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Putting the pieces together:

Forty years of fertility trends across 19 post-socialist countries

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Abstract: This paper explores changes in childbearing behavior after the fall of state socialism in Eastern Europe and Central Asia using a unique data source that offers unparalleled opportunity for a comparison of 19 countries. The main aim is to identify how the transition from state socialism influenced fertility behavior in countries with different fertility profiles at the onset of regime change. We first construct country-specific fertility profiles for the pre-transition era and then explore how fertility behavior developed in countries with similar starting points. We found no single "transition effect", but rather different patterns that may reflect economic performance during transition experiences. The countries that experienced the most successful transitions and integration into the EU appear to have adapted to fertility patterns observed in the rest of Europe. Likewise, little economic change in some of the poorest transition countries brought less dramatic changes in childbearing behavior. An unusual pattern of childbearing behavior emerged among some countries, however, in which postponement has been limited at the same time that having only one child has become much more common. This pattern is found mostly in western post-Soviet contexts such as Russia and Ukraine, but seems to also characterize Bulgaria and Romania to a lesser degree. We speculate that this pattern reflects the promise of new economic and labour market opportunities in an environment where these promises were difficult to realize.

Keywords: fertility, postponement, post-socialist, economic transition, comparative

Introduction

The end of state socialism in Eastern Europe and the Soviet Union ushered in political, economic, social and demographic change. Countries still completing their fertility transition and those with a fertility level already around or below the replacement rate all experienced a substantial decline in fertility rates following regime change: The decline in the total fertility rate (TFR) from 1980 to 2000 ranged from 30-50% in all Eastern European countries and former Soviet republics. The simultaneous regime and fertility declines inspired much debate and speculation about how the two were related (e.g., Kohler et al. 2002; Frejka & Sardon 2006; Frejka & Sobotka 2008; Sobotka 2011; Billingsley 2010).

This paper contributes to that debate with a unique data source that offers unparalleled opportunity to compare fertility behavior across time over 19 post-socialist countries.[1] These countries present a fascinating research setting; before the 1990s, the developments we saw in fertility behavior across most of Europe generally appeared to stop short of the Iron Curtain (Frejka & Calot 2001; Coale 1994). The "socialist greenhouse" (Sobotka 2002) instead kept fertility levels in socialist countries relatively high via pronatalist policies and limited opportunities for self-advancement, mobility, and consumption. With the destruction of this environment and the development of democracy and market economies, a convergence in fertility behavior between east and west Europe could be expected. The regime transition in these formerly socialist countries was also accompanied by rapid nation building: before the 1990s, these 19 countries were only eight altogether. Only five countries experienced no change at all in their territory. Nation building has been associated with converging demographic patterns within borders and diverging patterns across borders (Watkins 1990) and this research setting provides a unique opportunity to observe and compare changes over time within countries as national policies, institutions and cultures become solidified.

The main aim of this study is to identify how the transition from state socialism influenced fertility behavior depending on the initial fertility profile of the country and differences in transition experiences. This aim has been in the background of much research, but has not been properly addressed because of its heavy demands on data. Twenty-five years after the transitions commenced, we still lack a comprehensive picture of how fertility behavior developed across a wide range of formerly state socialist countries, which limits our understanding of how countries with different fertility regimes reacted to market reform and transition.

Our data allow us to systematically examine change across cohorts and time in this region. We construct country-specific fertility profiles for the pre-transition era and then explore how fertility behavior developed in countries with similar starting points. Our approach offers a few important contributions to the literature. First, we provide a standardized comparison of fertility

[1] The countries included in this study are Albania, Armenia, Azerbaijan, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovenia, Ukraine, and Uzbekistan.

trends across the 19 countries. Using the same methods, measures and metrics will facilitate a careful comparison of countries and allow us to methodically evaluate similarities and dissimilarities. Scholars have provided numerous case studies (e.g., see 2008 *Demographic Research* Special Collection: Childbearing Trends and Social Policy in Europe) that have contributed much to the discussion but ultimately provide information that is difficult to compare across countries. Studies that did produce comparable estimates focused mostly on Russia and select Central and Eastern European countries (e.g., Bulgaria, Czech Republic, Estonia, Hungary, Poland, Romania, and Slovenia). The degree to which conclusions drawn from these comparative studies are applicable to a wider range of transition countries remains unclear. The scope of countries compared in this study covers the entire range of post-socialist experiences in Eastern Europe and the former Soviet Union, including countries that we know virtually nothing about despite the existence of high quality, publically available micro data.

Second, we take a multidimensional approach in our description of fertility dynamics (Ni Brolchain 2011) and look at the timing of parenthood and parity transitions separately. A single figure, such as the TFR, or age-specific fertility rates cannot represent change accurately when quantum and tempo do not vary together. For many of the 19 countries studied here, the TFR measure has been our sole source of information about fertility dynamics. This is problematic not just because the TFR may change based on shifts in the timing of childbearing and not reflect any true change in fertility levels (Bongaarts & Feeney 1998), but because official statistics may not be accurate enough to reliably estimate a TFR. The TransMonEE 2012 database (a collection of official statistics compiled by UNICEF) lists discrepancies for six of our 19 countries (Armenia, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, and Ukraine) in which the official TFR was estimated to be between 0.2 and 0.6 lower than survey estimates. Fertility rates may have been higher than official estimates because large undocumented emigration flows can lead to incorrect population counts and a sizable error in the denominator used to calculate age specific fertility rates. Other countries for which no survey estimates of TFR have been compared to official estimates may also have underestimated their fertility rates. For example, the TFR in Latvia in 2010 was re-estimated to be 1.32 instead of 1.12 after an updated population count from the 2011 census data (Ministry of Economics 2012)[2]. This means that at least four countries that have been discussed as "lowest-low fertility"[3] contexts (Armenia, Moldova, Latvia and Ukraine) may never have had a TFR below 1.3 (and that no country in 2008 in Europe had lowest-low fertility, as stated in Goldstein et al. (2009)). This study provides comparable summary statistics that avoid the issue of incorrect population counts as well as the problems that come with single measures such as TFR.

Another advantage of using individual-level data, in contrast to the aggregate data that has been used in most comparative research, is the possibility to construct rates of the first kind (based on occurrences specific to exposure rather than based on total population counts). We exploit this

[2] Thanks to Juris Krumins for this information.

[3] A term that has been widely used since its first use by Billari and Ortega (2002) to denote a TFR below 1.3.

opportunity by exploring parity-specific transitions (that are specific to the population at risk of a parity event), the destandardization of the timing of childbearing within our samples and synthetic cohorts, which allow us to use the most up-to-date information we have.

The cohort and period measures of childbearing behavior before and after regime transition we provide in this study specifically answer the following questions: What are the differences across countries in the age at entering parenthood before and after 1990? For which birth cohort did postponement begin within each country? How widespread has postponement become within each country? Has the prevalence of childlessness increased? Is having a second and third child becoming less common? After disentangling these fertility dynamics, we then condense this breadth of information into meaningful summary indicators and fertility profiles to answer the following questions: How can we characterize the emerging fertility profile of each country? Which countries appear to have experienced the most similar demographic transformations during regime change?

Data

Survey data for this research comes from the Changing Life Course Regimes (CLiCR) database, which provides unique, harmonized and comparative data on 19 post-socialist countries. This is a new resource developed by the Stockholm Centre on Health of Societies in Transition at Södertörns University and Stockholm University's Demography Unit. This database consists of data sets from four large-scale, publically-available surveys: Gender and Generations Surveys (GGS), Demographic and Health Surveys (DHS), Life in Transition Surveys (LiTS) and Family and Fertility Surveys (FFS). Differences exist across the surveys in data collection methods, but the basic design of each survey provides key similarities that allow cross-survey comparisons, the most important of which is retrospective childbearing histories.

The LiTS data was administered in 2006 by the European Bank for Reconstruction and Development to all 19 countries and collects retrospective information since 1989. For this reason, we only include women born 1973 or later from this data source, which ensures that all respondents were no older than 16 in 1989. DHS, FFS, and GGS offer full fertility histories and were administered in various years, but they do not cover all 19 countries individually. Therefore, each country sample contains women surveyed in LiTS and one of the other three surveys.[4] See Duntava & Billingsley (2013) for more information on CLiCR data.

Women who had incomplete birth histories (i.e., missing birth year for at least one child) were dropped from the sample. Moreover, all women who had their first child before age 16 were excluded because we could not observe women before age 16 for LiTS data. The range of birth cohorts observed in our sample is from 1950-1994 (but few countries include cohorts after 1990) and the total sample includes 99,166 women. Table 1 details the number of women representing

[4] Poland is the only exception and is represented by three surveys.

each country, the survey instrument, survey years, and the country code used in subsequent figures.

Table 1. Sample size, surveys and years for each country included in CLiCR data, restricted to the 1950-1994 birth cohorts

Code	Country	DHS	FFS	GGS	LiT	Total # of women
AL	Albania	2008			2006	7747
AR	Armenia	2005			2006	6737
AZ	Azerbaijan	2006			2006	8679
BU	Bulgaria			2004	2006	5395
CZ	Czech Republic		1997		2006	1882
ES	Estonia			2004	2006	3171
GE	Georgia			2006	2006	4094
HU	Hungary			2004	2006	4806
KA	Kazakhstan	1999			2006	4976
KY	Kyrgyzstan	1997			2006	3918
LA	Latvia		1995		2006	2476
LI	Lithuania			2006	2006	3413
MO	Moldova	2005			2006	7548
PO	Poland		1991	2010	2006	11434
RO	Romania			2005	2006	3740
RU	Russia			2004	2006	4731
SN	Slovenia		1995		2006	2922
UK	Ukraine	2007			2006	7034
UZ	Uzbekistan	1996			2006	4463

Vergauwen et al. (2015) evaluated the quality of demographic data estimated from the GGS and found in general that period indicators estimated from retrospective data since the 1970s align with population statistics. Cohort indicators were acceptable as well, except for those born before 1925. The countries for which the estimated period and cohort indicators might not be expected to match population statistics (due to undocumented migration) are represented in CLiCR mostly by women surveyed in the DHS. DHS is a unique survey in terms of its unusually high response rate (the average household response rate for our eight DHS countries was 97% and the individual response rate for women within households ranged from 92% in Ukraine to 98% in Albania, Azerbaijan, and Kazakhstan). These high response rates minimize non-response bias and ensure that the sampling strategy upholds the DHS aim to collect information that is representative nationally, regionally and residentially (urban/rural). The response rates in FFS varied more (75% in Slovenia to 96% in Poland), but are generally considered relatively high and item non-response for fertility histories was non-existent (Kveder 2000). The data quality of LiTS was evaluated comparatively by Kołczyńska (2014), who determined that LiTS ranked

third out of eight international surveys (above well-known and respected surveys such as the European Values Survey and World Values Survey) in terms of quality. We also investigated the reliability of our data by comparing select findings to those available in the literature and found the estimates comparable.[5]

We estimate cohort and period indicators, the latter generated according to when the transition from socialism officially began. We consider any date before December 1989 to be "pre-transition" for Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovenia. All the remaining countries are considered "pre-transition" before December 1991.

