Address: Friedrich-Ebert-Allee 4, 65186 Wiesbaden, Germany
Phone: ++49.611.753309; Email: martin.bujard@bib.bund.de

Theme: Fertility

New Insights on Childlessness in Germany: A Diminishing Educational Gradient and Composition Effects of Migrants

Germany has one of the highest proportions of permanent childlessness in the world. Furthermore, it has a strong negative educational gradient at the end of 1960s birth cohorts which ranges between 28 % for highly educated and 15 % for low educated women. Against the background of recent changes in family policy, labour market and population composition, this paper aims to scrutinise recent trends in childlessness. Defining childlessness for women as permanent at the age of 45, we have data until the 1967 cohort. Using Micro Census 2002-2014 data for age specific first births, I extrapolate childlessness for the birth cohorts 1968-1978 for different educational groups. In a second step I analyse long term group-specific childlessness trends by regions, migrant population and education.

The results show that there is a trend reversal of childlessness among highly educated women. Their level of childlessness was continuously increasing from the late 1930s to the 1960s cohorts from 19 to 28 %. With a peak in 1968 the trend of childlessness changes and will decrease to 25 % in the late 1970s cohorts. Driver of this development is the abrupt rise of recuperation in the age group of 35-44 years. Contrary, for the medium educated women the trend of increasing childlessness will continue for the 1970s cohort. The group-specific analyses reveal that the low childlessness of low educated women is mainly a result of a composition effect of migrants. As a consequence of both results, the educational gradient for the 1970s cohort of native German women is diminishing. The nexus of education and fertility in Germany has to be reconsidered: The different impact of recent changes of fertility's determinants on educational groups is discussed – especially the increasing use of reproductive medicine, recent reforms in family policy, labour market and changing attitudes.

New Insights on Childlessness in Germany: A Diminishing Educational Gradient and Composition Effects of Migrants

1) Background and objective

Germany has one of the highest proportions of permanent childlessness in the world (Kreyenfeld/Konietzka 2013; Miettinen et al. 2015). Furthermore, it has a strong negative educational gradient; especially the childlessness of highly educated women in West Germany reaches 29.1 % at average for the 1960s birth cohorts (Bujard 2015). For the birth cohorts between 1938 and 1968, the educational differences in childlessness between low and high educational groups differ of about 10 per cent points (Figure 1). At the end of 1960s birth cohorts the educational gradient ranges between 28 % for highly educated, 21 % for medium educated and 15 % for low educated women.

Explanations for the high proportion of permanent childlessness at women with high educational attainment can be found in several fertility theories; especially those approaches emphasizing opportunity costs (Becker 1991), career-oriented preferences (Hakim 2003), ideational changes (van de Kaa 2001; Lesthaeghe 2010), postponement of childbearing (Sobotka 2004) and institutions which are mal-adapted to gender equity (McDonald 2000). However, fertility depressing factors such as employment uncertainty (Mills/Blossfeld 2005; Adsera 2011) are more affecting the low educated women.

Figure 1: Childlessness by education
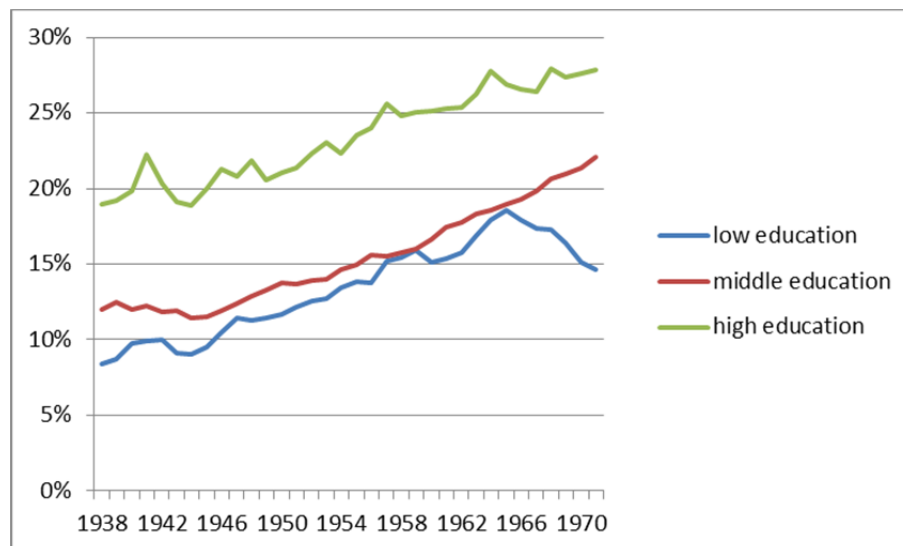
Source: Micro Census 2012, own calculations. Note: The lines are straitened based on the three year average.

