0.002)*	1.91 *(0.000)*
University and higher	0.63 *(0.085)*	1.32 *(0.303)*	1.28 *(0.257)*	1.95 *(0.000)*
Don't know/no answer	0.63 *(0.151)*	2.53 *(0.009)*	2.97 *(0.012)*	3.12 *(0.041)*
	Direct marriage			
Low (lower than secondary)	1.21 *(0.003)*	1.20 *(0.030)*	0.70 *(0.001)*	0.54 *(0.000)*
Secondary school	**1**	1.20 *(0.034)*	0.91 *(0.208)*	0.68 *(0.000)*
University and higher	1.08 *(0.572)*	1.47 *(0.006)*	0.84 *(0.206)*	0.63 *(0.001)*
Don't know/no answer	1.17 *(0.231)*	1.70 *(0.030)*	0.42 *(0.047)*	0.76 *(0.566)*

Notes: (1) Reference category for each of the two models is secondary (middle) education and period before 1985; (2) p-values in brackets

Table C6 Relative risk of first union formation. Effect of living with both biological parents in childhood and calendar period, Russian women born 1955-1986. Separate models by type of union.

Lived with both biological parents	1969-85	1986-91	1992-98	1999-2004
		Cohabitation		
Yes	**1**	1.97 *(0.000)*	2.30 *(0.000)*	3.39 *(0.000)*
No	1.34 *(0.080)*	2.12 *(0.000)*	3.74 *(0.000)*	4.11 *(0.000)*
		Direct marriage		
Yes	**1**	1.08 *(0.197)*	0.75 *(0.000)*	0.55 *(0.000)*
No	1.23 *(0.007)*	1.03 *(0.791)*	0.52 *(0.000)*	0.46 *(0.000)*

Notes: (1) Reference category for each of the two models is 'lived with both biological parents' and period before 1985; (2) p-values in brackets

Table C7 Relative risk of first union formation. Effect of number of siblings and calendar period, Russian women born 1955-1986. Separate models by type of union.

Number of siblings	1969-85	1986-91	1992-98	1999-2004
		Cohabitation		
0 or 1	**1**	2.17 *(0.000)*	2.27 *(0.000)*	3.47 *(0.000)*
2 or more	1.43 *(0.009)*	2.18 *(0.000)*	3.91 *(0.000)*	4.40 *(0.000)*
		Direct marriage		
0 or 1	**1**	1.02 *(0.727)*	0.69 *(0.000)*	0.53 *(0.000)*
2 or more	1.07 *(0.245)*	1.13 *(0.134)*	0.70 *(0.000)*	0.52 *(0.000)*

Notes: (1) Reference category for each of the two models is 'having no siblings or one sibling' and period before 1985; (2) p-values in brackets

Table C8 Relative risk of first union formation. Effect of type of settlement at birth and calendar period, Russian women born 1955-1986. Separate models by type of union.

Type of settlement at birth	1969-85	1986-91	1992-98	1999-2004
		Cohabitation		
City	**1**	1.82 *(0.000)*	2.06 *(0.000)*	3.28 *(0.000)*
Village	0.63 *(0.001)*	1.19 *(0.313)*	2.11 *(0.000)*	2.30 *(0.000)*
No answer	1.18 *(0.532)*	2.43 *(0.001)*	3.64 *(0.000)*	2.75 *(0.000)*
		Direct marriage		
City	**1**	0.99 *(0.938)*	0.64 *(0.000)*	0.52 *(0.000)*
Village	1.03 *(0.644)*	1.18 *(0.028)*	0.83 *(0.046)*	0.53 *(0.000)*
No answer	1.06 *(0.655)*	0.67 *(0.053)*	0.46 *(0.000)*	0.42 *(0.000)*

Notes: (1) Reference category for each of the two models is 'born in a city' and period before 1985; (2) p-values in brackets

Table C9 Relative risk of first union formation. Effect of parity-and-pregnancy status and calendar period, Russian women born 1955-1986. Separate models by type of union.

