Why Childless Men and Women Give Up on Having Children

Petra Buhr¹ · Johannes Huinink¹

Received: 18 June 2015 / Accepted: 17 April 2017 / Published online: 20 June 2017
© Springer Science+Business Media Dordrecht 2017

Abstract In this paper we address the question why childless women and men aged 35 years and older, who originally were considering having children, voluntarily gave up on having children. We hypothesise that this adjustment could be attributed to five mechanisms: adaptation to a lifestyle without children; resignation because of severe hindrances to having children; approaching the end of the fecund period; perceiving a low degree of social influence from significant others to have children; and a low degree of personal persistence in pursuing life goals. We analyse data from the first six waves of the German Family Panel (Pairfam) and employ multinomial logistic regression models. As the dependent variable we distinguished four types of sequences over the observation period: “permanently considering having children”, “given up on having children”, “switching”, and “permanently not considering having children”. Being female, being not employed, and having low scores on the emotional autonomy scale increased the likelihood of giving up on having children, while anticipating positive consequences of parenthood and perceiving influence from parents to have a child decreased it. The results show that all mechanisms addressed by the hypotheses were at work to a certain extent. In particular, the integration of personality factors and the importance of other life goals beyond parenthood provided valuable insights into the reasons for giving up on having children. Future research in this field should focus more than was possible in our study on societal age norms and the role of partners in giving up on having children.

Electronic supplementary material The online version of this article (doi:[10.1007/s10680-017-9429-1](https://doi.org/10.1007/s10680-017-9429-1)) contains supplementary material, which is available to authorized users.

✉ Petra Buhr
buhr@uni-bremen.de

¹ University of Bremen, SOCIUM, Mary-Somerville-Straße 9, 28359 Bremen, Germany

Keywords Voluntary childlessness · Postponement · Stability of childbearing desires and intentions · Giving up on having children · Pairfam

1 Introduction

The decline in German cohort fertility over the last 50 years is a consequence of a decrease in family size on the one hand and a higher percentage of childless women on the other (Dorbritz 2008). However, a major trend behind these developments has been the steady postponement of family formation. There is a strong correlation between increasing age at family formation and changing fertility outcomes. Both trends are driven by factors like increasing education and labour force participation by women (Buhr and Huinink 2015). From a life course perspective it can be assumed that because of different biographical experiences during the phase of postponing family formation, desires, or intentions to have or at least consider having children may be abandoned, and the likelihood of ultimately remaining childless may increase.

Studies of childless persons or couples (e.g. Avison and Furnham 2015; Berrington 2004; Callan 1984; Carmichael and Whittaker 2007; Fiori et al. 2017; González and Jurado-Guerrero 2006; Heaton et al. 1999; Keizer et al. 2008; Mynarska et al. 2015; Peterson and Engwall 2016; Safer 1996; Tanturri and Mencarini 2008; Veevers 1973) differentiate between three groups of childless individuals: The first is a relatively small group of men or women who cannot have children for medical or biological reasons (the “involuntarily childless”). Among the second group are men and women who very early in their lives consciously decide not to become mothers or fathers (“early articulators”, “childfree”, “childless by choice”, “voluntarily lifelong childless”). The third and largest group consists of individuals who initially wanted to have children or at least did not definitely reject having children, but postponed family formation and ultimately remain childless for different reasons. They believe that the necessary prerequisites for parenthood are not met at a given point in time (e.g. a stable relationship with a suitable co-parent) or that the opportunity costs of having a child are still too high because they want to achieve other life goals (e.g. a satisfying occupational career) before they start a family (“postponer”, “childless by circumstances”, “voluntarily temporarily childless”). Some postponers may eventually no longer be able to have children for biological reasons. As the fecund period of women is limited and fecundity decreases with age, postponing may then result in involuntary childlessness. However, many other postponers may change their minds later in life and voluntarily give up on having children.

In our study we will address the question why childless men and women aged 35 years and older voluntarily give up on having children. Although increasing rates of childlessness and the reasons for remaining childless in the western world have been studied extensively (see Kreyenfeld and Konietzka 2017a), this question has attracted scant attention. To investigate this phenomenon we analyse a sample of childless men and women of the birth cohort 1971–1973 using data from the first six

waves of the German Family Panel (Pairfam). There are various concepts of fertility desires and intentions which are not always clearly defined and/or distinguished in the literature (see, e.g. Philipov and Bernardi 2011). Our analysis is based on a question about respondents' "realistically expected family size", which can be assumed to be a stronger stance than just a desire, but a weaker one than a concrete intention. We distinguish between individuals who are still "considering having children", i.e. who expect to have children or are unsure about having them, and those who explicitly do not expect to have children. We also take into account that fertility decisions are usually couples' decisions and that characteristics and attitudes of both partners may influence whether individuals are considering having children or give up on having children.

In the next section we briefly summarise previous research on the stability of desires and intentions to have children. Afterwards we clarify our theoretical assumptions and hypotheses on the mechanisms which might lead to giving up on having children. In section four we describe the data and the operationalisation of our dependent and independent variables. The results of our statistical models are presented in section five, and in the last section we draw some conclusions from these results.

2 Previous Research

While there are many studies on the determinants of the desire for children, the intention to have children, and the link between intention and behaviour (see, e.g. Balbo et al. 2013; Buhr and Huinink 2014b; Morgan and Rackin 2010), research on the stability of desires and intentions to become parents over the life course is still rare. Existing studies use different data sources, employ different statistical methods, refer to different age groups, and—most importantly—apply different concepts of desire and intentions. Using data from two waves of the German Family Survey conducted in 1988 and 1995 by the German Youth Institute, Heiland et al. (2008) show that desired family size is rather unstable. About one tenth of childless women aged 26–35 who expressed a desire for children in wave 1 no longer desired to have them in wave 2. However, the authors did not control whether these women were still childless at wave 2. While a random effects model showed negative effects of income and age, in a fixed effects model none of these or the other factors that were assumed to influence childless women's desire for children, e.g. employment, health status, and religion, proved to be significant. Liefbroer (2009) analysed six waves of the Panel Study on Social Integration in the Netherlands (1987–2006) with a random slope multilevel model. He found that childless men and women and people without a partner reduce intended family size as they grow older. Iacovou and Tavares (2011), who used data from several waves of the British Household Panel Survey and employed multinomial logistic regression models, report that for women the likelihood of decreasing the expected number of children depends on partnership status, employment, and agreement with their partner. Furthermore, in contrast to Liefbroer but in accordance with Berrington (2004) they find that the likelihood that women revise their fertility expectations declines with age, that the probability of downward adjustment is

