How was the first one?
Parental well-being surrounding first birth and further parity progression

Rachel Margolis [1]
Mikko Myrskyla [2]

Abstract

Childbearing is a decision for most people in low fertility contexts. The vast majority of Europeans intend to have two children, but many fall short of their childbearing intentions. Why do many people stop at one, rather than have another? The experience of the transition to parenthood may be an important determinant of further parity progression, in particular in contexts where new parents have little prior experience with babies. We analyze longitudinal data from a low fertility European county, Germany, and find that the transition to parenthood is a critical determinant for whether parents go on to have a second birth. A drop in parental subjective well-being surrounding first birth is strongly and negatively associated with progression to second birth in Germany. Parents' experience with the first birth is an important and understudied factor in determining completed family size. Policymakers concerned about low fertility should pay attention to factors that influence the well-being of new parents.

[1] Corresponding author: Assistant Professor, Department of Sociology, University of Western Ontario, Social Science Center #5326, London Ontario N6A 5C2, Canada
Email: rachel.margolis@uwo.ca

[2] Max Planck Institute for Demographic Research, Konrad-Zuse-Str. 1, 18057 Rostock, Germany. Phone+49 (0)381 2081-118, Fax +49 (0)381 2081-418, Email myrskyla@demogr.mpg.de

Introduction

Since fertility levels reached very low levels in many parts of the world in the 1990s, research has addressed the reasons behind sustained below-replacement fertility. Although the postponement of birth is an important contributing factor to low period fertility (Sobotka 2004; Myrskyla, Goldstein and Cheng 2013), a decrease in quantum driven by stopping at one or two children is also important (Frejka 2008). It is puzzling why many stop at one child when most say they want two[1] (Adema and Whiteford 2007; European Commission 2006). It is important to understand why people decide to stop childbearing, often after one child, in order to understand family decisions and design policies that seek to increase fertility from very low levels closer to replacement level. Across Europe, a substantial proportion of people fall short of their early intentions and remain at parity one. Although there is much variation within regions, the proportion of the 1965 birth cohort at final parity one was high: 13-24% in Northern and Western Europe, 17-32% in Southern Europe, and 16-37% in Central and Eastern Europe (Frejka 2008).

There are three explanations posed for the emergence of low fertility: late partnering and childbearing, conflict between work and family, and the rise of individualistic values (Adsera 2004; Billari et al. 2009; Dey and Wassoff 2010; Feyrer et al. 2008; Frejka and Calot 2001; Gauthier 2007; Lesthaeghe and Willems 1999; McDonald 2000; van de Kaa et al. 2003). There is much overlap between these explanations. For example, a recent study found that women's job satisfaction declined after having a first child, lending indirect support for the idea that work-family conflict could lead to stopping at one child (Georgellis, Lange and Tabvuma 2012). Parents' subjective experience with parenthood has received considerably less attention than

---

[1] Cohort vs. period measurement is responsible for part of the desired-actual fertility gap, since desired fertility is a cohort concept but fertility is often measured on a period basis. Accounting for these differences still leaves a gap of 0.34 children per woman on average in the European Union (Sobotka and Lutz 2011).

these traditional explanations even though it may be an important driver of fertility behavior (Hobcraft 2006). Fertility is a choice for most people in the developed world. Once having a first child, the experience of the transition to parenthood will inform new parents' decisions about whether to have another child. Learning theories in psychology predict that people will avoid activities that they anticipate will negatively affect their physical or mental health (Newman 2008; Rotter 1954). Earlier demographic research, much of it qualitative, touched upon the potential effect of subjective parenting experiences on further parity progression (Callan 1985; Cartwright 1976; Newman 2008). For example, Presser (2001) predicted that educated women in the labor force who become mothers will be surprised by the demands of childbearing and the intense pressures of parenting, and these feelings may serve to discourage additional births. In this paper, we argue that parents' well-being around the transition to parenthood, and in particular how subjective well-being changes in response to the birth, are important and understudied factors in determining progression to a second birth.

Research on Parity Progression in Low Fertility Contexts

Previous research on the factors that affect progression from a first birth to a second in low fertility societies has focused on three groups of factors: demographic variables, the opportunity cost of having children, and values and ideational factors. The demographic variables that are thought to affect completed family size are age and marital status at first birth. Much research has documented the way in which delaying fertility affects final parity, given that fecundity decreases with age (Frejka and Calot 2001; Lesthaeghe and Willems 1999). A second set of factors highlights the opportunity cost of having children and the resources and socioeconomic status of the mother and father (Billari et al. 2009; Breton and Prioux 2009; Dey and Wassoff 2010). Fertility may be lower for parents who have higher paying and higher status jobs and therefore a

3

greater opportunity cost of childbearing, though some of this effect may be counteracted by higher buying power. However, although the negative relationship between women's labor force participation and childbearing may have been strong in the past, it reversed in recent years (Billari and Kohler 2004; Rindfuss et al. 2003). A third group of research focuses on norms and preferences for children that shape family size (Billari et al 2009; Dey and Wassoff 2010).

