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## Sub-Replacement Fertility Intentions in Austria Intentions de fécondité inférieures au seuil de remplacement en Autriche

Tomáš Sobotka

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**Abstract** Combining the data of the 1986–2001 *Microcensus* surveys, I reconstruct trends in fertility intentions across time and over the life course of Austrian women born since the 1950s. Young adults in Austria expressed fertility intentions that were below the replacement-level threshold as early as in 1986 and women born since the mid-1950s consistently desired fewer than two children on average throughout their reproductive lives. A two-child family norm, however, still clearly dominates the fertility intentions of different age, cohort and education groups. Uncertainty about childbearing intentions is rather common, especially among younger and childless respondents. Different assumptions about reproductive preferences of undecided respondents affect estimates of the mean intended family size. Although Austrians were among the first in Europe to express low fertility intentions, their position is no longer unique. By the early 2000s, young women in a number of other European countries also expressed sub-replacement fertility intentions.

**Keywords** Austria · Fertility · Fertility intentions · Family size · Young adults

**Résumé** A partir des données des enquêtes de *Microcensus* de la période 1986–2001, nous avons reconstruit l'évolution dans le temps et au cours de la biographie des intentions de fécondité des femmes autrichiennes nées dans les années 50. Les jeunes adultes en Autriche exprimaient déjà des intentions de fécondité inférieures au seuil de remplacement dès 1986, et les femmes nées au milieu des années 50 souhaitaient moins de deux enfants en moyenne tout au long de leur vie reproductive. Une norme de deux enfants par famille domine toutefois clairement les

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intentions de fécondité des différents groupes d'âge, de cohorte et de niveau d'éducation. L'incertitude à propos des intentions de fécondité est plutôt répandue, en particulier parmi les enquêtés jeunes et sans enfant. Les hypothèses concernant les préférences des enquêtés indécis conditionnent les estimations de la taille souhaitée de famille. Bien que les autrichiens aient été les premiers à exprimer des intentions de fécondité basses, leur situation n'est plus unique: au début des années 2000, les jeunes femmes d'un certain nombre d'autres pays européens avaient des intentions de fécondité inférieures au seuil de remplacement.

**Mots-clés** Autriche · Fécondité · Intentions de fécondité · Taille de famille · Jeunes adultes

## 1 Introduction: Low Intended Family Size in Austria

Different studies have demonstrated that while period and cohort fertility rates in most European countries have declined to low levels, the mean intended family size has typically remained at or even above two children per woman (e.g. Bongaarts 2001; van Peer 2002a, b). Recent analysis of the 2006 *Eurobarometer* survey (Testa 2006, 2007) corroborates this finding: for the 25 countries of the European Union as of 2006, the mean intended family size among female respondents in two broad age groups (15–24, 25–39) remains above two children. Austria appears to be one of the most notable exceptions to this pattern. Testa's (2007) research suggests that Austrian men and women display not only the lowest ideal family size, but also the lowest desired and intended family size in Europe. Similarly, an earlier analysis of the 2001 round of *Eurobarometer* data indicated that both ideal and expected family size among men and women in Austria and Germany have fallen to sub-replacement levels (Goldstein et al. 2003).

The fertility level in Austria is low (but not exceptionally low) despite relatively generous monetary support to families with children (OECD 2003). In 2007, the period total fertility rate stood at 1.38, whereas the fertility index controlling for parity and duration since previous birth was 1.61 (see Prskawetz et al. 2008, p. 297 for more details). The completed fertility rate of women born after 1965 is expected to drop below 1.7 and childlessness of women born in 1966 will reach around 18% (Prskawetz et al. 2008). However, current low fertility and high childlessness levels in Austria are not without precedent: more than a quarter of Austrian women born in the early twentieth century remained childless and the estimated completed fertility of women born in 1900 was as low as 1.75 (Prskawetz et al. 2008; Statistics Austria 1996).

A combination of low fertility rates and low desired family size suggests that Austria constitutes an example of a society where several decades of low fertility might have engendered a preference for small family size and, possibly also a high preference for childlessness. While the *Eurobarometer* survey analysed by Testa (2006, 2007) is informative for identifying broad trends in fertility ideals and desires, its small sample size makes it of little use for a more detailed analysis of family size preferences in individual countries of Europe. In order to find out

whether the findings on low intended family size in Austria are also confirmed in larger datasets, I use a set of Austrian *Microcensus* surveys that took place in 1986, 1991, 1996 and 2001. With the exception of short reports of major results published in *Statistische Nachrichten* (Findl 1989; Maxwald 1994; Hanika 1999; Klapfer 2003), *Microcensus* data have been neglected for this purpose. Although *Microcensus* is not a panel survey and thus does not allow an investigation of the changes in fertility intentions and their realisation among individual respondents, it allows a thorough analysis of trends in desired family size.<sup>1</sup> As the *Microcensus* survey gives respondents an explicit option to express uncertainty about their childbearing intentions (those who are uncertain are asked to specify a minimum and maximum number of additionally intended children), it also provides valuable insights about the robustness of findings on desired family size and the prevalence of intention uncertainty at different ages. The large sample size is another clear advantage of the survey.

This contribution is grounded in a tradition of studies that perceive childbearing intentions as paramount for understanding fertility trends (e.g. Hagewen and Morgan 2005). First, I outline the main research questions and issues addressed in this study and give a brief description of the datasets. Then, I analyse general trends in intended family size among Austrian women by age and birth cohort in 1986–2001 and show that these estimates are strongly affected by the assumptions about uncertain respondents. Subsequently, I look at the shifts in fertility intentions of young adult women and analyse changes in desired parity composition. Next, I analyse fertility intentions by the highest completed level of education. The two concluding sections summarise major findings and show that young women in some other European countries also express sub-replacement fertility desires.

## 2 Relevance of this Study and the Main Research Questions

### 2.1 The ‘Gap’ Between Fertility Intentions and Achieved Fertility

The findings on the continuing prevalence of replacement-level fertility intentions in Europe gave rise to the notion of a ‘gap’ between fertility intentions and the ultimately achieved family size. This gap is often viewed as the result of a conflict between individuals’ family size preferences and the competing alternatives in work career and leisure activities (e.g. Bongaarts 2001). Given that the use of highly reliable contraception has become a norm in most European countries, thus eliminating some ‘excess’ unplanned and unwanted fertility, the divergence between fertility intentions and outcomes may be seen as a rather logical and, indeed, inevitable, result (Demeny 2003).

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<sup>1</sup> Regrettably, *Microcensus* surveys do not provide information about fertility ideals. As a result, the frequently reported fall in family size ideals in Austria deep below replacement level (Goldstein et al. 2003; Testa 2007) cannot be analysed here. Similarly, due to lack of data on men, *Microcensus* data cannot corroborate the *Eurobarometer* findings on the extreme low family size ideals among Austrian men (Testa 2006).

