

Biographical risks and their impact on uncertainty in fertility expectations

A gender-specific study based on the German Family Panel

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Abstract

This paper studies uncertainty in fertility expectations from a life course perspective. Our research hypotheses are theoretically based on Life Course Theory and the Theory of Planned Behavior. We assume that biographical risks, inferred from separation from partner, unemployment or changes in parity, lead to uncertainty in women's and men's fertility expectations. We also assume gender-specific differences regarding the effect of these risks, because the life courses of women and men still differ substantially regarding paid and domestic work. Data come from waves 1-6 of the German Family Panel. We apply fixed effects multinomial logit models. Our findings confirm that uncertainty in fertility intentions is of relevant prevalence in our sample and is not stable over the life course. In accordance with our hypotheses, uncertainty is connected with changes in partnership status, employment status, and parity of children. Furthermore, gender-specific differences emerge. While separation is stronger associated with uncertainty for men than for women, unemployment is more strongly associated with uncertainty among women. However, our findings provide no support for gender-specific differences regarding an increase in uncertainty after the transition to first birth.

Keywords: Fertility expectations, Uncertainty, Biographical risks, Gender-specific differences

Zusammenfassung

Dieser Beitrag untersucht Ausmaß und Ursachen von Unsicherheit in Hinblick auf die erwartete Kinderzahl von Männern und Frauen. Auf der Grundlage des Lebenslaufsansatzes und der Theorie des geplanten Verhaltens nehmen wir an, dass biographische Risiken in Zusammenhang mit einer Trennung vom Partner, Arbeitslosigkeit oder der Geburt von Kindern Unsicherheit in Hinblick auf die erwartete Kinderzahl von Frauen und Männern nach sich ziehen. Darüber hinaus vermuten wir geschlechtsspezifische Unterschiede in Hinblick auf den Einfluss dieser Faktoren, da sich der Lebensverlauf von Männern und Frauen noch immer substantiell hinsichtlich Erwerbs- und Hausarbeit unterscheidet. Wir nutzen Daten der ersten sechs Wellen des deutschen Beziehungs- und Familienpanels (pairfam) und verwenden fixed effects multinomial logit Modelle. Unsere Ergebnisse zeigen, dass Unsicherheit in Hinblick auf die erwartete Kinderzahl ein relevantes Phänomen und zudem nicht stabil im Lebensverlauf ist. Entsprechend unserer Hypothesen steht Unsicherheit im Zusammenhang mit Veränderungen in verschiedenen Lebensbereichen. Darüber hinaus zeigen sich geschlechtsspezifische Differenzen. Während eine Trennung einen stärkeren Effekt bei Männern als bei Frauen hat, ist der Effekt von Arbeitslosigkeit auf Unsicherheit in Bezug auf die erwartete Kinderzahl bei Frauen größer. Beim Übergang zum ersten Kind zeigen sich dagegen keine geschlechtsspezifischen Unterschiede.

Schlüsselwörter: Erwartete Kinderzahl, Unsicherheit, Biographische Risiken, geschlechtsspezifische Unterschiede

Inhaltsverzeichnis

Abstract.....	ii
Zusammenfassung	ii
1 Introduction	1
2 Defining (uncertain) fertility expectations.....	2
3 Prevalence and determinants of uncertainty of fertility expectations.....	4
4 Theoretical background and research hypotheses	6
4.1 Uncertain fertility decisions from a life course perspective.....	7
4.2 Combining the Life Course Approach with the Theory of Planned Behavior.....	8
4.3 Hypotheses	9
5 Data, variables of interest, and analytical strategy	11
6 Results.....	16
7 Discussion of findings and conclusion	18

Abbildungsverzeichnis

Figure 1: A model of fertility decision-making including uncertainty in fertility expectations, based on the Theory of Planned Behavior	9
Figure 2: A model of fertility decision-making over the life course	9

Tabellenverzeichnis

Table 1: Overview of how uncertainty is defined in studies on fertility intentions and expectations.....	4
Table 2a: Uncertainty in fertility expectations by age groups (percent)	14
Table 2b: Uncertainty in fertility expectations by gender (percent).....	14
Table 3: Distribution of the dependent and independent variables across waves (percent)	16
Table 4: Determinants of uncertain fertility expectations by gender, odds ratios	17
Table 5: Determinants of uncertain fertility expectations by gender and parity in wave 1, odds ratios.....	18
Table A1: Interaction effects with gender	27
Table A2: Interaction effect of birth of a child and parity in wave 1	28
Table A3: Interaction effect of birth of first child and gender	29

1 Introduction

Fertility analyses have been a central topic within the field of demography for long time. Over the last decades the analysis of fertility desires and intentions has played a central role in explaining fertility behavior, especially in the context of low fertility countries. In these countries, the “hypothetical” (i.e. ideal or desired) fertility at the individual and aggregate level is generally higher than actual fertility (Goldstein, Lutz, & Testa, 2003). Since fertility intentions are conceptualized as a mediator between fertility desires and fertility behavior (e.g. Miller 1994), they are also of special interest to family policy makers who want to close the gap between the desired number of children and the actual birth rate (Philipov 2009). While there are many studies on the determinants and the realization of fertility desires or intentions, less research has been done on the issue of uncertainty, even if studies about uncertain fertility intentions could already be found in the early 1980s (Morgan, 1981, 1982). These older studies argued that uncertainty is a central part of the fertility process and gave some evidence for uncertainty in fertility intentions as a determinant of fertility outcomes (e.g. Morgan, 1981, 1982; Schaeffer & Thomson, 1992). Recent studies on uncertainty in fertility intentions are rare (e.g. Ní Bhrolcháin & Beaujouan 2011) and, to the best of our knowledge, longitudinal studies focusing on the determinants influencing entry into or exit from uncertainty are completely missing. Thus we do not know for sure which determinants lead to uncertainty or certainty regarding fertility intentions.

The aim of our paper is to analyze the phenomenon of uncertainty in fertility intentions in more detail. We will contribute to previous research in two ways: We will analyze the prevalence of uncertainty in fertility intentions and shed light on the stability of uncertainty across the life course. To be more precise: We will focus on changes between definite positive intentions to have a child and uncertainty. Our main hypothesis is that changes in living conditions lead to a change from certain to uncertain fertility intentions or vice versa. With the life course perspective in mind, we pay attention to time-variant determinants such as partnership status, employment status, and parity, which may cause uncertainty. Moreover, we supplement the life course perspective by a gender perspective. Since gainful employment and child care are life domains which are still structured differently for women and men due to gender role models, we expect gender-specific differences in the determinants of uncertainty. An answer to these questions can bring us a step closer to understanding fertility trends in society. Our study is also of interest to family policy makers, because individuals who have uncertain fertility intentions are probably more likely to be influenced by family policies, e.g. monetary or infrastructural measures. In the literature, fertility desires and intentions are not always clearly defined. In our analysis, we will use the concept of “fertility expectations” which is stronger than a desire but less concrete than the intention to have a child in a foreseeable short-term period (for details see Section 2).

