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POST-TRANSITIONAL FERTILITY: CHILDBEARING POSTPONEMENT AND THE SHIFT TO LOW AND UNSTABLE FERTILITY LEVELS

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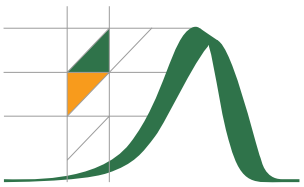

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Abstract

This study discusses fertility trends and variation in countries that have completed the transition from high to around-replacement fertility in the 1950s-1980s—especially in Europe, East Asia and North America—and summarises the key findings that are relevant for the countries with a more recent experience of fertility declines towards replacement level. A central finding is that there is no obvious theoretical or empirical threshold around which period fertility would tend to stabilise. Period fertility rates usually continue falling once the threshold of replacement fertility is crossed, often to very low levels. While cohort fertility rates frequently stabilise or change gradually, period fertility typically remains unstable. This instability also includes remarkable upturns and reversals in Total Fertility Rates (TFR), as experienced in many countries in Europe in the early 2000s. The long-lasting trend towards delayed parenthood is central for understanding the diverse, low and unstable post-transitional fertility patterns. In many countries in Europe this shift to a late childbearing pattern has negatively affected the TFR for more than four decades. Many of the emerging post-transitional countries and regions are likely to experience a similar shift during the next two to three decades, often depressing their TFRs to very low levels.

Keywords

Low fertility, fertility transition, fertility timing, fertility decline, post-transitional fertility, postponement transition, highly developed countries, Europe, East Asia.

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Post-Transitional Fertility: Childbearing Postponement and the Shift to Low and Unstable Fertility Levels

Tomáš Sobotka

1. Introduction

Until the 1970s global fertility rates displayed a sharp division between the "developed" and the "developing" countries: the period Total Fertility Rate (TFR) in the latter group averaged 5.42 births per woman in 1970-75 and contrasted with an average of 2.15 births per woman in the countries labelled as developed (United Nations 2015). About a quarter of the world population lived in countries with a period TFR below 3, all of them belonging to the "developed" group. In the following four decades, two sweeping and initially unexpected shifts took place. First, most of the rich countries, especially in Europe, but also Canada, Japan, and Singapore, experienced period fertility declines deep below the replacement level threshold. Second, many of the less developed countries saw unexpectedly swift fertility declines to levels around population replacement, blurring thus the previous fertility divide. Countries as diverse as the Republic of Korea (South Korea), Brazil, and China, saw their TFRs plummeting from levels between 5 and 7 births per woman in the 1960s to fewer than 2 births per woman around 2010 (United Nations 2013 and 2015; Basten et al. 2014), entering thus the "post-transitional" phase of development (Wilson 2013; here I use the terms "transitional" and "post-transitional" in a rather narrow sense, referring to the fertility transition as a process of fertility decline from a high to around-replacement fertility level). About a half of global population now lives in countries with below-replacement TFR levels (Wilson and Pison 2004; United Nations 2015). Morgan and Rackin (2010: 529) suggested that "no twentieth century change has more profound implications or has been more dramatic" than the rapid fertility declines around the world".

Countries and regions that have recently seen their fertility falling towards or below two births per woman are not stepping into an uncharted territory. Forces that have driven the shifts to low and very low fertility in Europe, Japan, Canada or the United States, are documented in countless studies (e.g., reviews by Balbo et al. 2013; Basten et al. 2014; Morgan and Taylor 2006; Billari and Kohler 2004; Rindfuss et al. 2004). Those forces also appear to be important drivers of fertility trends in countries where fertility was high until recently (Fuchs and Goujon 2014).

The experiences of the early post-transitional countries, characterised by diverse policies, labour markets and welfare regimes, offer lessons of cross-country diversity in fertility trends and population dynamics (Wilson 2013). The long record of very low fertility in some of these countries also offers insights about its causes, its sustainability, and the successes or failures of different policies aiming to stimulate fertility. Post-transitional fertility experiences also entail new and unexpected patterns suggesting that

pre-transitional and post-transitional fertility regimes are qualitatively different. For instance, studies on low-fertility societies have identified a number of unexpected correlations emerging in the last two to three decades, including a positive association between economic development and fertility (Myrskylä et al. 2009 and 2011; Luci-Greulich and Thévenon 2014), between gender equality and fertility (Arpino et al. 2015; Myrskylä et al. 2011), between women's labour participation and fertility (Rindfuss et al. 2004), and between divorce, share of extra-marital births and fertility (Billari and Kohler 2004). These correlations often show opposite signs in pre-transitional and post-transitional societies.

This study discusses the experiences of countries that have seen their fertility declining to or below replacement level in the 1950s to 1980s and summarises the key findings that are relevant for the countries with a more recent experience of fertility declines. It highlights the diversity in fertility declines and the instability of post-transitional fertility, illustrated on the examples of countries and regions that recently saw substantial increases in period fertility. I discuss four key factors contributing to fertility changes and variation in post-transitional settings. These include the expansion of higher education, the increase in economic uncertainty—especially among young adults,—the "gender revolution" with the concomitant shift to almost universal labour market participation among women, and the changing character of the family.

The main aim of this study is to highlight the importance of delayed parenthood for understanding the shifts to low and very low fertility as well as fertility upturns and reversals. By the turn of the 21st century all the countries with an extended record of low fertility have also experienced the onset of a long-lasting transition towards a later timing of childbearing (Kohler et al. 2002). In some countries, this shift has now progressed for more than four decades, negatively affecting numbers of births and period fertility rates. The shift towards delayed childbearing and its negative impact on conventional period fertility indicators have been widely documented for post-transitional countries (e.g., Kohler et al. 2002; Sobotka 2004a and 2004b; Bongaarts and Sobotka 2012). However, its relevance for the future fertility trends in the countries that are now entering their post-transitional phase has been little discussed (with the main exception of Bongaarts 1999). The "postponement transition" is a neglected factor in the debates on emerging sub-replacement fertility in these countries, in part because it has not started yet in some of them, and partly because the available data do not allow documenting it in detail.

I argue that many of the new post-transitional countries, including China, are at the onset of a long-lasting shift towards delayed childbearing. This shift will have similar consequences for their period fertility as it has had in Europe and other regions with a long history of low fertility: Delayed childbearing is likely to push the conventional period fertility rates in these countries well below the corresponding cohort indicators of family size for several decades.

2. Analysed Regions and Terminology Used

This contribution uses the terms "post-transitional countries" and "low-fertility countries" interchangeably, referring broadly to the countries which experienced an early decline of period fertility (as measured by the TFR) to or below replacement fertility level during the 1950s-1980s. These include almost all European countries (with a few notable exceptions such as Albania and Kosovo), parts of East Asia (Japan, South Korea, Taiwan, and the region of Hong Kong), Singapore, Canada, Cuba and the United States, as well as Australia and New Zealand and selected smaller territories in Oceania and elsewhere. The term "fertility transition" is used rather than "demographic transition," as this study focuses on fertility changes, without discussing them in conjunction with mortality trends or broader population dynamics. In addition, the terms "postponement transition," first suggested by Kohler et al. (2002), and "tempo transition," are used interchangeably. They denote a shift in family formation from younger ages to higher reproductive ages.

When discussing the experiences of "emerging" post-transitional countries this article focuses on the countries which have experienced a decline in period TFR to around-replacement level in the 1990s-2000s, or which are approaching the completion of their fertility transition and currently have their period TFR below 3 births per woman. This group includes countries and regions around the world, with the main exception of Sub-Saharan Africa: almost all the countries of Latin America and the Caribbean (with a few exceptions, especially Bolivia, Guatemala and Haiti), China, Mongolia, South-eastern Asia (except Laos and Timor-Leste), most regions of India, parts of Southern Asia (except Afghanistan and Pakistan), parts of Western Asia (especially Iran and Turkey), and the Caucasus region, parts of Central Asia, as well as Northern Africa, and South Africa.