The divergence between intended and realised fertility is partly fuelled by structural constraints to childbearing and adverse life circumstances—such as lack of resources (housing, monetary support), poor health, lack of a suitable partner, partnership break-up or infertility—many of which unfold during the life course (e.g. Quesnel-Vallée and Morgan 2003). Different structural and institutional constraints are frequently perceived as rationales for policy action designed to alleviate them (Chesnais 2000; European Commission 2005; McDonald 2006). This perspective views the intentions-behaviour ‘gap’ as an anomaly that needs to be reduced or eliminated.

Disagreement between partners constitutes a particular type of constraint for the realisation of fertility plans. A more egalitarian model of partnerships, typical of advanced societies, implies that whenever conflicting preferences between partners arise, the resistance against having a child often prevails (Thomson and Hoem 1998; Voas 2003; Berrington 2004). Experience of parenthood may also lead to a downward revision of initial fertility plans (Régnier-Loilier 2006). Fertility decisions are often conditional and may be interpreted in terms of “this is how I think I will behave if things stay the way they are now” (Westoff and Ryder 1977, p. 449) or, alternatively “if things work out as I expect” (Rindfuss et al. 1988, p. 190). Clearly, many individuals cannot foresee how their life chances and socio-economic conditions will evolve in the future (Rindfuss et al. 1988) and uncertainty about fertility desires is frequent (Westoff and Ryder 1977; Morgan 1981).

Summing up, these arguments provide a sound explanation of why fertility intentions in developed countries usually remain above the level of the eventually realised fertility, and they do not suggest an imminent fall in intended family size well below the replacement threshold. Such a possibility, however, has been outlined with respect to changes in ideal family size by Lutz et al. (2006) who sketch out a hypothesis of recurrent decline in ideal and realised family size, supported by socialisation of younger cohorts in an environment with progressively shrinking numbers of children. It is likely that the same set of factors would also affect fertility intentions, leading to their substantial decline. But other factors may also play a role. For instance, young adults may reduce their intended family size by becoming more realistic when assessing their fertility goals, taking into account competing lifestyle alternatives and their growing awareness of different obstacles that may unfold later in life. This can happen especially if and when the societal norms against childlessness and one-child families erode over time (Hagewen and Morgan 2005).

Such a change may be currently under way in a number of European countries. Thus, it is worthwhile to relate the analysis for Austria to the data for other countries. If Austria is an outlier, possibly together with Germany, we should seek to explain the peculiar emergence of low fertility intentions there. If, however, other European countries are on a path to low fertility desires as well, this may affect our hypotheses about future fertility change. As long as fertility desires remain relatively high (i.e. around the replacement level), a significant ‘recuperation’ in period fertility rates may be expected in the future, provided that societal conditions become more conducive to childbearing (e.g. Bongaarts 2001). A marked decline in intended family size would, on the other hand, make a substantial future increase in

fertility considerably less likely; in fact, it may precede yet further decline in fertility (Lutz et al. 2006).

## 2.2 Research Questions

Combining the data of the 1986–2001 *Microcensus* surveys, I reconstruct trends in fertility intentions across time and over the life course of Austrian women born in 1956–1980 and compare the aggregate consistency between intended and subsequently realised fertility. I also study the prevalence of intention uncertainty and discuss its interpretation. This is crucial for the reconstruction of trends over time, as different ways of including or excluding uncertain respondents yield different estimates of the mean intended family size (Smallwood and Jefferies 2003). In addition, analysis of uncertainty is also important for understanding the firmness of fertility intentions and their changes over the life cycle. Morgan (1981, 1982) argues that intentions, unlike births, are not necessarily dichotomous and uncertainty should be analysed as an inherent part of fertility decision making. He posits that eliminating uncertain responses “affects the representativeness of the sample analysed, distorts across-survey comparisons due to shifts in aggregate uncertainty, and reduces the likelihood of accurately detecting shifts in fertility intentions” (Morgan 1982, p. 331).

I also analyse education differences in relation to intended family size. This focus is motivated by the low fertility and high childlessness among women with university education in Austria.<sup>2</sup> It is unclear whether their low fertility is primarily an effect of their low fertility desires or rather an outcome of their difficulties in combining a working career with motherhood. In Austria the work-family balance is hindered by relatively underdeveloped child care facilities and policies strongly supportive of full-time parental homecare when children are young (OECD 2003).

The research questions addressed here can be summarised into five broad areas:

- (1) *Trends in intended family size*: Has there been a shift towards a low intended family size among women in Austria?
- (2) *The emergence of low fertility desires in young adulthood*: Have fertility intentions fallen below two children per woman among young adults or do aggregate sub-replacement intentions emerge later in life as a result of a frequent downward revision of the initially higher desires?
- (3) *The role of uncertainty*: How does uncertainty about childbearing intentions change with age and how does it affect estimates of the mean intended family size?
- (4) *Parity-specific trends in fertility intentions*: Does a two-child family norm still dominate fertility intentions of different cohorts, age groups and education groups?
- (5) *The role of education*: Is the mean intended family size differentiated by the level of education?

<sup>2</sup> According to the 2001 census data the mean number of children per woman with university education born in 1955–1959 was 1.35 and almost 30% of these women remained childless (Prskawetz et al. 2008; Spielauer 2005; Statistics Austria 2005).

Despite working with detailed individual-level data, this study remains anchored at an aggregate level. When analysing differences and trends by age, cohort, achieved level of education and parity, it does not control for the confounding effects of other important covariates. Thus, besides making some speculative inferences and offering tentative interpretation, this article does not attempt to comment on the causal nature of different findings.

Although many researchers make a distinction between them, I use the terms fertility intentions and desires interchangeably in this study, in part reflecting some of the ambiguity of the German term *Kinderwunsch* used in the survey.<sup>3</sup> Similarly, I use the terms ‘fertility intentions’, ‘childbearing intentions’ and ‘reproductive intentions’ interchangeably.

