Chapter 2
Gender Relations and Transition to Motherhood in the Post-Soviet Kyrgyzstan

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Abstract This chapter deals with the influence of gender relations on transition to motherhood in Kyrgyzstan. Although a shift of fertility towards older age was dominant in the post-Soviet space during the recent decades, some post-Soviet countries with mainly Muslim population showed stability of age patterns, with the peak of women's fertility remaining below 25. Kyrgyzstan is one of those countries, and the authors investigate whether the parameters of gender relations are at least partly "responsible" for the lack of fertility postponement there. It is shown that among the Muslim peoples of Kyrgyzstan, first marriage hazards are positively related to low education of a woman, approval of husband's violence towards wife, and others and are declining from elder to younger birth cohorts. Meanwhile, first birth hazards among married women demonstrate no relation to gender asymmetries. The analysis has shown that the lowering of first marriage hazards for younger cohorts can be due to certain modernization of gender relations and loosening of the traditional norm that prescribes early marriage for women. This is accompanied by a low social acceptability of out-of-marriage fertility. Under these conditions, younger women are likely to enter the first marriage mainly after they have consciously chosen to have children. This supports the relatively early timing of first births in Kyrgyzstan.

Keywords Gender asymmetries · Central Asia · Fertility · Nuptiality · Timing

2.1 Introduction and Background

The problem considered in this chapter is the relationship between fertility timing and gender asymmetries in post-Soviet countries. By gender asymmetries, the authors mean differences between gender roles in family organization, manifested (among

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other things) in the degree of women' s freedom to acquire education, take a job outside her household, take part in making important family decisions, and so on. The significance of these characteristics for fertility has been broadly discussed in recent decades (see Jejeebhoy 1995; Malhotra et al. 1995; Mason 2001; Phan 2013; Bongaarts et al. 2017, among many others). It is generally agreed that women's dependent position in the family and poor access to education and the labor market correlate with higher fertility and earlier transition to motherhood.

A shift of fertility peak toward age 25+ is one of the most remarkable changes in fertility behavior in post-Soviet countries, which they have shared with Eastern European countries since the 1990s (Billingsley and Duntava 2017; Karabchuk et al. 2017; Zakharov 2008, 2018). However, not much attention is paid to the fact that fertility postponement does not take place so clearly in the former Soviet republics of Central Asia and in Azerbaijan (South Caucasus) as it does in other post-Soviet countries. It is noteworthy that at least for some of these countries more pronounced asymmetries between gender roles, lower levels of women empowerment, and so on, compared with other parts of the post-Soviet space have been reported (see Ishkanian 2003; Constantine 2007, and Poliakov and Olcott 2016 for Central Asia). Addressing the rather puzzling differences in timing trends between post-Soviet countries, the authors consider the extent to which this stability of early fertility timing is explained by characteristics of gender relations in these countries.

After the 1990s crisis, economic recovery began in most post-Soviet countries in the 2000s, which was accompanied by changes in demographic trends, including an increase in total fertility rate (TFR) after its dramatic decrease in the first post-Soviet decades.[1] Figure 2.1 plots TFR dynamics in post-Soviet countries with Muslim (Kazakhstan, Kyrgyzstan, and Azerbaijan) and non-Muslim (Russia, Belarus, and Armenia) population as the majority.[2] At the beginning of the 1990s, TFR was considerably higher in Muslim countries, as they were at an earlier stage of the first demographic transition at that time. However, subsequent trends, including the fall of TFR after the collapse of the Union of Soviet Socialist Republics (USSR) and

[1]The total fertility rate indicates the number of children who would have been born per woman (or per 1,000 women) if she/they were to pass through the reproductive period bearing children according to a current schedule of age-specific fertility rates.

[2]Fig. 1 only includes countries whose population statistics are treated as relatively reliable. Georgia is not included as data on fertility in that country could be debatable because of abrupt changes in official TFR estimates after the census in 2014 and 2002 (this indirectly demonstrates problems with migration statistics), and because data from this country does not include breakaway Abkhazia and South Ossetia (see Sulaberidze et al. 2019). The reliability of the TFR for Moldova is also debatable due to the possibly low accuracy of migration statistics (see Penina et al. 2015). The TFR for Ukraine could be underestimated due to problematic quality of statistics in the Donetsk and Lugansk regions after separatists took power there in 2014 and due to difficulties in estimating internal and external migration at the country level (Romaniuk and Gladun 2015). The data from Tajikistan are unreliable because of poor migration statistics quality (Chudinovskikh 2006) that leads to strange fluctuations in TFR. Finally, for Uzbekistan and Turkmenistan, TFRs are calculated only on administrative statistics, which cannot be compared to census data. For instance, in post-Soviet Uzbekistan no census was ever held between 1991 and 2019, and census results for Turkmenistan are not public. However, without a comparison with census results, the reliability of administrative statistics is questionable.

