Hauser, Richard (2007): Anmerkungen zur Untersuchung 'Alterssicherung in Deutschland', Vortrag gehalten auf der Tagung 'Sozialpolitische Herausforderungen in der Alterssicherung gestalten', Berlin 22.11.2007, unpublished paper.

Klammer, Ute (2000): Auf dem Weg zu mehr Flexicurity in Europa. In: WSI-Mitteilungen 5, 313-321.

Klammer, Ute (2008): Armut und Verteilung in Deutschland und Europa – eine kritische Bestandsaufnahme. In: WSI-Mitteilungen. No. 3.

Klammer, Ute / Keuzenkamp, Saskia / Anxo, Dominique / Boulin, Jean-Yves / Cebrián, Immaculada / Fagan, Colette / Klenner, Christina / Moreno, Gloria / Toharía, Luis (2005): Working time options over the life course: Changing social security structures. Luxembourg: European Foundation, Office for Official Publications of the European Communities.

Klammer, Ute / Leiber, Simone (2004): Aktivierung und Eigenverantwortung in europäisch-vergleichender Perspektive. In: WSI-Mitteilungen. No. 9, 514-521.

Klammer, Ute / Tillmann, Katja (2002): Flexicurity – Soziale Sicherung und Flexibilisierung der Arbeits- und Lebensverhältnisse. Düsseldorf: Landesarbeitsministerium MASQT 1106.

Naegele, Gerhard / Barkholdt, Corinna / de Vroom, Bert / Goul Anderson, Joergen / Krämer, Katrin (2003): A new organisation of time over working life. Luxembourg: European Foundation, Office for Official Publications of the European Communities.

Rabe, Brigitta / Schmid, Günther (1999): Eine Frage der Balance. Reform der Arbeitsmarktpolitik. In: Politik und Zeitgeschichte B 37, 21-30.

Rische, Herbert (2007): Vorstellung der Studie 'Altersvorsorge in Deutschland (AVID)'. 3. Aktuelles Presseseminar der Deutschen Rentenversicherung Bund. Würzburg 20.-21.11.2007. www.deutsche-rentenversicherung.de. Viewed 25 Nov. 2007.

Schmid, Günther / Gazier, Bernard (ed.) (2002): The Dynamics of Full Employment. Social Integration Through Transitional Labour Markets. Cheltenham: Edward Elgar Publishing.

Stuurgroep Verkenning Levensloop (2002): Verkenning Levensloop. Den Haag.

SZW (2006): Levensloopregeling: informatie voor werknemers.
http://home.szw.nl/navigatie/rubriek/dsp_rubriek.cfm?rubriek_id=1001&subrubriek_id=1003&link_id=77624. Viewed 15 March 2006.

Vielle, Pascale (2001) : La sécurité sociale et le coût indirect des responsabilités familiales. Brüssel: Bruylant.

Vielle, Pascale / Walthery, Pierre (2003): Flexibility and social protection. Dublin: European Foundation for the Improvement of Living and Working Conditions.

Waas, Bernd (2004): Die ‚lebensverlaufbezogene' Politik in den Niederlanden. Ein Beispiel für Deutschland?. In: Sozialer Fortschritt. Vol. 53 (7), 173-178.

Submitted: 11 January 2009
Accepted: 19 April 2009

Dr. Ute Klammer is Professor of political science (particularly social policy) at the University of Duisburg-Essen (since March 2007) and Vice Rector for Diversity Management (since October 2008). She is a member of the National Council for Sustainable Development and of the Expert Commission on Gender Equality of the Federal Government of Germany.

Contact details: University of Duisburg-Essen
Universitätsstraße 2, D-45117 Essen.
E-mail: ute.klammer@uni-due.de.

Shifting Parenthood to Advanced Reproductive Ages: Trends, Causes and Consequences

by Dr. Tomáš Sobotka

Abstract: This article discusses different aspects of the shift towards later parenthood which has affected all industrialised countries. It outlines trends in delayed childbearing and points out the increase in childlessness and growing educational disparities in first birth timing, especially among women. It reviews consequences of delayed childbearing for individuals, couples, their children and society and discusses the limited role of assisted reproduction in offsetting the age-related rise in infertility. The individual social and economic advantages of late parenthood may outweigh the biological advantage of early parenthood. In conclusion, I outline possible policy actions that may support childbearing decisions at both younger and older reproductive ages. Such policies should recognise wide heterogeneity in needs and lifestyle preferences of individuals and should not explicitly aim to encourage early parenthood.

Introduction

In the last four decades women and men in industrialised countries have been delaying parenthood towards ever later ages. This persistent trend, termed 'postponement transition'[1] has become characteristic for a wide range of countries with diverse cultural and economic conditions. Other milestones traditionally linked with adulthood, such as finishing education, leaving the parental home, and forming a couple, have also been postponed towards later ages. However, the postponement of births receives particular attention due to the concerns about the associated health risks and because of the fears of persistent low birth rates that are now common in most parts of Europe and in East Asia.