### 3 Data and Methods

#### 3.1 *Microcensus* Data on Intentions

The Austrian *Microcensus* survey is a representative household survey organised by Statistics Austria. The survey is a part of a network of *Labour Force Surveys* primarily focused on employment and living conditions. It is conducted quarterly in about 22,500 households in Austria.<sup>4</sup> Once a household is selected, participation is compulsory under Austrian law; hence, non-response is very low. Selected rounds of Austrian *Microcensus*, conducted in 1986, 1991, 1996, 2001 and 2006 included an additional module with questions on fertility intentions, administered to a sample of participating women aged 20–40 years.<sup>5</sup> The questions on childbearing intentions were also administered to persons who were not present at the interview; these responses have been excluded from this study (see also below).<sup>6</sup>

Since the intention questions were not included in the core *Microcensus* questionnaire, respondents to the regular survey were asked if they were willing to participate in the intentions module and a significant fraction of them refused. Together with a small number of respondents who did not state their actual number

<sup>3</sup> Frequently, fertility intentions and desires have distinct meanings, with desires referring to the number of children respondents would like to have in their lives (see McClelland 1983, pp. 296–298 for different specifications) and intentions reflecting a “determination to act in a certain way” (Morgan 2001, p. 154). In other words, intentions represent a measure where respondents take into account actual and expected constraints that may prevent them from realising their desires. The German word [*Kinder*]Wunsch, used in the analysed *Microcensus* surveys, is commonly translated as a desire or a wish. However, in the absence of an established German term for fertility intentions, *Kinderwunsch* is also commonly translated as childbearing intention.

<sup>4</sup> More information is provided in German at [http://www.statistik.at/web\\_de/frageboegen/private\\_haushalte/mikrozensus/index.html](http://www.statistik.at/web_de/frageboegen/private_haushalte/mikrozensus/index.html).

<sup>5</sup> Questions on fertility intentions were also asked in 1976 and 1981, but only married women were included. These data are not comparable with the more recent surveys and are not analysed here.

<sup>6</sup> These proxy responses, i.e. responses of the reference persons on behalf of other persons in the household are commonly included in the *Microcensus* surveys, for instance in the case of mothers replying on behalf of their young adult daughters still living in the parental home. Moreover, these responses are problematic and prone to misinterpretations of other people’s intentions.

of live-born children, this non-participation increased from 11% in the 1986 survey to 24% in 2001 (Table 1). In addition, a small fraction of respondents (up to 5%) agreed to participate but did not state their fertility intentions. This effect, combined with the exclusion of proxy interviews, further reduced the percentage of 'usable answers' by 17% (1986) to 26% (1991) of total eligible respondents (Table 1).<sup>7</sup> Non-participation was highest among the youngest respondents aged 20–24, among the never-married and among women with foreign nationality (see reports by Findl 1989; Maxwald 1994; Hanika 1999; Kytir et al. 2002). Similarly, the proxy interviews were especially common among the younger and childless respondents.<sup>8</sup> This selectivity necessitated careful re-weighting of the survey results (see Sect. 3.3 below).

Regular administration of the intentions module at 5-year intervals makes *Microcensus* data well-suited for an analysis of trends over time and permits an investigation of the shifts in childbearing desires of 5-year cohort groups as they progress through their reproductive life. Excluding non-response, missing records and proxy interviews, the number of respondents is still sufficient for a detailed analysis of childbearing intentions by 5-year age (cohort) groups, with each of these categories containing between 622 and 1858 respondents.

The most recent survey, conducted in 2006, is not used here due to a combination of factors that make it incomparable with the previous surveys. Besides being based on a considerably smaller sample size (see Table 1 above), it gave a conspicuously high level of fertility intentions for all the cohorts studied and was not consistent with the findings from the previous surveys (results can be obtained from the author). Neglecting the unlikely possibility of an abrupt change in fertility intentions, for which there would be no plausible explanation at hand, I decided to exclude these data from further investigation.<sup>9</sup>

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<sup>7</sup> In the 2001 survey organisers decided not to accept proxy responses in the intentions module and instructed the interviewers to contact eligible respondents who could not be reached in person later by phone (Kytir et al. 2002, p. 840; Klapfer 2003, p. 826). However, the dataset does not make it possible to ascertain whether most of the responses coded as proxy interviews in 2001 were indeed conducted by phone with the respondents themselves. Consequently, I decided to eliminate all the possible proxy interviews from the 2001 dataset as well.

<sup>8</sup> For instance, in the 2001 survey 18% of the valid interviews in the intentions module (i.e. those excluding the respondents who did not respond to the intentions questions) were provided by proxy persons. This share was only 11% among the respondents with children and reached 30% among the childless. At age 20–25, 34% of responses were proxy interviews.

<sup>9</sup> The incompatibility of the 2006 survey with previous waves is also signalled by the higher than expected levels of completed fertility among the respondents. Three possible causes of such incompatibility can be identified. First, in contrast with previous surveys, the set of questions on fertility intentions in 2006 started with an opening statement suggesting that there are too few children born in Austria: "The question on childbearing desires gives an opportunity, among other things, to better estimate whether the trend towards too low numbers of children will continue or whether we may expect increasing numbers of births in the years to come" (author's translation). This statement might have encouraged respondents to express higher fertility desires. Second, the 2006 survey was conducted by phone, whereas the previous surveys were conducted by face-to-face interviews. Third, markedly fewer respondents expressed uncertainty about their intentions in 2006 (6.3%). It appears that unlike in previous surveys the interviewers in the 2006 survey had not offered respondents the explicit option of expressing uncertainty.



**Table 1** Non-response rate and missing responses in the intention module of Austrian *Microcensus* surveys, 1986–2006

Survey	Birth cohort	Eligible respondents	Refused to participate + unknown parity	Unknown intention + proxy answers	Valid records	Relative distribution, in %		
						Refused to participate + unknown parity	Unknown intention + proxy answers	Valid records
1986	1946–1966	9567	1080	1623	6864	11.3	17.0	71.7
1991	1951–1971	8300	1075	2162	5063	13.0	26.0	61.0
1996	1956–1976	8491	1687	2094	4710	19.9	24.7	55.5
2001	1961–1981	8281	1964	1597	4720	23.7	19.3	57.0
2006	1966–1986	3533	663	0	2870	18.8	0.0	81.2

*Note:* The 2006 survey has not been used in the analysis presented here

### 3.2 *Microcensus* Questions on Fertility Intentions and the Level of Education

The questions on future childbearing intentions were asked to women aged 20–40. They were consistent across different waves of the survey and were asked in the following order (see Appendix for precise question wording in English and German).

- (1) Future childbearing desires, including current pregnancy (yes/no/don't know/no answer)
- (2) Number of children additionally desired in the future
- (3) Approximate range of the number of additionally desired children among respondents uncertain about their childbearing intentions and among those wishing to have more children but unable to specify how many.