Our analysis is based on longitudinal data from the German Family Panel. We analyze how uncertainty in fertility expectations evolves over a five-year period from 2008/2009 to 2013/2014. A clear advantage of this survey is a relatively large sample size of more than 12,000 respondents. Furthermore, the desired, intended and actual fertility of respondents are surveyed annually, which enables us to track changes across the life course very closely. Other data sets which ask for women's and men's fertility intentions have larger gaps between single survey waves (e.g. Heiland, Prskawetz, & Sanderson, 2008). During the observation period of the first six waves of the German Family Panel the level of fertility (based on the total fertility rate) in Germany was one of the lowest in Europe and varied between values of 1.3 and 1.5 children per women (Destatis, 2016b) with most children being born within partnerships (Bastin, Kreyenfeld, & Schnor, 2013). In contrast, women's labor force participation (71 percent in 2011) was one of the highest in Europe during this period (Destatis, 2012), while the proportion of working mothers (64 percent in 2010) was at an intermediate level (BMFSFJ, 2012, p. 26). The proportion of mothers working part-time is one of the highest in Europe.

We proceed as follows. In Section 2 we define the concept of fertility expectations that we use in our empirical analysis and present different approaches to defining uncertainty. In Section 3 the literature about uncertainty as a characteristic of fertility intentions is reviewed. Our theoretical background and research hypotheses are presented in Section 4. In Section 5 we describe the data set, methods and variables. Our descriptive and multivariate findings are presented in Section 6. The paper closes with a discussion of the significance and importance of our results in the final Section 7.

2 Defining (uncertain) fertility expectations

In the literature numerous concepts of fertility desires, preferences and intentions are discussed (Bühler, 2012; Miller, 2011; Thomson, 2001). A rough distinction can be made between desires and intentions. Desires, on the one hand, represent preferences for or against children and are influenced by internal factors such as motivations, attitudes and beliefs (Miller, 1994, p. 228). Intentions, on the other hand, are statements that represent actual fertility plans (Miller, 1994, p. 228) and reflect current living conditions and possible constraints (Philipov & Bernardi, 2011). In our empirical analysis we will focus on fertility expectations which can be seen as a hybrid concept between desires and intentions (e.g. Bühler, 2012; Buhr & Kuhnt, 2012; Miller, 1994; Thomson, 2001). The hybrid concept of fertility expectations is also based on a consideration of current living conditions and possible constraints. However, in contrast to short-term intentions, expectations are based on the long-term anticipation of living conditions until the end of the reproductive career.

After defining the concept of fertility expectations, a closer look to the concept of uncertainty is needed. There are only few studies dealing exclusively with uncertain fertility expectations or intentions based on qualitative (e.g. Bernardi, Mynarska, & Rossier, 2015) or quantitative studies (e.g. Ní Bhrolcháin & Beaujouan, 2011). However, many studies mention uncertainty at the margins of their research by regarding uncertainty as one possible answer category for fertility intentions (Berrington, 2004; Kuhnt & Trappe, 2013, 2016; Testa & Toulemon, 2006). Following Ní Bhrolcháin and Beaujouan (2015, p. 9), we assume that uncertainty is a genuine concept and cannot be explained by measurement errors or lack of knowledge by the respondents. That uncertainty is genuine is also grounded on another finding from the literature: If “uncertain” is available as an answer category, individuals tend to use this option (Ní Bhrolcháin & Beaujouan, 2015, p. 16). Thus, individuals seem to be aware of being uncertain.

According to the definition of uncertainty, at least two different perspectives emerge from the literature: First, uncertainty can be related to the quantum of children (i.e. the number of children intended or expected) or the timing of the first or next child, which are two different aspects of the fertility process. Questions about timing often include a concrete time frame (e.g. two years) and ask if respondents intend to have a (next) child in this time period or not. Thus, respondents can be sure about the intention to have a (next) child, but can be uncertain if they will realize this intention within the given time frame. In our study we focus on the expected number of children and analyze uncertainty regarding the quantum of children, because, from a theoretical perspective, it is not possible to include uncertainty regarding the timing and quantum into a joint model.

Second, uncertainty can be defined in a broader or narrower sense. Generally, fertility intentions can be differentiated between definite and uncertain intentions. Definite intentions or expectations can be expressed by indicating a definite number of children or by stating a certain positive (“certainly yes”) or negative (“certainly no”) intention to have a child in the future (e.g. in the next two years). In surveys several alternative answer categories are used beside the definite intended number of children or a clear positive or negative intention toward the birth of a (next) child: “don’t know”, “probably yes/probably no”, “uncertain”, “not sure”, or “haven’t thought about that”. All these categories indicate that the respondents have no clear opinion about the intended number and/or timing of children. However, each has a different meaning. We think that it is not adequate to treat all categories mentioned above as indicators of “uncertainty” and prefer a narrow concept of uncertainty. On the one hand, from our point of view (and understanding of the literature) uncertainty means something other than “don’t know” or “haven’t thought about that”, for we expect that people can only be uncertain if they have concerned themselves with the “child topic”. On the other hand, persons who are indefinite about the timing of having children in the next few years (“probably yes/probably no”) are not necessarily uncertain in terms of the quantum of children. However, many recent studies take a broad view on uncertainty (see Table 1). They do not differentiate

sharply between the different categories. Often categories are mixed and summarized, mainly due to data limitations (e.g. not sufficient cases).

In this paper, we define uncertainty in fertility intentions or expectations in a narrow sense as being undecided about the number of children or about having children at all. This means that we only treat the explicit answer category “uncertain” as the indicator for “uncertainty”, while the categories “don’t know” or “haven’t thought about that” are not classified as “uncertain”.

Table 1: Overview of how uncertainty is defined in studies on fertility intentions and expectations

Study	Don't know	Uncertain	Probably yes/no	others
Morgan (1981)	x			
Morgan (1982)	x			
Ruokalainen & Notkola (2002)		x		
Berrington (2004)	x			
Miettinen & Paajanen (2005)	x	x		
Sobotka (2009)		x		
Ní Brolcháin et al. (2010)	x		x	+ missings
Ní Brolcháin & Beaujouan (2011)	x		x	
Ní Brolcháin & Beaujouan (2015)	x		x	+ missings
Kuhnt & Trappe (2013, 2016)	x	x		
Hin et al. (2011)	x			

3 Prevalence and determinants of uncertainty of fertility expectations

Given the wide range of definitions of uncertainty (see above) it is not astonishing that depending on a narrower or broader definition the prevalence of uncertainty in the literature varies between 10 percent (e.g. Kuhnt & Trappe, 2013; Morgan, 1981) and 40 percent (e.g. Morgan, 1981; Ní Brolcháin & Beaujouan, 2011; Sobotka, 2009). This diversity in definitions and prevalence reflects the incompleteness of our understanding of uncertainty in reproductive behavior. In particular, we do not know which determinants lead to uncertainty regarding fertility intentions.