One benefit of calculating rates from survey data is that we can observe changes in fertility behavior over time that is net of changes in population composition. For example, it may be that some of the fertility changes observed in population statistics for the Kyrgyz Republic reflect differences brought about by the loss of ethnically Russian women during the 1990s when there was substantial return migration (Nedoluzhko & Andersson 2007). The "stayers" who were interviewed later provide estimates that are not influenced by compositional change. But because migration histories are not available in this data, we must assume that women surveyed in a given country were living in that country during their entire fertility career. This may not always be true, in which case we may be attributing fertility behavior of a select group of women to calculations for the wrong country at some point in time. Were we to have migration histories, however, we suspect the difference in the calculations of rates would be minor.

Pre-transition fertility dynamics

In this section, we present a description of fertility trends across cohorts born 1950-1964. These women experienced the greatest part of their fertility career under state socialist regimes: The 1950-1954 cohort entered parenthood in the early to mid-1970s and the 1960-1964 cohort entered parenthood in the mid to late 1980s. We also provide a brief summary of each country's fertility profile and the socioeconomic context at the end of the state socialist era, as well as how these factors compare.

To set the background, Table 2 shows how the 19 countries ranked according to GDP per capita in 1990, from highest to lowest, as well as higher educational enrolment rates and female labour force participation rates. At the dawn of transition, Slovenia was the wealthiest country and Uzbekistan was the poorest. The Baltic countries, Russia and Hungary all had high income as well. Higher educational rates showed variation from 8% in Albania to 32% in Lithuania and female labour force participation rates varied from 46% in Hungary and Uzbekistan to 63% in

[5] For example, the differences between the first birth rates of our 1965 cohort and those of Frejka and Sardon (2006) for Bulgaria, Czech Republic, Hungary, Poland, Romania, Russia, and Slovenia ranged from 0.001 for the Russian and Romanian cohort to 0.072 for the Bulgarian cohort. Four rates showed a difference greater than 0.01, but they mostly hovered around this number or below, which we consider a negligible difference.

Estonia; neither education nor participation rates appeared to be strongly correlated to national income at that time.

Table 2. GDP, higher educational enrolment and female labour force participation rates for 19 post-socialist countries in 1990

	Real GDP per capita [a]	Higher education enrolment [b]	Female labour force participation rate [c]
	1990	**1990**	**1990**
Slovenia	11 473	22,9	47,8
Czech R.	11 183	17,2	51,6
Lithuania	9 326	31,5	59,4
Hungary	8 758	12,1	46,2
Russia	8 008	24,6	59,6
Latvia	7 809	24,9	62,6
Estonia	7 268	24,1	63,0
Ukraine	5 822	21,7	56,1
Poland	5 461	17,0	55,2
Bulgaria	5 411	26,0	54,9
Romania	5 194	9,7	51,6
Kazakhstan	5 119	18,7	62,4
Georgia	4 103	20,9	55,1
Azerbaijan	3 433	12,6	54,0
Moldova	3 313	15,7	61,1
Albania	2 824	7,8	53,2
Armenia	2 120	20,1	60,0
Kyrgyz R.	1 809	12,9	58,4
Uzbekistan	1 446	15,2	46,2

a: PPP in USD, World Health Organization's Health for All Database
b: Gross ratios, per cent of population aged 19-24, TransMonnEE database 2006
c: % of female population ages 15+, World Bank data

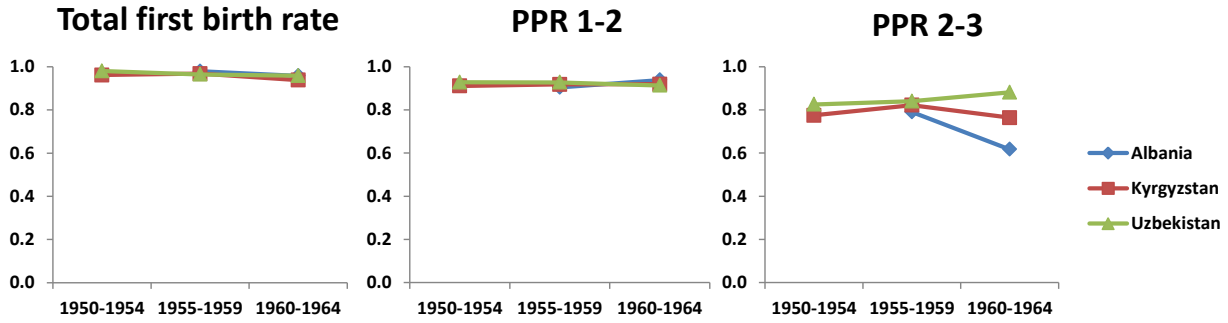
Parity-specific cohort trends

Despite the large sample size of this study, the samples used for specific estimates become small when dividing women into groups based on country, cohort, and age groups. No rates were calculated when there were fewer than 25 women contributing to the calculation. In this section, we also only calculated measures for cohorts where the cohort reached at least age 35 by the year of the survey. To ensure comparability across all cohorts, we likewise censored at age 35 even when we could have continued observing the cohort until a later age. We consider the sacrifice of parity events at older ages to be worth the gains in comparability across cohorts, particularly

for countries in which the age at entering parenthood was low. Were postponement to have already substantially began or were we to study birth orders higher than the third, the choice to censor at age 35 would have more serious implications for our estimates. In the calculation of parity progression ratios (PPR) 1-2, we excluded women who had multiple births when birth order one was achieved and multiple births when birth order two was achieved in the calculation of PPR 2-3.

We present countries in groups that share similarities in fertility behavior. Figure 1 displays parity transition rates for the countries that had the highest fertility when considering the first three parity events: Albania, Kyrgyz Republic, and Uzbekistan. First birth rates are very high for this group, reflecting universal parenthood. Having a second child was also more or less universal, as less than 10% of women stopped childbearing after entering parenthood. Little change over the 1950-1964 cohorts appears for these two parity events. More variation appears across these countries and over the cohorts for the third parity transition. About 80% of women born 1955-1959 with two children continued on to a third child in all three countries. But we see a slight increase in the share transitioning to a third child in Uzbekistan in the 1960-1964 cohorts, a slight decline for Kyrgyz women, and a more notable decline for Albanian women (almost 20 percentage points). That we see some change for this cohort and parity transition is expected, considering these women were likely having their third child after the transition from socialism had already begun.

Figure 1. Parity transitions for countries with high fertility



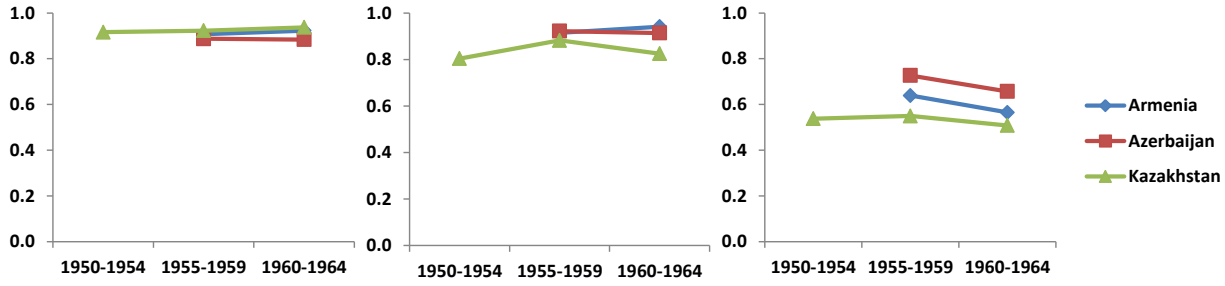
Both Kyrgyzstan and Uzbekistan were identified as "pre-transitional" until at least the late 1970s, before which there was no change in the TFR of around 6 children per women (Anichkin & Vishnevsky 1994). In contrast, Albania began its fertility transition earlier and experienced a consistent decline in TFR from above 6 children per woman from 1960 onward (Falkingham & Gjonça 2001). Kyrgyzstan and Uzbekistan were the poorest of all Soviet republics (along with Tajikistan) in terms of the share of the population living below a monthly household per capita income of 75 rubles in 1989 (Otoo et al. 2004). If we look strictly at initial conditions at the onset of transition (1990),[6] Albania had almost double the GDP of Kyrgyz Republic and

[6]Earlier economic comparisons are not possible because of a lack of data.

Uzbekistan and was performing more like Moldova.The share of the population that achieved higher education was similar across the three countries, with Uzbekistan leading in 1990 at 15%, followed by Kyrgyzstan (13%) and Albania (8%); likewise, the share employed in the working age population was nearly identical (73-74%) (TransMonEE Database 2006). But women were more likely to be participating in the labor force in Kyrgyzstan (58%) and Albania (53%) than in Uzbekistan (46%). Culturally, the three countries share a majority population that is Muslim. While a strong presence of Islam may support higher fertility, this factor does not appear deterministic in a uniform manner given that other countries with majority Muslim populations did not have as high fertility (e.g., Azerbaijan and Kazakhstan).

The next figure presents countries with medium-high fertility during state socialism: Armenia, Azerbaijan and Kazakhstan. In terms of first and second parity transitions, these three countries do not differ significantly from the high fertility countries (except Kazakhstan, which had a lower PPR 1-2 (around 80%) for the 1950-1954 and 1960-1964 cohorts). The main difference was the lower transition to third births: women born 1955-1959 in Azerbaijan had the highest third birth transition rates (73%), followed by Armenia (64%) and Kazakhstan (55%). All three countries saw a slight decline in third parity births for women born 1960-1964, ranging from four percentage points in Kazakhstan to seven in the other two.

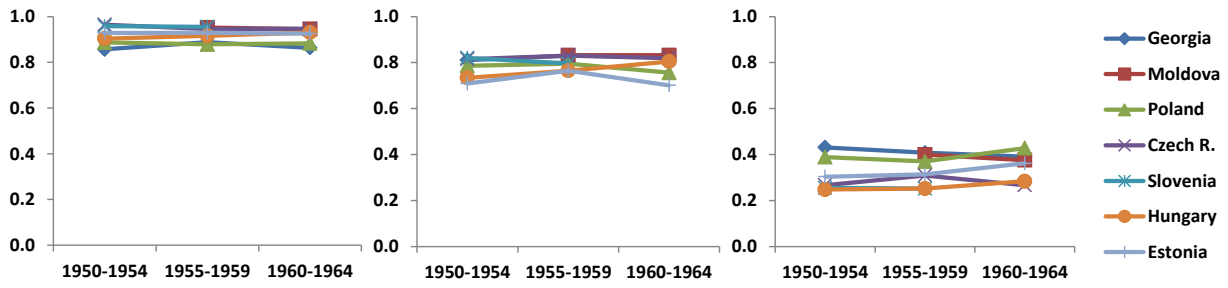
Figure 2. Parity transitions for countries with medium-high fertility



According to Coale (1994), these three “non-European republics” all have their own unique culture, language and national identity. His estimates show that before entering the transitional stage of fertility decline, Armenia and Azerbaijan had the highest fertility in the pre-socialist era (around 8 children per woman) and had very similar TFRs in the late 1950s, with fertility decline occurring a little more rapidly in Kazakhstan and Armenia (as evident in our figures). Kazakhstan was the wealthiest of the three before the economic transition began, with a GDP per capita (PPP) of over $5000. Azerbaijan had a GDP almost $3500, whereas Armenia barely surpassed $2000. In contrast, Armenia and Kazakhstan had the highest share of the population enrolled in higher education (20% and 18% in 1990, respectively), whereas Azerbaijan only had around 13%. Compared to the high fertility countries, all three of the medium-high fertility countries had higher employment rates in 1990: 88% in Azerbaijan, 81% in Kazakhstan and 78% in Armenia (TransMonEE Database 2006) and women participated in the labor market at a higher rate: 60% in Armenia, 54% in Azerbaijan and 62% in Kazakhstan.