Parity-and-pregnancy status	1969-85	1986-91	1992-98	1999-2004
	Cohabitation			
Childless, not pregnant	**1**	1.96 *(0.000)*	2.49 *(0.000)*	3.67 *(0.000)*
Childless, pregnant	5.79 *(0.000)*	8.87 *(0.00)*	12.24 *(0.000)*	9.92 *(0.000)*
Mother	0.83 *(0.681)*	1.42 *(0.262)*	2.01 *(0.004)*	1.47 *(0.254)*
	Direct marriage			
Childless, not pregnant	**1**	1.09 *(0.147)*	0.72 *(0.000)*	0.53 *(0.000)*
Childless, pregnant	9.57 *(0.000)*	8.17 *(0.000)*	6.44 *(0.000)*	5.00 *(0.000)*
Mother	0.74 *(0.043)*	0.68 *(0.006)*	0.32 *(0.000)*	0.39 *(0.000)*

Notes: (1) Reference category for each of the two models is 'childless, not pregnant' and period before 1985; (2) p-values in brackets

Table C10 The effect of length of pregnancy and birth of the first child (as a spline function) on the intensity of forming first union, Russian women born 1955-1986. Separate models by type of union.

	Cohabitation		Direct marriage	
	Spline gradient	p-value	Spline gradient	p-value
Months since birth of first child				
Constant (kicks in at -9 months)	2.8278	0.000	2.7633	0.000
-6 (slope)	-0.5091	0.000	0.1358	0.000
-3 (slope)	0.0112	0.895	-0.1206	0.000
0 (slope)	0.0919	0.659	-0.2337	0.009
6 (slope)	-0.3295	0.010	-0.3791	0.000
12 (slope)	-0.0700	0.281	-0.0165	0.012

Table C11 Joint model of entry into cohabitation vs. direct marriage as competing risks, Russian women born 1955-1986.

	Cohabitation	Marriage
Age (baseline)		
14-19	*1.44*	*1.17*
20-24	*2.26*	*3.01*
25-29	*1.94*	*1.39*
30-34	*1.20*	*0.74*
Calendar year (t.v.)		
1969-1979	0.49	0.87
1980-1985 (Ref.)	0.63	**1**
1986-1991	1.12	1.03
1992-1998	1.30	0.73
1999-2004	1.72	0.54
Place of residence		
City (Ref.)	0.57	**1**
Village	0.48	1.11
Unknown	0.69	0.90
Number of siblings		
0 or 1 (Ref.)	0.89	**1**
2+	1.17	1.01
Mother's education		
Lower than secondary school	1.01	1.03
Secondary school (Ref.)	1.00	**1**
University and higher	1.05	1.04
Don't know	1.11	1.03
Lived with both parents		
Yes	0.93	**1**
No	1.23	0.94
Level of education (t.v.)		
In education	0.66	0.55
Lower than secondary school	0.93	1.03
Secondary school (Ref.)	0.88	**1**
University and higher	1.44	1.00
Pregnancy-and-parity status (t.v.)		
Childless, non pregnant (Ref.)	1.05	**1**
Childless, pregnant	5.33	10.05
Mother	0.64	0.32

Note: Rates relative to that of entry into marriage for the reference category for each covariate.

Table C12 Effect of education and calendar period. Joint model of transition to cohabitation vs. direct marriage, Russian women born 1955-1986.

	1969-79	1980-84	1985-89	1990-97	1998-2004
Direct marriage					
In education	0.46	0.56	0.59	0.44	0.34
Lower than secondary school	0.99	1.07	1.15	0.59	0.63
Secondary school	0.90	**1**	1.00	0.71	0.51
University and higher	1.05	0.88	0.84	0.63	0.32
Cohabitation					
In education	0.28	0.45	0.83	0.84	1.25
Lower than secondary school	0.75	0.39	0.86	1.15	1.65
Secondary school	0.43	0.57	0.96	1.17	1.53
University and higher	0.77	0.82	1.67	1.93	1.94

Note: Rates relative to that of entry into marriage by women with completed secondary school in 1980-84.