Because of the different concepts of uncertainty applied in recent research, it is difficult to summarize and compare the empirical evidence regarding the determinants of uncertainty in fertility intentions and expectations and its development over the life course. However, even though conceptual differences exist, some general findings emerge. It has to be noted that, for reasons of comparability, we restrict the following literature review to developed countries.

Taking the Life Course Approach into account, and considering findings on the variability of fertility intentions over the life course (see Buhr & Kuhnt, 2012; Heiland et al., 2008; Iacovou & Tavares, 2011; Liefbroer, 2009; Ní Bhrolcháin & Beaujouan, 2011; Ní Bhrolcháin, Beaujouan, & Berrington, 2010), it can be expected that uncertainty in fertility intentions is only a temporary state and that it is influenced by several factors. While there are some, mainly quantitative studies, which analyze the prevalence of uncertainty (i.e. proportion of individuals with uncertain intentions) and its determinants, there are no studies which explicitly deal with the stability of uncertainty over the life course. In the following we discuss the main determinants which are mentioned in the literature: gender, partnership status, parity, employment status including financial situation, and age.

There are some differences regarding the prevalence of uncertainty in fertility intentions by gender of the respondents. Some studies, however, focus on women only (Ní Bhrolcháin & Beaujouan, 2015; Ní Bhrolcháin & Beaujouan, 2011; Ní Bhrolcháin et al., 2010; Ruokolainen & Notkola, 2002; Sobotka, 2009) and do not allow for gender-specific comparisons. Berrington (2004, p. 12) found with British data slightly higher proportions of uncertainty for males in comparison to females for all age groups. Miettinen and Paajanen (2005, p. 176) found higher proportions of uncertainty for men in a sample of Finnish data only for respondents aged 18 to 24 years. Thus, men seem to be more often uncertain regarding their fertility intentions than women.¹

Focusing on partnership status, there is evidence that not having a partner increases uncertainty, while having a partner or being married decreases the level of uncertainty (Berrington, 2004, p. 18; Ní Bhrolcháin & Beaujouan, 2011, p. 127). A combination of being childless and not having a partner leads to higher uncertainty in respondents' fertility intentions (Ní Bhrolcháin & Beaujouan, 2011, p. 112; Sobotka, 2009, p. 497). There is also evidence that parenthood status influences the extent of uncertainty in fertility intentions. Findings indicate childlessness as a main indicator for higher proportions of uncertainty (Berrington, 2004, p. 12; Ní Bhrolcháin & Beaujouan, 2011, p. 105; Ní Bhrolcháin et al., 2010, p. 18; Sobotka, 2009, p. 400). In addition, it can be concluded from recent research that uncertainty decreases with increasing parity (Morgan, 1981, p. 327; Ní Bhrolcháin & Beaujouan, 2011, p. 112; Ní Bhrolcháin et al., 2010, p. 18). Findings

¹ Men are also more uncertain regarding fertility ideals than women (Hin, Gauthier, Goldstein, & Bühler, 2011, p. 140).

about the prevalence of uncertainty at higher parities are rare. However, a study of Finnish women by Ruokolainen and Notkola (2002, p. 193) documents that 30 percent of all women with two children are uncertain about their future fertility intentions. Regarding the transition to a third child, cohabitation increases uncertainty, while having children born to a former partner or an unbalanced gender composition of children reduces uncertainty (Ruokolainen & Notkola, 2002, p. 193).

To the best of our knowledge there is only one quantitative study analyzing the impact of labor force status on uncertainty in fertility intentions (Ruokolainen & Notkola, 2002), but this study is restricted to Finnish women with parity two. However, findings indicate that women's employment status between the first and second birth has no significant influence on uncertainty regarding third birth intentions. After a careful literature review we even found a qualitative study by Bernardi et al. (2015) which suggests an increase in uncertainty when individuals are not living in a satisfactory financial situation.

Furthermore, individuals' age seems to be of relevance for being uncertain. Generally speaking, uncertainty in fertility intentions decreases with increasing age (Bernardi et al., 2015, p. 13; Berrington, 2004, p. 12; Ní Bhrolcháin & Beaujouan, 2011, p. 105; Sobotka, 2009, p. 400). Being young or middle aged is often accompanied by being uncertain in fertility intentions (Berrington, 2004; Miettinen & Paajanen, 2005; Morgan, 1981; Ní Bhrolcháin & Beaujouan, 2015; Ní Bhrolcháin & Beaujouan, 2011; Ní Bhrolcháin et al., 2010; Sobotka, 2009). In contrast, a study by Ruokolainen and Notkola (2002, p. 193) about uncertainty regarding the transition to the third child, suggests that women aged 35-39 are more uncertain than women in younger ages. Since this finding is restricted to the transition to the third child it may not be generalized.

To sum up, recent research focuses on the determinants of uncertainty in a cross-sectional perspective. In our study we will go one step further and apply a strictly longitudinal approach: We will analyze the effect of changes in the partnership, employment status, and parity of respondents on entrance into and exit from uncertainty in fertility intentions. This analytical strategy follows the Life Course Approach and is thus in line with recent developments in social sciences.

4 Theoretical background and research hypotheses

In the literature, different theoretical approaches regarding fertility decision-making are discussed. On the one hand, we find static approaches like the Theory of Planned Behavior (Ajzen, 1991). On the other hand, dynamic approaches like the Cognitive-Social Model of Fertility Intentions (Bachrach & Morgan, 2013) or the concept of Constructed Intentions (Ní Bhrolcháin & Beaujouan, 2015) exist. We analyze the phenomenon of uncertainty in fertility intentions and expectations from the Life Course Perspective (Elder, 1994), which also represents a dynamic line of research (Buhr & Huinink, 2014; Huinink

& Feldhaus, 2009; Huinink & Kohli, 2014), and combine it with elements of the Theory of Planned Behavior.

4.1 Uncertain fertility decisions from a life course perspective

The structural concept underlying the Life Course Approach is time. According to Dykstra and van Wissen (1999) biographical, historical, and social time can be distinguished. Biographical time organizes individuals' life in chronological order. And choices, also fertility decision-making, are influenced by experiences made earlier in life and also set the course for future decisions or biographical options (Birg, 1992; Birg, Flöthmann, & Reiter, 1991). Historical time refers to historical changes, which can affect individuals' lives. The invention of hormonal contraceptives is one historical change that significantly influences individuals' lives with regard to fertility decision-making. The third time dimension focuses on social time which mirrors age-related norms about the timing or sequencing of life events. Age-related norms exist, for example, regarding starting or stopping childbearing (Billari et al., 2010). Norms regarding the sequencing of childbearing are reflected e.g. in finding a stable relationship (or get married) before starting family formation (Tesching, 2012, p. 20). Time already points to a multidimensional perspective on the life course. A second layer of multidimensionality is represented by different life domains such as employment, relationships, partnership, or leisure time (Bachrach & Morgan, 2013, p. 742). Events and activities in these life domains may occur at the same time (or overlap partially) and potentially influence each other. Activities in different life domains (e.g. family and employment) also compete for resources like time or money. Thus, different life domains are closely intertwined, which can lead to decisional conflicts (e.g. whether to work or to have children).