There is much literature on the educational gradient in Europe regarding fertility (Billari/Philipov 2004, Blossfeld/Huinink 1989; Hoem et al. 2006; Jain 1981; Neels/Perelli-Harris 2013; for social status: Skirbekk 2008). Both the gradient and the trend are heterogeneous and differ between the transition to first or second birth (Adsera 2011; Klesment et al. 2014; Oppermann 2014). Some of these analyses focus on the drivers of changes in the education-fertility-nexus. Regarding theoretical

arguments, there are several changes in Germany which could have an effect on the childlessness of different educational groups. These are:

- recent reforms in work-family reconciliation policies in Germany such as income-related parental leave and the spread of child care facilities,
- labour market reforms in Germany and education-specific unemployment,
- changing attitudes, e.g. an acceptance of childlessness at the young generation (Schneider at al. 2015),
- increasing proportion of women with migration background in both first and second generation, and
- the increasing use of reproductive medicine, especially at highly educated women.

Against this background of the long-term negative educational gradient in Germany and new developments regarding reproductive medicine, family policy, labour market and changing attitudes, this paper aims to analyse recent and differentiated trends in childlessness.

2) Data and Methods

Data source is the Micro Census 2012 for childlessness at women birth cohorts 1937-1970 and Micro Census 2002-2014 data regarding age specific first births. In Germany, there existed no reliable data on parities and childlessness until 2007. The childlessness was overestimated in several publications before. The German Micro Census has introduced a question on biological children in 2008 which is repeated every four years. Defining childlessness for women as permanent at the age of 45, the Micro Census 2012 has data until the 1967 cohort.

The research design follows two steps:

In a first step, data for age specific first births are calculated by the information on children in the household of the 13 Micro Censuses between 2002 and 2014. Based on 13 years trends of age specific first births, which are differentiated by educational groups, I extrapolate childlessness for the birth cohorts 1968-1978. These childlessness rates are differentiated by low, medium and high educational attainment based on ISCED 1997.

In a second step I analyse long term group-specific childlessness trends differentiated by East- and West Germany, migrant population and education and the combination of them. The crucial point of these trend analyses are the number of cases which are on average 5.324 per birth cohort of women. For groups, in which the cases per cohort are lower than 1.000 the values are straitened based on the three year average. The robustness of these analyses is checked by confidence intervals.

