

# Determinants of Childbearing: A Review of the Literature

Elina Schleutker\*

Albert-Ludwigs-Universitat Freiburg, Seminar fur Wissenschaftliche Politik, Werthmannstr. 12, 79085 Freiburg, Germany  
elina.schleutker@politik.uni-freiburg.de

**Summary:** This paper presents a broad review of the determinants of childbearing with a special focus on Germany. Fertility decline, cross-country differences, and the gap between desired and realized fertility are addressed by discussing the evidence related to four theoretical arguments: change in values, family policy, economic theory on fertility, and preference theory. Each of the theories reviewed provides a partial explanation of the low fertility puzzle, but none of the theories alone is able to fully explain low fertility. The paper closes with the argument that more attention needs to be paid to the effect size of the different variables, women's preferences, and interdisciplinary research.

**Keywords:** Fertility; Germany; Economic Theory; Family Policy; Values; Preferences; Effect Size.

**Zusammenfassung:** Dieser Artikel gibt einen breiten Uberblick uber die Determinanten von Geburtenraten und legt dabei den Schwerpunkt auf Deutschland. Auf der Grundlage von vier Theoriestrangen (Wertewandel, Familienpolitik, okonomische Fertilitatstheorie, Prferenz-Theorie) werden die folgenden Phanomene untersucht: Geburtenruckgang, landerspezifische Unterschiede und die Diskrepanz zwischen angestrebter und tatsachlicher Geburtenanzahl. Alle vier verwendeten Theorien bieten eine Teilerklarung fur das Phanomen niedriger Geburtenzahlen, jedoch ist keine der Theorien in der Lage, eine alleinige Explikation zu liefern. Der Aufsatz schliet mit der Aufforderung, mehr Aufmerksamkeit auf die tatsachliche Groe der unterschiedlichen Variablen, die Prferenz der Frauen und interdisziplinare Forschung zu legen.

**Schlagworte:** Geburtenrate; Deutschland; Okonomische Theorie; Familienpolitik; Werte; Prferenzen; Effektstarke.

## 1 Introduction

Since the 1960s, the second demographic transition has swept over the Western countries, and changes in family formation, such as postponement of births and marriage, decline in the total first marriage rate, and increase of divorces/union dissolutions, cohabitation and extra-marital births have taken place. Moreover, total period fertility rates (TFR) have declined and in many cases stabilized below the replacement level of 2.1 whereas life expectancy has increased considerably. The future ageing and decline of natural populations has in turn translated to increases in the demand for foreign labor, i. e. immigration (van de Kaa 2002).

Population ageing presents challenges for the welfare state budgets (Meier & Werding 2010), and the difficulties might be intensified because of the ageing of the median voter. On the other hand, Kaufmann (2005) argues that population decline

(not population ageing) is the most important demographic problem, as it leads to a *Schrumpfende Gesellschaft* (a shrinking society). Conversely, Honrich (2007) claims that qualitative changes (e. g. increases in productivity, the possibility of the parents to devote more time to children when families are smaller) will compensate for the decreases in quantity of the people and concludes that *Weniger sind mehr* (less is more).

The challenges will be particularly large in Germany. According to the UN's (2012) population prognosis (constant fertility variant), the German old age dependency ratio will increase from 32 in 2010 to 63 in 2050. Population growth in turn will remain negative from 2005–2010 throughout the century. One of the many ways to deal with these developments is to increase fertility, and in this respect the government has already taken action: According to Henninger et al. (2008) the desire to increase fertility is one of the reasons for the 2007 reform of parental benefits. However, although the idea that policies influence fertility is appealing to decision makers, reasons for low fertility remain a matter of debate and the lessons politicians can learn from the research are limited. Indeed, despite

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decades of investigations, the research on the reasons for low fertility is still, to borrow the expression from Thomas Kuhn (1970), in a pre-paradigm phase.

The purpose of this paper is to add to the existing review articles of the low fertility literature (van de Kaa 1996; Caldwell & Schindlmayr 2003; Morgan & Taylor 2006; Balbo et al. 2013) by focusing on the situation in Germany. After this introduction, the dependent variable problem will be briefly explained, followed by a description of low fertility in Germany. Thereafter four different families of theories on low fertility (economic theory on fertility, value change theory, theories emphasizing the role of family policies and preference theory) will be discussed. In the final section some avenues for future research are suggested.

The concentration on four different types of theories is naturally bound to exclude many interesting ideas, such as, e.g., the theories on the value of children (Hoffman & Hoffman 1973; Nauck 2007), the low-fertility trap (Lutz & Skirbekk 2005), or the discussion on the role of contraceptives (e.g. Leridon 2006). However, in order to provide a meaningful review it was, given the vast amount of literature, necessary to focus on only a few theories. The decision to include these theories was based on the amount of studies that have been inspired by these theories as well as the fruitfulness of the theories in empirical research. The preference theory was selected as a potentially important newcomer.

In the following review, the theories are organized chronologically starting from the 1960s (the economic theory), and continuing with the value change theory which has its roots in the 1970s and 1980s. Thereafter the theories on the role of family policy, which have dominated the research from the 1990s, are discussed. Finally, I take a look at the preference theory, which has been on the agenda to an increasing extent during the past 10-15 years. For each theory the arguments and empirical evidence are reviewed. Moreover, I discuss if and how each theory helps us to understand low fertility in Germany when it comes to time trends, differences in comparison to other countries, as well as the gap between desired and realized fertility.

## 2 The dependent variable problem

Low fertility can be defined at least in five different ways: low in comparison to the replacement level, to past fertility, other countries, other regions, or