A parallel but separate literature in sociology takes a more dynamic approach and highlights parents' experiences with the transition to parenthood. Both mothers and fathers are surprised at how much work parenthood is (Dyke 1990; Oakley 1992; Wearing 1984). Qualitative research has highlighted the importance of parenting experiences because of its potential impact on parity progression (Callan 1985; Cartwright 1976; Hobcraft 2000; Livi Bacci 2001). However, *quantitative* research on parity progression in low fertility settings has not addressed how the transition to parenthood impacts childbearing intentions or behavior.

Will people be less likely to have another child if the first one affects their life more negatively than they imagined, or childrearing is harder than expected? Will they be less likely to have another if they re-evaluate their ability to accomplish their goals to go back to work quickly or work through a pregnancy? Harriet Presser raised some of these issues, "With generally higher education and higher employment status than their mothers, how do women in these developed countries feel about the demands of day to day childbearing? The shock most women experience after the birth of their first child. The demands on one's time . . . the sense of personal responsibility . . . the increasing pressure to invest in the social and educational activities of childrearing, especially among the middle class, may well play a significant role in discouraging additional births" (Presser 2001: 180-181).

Recent qualitative work conducted among new parents in Australia picks up this line of research and examines how the experience of a first birth shapes fertility intentions and behavior

(Newman 2008). Newman argues that the parenting experience may serve as a "parity progression hurdle" if the pregnancy, birth, or baby stage was particularly difficult or unexpectedly stressful. Family size, she argues, is both positively and negatively affected by subjective interpretations of and reactions to the physical and psychological experiences of pregnancy and early parenthood with a previous child.

New parents highlighted difficulties that affected their desired or achieved family size that we will attempt to capture with quantitative survey data. First, new parents reported being strongly affected by difficulties conceiving and experiences of pregnancy. Physical changes such as increased tiredness and nausea, and emotional changes adjusting to a pregnant body type were factors that affected one third of new mothers and one quarter of new fathers in the decision to delay or avoid having further children. New mothers reported that their medical conditions, physical pain and pregnancy nausea conflicted with their desire to work. New fathers were concerned about medical issues for their partners (Newman 2008).

Second, the experience of the birth also influenced new parents' desired family size. Long laboring or complications with cesarean sections shaped parents' feelings that they did not want to "go through that again." Newman (2008) cites that a desire to avoid another birth contributed to one quarter of mothers and one fifth of fathers permanently or temporarily delaying additional births that they previously thought they would have. Unexpectedly positive birth experiences were the minority, cited by only three of the 38 women Newman interviewed.

Most importantly, parents reported that difficulties in the first year after a birth was the third thing that affected downward revision of plans for additional children (Newman 2008). Mothers reported that recovering from the birth and difficulties breastfeeding led some mothers to feel (temporarily or permanently) that they did not want to have another birth. Men were also affected, having watched their partners having forceps births, episiotomy, or emergency cesarean

5

sections. The year after a birth was when new parents had the most negative parenting experiences. The continuous and intense nature of childrearing in the first year was stressful for most parents, especially for those who had limited knowledge of baby-care and social support. Parents with more than one child report that exhaustion in the baby stage was greatest with the first baby, especially if the exhaustion was unexpected. Other factors during this phase that contributed to parents temporarily or permanently postponing having further children were severe exhaustion, sleep deprivation, depression, domestic isolation, and relationship breakdown. Almost two thirds of Newman's respondents said that these aspects of parenthood influenced them to desire fewer children.

There also may be differences by socioeconomic status or age at first birth in the importance of the transition to parenthood in predicting further parity progression, although it is not obvious whether parenting experiences would be more or less important for parity progression among subgroups. Presser predicted that the demands of childbearing would be especially important in inhibiting further births for highly educated women (2001). Similarly, Newman (2008) found in her interviews that unpleasant birth and parenting experiences in the first year had a more negative effect on future planned fertility for women of high SES relative to those of low SES. She argues that this is because high SES women were used to being in control and managing everything independently, traits which are very beneficial in the workplace, but are less compatible with childrearing. To the extent to which these personality traits led to a more difficult transition to parenthood, Newman hypothesized that they will be linked to lower future fertility if they did not want to repeat these experiences.

However, other research argues that women who are more highly educated and have waited to have children will be more prepared for parenting and that because they have more help and

resources, negative parenting experiences will be less important for inhibiting a higher order birth for high SES women (Gregory 2012).

Although much qualitative research highlights the importance of the psychosocial experience of the transition to parenthood, no quantitative work has tested this hypothesis or examined its relative importance given other explanations for low fertility. In this paper, we use nationally representative survey data from Germany, a low fertility setting, to test to what extent the psychosocial experience of the transition to parenthood is important for parity progression. We test how quantitatively important the subjective experience of the transition to parenthood is in shaping future fertility, relative to other factors. Moreover, we can also control for other factors that have been previously shown to also affect parity progression, such as age at first birth, labor force participation, and partnership status.

Research Questions

In this analysis, we examine whether new parents' subjective experience of a first birth predicts whether they go on to have another child.