greater than of upward adjustment, and that there is only little evidence for an impact of the “biological clock”. According to Buhr and Kuhnt (2012), who analysed the first two waves of the German Family Panel (Pairfam) with multinomial logistic regression models, about 4% of childless men and women who had a desire to have children and 16% who were unsure whether they wanted them at wave 1 reported having no desire for children 1 year later. Among those who did not have a partner or who separated between the waves the odds that the desired number of children was reduced were much higher than for persons living with a partner. Unemployment, on the other hand, did not affect the stability of the desire for children. This was also reported by Gray et al. (2013), who used data from the panel study “Household, Income and Labour Dynamics in Australia” from 2001 to 2010 and analysed short-term changes in the desire for children using fixed effects models. They found that the adjustment of childbearing desires of childless men and women between panel waves was strongly affected by age and relationship status. Short-term events like illness and unemployment had a much smaller impact. A qualitative study on decision-making concerning parenthood in Australia shows that childless couples who did not expect to have children when they were young might change their minds in later life “as attractions of a childless lifestyle wear thin, biological clocks are activated, and peer experiences expose them to the joys of parenthood” (Carmichael 2013: 14). In a recent study of a sample of childless men and women in Italy and Britain Fiori et al. (2017) found that the intention to remain childless increased with age. In Italy there was also an effect of the duration of partnership: Women who had lived with their partners for more than 5 years were more likely to intend to remain childless than those with shorter duration. This could be an indication that the value of partnership might be more important than the value of children. To sum up existing studies on the stability of the desire for children and childbearing intentions find strong effects of partnership status and mixed effects of age and employment status. However, for two reasons these studies still do not give a satisfying answer to the question why childless men and women give up their desire to have children. First, studies so far have focused on life events or socio-demographic variables like age, while attitudes or values have not been included in the models. Second, the studies have not systematically differentiated between temporary and permanent changes in desires and intentions. To the best of our knowledge there are as yet no studies which explicitly analyse the determinants of permanently giving up on having children. In our study we focus on permanent changes and include structural *and* attitudinal variables in the statistical models.

3 Theoretical Considerations and Hypotheses

One explanation in the literature for giving up on having children is the assumption that childless individuals or couples become more and more accustomed to a lifestyle without children over the life course (Carmichael and Whittaker 2007; Heaton et al. 1999; Nave-Herz 1988: 43 ff.; Rindfuss et al. 1980: 432). One can substantiate this assumption by following a life course approach to the analysis of fertility (Buhr and Huinink 2014a; Huinink and Kohli 2014).

The life course is a multidimensional process within which fertility decisions are interdependent with other life domains, e.g. education, work, partnering, and leisure (Diewald 2012; Huinink and Feldhaus 2009; Lutz 2014) in different ways. Parenting costs time, money, and other kinds of resources which can no longer be invested in leisure activities or employment. At the same time raising children and activities in other life domains are interrelated according to their contribution to individual well-being. Therefore, benefits from other life domains might be perceived as a good substitute for the benefits that children would have provided. For instance, a stable and satisfying partnership as a strong and reliable source of emotional closeness may substitute for the relationship to a child. Couples might even suspect that having a child would diminish the benefits from their partner relationship. Other possible sources of individual well-being are an occupational career or leisure activities and hobbies, which can also be perceived to compensate for possible benefits of becoming a parent. At the same time anticipated negative effects of having children on highly valued activities in other life domains, the current standard of living, and daily routines may foster the decision to remain permanently childless. These considerations lead us to our first hypothesis, the “adaptation hypothesis”: The likelihood that childless men and women give up on having children is higher the more strongly they value engaging in non-family life domains (work, leisure) or in their partnerships at the beginning of the observation period. The likelihood is also higher the more negative the anticipated consequences of parenthood are for the standard of living they have become accustomed to.

The framework for another potential explanation of why men and women give up on having children is the psychological theory of developmental regulation or the life-span theory of control (Brandstädter 2009; Heckhausen and Schulz 1995). According to this theory individuals use diverse control strategies in their goal pursuit over the life course, trying to avoid or minimise negative effects of failure to realise their goals. Heckhausen (1997) distinguishes four control strategies individuals may apply. To be successful in achieving a goal they may increase effort and resources (selective primary control), look for help and advice (compensatory primary control), and/or increase their motivational commitment to the goal (selective secondary control). If they realise that a desired goal is unlikely to be attainable they may disengage from it and turn to alternative goals (compensatory secondary control) to avoid the experience of failure.

Some relevant aspects of this approach should be emphasised. First, as a stable partnership is usually seen as an important precondition for family formation, not having a partner is obviously a major obstacle to having children and may lead to goal disengagement, i.e. giving up on having children. Other obstacles that could similarly lead to giving up on having children are lack of financial security, e.g. due to unemployment, or problems in reconciling work and family. This brings us to our second hypothesis: The “resignation hypothesis” says that the likelihood of giving up on having children is higher for those who at the beginning of the observation period faced severe obstacles to family formation, i.e. did not have a partner or were not regularly employed.

Second, the use of control strategies over the life course depends on age norms regarding the realisation of life goals (Heckhausen et al. 2001). With regard to

fertility decisions women are especially confronted with age norms because their fecundity deteriorates considerably after the age of 35 (Nieschlag and te Velde 2010). Men are less affected, although their procreative capacity also declines with age. From this follows the third hypothesis: The “biological clock hypothesis” states that women aged 35 and older are more likely than men that age to give up on having children.

Third, individual (fertility) behaviour may be influenced by significant others in the social environment (Ajzen 1991; Bernardi and Klärner 2014). Parents and peers may influence individual (age) norms, which also influence the choice between goal pursuit and disengagement. From this follows our fourth hypothesis: According to the “social influence hypothesis”, the greater the influence from parents or peers to start a family that is perceived by childless men and women at the beginning of the observation period, the higher the likelihood of not giving up on having children. It is an open question whether the influence of peers or that of parents is stronger.

Finally, individuals’ developmental regulation differs according to their flexibility in their goal pursuit because of individual dispositions (Brandtstädter and Renner 1990). Personal characteristics favouring tenaciousness in goal pursuit should play a role towards not giving up on having children. This leads us to our fifth and last hypothesis, the “persistence hypothesis”: The more determined childless men and women are in pursuing their goals at the beginning of the observation period, the less likely they are to give up on having a family even in the face of obstacles.

4 Data, Methods, and Variables

To test our hypotheses we use data from waves 1–6 of the German Family Panel (Pairfam). Pairfam (“Panel Analysis of Intimate Relationships and Family Dynamics”) was launched in 2008 and is a multidisciplinary longitudinal study for researching partnership and family dynamics in Germany with annual waves.¹ The first wave was conducted in 2008/2009 with a nationwide random sample of over 12,000 participants from three birth cohorts (1971–1973, 1981–1983, and 1991–1993) in East and West Germany. Due to panel attrition the number of participants had declined to about 5800 at wave 6.

4.1 Sample

The subsample for our analysis is restricted to respondents who participated in at least four consecutive waves including the first, were childless, heterosexual, fecund or procreative, and who (or whose partners) did not report a pregnancy during the observation period. We did not allow gaps between the waves, i.e. the respondents

¹ The German Family Panel is coordinated by Josef Brüderl, Karsten Hank, Johannes Huinink, Bernhard Nauck, Franz Neyer, and Sabine Walper (Brüderl et al. 2015). It is funded as a long-term project by the German Research Foundation (DFG). A detailed description of the study can be found in Huinink et al. (2011). For further information about the sampling procedure, the response rates, and the instruments see the pairfam website (www.pairfam.de).

participated without interruption in waves 1–4, 1–5, or 1–6. We also excluded respondents from the sample who did not answer the question on their expected family size (our dependent variable, see below) in one or more waves and those for whom we had no information about partnership status at wave 1, because partnership status is a central independent variable. Finally, our sample for the multivariate analyses is restricted to respondents of the oldest birth cohort ($N = 236$). These respondents were 35–37 years old at the first wave, so one has to keep in mind that we are studying a selective group of men and women who had remained childless until this age and remained childless over the whole observation period. We did not include the two younger birth cohorts in our analysis because, since the biological deadline was still far away, the number of persons with stable attitudes against having children or who had given up on having children—according to our definition—was very low (see Table 1 below).