Furthermore, as children cause direct and indirect costs and parenthood is a long binding commitment, a (further) child will only be considered if certain prerequisites are fulfilled, especially a stable partnership and stable financial and occupational conditions. This is also underlined by the norm of "responsible parenthood" (Kaufmann, 1995). If people think that prerequisites they judge as important are not met, e.g. if they have no suitable partner or are uncertain about their future financial capacity, and/or anticipate negative influences of childbearing on other life domains (e.g. occupational achievement), this may be a barrier to have children.

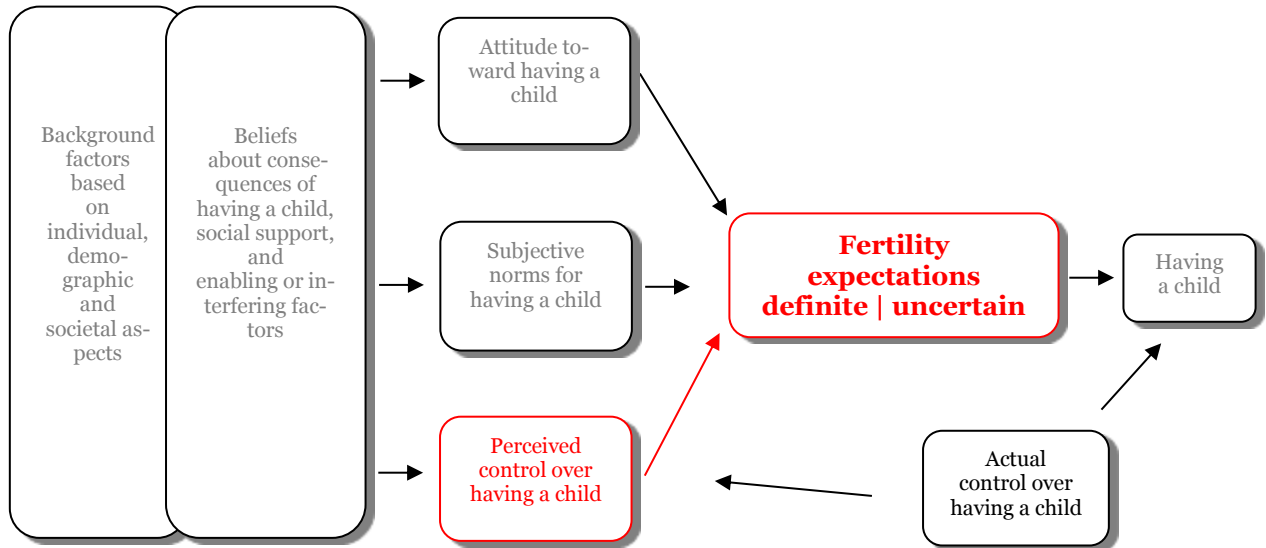
Against this background our general assumption is that uncertainty in fertility expectations is an expression of perceived conflicts between different life domains and/or the perception by potential parents that important prerequisites are not - or no longer - met. As long as conflicts between life domains are not solved and the prerequisites for entry into (a further) parenthood are not met, uncertain fertility expectations will perpetuate. If conflicts are solved (e.g. overcoming unemployment or beginning a new partnership) decision-making may result in a different outcome.

4.2 Combing the Life Course Approach with the Theory of Planned Behavior

Thus, according to the Life Course Approach fertility decision-making is a dynamic process that may lead to uncertainty at several time points over the life course. To further explain the determinants influencing uncertainty in fertility intentions we refer to the Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen & Klobas, 2013). The TPB has been widely applied to investigate the fertility process (Dommermuth, Klobas, & Lappegård, 2011, 2015; Kuhnt & Trappe, 2016; Philipov & Bernardi, 2011). It can help to explain changes from certain to uncertain fertility expectations because it posits that fertility intentions or expectations are influenced by perceived behavioral control. The other links between subjective norms or attitudes towards children and fertility expectations are less important for our line of research. Thus, we focus on the link between perceived behavioral control and fertility expectations (see the red arrows in Figure 1) and relate this to changes in different domains of the life course (see Figure 2). According to this model of fertility decision-making over the life course we expect that changes in different life domains (e.g. partnership, employment, parenthood status) change the level of information regarding family planning and fertility expectations which in turn lowers or increases perceived behavioral control. We further assume that, if perceived behavioral control is low, individuals may be or become uncertain about their fertility expectations, while certainty in fertility expectations is connected with higher perceived behavior control.

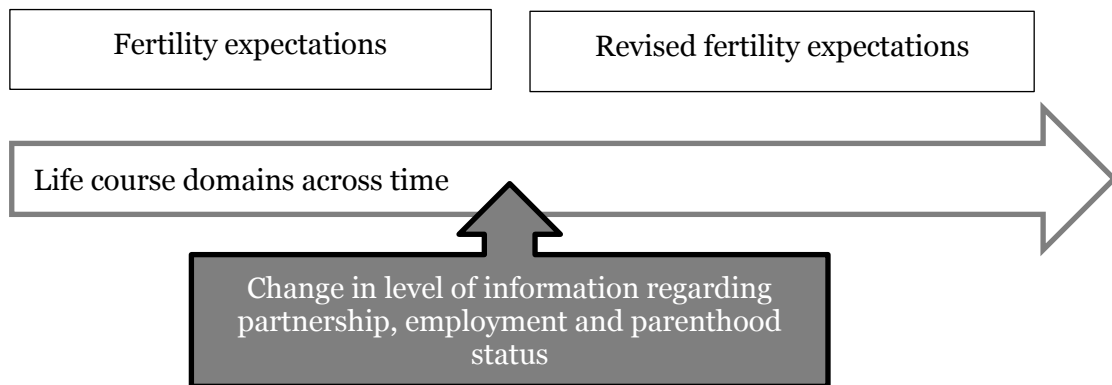
Thus, even if the TPB is a static approach, combining this model with the life course approach results in a more dynamic perspective. The family building process is a sequential process (Udry, 1983), and is based on a short-term perspective (Ryder, 1976, p. 299). Individuals' fertility preferences are revised over time (Ní Bhrolcháin & Beaujouan, 2015, p. 28), depending on the level of information about different life domains. Like a feedback loop, a change in the level of information can lead to a new evaluation of the situation and decision-making starts again after every change in the level of information (see again Figure 2). And a new level of information may result in lower perceived behavioral control and thus induce uncertainty in fertility expectations.

Figure 1: A model of fertility decision-making including uncertainty in fertility expectations, based on the Theory of Planned Behavior



Source: Ajzen and Klobas (2013, p. 206), own accentuation.