Before regime change and economic transition, the medium-low (Figure 3) and low fertility (Figure 4) countries show little variation in first birth rates as well: between 85-95% of women had at least one child during state socialism. How the remaining countries rank according to second and third parity progressions is more complex. Georgia, Moldova and Poland unequivocally fall into the medium-low fertility countries with second birth progression among 75-85% of women with one child and third birth progression among 30-45% of women with two children. Estonia also fits within the medium-high fertility group due to third birth progression rates that were between 30-45% and higher second birth progression rates than the low fertility countries (although falling into the lower range of 60-75%). Czech Republic, Hungary and Slovenia fall into the medium-low fertility group because their second birth progression rates were more similar to those in Georgia, Moldova and Poland and their third birth progression rates were generally higher than those of the low fertility countries (although falling into the lower range of 15-30%).

Figure 3. Parity transitions for countries with medium-low fertility



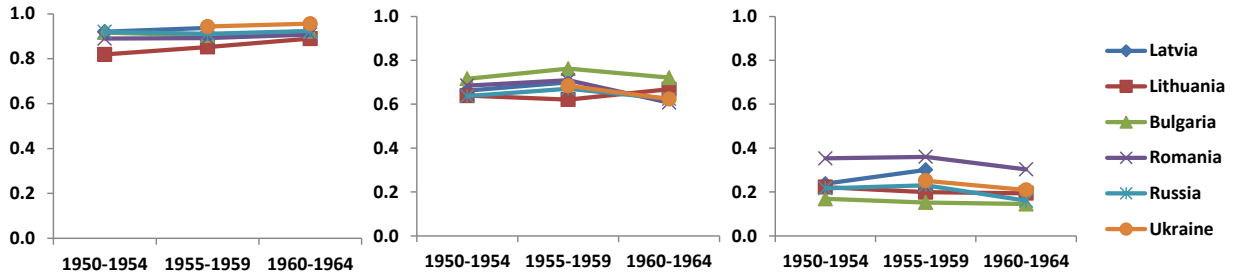
The medium-low fertility countries display the most heterogeneity in terms of initial conditions. In 1990, Slovenia and Czech Republic shared a similar GDP that placed them at the top of the ranking of all 19 countries (over $11,000 per capita GDP, PPP), whereas Moldova and Georgia were in the range of $3,000-4,000, respectively. Poland's GDP was hardly higher at this time than Kazakhstan's ($5,500) and Estonia and Hungary fell in between the two extremes ($7,300 and $8,800, respectively). Slovenia and Poland had unusually low shares employed of the working age population (71%) for this group, sharing more similarity to the high fertility countries in this regard (Albania, Kyrgyzstan and Uzbekistan). The share employed in the rest of the medium-low fertility countries ranged from 81-87%, similar to other socialist countries at the time (TransMonEE Database 2006). More variation appeared for women's participation rates in 1990, which spanned 46 and 48% in Hungary and Slovenia, respectively, to 63% in Estonia. Educational enrolment rates were diverse as well, ranging from 12% in Hungary to 35% in Estonia. All countries in the high and medium-high fertility groups were part of the Soviet Union (except Albania), as were Georgia, Moldova and Estonia in this group. Slovenia also was part of a larger nation (the Socialist Federal Republic of Yugoslavia) during the state-socialist period (and up to 1991), whereas Poland, Czech Republic and Hungary were not. These initial

conditions were dramatically different for countries that achieved relatively similar parity progressions for the first three birth orders.

Estonia, like the other Baltic States in the next fertility group, showed marital and fertility patterns similar to Scandinavian countries for the first half of the twentieth century, with TFRs much lower already than seen in other countries in this group (at least those that were compared by Coale (1994): Georgia, Moldova, Poland and Hungary). By 1970, Poland and Hungary had caught up to Estonia in achieving a TFR at almost replacement rate (Coale 1994). Czechoslovakia had a fertility rate below replacement rate by the end of the 1960s (Sobotka, Zeman & Kantarová 2003) and Slovenia by the end of the 1970s (Stropnik & Šircelj 2008). Georgia had almost reached replacement level by 1989 (TransMonEE Database 2012), whereas Moldova did not reach fertility levels below replacement rate until some years after the end of the Soviet Union (Billingsley 2011) and it maintained the highest level of fertility in the European part of the Soviet Union until that time (Ryabov 2010).

Before regime change and economic transition, Latvia, Lithuania, Russia and Ukraine comprised a consistently low fertility group (Figure 4) according to second and third parity progressions (60-75% PPR1-2 and 15-30% PPR2-3). These low fertility countries were also joined by Bulgaria and Romania. Bulgaria had the lowest third birth progression rates of any country for these cohorts, whereas its second birth progression rates looked more similar to the medium-low fertility group. Romania shared second birth progression rates with the low fertility group and third progression rates with the medium-low fertility group. We classified it as a low fertility country because the last cohort showed a striking pattern of decline, particularly for the second parity progression, which likely reflects the lifting of the abortion ban with regime change.

Figure 4. Parity transitions for countries with low fertility



Bulgaria and Romania are the only low fertility contexts that were not part of the Soviet Union. In terms of its fertility transition during the twentieth century, Bulgaria looked very similar to Poland, whereas Romania started and ended the socialist era with higher fertility than Bulgaria and Latvia, but lower fertility than Russia and Ukraine (Coale 1994). Lithuania and Latvia appear more similar according to these indicators than they do in earlier years (and according to other fertility measures), when Estonia and Latvia appeared more similar and Lithuania

resembled other Eastern European contexts more (Katus 1994). By 1960, Latvia had reached replacement level fertility, whereas Russia, Ukraine, Bulgaria and Romania reached this level by 1970 (Coale 1994). In terms of the socio-economic context at the end of the state-socialist era, these six countries were more homogenous than the medium-low fertility countries—ranging from $5200 (Romania) to $9300 (Lithuania) per capita GDP in contrast to $3300 (Moldova) to $11500 (Slovenia) in 1990. The initial economic differences were minor between Bulgaria, Romania and Ukraine, as well as between Latvia and Russia (around $8000). Higher educational enrolment rates at that time were very similar (between 21 and 26%) for all countries except Romania, which resembled Albania at the time by having only 9% of the 19-24 year old population enrolled. No dramatic differences appear for employment rates, which ranged between 77% of working age population in Romania to 83% in Russia.[7] Romania also had the lowest female labor force participation rates (52%) in this group and Latvia had the highest (63%), with Russia not far behind (60%).

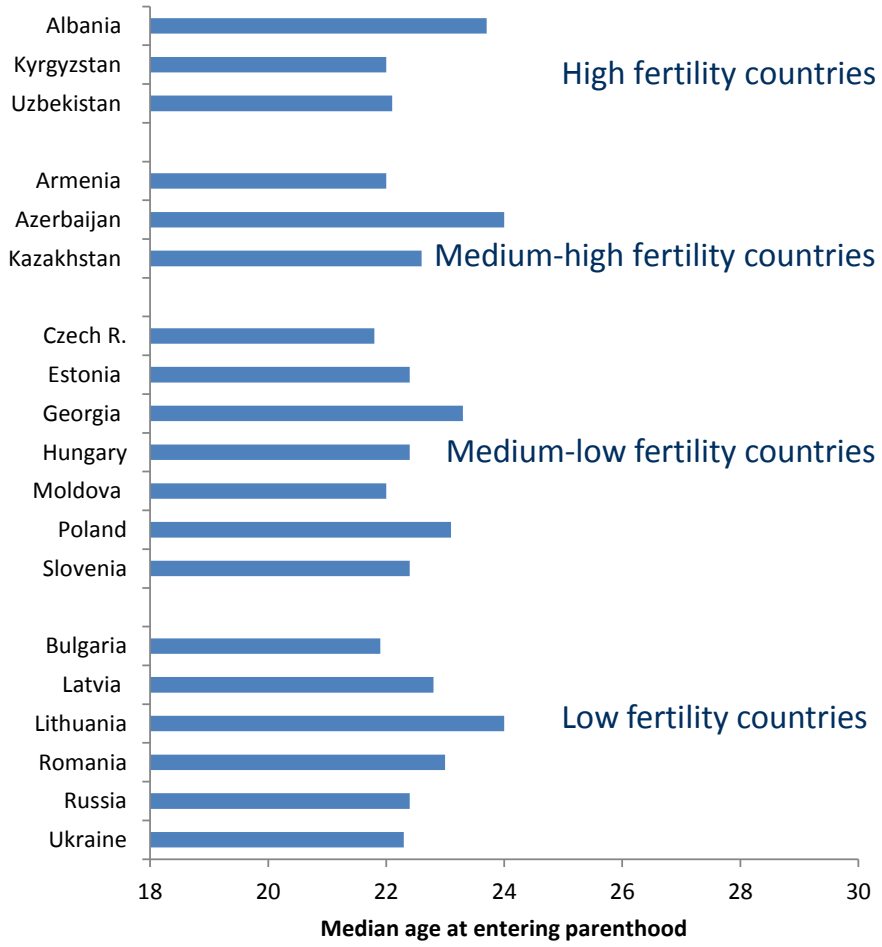
The entrance to parenthood across cohorts

We next describe differences among countries in the timing of parenthood for cohorts reaching adulthood in the socialist era. Figure 5 shows the age at which 50% of the 1960-1964 cohort entered parenthood, which generally took place in the 1980s. The median age at progression to parenthood was estimated for all women who were at risk of becoming a parent at age 16 or later. All first births, including those with multiple births, are included in the analysis. Women were censored at the time of interview or when they turned age 45. We present the countries in the groups defined above.

The most evident finding from this figure is that there was little variation in the age at first birth and no systematic variation in terms of country groups. The median age varied between 22 and 24; remarkably, 11 countries had a median age of 22, if we round to the integer (varying between 21.8 and 22.4). Lithuania and Azerbaijan had the latest median timing of parenthood at 24 years of age and only six countries fell between 22.5 and 24: Albania, Georgia, Kazakhstan, Latvia, Poland, and Romania.

[7] No information on employment rates for Latvia was available to compare.