4.2 Analytical Strategy

If we were only interested in temporary changes between considering and not considering having children and their determinants, a fixed effects model would have been an appropriate choice. However, as we wanted to analyse the determinants of *permanently* giving up on having children (at least in the observation period), we employed a typological approach. We estimated multinomial and binary logistic regression models with different sequencing types as dependent variables.

4.3 Dependent Variables

The definition of the dependent variables is based on reports of “realistically expected family size” in the Pairfam study. The relevant question in Pairfam is: “When you think realistically about having children: how many children do you think you will have?” The answer categories are: no children, one child, two children, three children, four or more children, I’m not sure, I haven’t thought about that.

An important question is how to handle the “not sure” and “haven’t thought about that” categories. The number of cases in these categories ranges between 22 and 43 in the six waves. One could treat individuals who are uncertain as an extra group (Morgan 1981; Bhrolcháin and Beaujouan 2015; Kuhnt and Buhr 2016). However, because of the small number of cases and in order to keep the construction of sequence types over the six panel waves reasonably simple (see below), we include individuals who are certain about having children (i.e. those answering one, two, three, or four and more children), those who are uncertain and those who have not thought about it together in one category. This decision can be justified by considering that individuals who are certain about having children and those who are uncertain have in common that they are open to parenthood or, at least, have not totally rejected having children. We cannot differentiate between uncertainty about having any children at all and uncertainty about the desired number of children. This also supports the decision to pool respondents who are

Table 1 Distribution of sequence types by birth cohort (%)

	Birth cohort 1971–1973	Birth cohort 1981–1983	Birth cohort 1991–1993
Permanently considering having children	33.7	80.8	85.9
Given up on having children	9.8	0.9	0.5
Switching	39.1	15.8	13.3
Permanently not considering having children	17.5	2.4	0.3
<i>N</i> = 100% (weighted cases)	236 (321)	675 (847)	2198 (1942)

Data source: Pairfam, release 6.0, weighted data; subsample of respondents who participated in at least four waves including wave 1, were childless, heterosexual and fecund or procreative, and who (or whose partners) did not report a pregnancy during the observation period

certain and those who are uncertain in one category. We use the term “considering having children” to make clear that we are not only referring to individuals with definite expectations of having children, but also to those who are unsure about having any children at all or those who are unsure about how many children they would like to have.

Based on the information from at least four consecutive waves about the realistically expected family size we identified four different sequence types: (1) “permanently considering having children” = considering having children in all waves; (2) “given up on having children” = considering having children at least in one of the first three waves and not considering having children at least in the last three waves; (3) “switching” = switching between considering and not considering having children over the waves; (4) “permanently not considering having children” = not considering having children in all waves. The definitions of “switching” and “given up on having children” are independent of the state in wave 1. The respondents whom we classified as “given up on having children” may have switched between considering and not considering having children in the first three waves. However, in contrast to the respondents in the “switching” group, the members of the “given up” group no longer considered having children in at least three consecutive waves at the end of the observation period.²

Table 1 shows the proportion of cases in each sequence type by birth cohort. Here and in Table 2 we use post-stratification weights and longitudinal weights to account for systematic non-response at wave 1 and selective drop-out in the subsequent waves. The younger cohorts and the oldest cohort differ greatly in their distributions across the sequence types. In the oldest birth cohort about one-sixth permanently were not considering having children and nearly 10% gave up on having children during the observation period. In the two younger cohorts <1% of the respondents were in the “given up” category, and therefore, we will restrict the analysis of giving up on having children to the oldest cohort.

² The exact definitions of the types are shown in Table A1 in the Online Appendix. A similar approach was chosen by Heaton et al. (1999) based on two waves (1988 and 1994) from the National Survey of Families and Households in the USA.

The aim of this typology is to differentiate temporary changes from long-term or permanent ones. However, because of the rather short time period of five years the typology is rather arbitrary as the sequences are both left and right censored. This means that members of the groups “permanently not considering having children” and “given up on having children” might have changed their minds after the end of the observation period—even though this is assumed to be unlikely in the oldest cohort after not having been considering starting a family over at least three subsequent waves. We also do not know *when* the respondents classified as “permanently not considering having children” gave up on having children. They may have adapted their attitudes and behaviour after giving up on having children at any point prior to the first panel wave. This is why we exclude the “permanently not considering having children” group from the multinomial logistic regression and observe the independent variables with very few exceptions (see below) at wave one. Doing this we avoid biases due to endogeneity. In a separate model we contrasted the “given up” group with those who did not consider having children over the whole observation period and might have given up on having children before the first wave of pairfam or never wanted a child. This allows us to see to what extent these two sub-populations differ and to what extent our model might even apply for the latter.

4.4 Independent Variables

With regard to the independent variables we use *gender* as an indicator of urgency to have a child and approaching the biological deadline. Although male fecundity also decreases with time, the fecund period is shorter for women than for men. The women in our sample were between 35 and 37 years old at the time of the first interview and between 40 and 42 at wave 6. In our sample the percentage of men is higher than that of women (about 60 vs. 40%; Table 2). This reflects that men are more likely to still be childless when they reach their late 30s.

Partnership status is considered to be important for the decision to have children. Not having a partner is a major hindrance to parenthood, i.e. this might have a discouraging effect and lead respondents to give up on having children. The partnership variable can be used to test the resignation hypothesis. Only 38% of the older, still childless respondents lived with a partner at wave 1.

Employment status is used for testing the adaptation and resignation hypotheses. On the one hand employment is taken as an indicator for engagement in other life areas that might provide a substitute for the possible benefits of parenthood. On the other hand employment stands for financial security and can be seen as a precondition for family formation, while unemployment or irregular employment may be a major hindrance. In the multinomial logistic regression we use a binary variable: 0 means that the respondent was not employed (e.g. housewife), unemployed or only in marginal employment at wave 1; 1 means that he or she is part-time, full-time or self-employed. At the beginning of the observation period, 84% of the respondents in our sample were employed.