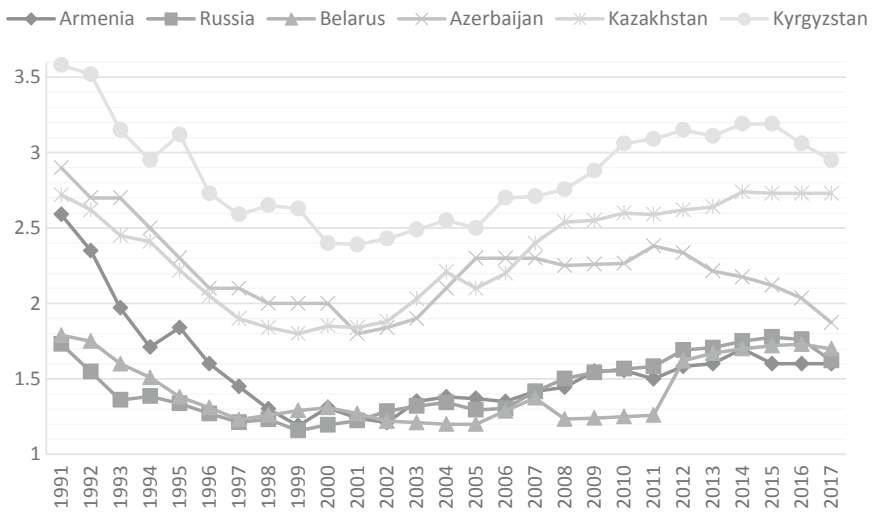

Fig. 2.1 TFR in several post-Soviet countries, 1991–2017 (*Source* Based on data available at http://www.demoscope.ru/weekly/ssp/sng__tfr.php)

its gradual increase in the 2000s, were to a large extent common in the two groups of countries. Moreover, a decline in TFR in the mid-2010s was observed in some countries of both groups.

Despite these similarities, these two groups of countries differ in their fertility timing trends in the last 10 to 15 years. This becomes obvious if the differences in inputs of age-specific fertility rates (ASFRs; annual number of births per 1,000 women in some age group) for five-year age groups to the total fertility rates (Fig. 2.2) in 2004 and 2015 are considered for both groups. The inputs are calculated as the ratio of an ASFR to the TFR; the differences are calculated by subtracting the input of an age group in 2004 from the input of the same age group in 2015. As Fig. 2.2 shows, in the non-Muslim countries, the age distribution of fertility changed seriously during the decade, shifting the peak of fertility from the 15–19 and 20–24 age groups to the elder age groups (for more details on this age shift in post-Soviet and other East European countries see Frejka et al. 2016). This distorted the "Eastern European" early fertility pattern of the last decades of the twentieth century (see Roussel 1994; Rychtarikova 1999 on that model). No age shift of that scale was observed in the Muslim post-Soviet countries according to their official statistics, at least in those where official statistics provide ASFRs, namely, Azerbaijan, Kazakhstan, and Kyrgyzstan. For the latter two countries, inputs of the younger age groups (15–19 and 20–24) to TFR decreased much less than in the non-Muslim countries, whereas in Azerbaijan, their input increased. Note that in the three countries, trends in fertility quantum were not identical in the considered period, as shown in Fig. 2.1. Nevertheless, the contrast with the post-Soviet countries that experienced the age shift was common for the Muslim countries for which the ASFRs were available.

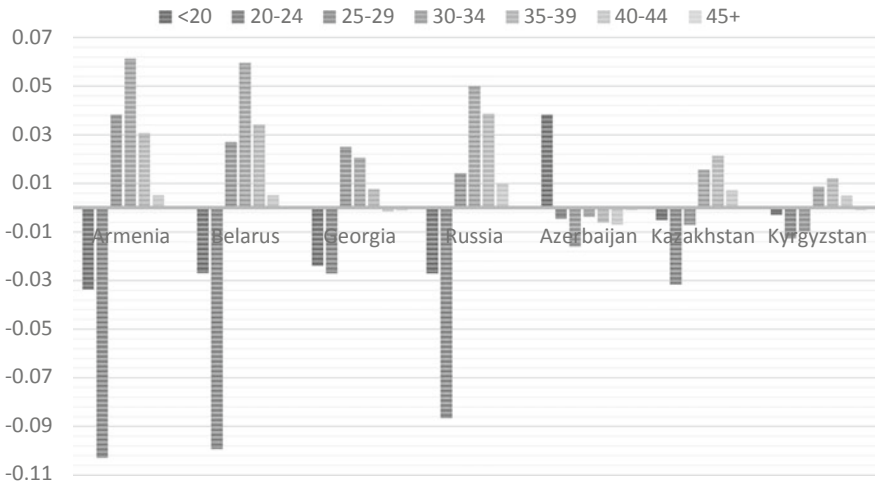

Fig. 2.2 Differences between the proportions of inputs of age groups to total fertility from 2004 to 2015 in some post-Soviet countries (*Source* The authors' calculations based on data available at: http://www.demoscope.ru/weekly/ssp/sng_asfr.php)

The contrast in trends of fertility timing between Muslim and non-Muslim countries of the former USSR has parallels to data on some regions of Russia where Muslims are the majority. Thus, according to Kazenin and Kozlov (2016), some of these regions have demonstrated a stable age distribution of fertility (unlike the country as a whole) within the last two decades. Moreover, the possibility that religious affiliation and cultural norms related to it are significant for the observed contrast between post-Soviet countries is supported by observations that ethnic Russians (mainly non-Muslims) of Central Asian countries differ from their indigenous Muslim population in some fertility trends (Agadjanian 1999; Agadjanian et al. 2013; Spoorenberg 2015).

Further discussion in the present chapter is organized as follows. In Sect. 2.2, the authors briefly consider fertility trends in Central Asian countries and Azerbaijan compared with other post-Soviet countries, and the basic theoretical assumptions on the relations between fertility and gender values are put forward. Section 2.3 presents the research strategy and the survey description. The analysis is presented in Sect. 2.4 and discussed in Sect. 2.5.

2.2 The Theoretical Approach

Current theoretical assumptions suggest that the lack of fertility postponement observed in Kyrgyzstan is at least partly related to gender asymmetries existing in that country.