The decision on the right time to have a child has become increasingly difficult for men and women who try to find the best way of combining their education, work, and leisure activities with their partnership life and family plans. On the one hand, efficient contraception and the declining normative pressure for parenthood provides 'freedom from children' at younger ages, when most individuals prefer to focus on non-family activities. On the other hand, the notion of the biological clock and the awareness of the possible future deterioration of one's health or partnership situation provide incentives for not postponing parenthood until it becomes too late for having children.

This article reviews different aspects of the shift towards later parenthood. Although most of the issues discussed here pertain to both men and women, much of the empirical evidence explicitly focuses on women, for whom considerably more statistics and studies exist, and whose 'biological clock' ticks faster. I emphasise that there is a mixture of positive as well as negative aspects of later parenthood and that the frequent negative views on childbearing postponement are exaggerated.

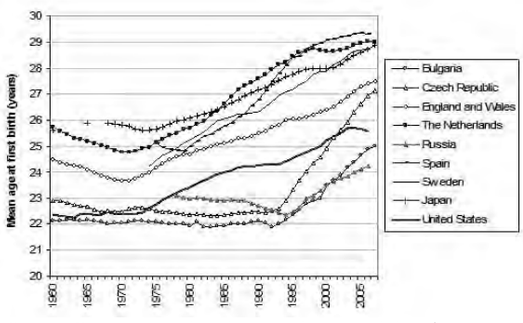
The article is structured as follows. The shift towards later childbearing is outlined alongside an increase in childlessness and wide educational differences in fertility timing. Subsequently,

I review consequences of delayed childbearing for individuals, couples, their children and society, and discuss the limited role of assisted reproduction in offsetting the age-related rise in infertility. In conclusion, I outline possible policy actions that may support childbearing decisions at both younger and older reproductive ages.

> The pressures of being a parent are equal to any pressure on earth. To be a conscious parent, and really look to that little being's mental and physical health, is a responsibility which most of us, including me, avoid most of the time because it's too hard.
> / John Lennon /

The shift towards later parenthood and the forces contributing to it

The trend towards later parenthood was first initiated in the early 1970s in Western and Northern Europe, Japan and the United States, and by the late 1990s had spread to all industrialised societies.[2] At present women in Western, Northern and Southern Europe as well as Japan give birth to their first child on average between the ages of 28-29 (Figure 1). Fathers have also 'aged' considerably; men on average have their first child at ages 2-4 years older than women,[3] which is in line with their later home leaving and partnership formation. The United States constitutes an important exception with an earlier first birth pattern fuelled by the relatively high rates of teenage motherhood. Also women in Eastern and South-Eastern Europe still bear their first child at younger ages (typically at ages 24-26) than their counterparts in other parts of Europe. In Japan and in most parts of Europe teenage births have become marginal, whereas the frequency of births at late reproductive ages (40+) has increased sharply since the late 1980s, bringing a reversal to the long-standing downward trend.



Source: Computations based national statistical data.[4]

Figure 1: Mean age of mother at birth of first child, selected countries of Europe, Japan and the United States (1960-2007).

The expansion of higher education, especially among women, constitutes the main driving force of delayed parenthood, contributing approximately one half to the observed rise in the age at first birth.[5] Given the general incompatibility between studying and having children, a later age at school leaving directly translates into later childbearing.[6] The relative decline in the economic position of young adults and the rise of temporary jobs, combined in many countries with high youth unemployment, also contributes to parenthood postponement.[7] 'Women's liberation' from domesticity and economic dependence on their husbands made combining career and parenthood paramount for their childbearing decisions. Unlike for men, improvements of women's labour market prospects may stimulate further postponement of first birth.[8]

The contraceptive pill is the major technological innovation that has become instrumental for most couples planning (and postponing) marriage and parenthood.[9] In addition, norms and values related to family have changed rapidly and parenthood has gradually ceased to be the main and universal goal in life. Consequently, the option of having children competes with other activities available for self-realisation, including leisure and consumer activities, which become legitimate reasons to delay or forego childbearing.[10] Having children has become a carefully planned decision of the couple, who considers various potential positive and negative effects of parenthood on their relationship, lifestyle, and economic well-being.[11] In this context, partnership instability and the disagreement between partners may further delay couples' childbearing.

The highly educated lead the shift to late parenthood

Different factors driving the trend to delayed parenthood are most pertinent for the highly educated women, for whom the competition between parenthood and other life choices is most intense. Women with a university education not only postpone motherhood due to their long study period, but after completing their studies they wait longer than other women before having a child. Consequently, a growing social status differentiation in the timing of parenthood has taken place among both men and women.[12]

Women with tertiary education have frequently shifted the birth of their first child to after the age of 30, whereas women with low qualifications usually give birth to their first child at an early age, often as teenagers.[13] This rising heterogeneity in first birth timing is illustrated in table 1 giving Norway as an example. The shrinking group of the low-educated women has hardly shown any signs of birth postponement, while the highly educated women displayed the most pronounced shift in their age at motherhood.