We measure the relevance of various life domains by using reports on the importance of two life goals: “pursuing my hobbies and personal interests” and

Table 2 Distribution of the independent variables at wave 1

	Percent/mean
Gender	
Male	63
Female	37
Region	
West Germany	86
East Germany	14
Level of qualification	
Low	19
Medium	31
High	50
No partner	62
Employment status	
Not employed, unemployed or in marginal employment	16
Employed (part-time, full-time, self-employed)	84
Relevances	
Importance of life goal “living in a partnership”	3.4
Importance of life goal “pursuing hobbies and personal interests”	3.1
Value of children	
Sum index of negative attitudes	2.6
Sum index of positive attitudes	3.5
Social influence	
Friends	2.5
Parents	3.1
Personality	
Emotional autonomy	2.1
<i>N</i>	236
Only respondents with partner	
Partner employed (part-time, full-time, self-employed)	85
Partner has children from earlier relationships	17
<i>N</i>	92

Data source: Pairfam, release 6.0, weighted data; birth cohort 1971–1973; subsample of respondents who participated in at least four waves including wave 1, were childless, heterosexual and fecund or procreative, and who (or whose partners) did not report a pregnancy during the observation period

“living in a partnership”.³ The respondents were asked to distribute a total of 15 importance points to five goals.⁴ Thus, they could assign between 0 and 15 points to each goal. The two missing values in both items were replaced by the mean of the

³ The item is intended to measure the abstract importance of a partnership for persons with and without a current partner. However, we cannot exclude that respondents with a partner evaluated the importance of their own present partnerships.

⁴ The three other life goals were “pursuing my education or career interests”, “keeping in touch with friends”, and “having a (another) child”.

respective item. At wave 1 the mean number of importance points given by respondents in our subsample to pursuing hobbies and personal interests was 3.1 and to living in a partnership 3.4. To test the relevance of leisure (according to the adaptation hypothesis) we include a dummy variable which has the value 1 if the respondent assigned more than 3 points to this life goal. We included the scores of the life goal “living in a partnership” and also considered an interaction effect between partnership status and this measure to identify couples for whom a partnership may substitute or compensate for benefits from parenthood.

Anticipated negative and positive consequences of having a child are operationalised by Values of Children (Hoffman and Hoffman 1973; Arnold et al. 1975; Nauck 2007). The following items were used to measure positive expectations: How strongly do you expect:...that with children you will stay young longer?...to have an especially close emotional relationship with your children?...that your standing in your social network will increase because of your children?...that your adult children will be there for you when you are in need?...that you will get new ideas from your adult children? The items for the negative expectations were: Let's now talk about the unpleasant aspects. How strongly do you worry:...that you will be able to afford less with children?...that children will put you under nervous strain?...that with children you will not accomplish your professional goals?...that with children you will stand out in a negative way in public?...that children will limit your personal freedom? Each item had a five-point scale from 1 “not at all” to 5 “very strongly”. The very few missing values on single items—the number ranged from 3 to 9—were imputed as the mean of the item in question. We built sum indices of the positive and negative items (Cronbach's alpha 0.67 and 0.74). Possible values range from 1 to 5. In our sample the mean of the index of the positive expectations was 3.5 and the mean of the negative expectations was 2.6.

For *social influence* we use scores for the items: “My parents think that I should have a child” and “My friends think that I should have a child”, which are measured on a five-point response scale from 1 “disagree completely” to 5 “agree completely”. As the word “friends” (and not peers) is used in the Pairfam questionnaire, we speak of the influence of friends and distinguish this from the influence of parents. The missing values in the two items (parents: 14, friends: 23) were replaced by the mean of the item in question. The main reason for the missing values in the parent item is that some parents had already died. The large number of respondents who did not know what their friends were thinking about the matter could be a first hint that the influence of friends is not as relevant as assumed. In our sample the mean score of influence by parents was 3.1 and the mean of influence by friends 2.5.

The “tenacious goal pursuit scale” of Brandtstädter and Renner (1990) is not included in the Pairfam questionnaire. In its place as a proxy of how determined respondents were with regard to goal pursuit in general, we use scores on an *emotional autonomy* scale based on three items (alpha = 0.70). The items are: I often agree with others, even if I'm not sure; I often change my mind after hearing what others think; I strongly tend to follow the wishes of others (Noom et al. 1999). The scale ranges from 1 “not at all” to 5 “absolutely”. One missing value in the

second item was replaced by the mean of that item. In our sample the mean score of the emotional autonomy scale was 2.1.

Fertility decisions are made by couples (Miller and Pasta 2005; Bauer and Kneip 2012). Therefore, we can assume that decisions to give up on having children are also influenced by characteristics and attitudes of partners. We have some proxy information about partners from respondents themselves. Unfortunately, according to most key variables (realistically expected family size, values of children, importance of life goals, emotional autonomy, social influence) we only have information from about half of the partners, as the response rate of the partner questionnaire was only about 50%. We include two variables in our models, which we consider relevant for dyadic decisions to give up on having children: The employment status of the partner and a variable which indicates if the partner has children from earlier relationships. The employment status of the partner is reported by the respondent and coded in the same way as that of the respondent: 0 means that the partner was not employed (e.g. housewife), unemployed or only in marginal employment at wave 1; 1 means that he or she was part-time, full-time or self-employed at wave 1. In our sample 85% of partners were employed at wave 1. The variable “Partner has children from earlier relationships” is based on partners’ reports about their children if they completed the partner questionnaire in wave 1. For those who did not complete the partner questionnaire in wave 1, we checked whether the information was provided in the partner questionnaire in wave 2. If the information was missing in waves 1 and 2, we imputed the information from the respondent’s answer to the question “How many children does your partner have from earlier relationships?” at wave 2, because the question was not asked in wave 1. If this information was also missing, we used the respondent’s reporting of stepchildren in the household in waves 1 or 2. The variable for partner’s children is assigned the value 1 if the partner has children from earlier relationships, and 0 otherwise. In our sample 17% of partners had children from earlier relationships. In only three cases did children of the partner live in the respondent’s household. The results remain unchanged when we exclude these cases from the analysis.

We also considered if the respondents and their partners agree about having children. The operationalisation of the variables and the results of the comparison, differentiated by sequencing types, are displayed in Table A3 in the Online Appendix: 38 respondents agreed with their partners about having children, 32 agreed about not having children, and only nine couples did not agree about having children. Of the nine respondents who disagreed with their partners, four belonged to the “switching” group, three to the “permanently not considering having children” group, and two to the sequencing type “permanently considering having children”. As none of the respondents who disagreed belonged to the “given up” group, we decided not to use the agreement variable in the statistical models. We also did not include the age of the partner because of the low variation in the age difference between partners in our sample.

We further include *level of qualification* as a control variable, because many studies have found educational differences in fertility intentions and outcomes (see for example Testa 2014). We use a collapsed version of the CASMIN classification combining general and vocational education (König et al. 1988) and distinguish low (categories 1a,

1b, 1c), medium (2a, 2b), and high (2c, 3a, 3b) levels of qualification. About 19% of our sample had a low level of education, 31% a medium level, and 50% a high level.

We also control whether the respondent lived in the eastern or western part of Germany. The reason is that—more than 25 years after reunification—there are still differences between the two parts of Germany in fertility rates, availability of childcare, and attitudes towards mothers' employment (Buhr et al. 2011; Huinink and Kreyenfeld 2006). About 86% of the respondents in our sample of childless persons lived in West Germany. In the total population the share of residents in East Germany is about 20%. The lower percentage of East Germans in our subsample of childless respondents compared to the share in the total population is probably due to the fact that childlessness is less widespread in East Germany than in West Germany (Kreyenfeld and Konietzka 2017b).