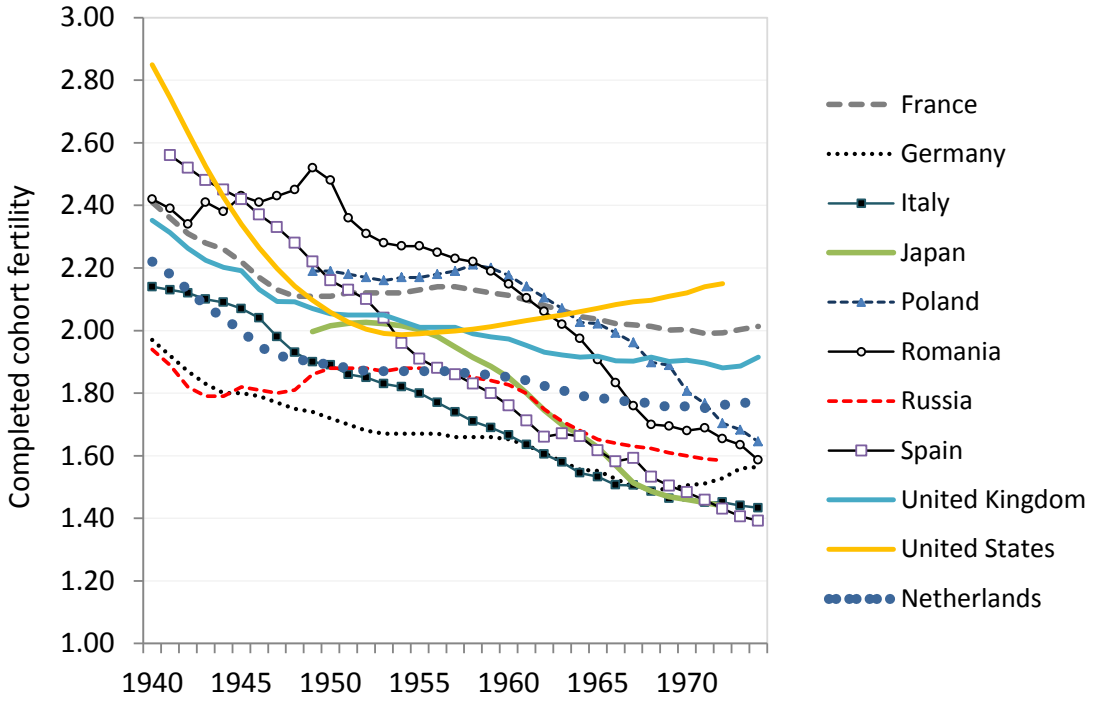
3. There is no Post-Transitional Fertility Equilibrium

As Coleman and Rowthorn (2011: 218) noted, until the 1980s the demographic transition theory took for granted that fertility in post-transitional populations would broadly stabilise around the replacement level. Even today, many demographers and policy-makers continue seeing fertility around replacement as a desirable long-term goal and some governments design policies aiming to reach this target. In reality, only a few post-transitional countries have experienced a stabilisation of period fertility close to the replacement level and in most of them the TFR declined deep below 2 births per woman. For instance, in the European Union the TFR now stands at 1.58 (2014), not much above its low of 1.44 reached in the late 1990s.

Because period fertility rates are often affected by the changes in the timing of births, a clearer picture of post-transitional fertility emerges when analysing the cohort trends. Figure 1, looking at low-fertility countries with population at or above 20 million shows a broad variation in their completed fertility among the women born up to the mid-1970s. Italy, Spain, and Japan have reached very low cohort fertility at around 1.4 births per

woman, followed by Germany (1.56) and Russia (1.60). In contrast, Australia, France, United Kingdom, and the United States have retained around-replacement family size with completed fertility between 1.9 and 2.15 births per woman. The list of post-transitional countries with around-replacement cohort fertility (at or above 1.8) also includes Nordic countries, Belgium, Ireland, and New Zealand.

Figure 1: Completed cohort fertility among women born in 1940-74; post-transitional countries with population at or above 20 million



Note: A small portion of fertility at higher ages (38+) among women born in the late 1960s and the early 1970s has been estimated. **Sources:** Human Fertility Database (2015), Human Fertility Collection (2015), Council of Europe (2006), national statistical offices, Sobotka et al. (2015) and own computations partly based on Eurostat (2015) data.

4. Period Fertility Often Falls to "Ultra-Low" levels

Within the broad variation of fertility in post-transitional societies it is most of all the experience of very low fertility that fuels worries and attracts most attention. Typically, low fertility has been discussed using period TFR, which are widely available, but also easily misinterpreted, not least because they are often influenced by the changes in the timing of births and in the parity distribution of the female population (Sobotka and Lutz 2011). Two boundaries of the period TFR have featured most prominently in demographic debates, 1.5 and 1.3. Peter McDonald (2006) suggested that rich countries are split into

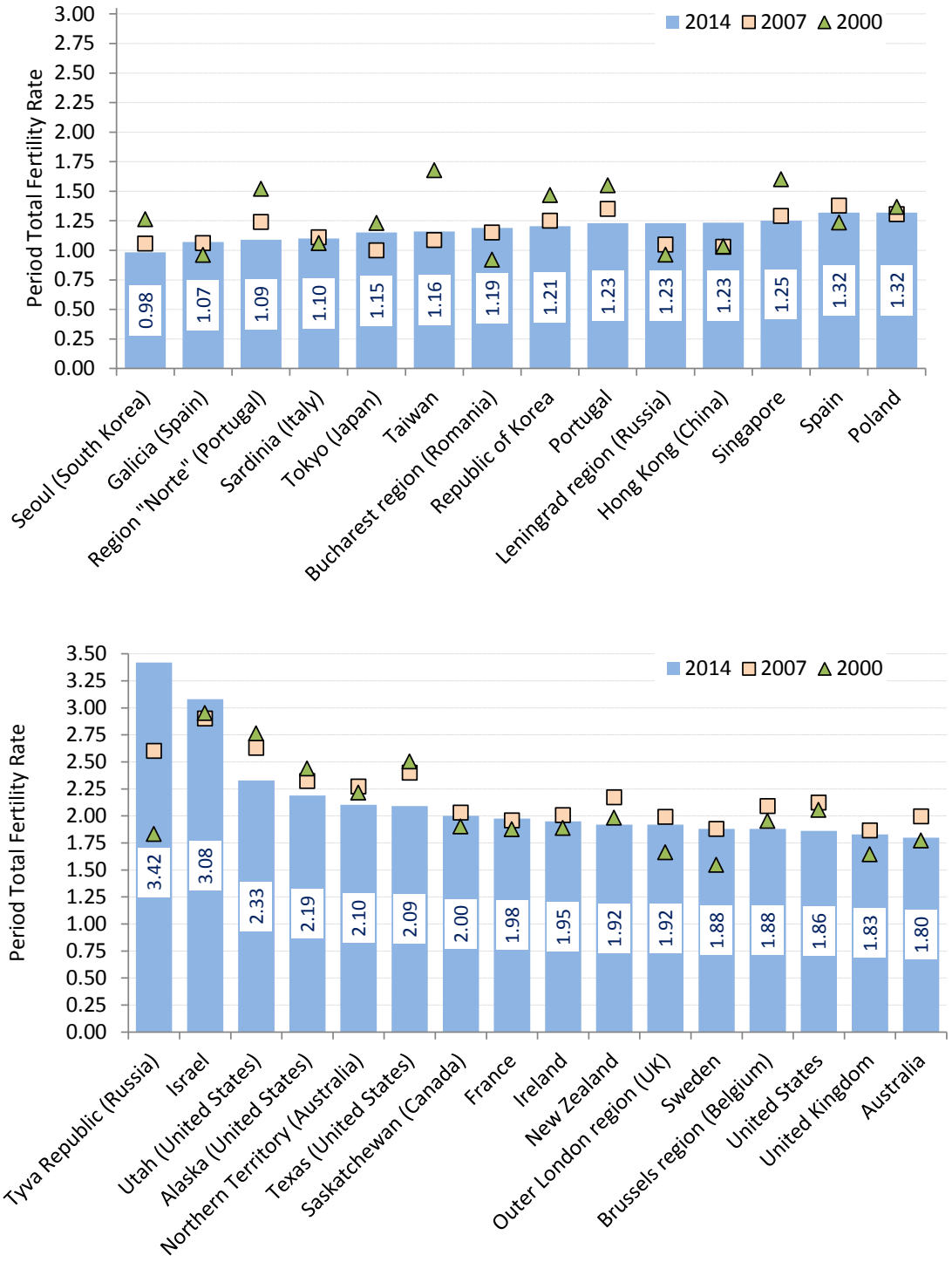
two groups, one where fertility is moderately below replacement, with the TFR staying above 1.5 and the other where fertility is below that level and consequently also below the "safety zone," implying that the generation size will fall rapidly and massive migration would be needed to offset this decline (McDonald 2006: 485). Rindfuss et al. (2016) suggested that the apparent "bifurcation" of period fertility in rich countries around the 1.5 threshold signifies an emergence of two distinct fertility regimes, with a sizeable group of countries "stuck" with a low period TFR.

Yet lower boundary of the period TFR below 1.3 first became significant in the 1990s when many southern, central and eastern European countries suddenly experienced fertility decline below this "lowest-low" fertility threshold (Kohler et al. 2002). Soon thereafter, such a low fertility was experienced in many countries of Europe as well as in the South Korea, Taiwan, Hong Kong and, for a short period, also in Japan. By 2002 more than half of European population lived in countries with such a low period TFR (Goldstein et al. 2009). Some countries and regions even recorded a TFR falling below 1, including eastern part of Germany after German reunification (between 1991 and 1996), many provinces of Spain and Italy, especially in the 1990s, and the region of Hong Kong between 1999 and 2006. Although the TFR in many parts of Europe recovered somewhat in the 2000s, very low TFR levels are still reported in a number of countries and regions, especially after the recent economic recession. In Europe, very low TFRs in the order of 1.20-1.40 are now found especially in Southern Europe (in Cyprus, Greece, Portugal, and Spain), Moldova, Romania, and Poland (Figure 2). In East Asia, the TFR dipped to 1.07 in Taiwan, 1.12 in Hong Kong, and 1.19 in South Korea and Singapore in 2013, following a temporary spike in 2012, during the Year of the Dragon which is considered auspicious for having children.

However dramatic such low fertility rates appear, they have often proven a transient phenomenon. Sobotka (2004a) analysed all European countries that had reached a TFR at or below 1.3 during the 1990s and early 2000s and concluded that such low fertility levels were driven by the tempo effect caused by the shift towards later timing of births. Without this shift, period TFR in all the analysed countries would still be low, but would stay at or above 1.4. Similar conclusions have later been reached by Goldstein et al. (2009) and Bongaarts and Sobotka (2012).