1. First, we test three aspects of new parents' trajectories of subjective well-being to see which matter most for parity progression: the levels of parental life satisfaction over the transition to parenthood, the degree of anticipation of a first birth, and the drop in parental well-being from before to after a first birth. We hypothesize that higher levels of parental well-being over the course of transition to parenthood, greater gains in well-being, and smaller drops will be associated with a higher hazard of a second birth.

2. Second, we examine whether there are sex differences in the importance of the pattern of subjective well-being over the transition to parenthood. We hypothesize that the transition to parenthood will be a stronger predictor of progression to a second child for women

7

than for men because women experience the birth physically and the parent who most often takes leave after the birth.

3. Third, we examine whether parental well-being around a first birth is a stronger predictor of parity progression for high SES parents as measured by high education and age at first birth than those with less education and lower age at first birth. We hypothesize that a less positive transition to parenthood will be a more important deterrent of a second birth for those with more education and a later first birth.

Data

We use data from the German Socio-Economic Panel Study (SOEP), a nationally representative longitudinal study of private households run by the German Institute for Economic Research (DIW Berlin). Every year nearly 11,000 households and more than 20,000 persons are interviewed. The data provide information on all household members, consisting of Germans living in the old (West) and new (East) German states, foreigners, and recent immigrants to Germany. The SOEP was started in 1984, with the East German states added in 1991. There are two strengths of these data for this research. First, the SOEP is a very long panel that allows the observation of an overall measure of well-being for new parents. We measure life satisfaction before a first birth and over a relatively long period of time to observe parity progression to higher order births. Second, the data include information on other factors that also affect progression to second birth, such as changes in marital status, partnership status, and employment.

Our analysis draws on survey waves from 1984 to 2010. Because the focus is on the parental well-being trajectory from before having children through having a second birth, we exclude people who had children at first interview or who remained childless throughout the

study period. Our analysis focuses on the subsample of individuals for whom we observe from 3 years before a first birth, through at least two years after the first birth (N=2,366). After additional exclusions due to missing data on key variables, our sample consists of 2,296 first births, 59% of which had a second birth over an average follow up of 9.0 years (range 2-15) years after a first birth.[2]

Key Variables

The key outcome is a birth of a second child. A birth is indicated by a change in the number of biological children reported in the birth biography questionnaire. Step-children and adopted children are excluded from this analysis because the biological and social changes of interest associated with a birth do not apply. There are 11 respondents that have twins after having a first child and they are included in the sample because they experience a second (and third) birth. Respondents who had twins at first birth are excluded.

Our key independent variable is parents' subjective well-being, measure annually over the course of the transition to parenthood. Respondents were asked annually, "How satisfied are you with your life, all things considered?" Responses range from zero (completely dissatisfied) to ten (completely satisfied). We analyze three aspects of the respondents' experience of first birth and one regarding a partner's experience.

1. *Subjective well-being levels over the period of having a first child:* We measure levels of subjective well-being over the transition to parenthood, measured from two years before a child is born until the year after a first birth. We hypothesize that those who are happier around the transition to parenthood will have higher parity progression.

---

[2] We cut off follow-up at 15 years after a first birth, however results do not differ if we restrict the length of follow-up to 5, 8, or 10 years.

2. *Anticipation of first birth:* We capture the extent to which respondents anticipate a first birth and gain in well-being before having a child. First, we calculate a baseline level of life satisfaction for each respondent by averaging their life satisfaction level for three, four, and five years before a first birth. Then we sum deviations from this base level for the period two years before, one year before, and the year of first birth. We hypothesize that respondents who gain more in well-being prior to a first birth will be more likely to have a second.

3. *Drop in well-being over the transition to parenthood:* To capture the extent to which parents' well-being drops over the transition to parenthood, we calculate the size of the drop in subjective well-being from just before to just after a first child is born. We measure the difference between the maximum level of life satisfaction before a child is born (from two years before the birth through the year the child's birth is reported) and the minimum level of life satisfaction after the birth (measured in the year the child is reported and the year after the birth is reported). This is a continuous measure which ranges from zero if there is no drop or a gain, to nine, the maximum drop we observe in the data. We hypothesize that those with larger drops in well-being around a first birth will be less likely to have another.

Control Variables

We include a variety of control variables, which have been shown in previous research to also be associated with progression from parity one to two. Demographic variables such as sex, age (time-varying), and age at first birth are included. Age at first birth is coded as less than 25, 25-29, or 30 and older. Educational attainment at the time of first birth is coded as less than 12 years or 12 or more years. We control for country of origin with a dummy variable for whether the

10

person was German born (or had migrated to Germany before 1949), or immigrated to Germany in 1949 or later. A dummy variable is included for whether the respondent lived in the former East or West German states. We also control for four time-varying characteristics: partnership status (whether cohabiting or married, or un-partnered), household income (ln scale), and labor force participation (whether working or not).