Figure 2: A model of Fertility decision-making over the life course



4.3 Hypotheses

In our analysis we will focus on the change between definite positive and uncertain fertility expectations.² We do not analyze changes between definite negative intentions and

² Thus, we leave aside the widely discussed link between intentions and behavior (e.g. Berrington & Pattaro, 2014; Dommermuth et al., 2015; Kuhnt & Trappe, 2013, 2016; Spéder & Kapitány, 2009, 2015).

uncertainty (and vice versa) because we think that this kind of change follows a different logic and needs to be motivated and explained differently. We look at changes in three life domains which may lead to uncertainty in fertility expectations: partnership status, employment status, and parenthood status. We choose these domains because they are directly linked to fertility decision-making. From a life course perspective, changes in these life domains can be seen as biographical “risks”, because they affect control over having a child and, thus, influence individuals’ decision-making processes. Since the life courses of women and men still differ substantially regarding the division of employment and child care (Trappe, Pollmann-Schult, & Schmitt, 2015), gender-specific dissimilarities can also be expected. Thus, we integrated consequently a gender-specific perspective into the following hypotheses which substantiate our gender-specific assumptions.

The effect of partnership status seems to be of special relevance for forming fertility intentions. A partner can be seen as a normative prerequisite for family formation, but is also of biological relevance. Without a partner parenthood is relatively unlikely, especially for men (Gray, Evans, & Reimondos, 2013; Schmitt, 2005). Since women have alternative ways of family formation (e.g. sperm donation), men more strongly depend on a partner for starting a family including their own biological children. Our two hypotheses concerning partnership thus read: Separation from a partner leads to a re-evaluation of the situation and lowers perceived behavioral control regarding fertility outcomes. Consequently, respondents who separate from their partner are more likely to change from definite positive to uncertain fertility expectations (Hypothesis 1a). Since men depend more on a female partner for family formation than women depend on a male partner, the effect of separation from a partner on uncertainty should be more distinct for males than for females (Hypothesis 1b).

In addition to partnership status, sufficient economic resources are especially relevant for the family formation process (Kreyenfeld, 2005, 2010, 2015; Schmitt, 2012). Becoming unemployed reduces individuals’ monetary income which changes the level of information regarding the (future) monetary resources for parenthood. This, in turn, lowers perceived behavioral control regarding financial security. Thus, respondents who become unemployed are more likely to change from definite positive to uncertain fertility expectations (Hypothesis 2a). Since in Germany gender role expectations favoring the male breadwinner model are still at work (Trappe et al., 2015), the effect of becoming unemployed on uncertainty should be stronger for males (Hypothesis 2b).

The transition to the first child is associated with stronger consequences regarding partnership (Bulatao, 1981; Claxton & Perry-Jenkins, 2008; Lillard & Waite, 1993), division of domestic work (Baxter, Haynes, Western, & Hewitt, 2013; Dommermuth et al., 2015; Schober, 2013; Trappe, Schmitt, & Wengler, 2009), labor force participation (Schober, 2013), social contacts (Bost, Cox, Burchinal, & Payne, 2002; Knoester & Eggebeen, 2006), family networks (Bost et al., 2002; Salzburger, 2015), and leisure time activities

(Claxton & Perry-Jenkins, 2008) than further births. Thus, the birth of a first child changes the level of information regarding the consequences of parenthood. As the birth of the first child affects so many life domains and entails new conflicts, e.g. between work and family life, this may lead to a lowering of behavioral control of the new parents. The change in the level of information and the effect on perceived behavioral control will probably become smaller with the birth of every further child after the first one, because the consequences of a further child can be anticipated more adequately. Thus, respondents who have their first child are more likely to change from definite positive to uncertain expectations than respondents who have their second or further child (Hypothesis 3a). Since gender roles (and their implementation) become more traditional after the birth of a child (Schober, 2013; Trappe et al., 2009), child care is still a predominantly female domain, and mainly women reduce working hours after the birth of a child (Kühhirt, 2012; Trappe et al., 2015), women will be more strongly affected by the birth of a first child than men. As more of women's life domains are altered by the transition to parenthood, the birth of the first child should result in a higher risk of uncertainty for women than for men (Hypothesis 3b).

5 Data, variables of interest, and analytical strategy

This study uses data from the first six waves (2008/09 to 2013/14) of the German Family Panel (pairfam, Release 6.0) (Nauck, Brüderl, Huinink, & Walper, 2014). The German Family Panel (pairfam) is an annual panel survey providing data on the formation and development of intimate relationships and families in Germany (Arránz Becker et al., 2014; Huinink et al., 2011). The survey observes respondents of different birth cohorts (1971-73, 1981-83 and 1991-93). The respondents were between 15–17, 25–27 and 35–37 years old when they were interviewed for the first time in 2008/2009. From the initial survey sample of 12,402 respondents, 5,696 respondents were interviewed again in wave 6 in 2013/2014. This means an overall panel attrition of about 46 percent, which is a normal range for panel studies with this duration (Müller & Castiglioni, 2015). In our analysis, we exclude homosexual respondents and those who stated they are infertile. These groups face special obstacles in realizing fertility expectations which may influence the level of uncertainty. This leads to an initial sample size of 11,611 women and men for our analyses in wave 1 and 5,345 in wave 6.

Our variable of interest is the stability of uncertain fertility expectations. Fertility expectations are surveyed from childless respondents and respondents with children in different ways. Childless respondents are asked: “When you think realistically about having children: how many biological or adoptive children do you think you will have?” Beside the expected number of children (including “no children”), the respondents can choose the answers “I’m not sure” or “I haven’t thought about that”. The respective question for

respondents with children is: “When you think realistically about having additional children: do you think that you will have more biological or adoptive children in addition to your current children or stepchildren?” The answer categories are “yes”, “no”, “I’m not sure”, “I haven’t thought about that”. Respondents who say “yes” are also asked to indicate the additional number of children they expect to have.³

The answer categories one, two, three and four or more expected children are summarized as “certainly yes” and the category no children is classified as “certainly no”. The findings in Table 2a illustrate that respondents of all age groups predominantly have certain fertility expectations in wave 1 and wave 6. In the two older age groups (25-27 and 35-37 years) the proportion of “certainly yes” respondents’ declines between wave 1 and 6, while the proportion of “certainly no” increases. The most important reason for this is probably the birth of the first or additional children in the meantime. If respondents have reached their expected number of children, they will switch from “certainly yes” to “certainly no”.

In both waves, the answer categories “not sure” or “haven’t thought about that” are of sizeable relevance, regardless of the respondents’ age. However, one main difference can be observed between both potential categories of uncertainty. In wave 1, the answer category “not sure” is relatively uniformly distributed over all age groups. By wave 6, it has gained importance in all age groups, especially in the group of respondents who are 30-32 years old. In contrast, the answer category “haven’t thought about that” applies mainly to the youngest age cohort born in 1991-93. Considering that the average age of mothers at first birth in Germany is 29.5 years (Destatis, 2016a) and that the respondents of the cohort 1991-93 were between 15-17 years old at the time of the first interview, it is reasonable to assume that the category “haven’t thought about that” indicates that children are not yet an issue for these respondents. With increasing age – when family formation becomes more relevant – the young women and men increasingly think about having children. Accordingly, the proportion of young respondents who have not thought about having children decreases between wave 1 and 6. Due to this finding, we will follow the closer definition of uncertainty (see Section 2) and exclude the category “haven’t thought about that” from our analyses. In the following we will use the notion “uncertain” instead of the original wording “not sure” in the questionnaire.