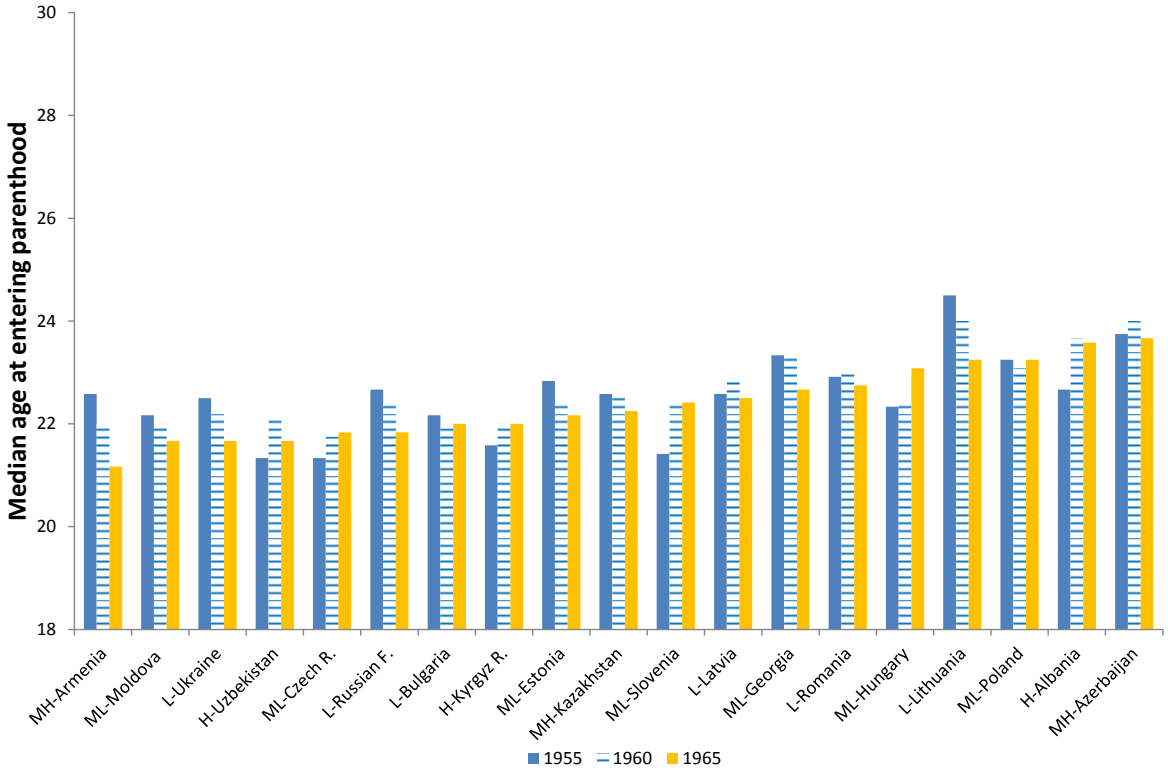
Figure 5. Median age at entering parenthood for the 1960-1964 cohort



The country comparison above focused on one cohort, namely the one that is likely to have been the last to enter parenthood before the transition from socialism began. If we look at the cohorts immediately before and after, we see some changes in the timing of parenthood worth noting. Figure 6 plots the median age at childbearing for the 1955-1959, 1960-1964 and 1965-1969 birth cohorts. The countries are ordered according to the age at parenthood for the latest cohort, from earliest to latest timing. Before each country name on the X-axis, countries are marked as belonging to the high (H), medium-high (MH), medium-low (ML) or low (L) fertility groups. This demarcation clearly demonstrates the absence of a relationship between fertility level and timing for even the 1965-1969 cohort; each group is represented by countries located among the earliest, middle and latest distribution of timing. In the majority of countries, there was a consistent decline in median age at first birth across these earlier birth cohorts during state socialism. The earlier age at first birth over these cohorts has been linked to housing shortages and the role family formation played in young couples achieving independent residences (Sobotka 2011), as well as the loosening of social norms prohibiting pre-marital sex at the same time that contraception was not easily accessible (Zakharov & Ivanova 1996). The countries that

did not experience an earlier age at parenthood across either of the later cohorts were Czech Republic, Kyrgyz Republic, Slovenia, Hungary, and Albania (if we consider a 0.1 decline negligible). These five countries can be characterized as having experienced an increase in age at first birth over these cohorts. A few other countries experienced instead very little change, such as Poland, Bulgaria and Romania.

Figure 6. Median age at parenthood for the 1955-1959, 1960-1964, and 1965-1969 birth cohorts



To summarize the pre-transition patterns, we did not find substantial differences in the first birth transition rates among these 19 countries for earlier cohorts, nor did we find any systematic differences in the timing of the first birth. However, most countries that were part of the Soviet Union experienced a decline in the age at entering parenthood over the last cohorts entering parenthood before the transition began, whereas the remaining countries were more likely to have experienced a small increase in the age at first birth or no change at all.

Fertility dynamics after regime change

Several cohort and period indicators are explored in this section to observe quantum and tempo shifts following regime change.

The entrance to parenthood

We first list the cohort within each country for which we see an increase in the median age at parenthood. The age at which 50% of a cohort progressed to parenthood was estimated for all women who were at risk of becoming a parent at age 16 or later. We consider a half a year increase in the age at first birth from one cohort group (of five years) to another as indication that postponement of parenthood has occurred. Variation in which cohort initiated postponement across this group of countries is evident. Hungary experienced the earliest onset of postponement, with the 1965-1969 cohort delaying parenthood by 0.7 years. The next group of countries to experience delayed parenthood was Bulgaria, Czech Republic, Estonia, Lithuania, Romania and Slovenia for the 1970-1974 birth cohort. The growth in age at first birth varied between 0.5 and 0.75, excluding Slovenia in which the median age at first birth grew 1.8 years from the previous cohort. In contrast to other CEE countries, Poland did not experience delayed parenthood until the 1975-1979 cohort, along with Armenia, Georgia, Kazakhstan, Latvia, Moldova and Russia. The delay in parenthood was particularly marked for these countries at this time, with increases ranging from 0.9 years in Moldova and 1.4 in Georgia and Poland. The remaining countries (Albania, Azerbaijan, Kyrgyz R., Ukraine, and Uzbekistan) did not see any substantial postponement of parenthood until the 1980 birth cohort. Advancement of the age at first birth across these countries for this cohort ranged between 0.5 in Uzbekistan to a remarkable 2.3 in Albania. A rough distinction appears in which post-Soviet countries began postponing parenthood later than non-Soviet countries. Postponement appears to have generally spread from west to east. Yet we see diversity: among the CEE countries (Poland), Baltic States (Latvia), the Caucasus (Azerbaijan) and the CAR (Kazakhstan).

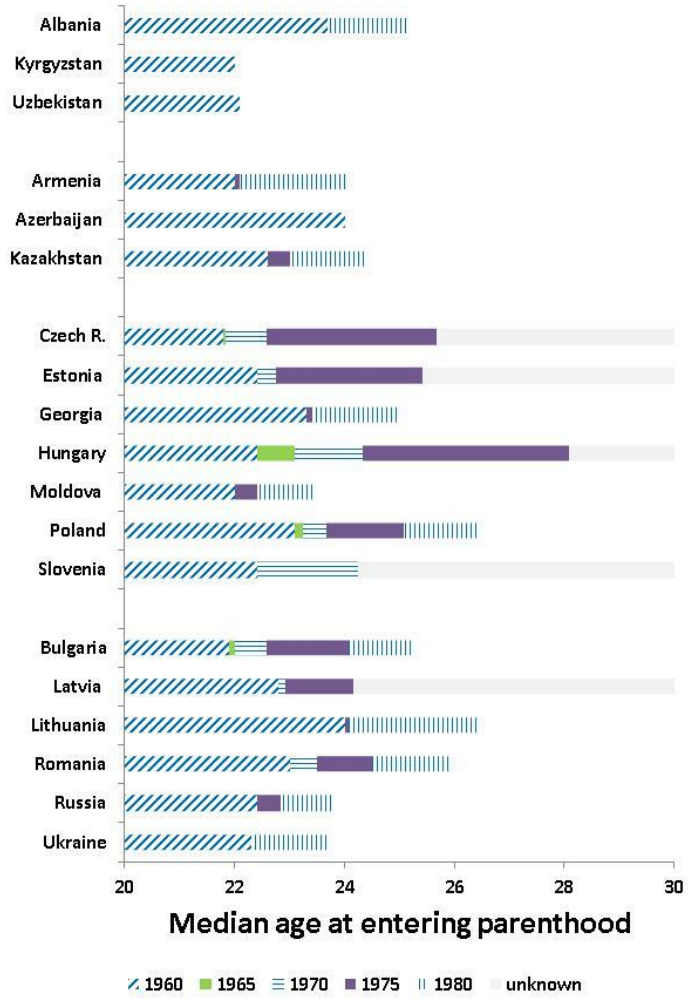
Table 3. First cohort to have 0.5 year increase in median age at parenthood following the 1960-1964 cohort

1965-69	1970-74	1975-79	1980-84
Hungary	Bulgaria	Armenia	Albania
	Czech R.	Georgia	Azerbaijan
	Estonia	Kazakhstan	Kyrgyz R.
	Lithuania	Latvia	Ukraine
	Romania	Moldova	Uzbekistan
	Slovenia	Poland	
		Russia	

Figure 7 displays more detail to the analysis of postponed parenthood across birth cohorts. The bars are extended horizontally to show how much each cohort contributed to a later age at entering parenthood beyond the 1960-1964 cohort. The first bar represents the 1960-1964 cohort, which was displayed in Figure 5 above, according to the previously defined country groups. This figure is designed to show postponement that occurred beyond the age at first birth for the 1960-1964, which preceded the shift toward a younger age at childbearing at the end of the Soviet

Union (this focus obscures some postponement that occurred but was not significant enough to surpass the age at first birth of the 1960-1964 cohort, such as in the case of Lithuania). Looking first at the contribution of the 1965-1969 birth cohort, we can see that these women significantly contributed to a later age at first birth in Hungary and to a negligible degree in Bulgaria and Poland. The 1970-1974 cohort contributed more significantly for Bulgaria, Czech Republic, Estonia, Poland, Romania, and in particular for Slovenia and Hungary. By the 1975-1979 cohort, all countries have experienced some postponement except Albania, Azerbaijan, Kyrgyz Republic, Ukraine and Uzbekistan. This cohort's contribution to a later age at parenthood was particularly strong for Estonia, Czech Republic and Hungary, whereas it was minimal for Lithuania. Georgia and Armenia also show minimal contribution of this cohort, but this is relative to the age at first birth of the 1960-1064 cohort only and in fact this cohort did achieve postponement in comparison to the cohorts coming between 1964 and 1975. For Slovenia, the median age at childbearing could not be estimated for the 1975-1979 cohort because 50% of them had not entered parenthood by the time of the latest survey (2006). For the same reason, we could not estimate the median age for the 1980-1984 cohort for Estonia, Latvia, Czech Republic, and Hungary. This is indicated with a solid gray bar that extends to the latest age in the figure to indicate advanced postponement. The 1980-1984 cohort experienced the first significant postponement for Albania, Armenia, Georgia, Lithuania, and Ukraine (around a year and a half). One general trend worth noting is that once postponement has begun, its development usually continues and picks up intensity. This was the case for all cohorts except the 1975-1979 cohort in Lithuania and for the most recent cohort in Bulgaria and Poland, where the increase in age at first birth of the most recent cohort was slightly less than the previous cohort.