Methods

We begin with a brief overview of the characteristics of respondents at the time of their first birth, by whether they go on to have a second during the period of observation. Then, to better understand how changes in parental well-being around the first birth shape the progression to a second birth, we model the likelihood of having a second birth using event history methods. Respondents enter the model the year of the first birth and are censored at the second birth, exit from or end of the survey, or 15 years after the first birth, whichever comes first.

We use a Cox Proportional hazard model to estimate the relative hazard of a second birth. Similar to other event history methods, Cox regression models use the time to an event to estimate the relationship between observed covariates and the rate of occurrence of the event, taking into account the fact that not all respondents will undergo the event and that some observations will be censored before the event occurs. Here, the event of interest is a second birth. The key measures capture parental well-being around a first birth. The models include both fixed and time-varying characteristics. Fixed characteristics include sex, age at first birth, educational attainment at first birth, partnership status at first birth, nativity, and region. Time varying characteristics include labor force participation, age, household income, and partnership status.

We estimate the following model: $h_i(t) = \lambda_0(t)\exp[B_1 x_{1i} + B_2 x_{2i} + \ldots + B_k x_{ki}]$

11

Where $h_i(t)$ represents the hazard, or instantaneous rate of second birth for an individual i at time t. The function $\lambda_0(t)$ is the baseline hazard function, x_{ki} are characteristics of individual i and B_k are estimated coefficients for these characteristics. The baseline hazard function is non-parametric and can take any form. The ratio of the individual hazard to the baseline hazard, given by the exponentiated function of individual characteristics and estimated coefficients is fixed for each individual. Each individual hazard function is assumed to have the same shape as the baseline hazard function. The time-invariant characteristics of respondents are: sex, age at first birth, education at first birth, nativity, and region. The time-varying characteristics are: age, partnership status, labor force participation, and household income. In testing the proportional hazards assumptions, it was shown that both region and nativity interact with time. Therefore, these interactions are included in the multivariate models (Table 2). In the last part of the analysis, we test whether the drop in parental well-being is similarly important for men and women, by age and first birth, and by educational attainment. We test these with a series of interaction terms between the categorical variables of interest and a continuous measure of the drop in well-being around the transition to parenthood (Shown in Table 4).

Results

Table 1 presents sample characteristics of the analytic sample, separating out those for whom we observe a second birth and those that remain at parity one. Life satisfaction three to five years before a first birth is high, an average of 7.4 on a scale of 0-10. There is an increase in life satisfaction in the year prior to and in the year of a first birth, followed by a decrease from the baseline level. Those who go on to have a second birth have a higher baseline life satisfaction level than those who stay at parity one. The two groups have a similar average trajectory before a

12

first birth, but after a first birth, those who go on to have a second child have smaller decreases in well-being than the group that stays at parity one. In other words, those who have a more difficult transition to parenthood, as measured by changes in overall life satisfaction, are less likely to have another child. This is shown graphically in Figure 1, which plots changes in life satisfaction over the course of having a first child, relative to a baseline level measured as the average of 3, 4 and 5 years prior to a first birth. These coefficients come from a fixed effects model which controls for age and period. Similar to the statistics shown in Table 1, those who have a second birth gain more in life satisfaction around the time of a first child's birth and have a higher level of well-being afterward.

Respondents that have a second child are also more likely to have their first below age 30, more likely to be partnered at the time of the first child, more likely to be immigrants and are more likely to live in west Germany than the east. There are differences by observed final parity in sex, labor force status or household income in the year before a first birth (Table 1).

Table 2 examines whether parental well-being surrounding the transition to parenthood predicts parity progression to second birth in a multivariate hazard framework. We test three concepts with four measures of parental well-being. Model 1 tests whether life satisfaction measured annually around first birth is associated with parity progression. The variables are measured relative to the baseline level of life satisfaction, measured three to five years before a first birth. The levels of life satisfaction around first birth are not significantly associated with parity progression. Next, Model 2 examines whether the gain in well-being before a first birth, the anticipation of the first birth, is associated with parity progression. We find no relationship in either the bivariate or multivariate models. Models 3 and 4 test two specifications of the drop in well-being from just before to after a first birth. Both are strong predictors of parity progression. Model 3 includes the drop as a continuous variable, and a one unit increase in the size of the drop

is associated with a four percent lower hazard of a second birth (HR 0.96, p<.05). To test for non-linearity, in Model 4 we examine differences in the size of the life satisfaction drop around a first birth, comparing those with no drop, one unit drop, two unit drop and three or more unit drop. There are no differences between those with no drop, one and two unit drops, but those with a very large drop in well-being around a first birth have a much lower hazard of a second birth (Model 4) (HR 0.83 p<.05).

Because the degree to which respondents experience a drop in well-being from before to after a first birth is so important in predicting further parity progression, we examine the predictors of the well-being drop around first birth. Table 3 describes the characteristics of respondents who report no drop in well-being, a drop of one unit, or a drop of two units and a drop of three or more units. Overall, there are few differences between new parents who experience no drop in well-being or a drop of one. There are, however, large differences between those who experience a large drop and those with a small or no drop. Those who have a more difficult transition to parenthood are more likely to be women, are less educated, are less likely to be working, and are more likely to be immigrants to Germany. There are no differences by partnership status at the time of a first child or birth cohort.