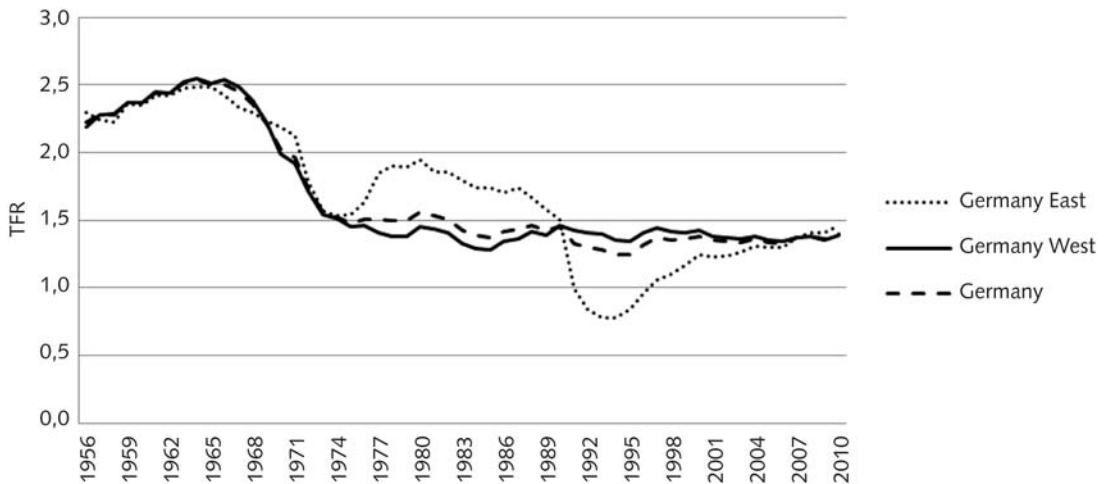
desired fertility. The situation is further complicated by the fact that many of the above aspects can be studied both from period and cohort perspectives, and at micro and macro levels. In addition to the problems with conceptualization it is unclear which indicators should be employed as dependent variables. It is possible to measure, for example, total fertility, birth order specific levels, or parity progression ratios. The problems are particularly large when it comes to macro-level period fertility, and several authors have questioned the use of the most frequently employed measure, the total fertility rate (TFR). The criticism has two roots (Ní Bhrolcháin 1992, 2011; Sobotka & Lutz 2010): (1) As the TFR is not standardized for the parity and interval between the births, it measures not only the current but also past fertility. (2) As the TFR is influenced by the changes in the timing of fertility, it measures both the tempo and quantum of fertility. However, despite these serious weaknesses the TFR is still widely used, most probably because the availability of better standardized measures such as those discussed by Park (1976), Feeney & Yu (1987), Ní Bhrolcháin (1987) and Rallu & Toulemon (1994) has been scarce (the recently launched Human Fertility Database is an important development in this respect). Data availability is also a problem for the many tempo-adjustment methods which aim to remove the tempo-effect (Bongaarts & Feeney 1998; Kohler & Philipov 2001; Kohler & Ortega 2002). In addition, it still remains somewhat unclear how tempo-adjusted measures should be interpreted and for what purposes they should be used (Van Imhoff 2001; Ní Bhrolcháin 2011).

## 3 Fertility in Germany

The below description of fertility trends in Germany aims to provide some background on the German situation. For a more detailed review of German fertility the reader is advised to consult Dorbritz (2008) and Goldstein & Kreyenfeld (2011). For the considerable regional differences within the western parts of Germany, Hank (2001, 2002) is recommended.

### 3.1 Period and cohort total fertility

Together with the other developed countries, Germany experienced a fertility decline after the baby boom which followed WWII. Whereas in many countries (Anglo-Saxon and Northern European



Source: Human Fertility Database (2013)

Fig. 1 TFR, 1956–2010

countries, France, Belgium and the Netherlands) the fertility rates stabilized at relatively high levels (at or above 1.7.), in German speaking countries, South Europe, and East Europe after 1990, the TFR has been below 1.5 (see Table 4).

Taking a closer look at the German trends (Figure 1), both in East and West Germany the baby boom peaked at 2.5 in the mid-1960s, after which the TFR decreased towards 1.5 in the mid-1970s. Thereafter the TFR in western Germany has fluctuated between 1.3–1.5. In East Germany, the TFR increased to 1.9 in the late 1970s and early 1980s, only to decline to 1.5 in 1990. Further, after the reunification, the eastern German TFR suddenly decreased to 0.8. The “birth shock” (Eberstadt 1994) however was temporary, and the fertility in eastern Germany has now converged to western German levels.

The story is slightly different if it is told from the cohort perspective: In western Germany the fertility decline has been continuous throughout the cohorts (from 1.9 to 1.5), in the eastern part the fertility rates were at 1.8–1.9 for the cohorts born in 1940–1960, but for the cohorts born in the 1960s the CFR declined from 1.8 to 1.5 (Human Fertility Database 2013<sup>1</sup>).

In public discourse (e.g. Sarrazin 2011), the low fertility of the native population is sometimes con-

trasted with the high fertility of the immigrant population and coupled with claims according to which immigrants sooner or later will become a majority. Such claims are not supported by the data: The first and second generation immigrants usually have higher fertility than the native population but show nevertheless a clear adaptation to the local fertility patterns (Milewski 2010; Sobotka 2008a).

### 3.2 Fertility timing

As discussed above, one explanation to low TFR is the postponement<sup>2</sup> of childbearing, which can be observed in all developed countries in so far as the mean age of the mother at birth (MAB) has increased, the number of births at younger ages declined, and the number of births at older ages increased (Frejka & Calot 2001; Billari & Kohler 2004; Frejka & Sardon 2006, 2007; Billari et al. 2007). As for Germany, in the western parts the MAB has increased from 26.7 in 1974 to 30.5 years of age in 2010. In eastern Germany, the MAB has been lower, and it was not until the reunification

<sup>2</sup> According to Ní Bhrolcháin & Toulemon (2005) the term is used in a variety of ways and can be understood either as an individual level behavior (potential parents delay the births, actively or passively, with the idea of having children at later ages) or as a macro level statistical feature (declines in fertility at younger ages are followed by an increase in fertility at older ages).

<sup>1</sup> In all data from this source, Berlin is excluded from 1990 onwards.

**Table 1** adjTFR and TFR in eastern and western Germany, 1960–2005

|      | Eastern Germany |      | Western Germany |      |
|------|-----------------|------|-----------------|------|
|      | adjTFR          | TFR  | adjTFR          | TFR  |
| 1960 | 2.18            | 2.35 | 2.18            | 2.37 |
| 1965 | 2.35            | 2.49 | 2.33            | 2.51 |
| 1970 | 2.23            | 2.19 | 2.03            | 1.99 |
| 1975 | 1.59            | 1.54 | 1.61            | 1.45 |
| 1980 | 1.83            | 1.94 | 1.60            | 1.45 |
| 1985 | 1.81            | 1.74 | 1.57            | 1.28 |
| 1990 | –               | 1.51 | 1.47            | 1.46 |
| 1995 | –               | 0.84 | 1.52            | 1.34 |
| 2000 | 1.53            | 1.24 | 1.54            | 1.42 |
| 2005 | 1.53            | 1.30 | 1.61            | 1.36 |

Source: For TFR, Human Fertility Database (2013). For adjTFR (three-year averages), Luy & Pötsch (2010: 620).

that the MAB rapidly increased, from 25.1 in 1990 to 29.3 in 2010 (Human Fertility Database 2013).

As there are cross-country differences in the pace of postponement, postponement is a partial reason for fertility differences between countries. Sobotka (2004: 206) for example found that the regional differences in period fertility between Northern and Southern Europe decrease by one quarter when the postponement effect is taken into account. As for Germany (Table 2), the tempo-adjusted TFR (adjTFR)<sup>3</sup> has in general been higher than the TFR, i. e., part of the low period fertility can be simply explained with the postponement. Further, even though there are no estimates on the adjTFR for eastern Germany for the 1990s when the increase of the eastern German MAB took place, the fact that the adjTFR for eastern Germany in 1997 was 1.47 in comparison to the conventional TFR at 1.05 indicates that the tempo-effect has been considerable.