There are also gender-specific differences according to the distribution of certain and uncertain expectations (see Table 2b). In wave 1 and wave 6 women are more certain according to their fertility expectations than men, due to the higher share of women in

³ In wave 1 and 2 the question for respondents with children was similar to the wording for respondents without children. The respondents were asked how many additional children they think they will have. The instrument was changed because there was an indication for an overstatement of the number of children expected, possibly due to the fact the respondents included the children they already had. To adjust for this overstatement a corrective variable was constructed by the team of the German Family Panel (Buhr & Huinink, 2012).

the category “certainly no”. While there is only a small difference in the proportion of men and women who are explicitly not sure about their fertility expectations in wave 1, the difference is nearly three percentage points in wave 6. In both waves the proportion of men who have not yet thought about the issue is twice as high as the proportion of women. At least on the aggregate level there is an indication of a change in the amount of certain or uncertain fertility expectations over time.

To identify the factors which induce a change from “certainly yes” to “uncertain” or “certainly no” on the individual level we estimate fixed effects multinomial logit models. We use the procedure “femlogit” which was only recently implemented in stata (Pforr, 2014). Fixed effects approaches are a suitable method for the analysis of panel data (e.g. Andreß, Golsch, & Schmidt, 2013; Brüderl & Ludwig, 2015). As they only account for “within-person” variance, they control for unobserved time-constant heterogeneity and selectivity. The dependent variable for the fixed effects model is fertility expectations and has three categories: “certainly yes”, “certainly no” and “uncertain”. The reason that we do not look at changes between “certainly yes” and “uncertain” alone is that we want to investigate whether there are outstanding determinants for the stability of uncertain fertility expectations as opposed to “certainly no”. Since we hypothesized gender- and parity-specific differences in the effect of the independent variable we estimate separate models for men and women as well as separate models according to the number of biological children in wave 1. Furthermore, we estimated interaction effects to investigate whether the gender- and parity-specific differences are significant.

Table 2a: Uncertainty in fertility expectations by age groups (percent)

	Wave 1			Wave 6		
	Age groups			Age groups		
	15-17	25-27	35-37	20-22	30-32	40-42
Certain expectations		90.7	92.9	86.1	84.0	87.9
Certainly yes	81.9	78.3	37.4	81.9	60.4	11.8
Certainly no	4.9	12.4	55.5	4.2	23.6	76.1
Uncertain expectations	13.2	9.3	7.1	13.9	16.0	12.1
Not sure	4.1	4.0	5.0	7.1	12.4	9.0
Haven't thought about that	8.5	5.2	1.6	6.6	3.5	3.0
No answer	0.6	0.1	0.5	0.2	0.1	0.1
n	4,274	3,800	3,537	1,792	1,805	1,449
Total n		11,611			5,047	

Database: pairfam, release 6.0, without homosexual and infertile respondents; weighted data

Table 2b: Uncertainty in fertility expectations by gender (percent)

	Wave 1		Wave 6	
	Gender		Gender	
	Male	Female	Male	Female
Certain expectations	88.0	92.0	83.1	90.9
Certainly yes	68.6	65.7	56.0	52.1
Certainly no	19.4	26.3	27.1	36.8
Uncertain expectations	11.9	7.9	16.9	11.2
Not sure	4.5	4.2	10.9	8.1
Haven't thought about that	7.0	3.5	6.0	2.9
No answer	0.4	0.3	0.0	0.2
n	5,931	5,678	2,582	2,465
Total n		11,609		5,047

Database: pairfam, release 6.0, without homosexual and infertile respondents; weighted data

According to our hypotheses three key explanatory variables are included in the fixed effects models: partnership status, employment status, and parity. Partnership status is operationalized by the variable “no partner” which has the value 0 if the respondent indicates that they are living in a relationship and 1 if they are single. Thus, if this variable changes from 0 to 1 between waves, this indicates a separation from the partner which might in turn increase the likelihood of becoming uncertain in fertility expectations. To account for employment status, we use the variable “unemployed”. This variable is assigned the value 1 if the respondent has indicated that he or she has been unemployed in at least one month since the preceding wave and if no unemployment has occurred.⁴ As the third independent variable we include the number of biological children of the respondent in our models. If the number of biological children increases, this means an increase in parity which may induce a change from certain to uncertain expectations. We also checked if the results were sensitive regarding biological or social family relationships and estimated supplementary models including adoptive, step and foster children. However, the results were quite stable and do not differ from our initial models where only biological children are included (results available upon request).

We could not include time constant control variables in our statistical models (e.g. birth cohort or migration background), because it is not possible to estimate the effect of variables which are stable or nearly stable over time in a fixed-effect model. However, all time constant variables are implicitly controlled because the estimation is based on individual variation over time. We also did not include the level of education into the model, because most respondents of the youngest cohort were still enrolled at school in the first waves and there was only little change in the older cohorts. Finally, apart from unemployment, we did not use further indicators of the socio-economic status of the respondents, e.g. household income. The reason is that there are many missing cases according to this variable, especially in the younger birth cohort.

The proportion of respondents who were uncertain increased from about 4% at wave 1 to nearly 9% in wave 6 (see Table 3). In wave 1, about 60% of the respondents had a partner, in wave 6 it was nearly 70%. The proportion of unemployed respondents ranges from nearly 5% at wave 1 to nearly 9% at waves 5 and 6. At all waves, more than 60% of the respondents were childless.

⁴ We did not use the information on whether the respondent is unemployed in the month of the interview because this is only a snapshot and says nothing about the real experience of unemployment in the time period between the waves.