The analysis of intentions by achieved level of education works with the following education categories:

- (1) Primary education or no completed education (*Pflichtschule*, 19.0% respondents in the intentions module in 2001)
- (2) Lower-secondary education: Apprenticeship, practical training (*Lehrabschluss* and *berufsbildende mittlere Schule*, 50.7%)
- (3) Higher secondary education: high school, vocational high school (*Allgemeine höhere Schule* and *berufsbildende höhere Schule*, 22.6%)
- (4) Tertiary education: University and university of applied science (*Universität, berufs—und lehrerbildende Akademie*, 7.7%)

These education categories usually give a sufficient sample size to study fertility intentions by age and education.<sup>10</sup> The relatively rigid education system in Austria with low participation in further education in mid-adult years means that for most respondents the level of education achieved in their early 20s will not change any more during their lifecourse. University students, who often complete their studies in their late 20s, constitute an exception.<sup>11</sup> Thus, a comparative analysis of fertility intentions by the highest level of education is meaningful for all four categories at ages above 25. Women completing university education after age 25 are included in the 'higher secondary education' category when studying at the time of the survey.

### 3.3 Methods and Missing Data

The analysis of intended family size is based on a combination of responses about the number of children ever born and about the additionally desired number of children.

<sup>10</sup> Within the category of women with tertiary education it would be useful to look separately at women with education provided by universities of applied science primarily training teachers and social workers. Their fertility is considerably higher and their childlessness is lower than among women with full university education (Spielauer 2005; Prskawetz et al. 2008). However, the sample size of the *Microcensus* does not allow such a distinction for different age (cohort) categories.

<sup>11</sup> According to OECD (2005), 18.3% of Austrians were enrolled in education at age 25, of whom only 2.3% were enrolled in lower than tertiary education. Enrolment in education dropped to 6.7% at age 29.

I use two sets of weights to make the data representative of the Austrian female population. First, I apply weights designed by Statistics Austria that ensure the representativeness of the survey for age, sex, region (federal states) and citizenship structure of the Austrian population. Up until 1996 these weights are provided for the whole survey only, whereas for 2001 special weights are available for the intentions module. These weights, however, did not address the problem of eliminating proxy interviews. In order to offset their strong selectivity with respect to age and parity composition, I re-weighted the data to obtain a structure of respondents corresponding to the age and parity composition of the resident female population in Austria on 1 July of each year analysed.<sup>12</sup> This modified the results considerably, as reproductive intentions were differentiated by current parity. After this two-step weighting, the results for childbearing intentions and uncertainty from different survey rounds corresponded closely. This gave an indirect indication of the usefulness of the weighting procedure applied. For analysis of education differentials in family size intentions, based on the 2001 survey, only the second type of weights was applied. This re-weights the parity composition of the respondents in each 5-year age group so as to correspond to the parity composition within each education category as reported in the 2001 population Census (Statistics Austria 2005).

I compute three estimates of the mean intended family size, which are based on different assumptions about the intentions of uncertain respondents:

(1) ‘Medium variant’

This estimate includes range data for undecided respondents, taking the mid-point of each range category (e.g. one child if a respondent provided a range of 0–2 children). If no such range has been provided, it is assumed that the respondents want no more children.

(2) ‘Decided respondents’ (high variant)

Excludes all undecided respondents (however, it includes range answers of respondents wishing to have child(ren), but unable to specify exactly how many).

(3) ‘High childlessness’ (low variant)

All respondents who are uncertain about whether they intend to have a(nother) child are assumed to prefer having no more children later in life, even if they have chosen a range answer. This assumption treats all uncertain respondents as desiring not to have an additional child, but unwilling to express this desire openly.

The last variant may be considered rather extreme as it treats uncertain respondents as a uniform group. Uncertainty is common, especially at younger ages (Smallwood and Jefferies 2003; Miettinen and Paajanen 2005) when many women are still unsure about the future course of their employment and partnership. However, the assumption used in this variant is consistent with Morgan’s (1982) conceptual view, where uncertainty often arises from fertility postponement after a

<sup>12</sup> The age and parity composition of the female population was estimated from the 1991 Census results combined with the vital statistics on births by age of mother and birth order of child prior and after the date of the 1991 Census (see Prskawetz et al. 2008 for more details).

woman has reached her ‘minimum acceptable level’ of childbearing and where uncertainty frequently translates into foregone fertility. This estimate is also useful for testing the sensitivity of the mean intended family size to different categorisations of undecided respondents.<sup>13</sup>

In two of the *Microcensus* datasets, range replies of uncertain respondents have not been preserved. The 1986 dataset lacks records on the lower value of the range, whereas the 1991 dataset lacks both the lower and the upper value of the range. For 1986, I defined the lower value of the range as one child, which was the most commonly expressed lower value of the range answers in 1996 and 2001. More problematic was the analysis of the 1991 data. I computed two variants of the mean intended family size that can be derived without knowing the range answers of uncertain respondents—the ‘decided respondents’ and the ‘high childlessness’ variants—and then estimated the ‘medium variant’ as a simple average of these two numbers.<sup>14</sup>

#### 4 Changes in Intended Family Size by Age and Birth Cohort

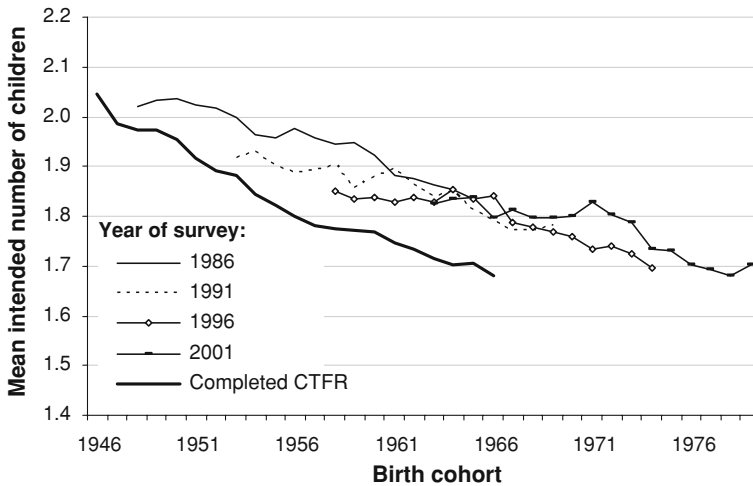
Looking at the medium variant estimate, different rounds of the *Microcensus* survey provide evidence of relatively low fertility intentions, which were declining gradually among younger cohorts (see Fig. 1). Starting with the mid-1950s cohorts, all subsequent cohorts of women expressed below-replacement fertility desires from their young adult years through their reproductive span. These data also provide a reasonably good approximation of completed fertility: Typically, the mean desired family size surpasses the ultimately achieved cohort fertility by about 0.1 and, not surprisingly, this gap declines after age 35.