3) Results

3.1) Extrapolation of childlessness by educational groups

The trends of age specific first birth demonstrate an abrupt rise of recuperation at highly educated women in the age group of 35-44 years (figure 2). The example for the age of 36 years shows that 3.5 % of women of the birth cohorts 1966-1970 and more than 6.1 % of 1977 had their first births in this age. The proportion of first births at age 32 increased from 5.2 % to 8.2 %, the proportion of first births at age 40 from 1.0 % to 2.7 % within a decade. These recuperation patterns are completely different to those at medium or low educated women.
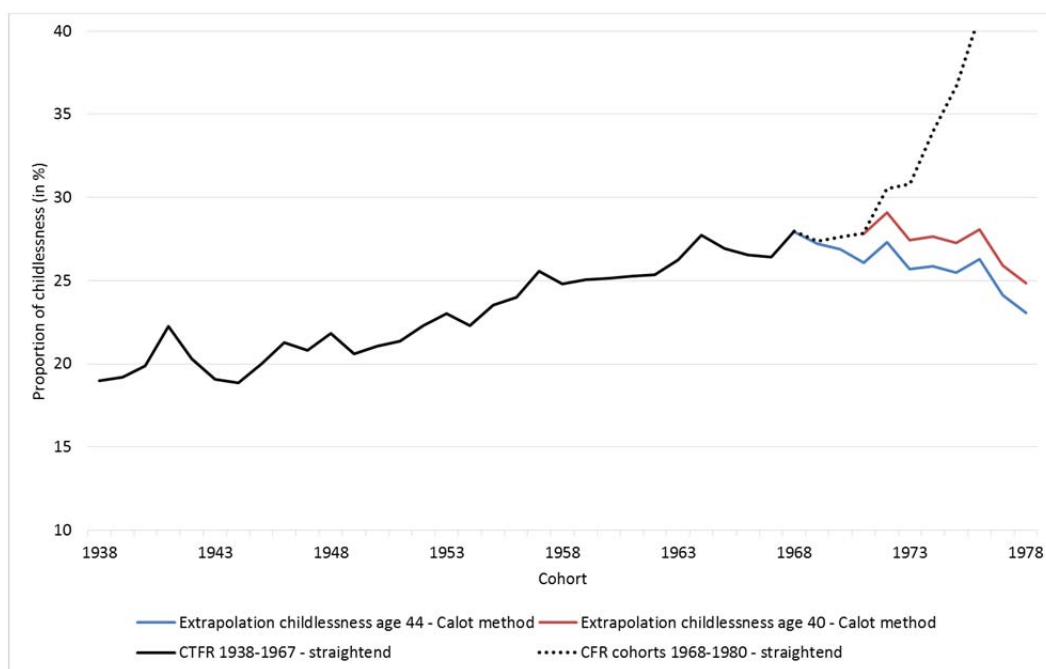
Figure 2: Trends of age specific first birth: highly educated women in Germany
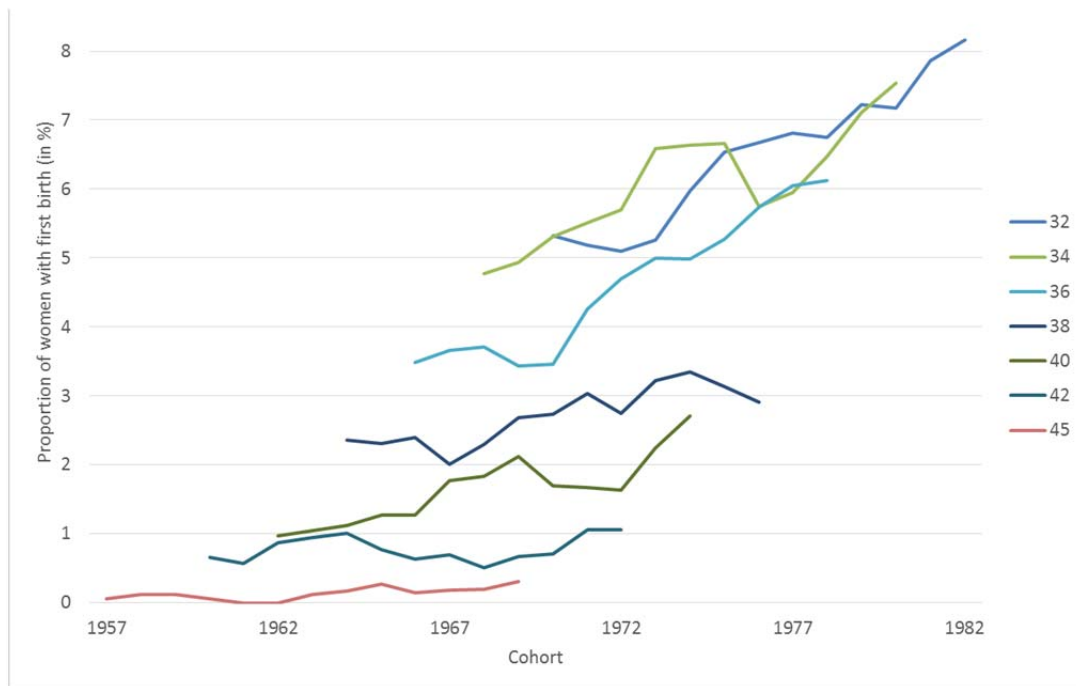
Source: Micro Census 2002-2014, own calculations. The lines are straitened based on the three year average.