5 Results

The dependent variable of the multinomial logistic model is a sequence-type variable including three of our four sequencing types: “permanently considering having children”, “given up on having children”, and “switching”. We chose the “permanently considering having children” group as the base category. The number of cases drops to 190 due to omitting the type “permanently not considering having children”. We first estimated models with specific sub-models each including a subset of variables, and generally accounting only for gender, region, and level of qualification. The estimates are displayed in Table 3.⁵ In Table 4 we present the results of the full model with all independent and control variables included simultaneously.⁶ In contrast to common practice, we adopt a 10% significance level because of the small sample size and emphasise if an effect is also significant at the 5% level.

First, there is a strong effect of gender (significant at the 5% level) in our sample of childless respondents from the birth cohort 1971–1973. Women have a much higher chance than men of giving up on having children or switching compared to permanently considering having children (Table 4).

The importance of living in a partnership also plays a role in giving up on having children: In the “given up on having children” group the main effect of importance is 0.56 (sub-model 1 in Table 3; significant at the 5% level). If a respondent lived in a partnership and valued it highly (interaction effect), the likelihood of giving up on having children increased significantly in sub-model 1. In the full model (Table 4) the main effect and the interaction effect are also strong, but no longer significant at

⁵ The results of the sub-models including control variables are displayed in Table A2 in the Online Appendix.

⁶ In the statistical community there is controversy and no clear recommendation whether and how to use weights in multivariate regression models (see, e.g. Winship and Radbill 1994; Gelman 2007). We decided to present the unweighted estimates, which can be justified by the fact that important variables accounting for selective non-response (especially gender, education, employment status, and region) are included in the model. The relative risk ratios of the model with weighted data are similar. The standard errors, however, are higher.

Table 3 Determinants of switching and giving up on having children (multinomial logistic regression, sub-models)

Reference category: permanently considering having children	Category: switching		Category: given up on having children	
	Relative risk ratio	<i>p</i>	Relative risk ratio	<i>p</i>
Sub-model 1				
Respondent with partner	0.96	0.97	0.11	0.17
Importance of living in a partnership	0.78	0.09	0.56	0.01
Respondent with partner x importance	0.96	0.87	1.94	0.08
Sub-model 2				
Respondent employed (ref.: unemployed, non-employed)	0.41	0.07	0.26	0.04
Sub-model 3				
Importance of pursuing hobbies and personal interests	1.84	0.10	4.63	0.00
Sub-model 4				
Value of children: positive	0.67	0.13	0.30	0.00
Value of children: negative	1.71	0.03	1.65	0.14
Sub-model 5a				
Social influence: friends	0.85	0.19	0.79	0.22
Sub-model 5b				
Social influence: parents	0.76	0.01	0.62	0.01
Sub-model 6				
Emotional autonomy	0.94	0.79	0.44	0.03
Sub-model 7a				
Respondent with partner	0.54	0.35	1.41	0.70
Partner employed (ref.: unemployed, non-employed)	1.10	0.90	0.44	0.40
Sub-model 7b				
Respondent with partner	0.61	0.17	0.74	0.59
Partner has children from earlier relationships	0.82	0.78	0.94	0.95
No of observations	190			

Data source: Pairfam, release 6.0; birth cohort 1971–1973; subsample of respondents who participated in at least four waves including wave 1, were childless, heterosexual, fecund or procreative, and who (or whose partner) did not report a pregnancy during the observation period; without respondents permanently not considering having children; in each sub-model controlled for gender, level of qualification, and region

the 10% level. As to employment status we find that being employed prevents people from giving up on having children (significant at the 5% level in sub-model 2 in Table 3) or switching (sub-model 2 in Tables 3 and 4). To put it the other way round respondents who were unemployed or non-employed were more likely to give up on having children or to be in the “switching” category.

Table 4 Determinants of switching and giving up on having children (multinomial logistic regression)

Reference category: permanently considering having children	Category: switching		Category: given up on having children	
	Relative risk ratio	<i>p</i>	Relative risk ratio	<i>p</i>
Variables				
Respondent female	3.17	0.01	5.47	0.01
Respondent living in East Germany	1.07	0.91	0.23	0.15
Level of qualification medium (ref.: low)	0.58	0.31	0.51	0.41
Level of qualification high	0.35	0.04	0.32	0.16
Respondent with partner	1.40	0.79	0.29	0.50
Importance of living in a partnership	0.79	0.15	0.68	0.12
Respondent with partner x importance	0.81	0.51	1.72	0.23
Respondent employed (ref.: unemployed, non-employed)	0.39	0.09	0.27	0.09
Importance of pursuing hobbies and personal interests	1.12	0.81	2.55	0.14
Value of children: positive	0.55	0.05	0.24	0.00
Value of children: negative	1.90	0.02	1.71	0.17
Social influence: friends	1.16	0.36	1.18	0.49
Social influence: parents	0.69	0.02	0.68	0.09
Emotional autonomy	0.88	0.61	0.51	0.10
Partner employed (ref.: unemployed, non-employed)	1.71	0.53	0.23	0.22
Partner has children from earlier relationships	1.00	1.00	3.94	0.23
N of observations	190			
LR χ^2 (32); Sig.; Pseudo R^2	72.44; 0.00; 0.19			

Data source: Pairfam, release 6.0; birth cohort 1971–1973; subsample of respondents who participated in at least four waves including wave 1, were childless, heterosexual, fecund or procreative and who (or whose partner) did not report a pregnancy during the observation period; without respondents permanently not considering having children

The effect of pursuing hobbies and personal interests on giving up on having children is strong and significant (5% level) in sub-model 3 (Table 3). Respondents who value hobbies and personal interests highly are more likely to give up on having children. In the full model the effect is also strong, but no more significant at the 10% level. In the “switching” group the effect of this variable is much smaller. The values of children as measures of anticipated positive and negative consequences of parenthood show the expected effects: Positive attitudes lower the relative risk of giving up on having children (significant at the 5% level) and of switching, negative attitudes increase it. However, neither in sub-model 4 (Table 3) nor in the full model (Table 4) is the latter effect significant at the 10% level for the “given up” group. Respondents who think that their parents want them to have a child are less likely to give up on having children or to switch. The effect for the “given up” group is significant at the 5% level in sub-model 5b (Table 3) and at the

10% level in the full model (Table 4). The influence of friends, on the other hand, is neither significant in sub-model 5a (Table 3) nor in the full model. In accordance with our expectations as to the importance of personality factors in the process of developmental regulation, higher emotional autonomy supports sticking to permanently considering having children. The effect of emotional autonomy is significant at the 5% level in sub-model 6 in Table 3 and at the 10% level in the full model (Table 4).

According to the dyadic variables neither in sub-model 7a (Table 3) nor in the full model is there a significant effect of partner's employment status. The effect does, however, go in the expected direction: If the partner is employed, the respondent is less likely to give up on having children. The effect of the variable "Partner has children from earlier relationships" on giving up on having children is strongly positive, albeit not significant in the full model.

Finally, as to the control variables in the sub-models (except for sub-model 5b) and in the full model higher educated respondents were less likely to be found in the "switching" category (see Table A2 in the Online Appendix and Table 4). The effect for the "given up" group was also negative, but not significant. The effect of region (East versus West Germany) was neither significant in the sub-models nor in the full model.