Finally, it is important to remember that postponement might negatively influence cohort fertility: The later childbearing begins, the fewer years a woman has to give birth to additional children. Also, at older ages the possibility to have children declines due to physiological constraints (Billari et al. 2007: 155ff.). Micro-level findings show that low age at first birth increases the chance of having a second child (for Austria, see Prskawetz & Zaga-

**Table 2** Period and cohort fertility rates by birth order

| Period fertility rate by birth order (average over 2001–2008) |              |                          |
|---|--------------|--------------------------|
|   | Germany East | Germany West             |
| TFR1  | 0.68         | 0.67                     |
| TFR2  | 0.42         | 0.47                     |
| TFR3  | 0.12         | 0.16                     |
| TFR4+   | 0.06         | 0.07                     |
| TFR   | 1.27         | 1.37                     |
| Cohort fertility rates by birth order, Cohort 1955            |              |                          |
|   | Germany East | Germany West (at age 40) |
| CFR1  | 0.92         | 0.81                     |
| CFR2  | 0.66         | 0.53                     |
| CFR3  | 0.18         | 0.18                     |
| CFR4+   | 0.08         | 0.10                     |
| CFR   | 1.84         | 1.62                     |

Source: For period TFR, author's calculations based on Table 3 in Kreyenfeld et al. (2010: 213). For cohort fertility rate, Kreyenfeld (2003: 308).

glia 2005; for France see Köppen 2006; for Denmark, see Gerster et al. 2007). Such findings do not, however, necessarily support the conclusion that postponement influences the total number of children; it is also possible that the women who have their first child at a higher age are a selective group and originally planned to have only one child.

### 3.3 Fertility by birth order

In addition to the total fertility, it is important to study birth order specific fertility rates. For instance, the decline in period fertility in Europe from the 1960s to the beginning of the 1990s can be explained by a decline in third and higher order births, followed by a postponement of first and second order births, which lead to a decrease in the first and second birth rates (Bosveld 1996). Furthermore, cohort studies give evidence about increases in childlessness (Frejka & Sardon 2006; Breton & Prioux 2009). The amount of one-child families in turn shows stability in some countries (Austria, Sweden) whereas in other countries the number of one child families is decreasing (Germany, England and Wales, Finland, France, Denmark), and in others increasing (the Netherlands, Norway, Spain, Italy, Greece) (Breton & Prioux 2009).

In Germany, only the marital birth order was registered until recently (Luy & Pötsch 2010: 607), and there are only estimates on the birth-order specific TFRs and CFRs (Table 3). As can be read from

<sup>3</sup> As the German register data does not enable the calculation of tempo-adjusted rates it is necessary to rely on estimates (Luy & Pötsch 2010; Goldstein & Kreyenfeld 2011).

the table, childlessness was more common in West Germany, but the CFR3 and CFR4+ were relatively similar, which indicates that in West Germany a larger share of women progressed to higher parities (see also Goldstein & Kreyenfeld 2011). The TFR2 and TFR3 in turn are higher in western Germany, which also explains the East-West differences in period fertility. The TFR1 is exceptionally low in both parts of the country.

### 3.4 Desired and realized fertility

The results from the Eurobarometer in 2001 and 2006 show that the ideal average family size in the EU-15 countries is still at or above 2.0, that is, above the realized fertility. The only exceptions are Austria and Germany, where below replacement fertility ideals have been observed (Goldstein et al. 2003). In Germany the mean ideal family size had again increased to above 2.0 in the Eurobarometer 2006, which suggests that subreplacement fertility ideals were temporary (Table 3).<sup>4</sup> Notice, however, that the relatively small sample size in the Eurobarometer might influence the robustness of these findings.

The comparison between desired and realized fertility is problematic for several reasons. Firstly, the comparison of the TFR with the measures on desired fertility might exaggerate the width of the gap since TFR is subjected to tempo-distortions and measures on desired fertility often refer to cohort ideals (Sobotka & Lutz 2010). Secondly, the information on preferences is collected in surveys and the respondents' answers might not, depending, e. g., on how the question is asked or what the prevailing stereotypes are, reflect respondents' true preferences (Testa & Grilli 2006). Thirdly, fertility preferences tend to change over the life course (for western Germany, see Heiland et al. 2008; for differences between eastern and western Germany, see Buhr & Kuhnt 2012).

## 4 Economic explanations

According to economic theory, a household's demand for children depends on its tastes concerning the quantity and quality of children and, given these preferences, the number of children is determined by the extent to which the household can af-

<sup>4</sup> A comparison with older studies (e. g. Freedman et al. 1959) shows that the desired fertility has declined over years.

**Table 3** Mean personal ideal family size in Germany in 2001 and 2006

|                     | Cohorts 1962–76 |      | Age 25–39 |      |
|---------------------|-----------------|------|-----------|------|
|                     | 2001            | 2006 | 2001      | 2006 |
| <b>Germany</b>      | 1.73            | 2.13 | 1.73      | 2.11 |
| <b>Germany East</b> | 1.74            | 2.23 | 1.74      | 2.08 |
| <b>Germany West</b> | 1.73            | 2.12 | 1.73      | 2.12 |

Source: Table 2 in Testa (2007: 362).

ford to have them (Becker 1960; Becker & Lewis 1993; Willis 1973; for a review, see Robinson 1997). The influence of female income can be either positive or negative, depending on whether the income or substitution effect (due to the increases in the opportunity costs) is dominant. The theory thus leads us to consider particularly the influence of income and education on fertility but can also be extended to other variables, such as unemployment (Özcan et al. 2010).

### 4.1 Empirical evidence

Findings from empirical studies are mixed. As to family income (for second births in Sweden, see Dribe & Stanfors 2010) and father's education (for second births in Spain, see Brodmann et al. 2007; for second and third births in Norway and Sweden, see Duvander et al. 2010; for fertility intentions in Italy and the Netherlands, see Mills et al. 2008), several studies have found a positive effect on fertility in accordance with the theoretical expectations. Moreover, different transfers to families have a positive effect on fertility both at macro (for family allowances in 22 industrialized countries, see Gauthier & Hatzius 1997; for tax benefits in the USA see Ridao-Cano & McNown 2005; for the level of family benefits in Switzerland, see Bonoli 2008) and micro-levels (for family allowances in Israel, see Schellekens 2009; for child deductions and tax credits in Spain, see Azmat & González 2010; for baby bonus in Australia, see Drago et al. 2011), which likewise supports the theory. Yet, some studies show that family income is negatively related to fertility (for the USA see Westoff & Marshall 2010; for third and fourth births in Sweden, see Dribe & Stanfors 2010), and in some studies the income or/and education of the father is not found to have any significant effect on childbearing (for second births in Sweden and Hungary, see Oláh 2003; for second births in Denmark, see Brodmann et al. 2007).

As to the female income and education, three different types of relationship are found. Firstly, several



studies support the substitution effect. For example, the association between female income and fertility (for first to third births in Norway, see Rønsen 2004; for first to third births in Italy, see Rondinelli et al. 2010), as well as between educational attainment and first births (for Germany, see Kreyenfeld 2004 and Klein & Eckhard 2007; for Netherlands, see Keizer et al. 2007) is found to be negative, and the relation between unemployment and childbearing is often found to be positive (for first births in Norway, see Kravdal 2002; for third births in Finland, see Vikat 2004). Moreover, unemployment is found to speed up the entry into motherhood (for the Netherlands and Flanders, see Liefbroer & Corijn 1999; for first births in Germany among women without education, see Kreyenfeld 2010).