Table C13 Effect of parity-and-pregnancy status and calendar period. Joint model of transition to cohabitation vs. direct marriage, Russian women born 1955-1986

	1969-79	1980-84	1985-89	1990-97	1998-2004
Direct marriage					
Childless, not pregnant	0.90	**1**	1.00	0.68	0.55
Childless, pregnant	11.96	12.71	12.47	9.84	5.89
Mother	0.40	0.40	0.73	0.44	0.29
Cohabitation					
Childless, not pregnant	0.51	0.67	1.19	1.40	2.01
Childless, pregnant	3.44	3.94	6.55	7.07	4.93
Mother	0.41	0.37	0.79	0.86	0.89

Note: Rates relative to that of entry into marriage by non-pregnant nullipara in 1980-84

Table C14 Stepwise model for conversion of cohabitation into marriage, Russian women born 1955-1986

	Model 1		Model 2		Model 3		Model 4	
	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	--3.7525	(0.000)	-3.8559	(0.000)	-3.7624	(0.000)	-3.5491	(0.000)
Duration (baseline) (months since entry into cohabitation)								
1-6 (slope)	0.1519	(0.000)	0.1526	(0.000)	0.1535	(0.000)	0.1078	(0.013)
7-12 (slope)	-0.0943	(0.000)	-0.0894	(0.000)	-0.0887	(0.001)	-0.0751	(0.005)
13-24 (slope)	-0.0512	(0.003)	-0.0475	(0.006)	-0.0471	(0.007)	-0.0343	(0.054)
25-36 (slope)	-0.0368	(0.165)	-0.0363	(0.173)	-0.0349	(0.189)	-0.0304	(0.262)
37-48 (slope)	-0.0231	(0.549)	-0.0229	(0.552)	-0.0223	(0.564)	-0.0220	(0.572)
49-60 (slope)	-0.0333	(0.566)	-0.0347	(0.552)	-0.0345	(0.555)	-0.0377	(0.513)
Calendar year								
1970-1985 (slope)			0.0024	(0.290)	0.0021	(0.354)	0.0006	(0.804)
1986-1991 (slope)			0.0003	(0.895)	0.0001	(0.952)	-0.0007	(0.755)
1992-1998 (slope)			-0.0088	(0.000)	-0.0090	(0.000)	-0.0072	(0.000)
1999-2004 (slope)			0.0000	(0.997)	-0.0002	(0.952)	-0.0001	(0.969)
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Place of residence								
City (Ref.)					1		1	
Village					1.13	(0.212)	1.13	(0.202)
Number of siblings								
0 or 1 (Ref.)					1		1	
2+					1.09	(0.347)	1.03	(0.746)
Mother's education								
Low					0.78	(0.014)	0.75	(0.005)
Middle (Ref.)					1		1	
High					0.90	(0.466)	1.09	(0.558)
Don't know					0.74	(0.117)	0.75	(0.156)
Lived with both parents								
Yes (Ref.)					1		1	
No					0.96	(0.713)	0.91	(0.350)

Table C14 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value	Relative risk	p-value
Level of education (t.v.)								
In education							0.71	(0.002)
Low							0.89	(0.390)
Middle (Ref.)							1	
High							0.76	(0.040)
Pregnancy-and-parity status (t.v.)								
Childless, non pregnant (Ref.)								
Childless, pregnant							1	
Mother							3.38	(0.000)
							1.03	(0.808)
ln-L	-2597.56		-2570.31		-2566.01		-2487.08	

Table C15 Relative risk of conversion of cohabitation into marriage. Effect of education and calendar period, Russian women born 1955-1986.