In the final step of our analysis we compared the groups "given up on having children" and "permanently not considering having children". The latter group was not included in the multinomial logistic regression to avoid problems of endogeneity. We excluded the dyadic variables (employment status of partner and partner has children from earlier relationships) and the interaction effect between partnership status and "importance of living in partnership" from this analysis, because, due to the low number of cases, the coefficients for these variables could not be interpreted. The results of the logistic regression model are displayed in Table A4 in the Online Appendix. Three factors stand out. First, respondents with higher emotional autonomy were less likely to be found in the "given up" group (significant at the 5% level). Since one can assume that personality traits are quite stable over time, this is the only effect that presumably can be interpreted without problems of endogeneity bias. This finding indicates that more autonomous persons were more determined regarding their life plans from early on. They decided to give up on having children earlier than less autonomous respondents and stuck to that decision, or they never seriously considered having children. Second, respondents with high scores on the relevance of the life goal "living in a partnership" are more likely to belong to the category "given up on having children" than to "permanently not considering having children". This also means that respondents for whom living in a partnership is very important waited longer before they gave up on having children in contrast with those for whom this life goal was less important. Third, anticipating negative consequences from having children (negative value of children) is positively correlated with being in the "permanently not considering having children" group (significant at the 5% level). In sum even though the two groups share many similar characteristics, the findings support an interpretation in which the members of the "permanently not considering having children" group are more determined in their decision-making. Although

this sounds reasonable from a theoretical point of view, one has to be cautious, because members of the “permanently not considering having children” group might at least partly have adapted their behaviour and attitudes after they decided to remain childless before the first wave of Pairfam. In the end we cannot decide empirically at this moment in time whether the explanation is valid and have to wait until the second oldest cohort of the panel ages over the next few years.

6 Summary and Conclusion

The aim of our paper was to investigate the reasons why childless men and women who originally were considering having children gave up on having them during their life course. We hypothesised that this adjustment could be attributable to five mechanisms: adaptation to a lifestyle without children associated with fears that children could interfere with activities and benefits in other life domains that compensate for the benefits of children; resignation because of severe hindrances to having children; approaching the end of the fecund period (the “biological clock” mechanism); perceiving a low degree of social influence from significant others to have children; and a low degree of personal persistence in pursuing life goals. We used data from the first six waves of the German Family Panel (Pairfam) and estimated logistic regression models. Since the percentage of respondents who had already given up on having children in the younger cohorts was very small, we restricted our analysis to respondents aged 35 years and older. This means that we have analysed why respondents who had postponed family formation over a particularly long period of time finally gave up on having children.

Our findings provide some new insights into how the process of giving up on having children might operate. We extended previous research by differentiating between short-term and long-term adjustments of considering having children and including not only socio-structural variables but also attitudes in our models. As the dependent variable we distinguished four types of sequences over the observation period: “permanently considering having children”, “given up on having children”, “switching”, and “permanently not considering having children”. The results of our multinomial logistic regression models show that different mechanisms explain why childless men and women give up on having children. First, even if the effect is no more significant in the full model, respondents with a partner who highly valued living in a partnership were more likely to have given up on having children. This is in accordance with the adaptation hypothesis, because the partnership might be a substitute for parenthood. However, it is also possible that maintaining a partnership with someone who is opposed to having children may require renouncing parenthood. The adaptation hypothesis is also confirmed by the fact that giving up on having children was less likely if respondents anticipated positive consequences of parenthood and more likely if they anticipated negative consequences. The latter effect, however, was not significant for the “given up” group. There was also a strong, albeit in the full model not significant, effect for the relevance of pursuing hobbies and personal interests. Second, women were more likely to have given up on having children than men. As the fecund period is shorter for women than for men, this is in

accordance with both the resignation hypothesis and the biological clock hypothesis, according to which childless persons who approach the deadline for having children are more likely to abandon their goal. Third, respondents who were employed were less likely to have given up on having children. This was also in accordance with the resignation hypothesis, as employment is an indicator for financial security which in turn is an important prerequisite for parenthood. Thus, if this precondition was not fulfilled, childless respondents older than 35 years were more likely to have given up on having children. In addition the positive effect of employment on permanently considering having children may indicate that respondents first invested in their job career to achieve a sustainable occupational position before feeling ready to fulfil their desire to have children. Fourth, there was an interesting result for the variable emotional autonomy, which is a proxy for persistence in pursuing personal life goals. Respondents with high emotional autonomy were more likely to be found in the “permanently considering having children” group and the “permanently not considering having children” group, whose members had given up on having children before the start of the observation period, i.e. before age 35, or had never considered having children at all. This is compatible with the persistence hypothesis, which proposes that autonomous persons are more determined in pursuing their life goals. They either pursue the goal of having children despite obstacles or they disengage from that goal early in their lives, probably because other goals are more important to them. Finally, there was also evidence for the social influence hypothesis. Respondents who reported that their parents wanted them to have children were more likely to belong to the “permanently considering having children” group. However, we cannot rule out the possibility that childless respondents who still expected to have children over-reported parental influence or projected their own attitudes onto their parents.

Thus, our typological approach proved to be meaningful in explaining the reasons why childless men and women permanently gave up on having children. In particular, the integration of personality factors and the importance of other life goals beyond parenthood provided valuable insights into the mechanisms that lead people to give up on having children.

Shortcomings in our analysis, however, mean that these findings still provide only a preliminary answer to the question of why men and women permanently give up on having children. First, the sample size ($N = 236$) and especially the number of respondents who gave up on having children ($N = 24$) is small. This means that we were not able to analyse differences between subgroups or interaction effects in detail. Second, because of left censoring of our data we do not know exactly how many respondents who did not consider having children across all panel waves also belonged to the “given up” category. Third, we assume that—besides the biological limits of fecundity—perceptions about the “right” age to have children may play a role in giving up on having children (Wrosch and Heckhausen 2005). One can argue that individuals might feel too old to start a family and raise children according to their own or societal age norms. They may seek to avoid social disapproval or anticipate potential disadvantages for their children growing up with “old” parents. Therefore, the relevance of age norms for both partners in a relationship should also be analysed in detail. Fourth, giving up on having children might also depend on other personal traits (Avison and Furnham 2015) and family attitudes (Holland and

Keizer 2015) than those considered here. Fifth, due to data limitations we were only able to include two dyadic variables in our models. However, Table A3 in the Online Appendix suggests that respondents living in couples who disagree about having children are primarily to be found in the “switching” or “permanently not considering having children” category. Therefore, in future analyses it is necessary to broaden the dyadic perspective and include more partner variables, like the indicator whether partners agree or disagree about having children.

Although our analysis is restricted to Germany, we think that the results also apply to other countries. For example, the finding that the benefits of partnership may be a substitute for the perceived benefits of parenthood is compatible with the result of a Swedish study by Holland and Keizer (2015) that partnership-oriented respondents were less likely to have a first child. However, we cannot rule out that the strength of the effects of the independent variables might depend on country-specific socio-economic conditions, cultural traditions, and family policy constellations. For example, the (perceived) influence of parents and peers on giving up on having children might be stronger in countries with lower levels of childlessness than in Germany. And the importance of employment status on giving up on having children might be lower in countries with better reconciliation policies and higher in countries affected by economic crisis. In sum our analysis with the oldest cohort of the German Family Panel has given valuable and interesting new insights into the dynamics of the pursuit of having children. However, there are still some challenges ahead if we want to fully understand when and why persons finally give up on having children and decide to remain permanently childless.