When considering the shifts to very low fertility it is important to highlight the wide variation in post-transitional fertility in the highly developed countries. Figure 2 shows selected countries and regions with very low (TFR at or below 1.32) and relatively high (TFR at or above 1.80) period fertility in 2014. In its extremes, the TFR ranges from below 1 in Seoul, the capital of South Korea to over 3 in Israel and a few regions in Russia and elsewhere. Very low fertility is typically concentrated in East Asia, Southern Europe, and, to a smaller extent, in Central and Eastern Europe. Within countries, the lowest-fertility regions are often either booming capital cities with highly educated and highly mobile populations living in densely populated areas (Seoul, Bucharest) or in relatively peripheral regions (Sardinia, Northern Portugal).

Figure 2: Selected highly developed countries and regions with very low (upper panel) and relatively high (lower panel) period TFR in 2014 compared with TFR in 2000 and 2007



Sources: Eurostat (2016), Human Fertility Database (2016) and national statistical offices.

Higher fertility at around replacement level is most typical of North-western Europe, United States, Australia and New Zealand. Whereas most rich countries have experienced protracted sub-replacement fertility, there are also a few counter-examples of places and populations that have so far bucked the trend and retained above-replacement fertility. Israel is the most peculiar case— a rich society marked by enormous social, ethnic and religious divides and persistently high levels of period TFR that has hovered around 2.9-3.1 since the early 1980s. Such a high fertility is largely attributable to a sizeable minority of ultra-Orthodox Jews who have retained a TFR around 7 in the last decades (e.g., Okun 2013). Relatively high fertility is also found in selected other regions with ethnically, religiously or culturally distinct populations, including Utah (with a high share of Mormon adherents), remote regions with high shares of Aboriginal or native population with higher fertility (Alaska in the United States, Nunavut and North-western territories in Canada, Northern Territory in Australia, Tyva Republic in Russia), relatively rural and at the same time economically prosperous regions (Saskatchewan in Canada), but also in some prosperous regions with ethnically and culturally diverse populations (Texas), urban regions with high shares of migrants and ethnic minorities (Brussels region in Belgium), and suburban regions that presumably attract families with children (Outer London).

5. The "Postponement Transition" Depresses Period Fertility Rates for Decades

Although their fertility rates differ considerably, post-transitional countries share the trend towards delayed family formation. It started in the early 1970s in Western Europe, United States and Japan, driven by a combination of rising women's lifelong employment, expanding secondary and higher education, rapid spread of efficient contraception and wider access to abortion, unstable economic conditions and changing partnership and sexual behaviour (Mills et al. 2011; Sobotka 2010). The trend towards delayed parenthood is remarkable by its persistence, progressing in some countries such as Japan, Sweden, and Switzerland without interruption and negatively affecting period fertility rates for more than four decades (Table 1). In the Western world, fertility postponement brought a reversal of the trend towards earlier marriages and births during the baby boom period in the 1950s and early 1960s.

In the 1970s, women in the developed countries typically became mothers at ages 22-25. In 1975 Japanese women had the latest pattern of family formation globally, becoming mothers at age 25.6 on average. At present, the mean age at first birth in rich countries went up to 26-30 years, a shift by 4-6 years over the last four decades (Table 1). The boundary of the highest mean age at first birth has increased without interruption since the mid-1970s, reaching 31 years in South Korea in 2014 (Figure 3). In South Korean capital, Seoul, the mean age at first birth has reached a high of 32.0 years in 2015 (KOSIS 2016). Arguably, the combination rigid employment conditions with long and inflexible work hours, low gender equality, and also the pattern of a delayed marriage in a culture

where childbearing outside marriage is not accepted, contribute to the very late first birth pattern in South Korea (Yoo 2016; Lee and Choi 2015).

Table 1: Key characteristics of the "postponement transition" in selected low-fertility countries

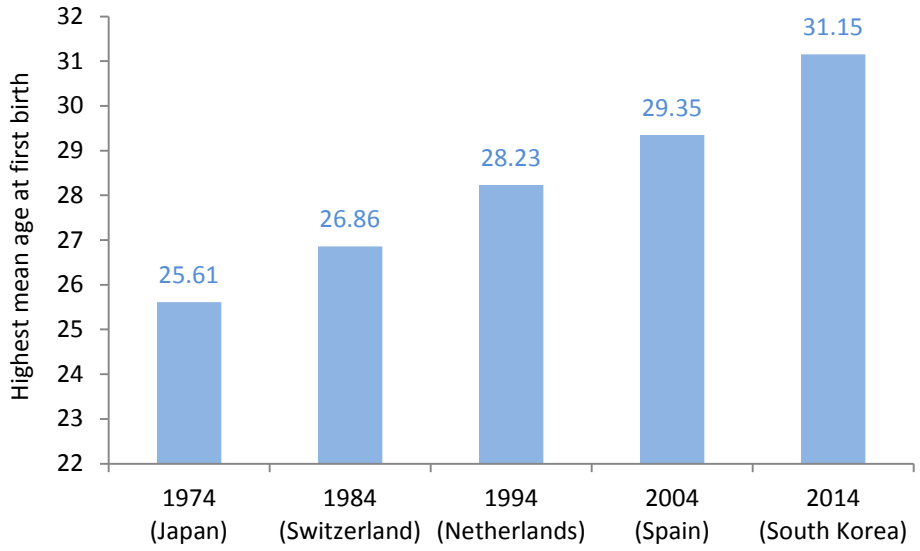
	Onset of fertility postpo-nement	MAB1 before the onset	TFR befor e the onset	MAB 1 in 2014	Cumul. change in MAB1	Average change in MAB1 per year	TFR in 2014	Adj TFR' in 2012
East Asia								
Korea, South	1983	24.68	2.38	31.15	6.47	0.21	1.20	1.59
Japan	1975	25.61	2.05	29.88	4.27	0.11	1.42	1.58
United States	1973	22.42	1.99	26.84	4.42	0.11	1.86	2.19
Western & Northern Europe								
Austria	1974	22.92	1.94	28.95	6.03	0.15	1.47	1.71
France	1973	23.90	2.30	28.40	4.50	0.11	1.98	2.17
Netherlands	1972	24.75	2.36	29.50	4.75	0.11	1.71	1.77
Sweden	1974	24.17	1.87	29.20	5.03	0.13	1.88	1.95
Southern Europe								
Italy	1977	24.72	2.11	30.70	5.98	0.16	1.37	1.54
Spain	1980	24.82	2.35	30.55	5.73	0.17	1.32	1.45
Central and Eastern Europe								
Czech Republic	1992	22.43	1.86	28.14	5.71	0.26	1.53	1.66
Hungary	1980	22.40	2.01	27.68	5.28	0.16	1.44	1.49
Russia	1995	22.53	1.39	25.30	2.77	0.15	1.75	1.72

Note: Adj TFR' is the TFR adjusted for tempo effect caused by the changes in the timing of childbearing. The data used here are based either on Bongaarts and Feeney's (1998) method or on its more sophisticated variant described in Bongaarts and Sobotka (2012). **Sources:** Human Fertility Database (2016), European Demographic Data Sheet 2016 (VID 2016), national statistical offices. Adj TFR' taken from European Demographic Data Sheet (VID 2016). Data for Korea were computed by Sam Hyun Yoo (Yoo and Sobotka 2016).

This change in the timing of family formation, which was initiated in most countries when period TFR was around the replacement level of 2.1 (Table 1), has had a strong impact on period fertility. During the course of the tempo transition some of the births that would otherwise have taken place in any given year have been "shifted" into the future. The size of this "tempo effect" is not negligible and is proportional to the pace of increase in the mean age of childbearing (Bongaarts and Feeney 1998); according to recent estimates, the TFR in the European Union in 2012 of 1.57 would reach 1.72 if the age at childbearing remained stable during that year (VID 2016). This means the tempo effect

has reduced the period TFR across the EU by 0.15 on average. In individual low-fertility countries the size of tempo effect during the last two decades was estimated from close to nil to sizeable -0.7 births per woman in the Czech Republic in the second half of the 1990s (VID 2016; Sobotka et al. 2015; see also estimates of tempo-adjusted TFR for selected countries in Table 1 above). These estimates are based on tempo-adjustment methods that can be criticised for their underlying assumptions (e.g., Ní Bhrolcháin 2011), but they still give a clear indication about the role of the timing shifts in affecting the conventional period fertility measures.

Figure 3: Highest mean age at first birth among low-fertility countries, 1974-2014



Note: Small countries and territories with population below 1 million are excluded. **Sources:** Human Fertility Database (2015), Human Fertility Collection (2015), own computations using Eurostat (2015) data, and computations by Sam Hyun Yoo (Yoo and Sobotka 2016).