Secondly, a large number of studies suggest that income effects dominate. Female income is found to be positively related to fertility in several Nordic studies (for first births in Sweden, see Hoem 2000; for first and second births in Sweden, see Andersson 2000; for first and third births in Finland, see Vikat 2004). A possible explanation for these findings is the policy context: As the compensation of parenting leaves is calculated as a percentage of income, women would seek to establish a good position in the labor market before giving birth (Andersson 2000). Another factor in support of the income effect is the negative influence of unemployment on fertility (for higher order births in Norway, see Kravdal 2002), and at first glance even the positive effect of education at higher parities appears to confirm the income effect (Hoem & Hoem 1989; Berinde 1999; Oláh 2003; Short & Torr 2004; Gerster et al. 2007; Breton & Prioux 2009). However, Kreyenfeld (2002) provides three alternative explanations to the positive influence of education: (1) That highly educated women postpone their births (for the Netherlands and Flanders, see Liefbroer & Corijn 1999; for France, see Meron et al. 2002; for Norway, see Lappegård & Rønsen 2005; for European countries, see Nicoletti & Tanturri 2008), and when they finally decide to have children, they are approaching the biological limits of their fertility and want to squeeze the births closer to each other. This time-squeeze hypothesis does not get much support from the investigations, however (for second births in West Germany, see Kreyenfeld 2002; for second births in Denmark, see Gerster et al. 2007). (2) Kreyenfeld's second suggestion is that highly educated women who already have one child are a select group with stronger preferences for children, and the hypothesis is supported to some extent (Kravdal 2001; Kreyenfeld

2002). (3) The most convincing hypothesis is on the partner effect: Women and men with the same educational levels tend to partner, and the seemingly positive relationship between women's education is explained by the income and education of her partner (for third births in Austria, see Hoem et al. 2001; Kreyenfeld 2002; for second births in Austria, see Prskawetz & Zagaglia 2005; for second births in West Germany, see Köppen 2006).

Thirdly, in addition to the studies in support of income and substitution effects, some studies offer yet another picture. For example, the influence of female income on second births in the UK is U-shaped (Kreyenfeld & Zabel 2005), and unemployed women in Finland do not differ from employed women in their propensity to have the second child (Vikat 2004).

Finally, an increasing number of studies underline the importance of discussing both the horizontal and vertical aspects of education: Hoem et al. (2006a, 2006b) find that Swedish women with education in teaching and health care occupations experience in general lower levels of childlessness and higher fertility than other women. Higher education within any educational field, however, has a negative effect on fertility (Lappegård & Rønsen 2005; Van Bavel 2010). Hoem et al. (2006a: 334ff.) suggest that educational field is important for several reasons which are not related to income and cannot thus be integrated into the economic theory. For example, the level of job security, skill depreciation, gender dominance on the job as well as the nature of job content and job prospects vary between different occupational fields.

All in all, as predicted by the theory, income and education clearly matter, but the way and the extent to which they matter seems to depend on other factors. Thus, to derive the full benefit from the theory it needs to be carefully considered how exactly the contextual factors matter, and more attention needs to be paid not only on the direction of the impact, but also on how effect size varies between countries with different institutional environments (for further discussion, see section 8.1).

#### 4.2 Economic factors and low fertility in Germany

As to the fertility decline and cross-country differences, even though both household wealth and costs for children have increased over time and vary between countries, it is difficult to draw strong conclusions given the hypothesized quantity-quality tradeoff. In addition, studies are faced with data

availability problems considering the number of variables that need to be included in order to capture all the necessary aspects. According to Diprete et al. (2003) there is some indication that the costs of children, and particularly the costs for the first child, are relatively high in West Germany in comparison to a number of other countries. However, such differences can be related to the variation in the institutional context, which is better addressed by the role compatibility theories (section 6). On the other hand, the increase in the TFR in East Germany in the 1970s could be attributed to economic factors: The pro-natalist policies which were introduced in the 1970s included several allowances and loans which improved the financial situation of families and increased the compatibility between work and family. Yet even though the family policies were expanded during the 1980s (Kreyenfeld 2004), the fertility decreased, which casts doubt on such explanations.

As to the gap between desired and realized fertility, a study conducted already in 1958 on desired fertility of married West German men and women shows that the gap between desired and realized fertility was largest for women with the highest education (Freedman et al. 1959). Moreover, the evidence on the influence of economic factors, even though mixed, indicates that economic explanations might be important for the decisions not to have the originally desired number of children. Nevertheless, even though economic factors matter, it is not clear why they matter. To take a German example, two different groups of childless women can be distinguished: Women in the first group do not marry, work full-time and have a high level of education, whereas women in the second group likewise do not marry and work full-time but have a low income (Dorbritz & Schwarz 1996). The importance of education is further highlighted by the high level of childlessness among academics: As many as 31 percent of western German academics (and 12 % of eastern German academics) in cohorts 1959–1968 were childless at age of 40–49 (Statistisches Bundesamt 2009: 28). However, it is not certain if the influence of education is related to the change in values (highly educated are said to be the forerunners of the change in values), role compatibility (might be bigger for women with high education) or women's wages.

## 5 Second transition, fertility, and change in values

The fertility decline occurred simultaneously with other changes in family formation such as increases in age at first marriage, cohabitation, extra-marital births, and crude divorce rates (Sobotka & Toulemon 2008). Thus, it is important to ask if and how these developments influence fertility, and whether fertility and the other changes in family formation can be explained with similar factors. However, the literature on the determinants of union formation and dissolution and on the association between cohabitation, marriage, and divorce is too vast to be discussed here. Below only studies which deal with the effect of marital status or values on fertility are discussed.

### 5.1 Marital status and fertility

Most studies find that being married increases fertility in comparison to cohabitation, living apart or being single (for second births in Sweden, see Hoem & Hoem 1989; for first and second births in Western Germany, see Hank 2003; for second births in Denmark, see Gerster et al. 2007; for second births in Finland and Norway, see Rønsen 2004; for second births in Australia, see Parr 2007; for second births in Austria, see Prskawetz & Zaga-glia 2005; for first births in Germany, see Schröder & Brüderl 2008). Some of these studies also differentiate between cohabiting women and women who live alone and find that cohabiting women have higher fertility. However, it is difficult to draw firm conclusions, as there is considerable variation between countries (and couples) concerning the reasons to cohabit; cohabitation can be understood as pre-marriage, trial marriage, alternative to marriage, or marriage-like practice (Sobotka & Toulemon 2008: 102). It is also important to bear in mind that cross-country differences are not merely compositional effects. For example, cohabitation is relatively common in the Nordic countries and less common in the Mediterranean countries.