Acknowledgements This study uses data from the German Family Panel pairfam, coordinated by Josef Brüderl, Karsten Hank, Johannes Huinink, Bernhard Nauck, Franz Neyer, and Sabine Walper. The pairfam study is funded as long-term project by the German Research Foundation (DFG). The authors would like to thank the two anonymous reviewers for their helpful and constructive feedbacks.

Compliance with Ethical Standards Compliance with ethical standards for German social research and data protection laws was secured throughout the study.

Conflict of interests The authors declare that they have no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Arnold, F., Bulatao, R. A., Buripakdi, C., Chung, B. J., Fawcett, J. T., Iritani, T., et al. (1975). *The value of children. A cross-national study*. Honolulu: East-West Center.
- Avison, M., & Furnham, A. (2015). Personality and voluntary childlessness. *Journal of Population Research*, 32(1), 45–67. doi:[10.1007/s12546-014-9140-6](https://doi.org/10.1007/s12546-014-9140-6).
- Balbo, N., Billari, F. C., & Mills, M. M. (2013). Fertility in advanced societies: A review of research. *European Journal of Population*, 29, 1–38.
- Bauer, G., & Kneip, T. (2012). Fertility from a couple perspective: A test of competing decision rules on proceptive behaviour. *European Sociological Review*, 29(3), 535–548.

- Bernardi, L., & Klärner, A. (2014). Social networks and fertility. *Demographic Research*, 30(22), 641–670. doi:[10.4054/DemRes.2014.30.22](https://doi.org/10.4054/DemRes.2014.30.22).
- Berrington, A. (2004). Perpetual postponers? Women's, men's and couple's fertility intentions and subsequent fertility behaviour. *Population Trends*, 117, 9–19.
- Bhrolcháin, M. N., & Beaujouan, E. (2015). *How real are reproductive goals? Uncertainty and the construction of fertility preferences*. Southampton: ESRC Centre for Population Research. (working paper 73).
- Brandtstädter, J. (2009). Goal pursuit and goal adjustment: Self-regulation and intentional self-development in changing developmental contexts. *Advances in Life Course Research*, 14(1–2), 52–62.
- Brandtstädter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment: Explication and age-related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging*, 5(1), 58–67.
- Brüderl, J., Hank, K., Huinink, J., Nauck, B., Neyer, F.-J., Walper, S., Alt, P., Buhr, P., Castiglioni, L., Finn, C., Hajek, K., Herzig, M., Huyer-May, B., Lenke, R.; Müller, B.; Peter, T., Salzburger, V., Schmiedeberg, C., Schubach, E., Schütze, P., Schumann, N., Thönnissen, C., & Wilhelm, B. (2015). The German Family Panel (pairfam). GESIS data archive, Cologne. ZA5678 Data file Version 6.0.0, doi:[10.4232/pairfam.5678.6.0.0](https://doi.org/10.4232/pairfam.5678.6.0.0).
- Buhr, P., & Huinink, J. (2014a). Fertility analysis from a life course perspective. *Advances in Life Course Research*, 21, 1–9.
- Buhr, P., & Huinink, J. (Eds.). (2014b). *Fertility over the life course (Advances in Life Course Research, 21, Special Issue)*. Amsterdam: Elsevier.
- Buhr, P., & Huinink, J. (2015). The German low fertility: How we got there and what we can expect for the future. *European Sociological Review*, 31, 197–210.
- Buhr, P., Huinink, J., Boehnke, M., & Maul, K. (2011). Kinder oder keine? Institutionelle Rahmenbedingungen und biographische Voraussetzungen für die Familiengründung und -erweiterung in Ost- und Westdeutschland. In J. Brüderl, L. Castiglioni, & N. Schumann (Eds.), *Partnerschaft, Fertilität und intergenerationale Beziehungen: Ergebnisse der ersten Welle des Beziehungs- und Familienpanels* (pp. 175–202). Würzburg: Ergon Verlag.
- Buhr, P., & Kuhnt, A.-K. (2012). Die kurzfristige Stabilität des Kinderwunsches von Kinderlosen in Ost- und Westdeutschland: Eine Analyse mit den ersten beiden Wellen des deutschen Beziehungs- und Familienpanels. In J. Huinink, M. Kreyenfeld, & H. Trappe (Eds.), *Familie und Partnerschaft in Ost- und Westdeutschland (Sonderheft Zeitschrift für Familienforschung/Journal of Family Research, 9)* (pp. 275–297). Berlin: Barbara Budrich.
- Callan, V. J. (1984). Voluntary childlessness: Early articulator and postponing couples. *Journal of Biosocial Science*, 16(4), 501–509.
- Carmichael, G. (2013). *Decisions to have children in late 20th and early 21st century Australia: A qualitative analysis*. Dordrecht: Springer Briefs in Population Studies.
- Carmichael, G. A., & Whittaker, A. (2007). Choice and circumstance: Qualitative insights into contemporary childlessness in Australia. *European Journal of Population*, 23, 111–143.
- Diewald, M. (2012). Bedürfnisse und Präferenzen Kompensations- und Substitutionsmöglichkeiten dialogischer Beziehungen. In P. Buhr & M. Feldhaus (Eds.), *Die notwendige Vielfalt von Familie und Partnerschaft* (pp. 41–59). Ergon: Würzburg.
- Dorbritz, J. (2008). Germany: Family diversity with low actual and desired fertility. In T. Frejka, T. Sobotka, J. M. Hoem, & L. Toulemon (Eds.), *Childbearing trends and policies in Europe* (pp. 557–597). Rostock: Max Planck Institute for Demographic Research.
- Fiori, F., Rinesi, F., & Graham, E. (2017). Choosing to remain childless? A comparative study of fertility intentions among women and men in Italy. *European Journal of Population (online)*. doi:[10.1007/s10680-016-9404-2](https://doi.org/10.1007/s10680-016-9404-2).
- Gelman, A. (2007). Struggles with survey weighting and regression modeling. *Statistical Science*, 22(2), 153–164.
- González, M.-J., & Jurado-Guerrero, T. (2006). Remaining childless in affluent economies: A comparison of France, West Germany, Italy and Spain, 1994–2001. *European Journal of Population*, 22, 317–352.
- Gray, E., Evans, A., & Reimondos, A. (2013). Childbearing desires of childless men and women: When are goals adjusted? *Advances in Life Course Research*, 18, 141–149.
- Heaton, T. B., Jacobson, C. K., & Holland, K. (1999). Persistence and change in decisions to remain childless. *Journal of Marriage and Family*, 61(2), 531–539.