6. Different Pathways of the "Postponement Transition"

Postponement of childbearing has therefore emerged as a key factor explaining the emergence of very low period fertility. In many countries with low fertility it has provided the decisive push that depressed their period TFR to lowest-low levels below 1.3 (Sobotka 2004a). Without shifting childbearing to higher reproductive ages countries such as Japan, South Korea, Russia, or Spain would not witness such low period TFR levels during the last two decades. The "postponement transition" can also be seen as a long-term shift with three phases, characterised by distinct trends in period TFR and its age-specific components (see also Chapter 3 in Sobotka 2004b). Figure 4a gives a stylised representation of this process. During the initial (first) phase women start postponing motherhood and, as a result, the TFR declines rapidly and the mean age at first birth starts

rising. In most developed countries this phase overlapped with a general decline of fertility below replacement level, often resulting in impressive reductions in the TFR. In the second phase of continuing postponement, which can last for several decades, the TFR level stays low or very low, while the mean age at first birth continues rising. In reality the TFR often rises and falls during this period, but it continues being squeezed by the tempo effect. In this phase many governments express concerns about potentially negative long-term consequences of very low fertility and start paying attention to family policies, often with explicitly pronatalist aims. Finally, in the third phase of fertility "recuperation", the increase in the age at first birth slows down and eventually comes to an end, the tempo effect vanishes and the TFR increases, eventually reaching similar level as the completed cohort fertility. This phase is characterised by a gradual stabilisation of fertility rates at younger childbearing ages below 30 years (when fertility is no longer postponed) combined with a continuing increase in fertility at later ages (when fertility that had been postponed earlier is being realised; see Frejka 2012). The actual size of the TFR increase depends on fertility trend in the course of the tempo transition: If fertility level, net of tempo distortions, continued falling during that period, the TFR may rise slowly or even remain very low (Bongaarts 2002). Because fertility levels have declined during the postponement transition almost everywhere, the period TFR in most countries eventually settles well below the levels reached before the onset of fertility postponement.

This stylised representation of the postponement transition can be elaborated to capture considerable variation in fertility postponement across low-fertility countries. Figure 4b shows five "model" trajectories of postponement, distinguished by the pace and severity of TFR decline in the first phase, by the duration and stability of the second phase of depressed fertility, and by the rapidity and the size of fertility increase during the third phase of fertility recovery. With respect to the depth of the TFR declines, two trajectories leading to ultra-low fertility levels can be distinguished. The first one, T3, shows an accelerated transition, where a steep TFR fall to very low levels is followed by an equally impressive fertility recovery, whereas the second trajectory, T4, shows a TFR decline to very low levels, followed by only a gradual trend towards slightly higher fertility.

These trajectories are still simplified and the actual fertility trends are much more irregular and less predictable. Nevertheless, each of these trajectories can be linked with an observed pattern of a TFR fall and increase during the last four decades (Figure 4c). Among the countries where the TFR has recovered to moderately low levels between 1.6 and 2.1 the Netherlands has followed a pattern of a moderate TFR decline as well as subsequent recuperation (T1), France has shown a weak TFR decline with a strong subsequent recovery (T2), and Sweden has displayed a strong recuperation combined with considerable TFR swings (T5, see also Figure 6 below). In addition, two trajectories marked so far by a TFR recuperation to lower levels of 1.4-1.6 are exemplified by an accelerated postponement transition of the Czech Republic (T3) and a gradual shift to very low TFR levels and only a weak subsequent recovery in Japan (T4).

Figure 4a: Changes in period TFR, completed cohort fertility (lagged by 30 years), and mean age at first birth during the course of the "postponement transition" (stylised scheme)

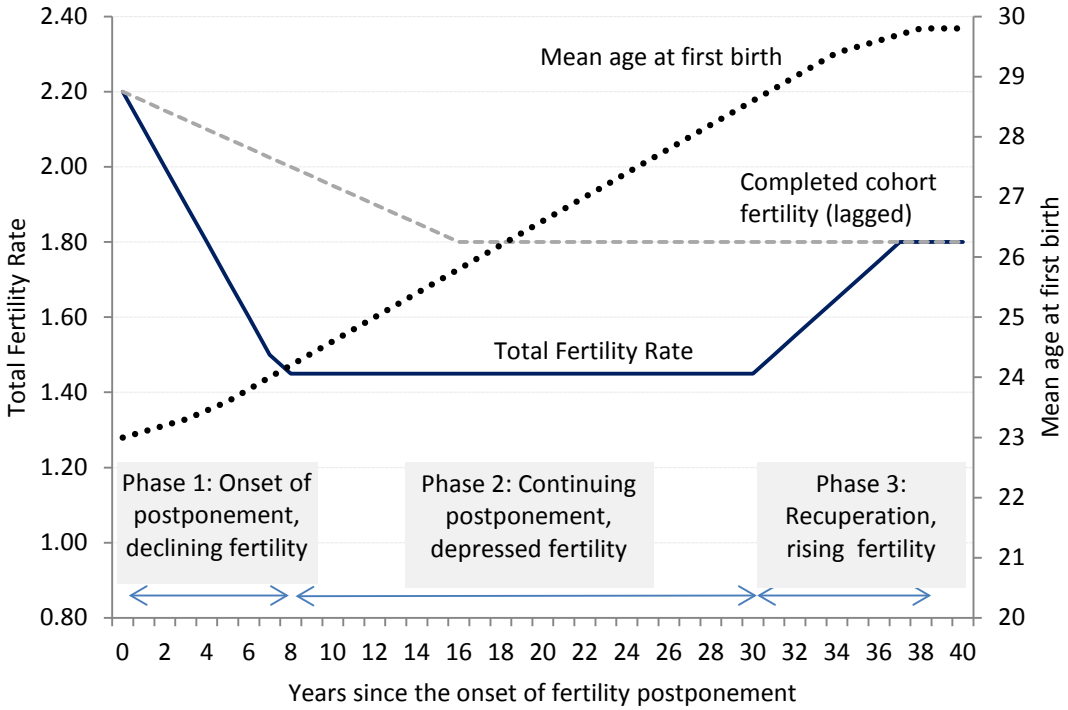


Figure 4b: Five trajectories (models) of period TFR decline and recuperation during the course of the "postponement transition" (stylised scheme)

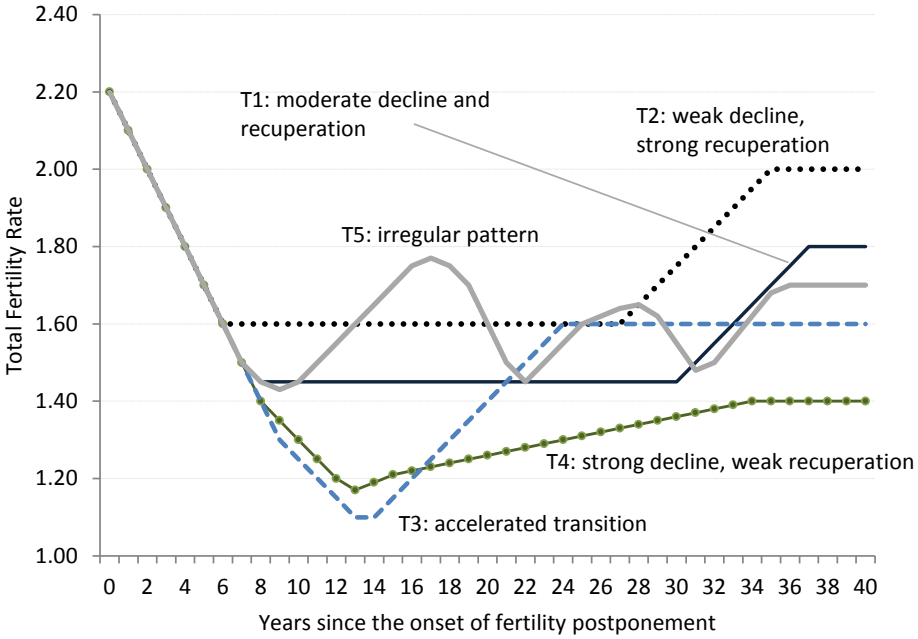
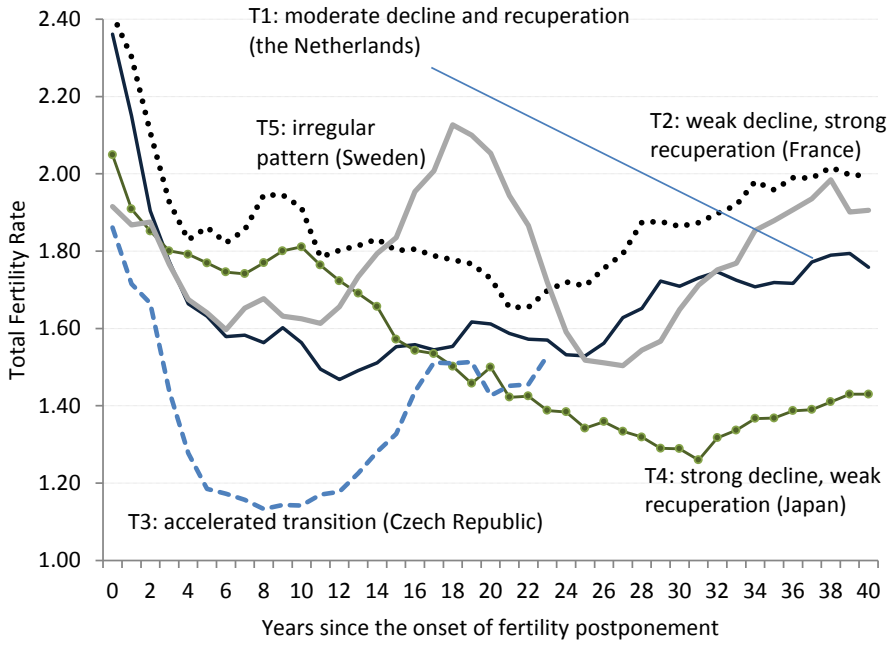


Figure 4c: Five trajectories of period TFR decline and recuperation during the course of the "postponement transition": empirical examples of selected countries, 1970-2015



Sources (Figure 4c): Human Fertility Database (2016), European Demographic Data Sheet 2016 (VID 2016), own computations using Eurostat (2015) data and national statistical offices. **Note:** Figure 4a constitutes an elaboration of Figure 3.13 in Sobotka 2004b.