Figure 2 depicts cohort trends in the mean desired family size by age. The figure confirms that intended family size gradually declined across cohorts and that women consistently expressed low fertility intentions from their young adult years. The declining trend was strongest among the cohorts born in the 1950s and persisted at different stages of reproductive life. For the 1950s cohorts, the mean intended family size further declined throughout their 30s, corresponding to a repeated finding of downward revisions of fertility intentions over the reproductive life (Berrington 2004; Quesnel-Vallée and Morgan 2003; Liebroer 2008). The mean intended family size of women born in 1961–1965 remained remarkably stable from their young adult years through to their late 30s, while the younger cohorts show a very slight rise in their aggregate intentions before reaching the age of 30. Regrettably, at present there are no panel data that would allow us to trace changes in reproductive desires of individual respondents in Austria.

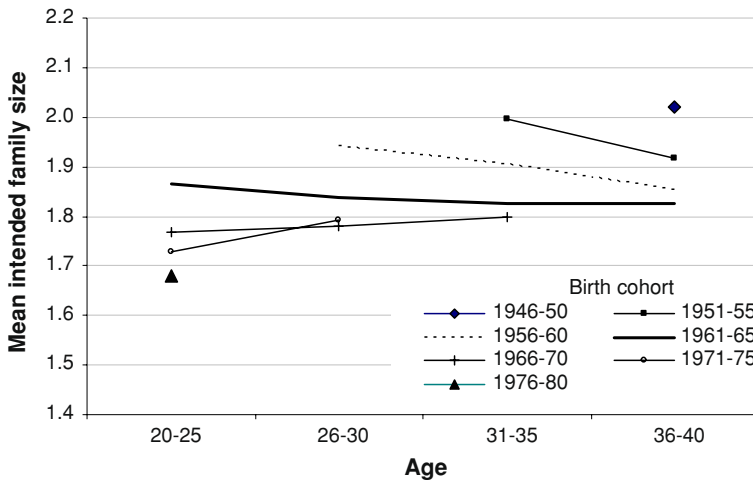
It is possible that the trend to low fertility intentions in Austria is primarily driven by a rise in the proportion of women intending to remain childless or undecided

<sup>13</sup> Finer specifications can be adopted as well. For instance, the low and the high values of the range distributions of the undecided respondents can provide further sub-variants to the medium variant (see Smallwood and Jefferies (2003) for a discussion of similar assumptions in England and Wales).

<sup>14</sup> This estimation was broadly in agreement with the findings in the other rounds of the survey and has not resulted in any obvious inconsistencies in trends over time, across cohorts, and age groups.

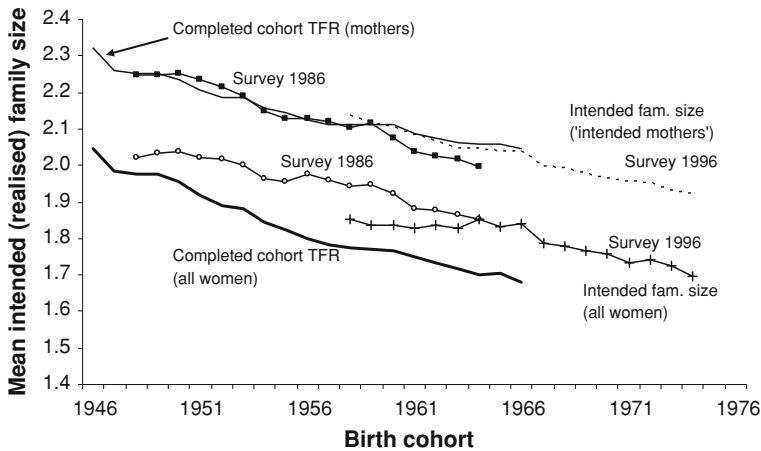


**Fig. 1** Mean desired family size of women born in 1949–1979 (medium variant estimate) and completed fertility of women born in 1946–1966. *Notes:* Data on completed cohort fertility originate from Prskawetz et al. 2008. Data on the mean intended family size exclude proxy interviews and were weighted to correspond to Austrian female population by age and parity. The results were smoothed to remove random fluctuations (5-year moving averages are used)



**Fig. 2** Mean desired family size by age, birth cohorts 1946–1980. Medium variant estimate. *Note:* Data on the mean intended family size exclude proxy interviews and were weighted to correspond to Austrian female population by age and parity

about their childbearing plans. An inspection of trends in the mean intended family size among women who had become mothers at the time of the survey or who intended to become mothers in the future yields two main conclusions. First, although younger women who desire to become mothers generally express lower fertility intentions than their older counterparts, their mean intended family size still



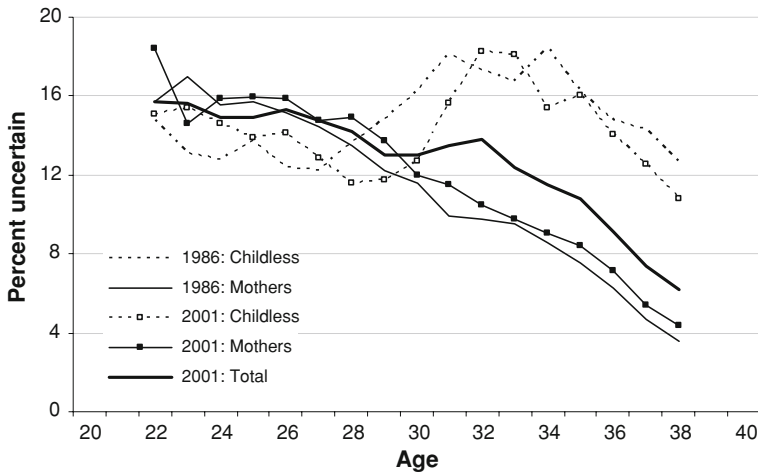
**Fig. 3** Mean desired family size of ‘intended mothers’ and of all women in 1986 and 1996 (medium variant estimate) compared with their eventually achieved mean number of children. *Note:* See Fig. 1

remains close to two children. Second, the mean intended family size of mothers (both actual and ‘intended mothers’), even at younger ages, appears to be a very reliable predictor of the ultimately achieved mean number of children per mother. This is illustrated in Fig. 3, which gives an example of desired mean family size based on the 1986 and 1996 surveys as compared with ultimately realised mean family size, separately for women who aspire to become mothers and for all women.