- Heckhausen, J. (1997). Developmental regulation across adulthood: Primary and secondary control of age-related challenges. *Developmental Psychology*, 33(1), 176–187.
- Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review*, 102(2), 284–304.
- Heckhausen, J., Wrosch, C., & Fleeson, W. (2001). Developmental regulation before and after a developmental deadline: The sample case of “biological clock” for childbearing. *Psychology and Aging*, 16(3), 400–413.
- Heiland, F., Prskawetz, A., & Sanderson, W. C. (2008). Are individuals’ desired family sizes stable? Evidence from West German panel data. *European Journal of Population*, 24(2), 129–156.
- Hoffman, L. W., & Hoffman, M. L. (1973). The value of children to parents. In J. T. Fawcett (Ed.), *Psychological perspectives on population* (pp. 19–76). New York: Basic Books.
- Holland, J. A., & Keizer, R. (2015). Family attitudes and fertility timing in Sweden. *European Journal of Population*, 31, 259–285.
- Huinink, J., Brüderl, J., Nauck, B., Walper, S., Castiglioni, L., & Feldhaus, M. (2011). Panel analysis of intimate relationships and family dynamics (pairfam): Conceptual framework and design. *Zeitschrift für Familienforschung*, 23(1), 77–101.
- Huinink, J., & Feldhaus, M. (2009). Family research from the life course perspective. *International Sociology*, 24(3), 299–324.
- Huinink, J., & Kohli, M. (2014). A life-course approach to fertility. *Demographic Research*, 30(45), 1293–1326.
- Huinink, J., & Kreyenfeld, M. (2006). Family formation in times of abrupt social and economic change. In M. Diewald, A. Goedicke, & K.-U. Mayer (Eds.), *After the fall of the wall: Life courses in the transformation of East Germany* (pp. 170–190). Palo Alto: Stanford University Press.
- Iacovou, M., & Tavares, L. P. (2011). Yearning, learning and conceding: Reasons men and women change their childbearing intentions. *Population and Development Review*, 37(1), 89–123.
- Keizer, R., Dykstra, P. A., & Jansen, M. D. (2008). Pathways into childlessness. Evidence of gendered life course dynamics. *Journal of Biosocial Science*, 40, 863–878.
- König, W., Lüttinger, P., & Müller, W. (1988). *A comparative analysis of the development and structure of educational systems. Methodological foundations and the construction of a comparative educational scale*. Mannheim: CASMIN-Project, Universität Mannheim, Institut für Sozialwissenschaften. (CASMIN Working paper, 12).
- Kreyenfeld, M., & Konietzka, D. (Eds.). (2017a). *Childlessness in Europe: Contexts, causes, and consequences*. Springer Open. Demographic Research Monographs. A Series of the Max Planck Institute for Demographic Research. Rostock: Max Planck Institute for Demographic Research. doi:10.1007/978-3-319-44667-7.
- Kreyenfeld, M., & Konietzka, D. (Eds.). (2017b). Childlessness in East and West Germany: Long-term trends and social disparities. In *Childlessness in Europe contexts causes and consequences* (pp. 97–114). Springer Open. Demographic Research Monographs. A Series of the Max Planck Institute for Demographic Research. Rostock: Max Planck Institute for Demographic Research. doi:10.1007/978-3-319-44667-7.
- Kuhnt, A.-K., & Buhr, P. (2016). *Biographical risks and their impact on uncertainty in fertility expectations. A gender-specific study based on the German Family Panel*. Duisburg: Institut für Soziologie, Universität Duisburg-Essen. (Duisburger Beiträge zur soziologischen Forschung 2016-03). doi:10.6104/DBsF-2016-03.
- Liefbroer, A. (2009). Changes in family size intentions across young adulthood: A life-course perspective. *European Journal of Population*, 25(4), 363–386.
- Lutz, K. (2014). Compensating dissatisfaction in the job by turning to the family? The impact of current occupation on timing of first births in Germany. *Advances in Life Course Research*, 21, 43–58. doi:10.1016/j.alcr.2014.03.003.
- Miller, W. B., & Pasta, D. J. (2005). Couple disagreement: Effects on the formation and implementation of fertility decisions. *Personal Relationships*, 3(3), 307–336.
- Morgan, S. P. (1981). Intention and uncertainty at later stages of childbearing: The United States 1965 and 1970. *Demography*, 18(3), 267–285.
- Morgan, S. P., & Rackin, H. (2010). The correspondence between fertility intentions and behavior in the United States. *Population and Development Review*, 36(1), 91–118.
- Mynarska, M., Matysiak, A., Rybinska, A., Tocchioni, V., & Vignoli, D. (2015). Diverse paths into childlessness over the life course. *Advances in Life Course Research*, 25, 35–48.

- Nauck, B. (2007). Value of children and the framing of fertility: Results from a cross-cultural comparative survey in 10 societies. *European Sociological Review*, 23(5), 615–629.
- Nave-Herz, R. (1988). *Kinderlose Ehen. Eine empirische Studie über die Lebenssituation kinderloser Ehepaare und die Gründe für ihre Kinderlosigkeit*. Weinheim und München: Juventa.
- Nieschlag, E., & te Velde, E. (2010). Why have birth rates dropped? For medical reasons? *Journal für Reproduktionsmedizin und Endokrinologie—Journal of Reproductive Medicine and Endocrinology*, 7(5), 403–406.
- Noom, M. J., Dekovic, M., & Meeus, W. H. J. (1999). Autonomy, attachment and psychosocial adjustment during adolescence: A double-edged sword? *Journal of Adolescence*, 22, 771–783.
- Peterson, H., & Engwall, K. (2016). Missing out on the parenthood bonus? Voluntarily childless in a “childfriendly” society. *Journal of Family and Economic Issues*, 37(4), 540–552.
- Philipov, D., & Bernardi, L. (2011). Konzepte und Operationalisierung von reproduktiven Entscheidungen am Beispiel Österreichs, Deutschlands und der Schweiz. *Zeitschrift für Bevölkerungswissenschaft—Comparative Population Studies*, 36(2–3), 531–572.
- Rindfuss, R. R., Bumpass, L., & St. John, C. (1980). Education and fertility: Implications for the roles women occupy. *American Sociological Review*, 45(3), 431–447.
- Safer, J. (1996). *Beyond motherhood. Choosing a life without children*. New York: Pocket Books.
- Tanturri, M. L., & Mencarini, L. (2008). Childless or childfree? Paths to voluntary childlessness in Italy. *Population and Development Review*, 34(1), 51–77.
- Testa, M. R. (2014). On the positive correlation between education and fertility intentions in Europe: Individual- and country-level evidence. *Advances in Life Course Research*, 21, 28–42. doi:[10.1016/j.alcr.2014.01.005](https://doi.org/10.1016/j.alcr.2014.01.005).
- Veevers, J. E. (1973). Voluntarily childless wives: An exploratory study. *Sociology and Social Research*, 57(3), 356–366.
- Winship, C., & Radbill, L. (1994). Sampling weights and regression analysis. *Sociological Methods and Research*, 23(2), 230–257.
- Wrosch, C., & Heckhausen, J. (2005). Being on-time or off-time: Developmental deadlines for regulating one’s own development. In A. N. Perret-Clermont (Ed.), *Thinking time. A multidisciplinary perspective on time* (pp. 110–123). Göttingen: Hogrefe & Huber.