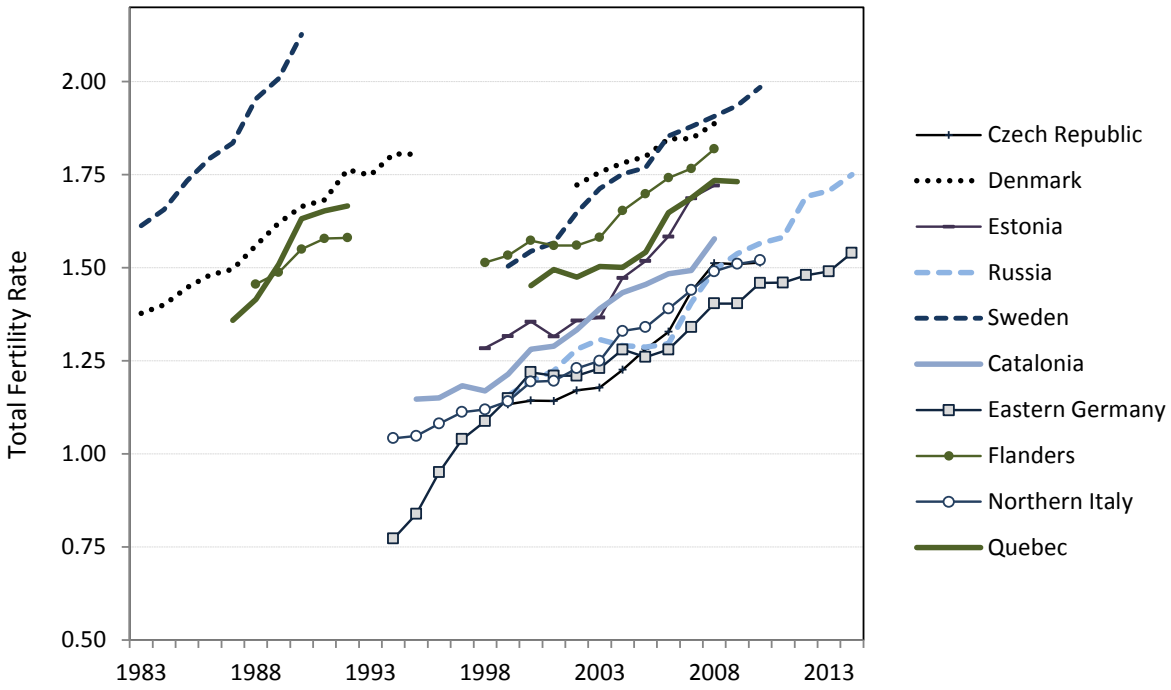
7. Period Fertility Can Increase Considerably

The simplified scheme of the three-phase process of fertility postponement and recuperation is challenged by the arguments suggesting that fertility is likely to stay very low and becomes difficult to reverse once it falls below a certain critical threshold (McDonald 2006, Rindfuss et al. 2016). This idea has been most extensively elaborated by Lutz et al. (2006) in a '*Low fertility trap*' hypothesis. It sees very low fertility as an outcome of the experiences of young people who perceive ever greater gap between their economic aspirations and their actual income and who grow up in an environment with few children. This experience also negatively affects their family size ideals, which in turn lead to yet lower fertility.

Without denying that this mechanism can be at work in some societies, especially in East Asia, the empirical evidence for a number of countries and regions in Europe as well as Quebec in Canada shows that TFR can rebound robustly across diverse contexts and also from very different low thresholds. Figure 5 displays TFR increases in selected countries and regions, presenting for simplicity the TFR trajectory only during its increasing phase. The key insights provided by this figure are as follows:

- The TFR rise can be almost as sudden as its decline. In some cases including Denmark, eastern Germany, Russia, and Sweden the TFR rose by 0.5-0.7 births per woman from its lowest point in the 1980s-2000s to its subsequent peak level.
- It is difficult to identify any specific threshold that would constitute a strong barrier to TFR increase. In some of the countries and regions in Figure 5 the TFR rose from extreme low levels to a more "moderate" low fertility at around 1.5-1.6 births per woman: Such an increase took place in eastern Germany from a low of 0.77 in 1994, in Northern Italy from 1.04 in 1994, in the Czech Republic from 1.13 in 1999, and in Catalonia from 1.15 in 1996. Yet in other cases the TFR has "crossed" the 1.5 boundary to considerably higher levels (Denmark, Estonia, Quebec, Russia) and in Sweden it shifted from 1.5 to the level just below 2.0 between 1999 and 2010.
- The trajectories of TFR increase are not always straightforward and may be interrupted, for instance, during the periods of economic uncertainty. Thus, in a number of cases where the TFR increase started already in the 1980s (Denmark, Flanders, Quebec, and Sweden), two distinct periods of TFR growth can be seen, interrupted by declining fertility (not shown).
- Fertility increases took place in very diverse institutional contexts, including post-communist countries of Central and Eastern Europe recovering from economic shocks and social turbulences of the 1990s (e.g., Sobotka 2011; Frejka and Gietel-Basten 2016). In Estonia, Quebec and Russia pronatalist or family-oriented policies have arguably played an important role in the observed increases. However, in most countries other factors have played the key role, including favourable economic conditions, which were often linked to the diminishing pace of fertility postponement and the resulting decline in tempo effects (e.g., Goldstein et al. 2009). In addition, the rise of immigrant populations with higher fertility levels has partly contributed to the observed TFR rise in some prosperous regions (Catalonia, Flanders, northern Italy).

Figure 5: Increases in period TFR in five European countries, four subnational regions in Europe and Quebec, 1983-2015. Only periods of TFR increase shown



Sources: Human Fertility Database (2015), own computations using Eurostat (2015) data, national statistical offices for Russia and Czech Republic (most recent data), Catalonia, Flanders, eastern Germany, and northern Italy; ISQ (2015) for Quebec.

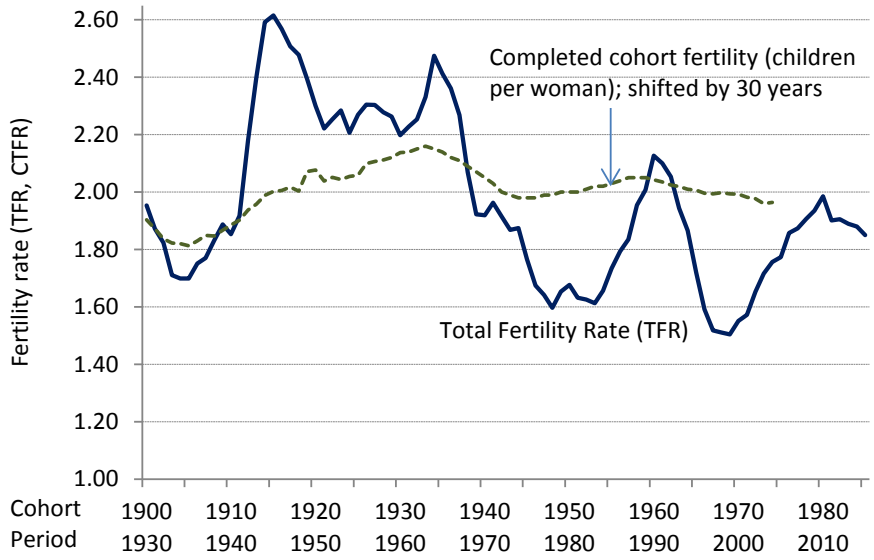
8. Ups, Downs and Reversals: Post-Transitional Fertility is often Unstable

The falls and increases in period TFRs discussed above show that there is no "natural" boundary around which fertility declines bottom out, but also that these declines are often reversed. In essence, post-transitional fertility is usually unstable, at least when viewed from a period perspective. This should not come as a surprise: Since modern contraception is widely used by couples across the low-fertility world and abortion is legal and relatively accessible in most of the analysed countries, women and couples have an unprecedented ability to prevent unwanted pregnancies from occurring and, if they occur, to terminate them. That ability is clearly demonstrated in the continuing shift towards ever later family formation, but it is also manifested in cyclical fertility trends. Especially under rapidly changing societal conditions (e.g., after the collapse of state socialism in Central and Eastern Europe) and during economically uncertain times couples often respond by postponing childbearing (e.g., Sobotka et al. 2011). If they manage to have the presumably postponed children later in life, period fertility might rise

quickly, but cohort fertility would remain relatively stable as period ups and downs compensate one another.