Table 3: Distribution of the dependent and independent variables across waves (percent)

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Certainly yes	69.3	69.1	66.0	60.8	59.2	55.6
Uncertain	4.1	4.1	6.0	8.3	8.1	8.8
Certainly No	26.6	26.8	28.1	30.9	32.7	35.6
No partner	41.0	40.3	38.0	35.3	33.0	31.3
Unemployed	4.7	8.4	8.3	8.5	8.9	8.9
Parity						
No child	67.0	67.4	66.7	63.3	61.6	60.0
1 child	14.0	14.0	13.6	14.8	14.7	15.3
2+ children	19.0	18.6	19.7	21.9	23.7	24.7
n	10,969	7,844	6,740	6,061	5,434	4,791

Database: pairfam, release 6.0, without homosexual and infertile respondents

6 Results

The results of the gender- and parity-specific fixed effects models are presented in Tables 4 and 5 below, while the models with the interaction effects are shown in the Appendix (Tables A1 to A3).⁵ In the following tables we present odds ratios. This implies for the interpretation of the findings that values higher than 1 mean a positive effect and those lower than 1 a negative effect of the independent variables.⁶

First, there is a significant effect of partnership status on uncertainty. If individuals change from having a partner to not having a partner, they are more likely to become uncertain about having children (see Table 4, column “all respondents”). As expected, the effect of separation from a partner also differs significantly between men and women (see Table 4, columns “Male” and “Female”; Table A1 in the Appendix): We find a strong positive effect for men, while a separation does not increase the likelihood of changing from “certainly yes” to “uncertain” for women. A change in partnership status also induces a change from “certainly yes” to “certainly no”. Women are significantly more

⁵ We do not use weights in this part of the analysis because using weights is not implemented in the current version of femlogit (Pforr, 2014). In addition to this pure technical reason we should also mention that the use of weights in multivariate analysis is highly controversial in the statistical community (see e.g. Gelman 2007).

⁶ Some authors have emphasized that the comparison of coefficients between groups and the interpretation of interaction effects in logit models is problematic (e.g. Ai & Norton, 2001; Mood 2010). To solve this problem, it is recommended to use average marginal effects (AME). Unfortunately, it is not possible to use AMEs together with the femlogit procedure.

likely to change to “certainly no” than change to “uncertain” in the face of separation, while there is no such difference in the male group.⁷

With respect to unemployment, there is also a significant difference between men and women. However, contrary to our expectations, women - and not men - react to unemployment by becoming uncertain about their fertility expectations (see Table 4, columns “Male” and “Female”; Table A1 in the Appendix). Further sensitivity analyses show that unemployment leads to uncertainty only in the group of women who were childless in wave 1 (see Table 5, column 4). Neither men nor women were significantly more likely to change from “certainly yes” to “certainly no” if they became unemployed.

Table 4: Determinants of uncertain fertility expectations by gender, odds ratios

	All respondents	Male	Female
Base category: “certainly yes”			
“Uncertain”			
No Partner	1.49***	1.81***	1.25
Unemployed	1.27	0.95	1.71**
Birth of a child	6.54***	6.76***	6.38***
“Certainly no”			
No Partner	1.68***	1.53***	1.80***
Unemployed	1.22	1.08	1.35
Birth of a child	16.46***	14.06***	18.88***
n of observations	14,714	7,201	7,508
LR chi2 (6)	1337.03	561.50	766.61
Prob > Chi2	0.000	0.000	0.0000
Pseudo R2	0.1102	0.0950	0.1268

Note: *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

Database: pairfam, release 6.0, without homosexual and infertile respondents; results of fixed effects multinomial logit model (femlogit); odds ratios; coding of dependent variable: 0=certainly yes (= base category); 1= uncertain; 2=certainly no

All in all, the birth of a (further) child increases the likelihood of changing from “certainly yes” to “uncertain” and, even more strongly, from “certainly yes” to “certainly no” (see Table 4). However, contrary to our assumptions, the effect of the birth of the second child on “uncertain” (and “certainly no”) is stronger than the effect of the birth of the first child

⁷ We tested the significance of the difference between “uncertain” and “certainly no” by changing the base category to “certainly no” (findings available upon request).

(see Table 5, “No child in wave 1” vs. “One child in wave 1” and Table A2 in the Appendix). The gender-specific results are also not as expected: There is no significant difference between men and women in the effect of the birth of a child on uncertainty in fertility expectations (see Table A1 in the Appendix). Moreover, the transition to first parenthood even leads more often to uncertainty for male than for female respondents. However, the gender difference is not significant (see Table A3 in the Appendix).

Table 5: Determinants of uncertain fertility expectations by gender and parity in wave 1, odds ratios

	No child in wave 1			One Child in wave 1		
	All	Male	Female	All	Male	Female
Base Category: “certainly yes”						
“Uncertain”						
No Partner	1.44***	1.76***	1.18	1.09	2.32	0.80
Unemployed	1.26	0.92	1.93**	0.97	0.79	1.09
Birth of first/ second child	4.74***	6.40***	3.87***	15.02***	9.89***	21.46***
“Certainly no”						
No Partner	1.75***	1.61***	1.93***	1.26	0.94	1.38
Unemployed	1.33	1.19	1.43	1.01	0.78	1.12
Birth of first/ second child	7.84***	6.95***	9.08***	32.02***	23.45***	41.74***
n of observations	8,620	4,738	3,877	3,219	1,253	1,966
LR chi2 (6)	256.490	129.880.	139.07	569.40	201.80	375.45
Prob > Chi2	.000	.000	0.000	0.000	0.000	0.000
Pseudo R2	0.0372	0.0343	0.0448	0.2047	0.1857	0.2215

Note: *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

Database: pairfam, release 6.0, without homosexual and infertile respondents; results of fixed effects multinomial logit model (femlogit); odds ratios; coding of dependent variable: 0=certainly yes (= base category); 1= uncertain; 2=certainly no

7 Discussion of findings and conclusion

The aim of the present study was to extend our knowledge about the meaning of uncertainty in fertility expectations. Our study is based on the analysis of recently available longitudinal data for Germany. We assumed that uncertainty in fertility expectations is a volatile characteristic across the life course and influenced by biographical risks like separation from a partner, becoming unemployed, or an increase in parity. Another question we raised was the relevance of gender for becoming uncertain in fertility expectations.

The results of the empirical analysis can be summarized as follows: First, there is a strong effect of the partnership status which is in accordance with our hypotheses 1a: Respondents who experienced a separation from their partner are more likely to become uncertain. Moreover, as assumed in hypothesis 1b, the effect of separation on uncertainty was much stronger for men than for women. However, separation also increased the likelihood to change into the category “certainly no”, especially for women. Nevertheless, these results are in line with our theoretical argumentation presented in Section 4: Not having a partner reduces perceived behavior control and thus leads rather to an uncertain or negative than a positive intention. According to the findings of Ní Bhrolcháin and Beaujouan (2011, p. 127) and Berrington (2004, p. 18) this is a cross-border phenomenon that can be found not only in Germany. Furthermore, these findings emphasize the crucial role of partnerships for fertility decision-making.

Second, in the total sample, there is no significant effect of becoming unemployed on uncertainty. This means that we have to reject hypothesis 2a, which assumed a lowering of perceived behavioral control as a consequence of becoming unemployed. However, in hypothesis 2b we also assumed that the effect of unemployment would be stronger for men than for women because men are often in the role of the breadwinner. This assumption is also not supported by the data. Our empirical results show that only women seem to be worried by becoming unemployed and were more likely to change from a certain positive fertility expectation to an uncertain one. Neither for men nor for women does becoming unemployed induce a change from “certainly yes” to “certainly no”. Thus, at least for women, unemployment seems to be a risk that is more associated with uncertainty than with totally giving up on having children. That the effect of unemployment on uncertainty is stronger for women than for men is in line with the results of a study by Infurna et al. (2016, p. 118). These researchers found that the effect of unemployment on perceived control varies according to an individual’s resources and the ability to make use of these resources. This suggests that the perceived behavior control of especially women and individuals with a lower level of education responds more negatively to job loss, because these groups are disadvantaged in this respect. Men may have more employment opportunities in case of job loss.