First, it is widely acknowledged that fertility postponement in post-Soviet and Eastern European countries took place together with a certain "detraditionalization" of family life, which assumed a higher value of women's education and professional self-realization—a departure from traditional family norms that force men and women to "specialize" on strictly different tasks in households (Knight and Brinton 2017; Funk and Mueller 2018). The relation between these phenomena seems straightforward: as soon as housekeeping and childbearing are no longer treated as an obligatory priority for women, many women tend to put more time and effort in education and employment, which often leads to postponement of marriage and childbearing. At the same time, under strict asymmetry of gender roles, childbearing becomes one of very few ways for a woman to secure a high social reputation for herself (Salway 2007), which, in turn, motivates her not to postpone motherhood. Given this, it is quite natural to suggest that if no fertility postponement is observed in some post-Soviet countries, gender roles remain more "traditional" in it compared with other former republics of the USSR.

Besides, the expectation that lack of fertility postponement correlates with stricter gender asymmetries is supported by the fact that in post-Soviet countries without postponement the majority of the population is Muslim. It is widely assumed that in Muslim societies conservative contrasts between gender roles are likely to be more stable than in societies with other religious composition (in demographic research, this assumption is common, at least since Caldwell, 1987). Although some researchers have questioned or calibrated this assumption (see e.g., Morgan et al. 2002; Stonawski et al. 2016), the contrast in fertility timing between Muslim and non-Muslim post-Soviet countries suggests that differences in gender roles come into play.[3]

Therefore, the central hypothesis considered in this chapter is that the lack of fertility postponement is related to retaining traditional family institutions and gender asymmetries.

Following existing research on measuring gender relations, the authors use several indicators of gender asymmetries in the analysis.

First, these include factors of gender equality, rather than gender equity, in McDonald (2000). Under that distinction, gender equality is an "objective" concept that compares outcomes for men and women in areas such as education, employment, wages, and so on (whereas gender equity is a more subtle parameter that shows to what extent men and women consider differences of those outcomes in the society to be fair). In recent decades, Central Asia has experienced considerable social changes related to massive rural-to-urban migration of the indigenous population (Demko et al. 2018; Kasenov 2017; Wei et al. 2018). These resulted in a gradual growth of women with higher education and women working outside the traditional agricultural economy. However, these changes differed remarkably in their speed and depth

[3]This does not mean that the relation between strict gender asymmetries and early timing is restricted to Muslim societies. In some post-Soviet countries with a different religious composition of population retaining or revival of traditional gender relations was considered as one of the possible reasons for certain changes in fertility (see Klüsener et al. 2019 for Belarus).

across various parts of the region, ethnicities, and so on. Therefore, the "objective" parameters, such as educational level and labor force participation of women, are important indicators of gender relations in today's Central Asia, which probably can point to differences not only between countries, but also between smaller areas, population groups, and so on.

Second, the authors use parameters that indicate the level of patriarchy in a woman's family. Patriarchy, following Gruber et al. (2012) and Lerch (2013), is the domination of men over women and of older generations over younger generations in a family. Among the indicators of patriarchy acknowledged in the studies just quoted, the age gap between husband and wife plays an important role, as typical patriarchal order assumes younger age of women at marriage compared to men. Another possible indicator of a woman's subordinate position in relation to her husband is domestic violence practiced by the husband towards her and/or the woman's finding of domestic violence as being acceptable, at least conditionally (Wallach et al. 2010; Martinez and Khalil 2013). Women's preference for male newborn children is also treated as a signal of a high level of patriarchy in her family (Mitra 2014). For Central Asia, patterns of patriarchy have been reported as typically followed by indigenous peoples throughout the Soviet era (Edgar 2006). This suggests that the patriarchy parameters remain relevant for the analysis of gender relations in this region.

Additionally, the authors use the educational gap between women and their husbands as indicators of gender relations. This indicator is somehow in-between the "objective" parameters of gender equality and the parameters of family norms (patriarchy) because differences in education between spouses can arise either from customs and norms of the society or from economic and institutional reasons that limit women' s access to education (Stromquist 1990; Inglehart et al. 2017). However, whatever the reason may be for gender gaps in education, these gaps obviously strengthen general gender asymmetries.

For all the parameters of gender relations listed in the present section, the ways in which they can influence fertility have been extensively discussed in a large number of studies (see e.g., Phan 2013 for a recent overview). Despite much debate on particular mechanisms relating fertility and women's position in a society, it is generally agreed that higher fertility and women's younger age at the first marriage and first birth correspond to more pronounced gender asymmetries and patriarchy.

2.3 The Research Strategy

From the post-Soviet countries that demonstrated no clear tendency towards fertility postponement between the mid-2000s and mid-2010s, Kyrgyzstan was chosen. This choice is justified by the better availability of representative surveys of women of reproductive age for Kyrgyzstan than for the other countries with stability of fertility timing mentioned above. Surveys are essential for the study because, unlike official statistics, they allow following up relations between fertility parameters and the characteristics of gender relations at the level of individual respondents. Kyrgyzstan is

the only post-Soviet country without a shift of fertility peak to the ages of 25–29, for which two sample surveys were available for the period under study. These include the Demography and Health Survey of 2012 (DHS2012) and the Multiple Indicators Cluster Survey of 2014 (MICS2014). Parallel analysis of the two independent samples of these surveys enhances the reliability of the study's results. The authors concentrate on women of indigenous ethnicities of Kyrgyzstan (Kyrgyz and Uzbeks), as ethnic Russians of Central Asia generally followed fertility-eldering paths similar to their co-ethnics in other countries in post-Soviet times (Agadjanian et al. 2013; Spoorenberg 2017; see below in this section for the proxies for ethnicity used in the analysis).[4]