A prime example of such development is Sweden, where unstable "roller-coaster" period fertility trends (Hoem and Hoem 1996) have been combined with very stable cohort fertility that has stabilised close to two children per woman among the women born since 1910 (Figure 6). These fertility swings have been partly driven by parental leave policies that stimulated a faster progression to second and higher-order births (and thus higher fertility) in the late 1980s and early 1990s (Hoem and Hoem 1996), but also by economic downturns, changes in employment and education enrolment that led to postponed and depressed period TFRs, especially in the late 1990s (Andersson 2000).

Figure 6: Long-term changes in TFR (1930-2015) and completed cohort fertility (women born 1900-1974) in Sweden



Sources: Human Fertility Database 2015, Statistics Sweden, and own computations using Eurostat (2015) data.

9. The Key Driving Forces of Post-Transitional Fertility

Four interrelated forces have been repeatedly identified as important explanations for the low, delayed, and unstable period fertility in post-transitional countries: 1) the rapid growth of the secondary and university education; 2) the rising instability of the labour market and the deteriorating economic position of young adults; 3) the changing gender roles and the concomitant rise of women's employment, and 4) changing living arrangements and values related to partnership, marriage and family. Wide differences

exist between countries in how they have accommodated to the sweeping changes in family behaviour. Given space limitations this discussion is simplified and omits many important details pertaining to specific countries and regions. This sketchy review would not be complete without mentioning the role of efficient contraception, especially the pill, complemented in many countries by a broad availability of "emergency" post-coital contraception and access to legal abortion. Widely used contraception has allowed the unprecedented fall in teenage fertility in most rich countries, has enabled women to pursue higher education without becoming pregnant, and has allowed couples to postpone parenthood in response to adverse economic and labour market conditions (Goldin and Katz 2002). Efficient contraception has also contributed to smaller family size by reducing the number of couples progressing beyond their desired family size, although there is evidence of the continuing high share of unplanned pregnancies and births in many post-transitional countries, including the United States (Finer and Zolna 2012). This strong control gained over reproduction since the late 1960s paved the way to a wide acceptance of premarital sexual relations, and later it has contributed to the spread of cohabitation and the erosion of traditional family in Europe and other low-fertility regions (van de Kaa 1994).

9.1. Education Expansion as a Key Driver of Postponed Parenthood

The expansion of secondary and tertiary education, especially among women, has been the main factor behind the shift to delayed first birth (Ní Bhrolcháin and Beaujouan 2012; Mills et al. 2011). In the OECD (Organisation for Economic Co-operation and Development) countries the share of 25-34 year old women with tertiary education has clearly outpaced the rise of tertiary education among men of the same age (OECD 2014a). In a growing number of countries including Australia, Japan, South Korea, Sweden and the United Kingdom a majority of women around age 30 graduated from university. As being enrolled in education is usually considered incompatible with parenthood (Blossfeld and Huinink 1991), not least because it means delaying economic independence, the rise in university education directly translates into a later timing of first birth. In addition, young adults who have completed education now spend a longer time finding a stable job, leaving parental home, finding a long-term partner, and finding a suitable housing. All these factors lead to additional postponement of family formation, a trend most pronounced among women with a degree (Berrington et al. 2015; Lappegård and Rønsen 2005). In most parts of Europe mean age at first birth among university-educated women has surpassed 30. Many women have been postponing childbearing considerably longer, into their late 30s or early 40s, risking infertility and often undergoing costly assisted reproduction treatments (Beaujouan and Sobotka 2016).

The rise in education attainment is often linked to smaller family size. Most low-fertility countries, with the exceptions of Belgium and the Nordic countries (e.g. Andersson et al. 2009) have a negative fertility gradient by level of education (Sobotka et al. 2015; Basten et al. 2014).

In addition, East Asian societies, especially Japan and South Korea, put strong emphasis on children's education achievement, which is stressful, time-intensive and costly to the parents who pay for tutoring and other extra-curricular activities. This "educational arms race" arguably contributes to the "ultra-low" low fertility in the region (Rindfuss and Choe 2015; Tan et al. 2016).

9.2. Uncertain Lives: Deteriorating Economic and Labour Market Position of Young Adults

The recent economic recession in Europe and the United States has provided new evidence that economically uncertain times are not conducive to marriage and childbearing (Sobotka et al. 2011). However, the economic position of young adults—especially males—had started deteriorating in many rich countries several decades before the "Great Recession". Their employment rates declined (partly due to expanding university education), their jobs became more insecure and often poorly paid, their earnings relative to those of middle-aged people fell, and housing became unaffordable for many of them (Blossfeld et al. 2005; Sanderson et al. 2013; The Economist 2016). As Taylor (2014: 60) observed for the United States, those under age 35 are "being hammered out on every front—a terrible job market, runaway college tuition costs, record student loan debt, and a housing market bust that has hit young homeowners much harder than older ones." In Europe, the NEET phenomenon (not in employment, education or training) has grown rapidly among young adults, especially in the South and South-east of Europe, where it surpassed 15% in the early 2010s in several countries including Italy and Spain (OECD 2014b).

Scholars have pointed out a host of global and national forces behind young adults losing economic ground. These include economic liberalisation and globalisation of trade, migration of cheap labour competing with local blue-collar workers, technological change displacing lower-qualified jobs, but also social, pension and labour market policies that often ignore the needs of younger people and are increasingly focused on supporting the elderly. Vanhuysse (2013) has identified massive pro-elderly bias in public spending in many low-fertility OECD countries, including Poland, Greece, Italy, Slovakia and Japan.

While individual countries differ greatly in their mix of factors affecting economic situation of the young and the severity of their impact, young people clearly face new challenges that are not supportive of family life. Most of all, they imply postponement of marriage and family formation (Adsera 2004 and 2005; Mills et al. 2011), as ever growing number of younger people are unable to reach material standards (in terms of secure employment position, sufficient income and housing) considered necessary for starting a family.

The long-term trend towards more economic insecurity was recently aggravated in Europe and the United States by the impact of the recent "Great Recession." This experience has generally confirmed that fertility in post-transitional countries is pro-

cyclical. Different national and regional indicators of economic downturn—including a decline in GDP level, unemployment increase, deteriorating consumer confidence, rising temporary employment, or rising foreclosure rate—have been shown to correlate negatively with fertility rates in Europe and the United States (Sobotka et al. 2011; Currie and Schwandt 2014; Schneider 2015; Goldstein et al. 2013; Sobotka et al. 2015). Fertility decline during the recent recession was especially sharp among young women below age 25, supporting the view that economic downturn typically leads to the postponement of births rather than to a decline in lifetime fertility (e.g., Livingston and D'Vera Cohn 2012). However, Currie and Schwandt (2014) also demonstrated that high unemployment experienced in their early 20s had a lasting negative effect on cohort fertility among US women.

All in all, business cycles clearly contribute to fertility fluctuations in post-transitional societies, especially through fertility downturns in uncertain times. These fertility fluctuations are partly stimulated by individual responses to difficult economic conditions, but also by broader perception of uncertainty and worries among the women and men who are not directly affected by the economic downturn.

9.3. Women's Employment and the "Gender Revolution": From Family Decline to Family Resurgence?

The massive expansion of education among women went hand in hand with their rising career aspirations and actual employment rates. Being employed became an expected part of women's life plans in rich societies (Goldin 2006). The indicator of women's labour force participation, which also includes unemployed women, has broadly converged across the rich OECD countries (excluding Turkey and Latin American countries), typically reaching 70-85% among women aged 30-34 in 2014 (OECD 2016). The upturns in women's work participation were most impressive in countries such as Ireland, Italy, Greece, Spain, where a majority of women of childrearing ages (especially 25-45) had remained outside formal employment and where the male breadwinner model had dominated until the 1980s. In Spain female labour force participation at age 30-34 almost tripled from below 30% in 1980 to 85% in 2012 (OECD 2016). This shift in women's education and labour market participation is also a marker of their ambitions, independence and equality with men and has profound implications for family life and fertility. In a nutshell, these implications can be summarised as follows:

- The traditional male breadwinner model of family, characterised by gender role specialisation and women's almost exclusive responsibility for domestic sphere, has rapidly diminished in importance. It has been replaced by more diverse family arrangements, including many households where a women has higher income than her male partner, but also by a rise of a "modernised male breadwinner model" (Steiber et al. 2016), where mothers pursue only part-time employment in order to be able to combine their parenting and childcare responsibilities.

- Because a large majority of women expect to get employed after completing their education, parenthood is often postponed until a woman and her partner achieve relatively secure employment. This also implies that the actual labour market experiences and employment expectations have stronger influence on women's fertility decisions than in the past.
- Labour market conditions in terms of job security, unemployment rate, work hours, availability of part-time jobs, work flexibility, and the availability of parental and childcare leaves become increasingly important for women's and couples' fertility decisions. Rigid labour markets with long work hours, strong competition, and little flexibility for employees, as in South Korea, contribute to delayed and depressed fertility. Similarly, poorly functioning labour markets with persistently high unemployment, high share of low-paid and unstable "stop-gap" jobs, and also high rates of self-employment, as in Italy and Spain, have a similar negative effect (Adsera 2004).
- Family policies become important in mediating the impact of labour market conditions on families. Policies that support a combination of labour market involvement and family life also support women and couples in realising their fertility plans. Of particular importance is the public provision of childcare, especially for children below age 3, and policies regulating parental leave (with the trend towards more flexible, shorter and better paid leave in many countries), availability of part-time employment, and a stronger involvement of men in childcare, including dedicated paternity leave.
- The contribution of men in childcare and household responsibilities is increasingly relevant. In countries, where unequal division of household tasks persists and women shoulder the double burden of employment and family responsibilities, the consequence for fertility decisions is obvious: having fewer children and having them later in life (e.g., Tsuya 2015 for Japan).