Table 4 shows coefficients from an OLS regression predicting the size of the drop in well-being around a first child. The bivariate models show that a larger drop in well-being over the transition to parenthood is associated with having the first child younger, lower education, lower income, those not working, and those in East Germany. Men and those who are German born have smaller drops in well-being. In the multivariate model, resources are very important, with higher income being associated with a smaller drop in well-being. There are no significant differences by age at first birth, partnership status, and nativity.

Last, we examine whether the subjective experience of a first birth matters more or less for different subgroups: men and women, those with high and low education, and those with a high and low age at first birth. In the previous table, we saw that women, those with less education and lower age at first birth have larger drops in well-being around the transition to parenthood. Now we test whether the drop is equally important for these groups in predicting a second birth. Table 5 shows first that there is no difference by sex in the importance of the transition to parenthood for parity progression. Although women have larger drops in well-being over this period, it is equally important for men and women. Second, we find that the drop in well-being is significantly more important as a deterrent of a second birth for respondents with 12 or more years of education relative to those with less education. In the third model, we find similar results for age at first birth. A large drop in well-being around a first birth is associated with a significantly lower hazard of a second birth among those who had their first birth at age 30 or above, relative to those who became parents at younger ages.

Sensitivity analysis

We conducted several robustness checks. First, we estimated results with various lengths of follow-up and find similar results when analyzing respondents for 5, 8, and 10 years after reporting a first birth. Second, we examined whether the results changes when controlling for the sex of the child and they do not. Both men and women seem to have lower drops in parental well-being after having a daughter rather than a son, but the sex of the first child is not associated with parity progression. Last, we examined the dynamics between partners' experience of the transition to parenthood and are still working on this analysis.

15

Discussion

Why do so many people in low fertility settings have only one child if the modal desired number of children is two? Past research has suggested that late partnering and childbearing, the opportunity cost of childbearing, and ideational reasons are the reasons why people have fewer births than they intend (Billari et al. 2009; Dey and Wassoff 2010; Frejka and Calot 2001; Lesthaeghe and Willems 1999). In this paper, we show that changes in parental well-being around the transition, the subjective experience of a first birth, is an important predictor of whether people go on to have a second. We find that in Germany, a low fertility country, the drop in life satisfaction from before to after a first birth is strongly and negatively associated with having a second child. Although it is well documented that the transition to parenthood is stressful (Dyke 1990; Oakley 1992; Wearing 1984), we show that there is much variation in the size of the drop in well-being around a first birth and that this drop has important repercussions for completed family size, net of other factors such as age at first birth, family resources, and partnership status.

The experience of having a first child will affect new parents' decisions about whether or not to have another child. This is basic learning theory in psychology- people will avoid activities which will harm their well-being (Rotter 1954). This theoretical framework is useful for demographers in how the subjective experience of the transition to parenthood can affect parity progression (Callan 1985; Cartwright 1976; Newman 2008; Presser 2001). The importance of the subjective experience of a birth was recently highlighted in qualitative research (Newman 2008). Our paper shows that the experience of having a first child is important at the population level, net of other measured factors.

We also found that the drop in well-being around the transition to parenthood was a stronger inhibitor of a second birth for high SES parents and those who waited longer to have a

16

first child. This accords with qualitative work on this topic (Newman 2008; Presser 2001) which argue that high SES parents are not as used to losing control and doing mundane tasks of parenting.

Is this research policy-relevant? Can the subjective experience of the transition to parenthood be affected by policy? Other recent work finds that the 2007 parental leave policy in Germany had a positive effect on the way in which new parents life satisfaction changed (Myrskyla and Margolis 2012). We find that parents who had their first child after the policy change have markedly higher levels of subjective well-being than those who had their first child earlier. Analysis of sub-populations by sex, education, income, age at first birth or country of origin suggest that the positive effect of the policy change on parental well-being was universal. Our interpretation of the difference as being caused by the policy change is supported by a fixed-effects of the difference in happiness gain between the first and second births among those who had their first child before or after 2007. Given this research, family leave policies may indeed be able to influence parity progression and it might be through easing the transition to parenthood. Although there was no short-term effect on fertility from the 2007 family policy change in Germany (Salles, Rossier and Brachet 2010; Thyrian et al. 2010), our results from this paper combined with our other working paper suggest that we should wait to see if the Germany policy change actually increases fertility.

There are several limitations to this analysis. First, our analysis describes the predictors and consequences of changes in overall life satisfaction for parity progression, but cannot speak to the underlying social mechanisms that determine the difficulty of the transition to parenthood. These factors, such as the ease of the birth experience, level of exhaustion during the first year, and relationship stress, are better suited to qualitative work. Such detailed questions were not available in survey data that would allow us to conduct this analysis. Thus, this research should

17

be interpreted with the results of other types of studies in mind. Second, we are not able to capture fertility aspirations or intention status of births or the value of children in our data. However, drawing on other research, we hypothesize that if the transition to parenthood is difficult for parents then they will revise their fertility intentions downward which will then affect fertility behavior. Qualitative information on work-family conflict, planning status of births, and instrumental support would be useful to further our understanding of the social mechanisms.