## 5 Uncertainty About Childbearing Intentions and its Role for Estimating Intended Family Size

Uncertainty related to future childbearing desires is closely linked to age and current parity; this pattern was very stable across different waves of the *Microcensus* survey. Considering only respondents who gave explicitly uncertain answers, uncertainty among the childless was relatively stable or even declined slightly in their 20s, reaching up to 15%, but then rose at ages 29–31, peaking at around 18% at ages 31–34 and declining thereafter (see Fig. 4 for the 1986 and 2001 surveys). This elevated level of intention uncertainty among childless respondents after age 30 has been reported by Berrington (2004) for England and Wales as well. This is the group of ‘perpetual postponers’—childless women who have made a series of postponing decisions or who have never been able to make a decision about childbearing—many of whom are likely to remain permanently childless (Rindfuss et al. 1988). The picture is different for mothers, among whom intention uncertainty was highest and even surpassed that of the childless women in their early 20s and then rapidly declined with age. With more women entering motherhood, the percentage of uncertain respondents among the total sample declined steadily after age 30.

How does uncertainty impact on estimates of the mean intended family size? When the responses of undecided women are simply ignored and only the intended



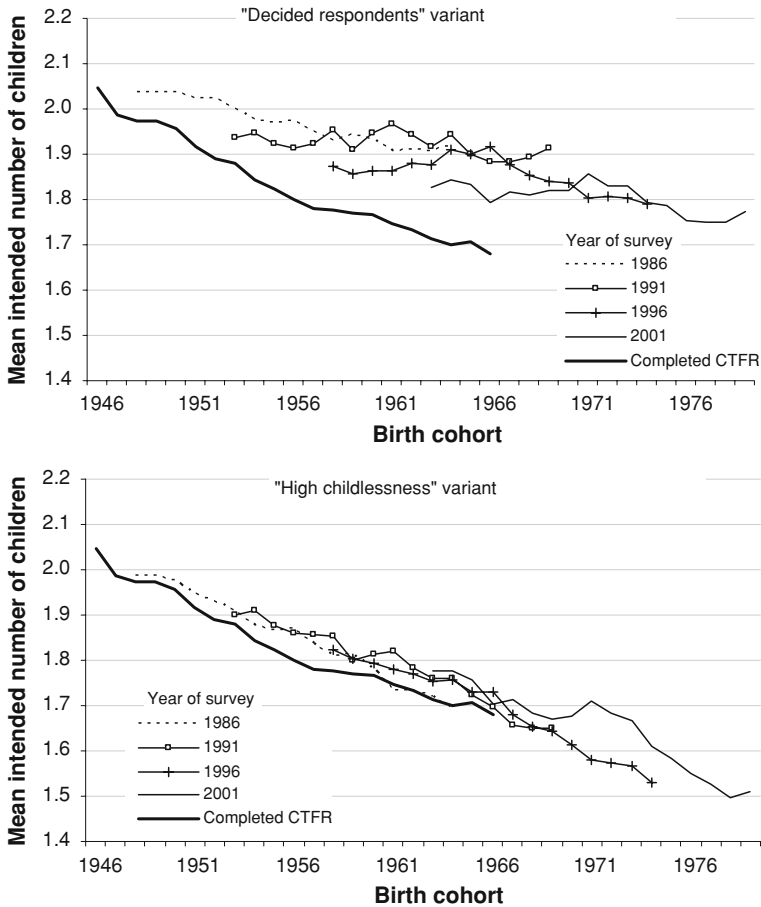
**Fig. 4** Percentage of respondents undecided about their fertility intentions by age; childless women and mothers, 1986 and 2001. *Notes:* Data include only respondents expressing explicit uncertainty (providing a “do not know” answer); respondents intending to have a child, but uncertain about the number of children desired were not considered. Data were smoothed to remove random fluctuations (5-year moving averages are used)

family size of women who provided specific (i.e. non-range) intentions is analysed, the following picture emerges: younger women in each survey display higher family size intentions than in the medium variant, but later they show, on average, a downward trend in their intentions (Fig. 5). However, the main message on the shift to sub-replacement fertility intentions among women born in the mid-1950s and later is also supported by the ‘decided respondents’ variant.

Different assumptions about uncertainty affect the estimates of intended family size among younger women especially (see also the next section). Although based on unrealistic assumptions, the ‘high childlessness’ variant, presupposing that undecided women actually do not desire to have a(nother) child, appears to be very useful for projecting completed fertility. For the cohorts born between 1948 and 1966 the mismatch between mean intended and ultimately realised family size was below 0.1 in all the surveys and across different age categories (Fig. 5, lower panel). Such a good correspondence of intentions with actual behaviour is, however, achieved only once the sample is weighted to correspond at each age (cohort) group to the parity composition among the Austrian female population.

## 6 Intended Family Size and Parity Distribution Among Young Adults

Childbearing intentions are most uncertain and unstable at younger ages (e.g. Berrington 2004). In the view of Régnier-Loilier (2006), p. 190, the intentions of young and childless persons are relatively abstract, because they are ‘disconnected from the realities of parenthood’. Nevertheless, a focus on young adults offers important insights about aggregate changes in childbearing desires at this pivotal



**Fig. 5** Mean desired family size among women born in 1949–1979, ‘decided respondents’ and ‘high childlessness’ variant estimates. Notes: See Sect. 3.3 for the definition of the ‘decided respondents’ and ‘high childlessness’ variants. See Fig. 1 for other notes

stage of life when reproductive plans are being formed (see also Liefbroer 2008). This analysis is also relevant for making inferences about the likely future trends in fertility: desired family size may be seen as the most critical determinant of future fertility (Schoen et al. 1999; Bongaarts 2001). Considering that there are many reasons for the fertility desires of some couples to remain unrealised (see Sect. 2.1 above), the mean intended family size might be seen as a hypothetical ceiling of the eventually realised fertility. If this reasoning holds, any further decline in the fertility intentions of young adults would signal a decline in the hypothetical upper bound of their future completed fertility.

Already in 1986, young adult women in Austria expressed sub-replacement fertility intentions that ranged between 1.72 (‘high childlessness’ variant) and 1.91 (‘decided respondents’ variant). These values subsequently declined further and the range of the mean intended family size among young women reached 1.49–1.75 in



**Table 2** Trends in the desired family size among Austrian women aged 20–26, 1986–2001

Year	Cohort	Mean desired TFR per woman (three variants)			Women who desire to become mothers Medium variant
		Medium variant	High childlessness	Decided respondents	
1986	1961–1965	1.86	1.72	1.91	2.02
1991	1966–1970	1.77	1.65	1.89	2.09
1996	1971–1975	1.73	1.57	1.81	1.93
2001	1976–1980	1.68	1.49	1.75	1.96

*Note:* Data on the mean intended family size were weighted to correspond to Austrian female population by age and parity