The authors deal with the hazards of the first childbearing in relation to gender asymmetries. The scope of the study is restricted to the first childbearing because its propensity is essential for fertility patterns in general. Moreover, there are special reasons to hypothesize the significance of gender relations for transition to the first birth because strict gender asymmetries are expected to be prohibitive to women's (voluntary) childlessness and therefore make propensity to transition to the first child especially high. Since Kyrgyzstan is a country with a very low level of out-of-marriage fertility (see below for some details), the hazards of the first birth in that country are decomposed into hazards of entering the first marriage for all women and hazards of transitioning from the first marriage to the first birth. For this reason, the authors run two sets of models, one treating the hazards of entering the first marriage for all women starting with the age of 15 years, and the other one treating the hazards of the first birth for women who have been married since the first marriage. The surveys allow them to undertake such an analysis as they offer data on the age of respondents both at entering the first marriage and the first birth.[5] The two sets of models are considered independently for the samples of the two surveys, producing highly similar results. Hazards of the first marriage and the first birth in marriage for five-year birth cohorts are compared, from 1970–1974 to 1990–1994 years of birth. Elder cohorts present in the samples of the surveys were not included in the analysis because in the period under study, between the mid-2000s and mid-2010s, they were at the very end of their reproductive age or had already passed it.

The cohort perspective looked most appropriate for the study because the birth cohorts included in the analysis differed considerably in their life experience—the older ones being born and undergoing their initial socialization in the Soviet era, and the youngest growing up in a society that was considerably different from Soviet social patterns. All the cohorts witnessed the turmoil following the collapse of the USSR but experienced it at different stages of their biography. This allows us to expect differences between the cohorts in both fertility behavior and typical patterns of gender relations.

[4]In 2018 the proportion of ethnic Kyrgyz was about 73.3% according to the National Statistical Committee of Kyrgyz Republic: Uzbek at 14.7% and Russians at 5.6%. No other ethnicity had a proportion higher than 1% (http://www.stat.kg/ru/opendata/category/312/).

[5]Both surveys supply the dates of the actual start of the women's first marriage, whether registered or not. The MICS questionnaire asked for the date when a respondent "first married or started living with a man as if married," while the DHS asked about "starting living with the first husband/partner."

2.3.1 Data Sources

The DHS2012 was carried out in August to December 2012 and included 8,208 women born in 1962–1997 in its individualized record set. The MICS2014, conducted in April to June 2014, covered 6,854 women born in 1964–1999. Thus, the samples of both surveys included women of the cohorts chosen for the study. Individualized data sets of both surveys contained data of women's first marriage and first birth (year and month), enabling a straightforward way to calculate women's age at both events, as well as the number of months between women reaching the exact age of 15, her entering the first marriage and the first child bearing, if any of these events had taken place before the survey. In addition, both surveys included a number of the indicators of gender relations according to the assumptions outlined in Sect. 2.2 (for particular parameters, see the description of models below).

Since the authors concentrate only on Kyrgyz and Uzbek women and only on those born between 1970 and 1994, the samples of the study were smaller than the whole survey samples. Table 2.1 summarizes the demographic characteristics of the samples included in the study.

In Kazenin and Kozlov (2020), reliability of the DHS2012 and MICS2014 data is discussed in detail. Here, the authors briefly consider two potential sources of biases in these surveys that can be considered the most important. First, it is often expected that sample surveys in developing countries tend to underestimate the proportions of childless and single women (see e.g., Hull and Hartanto 2009), arguing that the DHSs held in Indonesia give lower proportions of single women than censuses in that country do). This problem was acknowledged for the Kyrgyzstan DHS2012 by Spoorenberg (2017), who argued for underrepresentation of childlessness in the DHS2012 compared with vital statistics from the National Statistics Office of Kyrgyzstan. Obviously, this underrepresentation can distort the estimation of fertility

Table 2.1 Demographic characteristics of the MICS and the DHS samples included in the analysis

	MICS		DHS	
	Mean	N	Mean	N
Age (std. dev.)	30.3 (7.01)	4523	28.61 (7.07)	4811
Share of rural inhabitants, %	61.9	4523	67.5	4811
Share of women in marriage, %	83.7	4523	75.1	4811
Share of Kyrgyz language speakers, %	82.4	4523	92.9	4811
Share of women with higher education (DHS), with secondary professional and tertiary education (MICS)	48.4	4523	44.7	4811

timing based on survey results. However, there are reasons to assume that these distortions, if present, are more likely to produce incorrect estimations of births at ages 25 + than in younger ages because, as shown in Kazenin and Kolzov (2020), disparities between the surveys and the census become larger starting from the age of 25.

Another possible reason for distortions in the surveys' data on fertility in the case of Kyrgyzstan concerns out-migration. Labor migration from Kyrgyzstan, mainly targeting Russia, has been quite intensive in recent decades.[6] In cases where the out-migration of women of reproductive ages is intensive, survey results may be biased, as they do not reflect the fertility of those women who were temporarily absent from the country because of working abroad at the time of the survey. Births given by such women during their stay in Kyrgyzstan are out of the surveys' scope. Importantly, migrants are often selective for lower fertility in their home country before migration. This is especially likely for labor migrants, which typically include more educated and less family-oriented women.[7] Because of this, the absence of current migrants from survey samples is likely to result in a bias towards higher meanings of the fertility indicators. However, note that available sources on the age composition of labor migrants from Kyrgyzstan do not suggest that women absent from the country because of temporary labor migration are concentrated in the younger age groups (15–19, 20–24, and 25–29) (Florinskaya et al. 2015). Therefore, although labor migration can cause overestimation of fertility levels in sample results, this overestimation is not expected to be stronger in young people than in older ones.