Although men in every rich country continue spending less time than their partners with childcare and household tasks such as cooking, cleaning and shopping, couples in most countries have seen considerable progress towards achieving domestic gender equality (Hook 2006; Miranda 2011). However, vast cross-national differences persist: Especially in East Asia men mostly focus on their work career and contribute very little time to childcare and domestic work. In Japan, which ranks among the countries with lowest cohort fertility rate globally, married men aged 20-49 contributed on average only 3.4 hours per week to housework tasks (excluding childcare) in 2009, as contrasted with an average of 27.4 hours contributed by their wives (Tsuya 2015: 97, Table 5.4). This is only a slight improvement from an average of 2.3 hours husbands contributed each week 15 years earlier, in 1994.

High level of domestic gender equality has been repeatedly suggested as a precondition to achieving higher fertility rates in post-transitional countries (e.g., McDonald 2000, Esping-Andersen 2009, Goldscheider et al. 2015). Myrskylä, Kohler, and Billari (2011) concluded that countries that combined advanced development (high

education, high income, and low mortality) and low level of gender equality were characterised by declining or very low fertility. This evidence lends support to the notion that countries with pronounced domestic gender inequality might indeed get "stuck" at low fertility level for prolonged periods of time.

9.4. The Link between Changing Values, Changing Family, and Fertility

The most prominent theoretical framework of post-transitional fertility and family change is the concept of the "second demographic transition" (SDT) (e.g., van de Kaa 1987 and 1994; Lesthaeghe 2010). The framework has kept evolving over time, but its key features have remained. It links changes in values—with a shift towards more expressive, liberal and individualised values—and changes in family, characterised by a decline in marriage and a rise in cohabitation, living single and other less "traditional" family forms, and a concomitant fertility decline to sub-replacement levels and parenthood postponement (Lesthaeghe 2010). But there is an interesting and initially unexpected twist. Countries that experienced most advanced shits in values and family behaviours characteristic of the SDT do not have particularly depressed fertility rates. To the contrary, most European countries with fertility rates close to the replacement threshold, including Nordic countries, Belgium, the Netherlands, France and the United Kingdom, show an advanced progression of the second demographic transition (Sobotka 2008). At the same time, the SDT clearly correlates with postponed fertility (Sobotka 2008, Lesthaeghe 2010). Countries where the SDT advanced most share a strong "recovery" of fertility rates at advanced reproductive ages.

One factor that may contribute to this fertility recovery is the high level of gender equality discussed above: The "gender revolution" clearly progresses hand in hand with the SDT. In addition, the positive SDT-fertility correlation is also partly explained by the way different populations have responded to the postponement of marriages and declining marriage rates. In countries where cohabitation has become widely accepted, fertility outside marriage has at least partly offset the fall in marital fertility. In addition, a small but significant part of fertility is attributable to solo mothers living without a partner and couples living "apart together" (LAT relationships)—also these arrangements have become considerably more accepted than in the past. It is therefore no coincidence that close-to-replacement fertility is positively correlated with a high share of births outside marriage. In a growing number of European countries, including Belgium, France and Sweden, a majority of births take place outside marriage, rendering marriage ever more irrelevant for fertility. Four out of ten children born in the European Union in 2012 were born outside marriage, compared with two out of ten in 1994.

In many societies, however, the declining relevance of marriage went hand in hand with prolonged single living or with extended co-residence of young adults with parents. In East Asia childbearing outside marriage remains strongly disapproved of. At the same time, marriage for women is still often bundled not only with childbearing and

childrearing, but also with a long withdrawal from employment and with many new family responsibilities. In Japan, the burden of this "…entire package of marital roles of the wife is what is being delayed, including children with their intensive care needs, a heavy household task load, and co-residence with parents-in-law, which is potentially included in the bargain." (Bumpass et al. 2009: 218). In Southern Europe, a mixture of prolonged education, precarious economic situation, uncertain employment prospects, and unaffordable housing combined with the persistence of strong family ties resulted in a high share of young people who continue living with their parents (and enjoying all the amenities of "hotel mamma") well into their 30s (Iacovou 2010). Similar situation also persists in many countries of Central and Eastern Europe (Sobotka 2011).

10. Discussion: The Emerging "Postponement Transition" in Middle-Income Countries

10.1. The Experiences of Post-Transitional Societies: Key Messages

The empirical findings presented in this study can be summarised into ten key messages:

1. *Period fertility decline in most post-transitional countries continues once the threshold of replacement fertility is crossed*. In addition, there is no obvious theoretical or empirical threshold around which the period fertility should stabilise. A number of countries briefly achieved extreme low period TFR at around 1.0 or below and the question of "how low can fertility fall" (Golini 1998) remains open.

2. P*ost-transitional fertility is often unstable*, at least when measured in a period perspective, as women and couples react to the ups and downs of the labour market, changing economic conditions, expanding education, changing family policies, and other factors that affect their fertility decisions. These short-term changes in fertility are often fuelled by changes in the timing of births (Bongaarts and Sobotka 2012; VID 2016).

3. *Post-transitional countries and regions display a wide range of fertility levels*, with period TFRs varying from below one to above-replacement levels. Even within one country, such as Russia, there may be regions with very low fertility (e.g., the Leningradskaya oblast region around St. Petersburg) and other with high fertility rates well above replacement (e.g., Northern Caucasus and some Siberian regions).

4. *Period fertility can also go up, and these upturns are often unexpected and strong*, as in the case of eastern Germany that saw its period TFR doubling from below 0.8 in 1994 to above 1.5 two decades later.

5. *There is no low-fertility threshold that would make future recovery of fertility unlikely if not impossible*. This analysis clearly shows that societies reaching very low period fertility levels do not necessarily get "locked in" ultra-low fertility for long. But it also suggests that institutional conditions matter and some countries show a combination of cultural, economic and social conditions that make sustained fertility increases difficult to achieve.

6. *Whereas post-transitional fertility does not stabilise at the replacement level, post-transitional fertility ideals and intentions usually do*. The experience of generally low, but wide-ranging and often unstable fertility contrasts with family size ideals and intentions that are often stable and closely clustered around or slightly above two children in most countries of Europe, in the United States, Canada, and Australia, but also in Japan and South Korea (Sobotka and Beaujouan 2014; Hagewen and Morgan 2005; Edmonston et al. 2010; Fukuda et al. 2013).

7. Most *post-transitional societies have seen a long-lasting shift towards delayed parenthood*, with a majority of women in some countries becoming mothers after age 30. The observed shift fits well the "postponement transition" framework elaborated by Kohler et al. (2002).

8. *The "postponement transition" results in a prolonged stage of depressed, and often very low, period fertility levels.* This stage typically lasts several decades, followed by at least a partial "recuperation" of period fertility rates, linked with the diminishing pace of fertility postponement. The dynamics of the transition and the extent of fertility "recuperation" vary widely between countries (Lesthaeghe 2010; Frejka 2012; Sobotka et al. 2012).

9. *Tempo distortions in period fertility during the "postponement transition" imply that conventional period fertility measures provide partial and often misleading understanding of fertility trends* (Sobotka and Lutz 2011; Bongaarts and Sobotka 2012). The solution lies in using both cohort fertility indicators—which are relatively smooth and undistorted by fertility postponement—and more sophisticated period indicators that are less affected by the shifts in the timing of births. Obviously, the cohort indicators of completed fertility provide a lagged picture of fertility behaviour and they cannot be used for assessing most recent fertility changes.

10. *Cohort fertility may remain stable and close to replacement.* In contrast to conventional period TFRs, cohort indicators actually show that lifetime fertility in a number of post-transitional societies, including the United States, Australia, France, Nordic countries and the United Kingdom, has stabilised close to the replacement level threshold. Moreover, countries and regions such as Israel and Utah provide examples of settings that, according to the standard theories and expectations, should have reached replacement-level fertility long ago, but their specific history,

culture, religious traditions, ethnic composition and institutional factors have so far prevented this expected development from happening.

By reviewing the empirical findings on the trends and patterns of post-transitional fertility and the role of the shift to delayed parenthood in fuelling these trends, this contribution has highlighted four broad determinants driving these trends. These are the rapid expansion of education, the increase in economic uncertainty—especially among young adults,—the "gender revolution" and the concomitant shift to almost universal labour market participation among women, and the changing character of partnerships and family. In combination, these forces may speed up or prevent the shift to very low fertility levels. In addition, family policies become important in helping women and men to reconcile their employment and career with their family life, and limit the negative consequences of having children on their wellbeing, thus helping them to achieve their desired family size (OECD 2011). While the impact of individual policy instruments on fertility is difficult to quantify, the combination of different policies may nurture institutional conditions supportive of fertility (Luci-Greulich and Thévenon 2013). However, many governments take a narrow and more instrumental view of family policies, enacting pronatalist measures that fail to take into account the new reality of more equal gender roles, more diverse family forms and high career aspirations among women. Such policies frequently support the male breadwinner model and tend to focus on financial incentives for childbearing (see Rivkin-Fish 2010 for Russia). In addition, family policies often suffer from frequent changes and reversals, fostering unpredictability and uncertainty among prospective parents, as discussed by Spéder (2016) on the example of Hungary.