Figure 7. Median age at parenthood across cohorts

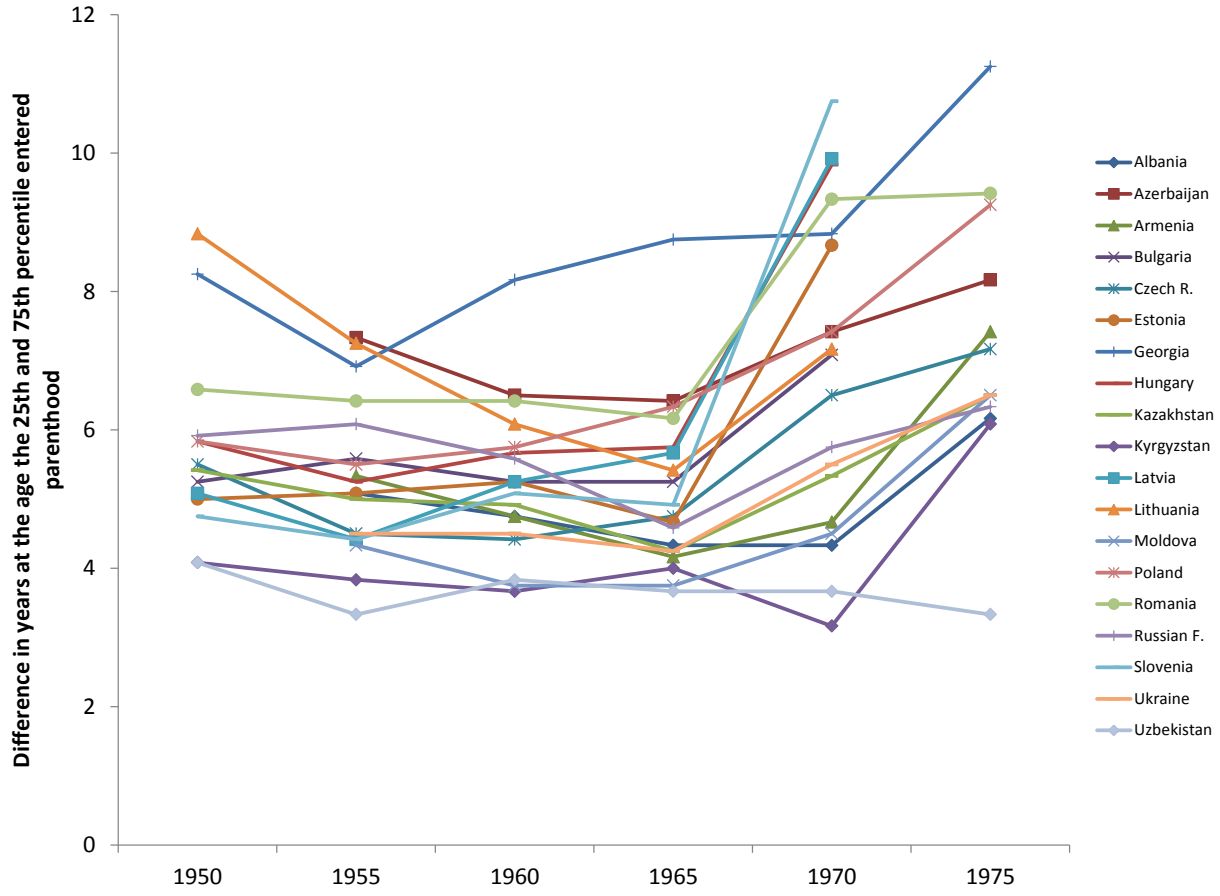


Note: the light gray bar furthest to the right indicates an unknown age

Destandardization of the timing of parenthood

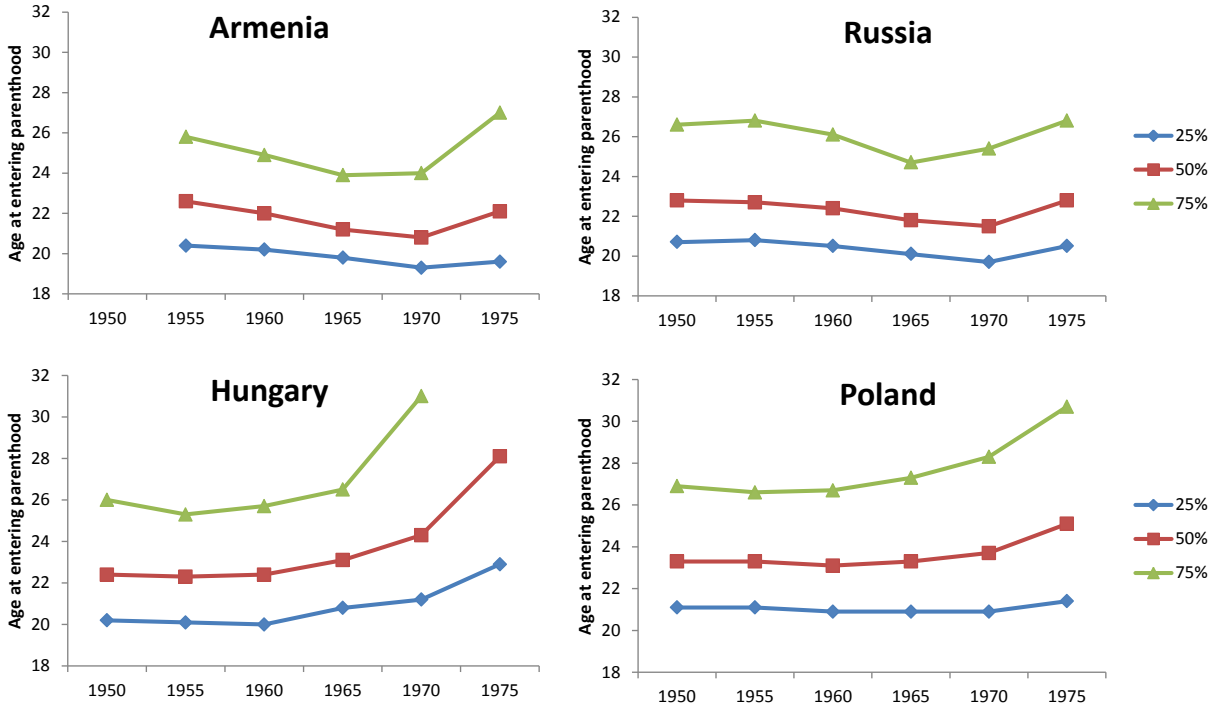
We extended the previous analysis of the median age at entering parenthood by also tracking when 25% and 75% of a cohort entered parenthood using estimates from the Kaplan-Meier failure function. By calculating the difference between when 75% and 25% of each cohort entered parenthood, we can observe the variability of the distribution of entering parenthood within each cohort, which tells us the extent to which the timing of an event has become destandardized within a society (Corjin 1996; Billari et al. 2001). Whether changes in the median age at first birth reflect a widespread shift in the timing of parenthood or rather a change for only a portion of the population is useful information for understanding how postponement has developed. Figure 8 presents all countries together to offer a comprehensive view of trends over time first. As evident, the cohorts entering parenthood before regime change experienced a compression of the interquartile difference, which means that the timing of parenthood became more standardized within the country at this time. The 1960-1969 cohorts showed the least variation in timing in general and little difference within these cohorts (1960-1964 vs. 1965-1969). The exceptions were Georgia, Hungary, Latvia, Poland, Slovenia and Uzbekistan, where the timing of parenthood was the most compressed for the 1955-1959 cohort. Nevertheless, very little change occurred between the 1950-1954 and 1965-1969 cohorts, excluding Armenia and Georgia. The difference between when 75% and 25% of the cohort entered parenthood spanned 3.3 years in Uzbekistan to 6.9 in Georgia, with most countries hovering in the range of four to five years. Coinciding with the early years of regime change, the 1970 cohort initiated an era of divergence in the timing of parenthood within most countries (except in Albania, Armenia, Kyrgyz Republic, and Uzbekistan, where the 1975-1979 cohort initiated divergence in all of these cases except Uzbekistan). When destandardization of the timing of parenthood occurred, it was dramatic: the average increase in interquartile difference was 2.4 years and in some cases was over four years (Estonia, Hungary, Latvia and Slovenia). Overall, the trend toward more diverse timing was universal, which means that postponement developed for one part of the population more quickly than it did for the rest. In terms of the degree of diversity in the timing of parenthood, there does not appear to be any systematic grouping of countries. Georgia consistently had one of the largest interquartile differences, whereas Uzbekistan had the smallest. One pattern that seems clear is that the countries that experienced the greatest postponement for the cohorts entering parenthood after regime change also experienced the most destandardization in the timing of the first birth at the same time.

Figure 8. Interquartile differences in the timing of parenthood across birth cohorts



In the next figure, we present a few examples of how the median age at parenthood varied alongside the age when 25% and 75% of a cohort entered parenthood. Once postponement develops for one part of the population, it seems to be only a matter of time before it spreads to the rest of the population. We can also see when the process of convergence ended and when postponement and divergence began. Generally, the age when 75% and 50% of the cohort enters parenthood begins to increase before or more quickly than the age when 25% enter parenthood. Russia is an interesting case because we can see that postponement developed for one part of the 1970 cohort at the same time that there was still a decline in the age at entering parenthood for the majority of the cohort. The age at first birth developed similarly in Armenia, but postponement intensified even more quickly there for one part of the cohort and more slowly for the rest. Hungary is a case in which postponement occurred within each cohort simultaneously (i.e., even for those who entered parenthood earliest), but to very different degrees. Finally, Poland shows a common pattern in which the age at parenthood changed little across many cohorts with the bottom quartile following the increase at the top many cohorts later.

Figure 9. The timing of parenthood across quartiles of birth cohorts



Parity transitions

In the next section, we explore indicators related to parity and how they have changed across time periods. Specifically, we observe parity transitions using a period approach: Kaplan-Meier failure estimates were calculated for different time periods. The estimates are therefore of synthetic cohorts that allow each woman to contribute to each time periods' intensity as she progressed through those years, rather than including only those who had their first child in 1991 or later, for example. In this way, we exploit the available data to the fullest degree and we avoid introducing selectivity based on postponement of previous births into our estimates. Similar to the PPRs calculated before, women with multiple births at parity 1 or 2 transitions were dropped for the estimation of the following parity event. Women were observed from the month of the previous birth and censored at the time of interview or turning 45 years old. The periods are defined as pre-transition (January 1975 until the end of 1989 for non-Soviet republics and 1991 for former Soviet republics) and post-transition, which begins in 1990 or 1992 and continues until the interview in each country (2006 at the earliest). To make our period estimates comparable, we include women who were born in 1958 or later as this is the earliest birth cohort included in all of the data sources. The countries were ordered according to the post-transition failure estimates in all figures.