Due to the increase in the number of divorces, childbearing in second and higher order unions has become more common. Three mechanisms are suggested to explain the relationship between repartnering and fertility: preferences for confirmation of adulthood (the desire to become parent), union commitment and siblings for the already existing children (Griffith et al. 1985). Studies find support particularly in favor of union commitment, that is, the desire to have a first common child is strong in

stepfamilies (for Sweden, see Vikat et al. 1999; for Austria, see Buber & Prskawetz 2000; for European countries, see Thomson 2004). These results might partly be due to differences in the timing of births, however. A comparison between stepfamilies and conventional families in East and West Germany shows that at shorter durations, couples in stepfamilies are more likely to have another child, but at longer durations the differences between the two family types get smaller (Henz 2002).

## 5.2 Value change and fertility

Building on the classics such as Maslow's (1943) hierarchy of personal needs, Inglehart's (1971) observations on changes in generational value orientations and Aries' (1980) discussion on the relationship between values and fertility, authors of the second demographic transition theory argue that the transition is driven by values (van de Kaa 1987, 2001, 2002; Lesthaeghe & Surkyn 1988; Lesthaeghe & Neels 2002; Surkyn & Lesthaeghe 2004). According to this argument, at the micro-level the fulfillment of lower order needs means that individuals are motivated to pursue higher order needs such as self-actualization and individualization. Individuals who have adopted the new post-materialist mind set are claimed to be, for example, more likely to cohabit prior to or even instead of marriage. The association between values and childbearing is not as clear. On the one hand, it is possible that people decide against children to be able to realize aspirations which have arisen from the desire to self-actualization. On the other hand, it is also possible that people still have children, but for different reasons. For example, children might be considered as a part of self-actualization (Aries 1980). At the macro-level, the most advanced countries in terms of value change should also be the most advanced countries in terms of the second demographic transition (van de Kaa 2001: 302).

At this level, the value-change argument runs into trouble at least for two reasons (cf. McDonald 2002: 426–428). Firstly, change in values appears to go hand in hand with some family formation variables while the relation to fertility is questionable. For example, it is true that the correlation between postmaterialism and mean age at first marriage, cohabitation, and total divorce rate is positive, and the correlation between postmaterialism and total first marriage rate negative (van de Kaa 2001). Likewise, descriptive evidence shows that a correlation between values and the timing of the first birth postponement as well as its initial pace can be

found. However, contrary to expectations the conventional TFR, adjTFR, and mean intended family size are positively correlated with progressive values (Sobotka 2008b, 2008c). Secondly, as the causality from value change to lower fertility is suggested to run through preferences we would, based on the theory, expect fertility preferences to be relatively similar to the observed fertility. Yet, as already discussed above, subreplacement fertility ideals have so far been observed only in very few countries.

At the micro-level, the evidence in support of the theory is more convincing, even though some of the results are open to alternative interpretations. For example, the average number of children for women aged 30–34 in most developed countries is higher for materialists than for postmaterialists (van de Kaa 2001: 320). Furthermore, the lower fertility of the highly educated women supports the value effect, as highly educated women are assumed to be the forerunners of the value change. High religiosity and fertility are often correlated (for fertility ideals and intentions in European countries, see Philipov & Berghammer 2007; for transition to first births in West Germany, see Kreyenfeld 2004; for second births in Austria, see Prskawetz & Zaga-glia 2005; for university educated women in Australia, see Newman & Hugo 2006; for Europe and the USA, see Frejka & Westoff 2008; for the USA, see Westoff & Marshall 2010), which supports the assumption that values indeed influence fertility. However, there are even denominational differences in fertility (for higher fertility of the Muslim women in Europe, see Westoff & Frejka's 2007; for higher fertility of the Protestants and Catholics in comparison of the people with no affiliation in the US and Europe, see Frejka & Westoff 2008) and fertility ideals (for Catholics and conservative Protestants in comparison with mainline Protestants and people without religious affiliation in 13 developed countries, see Adsera 2006). Even though it is possible that individuals belonging to certain denominations are more religious than others, it is also possible that other aspects of religion such as norms within the religious groups influence fertility (McQuillan 2004). Moreover, given that parental religiosity is found to influence fertility (for the positive influence of religious socialization on fertility in Spain, see Branas-Garza & Neuman 2006; and for third births in the Netherlands, see Berghammer 2009), socialization appears to be an important aspect in explaining current behavior. Indeed, more investigations on the role of parental home are needed, particularly given that there also is evidence about the intergenerational transmission of



childbearing: Women who have several siblings tend to have larger families or a higher probability to proceed to higher parities than women from smaller families (for Poland, Italy and Norway, see Murphy & Wang 2001; for West Germany, see Kreyenfeld 2004), and parents' age at childbirth influences their children's decisions concerning the timing of the births (for teenage births in the USA, see Furstenberg et al. 1990; for first births in the Netherlands, see Steenhof & Liefbroer 2008).

To sum up, the facts that simultaneous changes in values and family formation can be observed and that fertility preferences have declined over time suggest that values and fertility are associated in one way or another. Even though the macro-level evidence is mixed, it is for instance possible that values influence life style preferences, or preferences for the number of children, which would explain some of the micro-level findings.

### 5.3 Value change and low fertility in Germany

Change in values does not help us to understand why fertility increased in East Germany in the 1970s, and then suddenly declined again. The theory also does not explain the gap between the desired and realized fertility or, given that also the reasons for wanting children may have changed according to the theory, the cross-country differences in fertility. As to Germany in particular, the above cited study by van de Kaa (2001) shows that in post-modern values western scores higher than eastern Germany. Sobotka's (2008b) study shows that as to the second demographic transition related values, Germany scores relatively high, but the Nordic countries with higher fertility have even higher scores. In other words, the relative ranking of countries concerning values does not correspond to the theoretical expectations. Naturally, more detailed studies on the distribution of values among the population might clarify these findings. For example, it is possible that a larger share of people in western Germany has more traditional values than in eastern Germany, which in turn would explain the differences in family size.

Finally, Klein (2003) shows that for western German women in the cohort 1950–1959, the probability of a second child is highest for women in stable partnerships whereas the probability of having a third or fourth child is higher for women who have re-partnered. Further, there are no larger differences in the propensity to have a first child between the cohorts born in 1930s, 1940s, 1950s and

1960s once the partnership is controlled for. Finally, partnership stability increases the propensity of second births, but re-partnering in turn increases the risk of having a third or fourth child. It is possible to interpret Klein's findings (and other similar findings) in the light of the value change theory and claim that the change in values has increased the union dissolution and re-partnering and that a value shift likewise explains why the unions of the younger cohorts are less stable.