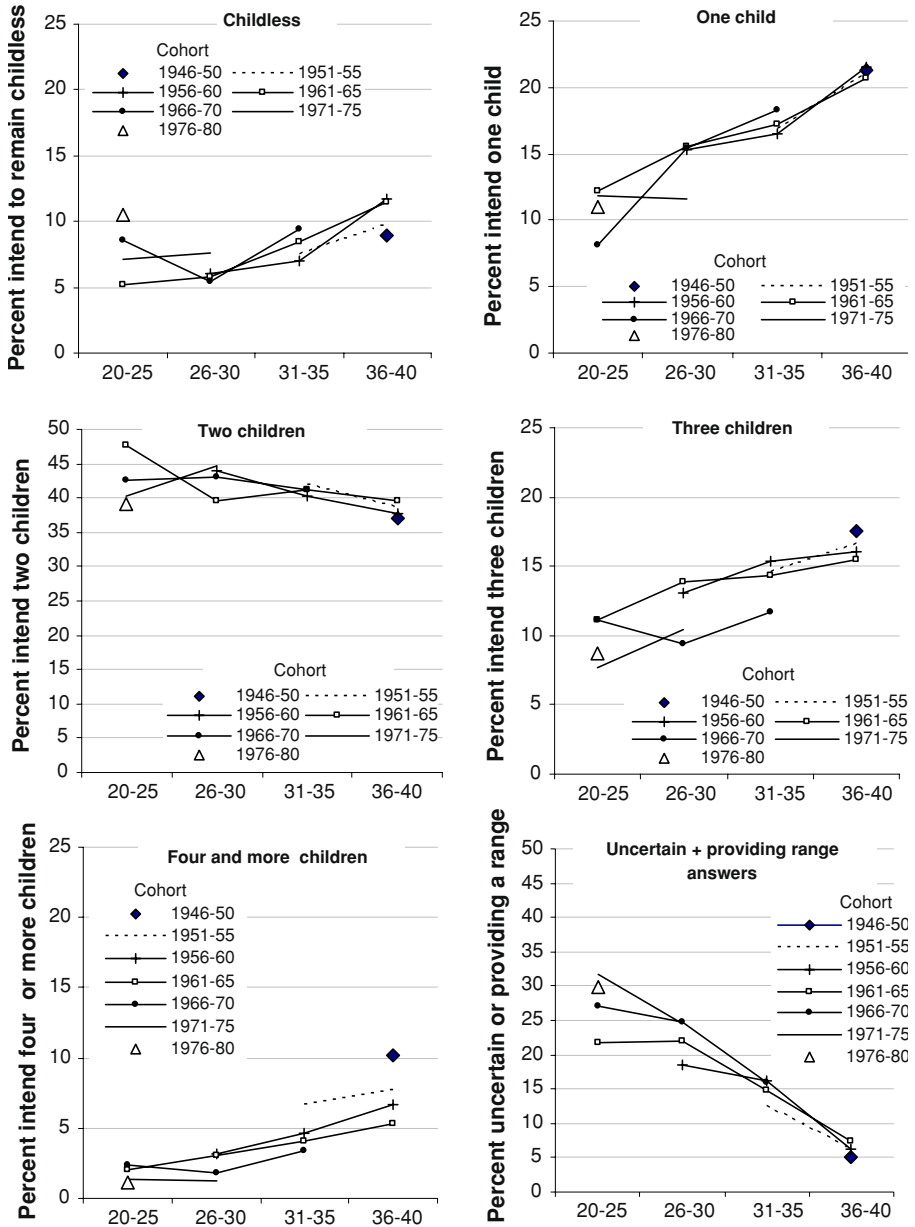
2001 (Table 2). As the ‘high childlessness’ estimate rests on rather unrealistic assumptions for the group of young adults, it is safe to conclude that the mean intended family size among younger Austrian women had declined to 1.6–1.8 by the beginning of the twenty first century. This trend was marked by relatively high uncertainty; in 2001 16% of young women were uncertain whether they wanted to have a(nother) child and another 14% could not give a precise answer about their intentions (Table 3). Among those who intended to become mothers the mean intended family size remained stable over time and hovered around two children (Table 2).

A two-child family norm has persisted over time, although some decline in the preference for two children can be observed; 39% of all young respondents and 56% of the decided respondents wanted two children in the 2001 survey (Table 3). One out of 10 younger women expressed their preference for childlessness in the 2001 survey, which represents a doubling of the percentage of women intending to remain childless in 1986. It is still unclear, however, whether this signals a shift towards more widespread voluntary childlessness. Overall, the preference for a family with three or more children is remarkably small among young adults (only one out of ten respondents and 15% of the decided respondents) and it is well below the larger-family preferences reported by young women in England and Wales

**Table 3** Desired family size distribution among women aged 20–26, 1986–2001 (medium variant, including uncertain respondents)

Year	Percentage intending specific parity					
	Childless	1	2	3+	Uncertain	Giving range
1986	5.2	12.2	47.6	13.3	12.9	8.8
1991	8.6	8.2	42.7	13.6	14.0	13.0
1996	7.2	11.8	40.3	9.1	16.1	15.6
2001	10.5	11.0	39.0	9.8	15.6	14.2

*Note:* Data on the intended family size were weighted to correspond to Austrian female population by age and parity



**Fig. 6** Desired number of children by age and birth cohort, in percent. *Notes:* Scale of the y axis differs in the graphs for two-child intentions and for uncertain respondents. Data on the intended family size exclude proxy interviews and were weighted to correspond to Austrian female population by age and parity

(Smallwood and Jefferies 2003) and the Netherlands (de Graaf and van Duin 2007).<sup>15</sup>

## 7 Intended Parity Distribution

As the percentage of women uncertain about their childbearing intentions or providing range answers declines with age, it can be expected that most parity-specific preferences will gain in importance. Figure 6 largely confirms this hypothesis, albeit with the notable exception of a two-child preference that dominates strongly in young adult years. All other parity preferences become more frequent with age, as most of the uncertain respondents eventually make up their minds about their childbearing plans and some of the 'decided' respondents change their reproductive goals. The most remarkable increase occurs with respect to one-child intentions, which remain rather rare at young adulthood, but become quite common among women in their 30s. Interestingly, even larger family preferences gain in importance during this process. A portion of this age-related aggregate increase in larger-family size preferences may be attributed to the higher fertility desires of recent immigrants, who increased their share in the population between different rounds of the survey, and to the effects of unwanted fertility, which remains significant even in contemporary advanced societies (Bongaarts 2001; Régnier-Loilier and Leridon 2007).

Despite its declining importance with age, a two-child preference remains dominant throughout the reproductive span, with close to 40% of women in their late 30s desiring to have two children. At that age, approximately one-tenth of women wanted to remain childless in 2001, one-fifth intended to have one child only and around 15% intended to have three children. Across cohorts, there has been a steady decline in the preference for a large family of four or more children, which has become rare.