2.3.2 The Models

Proportional hazard models are estimated for the transitions: (1) to the first marriage, for all women aged 15 and above and (2) to the first child bearing, for women after entering their first marriage. Since the samples included childless women and women who had never been married, rightward censoring took place in both types of models. For each woman, the period for which hazards of the first marriage were considered started at 15 years 0 months and ended either in the month when she entered her first marriage or the month of the survey (for those who had never been married before the survey). The period for which hazards of the first birth were considered started

[6] Kyrgyz migration survey reported more than 700 thousand Kyrgyz citizens registered in other countries (including 640 thousand in Russia) in 2018 (State migration service of Kyrgyz government 2020). Russian official statistics reported 360–400 thousand labor migrants from Kyrgyzstan (10% of all labor migrants coming to Russia) in 2016 (Zajonchkovskaya et al. 2018, p. 368). Notably, the proportion of women among migrants from Kyrgyzstan to Russia was about 40% in recent years, which is higher than among most of other migration flows targeting Central and Eastern Europe (FIDH 2016).

[7] Note that the results of the Russian Census 2010 agree with the suggestion of selectivity of Kyrgyz migrants for lower fertility. That is, the completed fertility of real cohorts of Kyrgyz women living in Russia indicated by Census results (not shown here) is much lower compared with the same cohorts of women Kyrgyzstan.

at the month when the women entered her first marriage and ended in the month of the first birth or in the month of the survey (for childless women).

For both the transition to the first marriage and the first birth cohorts, effects were estimated together with the effects of the gender relations parameters discussed in Sect. 2.2 and the control variables (the ways the variables were calculated are introduced in the next sub-section). The models were run separately for the DHS and for the MICS samples. The modeling results, produced as maximum likelihood estimates of parameter effects, are presented in the following section in the form of hazard ratios. In accordance with the theoretical assumptions outlined in Sect. 2.2, the following gender relations parameters are involved in the models:

1. *Domestic violence*: A dichotomous parameter showing whether a woman finds a husband beating his wife as appropriate, at least in some circumstances (43.7% of the MICS respondents and 41.3% of the DHS respondents expressed their approval of domestic violence);
2. *Educational level of women*: Due to differences in education measurements between the DHS and MICS data, parameters indicating educational level were not identical for the two surveys. Women with education higher than secondary were contrasted with other women by a dichotomous parameter introduced for the DHS, where the proportion of women having reached this educational level was 48.4%. For the MICS, a dichotomous parameter indicated if a woman had professional education (either tertiary or secondary); women with positive meaning of this parameter accounted for 44.7% of the MICS sample. The databases of both surveys did not contain information about the age at which a woman completed her education. This did not allow us to supply distinct meanings of this parameter to each month of the woman's life course included in the analysis, which would have been the most correct treatment of the educational parameters in the models. Therefore, the only option was to consider educational level as a parameter invariable for a woman in the process of time. There is an assumption that the temporal invariability of the educational parameter would not distort the results of the analysis. The reason for this is that women are enrolled in both tertiary and secondary professional education at relatively early ages in Kyrgyzstan (cf. Education 2018). Given such educational "timing," the expected period between reaching the age of 15 and starting tertiary or secondary professional education is rather brief. Moreover, it is natural to expect that this period in the life of a woman would also be influenced by plans for further education. This justifies the use of education as a parameter invariable in time;
3. *Preferences of the child's gender*: Whether a respondent prefers a boy to a girl as an extra child (for the DHS only; 13.6% of respondents expressed this preference);
4. The *education gap between spouses*: (for the DHS only; among married women of the DHS sample, 20.1% (11.6%) had higher (lower) education than their husband, and no spousal education gap was registered for the others);
5. The *age gap between spouses*: The average gap was 4.54 (4.03) years for the MICS (DHS) sample.

Clearly, the first three of the listed parameters refer to both married and unmarried women, whereas the last two parameters refer to married women only. Therefore, all five parameters were used in modeling the hazards of the first birth for married women, but only the first three parameters were used to model the hazards of entering the first marriage.

The authors use a number of control parameters in their study of gender asymmetries. The cohort parameter distinguished between women in the following years of birth: 1970–1974 (17.8% of the sample in the MICS and 15.7% of the sample in the DHS), 1975–1979 (19.5 and 16.7%), 1980–1984 (23.2 and 19.4%), 1985–1989 (24.3 and 24.5%), and 1990–1994 (15.2 and 23.5%). The authors control for the urban/rural residence of a woman, as gender asymmetries are always expected to be more stable in rural milieus. In addition, ethnicity is also controlled for since interethnic differences in reproductive behavior and possibly also in family traditionalism in post-Soviet Central Asia have been reported in a number of studies (Agadjanian et al. 2013; Spoorenberg 2015). Unfortunately, no direct questions about women's ethnicity were asked either in the DHS or MICS. In the former, the "proxy" for ethnicity was the native language of the respondent, and in the latter it was the native language of the head of the respondent's household. As the study concerns only indigenous people of Kyrgyzstan, the parameters included in the models distinguished only between Kyrgyz and Uzbek speakers. Finally, the family wealth index is used as an additional control parameter because the distribution of gender roles can be different from one income group to another (Roy and Chaudhuri 2008). This parameter was present in the DHS and MICS databases. In both surveys, wealth indices were calculated using data on women's households, including ownership of a number of consumer items and other characteristics related to wealth status. Women were divided into quintiles on the family wealth index in both surveys.