The extrapolation of the childlessness proportion for the women cohorts 1968-78 show that there is a trend reversal of childlessness among highly educated women. Their level of childlessness was continuously increasing from the late 1930s to the 1960s cohorts from 19 to 28 %. With a peak in 1968 the trend of childlessness changes and will decrease to 25 % in the late 1970s cohorts. Contrary, for the medium educated women the trend of increasing childlessness will continue for the 1970s cohort.

Figure 3: Extrapolation of childlessness: highly educated women in Germany, cohorts 1968-78
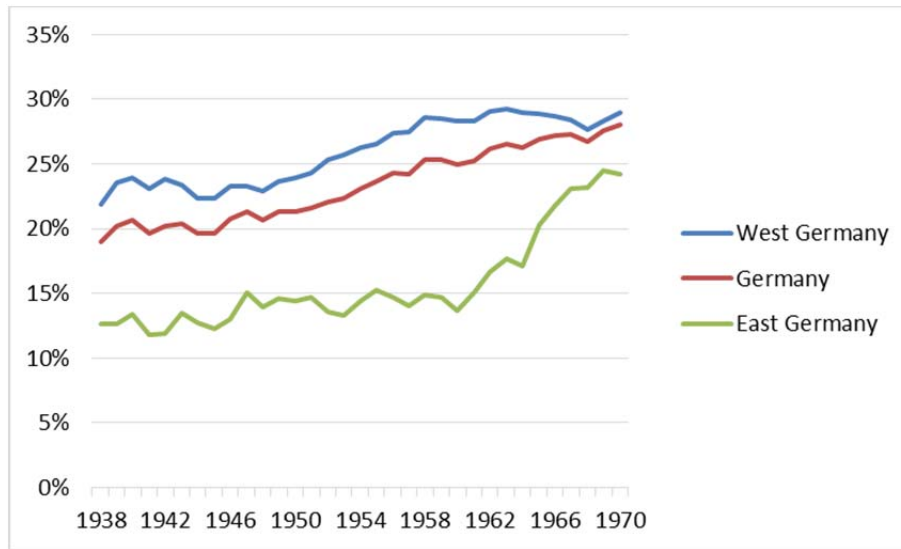

Source: Micro Census 2002-2014, own calculations. The lines are straitened based on the three year average.

3.2) Group-specific analyses of childlessness trends

The groups-specific analyses of childlessness trends reveal a catch-up process between East and West Germany (figure 4). The childlessness rate of the women cohorts 1938 to 1960 is 13-15 % in East Germany and 22-28 % in West Germany. For the cohorts 1958-1960 the childlessness rate in West Germany is twice as high as in East Germany. For the cohorts born after 1965 the fertility biography was coined after German Unification, which obviously is the reason for this breath-taking increase in childlessness in East Germany for the 1960s cohort.
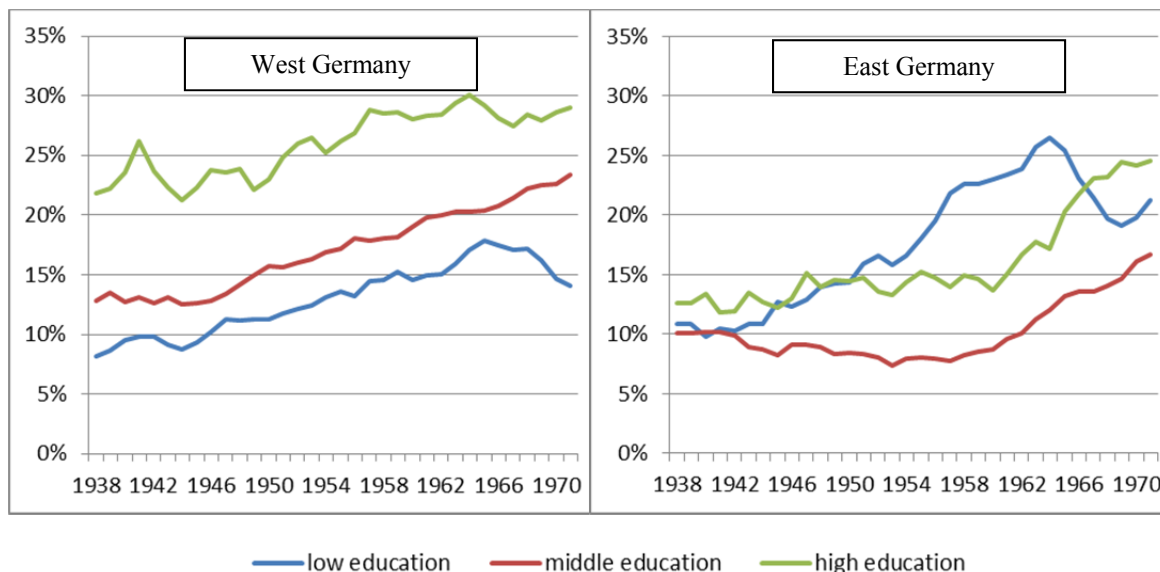
Figure 4: Childlessness trend of birth cohorts 1938-1970 for highly educated women in East and West