Third, in hypotheses 3a we assumed that especially the transition to first parenthood leads to a change from certain to uncertain fertility expectations. However, according to our data, the opposite is true: It is the transition to a second child that increases the likelihood of changing from certain to uncertain fertility expectations. Moreover, the birth of a first or second child is much more important for changing from “certainly yes” to “certainly no” than for becoming uncertain. Thus, in the context of recent research our findings provide no support for a decrease in uncertainty with increasing parity like studies by Morgan (1982, p. 327), Ní Bhrolcháin et al. (2010, p. 18) or Ní Bhrolcháin and Beaujouan (2011, p. 112). One reason for this result could be the strong two-child norm that is at work in Germany (Schröder, Schmiedeberg, & Brüderl, 2016). After the birth of a second child women and men may feel that they have satisfied societal expectations and are rather certain to stop family expansion. Additionally, in comparison to previous births a third child is followed by further needs regarding greater living space (Lersch, 2014) and negotiating labor market or domestic work participation (Gustafsson, Wetzels, Vlasblom, & Dex, 1996; Trappe et al., 2015), which may be another reason for certainty in regarding that the final family size has been reached at parity two. Moreover, we expected women to be more affected by the transition to the first birth regarding further fertility expectations, because child care is still a predominantly female domain and thus associated with greater consequences for women’s life domains than for men’s (hypothesis 3b). However, this was not supported by our results either. Maybe women and men are affected by the birth of a first or second child to the same extent, but in different life domains. Men may be aware of their new responsibility of being the male breadwinner, while women feel more affected by their responsibility for child care. And again, the birth of a first or second child leads much more often to a change from “certainly yes” to “certainly no” than for becoming uncertain, regardless of gender.

Thus, according to our empirical results, men are more sensitive to changes in the partnership and family formation domain than women are. We found that men are more likely to become uncertain after a separation and, at least in the tendency, also by the transition to parenthood. Taking into consideration the dependency of males on a female partner regarding family formation, this finding is not surprising, but not yet well reflected in recent research. The time-limited reproductive period may force women to more carefully plan their reproductive goals in comparison to men. Thus, they are more certain regarding their fertility goals. In contrast, males have the advantage of being more flexible regarding the timing of fertility, because their reproductive phase is biological unlimited. High ages of men are no reason for stopping family planning, even if male fecundity also decreases with increasing age (Hassan & Killick, 2003), and fatherhood after the age of 45 is relatively unlikely (Schmitt, 2005).

Our findings highlight the importance of a theory which incorporates multidimensional perspectives on the life course. Since we found changes in uncertainty over time, and these variations actually depend on conditions in different life domains that can also

change across time, the Life Course Approach is currently the only theoretical alternative. Our findings provide evidence for constraints (separation, job loss, and parity) that influence the development of fertility intentions in the direction of certainty or uncertainty.

Against the background of uncertainty as a relevant focus for family policies our findings lead to interesting further policy implication. Our findings suggest that gender equality does not exist, given the gender-specific effect of unemployment in our analyses. According to our results women and especially childless women become uncertain if they become unemployed. Obviously women anticipate more problems according to their labor market chances if they interrupt work than men. This means that the reconciliation of work and family for women still needs to be improved. However, the perspective of men may not be neglected either. Our findings show that many men tend to become uncertain after the birth of the first child. Policy makers should keep in mind that uncertainty may lead to postponement of (further) births. And this may result in fewer births than intended because infecundity increases with age and/or social age norms may prevent late parenthood.

Even though our study contributes to knowledge on the complex fertility process, our findings raise new issues which need to be clarified by further research. The first important aspect is the partner's role in developing and changing uncertain fertility expectations. Against the background of the Life Course Approach with its basic principle of linked lives and the general importance of a dyadic perspective in fertility decision-making, it would be worthwhile to further analyze this aspect in future research. Moreover, it would be gainful to look more closely on age-specific differences for entry into and exit from uncertain fertility expectations and to include further socio-economic variables, e.g. household income. A last question concerns the applicability of our results in an international context. We know that fertility expectations vary across Europe (Testa, 2007) and that overall, no country-specific determinants of intentions and expectations have been found. Thus, comparative studies are needed to find out if our findings reflect the German situation or whether they can be generalized to other low fertility countries.

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Appendix

Table A1: Interaction effects with gender

Base category: “certainly yes”	All respondents
“Uncertain”	
No Partner	1.81***
No Partner*female	0.69*
Unemployed	0.95
Unemployment*female	1.81*
Birth of child	6.76***
Birth of child*female	0.94
“Certainly no”	
No Partner	1.53**
No Partner*female	1.17
Unemployed	1.08
Unemployment*female	1.25
Birth of child	14.06***
Birth of child*female	1.34
n of observations	14,709
LR chi2 (10)	1350.12
Prob > Chi2	0.000
Pseudo R2	0.1113

Note: *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

Database: pairfam, release 6.0, without homosexual and infertile respondents; results of fixed effects multinomial logit model (femlogit); odds ratios; coding of dependent variable: 0=certainly yes (= base category); 1= uncertain; 2=certainly no

Table A2: Interaction effect of birth of a child and parity in wave 1

Base category: “certainly yes”	All respondents
“Uncertain”	
No Partner	1.42***
Unemployed	1.15
Birth of child	5.00***
Birth of child * parity 1 in wave 1	3.01**
“Certainly no”	
No Partner	1.67***
Unemployed	1.17
Birth of child	9.53***
Birth of child * parity 1 in wave 1	3.36***
n of observations	12,246
LR chi2 (10)	1048.14
Prob > Chi2	0.000
Pseudo R2	0.1042

Note: *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

Database: pairfam, release 6.0, without homosexual and infertile respondents; only respondents with 0 or 1 children in wave 1; results of fixed effects multinomial logit model (femlogit); odds ratios; coding of dependent variable: 0=certainly yes (= base category); 1= uncertain; 2=certainly no

Table A3: Interaction effect of birth of first child and gender

Base category: "certainly yes"	All respondents
"Uncertain"	
No Partner	1.44***
Unemployed	1.25
Birth of first child	6.22***
Birth of first child * female	0.62
"Certainly no"	
No Partner	1.75***
Unemployed	1.29
Birth of first child	7.11***
Birth of first child * female	1.25
n of observations	8,615
LR chi2 (10)	258.26
Prob > Chi2	0.000
Pseudo R2	0.0375

Note: *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$

Database: pairfam, release 6.0, without homosexual and infertile respondents; only respondents without children in wave 1; results of fixed effects multinomial logit model (femlogit); odds ratios; coding of dependent variable: 0=certainly yes (= base category); 1= uncertain; 2=certainly no