2.4 Results

Consider first the models with the hazard of first marriage as the dependent parameter.[8] The models for both MICS and DHS samples confirm the postponement of entering the first marriage for the younger cohorts compared with the older ones. After including the gender relations parameters and the control parameters in the models, the first marriage hazards still remain significantly lower for younger cohorts. For the cohorts born between 1980–1984 and 1985–1989, the first marriage hazards were significantly lower than for elder cohorts in both samples. For the youngest cohort (1990–1994), hazard changes were counter-directed in the two surveys. Note that this cohort had spent few years in its adult life by 2012 and 2014, and future surveys are needed to obtain a more reliable picture of its nuptiality (possibly the results of the MICS2018 will be helpful for this purpose) (Table 2.2).[9]

[8] See Sect. 2.6 for further discussion.

Table 2.2 The hazard ratios for the first marriage in Kyrgyzstan (only for Kyrgyz and Uzbek women)

	Model 1		Model 2		Model 3	
	HR	St. errors	HR	St. errors	HR	St. errors
(a) The DHS 2012 database						
Cohort 1970–74	1		1		1	
Cohort 1975–79	1.024	0.051	1.027	0.0526	1.015	0.0519
Cohort 1980–84	0.912[a]	0.050	0.913[a]	0.0456	0.903[b]	0.0451
Cohort 1985–9	0.848[c]	0.049	0.848[c]	0.0416	0.844[c]	0.0414
Cohort 1990–94	0.815[c]	0.060	0.827[c]	0.0497	0.821[c]	0.0493
Rural	1.37[c]	0.036	0.883[b]	0.0511	1.331[c]	0.0489
Uzbek language	1.022	0.062	1.070	0.0672	0.988	0.0619
Education higher than secondary	0.62[c]	0.033	0.625[c]	0.0209	0.630[c]	0.0212
Wealth index 1 (lowest)			1			
Wealth index 2			1.002	0.0491		
Wealth index 3			0.764[c]	0.0418		
Wealth index 4			0.516[c]	0.0374		
Wealth index 5 (highest)			1.027	0.0526		
Supports domestic violence					0.903[b]	0.0451
(b) The MICS 2014 database						
	Model 1		Model 2		Model 3	
	HR	St. errors	HR	St. errors	HR	St. errors
Cohort 1970–74	1		1		1	
Cohort 1975–79	1.019	0.054	1.011	0.054	1.017	0.054
Cohort 1980–84	0.827[c]	0.052	0.826[c]	0.052	0.827[c]	0.052
Cohort 1985–89	0.903[b]	0.051	0.902[b]	0.051	0.903[b]	0.051
Cohort 1990–94	1.132[b]	0.055	1.145[b]	0.055	1.131[b]	0.055
Rural	1.225[c]	0.044	1.222[c]	0.034	1.15[c]	0.044
Uzbek language	1.175[c]	0.044	1.168[c]	0.043	1.142[c]	0.044
Education: professional	0.625[c]	0.035	0.639[c]	0.034	0.637[c]	0.035
Wealth index 1 (lowest)					1	
Wealth index 2					1.040	0.047
Wealth index 3					0.992	0.048
Wealth index 4					1.056	0.055
Wealth index 5 (highest)					0.841[c]	0.066
Supports domestic violence			1.182[c]	0.032		

Here and after [a], [b], and [c] denote significance at the 1, 5, and 10% levels, respectively

Among the gender relations parameters, lower education and support of family violence make the first marriage hazards significantly higher. The significance of the two gender relations parameters for the first marriage hazards provides strong evidence that gender relations are an important regulator of nuptiality for the cohorts under study in Kyrgyzstan. The control parameter of rural residence made the first marriage hazards significantly higher in the models run for the DHS sample (except for the model where the wealth index is controlled for), but this was not significant for the MICS sample. The hazards of the first marriage were significantly lower among women of the third and fourth wealth quintiles for the DHS and the wealthiest quintile for the MICS sample. Finally, the hazards for Uzbek speakers were significantly higher for the MICS, but no significant "linguistic" contrasts were observed in the DHS sample (the authors do not discuss possible reasons for ethnic differences below; see Nedoluzhko 2012 for a discussion of possible origins of differences in demographic behavior of Kyrgyz and Uzbeks in Kyrgyzstan).

Now, let us turn to the hazards of the first birth among women who have never been married (Table 2.3). For both surveys, the authors observe significantly higher first-birth hazards for younger cohorts, starting with women born in 1985 for the DHS and with women born in 1980 for the MICS sample. The higher propensity of the first birth in marriage was characteristic for rural residents and the lower propensity for women of high wealth quintiles (only in the DHS sample). Among the gender relations parameters, attitudes toward domestic violence and spousal education gap were insignificant, and age gap (although significant) had a hazard ratio close to 1. Women's higher education, somewhat contrary to expectations, was associated with significantly higher first-birth hazards. Thus, unlike first marriage hazards, where the analysis of both surveys pointed to the significance of a number of the gender relations parameters, for the hazards of the first birth, both surveys did not point to the significance of gender relations parameters.

2.5 Interpretation of the Results and Discussion

The models fitted for both the DHS and MICS samples have pointed to a somewhat inverse dynamics of the first marriage and the first birth hazards between the birth cohorts from 1970–1974 to 1990–1994. The hazards of the first marriage became significantly lower from the elder to the younger cohorts, whereas the hazards of the first birth became higher for the younger cohorts (results for the two surveys did not agree only in trends for the youngest cohort). Low first marriage hazards in younger cohorts fit the commonly expected picture of modernizing demographic changes in developing countries (Coontz 2004). Moreover, the analysis has shown that first marriage hazards are higher with lower education of a woman and with

[9]Note that models estimated for the MICS2014 sample in Kazenin and Kozlov (2020) give slightly different results for inter-cohort hazard ratios. There models are run for the whole sample of the MICS2014, unlike models only for the two biggest indigenous ethnicities in the present chapter.