As evident in Figure 10, parenthood is still mostly universal across these countries. Most estimates (pre and post-transition) hover around 90% of women entering parenthood, with only a few countries nearing 80% in the two periods (84% for Lithuania in the pre-transition period and

83% in Georgia and 79% in Hungary in the post-transition period). Estimates differed little over the two time periods, but a decrease of over five percentage points was observed in Slovenia, Bulgaria, Estonia, Georgia and Hungary. The increase in childlessness in Hungary was the most dramatic.

Figure 10. Kaplan Meier failure estimates for first births to childless women, pre and post-transition

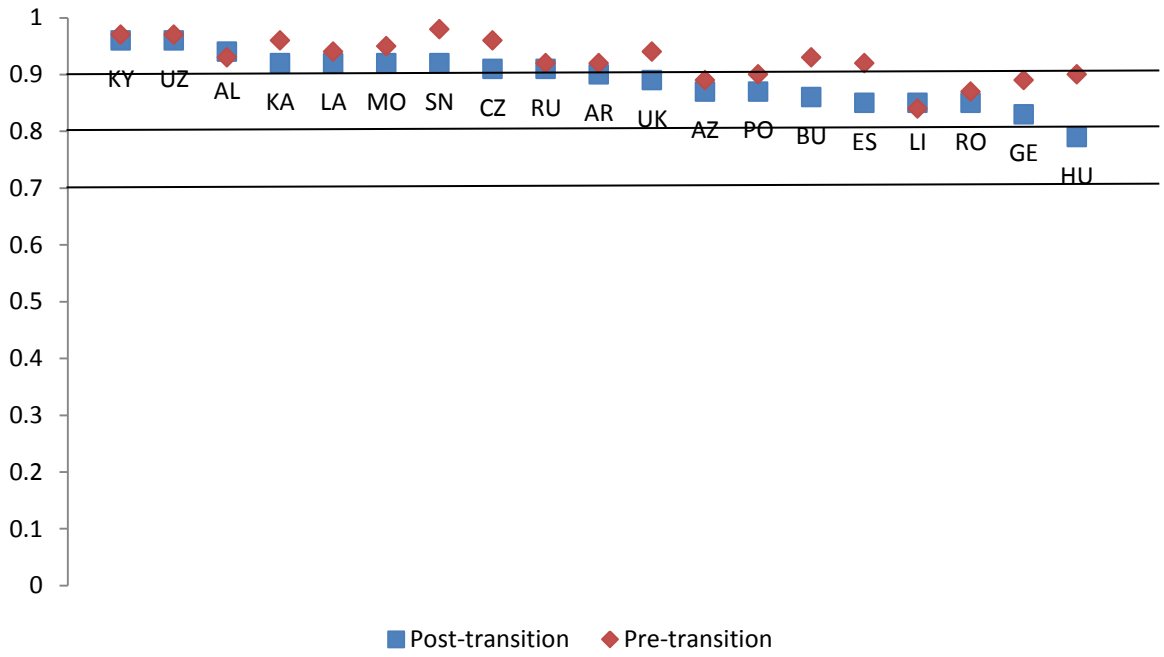
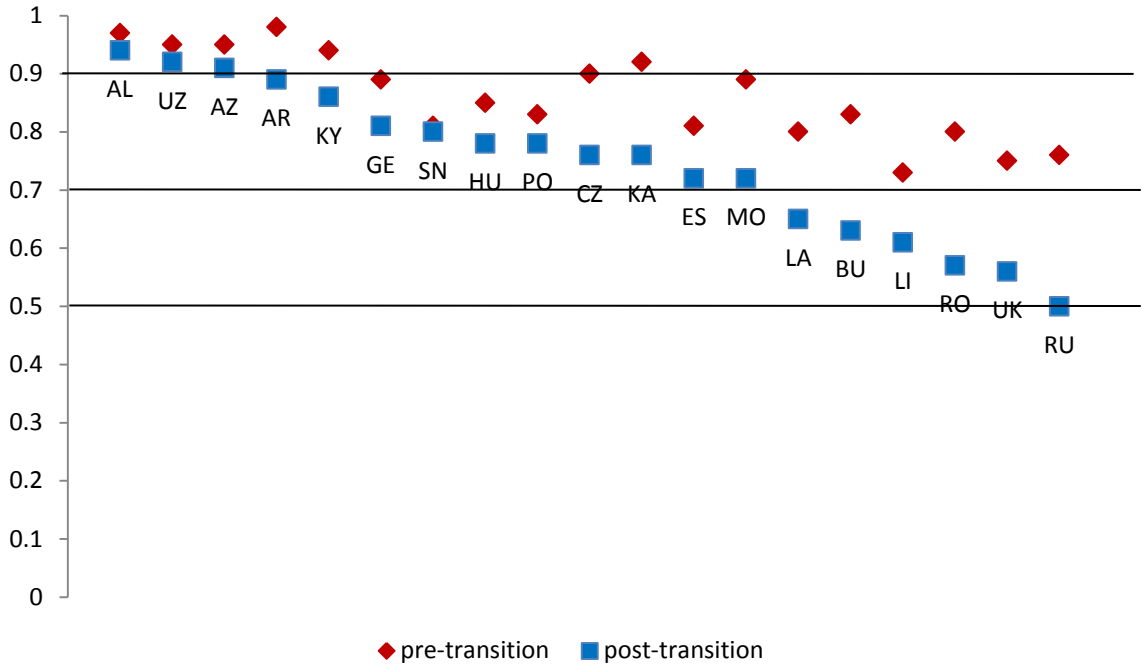


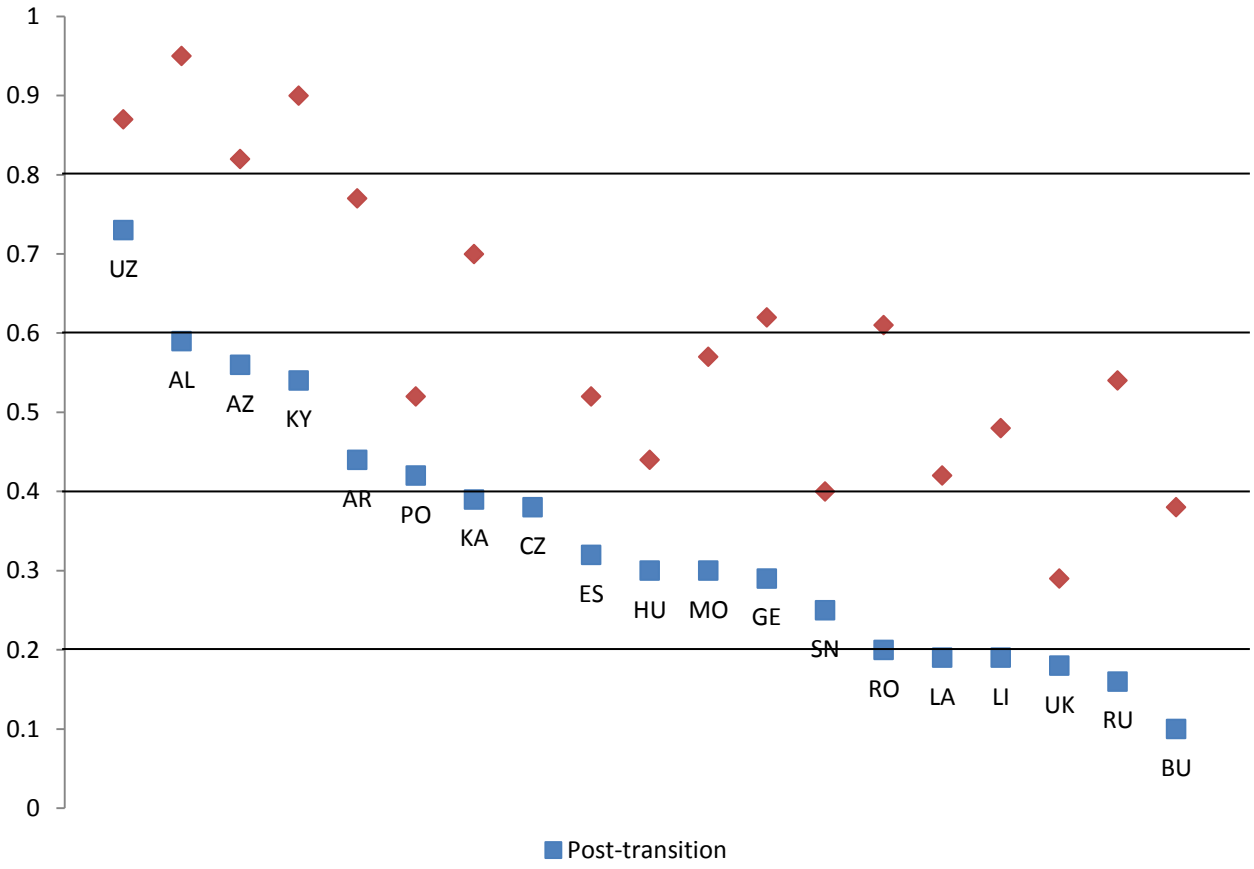
Figure 11 shows a similar presentation of second birth estimates. The differences among countries in the percent of women with one child who had a second child before regime change were far smaller than after regime change. Overall, we see more difference between the two time periods for most countries than we saw for first birth transitions. However, for Albania, Uzbekistan, Azerbaijan and Slovenia, we see less than a five percentage point decrease in second parity transitions. This very small decline for Slovenia may be due to the early year of the first survey used (1995 FFS) and not enough time to calculate reliable post-transition second birth rates for the LiTS data (2006) due to postponement of parenthood. Most other countries experienced a decline between 5-15 percentage points. The countries that experienced a larger decrease were Kazakhstan (16 percentage points), Moldova (17), Bulgaria (20), Romania (23), Ukraine (19) and Russia (26). Russia not only had the greatest decline in second births, but also had the lowest second birth transition rate of all in the 1990s and 2000s. Before regime change, between 75-90% of women in most countries had a second child. After regime change, at least 50% of women still continue to have a second birth across all these countries and the majority fall within the range of 60-85%. A norm to have at least two children therefore appears weakened but still strong.

Figure 11. Kaplan Meier failure estimates for second births to women with one child, pre and post-transition



Estimates of third parity transitions are presented in Figure 12. For this parity, we see the greatest difference between the time periods for every country. We also see less correspondence between the two time periods, according to within country estimates. Looking at the range of values for each time period, there appears to be just as much diversity in the share of mothers with two children who have a third child before regime change as after. Whereas before regime change 38-87% of women had a third birth, the range in estimates was 10-73% after regime change. The most minimal declines (10-15 points) occurred in Poland, Hungary, Slovenia, Ukraine and Uzbekistan. The greatest declines (35-41 point difference) occurred in Albania, Kyrgyz Republic, Romania and Russia. No estimate was displayed for Czech Republic because it showed a higher share experiencing a third birth after regime change than before. This is likely due to the early year of the first survey used (1997 FFS), which may not provide enough time to calculate reliable rates and the LiTS data (2006) may not have added much due to the postponement of parenthood and few women at risk of having a third birth so early. For similar reasons, we treat the estimates for Slovenia and Latvia with caution as well, even though they show a dramatic decline in third birth transitions.