	Year			Difference
Highest achieved education	1980	1990	1998	1980 - 1998
Primary and lower secondary	23.3	23.9	24.0	0.7
Upper secondary	24.0	25.3	26.4	2.4
University, 1st stage	26.5	28.1	29.5	3.0
University, 2nd stage	28.5	30.0	31.6	3.1

Table 1: Mean age at first birth among women by the highest achieved level of education in Norway (1980, 1990 and 1998).[14]

The rise of social status heterogeneity in first birth timing has been most pronounced in the countries that are characterised by larger social disparities – England and Wales, Ireland, outside Europe, and the United States. McLanahan (2004) argues that the divergence in partnership, family, and work trajectories of low-educated and highly educated persons is linked to an increasingly disadvantaged economic position of the former group. Lochhead (2005: figure 3) shows that income differences in Canada by mother's age at first birth became pronounced between 1971 and 1996.

The contrasts in family trajectories by social status lend a nuanced perspective to the notion of the 'rush hour' of life. In the 1970s and the 1980s, the 'rush hour' in industrialised countries was still concentrated at young adult ages, with a very high density of major life events (leaving parental home, school graduation, marriage, first birth, acquiring employment) occurring between ages 20 and 30.[15] At present, such a concentration of major events at young adult years remains typical for the low-educated segments of the population (and some immigrant groups), who often experience complex and non-standard partnership, employment and family trajectories. For the group of higher-educated men and women, the 'rush hour' has increasingly moved into their thirties.

Consequences of later parenthood for individuals and couples

The most obvious consequence of delayed pa-

renthood is a rapid rise of childlessness at ages below 35. It has been most pronounced among highly educated women. In the Netherlands, nine out of ten women with a high level of education born in 1965-74 remained childless by age 28, a sharp increase from about one half in the 1940-49 cohorts.[16] Most of these women will eventually have a child, as the higher-educated usually display elevated rates of childbearing in their mid-to late thirties and early forties,[17] but many will also remain permanently childless.

In contrast to women, childlessness among men is especially high among the lower-educated.[18] This apparent paradox can be explained not only by a higher risk of infertility with age for women and a high 'price' paid for parenthood by the highly educated women, but also by the fact that, for men, lower social status often means an exclusion from the partnership market.[19]

For women, ages 36-42 may be thought of as a critical window for their last pregnancy attempts, when their biological clock ticks particularly fast. By postponing childbearing until their thirties, highly educated women risk, more than other groups, being unable to reach their reproductive goals. Infertility starts rising markedly after age 35 and then accelerates after age 40. At that age 17 percent of women are estimated to be permanently sterile (unable to conceive) and 35 percent of women will not eventually be able to have a child when starting their pregnancy attempts (see figure 2).[20] Men's reproductive capacity declines slower with age;[21] men are nevertheless often 'responsible' for couple's inability to conceive.

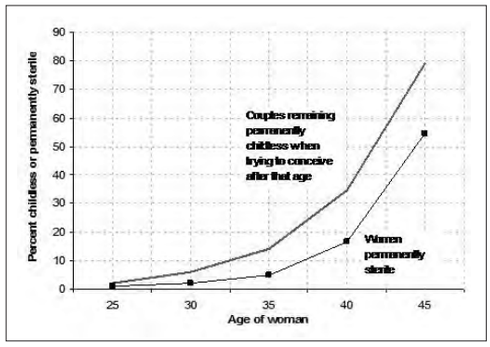


Figure 2: Percentage of women who are permanently sterile and of couples remaining childless at age 50 when trying to conceive after a given age.[22]

Still, many women that are approaching their critical window desire to have a child in the future. Including somewhat uncertain responses ("probably yes"), 17 percent of Austrian women aged 35-39 and 6 percent aged 40-45 intended to have a child within the next three years; at that age, as many as 17 percent of men intended to have a child.[23]

The psychological consequences of permanent sterility are most serious for women who are childless.[24] Late pregnancies are associated with a rapidly increasing risk of miscarriage, higher risk of pregnancy complications and negative health outcomes for the mother, and also with an elevated risk of stillbirths, premature births and foetus malformations, such as Down Syndrome.[25] Some of these negative outcomes can be reduced or prevented by an extensive use of prenatal screening and selective abortion. However, motherhood at ages above 35 has not been consistently found to pose long-term health risks for the mother. Mirowsky (2005) concluded that women having their first child in their early thirties subsequently display better health conditions than the younger first-time mothers. Men's age may also negatively influence reproductive outcomes. After age 40, fathers face an increased risk of genetic abnormalities in their children.[26] De la Rochebrochard and Thonneau (2002) found that women who become pregnant by men above age 40 have a substantially higher likelihood of miscarriage, and that the combined effects of a woman's and man's higher age produced particularly high risks.