Table 2.3 The hazard ratios for the first birth in marriage in Kyrgyzstan (only for Kyrgyz and Uzbek women)

	Model 1		Model 2		Model 3		Model 4	
	HR	St. errors	HR	St. errors	HR	St. errors	HR	St. errors
(a) The DHS 2012 database								
Cohort 1970–74	1		1		1		1	
Cohort 1975–79	1.070	0.052	1.063	0.0548	1.065	0.0548	1.062	0.0547
Cohort 1980–84	0.993	0.051	1.066	0.0540	1.061	0.0537	1.061	0.0537
Cohort 1985–89	1.17[c]	0.051	1.318[c]	0.0664	1.315[c]	0.0662	1.313[c]	0.0661
Cohort 1990–94	1.379[c]	0.068	1.757[c]	0.119	1.773[c]	0.120	1.759[c]	0.118
Rural	1.261[c]	0.039	1.044	0.0635	1.187[c]	0.0463	1.151[c]	0.0438
Uzbek language	1.008	0.066	1.032	0.0686	1.007	0.0665	0.976	0.0633
Education higher than secondary	1.096[c]	0.035	1.123[c]	0.0393	1.116[c]	0.0391		
Wealth index 1 (lowest)			1					
Wealth index 2			0.96	0.0479				
Wealth index 3			0.910[a]	0.0466				
Wealth index 4			0.880[b]	0.0507				
Wealth index 5 (highest)			0.779[c]	0.0609				
Supports domestic violence			1.063	0.0548	1.065	0.0548		
Education gap (wife higher)							1	
Education gap (the same)							0.901[b]	0.0386

(continued)

Table 2.3 (continued)

	Model 1		Model 2		Model 3		Model 4	
	HR	St. errors	HR	St. errors	HR	St. errors	HR	St. errors
Education gap (wife lower)							0.914	0.0568
Age gap							0.989[a]	0.005
(b) The MICS2014 database								
	Model 1		Model 2		Model 3		Model 4	
	HR	St. errors	HR	St. errors	HR	St. errors	HR	St. errors
Cohort 1970–74	1		1		1		1	
Cohort 1975–79	1.043	0.055	1.044	0.055	1.043	0.055	1.061	0.058
Cohort 1980–84	1.069	0.052	1.071	0.052	1.071	0.052	1.119**	0.055
Cohort 1985–89	1.145[a]	0.052	1.147[c]	0.052	1.145[c]	0.052	1.146[b]	0.054
Cohort 1990–94	1.284[a]	0.058	1.283[c]	0.058	1.285[c]	0.058	1.286[c]	0.061
Rural	1.073[b]	0.035	1.083[a]	0.044	1.068[a]	0.036	1.029	0.037
Uzbek language					0.974	0.045	0.999	0.046
Education: professional	1.078[b]	0.034	1.076[b]	0.035	1.078[b]	0.035	1.051	0.036
Wealth index 1 (lowest)			1					
Wealth index 2			0.993	0.048				
Wealth index 3			0.976	0.050				
Wealth index 4			1.038	0.056				
Wealth index 5 (highest)			0.998	0.066				
Supports domestic violence					1.048	0.033		
Age gap							0.998	0.003

her treating as appropriate a husband's violence toward his wife. Therefore, the lower economic independence of a woman and her acceptance of some patriarch family norms are statistically associated with a higher propensity to enter her first marriage. This makes the picture somewhat "classical" for developing countries, with more pronounced gender asymmetries resisting changes in the life course of women, which nevertheless take place between birth cohorts. Higher first marriage hazards for rural women support this conclusion, as rural populations generally are expected to demonstrate more gender conservatism, as well as more "traditional" age patterns of key demographic events.

Note that the conclusions regarding the first marriage agree in two important aspects with the findings of Nedoluzhko and Agadjanian (2015) and Agadjanian et al. (2013) on marriage in post-Soviet Kyrgyzstan. First, based on a different survey, these studies show that marriage generally declined in Kyrgyzstan in the 2000s compared with the 1990s (the authors conclude on a period decline of marriages, but the cohorts for which a significant decline in marital activity was observed in the present study entered their adulthood for the most part exactly in the 2000s). Second, the relation of lower first marriage hazards to more "modernized" gender relations discovered in the present chapter also agrees with the conclusion of Nedoluzhko and Agadjanian (2015) that the decline in marriage in the 2000s was accompanied by certain detraditionalization of family life (they demonstrate detraditionalization with a decrease in arranged marriages, a parameter not available from the data we use in this chapter). In addition, the results concerning first marriage hazards presented in this chapter are in line with a large number of recent studies on different countries showing that marital activity declines with social changes that make women's role in society less restricted by traditional norms (see e.g., Jejeebhoy 1995 for an overview, Gore and Carlson 2010 for Turkey, Ikamari 2005 for Kenya, among many others).

It has to be added that the analysis for the first marriage actually concerns only the comparative intensity of entering the first marriage by different cohorts at ages they have already passed through. Since none of the cohorts under analysis reached the age of 50 by the time of the surveys, the analysis does not definitely mention the resulting proportions of having ever been in marriage in the cohorts under study.