Source: Micro Census 2012, own calculations. Note: The lines are straitened based on the three year average.

The educational gradient is completely different between East and West Germany (figure 5). The West German pattern is linear negative, while East Germany has a u-shaped gradient. Between the 1950 and the 1965 cohort the low educated women have the highest proportion of childlessness.
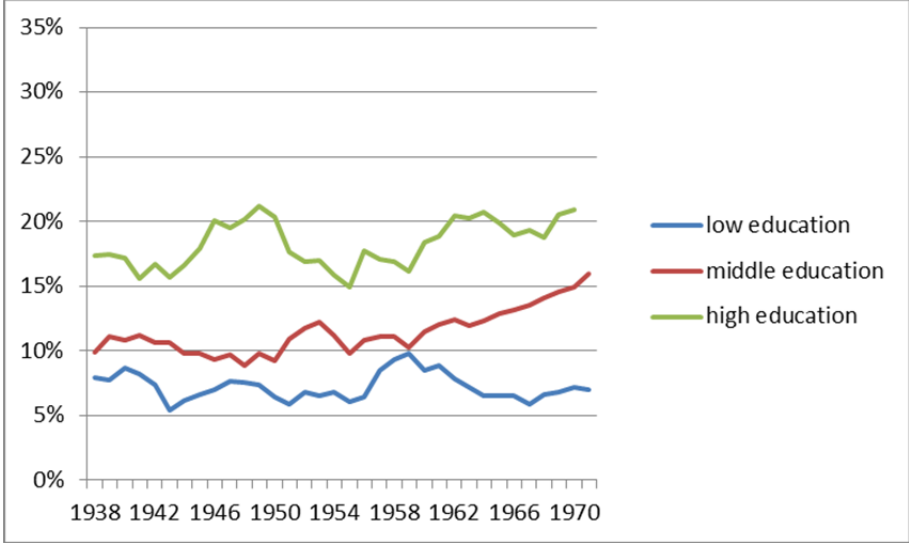
Figure 5: Childlessness trend of birth cohorts 1938-1970 by region and educational groups

Source: Micro Census 2012, own calculations. Note: The lines are straitened based on the three year average.

The analyses of childlessness trends differentiated between women with and without migration background show considerable differences (figure 6 and 7).

Figure 6: Childlessness by education: women with migration background

Source: Micro Census 2012, own calculations. Note: The lines are straitened based on the five year average.