Late parenthood also has a number of generally positive effects and consequences. Most children born to 'older' couples are strongly desired and born into a stable family environment. Men becoming fathers after age 30 become more involved with their children and express more positive feeling about fatherhood.[27] Garrison et al. (1997) found that couples having their first child after age 35 were more satisfied with their marital life and reported better family functioning. Few older mothers are living without a partner at the time of birth. The likelihood that a woman would give birth as a single mother declines rapidly with age until about age 30. Partnerships and marriages are considerably more stable among couples in their late 20s and 30s than among younger couples, reducing the risk that children will experience family disruption that has become common in the majority of developed countries.[28]

Late parenthood is also associated with economic and career advantages. Joshi (2002) concluded that birth postponement could reduce income loss associated with motherhood, particularly among women with a university degree. Miller (2008) found a significant increase in women's earnings associated with each year of birth postponement; especially college-educated women benefited from delaying births.

Consequences of late parenthood for children and intergenerational links

Later parenthood also affects children, their interaction with parents and wider family relations. The impact varies for children at different life stages. Overall, late motherhood does not appear to have any serious effects on behavioural or physical outcomes of children after controlling for the socio-economic status of mothers and birth-related risk factors. Adolescent children of older mothers may display better educational achievement and lower drug abuse, possibly due to better parenting practices and family functioning.[29] The effect of father's age on child health and cognitive outcomes may be more pronounced due to a higher risk with age of mutations in sperm cells. Saha et al. (2009) reported that paternal age has a negative effect on a range of measures of neurocognitive performance (such as concentration, memory, learning, and reading) until the age of 7 years. Late fatherhood has also been linked to long-term health outcomes such as a higher risk of schizophrenia, autism, dyslexia, and Alzheimer disease.[30]

> You have these highly educated, high-powered women adjusting to being mothers and they are determined to be the best mothers.
> / Jennifer Weiner /

Delayed parenthood may also affect intergeneration relations. As the time span between generations increases, parents and grandparents are more likely to have difficulties communicating with their children and grandchildren and to share common values and interests. Older parents are less likely to survive until the time their children reach adulthood, marry or have their own children; they also have a higher likelihood of suffering health problems at a time when they are still caring for their teenage children. The risk of not surviving to see one's own grandchildren is much higher for men, who have, at any age, a higher mortality than women and are on average about three years older when having children. Finally, later parenthood may lead to a better availability of childcare in the form of help from grandparents: at a time when most women remain in employment until their late fifties or early sixties, more of them will retire and become available to help with childcare when their daughters or sons become parents at age 30 and above.

Societal-level consequences of delayed childbearing

On an aggregate level, a shift to a later timing of childbearing brings a temporary decline in birth rates, even if the number of children that women have over their life course does not change. One can also think of this effect in terms of an expansion of an interval between generations during which fewer births fall into

each calendar year. Estimates produced by the Vienna Institute of Demography[31] show that in the absence of the ongoing increase in age at childbearing the total fertility rate (TFR; this is the most commonly used indicator of period fertility) for the European Union in 2003-2005 would reach 1.72 instead of the observed value of 1.48. This effect was most pronounced in Central and Eastern Europe, where the observed TFR was as low as 1.25, whereas the estimated TFR in the absence of the tempo effect was substantially higher, 1.64 (figure 3).

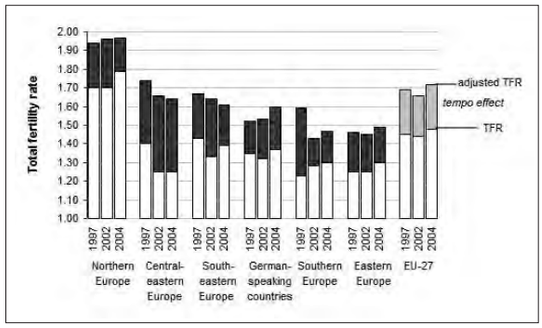


Figure 3: Total fertility rate, observed (TFR) and in the absence of changing age at motherhood (adjusted TFR), major European regions 1997 – 2004.[32]

Besides the temporary effect on the number of births and fertility rates, delayed childbearing also leads to permanently lower fertility rate as a result of the rising infertility at higher ages (see also above). The magnitude of this effect is difficult to estimate. Kohler et al. (2002) estimated that one year of delay from the mean age at first birth reduced the complete fertility rate of women in different European countries by 1.6 to 5.1 percent. Noticeably, this effect was smaller for younger cohorts that experienced motherhood later in life. This is not a small effect, but a comparative analysis suggests that delayed childbearing has, so far, played a minor role in the observed shift to low fertility levels and that other factors are responsible for the very low fertility experienced especially in Southern Europe, Eastern Europe, and German-speaking countries.[33]

Is assisted reproduction a solution to the infertility caused by postponement?