However, for the hazards of the first birth in marriage, the picture that we found is more complex and less expected. Indeed, a departure from traditional family norms is usually supposed to result in a decrease of birth hazards rather than in their increase, which the analysis has pointed to. Another unexpected result is that, unlike first marriage hazards, first birth hazards showed no positive relation to more pronounced gender asymmetries. Among the parameters considered to be gender-related, only women' s educational level was significant for first birth hazards, but it made them higher, contrary to expectations.

A possible explanation for the observed difference between first marriage and first birth hazards is that higher first birth hazards in younger cohorts result from postponement of the first marriage. As the gender asymmetries prescribing early first marriage for women become weaker for younger cohorts, women's marital behavior may become more conscious, so that women tend to enter their first marriage not just when they reach the "prescribed" age, but when they have chosen to have children.

If this is so, no decrease in the hazards of the first birth in marriage is expected for younger cohorts. Moreover, it is expected that these hazards have no positive relation to gender asymmetries, as a quick transition from entering the first marriage to the first child bearing is not associated with family "traditionalism" under this account.

Postponing the first marriage until a decision is made to have a child looks especially reasonable when out-of-marriage fertility is of low acceptability in society. Note that available sources indicate a low propensity for non-marital births in today's Kyrgyzstan. Thus, the sample surveys that the study is based on both point to a very low level of fertility of women who have never been married. From the DHS and the MICS samples, among Kyrgyz and Uzbek women in this category, less than 0.1% had a child. In addition, for less than 1% of the women having at least one child, the reported date of the first birth preceded the date of entering the first marriage. According to the Kyrgyzstan Population Census (2009), only 1.9% of women who identified themselves as single (as opposed to married, divorced, and widowed) had at least one child.[10]

The inter-cohort developments that are observed in Kyrgyzstan probably demonstrate a path that nuptiality and fertility behavior may follow when gender asymmetries become weaker and give women more freedom in their solutions regarding family life, but fertility out of marriage, whether registered or not, is not considered as a "legal" option. One can expect that the counter-directed dynamics of the hazards of the first marriage and the first birth that were observed can also be detected in other countries where traditional gender asymmetries are weakened, but fertility of single mothers is considered as highly undesirable. Additional research is needed to determine whether this expectation is borne out.

Turning back to the stability of inputs of different age groups to total fertility in Kyrgyzstan, the analysis implies that the peak of fertility will remain in the age of 20–24, as long as the peak of marital activity of women will not go beyond that age. For today, it is not expected to exceed the 25-year boundary, which is indirectly shown by official statistics, as the mother's mean age at the first birth fluctuated between 23.2 and 22.9 years in 2004–2018 (Kyrgyzstan Yearbook 2019). Women's mean age at the first marriage is expected to be lower under these circumstances.

Another implication of the analysis is that the stability of fertility age patterns in post-Soviet countries does not necessarily mean preservation of traditional family norms with pronounced gender asymmetries. The weakening of gender asymmetries can have different implications for fertility depending upon other norms that are active in a society, such as norms concerning out-of-marriage births.

2.6 Conclusions

In the present chapter, the authors have attempted to discover gender-related correlates of fertility in a post-Soviet country in Central Asia, Kyrgyzstan. Kyrgyzstan is

[10] See Denissenko et al. (2012) for a detailed discussion of out-of-marriage fertility in Kyrgyzstan.

among those post-Soviet countries that (somewhat against the trend dominating in the post-Soviet space) did not show a pronounced fertility postponement between the mid-2000s and the mid-2010s. Most populations of Kyrgyzstan are Muslims and, as commonly expected that gender asymmetries are better preserved in Muslim societies, we hypothesized that young age patterns of fertility in Kyrgyzstan are supported by gender asymmetries.

To test this hypothesis, the authors measured first marriage and first birth hazards among five-year birth cohorts of women of indigenous Kyrgyzstan ethnicities (Kyrgyz and Uzbeks) born from 1970–1974 to 1990–1994 in two representative survey samples held in this country, the DHS2012 and the MICS2014. The decomposition of first birth hazards into hazards of the first marriage and of the first birth in marriage was justified, as out-of-marriage fertility is of very low level in Kyrgyzstan. The key findings can be summarized as follows. First, the hazards of entering the first marriage become lower toward younger cohorts; however, first birth hazards oppositely become higher. Second, more pronounced gender asymmetries are related to a higher propensity of entering the first marriage, but are not significant for the propensity of the first marital births.

To account for this result, the authors suggested that the observed hazard configuration is expected if entering the first marriage becomes less regulated by traditional gender norms that prescribe a young age for women at the first marriage, but out-of-marriage fertility is considered as highly socially undesirable. Under this setting, entering the first marriage tends to become more of a conscious choice. Moreover, in terms of timing, readiness to have children is one of the central preconditions of this choice. Therefore, first birth hazards in marriage are not expected to be positively related to any kind of family "traditionalism," including strict gender asymmetries, or to become lower toward younger cohorts. Under this account, the lack of fertility postponement in Kyrgyzstan is expected as long as the mean age at the first marriage remains low enough in this country. However, if in the future the mean age at the first marriage grows beyond the boundaries of the 20–24 age group, as expected under the gradual "detraditionalization" of family norms, the peak of fertility is also expected to shift to the 25–29 age group.

Overall, the study does not confirm the hypothesis that the post-Soviet countries where no fertility postponement is observed are characterized by stably conservative gender relations. The example of Kyrgyzstan shows that under gradual weakening of gender asymmetries, fertility postponement can be resisted by other social norms, such as low acceptability of out-of-marriage fertility. Whether this holds true for other post-Soviet countries that do not demonstrate fertility postponement is a subject for future research.

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