Despite limitations, this paper presents evidence that the subjective experience of the transition to parenthood is an important and understudied factor in determining parity progression. To the extent to which policy can affect parental well-being at this critical time, family policy may be able to have an indirect effect on family size and fertility.

References

Adema, W. and P. Whiteford. 2007. *Babies and Bosses: Reconciling Work and Family Life: A Synthesis of Findings for OECD Countries.* Vol. 4.Publications de l'OCDE.

Adserà, A. 2004. "Changing Fertility Rates in Developed Countries. the Impact of Labor Market Institutions." *Journal of Population Economics* 17(1):17-43.

Billari, F.C., D. Philipov, and M.R. Testa. 2009. Attitudes, Norms, and Perceived Behavioral Control: Explaining Fertility Intentions in Bulgaria. *European Journal of Population*.

Billari, F.C., and H.P. Kohler. 2004. Patterns of low and lowest-low fertility in Europe. *Population Studies* 58(2):161-176.

Breton, D. and F. Prioux. 2009. The One-Child Family: France in the European Context. *Demographic Research*.

Callan V.J. 1985. Choices about Children. Melbourne: Longman Cheshire.

Cartwright. A. 1976. How many children? London: Routledge and Kegan Paul.

Dey, I. and F. Wasoff. 2010. Another Child? Fertility ideals, resources and opportunities. *Population Research and Policy Review*.

Dyck, I. 1990. Space, time and renegotiating motherhood: An explanation of the domestic workplace. Environment and Planning D: Society and Space 8:459-483.

European Commission. 2006. "White paper "The demographic future of Europe – from challenge to opportunity."" Commission of the European Communities, Directorate-General for Employment, Brussels.

Feyrer, J., B. Sacerdote and A. D. Stern. 2008. "Will the Stork Return to Europe and Japan? Understanding Fertility within Developed Nations." *The Journal of Economic Perspectives* 22(3):3-2A.

Frejka. T. 2008. Parity distribution and completed family size in Europe: Incipient decline of the two-child family model? *Demographic Research* 19(4):47-72.

Frejka, T. and G. Calot. 2001. Cohort reproductive patterns in low-fertility countries. *Population and Development Review* 27(1):103-132.

Hobcraft, J. 2006. "The ABC of Demographic Behaviour: How the Interplays of Alleles, Brains, and Contexts Over the Life Course should Shape Research Aimed at Understanding Population Processes." *Population Studies* 60(2):153-187.

Gauthier, A. H. 2007. "The Impact of Family Policies on Fertility in Industrialized Countries: A Review of the Literature." *Population Research and Policy Review* 26(3):323-346.

Georgellis, Y., Lange, T., and Tabvuma, V. (2012). "The impact of life events on job satisfaction" Journal of Vocational Behavior, 80(2), 464–473

Hobcraft, J. 2000. The consequences of female empowerment for child well-being: review of concepts, issues, and evidence in a post-Cairo context. Pp 159-185 in H.B. Presser and G. Sen (eds). Women's Empowerment and Demographic Processes: Moving Beyond Cairo. Oxford: Oxford University Press.

Lesthaeghe and Willems 1999. Is low fertility a temporary phenomenon in the European Union? *Population and Development Review* 25(2):211-228.

Livi Bacci. M. 2001. Comment: desired fertility size and the future course of fertility. Pp 82-289 in R.A. Bulatao and J.B. Casterline (eds) Global Fertility Transition. New York: Population Council.

McDonald, P. 2000. "Gender Equity in Theories of Fertility Transition." *Population and Development Review* 26(3):427-439.

Myrskylä Mikko. Joshua R. Goldstein, Yen-Hsin Alice Cheng (2013). "New Cohort Fertility Forecasts for the Developed World: Rise, Fall, and Reversals" Population and Development Review 39:1 (in press)

Myrskyla, M. and R. Margolis. 2012. Parental Leave Policies Improve Parental Well-being: Evidence from a Family Policy Change in Germany. Working paper.

Newman, L. 2008. How Parenthood Experiences Influence Desire for More Children in Australia: A Qualitative Study. *Journal of Population Research* 25(1).

Oakley, A. 1992. Social Support and Motherhood. Oxford: Blackwell.
Rindfuss, R.R. Guzzo, K.B., and Morgan, S.P. 2003. The changing institutional context of low fertility. P*opulation Research and Policy Review* 22(5-6), 411-438.

Rotter, J.B. 1954. Social learning and clinical psychology. Englewood Cliffs, NJ: Prentice Hall.

Salles, A., C. Rossier and S. Brachet. 2010. "Understanding the long term effects of family policies on fertility: The diffusion of different family models in France and Germany." *Demographic Research*, 22(34):1057-1096.
Sobotka, T. 2004. "Is Lowest‑Low Fertility in Europe Explained by the Postponement of Childbearing?" *Population and Development Review* 30(2):195-220.