Figure 7: Childlessness by education: native women
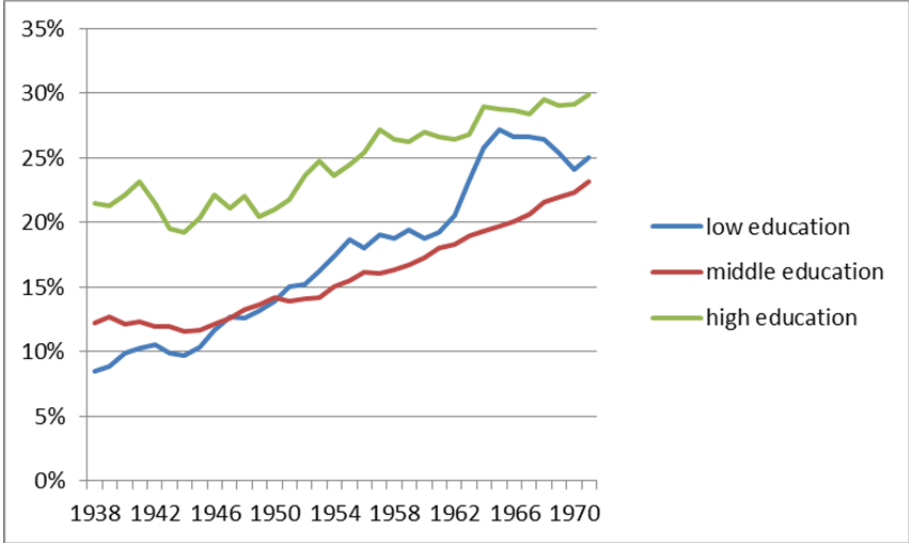
Source: Micro Census 2012, own calculations. Note: The lines are straitened based on the three year average.

The women with migration background have for all cohorts between 1938 and 1970 a lower proportion of childlessness. Their educational gradient is even stronger than for the native women: Only 6-9 % of the low educated migrants are permanent childless, while the rate for highly educated migrants is twice as high.

However, even more interesting are the results for native women in Germany: While the childlessness rate of all low educated women in Germany is decreasing since 1965 (see figure 1) down to 15 %, for only the native German women it is strongly increasing up to 25 % (figure 7). The differences between high and low educated women are diminishing here. The group-specific analyses reveal that the low childlessness of low educated women is mainly a result of a composition effect of migrants.

4) Discussion

The analyses show that the educational gradient, which used to be strongly negative for several generations in West Germany, is diminishing. The nexus of education, migration background and fertility in Germany has to be reconsidered.

The increase of childlessness for highly educated women has stopped. Even more, there is a trend reversal of childlessness which has to be explained. The increasing use of reproductive medicine and the recent reforms in family policy are plausible explanations for this trend reversal, also because of the increase in first births at the ages 35-44. This corresponds with the effects of the parental leave reform on the fertility of highly educated women (Bujard/Passet 2013). The uncertain labour market perspective in the early life course (Adsera 2011; Mills/Blossfeld 2005) and attitudes regarding an acceptance of childless lifestyle (Schneider et al. 2015) seem to be drivers for the continuing increase of childlessness at the low and medium educated women. These possible explanations have to be proved by future research.

The groups-specific trends show that the educational gradient between East and West Germany converges. However, the differences between migrant and 'native' population are increasing. Based on these results, for Germany can be suggested not to focus look unidirectional on East-West-differences but also on migrant-native-differences. While the effect of migrants on period total fertility is limited (Sobotka 2008), the effect on the educational gradient is enormous. This is due to composition effects: The migrants, although a heterogeneous group, have a high proportion of low educated women with fertility patterns which are influenced by their country of origin. The percentage of migrants in the group of low educated women was increasing since the 1940s cohort and amounts nearly for half of the low educated cohorts born in the 1970s.

These data-driven results raise several questions for further research: This concerns the reasons for the different childlessness trends by education and migration background. Future fertility research should analyse the different trends between these groups. Especially the increasing use of reproductive medicine and the recent reforms in family policy on highly educated women has to be examined further. The continuing increase of childlessness for women with low and medium education needs to be explained by further research. Are the reasons economic burden and uncertain labour market perspectives, or do these women increasingly pursue a lifestyle without children which is ideological accepted? Do they follow the avant-garde lifestyle which has been prepared by highly educated women earlier? To answer some of these questions, the influence of urban places of residence and partner markets have to be considered.

Finally, regarding future trends of childlessness, there are two groups with an increasing proportion of women population: Highly educated native women with a high level and a decreasing trend in childlessness and low educated migrant with the opposite. Because of the trend of the medium educated women a further increase of childlessness in Germany can be expected.

References

Adsera, Alica (2011). The interplay of economic uncertainty and education in explaining second births in Europe. Demographic Research, 25: 513–544.

Becker, Gary S. (1991). A Treatise on the Family. Enlarged Edition, Cambridge, Mass.: Harward University Press.