	Marriage after cohabitation			
Levels of education	1970-85	1986-91	1992-98	1999-2004
Still in education	0.62 *(0.344)*	0.57 *(0.089)*	0.63 *(0.018)*	0.32 *(0.049)*
Low (lower than secondary)	0.58 *(0.000)*	0.62 *(0.000)*	0.50 *(0.000)*	0.63 *(0.000)*
Secondary school	**1**	0.91 *(0.533)*	0.60 *(0.000)*	0.49 *(0.000)*
University and higher	0.60 *(0.049)*	0.99 *(0.963)*	0.46 *(0.002)*	0.31 *(0.000)*

Notes: (1) Reference category is secondary education and period before 1985; (2) p-values in brackets

Table C16 Relative risk of conversion of cohabitation into marriage. Effect of mother's level of education and calendar period, Russian women born 1955-1986.

	Marriage after cohabitation			
Mother's level of education	1970-85	1986-91	1992-98	1999-2004
Low (lower than secondary)	1.04 *(0.819)*	1.10 *(0.625)*	0.60 *(0.015)*	0.55 *(0.031)*
Secondary school	**1**	1.17 *(0.408)*	0.99 *(0.970)*	0.71 *(0.066)*
University and higher	1.21 *(0.592)*	1.22 *(0.548)*	1.32 *(0.312)*	0.80 *(0.426)*
Don't know/no answer	0.95 *(0.936)*	1.26 *(0.612)*	0.25 *(0.176)*	1.19 *(0.822)*

Notes: (1) Reference category is secondary education and period before 1985; (2) p-values in brackets

Table C17 Relative risk of conversion of cohabitation into marriage. Effect of living with both biological parents in childhood and calendar period, Russian women born 1955-1986.

Lived with both biological parents in childhood	Marriage after cohabitation			
	1970-85	1986-91	1992-98	1999-2004
Yes	**1**	1.01 *(0.939)*	0.76 *(0.052)*	0.55 *(0.000)*
No	1.06 *(0.765)*	0.96 *(0.854)*	0.56 *(0.003)*	0.53 *(0.007)*

Notes: (1) Reference category is 'lived with both biological parents' and period before 1985; (2) p-values in brackets

Table C18 Relative risk of conversion of cohabitation into marriage. Effect of number of siblings and calendar period, Russian women born 1955-1986.

	Marriage after cohabitation			
Number of siblings	1970-85	1986-91	1992-98	1999-2004
0 or 1	**1**	0.89 *(0.487)*	0.74 *(0.058)*	0.52 *(0.000)*
2 or more	1.00 *(0.994)*	1.11 *(0.542)*	0.63 *(0.008)*	0.56 *(0.006)*

Notes: (1) Reference category 'having no siblings or one sibling' and period before 1985; (2) p-values in brackets

Table C19 Relative risk of conversion of cohabitation into marriage. Effect of type of settlement at birth and calendar period, Russian women born 1955-1986.

	Marriage after cohabitation			
Type of settlement at birth	1970-85	1986-91	1992-98	1999-2004
City	**1**	1.01 *(0.957)*	0.70 *(0.014)*	0.58 *(0.000)*
Village	1.24 *(0.246)*	1.15 *(0.410)*	0.84 *(0.327)*	0.52 *(0.012)*

Notes: (1) Reference category 'born in a city' and period before 1985; (2) p-values in brackets

Table C20 Relative risk of conversion of cohabitation into marriage. Effect of parity-and-pregnancy status and calendar period, Russian women born 1955-1986.

	Marriage after cohabitation			
Parity-and-pregnancy status	1970-85	1986-91	1992-98	1999-2004
Childless, not pregnant	**1**	1.16 *(0.365)*	0.88 *(0.399)*	0.47 *(0.000)*
Childless, pregnant	3.81 *(0.000)*	2.92 *(0.000)*	2.39 *(0.000)*	2.72 *(0.000)*
Mother	1.49 *(0.104)*	1.37 *(0.122)*	0.50 *(0.005)*	0.59 *(0.032)*

Notes: (1) Reference category is 'childless, not pregnant' and period before 1985; (2) p-values in brackets

Table C21 The effect of length of pregnancy and birth of the first child (as a spline function) on the intensity of conversion of cohabitation into marriage, Russian women born 1955-1986.