Sobotka, T. and W. Lutz. 2011. "Misleading Policy Messages Derived from the Period TFR: Should we Stop using it?" *Comparative Population Studies-Zeitschrift Für Bevölkerungswissenschaft* 35(3).

Thyrian, J.R., K. Fendrich, A. Lange, J.P. Haas, M. Zygmunt and W. Hoffman. 2010. "Changing maternity leave policy: Short-term effects on fertility rates and demographic variables in Germany." *Social Science and Medicine*, 71: 672-676.

Wearing, B. 1984. The Ideology of Motherhood: A Study of Sydney Suburban Mothers. Sydney. George Allen and Unwin.

Van de Kaa, D., P. Demeny and G. McNicoll. 2003. "Second Demographic Transition." *Encyclopedia of Population. New York: McMillan Reference USA*.

Table 1. Descriptive Characteristics of the Analytic Sample, SOEP (1984-2010)

	Total Analytic Sample	Observe Only 1st Birth	Observe 1st and 2nd Birth	Diff: ttest or chi2
	N=2,296	N=950	N=1,346	
Parental Well-being Around First Birth				
Mean (sd) base life satisfaction (3,4, 5 years before 1st birth)	7.40 (1.4)	7.27 (1.5)	7.48 (1.4)	*
2 years before 1st birth (relative to base)	-0.07 (1.5)	-0.12 (1.5)	-0.04 (1.6)	*
1 year before 1st birth (relative to base)	0.16 (1.6)	0.16 (1.5)	0.16 (1.6)	
Year of 1st birth (relative to base)	0.16 (1.6)	0.15 (1.7)	0.17 (1.6)	*
Year after 1st birth (relative to base)	-0.12 (1.7)	-0.16 (1.6)	-0.10 (1.7)	*
Total Life Satisfaction Gain Around 1st birth	.26 (3.8)	.20 (3.8)	.30 (3.9)	*
Mean Life Satisfaction Drop Around 1st birth, continuous (sd)	1.39 (1.36)	1.44 (1.38)	1.35 (1.34)	*
Life Satisfaction Drop Around 1st birth, categorical				
None	27.5	26.9	27.9	
1 unit drop	36.8	35.8	37.6	
2 unit drop	18.9	19.4	18.6	
3+ unit drop	16.7	17.9	15.8	
Other characteristics				
Age at 1st birth				*
≤ 24	18.7	15.0	21.3	
25-29	38.8	33.6	42.4	
≥ 30	42.6	51.5	36.3	
Sex				
Women	54.4	55.5	53.7	
Men	45.6	44.5	46.3	
Education at 1st birth				
Less than 12 years	59.2	61.0	57.9	
12 or more years	40.9	39.0	42.1	
Partnership status at 1st birth				*
Partnered	78.2	69.4	84.5	
Un-Partnered	21.8	30.6	15.6	
Household Income (year before 1st birth) in EURO				
<15,000	7.8	8.7	7.2	
15,000-29,999	20.3	21.5	19.5	
30,000-44,999	27.8	25.4	29.6	
45,000-59,999	19.3	19.7	19.1	
≥ 60,000	24.7	24.7	24.7	
Labor force participation (year before 1st birth)				
Working	83.5	84.7	82.7	
Not working	16.5	15.3	17.3	
Foreign born	14.2	10.2	16.9	*
German born	85.8	89.8	83.1	
Region				*
West	82.4	77.4	86.0	
East	17.6	22.6	14.0	
Birth cohort				*
1937-59	9.4	10.7	8.5	
1960-69	46.6	43.7	48.7	
1970-79	38.4	37.7	38.9	
1980-89	5.6	7.9	3.9	
Time to second birth (yrs) Mean, median, sd	NA	NA	3.4, 3, 1.9	
Time follow-up after 1st birth (mean, median, sd)	9.0, 9, 4.6	7.6, 6, 4.6	10.0, 10, 4.3	*

Table 2. Hazard Ratios from Cox Proportional Hazard Models Predicting Second Birth, SOEP (1984-2010)

	Bivariate	Model 1	Model 2	Model 3	Model 4
Parental Well-being Around First Birth					
2 years before 1st birth	1.03	1.02			
1 year before 1st birth	.95*	0.97	-	-	-
Year of 1st birth	1.02	1.02			
Year after 1st birth	1.01	1.01			
Total Life Satisfaction Gain Around 1st birth	1.00	-	1.00	-	-
Life Satisfaction Drop Around 1st birth (continuous)	0.95 *	-	-	0.96*	-
Life Satisfaction Drop (None)		-	-	-	
1 unit drop	1.02				0.98
2 unit drop	-.90				0.86
3+ drop	0.83*				0.83*
Other characteristics					
Age at first birth (<25)					
25-29	0.99	2.04 ***	2.04***	2.03**	2.03***
≥30	0.76***	4.45 ***	4.50***	4.47***	4.47***
Age	.95***	0.82***	0.82***	0.82***	0.82***
Women (Men)	.96	0.69***	0.69***	0.69***	0.70***
Education at First Birth (< 12 years)					
12 or more years	1.29***	1.61***	1.62***	1.63***	1.63***
Partnered (Un-partnered)	2.29***	2.26***	2.26***	2.25***	2.25***
Household Income (ln)	1.06**	1.07*	1.07*	1.06*	1.06*
Working in Labor force (Not working)	0.75***	0.78***	0.64***	0.64***	0.64***
German born (Immigrant)	1.21*	.69*	0.71*	0.71*	0.72*
East Region (West)	0.74***	.56***	0.60**	0.59***	0.59***
Region x Interaction with Time	-	1.12*	1.11*	1.11*	1.11*
Immigrant x Interaction with Time	-	1.14**	1.14**	1.13**	1.13**
-2 log likelihood	-	-8423.20	-8460.16	-8514.19	-8512.92