This stylised summary has omitted many important factors influencing fertility in individual countries and regions. One broad force that deserves to be explored more is the influence of migration, which has been gradually reshaping the ethnic and social composition of many highly developed countries, including the United States (Taylor 2014; Coleman 2006). While migrants often do not have much higher fertility rates than the native women, they typically arrive at young ages and contribute strongly to the number of births in many countries, thus having a strong stake in the formation of new generations of Europeans or Americans (Sobotka et al. 2015 for Europe).

10.2. The Future "Postponement Transition" in Middle-Income Countries

Are these findings, based on the experiences of rich countries with long history of sub-replacement fertility, also relevant for middle-income countries approaching the final stage of their fertility transition? The answer is clearly positive, although regional differences in culture, education systems, policies and family patterns will foster considerable variation in post-transitional fertility trends.

Countries of Latin America and the Caribbean, South-east Asia and Southern Asia (including India and China), richer parts of Western Asia (especially Iran and Turkey),

parts of Central Asia and North Africa, as well as South Africa, are likely to experience extended sub-replacement period fertility and the concomitant shift towards later childbearing during the coming decades. If this envisioned effect takes place, it has the capacity to foster many of the social and economic challenges long faced by ageing European societies: It will bring about accelerated population aging, often resulting in stagnating or shrinking population and labour force size, and it will lead to a swift refocusing of social and family policies. As a sign of these shifts already under way, a number of middle-income countries have seen their governments scrapping previously antinatalist policies (most prominent was China's recent abandonment of enforced one-child policies) or promoting openly pronatalist policy agenda (e.g., in Iran and Turkey; for Iran see McDonald et al. 2015).

The argument about the likely future below-replacement fertility in countries nearing the end of their fertility transition is neither new nor surprising. Following the earlier experience of highly developed post-transitional societies, fertility projections produced by the United Nations as well as by national statistical agencies in Brazil, China, Iran, Mexico, and Turkey now envision that low fertility will persist for many decades to come (Sobotka et al. 2016). However, population researchers, projection-makers, and policy experts in these countries often remain unaware of the role of the "postponement transition" in driving fertility in parts of the developed world to very low levels and the potential for such a tempo shift to influence period fertility trends in their societies (Bongaarts 1999). Far too often, TFR continues being the only regularly assessed indicator of fertility, falsely interpreted as if it were a cohort measure of the actual family size. This often hinders understanding of the ongoing fertility decline and causes unnecessary concern about women having too small family size in countries such as Iran and Turkey (e.g., McDonald 2015).

The forces that have driven the shift toward lower and later fertility in the post-transitional countries are also becoming prominent in middle-income countries with more recent fertility declines. Rapid economic growth experienced in the 2000s and early 2010s in much of Asia and Latin America has helped lifting hundreds of millions of people out of poverty and has contributed to the nascent rise of the middle class (Kochhar 2015), which is predicted to grow rapidly in the coming decades (Kharas 2011). These improvements in living standards will in turn contribute to the trend of having fewer, but better educated children. Such a reorientation is also made possible by a continuing rise in contraceptive use among women in developing countries, documented by Alkema et al. (2013) for the period from 1990 to 2010. Middle-income countries also experience an expansion of higher education, a key factor behind delayed childbearing. For instance, most Asian countries saw a rapid increase in the enrolment in tertiary education in the 1990s and 2000s, with Philippines, Iran, and Thailand reaching enrolment ratio in Bachelor's programmes over 25 % in 2011 (UNESCO 2014: Figure 1). Similarly to the most developed countries, the rise of tertiary education has been faster for women, whose enrolment has surpassed that among men in an increasing number of Asian countries including China, Malaysia, Philippines and Sri Lanka (UNESCO 2014: Figure 7).

Young adults in middle income countries, especially in the Middle East and North Africa, but also in Latin America, face extended periods of unemployment and economic uncertainty, similar to the experience of younger people in Southern Europe. Research on Latin America by Adsera and Menedez (2009) showed that women tend to postpone or reduce fertility in times of rising unemployment, which is in line with the findings for the rich countries. There is also ample evidence on family changes, although their character varies widely across countries and regions. Esteve et al. (2012) show rapidly rising prevalence of unmarried cohabitation in Latin America, especially among better educated people and in countries where cohabitation used to be uncommon, including Brazil. In many parts of Latin America, fertility rates of married and cohabiting unions have become similar, with marriage no longer being key for reproduction (Laplante et al. 2015). In China, where childbearing outside marriage remains rare, the rapid rise in premarital cohabitation has been documented for the younger cohorts, especially among the economically advantaged segments of population (Yu and Xie 2015). In many countries where cohabitation is not normatively accepted, population surveys show a strong postponement of marriage and the rise of lifetime singlehood and childlessness, especially among higher educated women who do not want to enter the traditional "marriage package" and among poorly educated men who cannot afford to marry. For instance, census data and surveys in countries of North Africa, including Algeria, Libya, and Tunisia, indicate massive postponement of marriages between the 1970s and 2000s, with the mean age at first marriage among women reaching or surpassing 30 (Ouadah-Bedidi et al. 2012).

In the last three decades many middle-income countries from Brazil through China to Thailand and Viet Nam have joined the ranks of below-replacement fertility settings. The evidence on the nascent "postponement transition" remains more scattered, in part because the data on the timing of first births are less readily available, and in part because this process has been building up only gradually. The study by Bongaarts (1999) was the first one to suggest that period fertility rates in many less developed countries were, at least to a small extent, affected by the changes in the timing of births. Since then, the emerging shift towards delayed childbearing, especially among the highly educated women, has been documented for Latin America (Rosero-Bixby et al. 2009; Nathan et al. 2016; Lima et al. 2016), China (Morgan, Zhigang, and Hayford 2009), India (Spoorenberg 2010) and indirectly, through delayed marriages, in Iran in the 1990s (Hosseini-Chavoshi et al. 2006, McDonald et al. 2015) and North Africa (Ouadah-Bedidi et al. 2012).

The widespread shift to delayed parenthood in rich countries constitutes a unique experience in human history when most of the younger women and men spend their peak reproductive years sexually active, but consistently and effectively avoiding reproduction. The arguments presented here suggest that a similar shift is likely to occur in many middle income countries that have seen sharp fertility reductions in the last decades. However, the future "postponement transition" will vary between countries and its progression will often diverge from the earlier experiences in Europe and elsewhere. In particular, the evidence to date suggests that the future shift towards delayed

childbearing might be slower in many countries. In Latin America and the Caribbean a slower shift towards delayed motherhood could be linked to persistently high rates of teenage childbearing, frequent unwanted pregnancies, and social status polarisation in first birth timing (Rosero-Bixby et al. 2009; Nathan et al. 2016). In other settings where early marriage and motherhood remain strongly valued, fertility postponement may primarily occur via rising birth intervals, especially between the first and the second birth. Such trends have been documented for China (Morgan, Zhigang, and Hayford 2009) or Iran (Hosseini-Chavoshi et al. 2006; McDonald et al. 2015). Some countries with distinct ethnic or religious minorities may follow the pattern of Israel, where a sizeable minority continues exhibiting very high (and early) fertility, keeping the overall fertility in the country relatively high and stable even when most women delay parenthood to higher ages. Furthermore, government policies promoting marriage and childbearing may temporarily slow down or even reverse the "postponement transition" in countries where policy-makers become too concerned about falling marriage and birth rates. At the same time, the huge potential of delayed childbearing for temporarily depressing the period fertility rates—and thus also the number of births—can be explored in population policies by the governments trying to slow down population growth. Matthews et al. (2009: Table 4) showed that in India alone, a shift to later marriage and childbearing could reduce the number of births and population size by tens of millions by 2050.

When will the "postponement transition" in the rich countries come to an end? Clearly, first birth postponement cannot continue forever due to rapidly rising infertility among women in their late 30s and early 40s (Leridon 2008). Goldstein's (2006) simulations show that a mean age at first birth around 33 years can be achieved without causing a rapid rise in involuntary childlessness. This is only one year above the actual mean age found currently in South Korean capital, Seoul, but most rich countries and sub-national regions still experience a mean age at first birth that is by 3-6 years below this threshold. This suggests the shift to later parenthood has quite some way to continue. Although the actual pace of first birth postponement had slowed down in most European countries and in the United States in the early 2000s (Goldstein et al. 2009), the trend towards later parenthood often picked up during the recent economic recession. Perhaps the most likely future trend is a gradual continuation of childbearing postponement for another two to three decades, despite the increasing concerns by the governments and medical experts about rising infertility, involuntary childlessness, and potential medical risks and negative health outcomes linked to late childbearing. The future postponement of parenthood will be fuelled by the further expansion of university education, by the continuing economic instability in many countries, and, possibly, by yet more single living and stronger relationship instability among younger people. It will also be enabled by continuing advances in assisted reproduction and "social egg freezing" (oocyte cryopreservation) technologies, which have considerable potential to break the biological limits to late reproduction.

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