Months since birth of first child	Spline gradient	p-value
Constant (kicks in at -9 months)	0.3318	0.252
-6 (slope)	0.4721	0.001
-3 (slope)	-0.0082	0.392
0 (slope)	-0.1472	0.090
6 (slope)	-0.1407	0.028
12 (slope)	-0.0466	0.462
12+ (slope)	0.0050	0.373

Table C22 Entry into first cohabitation and subsequent conversion to marriage in a joint model, Russian women born 1955-1986

	Entry into cohabitation		Conversion of cohabitation into marriage	
	Spline gradient	p-value	Spline gradient	p-value
Constant (baseline)	--11.8124	*(0.000)*	-7.2992	*(0.000)*
Age (baseline)				
14 years (slope)	0.0507	(0.225)		
15 years (slope)	0.1380	(0.001)		
16 years (slope)	0.0662	(0.001)		
17 years (slope)	-0.0029	(0.828)		
18 years (slope)	0.0588	(0.000)		
19 years (slope)	0.0129	(0.379)		
20 years (slope)	0.0012	(0.828)		
21 years (slope)	0.0068	(0.595)		
22-23 years (slope)	-0.0025	(0.618)		
24-25 years (slope)	-0.0115	(0.556)		
26-29 years (slope)	0.0028	(0.657)		
30-34 years (slope)	-0.0106	(0.300)		
Duration (baseline)				
(months since entry into cohabitation)				
1-6 (slope)			1.5419	(0.000)
7-12 (slope)			-0.0050	(0.565)
13-24 (slope)			0.00001	(0.756)
25-36 (slope)			-0.0252	(0.736)
37-48 (slope)			0.0123	(0.951)
49-60 (slope)			-0.0910	(0.473)
Calendar year				
1970-1985 (slope)	0.0083	(0.000)	-0.0062	(0.473)
1986-1991 (slope)	0.0070	(0.008)	-0.0001	(0.911)
1992-1998 (slope)	0.0039	(00269)	-0.0138	(0.000)
1999-2004 (slope)	0.0105	(0.000)	0.0004	(0.824)
	Relative risk	p-value	Relative risk	p-value
Place of residence				
City (Ref.)	1		1	
Village	0.73	(0.010)	1.11	(0.249)
Number of siblings				
0 or 1 (Ref.)	1		1	
2+	1.53	(0.000)	0.94	(0.812)
Mother's education				
Low	1.15	(0.332)	0.66	(0.010)
Middle (Ref.)	1		1	
High	0.98	(0.879)	1.21	(0.374)
Don't know	1.34	(0.071)	0.73	(0.336)

Table C22 (continued)

	Entry into cohabitation		Conversion of cohabitation into marriage	
	Relative risk	p-value	Relative risk	p-value
Lived with both parents				
Yes (Ref.)	1		1	
No	1.25	(0.056)	1.00	(0.887)
Level of education (t.v.)				
In education	0.68	(0.000)	0.77	(0.193)
Low	1.09	(0.646)	0.83	(0.439)
Middle (Ref.)	1		1	
High	1.57	(0.002)	0.65	(0.055)
Pregnancy-and-parity status (t.v.)				
Childless, non pregnant (Ref.)	1		1	
Childless, pregnant	4.55	(0.000)	3.55	(0.000)
Mother	0.88	(0.550)	1.35	(0.065)
Sigma (V_i)	2.05	(0.000)		
Sigma (U_i)			1.54	(0.000)
Correlation (ρ)		-0.72 (0.000)		

Erklärung

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

Die Arbeit wurde bisher weder im Inland noch im Ausland in gleicher oder ähnlicher Form einer Prüfungsbehörde zur Erlangung eines akademischen Grades vorgelegt.

Rostock, September, 2008

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