* p<.05 ** p<.01 *** p<.001

23

Table 3. Sample Characteristics by Size of Drop in Parental Well-being Surrounding First Birth, SOEP (1984-2010)

	No Drop in Parental Well-being	Drop of 1	Drop of 2	Drop of 3+	Chi2 Test
	27.5% N=632	36.8% N=846	18.9% N=435	16.7% 383	
Sex					
Men	47.0	47.5	43.9	40.7	
Women	53.0	52.5	56.1	59.3	
Age at first birth					*
≤ 24	17.6	16.2	21.4	23.0	
25-29	37.5	39.1	41.8	36.5	
≥ 30	44.9	44.7	36.8	40.5	
Education at first birth					**
Less than 12 years	57.7	54.8	64.6	64.7	
12 or more years	42.2	45.2	35.4	35.2	
Partnership status at time of first birth					
Un-Partnered	23.6	21.4	20.2	21.4	
Partnered	76.4	78.6	79.8	78.3	
Household Income (Year before first birth)					
<15,000	9.2	5.3	9.4	9.4	
15,000-29,999	16.6	18.8	22.1	27.7	
30,000-44,999	25.8	28.5	31.5	25.6	
45,000-59,999	20.7	20.1	17.2	17.7	
≥ 60,000	27.7	27.3	19.8	19.6	
Labor force participation (Year before 1st birth)					**
Not working	15.8	12.8	22.1	19.3	
Working	84.2	87.2	77.9	80.7	
Nativity					*
German born	86.7	88.1	81.8	84.1	
Immigrant	13.3	11.9	18.2	15.9	
Region					
West	80.7	82.3	84.1	83.5	
East	19.3	17.7	15.9	16.4	
Birth cohort					
1937-1959	8.9	8.9	10.3	10.4	
1960-69	43.3	48.9	45.7	47.8	
1970-79	41.1	36.9	38.6	37.1	
1980-89	6.6	5.3	5.3	4.7	

Table 4. Unstandardized Coefficients from OLS Regression Predicting the Size of the Drop in Parental Well-being Surrounding First Birth, SOEP (1984-2010)

	Bivariate	Multivariate
Age at first birth (<25)		
25-29	-.16*	.03
≥30	-.21**	.18
Age	-.01**	-.01
Women (Men)	.14*	.15
Education at First Birth (< 12 years)		
12 or more years	-.19***	-.05
Partnered (Un-partnered)	.06	.08
Household Income (ln)	-.12***	-.11**
Working in Labor force (Not working)	-.21**	.03
German born (Immigrant)	.17*	.09
East Region (West)	-.15*	-.07
R2	-	.06

* p<.05 ** p<.01 *** p<.001

Table 5: Interactions: Does Parental Well-being around First Birth Matter More by Sex, Education, and Age at First birth? SOEP (1984-2010)

	Sex Interaction	Education Interaction	Age at First Birth Interaction
Parental Well-being Around First Birth			
Women x Life Satisfaction drop	.98	-	-
Education x Life Satisfaction drop (<12 years)	-		-
≥ 12 years		0.87**	
Age at first birth x Life Satisfaction drop (<25)	-	-	
25-29			.98
≥ 30			.89*
Life Satisfaction drop around 1st birth	0.97	1.00	1.00
Other characteristics			
Age at first birth (<25)			
25-29	2.02***	2.05***	2.09***
≥ 30	4.44***	4.55***	5.27***
Age	0.82***	0.82***	0.82***
Women (Men)	0.72***	0.70***	0.69***
Education at first birth (<12 years)			
12 or more years	1.63***	1.92***	1.63***
Partnered (Un-partnered)	2.25***	2.26***	2.25***
Household Income (ln)	1.06*	1.06*	1.06*
Working in labor force (not working)	0.64***	.64***	.64***
German-born (Immigrant)	0.71*	0.69*	.70*
East Region (West)	0.59***	0.59***	.59***
Region x Interaction with Time	1.11*	1.11*	1.11*
Immigrant x Interaction with Time	1.13**	1.14**	1.13**
-2 log likelihood	-8514.08	-8453.92	-8511.46

* p<.05 ** p<.01 *** p<.001

Notes- same results with categorical measure of drop.

Figure 1. Pattern of life satisfaction before and after a first child by progression to second birth. Coefficients from fixed effects models controlling for age and year.