Medical treatment of infertility might be perceived as a potential solution for women who have postponed childbearing for 'too long.' The use of assisted reproduction technology (ART), which involves surgical removal of woman's oocytes ('eggs'), has been increasing rapidly in developed countries. However, with current knowledge and technology, the ART remains ineffective in coping with infertility caused by childbearing postponement. For each cycle initiated with the use of woman's own oocytes, success rates, as measured by the chances of achieving a live birth decline steadily from about age 32. Pregnancy rates and live birth rates are particularly low for women aged 40 and older: In the United States, where ART industry is very competitive, only 16 percent of attempts using fresh non-donor eggs result in live birth at age 40.[34] Given that these women have little time left to try many more ART cycles, the overall chances of getting pregnant through assisted reproduction are rather low. Leridon's (2004) simulations estimated that after the age of 40 ART is only marginally more successful when compared with pregnancy attempts through sexual intercourse. Consequently, costs of treatment per one ART child born are prohibitively high after age 40.

Many infertile women wishing to have a child after age 40 achieve high success rates of around 50 percent per cycle by using donated oocytes. Remarkably, the use of donated oocytes, commonly originating from much younger women, does not diminish chances of achieving successful delivery with the age of woman undergoing ART. This suggests that using cryopreservation ('egg freezing') at younger ages may give many women a chance to get pregnant with their own fertilised oocytes later in life. However, at present, this method is – in contrast to the commonly used sperm and embryo cryopreservation – still in an early stage of technological development[35] and only a few cases of its successful use have been documented. Consequently, the potential impact of 'egg storing' on late birth rates remains low for the next two to three decades.

> This race was just feeling my way through. I'm 39, but I'm not over the hill yet. The one title I didn't have was motherhood. Everything I've ever wanted, I have. ... I'm blessed to have a healthy baby.
> / Gail Devers /

Concluding discussion and policy recommendations

Medical literature generally perceives delayed childbearing negatively, emphasising high risks of infertility and high rates of negative pregnancy outcomes and foetus deformations. However, the biological rationale for early childbearing is increasingly in conflict with social and economic rationales favouring late childbearing. Late parenthood has a number of potentially benefiting effects for both parents and their children. It is also a strategy consistent with the decline in the relative importance of children and family life at younger ages and with the general extension of life span, prolonged education and delayed economic activity.[36]

Educational, social and economic policies may affect decisions on fertility timing. Lutz and Skirbekk (2005) outline two ways in which policies may support earlier timing of parenthood: (1) by reordering life course events (e.g., by having children before finishing education) and (2) by shortening different phases that lead to parenthood (e.g., by shortening the time spent in higher education), but maintaining the 'usual' sequence of events. Rindfuss and Brauner-Otto (2008) have recently investigated this issue in detail and discussed how policies and regulations related to education, labour market and housing market may stimulate earlier timing of births.

Large individual heterogeneity in living arrangements, family life course and the timing of childbearing need to be taken into account by policy actions that aim to ease the work-family combination during the 'rush hour' stage of life. Arguably, policies assuming uniform needs and preferences might be counterproductive as they may lead to different reactions among individual men and women. For instance, the policy stimulating an extended period of generous parental leave without offering an alternative option of short work interruption and easily available institutional child care may discourage career-oriented women from having children earlier in life. Policies for the 21st century need to reflect heterogeneous lifestyle preferences and, at a very general level, should aim to spread "more innovatively paid and unpaid duty-free time over the entire life course".[37]

Taking these general observations as a starting point and drawing on the existing research, a stylised 'wish list' of policy recommendations can be formulated as follows:

- Aim to reverse trends in relative income of younger workers below age 35, which was falling in comparison with the older workers (aged 45-54) between the mid-1970s and the mid-1990s.[38]
- Make the labour market more flexible and open for young adults, and limit employment policies favouring older workers, thus reducing youth unemployment rates.
- Give both men and women greater flexibility over their employment and family time. Allow broad choice in the length of weekly work time, duration of parental leave (including a system of short family leaves for parents) and its sharing by both partners. Similarly, allow wider choice in retirement age.
- Make institutional childcare inexpensive and well accessible and with full-day coverage, also for parents with children below age 3 and for school-aged children.

- Enable an easy and cheap access to all types of infertility treatment to women and couples who are infertile and have a non-marginal chance of becoming pregnant.
- Support affordable and accessible housing, both rental and privately owned.[39] The ability to establish an independent household is one of the most important preconditions for parenthood.

These policies should not explicitly aim at reducing age at childbearing, as there is no clear support for the notion that an earlier timing of births should be preferred. To some extent, the outlined policy actions would prop up childbearing at younger ages by facilitating parenthood among younger couples who wish to become parents and face obstacles to realising this desire. At the same time, some of these policies may also encourage 'recuperation' of delayed childbearing at later reproductive ages and thus lead to a continuous increase in fertility rates of women past age 30.

On balance, the shift to a late childbearing pattern does not need to be perceived negatively, especially when most women have their first child at ages when they can achieve their desired family size, which is in most countries and in most social groups centred at two children. In other words, as long as a majority of women, including those with a high education, have their first child before age 35, age-related decline in fecundity may not have a very strong effect on their ability to achieve their plans and on aggregate cohort fertility rates. As Stein and Susser (2000) suggest, the 'social advantage' of late parenthood may outweigh the biological advantage of early parenthood, as older parents are more experienced and knowledgeable, have better economic situations, face lower risk of divorce, and can more easily afford child-care. The persistence of the current institutional and cultural framework in most developed societies, which favours non-family orientation at younger ages and postponement of stable partnership and family formation is likely to contribute to a further shift towards later parenthood. The late parenthood 'revolution' is not over yet.