Billari, Francesco C.; Philipov, Dimiter (2004). Education and the Transition to Motherhood. A Comparative Analysis of Western Europe. European Demographic Research Paper 3. Vienna Institute of Demography.

Blossfeld, Hans-Peter; Huinink, Johannes (1989). Die Verbesserung der Bildungs- und Berufschancen von Frauen und ihr Einfluß auf den Prozeß der Familienbildung, Zeitschrift für Bevölkerungswissenschaft 15: 383-404.

Bujard, Martin (2015): Kinderlosigkeit in Deutschland: Wie interagieren Bildung, Wohnort, Migrationshintergrund, Erwerbstätigkeit und Kohorte? Zeitschrift für Familienforschung/Journal on Family Research 27 (3), 270-296.

Engelhardt, Henriette; Prskawetz, Alexia (2004). On the Changing Correlation between Fertility and Female Employment over Space and Time. European Journal of Population 20,1: 35-62.

Goldstein, Joshua R.; Sobotka, Tomáš; Jasilioniene, Aiva (2009). The end of „lowest-low― fertility? Population and Development Review 35(4): 663–699.

Hakim, Catherine, 2003: A New Approach to Explaining Fertility Patterns: Preference Theory. Population and Development Review 29: 349-374.

Hoem, Jan; Neyer, Gerda; Andersson, Gunnar (2006). Educational attainment and childlessness: The relationship between educational field, educational level, and childlessness among Swedish women born in 1955–59. Demographic Research, 14: 331–380.

Jain, Anrudh K. (1981). The Effect of Female Education on Fertility. A Simple Explanation. Demography 18,4: 577-595.

Klesment, Martin; Puur, Allan; Rahnu, Leen; Sakkeus, Luule (2014): Varying Association between Education and Second Births in Europe. Comparative Analysis Based on EU-SILC Data. Demographic Research 31: 813-860.

Kreyenfeld, Michaela & Konietzka, Dirk (Hrsg.) (2013). Ein Leben ohne Kinder. Wiesbaden: Springer VS.

Lesthaeghe, Ron (2010). The unfolding story of the second demographic transition. Population and Development Review 36: 211–251.

Miettinen, A., Rotkirch, A., Szalma, I., Donno, A. & Tanturri, M. L. (2015). Increasing childlessness in Europe: Time trends and country differences. Families and Societies Working Paper 33.

McDonald, Peter (2000). Gender Equity in Theories of Fertility Transition. Population and Development Review 26: 427-439.

Mills, Melinda; Blossfeld, Hans-Peter (2005). Globalization, Uncertainty and the Early Life Course: A Theoretical Framework. In Hans-Peter Blossfeld, Erik Klijzing, Karin Kurz, Melinda Mills (Ed.): Globalization, Uncertainty and Youth in Society, 1-14. London: Routledge.

Neels, Karel; Perelli-Harris, Brienna (2013): Heterogeneity in Demographic Change. The Educational Gradient of 'Second Demographic Transition'-Behaviors in Europe and the US. Paper presented at the IUSSP International Population Conference, South Korea, Busan, 2013

Oppermann, Anja (2014). Exploring the Relationship between Educational Field and Transition to Parenthood – An Analysis of Women and Men in Western Germany. European Sociological Review (DOI: 10.1093/esr/jcu070)

Schneider, Norbert F.; Diabaté, Sabine; Ruckdeschel, Kerstin (2015). Familienleitbilder in Deutschland. Beiträge zur Bevölkerungswissenschaft Bd. 48. Opladen: Barbara Budrich.

Skirbekk, Vegard (2008). Fertility trends by social status. Demographic Research 19: 145-180

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

Sobotka, Tomáš (2008). The rising importance of migrants for childbearing in Europe. Demographic Research 19: 225-248.

Sobotka, Tomáš; Skirbekk, Vegard; Philipov, Dimitri (2011). Economic recession and fertility in the developed world. Population and Development Review 37: 267–306.

Van de Kaa, Dirk J. (2001). Postmodern Fertility Preferences: From Changing Value Orientation to New Behavior. Population and Development Review 27: 290-331.