## 6 The role of family policy

The argument about the decisive role of family policy for fertility was inspired by the observation that the association between female labor force participation (FLFP) and TFR has been positive since the mid-1980s (Ahn & Mira 2000; Castles 2003; Rindfuss et al. 2003). Esping-Andersen (1999) discusses the degrees of de-familialization and familialism as determinants for fertility and FLFP, others talk about the incompatibility between worker and mother roles (Rindfuss & Brewster 1996; Brewster & Rindfuss 2000; Rindfuss et al. 2003), or the degree of gender equity in different institutions (McDonald 2000a, 2000b, 2002). The key argument is that fertility decline is explained with women's entry to higher education and employment whereas differences in family policies explain the current cross-country differences in fertility. That is, when family policy creates favorable circumstances for the combination of work and family, fertility rates are higher, but when family policies discourage a mother's work or make the combination of work and motherhood difficult, women often choose to have fewer children or stay childless.

There is widespread circumstantial evidence for the influence of family policy on fertility. For example, the decline in fertility took place simultaneously with increases in female employment. Further, the gap between preferred and realized fertility indicates that the reasons for low fertility lie on constraints<sup>5</sup> such as family policy. Indeed, several commentators are convinced of the positive influence of family policy on fertility (e. g. Bujard 2010; Rønsen & Skrede 2010; Oláh 2011). Critical reviews point

<sup>5</sup> The explanation can naturally be made even more simple; it is also possible that two persons with different preferences partner (Voas 2003). Indeed, when spouses have different fertility desires it has a negative effect on fertility intentions and consequently on the number of births (Thomson 1997).

out the lack of robust empirical evidence (Gauthier 2007) and emphasize the way in which family policies always interact with other policies and circumstances (Neyer 2011).

### 6.1 Macro-level evidence

To start with a description of the relationship between family policy, TFR, and FLFP (Table 4), both the TFR and FLFP are relatively high in the Nordic countries where the family policies support working parents but low in Japan, Korea and Mediterranean countries (with the exception of Portugal) where assistance to families is limited. However, the correlation between family policies, TFR, and FLFP is not as good in other cases. In eastern European countries where the degree of role compatibility is low (long leaves but low cash benefits and child care supply for children under the age of three) the TFR is low, but the FLFP is in most cases above the OECD-average. Further, in Anglo-Saxon countries and Switzerland the degree of role compatibility is likewise low (short leaves and targeted support for low-income single parent families and families with preschool children). Yet the TFRs are high, except for Canada and Switzerland. For the FLFP there is no clear pattern. Finally, in countries where the financial support is high but support to dual-earner families with children under age three is limited, the level of the TFR varies considerably. In all these countries the FLFP is higher than the OECD-average, but the fertility rates are low in Austria, Germany, and Luxembourg, whereas in Belgium, France, and the Netherlands fertility rates are above OECD-average.

In a time-series analysis the relationship between the TFR and FLFP is still negative (Engelhardt et al. 2004). The positive correlation can be explained by country effects and a variety in the magnitude of the negative correlations. However, for some countries the negative correlation has become weaker over the years, which could be interpreted as confirmatory evidence to the role compatibility theories (Kögel 2004).

Macro-level studies on the influence of family policy on fertility are scarce. In line with the theoretical argument, the level of fertility in Switzerland is positively influenced by day care availability (Bonoli 2008). Contrary to the argument, in their study on 22 countries between 1970 and 1990, Gauthier & Hatzius (1997) find that neither the duration of nor the compensation for maternity leave has any influence on fertility. All in all, the most robust

**Table 4** Family policy regimes according to Thévenon (2011), TFR and FLFP (for women aged 25–54) in 2010

|  | TFR  | FLFP |
|--|------|------|
| <b>Continuous, strong support for working parents of children under age 3</b>                                  |      |      |
| Denmark  | 1.88 | 85.3 |
| Finland  | 1.87 | 84.4 |
| Iceland  | 2.20 | 85.3 |
| Norway   | 1.95 | 84.4 |
| Sweden   | 1.98 | 86.6 |
| <b>High financial support, but limited support to dual-earner families with children under age 3</b>           |      |      |
| Austria  | 1.44 | 82.8 |
| Belgium  | 1.87 | 80.4 |
| France   | 2.02 | 83.7 |
| Germany  | 1.39 | 81.3 |
| Luxembourg   | 1.63 | 76.4 |
| Netherlands  | 1.80 | 82.3 |
| <b>Short leave, support targeted on low-income single-parent families and families with preschool children</b> |      |      |
| Australia  | 1.89 | 75.2 |
| Canada   | 1.63 | 82.3 |
| Ireland  | 2.07 | 71.9 |
| New Zealand  | 2.15 | 76.9 |
| Switzerland  | 1.54 | 83.5 |
| UK   | 1.98 | 78.7 |
| USA  | 1.93 | 75.2 |
| <b>Long leave but low cash benefits and childcare for children under age 3</b>                                 |      |      |
| Czech Republic   | 1.49 | 79.8 |
| Hungary  | 1.26 | 74.6 |
| Poland   | 1.38 | 78.6 |
| Slovakia   | 1.40 | 80.8 |
| <b>Limited assistance to families</b>  |      |      |
| Greece   | 1.51 | 72.2 |
| Italy  | 1.41 | 64.4 |
| Korea  | 1.23 | 62.2 |
| Japan  | 1.39 | 71.6 |
| Portugal   | 1.37 | 84.9 |
| Spain  | 1.38 | 78.3 |
| <b>Average</b>   | 1.62 | 76.0 |

Sources: Thévenon (2011) For the classification of countries, OECD (2012) for TFR and FLFP.

finding of the influence of family policies on fertility is the Swedish “speed premium”: When the mother gives birth to her next child within a certain period from her last birth, the amount of the parental leave compensation can still be calculated from the wage prior to the first childbirth, and not from the income between the births. This kind of premium has found to speed up the pace between having children (Andersson et al. 2006).

Finally, the positive relationship between TFR and FLFP is not automatically an indication of the influence of family policies. Several scholars have for example suggested that unemployment statistics explain the positive relationship between the two variables (Engelhardt & Prskawetz 2004; Da Rocha & Fuster 2006). According to Adsera (2004), the level and persistence of unemployment, among other things, indicates the flexibility of labor markets; when women are able to enter to and exit from the labor market without greater difficulties, and when the negative consequences of short-time exits from the labor market are not too high, the fertility rate is high.

## 6.2 Micro-level evidence

In comparison to women who are active in the labor market, inactive women have higher fertility and higher propensity to progress to higher parities across countries (for births at parities 0–4+ in the USA, see Blau & Robins 1989; for second and third births in Sweden, see Hoem & Hoem 1989; for second births in Germany, see Cooke 2004; for first births in Germany, see Kreyenfeld 2004; for second births in Austria, see Prskawetz & Zagaglia 2005, for second births in Italy and Spain, see Cooke 2008; for France, see Breton & Prioux 2009). Given that family policy creates different kinds of incentive structures for inactive women it is likely that the effect size varies between countries and over time, and future research should address not only the direction of the effect but also its size. The study by Schröder & Brüderl (2008) on West Germany neatly illustrates why the concentration on effect sizes is important. The authors suggest that the positive effect of inactivity on fertility is at least partly not causal, as the negative effect of employment on first birth propensity has increased over cohorts – a result which Schröder & Brüderl interpret as evidence for increasing self-selection of family oriented women into inactivity.