Figure 12. Kaplan Meier failure estimates for third births to women with two children, pre and post-transition



Summary of results

We have reviewed numerous indicators related to tempo and quantum. In this section, we attempt to identify the most important trends by condensing this information into a few figures. We first present a figure with two panels designed to clearly reflect the variation in fertility behavior among all 19 countries in the two time periods. We plot countries according to the timing of parenthood on the X-axis (using the median age at first birth for the 1960-1964 cohort for the pre-transition summary and the 1975-1979 cohort for the post-transition summary). On the Y-axis we have constructed a parity summary measure that is based on Kaplan-Meier parity-specific period estimates: we sum the share of women transitioning to the first three parities according to the share of women at risk of a parity event. If we take the example of Albania (92% had a first child, 76% had a second child and 54% had a third child), the parity summary measure would be 2.03 = (0.92 + (0.92 * 0.76) + (0.76*0.54)). The summary measure 2.03 might then be interpreted as a total fertility rate for the period, excluding births of a higher order than 3.

To be clear, this summary measure is not directly comparable to a TFR measure. Depending on how common higher order births of four or more are in a context, the summary measure will underestimate the number of children women have. According to Anichkin & Vishnevsky (1994: 49), focusing only on the first three births means that in 1988 we captured 93.2% of all births in Estonia, 85.4% in Azerbaijan and only 62.1% in Tajikistan (which would be similar to Kyrgyzstan and Uzbekistan). The universal decline in fertility after 1988 means we should be capturing a higher share of all births in the post-transition period. An additional reason the TFR may differ from our measure is that a decline in the age at first birth in many countries during the 1980s should have somewhat inflated the TFR measures at this time. Briefly, we highlight a few examples of differences that emerged between the two measures. Before transition, an average of the 1980 and 1989 TFR was very similar to our KM estimates (although often a little higher), except in the cases of Albania, Azerbaijan, Kyrgyzstan and Uzbekistan where the contribution of higher parity births (4+) were important. In contrast, the TFR after transition began (taking an average of the 1995, 2000, and 2005 TFR) was generally lower than the KM estimates we provide (particularly for Armenia, Czech R., Poland and Slovenia), even when not accounting for 4+ parity events. This difference is likely due to postponement suppressing the TFR and, in some cases, an incorrect denominator in the calculation of the TFR due to undocumented emigration.

Figure 13 conveys country differences according to total fertility (y axis)[8] and the timing of parenthood (x axis)[9]. The top panel presents these estimates in the years preceding economic transition, whereas the bottom panel summarizes the situation during the 1990s and 2000s. Before regime change, the 19 countries in our study are located in the top left corner of the figure and grouped relatively close to each other. The CAR and Caucasus, as well as Moldova, are spread out above the rest of the group, indicating higher fertility levels. Ukraine and Lithuania are located slightly below the main group of countries, indicating lower fertility. The remaining countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland, Romania, Russia and Slovenia) virtually had the same fertility level if we only consider parity 1-3. In terms of parenthood timing, Albania, Azerbaijan and Lithuania stand out as having the latest age at first birth, as already noted, but these differences were not large.

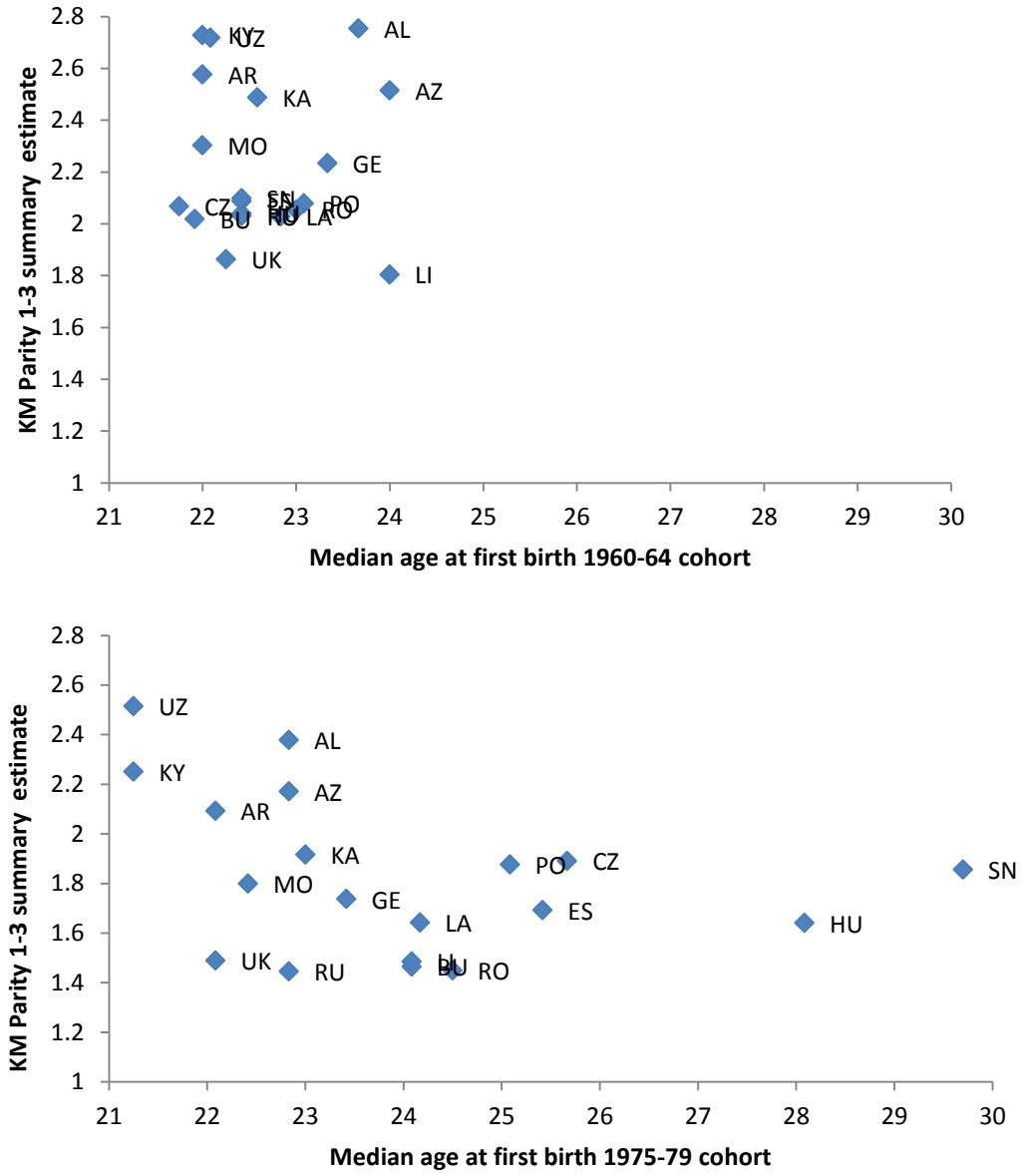
Turning to the bottom panel, in which the total fertility summary indicator for the post-transition time period is presented and the median age at first birth for the 1975-1979 cohort, the difference between the two figures is remarkable in terms of the shift downward and to the right for most countries and the diversity that has emerged between the countries. Slovenia and Hungary can be characterized as having achieved a late age at first birth (above 28) and the gap between these two countries and other "postponers" (Czech Republic, Estonia and Poland) is substantial.

[8] Estimated from a synthetic cohort that covers pre-transition (January 1975 until the end of 1989 for non-Soviet republics and 1991 for former Soviet republics) and post-transition, which begins in 1990 or 1992 and continues until the interview in each country (2006 at the earliest).

[9] Estimated from the defined cohort.

Nevertheless, more than half of the 19 countries still had not crossed the previous threshold of 24 years of age at first birth by this cohort. The total fertility summary estimate shows a universally substantial decline. The range varied from around 0.2 to 0.6. Only four countries experienced a decline less than 0.3 (Czech Republic, Poland, Slovenia and Uzbekistan)[10] and five countries experienced declines greater than 0.5 (Bulgaria, Kazakhstan, Moldova, Romania, and Russia). The remaining ten countries experienced a decline between 0.3 and 0.5.

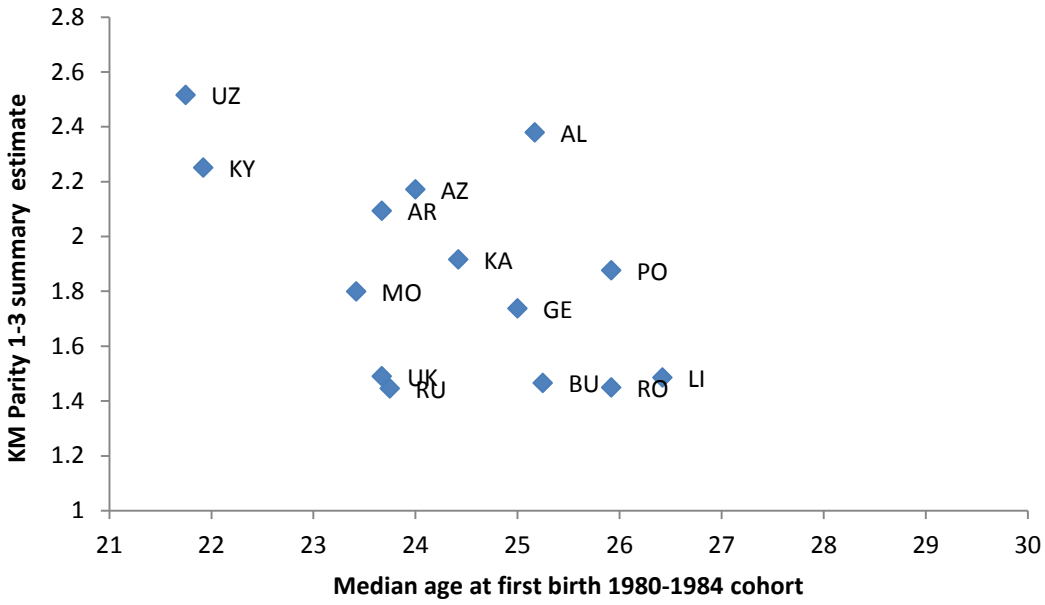
Figure 13. Fertility behavior before regime change along two dimensions: Parity (1-3) and the timing of parenthood (1960-1964 cohort)



[10] The estimate for Czech Republic and Slovenia may be less accurate than others for this measure, as discussed previously.

Because our findings in Figure 7 already indicated that substantial postponement did not begin until the 1980-1984 cohort for a great many countries, we reproduced the previous figure with the median age at first birth for the 1980-1984 cohort in Figure 14. We excluded the few countries for which postponement has advanced to such a degree for this cohort that we could not estimate a median age by the time of the survey (Czech Republic, Estonia, Hungary, Latvia, and Slovenia). The advancement in the age at first birth leaves the countries in a few groups: clustered around age 22 (Uzbekistan and Kyrgyz Republic), age 24 (Armenia, Azerbaijan, Kazakhstan, Moldova, Ukraine and Russia), between 25 and 26 (Albania, Poland, Georgia, Bulgaria and Romania), and over 26 (Lithuania and, based on Figure 13, Hungary and Slovenia). Latvia, Czech Republic and Estonia also likely fit into the latter category, but this cannot be confirmed with our data.