Notes:

*Many thanks to Egbert te Velde for his comments on the first draft of this contribution. Helpful suggestions by three reviewers and the participants of the WannseeForum workshop on 'Easing the rush hour of life – diversity of life courses in international comparison' were also highly appreciated.

1. Kohler et al. 2002.
2. Kohler et al. 2002; Sobotka 2004.
3. Coleman 2000.
4. Eurostat 2009; Council of Europe 2006.
5. Beets et al. 2001.
6. Blossfeld / Huinink 1991.
7. Mills / Blossfeld 2005; Adsera 2005.
8. de Cooman et al. 1987.
9. Goldin /Katz 2002.
10. Presser 2001.
11. Liefbroer 2005.
12. Ravanera / Rajulton 2004.
13. McLanahan 2004.
14. Lappegård / Ronsen 2005.
15. Rindfuss 1991.
16. de Graaf 2008: 20.
17. Rendall /Smallwood 2003.
18. Toulemon / Lapierre-Adamcyk 2000; Coleman 2000.
19. Toulemon / Lapierre-Adamcyk 2000.
20. Leridon 2008.
21. Kühnert / Nieschlag 2004.
22. Adopted from Leridon 2008: Tables 1 and 2.
23. Generation and Gender Programme survey conducted in 2008.
24. Gilbert et al. 1999.
25. ESHRE 2005.
26. Kühnert / Nieschlag 2004.
27. Cooney et al. 1993.
28. Heuveline et al. 2003.
29. Fergusson / Woodward 1999.
30. Saha et al. 2009: references.
31. VID 2008
32. VID 2008. Years shown in the graph refer the following periods: 1997 to 1995-2000, 2002 to 2001-2003, 2004 to 2003-2005. Adjusted TFR computed with using the method by Bongaarts and Feeney (1998) approach. See more details at http://www.oeaw.ac.at/vid/datasheet/box2.shtml .
33. Billari / Kohler 2004.
34. CDC 2007; c.f. 2005.
35. Nowak 2007.
36. Lee / Goldstein 2003.
37. Avramov / Cliquet 2003.
38. Lutz et al. 2006.
39. Rindfuss / Brauner-Otto 2008.

References

Adsera, Alicia (2004): Changing fertility rates in developed countries. The impact of labour market institutions. In: Journal of Population Economics. Vol. 17 (1/2004), 1-27.

Avramov, Dragana / Robert Cliquet (2003): Economy of time and population policy. Rethinking the 20th Century life course paradigm. In: Zeitschrift für Bevölkerungswissenschaft. Vol. 28 (2-4/2003), 369-402.

Beets, Gijs / Edith Dourleijn / Aart C. Liefbroer / Kène Henkens (2001): De timing van het eerste kind in Nederland en Europa. Raport No. 59, NIDI, Den Haag.

Billari, Francesco C. / Kohler, Hans-Peter (2004): Patterns of low and very low fertility in Europe. In: Population Studies. Vol. 58 (2/2004), 161-176.

Blossfeld, Hans-Peter / Huinink, Johannes (1991): Human capital investments or norms of role transition? How women's schooling and career affect the process of family formation. In: American Journal of Sociology. Vol. 97 (1/1991), 143-168.

Bongaarts, John / Feeney, Griffith (1998): On the quantum and tempo of fertility. In: Population and Development Review. Vol. 24 (2/1998), 271-291.

CDC (2007): Assisted reproductive technology success rates 2005. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta. http://www.cdc.gov/ART/ART2005/download.htm.

Coleman, David A. (2000): Male fertility trends in industrial countries: Theories in search of some evidence. In: Caroline Bledsoe / Susanna Lerner / Jane I. Guyer (eds.) Fertility and the male life-cycle in the era of fertility decline. Oxford: Oxford University Press, 29-60.

Cooney, Teresa M. / Pedersen, Frank A. / Indelicato, Samuel / Palkovitz, Rob (1993): Timing of fatherhood: Is 'on-time' optimal?' In: Journal of Marriage and the Family. No. 55, 205-215.

Council of Europe (2006): Recent demographic developments in Europe 2005. Strasbourg: Council of Europe Publishing.

De Cooman, Eric / Ermisch, John F. / Joshi, Heather (1987): 'The next birth and the labour market: A dynamic model of births in England and Wales'. In: Population Studies. Vol. 41 (2/1987), 237-268.

De Graaf, A. (2008): Vruchtbaarheid in de twingtigste eeuw (Fertility in the 20th century) In: Bevolkingstrends. 1/2008, 14-22.

ESHRE (2005): Fertility and ageing. ESHRE Capri Workshop Group. In: Human Reproduction Update. Vol. 11 (3/2005), 261-276.