Even though part-time work is more compatible with childbearing than full-time work, studies

mainly from the Northern European countries find that the propensity of childbearing does not vary between part-time and full-time working women (for second and third births in Sweden, see Hoem & Hoem 1989; for second births in Sweden, see Oláh 2003; for second births in Denmark, see Brodmann et al. 2007; for first births in Germany, see Schröder & Brüderl 2008). In countries where family policies are geared more towards the male breadwinner families, part-time working women have a higher propensity to have children (for the Netherlands and Flanders, see Liefbroer & Corijn 1999; for second births in western Germany and Great Britain, see Kreyenfeld & Zabel 2005). A possible explanation is that Nordic family policies allow women to combine work and family both by working part-time and full-time, whereas in countries where policies which help women to combine work and family are limited, part-time working women are a selected group of more family-oriented women.

As to the influence of family policies, several studies conclude that the availability of child care (see Kravdal 1996 for third births in Norway; Del Boca 2002 for childbearing in Italy; Oláh 2003 for the intensity of second births in Sweden; Rindfuss et al. 2007 for first birth timing in Norway; Baizán 2009 for first and higher order births in Spain; Rindfuss et al. 2010 for the level of fertility in Norway), as well as parental or care leave extensions, or increases in the compensation for those leaves have a positive influence on fertility (for timing of the third births in Austria, see Hoem et al. 2001; for timing of the second and third births in Norway, see Aassve & Lappegård 2009; for positive effect on both tempo and quantum in Austria, see Lalive & Zweimüller 2009; for western European countries, see Kalwij 2010). Nevertheless, some studies find a negative influence of child care availability (see Rønsen 2004 for first, second and third births in Norway and Finland), and Vikat (2004) finds that the extension of the home care leave in Finland has had a positive influence on third but not on second births. These results indicate that the influence of family policy on fertility is not as straightforward as suggested by the theory. For example, Blau & Robinson (1989) show that high child care costs in the USA reduce the fertility of inactive, but not of employed women, which indicates that the influence of family policy is conditional on women’s labor market status or education.

The results from studies on domestic division of care and household work support the conclusion that family policies influence different types of fam-

ilies differently. Several studies find that a more equal division of household work or fathers' attendance to childrearing (for second births in the USA, see Torr & Short 2004; for second births in Germany, see Cooke 2004; for second births in Denmark, see Brodmann et al. 2007; for second births in Spain and Italy, see Cooke 2008; for fertility intentions in Italy and the Netherlands, see Mills et al. 2008) as well as fathers' take of parental leave (for second births in Sweden and Hungary, see Oláh 2003; for second and third births in Sweden, see Duvander & Andersson 2006; for second and third births in Norway and Sweden, see Duvander et al. 2010) have a positive effect on childbearing. Many of these studies also show that in families in which mothers take responsibility for the bulk of household/care work, fertility is higher. Thus, future studies on the influence of family policy on fertility should take a closer look on how these policies influence the different subgroups of women.

### 6.3 Family policy and low fertility in Germany

The increase in fertility in East Germany in the 1970s when the policies which improved the role compatibility were implemented, as well as the successive convergence in the levels of fertility between eastern and western parts after the reunification point towards the influence of family policies. As to the cross-country differences, it is reasonable to assume that low fertility in Germany in comparison to for example Northern European countries can be at least partly explained by differences in the degree of defamilialization. Further, the higher total fertility and lower childlessness in East Germany can be seen as consequences of differences in family policies; West Germany was a typical conservative welfare regime, whereas the family policies in East Germany promoted women's full-time employment (Ostner 1994; Kreyenfeld 2004). The importance of context is further illustrated by differences in the influence of education on fertility: It is often assumed that particularly highly educated women experience problems with role compatibility and consequently, the high degree of role incompatibility in Germany is often blamed for the high childlessness among the German academics (e.g. Bujard 2012). However, in Finland and Sweden the highly educated women in cohorts 1955–1959 actually have lower level of childlessness than women with low education (Andersson et al. 2009). Likewise, Kreyenfeld's (2004) study shows that educational differences in childlessness were minimal in East

Germany whereas higher education in West Germany also predicted higher risk of childlessness.

Several studies at the micro-level support these considerations, and deviant findings can often be explained in a way that fits the theoretical argument. For instance, Hank et al. (2004) find that only in eastern parts of Germany does the availability of child care have a positive statistically significant influence on the propensity to have a first child, whereas in the western parts of the country the informal care availability has a positive effect. Further, Hank & Kreyenfeld (2003) find a positive but statistically insignificant effect of child care availability on first births in western Germany and a strong positive statistically significant effect of the availability of informal care. Both studies suggest that the current supply of child care is not sufficient to enable the mothers to combine work and family, which also means that women ignore the role of institutional child care in their decision-making about their first child (for similar results concerning the influence of formal day care on desired fertility, see Ette & Ruckdeschel 2007).

On the other hand, the correlation between family policy, female employment and fertility is not perfect, and the empirical evidence is far from watertight. For example, the increase in fertility in East Germany during the 1970s was short-lived, and a comparison between Germany and the Anglo-Saxon countries shows that generous family policies are not the only road to high fertility. Notice also that even though childlessness was lower in East Germany, in West Germany the policies which promoted male breadwinner families might explain the relatively large share of women who decided to have three or more children. Finally, the child gap (the difference between desired and realized fertility) can be observed in basically all developed countries, which shows that even high levels of defamilialization do not remove all constraints. In other words, the causal mechanisms between family policy and fertility are not yet fully understood. To be able to further the knowledge on the interplay between family policy and other variables it is advisable to pay more attention to how effects (with respect to both their direction and size) of different variables such as education, inactivity, and income vary at different parities across countries and over time.

## 7 Women's heterogeneous preferences

According to Hakim (1998, 2000, 2003), five historical changes (contraceptive revolution, equal opportunities revolution, expansion of white-collar jobs, creation of jobs for secondary earners, increase in the importance of personal desires, and attitudes when it comes to life time choices) have changed the opportunity structures for women and made it possible for women to choose the kind of life they want. Hakim further claims that women can be divided into three different groups based on their preferences and that women's choices and responses to government policies can be traced back to the differences in preferences. The reason for low fertility thus is a bias in social policy towards one particular group of women. A minority group of women (10–30 % of women) is home-centered, with a desire for large families and homemaking. Another minority group (10–30 % of women) is work-centered, with the primary interest of making career and often even with the preference of not having children. Finally, a majority of women are adaptive (40–80 % of women) and do not prioritize employment or family but wish to combine these two.

Hakim has often been criticized for ignoring the role of constraints (Crompton & Harris 1998; McRae 2003). The critics also point out that the empirical evidence does not fully support the theory (see below). An additional problem is that the theory does not clarify the reason for heterogeneous preferences (Pfau-Effinger 2004).