Figure 14. Fertility behavior after regime change along two dimensions: Parity (1-3) and the timing of parenthood (1980-1984 cohort)



Conclusions

The data and analytical approach in this study provided numerous insights into how fertility behavior has changed across the wide range of countries that underwent economic and political transition in the late 1980s and early 1990s. Some general trends can be observed before focusing on cases that present unusual patterns. First, postponement of parenthood began earlier in countries that were not part of the Soviet Union and delayed parenthood developed more rapidly in these countries during the time period observed in this study. Second, the destandardization of the timing of parenthood occurred roughly at the same time (for the same cohort) across most countries, which coincided with economic transition, even if postponement itself was not visible until later cohorts in many countries. In particular, the age at first birth

continued to fall at the same time that it began to increase for different women within some post-Soviet countries. Third, there has been little change in the share of women remaining childless in post-socialist countries with the exception of an increase in a few countries that were mostly successful economic reformers (Slovenia, Bulgaria, Estonia, Hungary and Georgia). In terms of higher parity births, we found no evidence that the countries with the most dramatic changes in the timing of parenthood altered the number of children being born per woman the most. Rather, countries somewhat or greatly lagging behind others in postponement often showed the greatest decline in second and third order births.

These findings add nuance to what we have learned from other comparative literature in this region. Kohler et al. (2002) looked for the causes of the new lowest-low fertility phenomenon. Including ten of the countries in this study as well as many West/Southern European countries, they found that low fertility could be explained by postponement, which was argued to be a rational response to economic uncertainty. Frejka and Sardon (2006) came to a similar conclusion and their study covered 27 East and Western European countries, nine of which overlap with our sample. Frejka and Sobotka (2008) also concur that delayed childbearing was a major contributor to declining fertility in the region and their comparison included wealthy regions from around the world. A large country comparison by Sobotka (2011), where he looked at multiple indicators across different groups of countries (mostly post-socialist), found some diversity across the region, but also focused heavily on postponement as a major explanation for fertility declines. Including a wider range of post-socialist countries in this study, we also find strong evidence of postponement and that it has become more prevalent in the region with each cohort. However, we also found that postponement was minor in many countries with the strongest fertility decline. Rather, two different processes (postponement and fewer higher order births) occurred concurrently and with varying importance in different countries. This finding mirrors the preliminary conclusions drawn from aggregate data in Billingsley (2010).

Why there is a lack of postponement in some contexts or what drives postponement remains an important question. In Sobotka (2003) and Billingsley (2010), a more positive economic context was linked to postponement. Billingsley & Duntava (2015) found that around half of the variation in the timing of parenthood among a wide range of post-socialist countries can be explained by economic performance and that the more positive the environment, the more likely women born 1973 or later were to postpone childbearing. From a descriptive perspective, we find evidence in this study that would support such a relationship. The countries that experienced the quickest economic recovery after regime change and that have gone on to be the most successful with EU integration are the ones in which we have seen the most rapid postponement of parenthood: the Baltic countries, Czech Republic, Hungary and Slovenia. Slovenia achieved the greatest age at first birth earliest and did not have a difficult economic transition; whether it fits with this group of 19 countries at all might be questioned, given that it was not considered "East" to people of the Eastern Europe (Stropnik & Šircelj 2008). Bulgaria, Poland and Romania have somewhat lagged behind these other EU countries in postponement (although they

surpassed post-Soviet countries in the age at first birth). Fitting the general trend, these three countries started out as the poorest countries that were not post-Soviet in the early 1990s and had the lowest GDP in 2010 as well (except for Poland).

We also find some supporting evidence in this study for the more tenuous proposition put forth in Billingsley (2010) that a decline in higher order births was associated with more tumultuous or less successful economic developments, in contrast to postponement. The greatest postponers (the Baltic countries, Czech Republic, Hungary and Slovenia) had relatively moderate declines in second and third parity births. In contrast, countries that experienced little postponement (Russia and Ukraine) or less than we might have expected (Bulgaria, Romania), saw the most dramatic declines in higher parity births. These were either countries that experienced very tumultuous economic transitions and crises or were poorer countries to begin with that have not experienced as rapid economic growth as others, respectively.

However, not all the evidence accumulated in this study fits a neat pattern. The countries that were still completing their fertility transitions do not conform to this pattern. Indeed, we might have evidence of a curvilinear relationship in which a certain level of economic development is required to bring fertility down (Bongaarts 2002), but economic depression keeps it lower than it would be with economic growth. Of our highest fertility countries at the dawn of economic transition—Albania, Kyrgyz Republic and Uzbekistan—we see different patterns emerging. Socioeconomic developments in Kyrgyz Republic and Uzbekistan appear to not have been great enough to bring family size down dramatically. Kyrgyz Republic, however, committed to market reform and we saw an impressive decline in third order births in the recent time period even if over a third of the population was still living below the poverty line. In contrast, no remarkable declines in either second or third births occurred in Uzbekistan, which still continues many command economy practices. Although both Kyrgyz Republic and Uzbekistan had peaceful transitions, their governments have limited human rights and democratic processes (Pomfret 2004). Taken together, these factors appear to have restrained the extent to which childbearing patterns transformed within these countries, but a tentative conclusion could be drawn from this comparison that market reform on its own stimulates some change in fertility behavior regardless of how successful it is.

The Baltic countries stand out as unusual as well, given that they experienced more difficult economic transitions than other EU accession countries, but display many similar characteristics in childbearing behavior. They were influenced by the Soviet forces that kept fertility stable at replacement level during many decades of the Soviet Union (Coale 1994) and it may be that they gravitated toward historical continuity once regaining independence (Katus 1994:107), which would imply a return to Scandinavian fertility patterns (Coale 1994) or Western European patterns (France in particular (Katus 1982)).

Albania represents an unusual case in our study, in which the most recent cohort of women have delayed parenthood much more than the women in most other countries (excluding the strong

postponers already discussed), yet second and third parity transitions remained high in the post-transition period overall. The remarkably rapid advancement of age at first birth for the 1980-1985 cohort is very likely why Albania shows a drop in TFR as low as 1.3 in 2007 followed by a quick rebound to 1.6 in 2009 (TransMonEE database 2012), despite a high value on our 1-3 parity summary measure. Nevertheless, a significant drop in the number of third births occurring in the recent time period indicates a remarkable shift in fertility behavior for this country. Some potentially relevant factors in the Albanian case are that abortion became accessible after regime change (Gjonca et al. 2008), which was already the case in most other contexts. In comparison to Kyrgyz Republic and Uzbekistan (the other two high fertility contexts before regime change), all three had high levels of poverty during the initial stage of transition, but Albania had recovered loss in GDP by 1995 and subsequently shot ahead of Kyrgyz Republic and Uzbekistan (TransMonEE database 2012). Albania again underwent a difficult economic time in 1996 due to the collapse of a nation-wide pyramid scheme, but saw significant economic growth and integration into world trade and politics in the second decade of transition, leading to EU accession candidacy in 2014. Lerch (2013) identified labor market opportunities as a main factor in the postponement of parenthood during the 2000s in Albania and less of a role of value change, as the country still remains generally traditional and patriarchal.

Azerbaijan also stands out as having unusual patterns because it experienced some of the least change in a timing and parity transitions. It had the latest age at first birth in the 1960-1964 cohort, and after a decline in mothers' age in the following cohorts and some minor postponement, it has still not surpassed the 1960-1964 cohort in age at first birth. It also showed one of the least declines in second parity births. Comparing it to Armenia, which it resembled economically and demographically at the beginning of regime change, we can see that fertility decline was steeper in Armenia and the overall advancement of the age at first birth was more dramatic in Armenia. Because of this, Azerbaijan and Armenia appear to have become increasingly similar over the last decades. Their fertility levels were estimated at around 2.1-2.2 in the post-transition period and 24 is the most recent median age at entering parenthood in these two contexts. The two countries share other similarities: Both experienced conflict during the 1990s. On the other hand, Azerbaijan entered regime transition slightly wealthier and achieved more rapid economic growth than Armenia after 2004 (TransMonEE database 2012). Research on changes in fertility behavior in Azerbaijan that could provide insight into its unusually stable patterns is missing in the literature, which makes this a promising case for further study.

Georgia looked very similar to the other Caucasus countries economically throughout the 1990s and 2000s. With the minimal economic development in this region, compared to the EU accession countries, Georgia stands out as having unusually strong postponement of parenthood (similar to Albania). Excluding the Baltic countries, Georgian women have postponed parenthood the most of all other post-Soviet women. Georgia also showed the most diversity in the timing of parenthood within the country, although this appears to be a long-lasting characteristic and not one related to regime change. This country had a strong decline in second

parity births and a moderate third parity decline. Overall, Georgia appears to have experienced a similar fertility decline to Kazakhstan and Moldova, but a much higher advancement of mothers' age at first birth. Both Georgia and Moldova experienced conflict in the early years of transition and they also had the worst record of GDP growth of all the former Soviet republics during the 1990s (Otoo et al. 2004). Because we know virtually nothing about the determinants of changing fertility behavior in Georgia, this remains a unique context to study as well.

Each of these findings raises questions that are beyond the scope of this study and should be explored in further research. We descriptively demonstrated how the transition affected countries with different fertility profiles. What seemed to be more important than starting out with similar childbearing behavior for these countries was experiencing similar economic developments, particularly in the case of the countries that had the most successful transitions and integration into the EU. These countries appear to have fit into the fertility patterns observed in the rest of Western, Southern and Northern Europe. Likewise, little economic change brought less dramatic changes in childbearing behavior overall. Besides the outliers described above, we can also conclude that one unusual pattern of childbearing behavior emerged among some countries: postponement has been limited at the same time that having only one child has become much more common. This pattern is found mostly in western post-Soviet contexts (Russia and Ukraine in particular) but seems to also characterize Bulgaria and Romania to a lesser degree. In all of these cases, market reforms were deep but accompanied by economic crisis or sluggish growth. We speculate that this pattern may therefore reflect the conflicting experience of having the promise of new economic and labor market opportunities in an environment where these promises were difficult to realize.

The implications of a few data limitations must be mentioned. Our parity transition calculations are an underestimation of transition rates because we censored at age 35. Our parity summary estimates miss the contribution of parity 4+ events, which limits how complete our estimate of fertility levels is in higher fertility countries. Finally, our parity summary estimates are insufficient for a few countries (Czech Republic, Latvia and Slovenia) due to the lack of enough respondents surveyed late enough to get a reliable estimate of higher parity events, given the postponement of first births. In regards to the timing of our surveys, we miss an upswing in fertility rates for many countries that occurred in the last years of the 2000s. The TFR has not remained low and this has spurred new research on the forces behind this upswing (Goldstein et al. 2009), which is generally explained as an end of tempo effects that previously suppressed the TFR. Our study cannot contribute to that discussion.

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