Eurostat (2008 / 2009): Population and Social Conditions. Online database of Eurostat http://epp.eurostat.ec.europa.eu. Viewed May 2008 and March 2009.

Fergusson, David M. / Woodward, Lianne J. (1999): Maternal age and educational and psychological outcomes in early adulthood. In: Journal of Child Psychology and Psychiatry. Vol. 43 (3/1999), 479-489.

Garrison, M.E. / Blalock, Lydia, B. / Zarski, John, J. / Merritt, Penny, B. (1997): Delayed parenthood: An exploratory study of family functioning. In: Family Relations. Vol. 46 (3/1997), 281-290.

Gilbert, William M./ Nesbitt, Thomas S. / Danielsen, Beate (1999): Childbearing beyond age 40: Pregnancy outcome in 24,032 cases. Obstetrics and Gynecology. Vol. 93 (1/1999), 9-14.

Goldin, Claudia / Katz, Lawrence F. (2002): The power of the pill: Oral contraceptives and women's career and marriage decisions. In: The Journal of Political Economy. Vol. 110 (4/2002), 730-770.

Heuveline, Patrick / Timberlake, Jeffrey, M. / Furstenberg Jr., Frank, F. (2003): Shifting childrearing to single mothers: Results from 17 Western countries. In: Population and Development Review. Vol. 29 (1/2003), 47-71.

Joshi, Heather (2002): Production, reproduction and education: Women, children and work in a British perspective. In: Population and Development Review. Vol. 28 (3/2002), 445-474.

Kohler, Hans-Peter; Billari, Francesco C. / Ortega, José Antonio (2002): The emergence of lowest-low fertility in Europe during the 1990s. In: Population and Development Review. Vol. 28 (4/2002), 641-680.

Kühnert, Bianca / Nieschlag, Eberhard (2004): Reproductive functions of the ageing male. In: Human Reproduction Update. Vol. 10 (4/2004), 327-339.

Lappegård, Trude / Rønsen, Marit (2005): The multifaceted impact of education on entry into motherhood. In: European Journal of Population. Vol 21 (1/2005), 31-49.

Lee, Ronald D / Goldstein, Joshua (2003): Rescaling the life cycle. Longevity and proportionality. In: J.R. Carey and S. Tuljapurkar (eds.) Life span. Evolutionary, ecological and demographic perspectives. Supplement to: Population and Development Review. No. 29, 183-207.

Leridon, Henri (2008): A new estimate of permanent sterility by age: Sterility defined as the inability to conceive. In: Population Studies. Vol. 62 (1/2008), 15-24.

Leridon, Henri (2004): Can assisted reproduction technology compensate for the natural decline in fertility with age? A model assessment. In: Human Reproduction. Vol. 19 (7/2004), 1549-1554.

Liefbroer, Aart C. (2005): The impact of perceived costs and rewards of childbearing on entry into parenthood: evidence from a panel study. In: European Journal of Population. Vol. 21 (4/2005), 367-391.

Lochhead, Clarence (2005) Growing disparities among first-time parents: 1971-1996. In: Health Policy Research Bulletin, 10 / 2005, Health Canada, 11-14.

Lutz, Wolfgang / Skirbekk, Vegard (2005): Policies addressing the tempo effect in low fertility countries. In: Population and Development Review. Vol. 31 (4/2005), 699-720.

Lutz, Wolfgang / Skirbekk, Vegard / Testa, Maria Rita (2006): The low fertility trap hypothesis. Forces that may lead to further postponement and fewer births in Europe. Vienna Yearbook of Population Research 2006, 167-192.

McLanahan, Sara (2004): Diverging destinies: How children are faring under the second demographic transition? In: Demography. Vol. 41 (4/2004), 607-627.

Meron, Monique / Widmer, Isabelle (2002): Unemployment leads women to postpone the birth of their first child. In: Population-E 2002. Vol. 57 (2/2002), 301-330.

Miller, Amalia R. (2008): Motherhood delay and the human capital of the next generation. Available at SSRN: http://ssrn.com/abstract=1079832.

Mills, Melinda / Blossfeld, Hans-Peter (2005): Globalization, uncertainty and the early life course: A theoretical framework. In: Blossfeld, Hans-Peter. et al. (eds.): Globalization, uncertainty and youth in society. London: Routledge, 1-24.

Mirowsky, John (2005): Age at first birth, health, and mortality. In: Journal of Health and Social Behaviour. No. 46, 32-50.

Nowak, Rachel (2007): Egg freezing: A reproductive revolution. In: New Scientist. 21 March 2007, 8-9.

Presser, Harriet B. (2001): Comment: A gender perspective for understanding low fertility in post-transitional societies. In: Bulatao, R. A. / Casterline, J. B. (eds.): Global fertility transition, supplement to Population and Development Review 27. New York, Population Council, 177-183.