### 7.1 Empirical evidence

An increasing number of investigations show that women have heterogeneous life style preferences, but that the correlation between preferences and actual choices is not always that good (Vitali et al. 2009; Janus 2013; Salles et al. 2010). Moreover, the studies which investigate the determinants of women's choices find that even though preferences matter, constraints related, for example, to family policy are important as well (Crompton & Lyonette 2005; Kangas & Rostgaard 2007).

So far studies have concentrated on exploring the heterogeneity in preferences or the influence of preferences on women's labor market participation. The effect of women's heterogeneous lifestyle preferences on fertility remains largely unexplored, even though the theory has slowly started to draw demographers' attention. The few existing studies

indicate that heterogeneity of preferences is a potentially fruitful area for future studies. Lee & Gramotnev (2006) show that women's preferences for one to two children go hand in hand with preferences for market employment, and preferences for larger families are likewise correlated with preferences for homemaking or part-time work. The comparative study of European countries by Vitali et al. (2009) in turn shows that even though preferences and fertility intentions do not match, there is a strong correlation between employment-child-bearing preferences and realized fertility behavior.

### 7.2 Preferences and low fertility in Germany

As already discussed above, the gap between desired and realized fertility indicates that women are not able to choose according to their preferences. Consequently, preference theory alone does not provide a full answer to low fertility. However, a change in women's preferences in terms of work and family (say a shift from homemaking preferences to adaptive and work-centered preferences) could help us understand the long term trends in fertility. Unfortunately there are no studies which explore women's preferences in Germany over several decades.

Further, differences in the share of women with different life style preferences could provide a partial answer to the cross-country differences in fertility. However, to explain the high share of childlessness in Germany we would expect to find a larger share of work-centered women in Germany than in, for example, Sweden, and both Janus (2013) and Vitali et al. (2009) show that in comparison to Sweden a smaller share of German women are career-oriented and a larger share home-centered. On the other hand, estimates of the share of home-centered and work-centered women in Sweden and Germany vary between studies, which illustrates the difficulty of drawing strong conclusions about cross-country differences in women's preferences based on current research.

Those German studies which concentrate on the differences between the eastern and western parts of the country (Störtzbach 1993; Beckmann 2002; Dorbritz 2004; Holst 2009) show that in the western parts of Germany a larger number of women prefers inactivity when having children whereas in the eastern parts full-time preferences are more common. Moreover, some of the studies show that full-time preferences go hand in hand with the preference for smaller families, whereas part-time pref-



erences go together with preferences for a larger number of children. Thus, these studies suggest that the differences in preferences are a partial reason for the higher fertility rates at higher birth orders (3+) in western as well as for the higher fertility rates at lower birth orders (1–2) in eastern Germany (the usual problems with distinguishing the direction of causality between preferences and behavior naturally remain).

## 8 Concluding remarks

Overall, this review demonstrates how different theories are helpful for different purposes. Firstly, increases in women's employment as well as changes in values provide a good explanation for the fertility decline, but the East German fertility increase in the 1970s is most appropriately addressed by theories which concentrate on the consequences of family policy changes (improved economic situation and role compatibility). Secondly, the differences in fertility across countries, as well as between eastern and western Germany both when it comes to total and birth order specific fertility are best understood in the light of theories which emphasize the role of family policies. In addition, preference theory is fruitful when we want to understand the differences between the two parts of Germany. Thirdly, the economic explanations and role compatibility theories provide the best explanation to the gap between desired and realized fertility.

On the other hand, even though much is already known, the large variety of factors which are found to influence fertility shows that none of the above theories alone is fully able to provide a fully comprehensive explanation of low fertility. Thus, to be able to provide a good explanation to low fertility independently from how the dependent variable looks like it is necessary to incorporate all findings into a unifying framework. In path to such framework at least three important issues need to be dealt with.

### 8.1 The need for more emphasis on effect sizes

Some social scientists argue that it is crucial in explanatory quantitative studies to concentrate on the substantial effect of the independent variables instead of focusing on the directional impact (Taagepera 2008; Ziliak & McCloskey 2008). The research on low fertility would benefit from applying this advice, particularly when it comes to investiga-

tions on the determinants of cross-country and cross-cohort differences. As discussed briefly above e. g. in relation to the positive effect of inactivity on childbearing, it is simply not enough to study whether a variable has a positive or negative influence on fertility, but it is crucial to estimate the size of the effect as well and then compare the magnitude of the effect between countries and cohorts. Such comparisons would for example give us valuable information on if and how the influence of a variable varies depending on country and cohort, which in turn would help us to better understand the influence of, e. g., family policy context on fertility. Many researchers already discuss such issues, but to get the most out of cross-country and cross-cohort studies and to enable comparisons between different studies, the practice of estimating the effect size of independent variables needs to become standard.

### 8.2 The need for more research on women's preferences

Given that preferences are important for the choices individuals make and that women's work-life choices are at the center of the low fertility puzzle, it is surprising that there still are so few studies on women's preferences concerning work and family. Moreover, particularly the theories which emphasize the role of family policy for women's choices about children seem to assume that women want to combine work and family and that women's preferences are similar between countries and cohorts. Yet, a look at the literature shows that women have heterogeneous preferences which vary between countries and that preferences at least partly influence decision-making. This leads to the conclusion that in future research it will be important to study differences in preferences between women in different countries and over cohorts, as well as investigate the extent to which the observed work-life behavior corresponds to lifestyle preferences. Furthermore, it is crucial to understand the determinants of preferences, as it is possible that some of the determinants of fertility (like value change) have an indirect influence on childbearing through joint preferences on work and family.

### 8.3 The need for more interdisciplinary research

Quantitative research often concentrates on the simultaneous effects of the independent variables on the dependent variable (by integrating the inde-

pendent variables into a basic regression equation). More attention should be given to the sequential interaction between the variables, i. e. to the ways in which the variables are related to each other (Taa-gepera 2008). In my opinion, this is particularly critical when it comes to low fertility and calls for more cooperation between the different subfields of social science. After all, different variables such as family policy and education are interesting for demographers mainly insofar as these variables influence childbearing. At the same time, in other disciplines the same variables are treated as dependent variables with different interests in mind. Consequently, it is likely that the research on fertility would benefit from studies which build bridges between the knowledge gained in other fields of social science. Findings from studies related to topics such as determinants of religiosity (Stolz 2009) or of educational choices (Hadjar & Berger 2013) might give important insights concerning the ways in which family and social background indirectly influence fertility.

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## Autorenvorstellung

Elina Schleutker, geb. 1982 in Sauvo (Finnland). Studium der Politikwissenschaft an der Universität Uppsala (Schweden). Promotion in Heidelberg. Seit 2010 wissenschaftliche Mitarbeiterin und Lehrbeauftragte an der Universität Freiburg.

Forschungsschwerpunkte: Geburtenrate und Geburtenentwicklung in den Industriestaaten, vergleichende Wohlfahrtsstaatsforschung, Demographie.

Wichtigste Publikationen: Fertility, Family Policy and Welfare Regimes, in: *Comparative Population Studies – Zeitschrift für Bevölkerungswissenschaft* 39, 2014.