Ravanera, Zenaida R. / Rajulton, Fernando (2004): Social status polarization in the timing and trajectories to motherhood. Discussion Paper 04-06, Population Studies Centre, University of Western Ontario, London.
http://sociology.uwo.ca/popstudies/dp/dp04-06.pdf.

Rendall, Michael S. / Smallwood, Steve (2003): Higher qualifications, first-birth timing, and further childbearing in Englands and Wales. Population Trends 111 (Spring 2003), 18-26.

Rindfuss, Ronald R. (1991): The young adult years: Diversity, structural change, and fertility. In: Demography. Vol. 28 (4/1991), 493-512.

Rindfuss, Ronald R. / Brauner-Otto, Sarah R. (2008): Policies, institutions, and the transition to adulthood: Implications for fertility tempo in low fertility settings. Forthcoming in Vienna Yearbook of Population Research 2008.

de la Rochebrochard, Élise / Thonneau, Patrick (2002): Paternal age and maternal age are risk factors for miscarriage: Results from a multicentre European study. In: Human Reproduction. Vol. 17 (6/2002), 1649-1656.

Saha, Sukanta / Barnett, Adrian G. / Foldi, Claire / Burne, Thomas H. / Eyles, Darryl W. / Buka, Stephen L. / McGrath, John J. (2009): Advanced paternal age is associated with impaired neurocognitive outcomes during infancy and childhood. PLoS Medicine. Vol. 6 (3/2009), e1000040, 1-9.

Sobotka, Tomáš (2004): Postponement of childbearing and low fertility in Europe. PhD Thesis, University of Groningen. Amsterdam: Dutch University Press.

Stein, Zena/ Susser, Mervyn (2000): The risks of having children later in life. BMJ 320, 24 June 2000, 1681-1682.

Toulemon, Laurent / Lapierre-Adamcyk, Évelyne (2000): Demographic patterns of motherhood and fatherhood in France. In: C. Bledsoe, S. Lerner, and J.I. Guyer (eds.): Fertility and the male life-cycle in the era of fertility decline. Oxford: Oxford University Press, 293-330.

VID. (2008): European demographic data sheet 2008. Vienna Institute of Demography, IIASA, Population Reference Bureau. Accessible at
http://www.oeaw.ac.at/vid/datasheet/index.html.

Submitted:11 January 2009
Accepted: 19 January 2009

Tomáš Sobotka is Research Scientist at the Vienna Institute of Demography (Austrian Academy of Sciences) and managing editor of the Vienna Yearbook of Population Research. His research deals mainly with fertility trends in the developed world. His work focuses especially on the postponement of childbearing, fertility, changes in family and living arrangements, childlessness, fertility intentions and assisted reproduction

Contact details: Vienna Institute of Demography, Austrian Academy of Sciences.
E-mail: tomas.sobotka@oeaw.ac.at

Comparing Welfare Regime Changes: Living Standards and the Unequal Life Chances of Different Birth Cohorts[1]

by Prof. Dr. Louis Chauvel (Edited by: Hannah Taylor-Kensell, Patrick Wegner and Dan Sylvain)

Abstract: This article focuses on inter- and intra-cohort inequalities of living standards in a comparative perspective, underlining the diversity of national responses to the challenges of economic slow down, stronger economic competition and globalisation and their implications on different age groups. The aim is to make a connection between national welfare regimes and the emergence of specific cohort-based economic constraint patterns in different countries, which are about to produce specific social generations.[2] I highlight the emergence of 'scarring effects'; that is the irreversible consequences of (short term) social fluctuations in the context of socialisation on the (long term) life chances of different birth cohorts. These scarring effects can affect specific birth cohorts in countries where the welfare regime provides the context for increasing polarisation between middle-aged insiders and young outsiders. This is characterised by a lack of resilience to early career difficulties faced by cohorts of young adults.

Consequences of the welfare states reforms for the different generations

This article focuses on generational sustainability in welfare states and aims to analyse the long-term consequences that the reforms[4] carried out by these states have on the different cohorts. I show that in the context of conjuncture fluctuation, from the 'economic miracle' (1945-1975) to the slowdown in economic growth (1975 until today),[5] a gap appeared between those who were exposed to a high rate of youth unemployment and its resulting consequences and those who were not, namely generations born before 1955 (the early baby boomers) and the generations born after 1955. This gap between generations would often be denied by the politicians in the public debate. These points of view imply that these generational dynamics could have major consequences for the stability of our welfare states. Furthermore the emergence of strong inter-cohort inequalities at the expense of young adults that we observed in France is not seen in America. In America the same stressors (economic slowdown and increasing competition) have resulted in a less visible inter-cohort, but a more obvious intra-cohort inequality.

I base my reflections on the Esping-Andersen (1990) trilogy of welfare regimes, completed by the post-Ferrara (1996) controversy. My argument is that in the intrinsic logics of different welfare regimes, the probable set of socioeconomic responses to contemporary common challenges or stresses (economic slowdown, social distortions in the face of globalisation, obsolescence of unqualified or industrially-qualified labour, etc.) could be