## 8 Education Differences in Intended Family Size

Along with Germany, Austria is characterised by large education differences in realised fertility and high childlessness among university-educated women. A study on desired family size in Germany by Heiland et al. (2005) did not detect a negative association between education and family size preferences and suggested that highly educated women on average desire two or more children while realising much lower fertility (p. 22). Similarly, a comparison European countries participating in the *Fertility and Family Survey* did not find a systematic effect of education on fertility

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<sup>15</sup> A preference for larger-family size is similarly uncommon in the Czech Republic where according to the 2005 *Generations and Gender Survey* only 14% of women aged 18–24 intended to have three or more children (Sobotka et al. 2008, Table 7).

**Table 4** Desired family size distribution among women aged 26–30 by the highest achieved level of education, 2001 (medium variant estimate)

Year	Percentage intending specific parity				Mean desired FS	N
	0–1	2	3+	Uncertain + giving range		
EDU-1	26	39	19	16	1.82	156
EDU-2	20	45	11	24	1.81	493
EDU-3	17	44	10	29	1.72	193
EDU-4	13	52	7	28	1.72	66
Total	20	44	12	24	1.79	908

Note: See Fig. 7 above

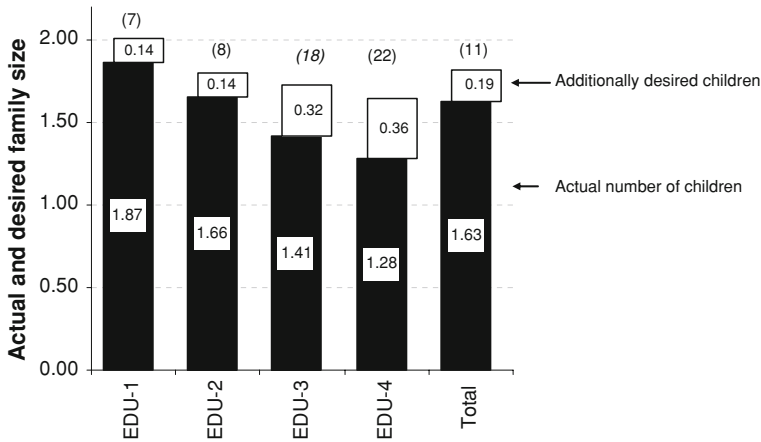
preferences (van Peer 2002b).<sup>16</sup> Fahey (2007), working with the *Eurobarometer* survey of 2001, reported that education has a weak effect on ideal family size in Europe. These findings suggest that in countries where education is negatively associated with completed fertility, this effect usually operates via the lower ability of highly educated women to achieve their intended family size rather than through their lower fertility preferences (Fahey 2007). Fertility postponement plays an important role in this mechanism, as highly educated women often delay childbearing until their late 30s and thus have a relatively short time to achieve their plans (e.g. Berrington 2004).

Austrian *Microcensus* data reveal that by 2001 educational differences in the mean family size intentions of women aged 26–30 had practically disappeared, with all education groups desiring on average 1.7–1.8 children (weighted results, Table 4).<sup>17</sup> Thus, low fertility intentions have been adopted by all education groups. Parity-specific results show that the higher educated women have more uniform intentions, most frequently centred at two children. A preference for both smaller and larger family size declines with education level. When undecided respondents are disregarded, 47% of the lowest-educated women and as many as 72% of the tertiary educated women expressed an intention to have two children.

In line with the findings from other studies (e.g. van Peer 2002b; Berrington 2004), *Microcensus* data reveal that higher educated women frequently postpone their childbearing into their mid- and late-30s. Several studies have shown that higher-educated women not only postpone their childbearing, but also revise their fertility intentions downward more frequently than less educated women (see Quesnel-Vallée and Morgan 2003 for the United States; Miettinen and Paajanen

<sup>16</sup> After controlling for selected factors (age, employment, partnership status, and the indicators of the value of children), van Peer and Rabušić (2008) found that higher-educated men and women were less likely to prefer small family sizes (0 or 1 child) than their lower-educated counterparts.

<sup>17</sup> Earlier surveys of fertility desires in Austria, then conducted among married women only, did not detect any differences in fertility desires for women with higher than primary education. In 1978 married Austrian women of reproductive age with higher than primary education desired between 2.06 and 2.11 children on average (Institut für Demographie 1980, p. 138, Table A.2.6). However, differences in the proportion of married women among education groups as well as the lacking data for unmarried women make these results incomparable with my analysis.



**Fig. 7** Mean realised and additionally desired number of children among Austrian women aged 35–40 by their highest achieved level of education (2001, medium variant estimate). *Notes:* Numbers in brackets represent the percentage of the total intended family size to be realised in the future. Data on the mean intended family size exclude proxy interviews and were weighted to correspond to Austrian female population by age and parity within each education category (Census 2001 data were used to determine these weights). Educational categories are listed in Sect. 3.2

2005 for Finland; Liefbroer (2008) for the Netherlands). The data for Austria, where the structural obstacles to combining a working career with childrearing are rather pronounced (OECD 2003; Engelhardt 2004), fall in line with these findings. At age 36–40, over one-fifth of the total childbearing intentions among women with tertiary education and 18% of intentions among women with higher secondary education still remain to be realised (Fig. 7). At the same time, however, an educational gradient in fertility would emerge even if the highly educated women realised all their childbearing plans in their late 30s and early forties.

## 9 Discussion of Major Findings

The mean desired family size in Austria has already dropped below-replacement level for the cohorts born in the mid-1950s and below-replacement desires have been consistently recorded in the *Microcensus* surveys since 1986. Austrian women express sub-replacement fertility intentions at young adult ages and retain them throughout their reproductive span. The two-child family norm, however, still clearly dominates fertility intentions of different age, cohort and education groups. Different assumptions about reproductive preferences of undecided respondents change the intended family size to a significant extent, especially among young adults, but do not alter these general conclusions. There is a remarkable convergence of fertility intentions among different education categories of women aged 26–30. However, many of the higher-educated women have still not realised their reproductive desires when they approach the age of 40. The findings in this

study generally corroborate previous findings on low intended and ideal family size in Austria.<sup>18</sup> Austria is, along with Germany, the country where sub-replacement fertility intentions in Europe emerged first. In fact, low fertility intentions emerged in the generation of women born into relatively large families during the baby boom era of the late 1950s and 1960s.

Intention uncertainty warrants distinct interpretation at different stages of the reproductive life course. Many young people tend to embrace a 'flexibility strategy' (Liefbroer 1999), especially if they are childless and do not have a steady partner, but that does not imply that most of those who express uncertainty do not want to have children. Rather, uncertainty at younger ages appears to signal an intention not to have children in the foreseeable future. It may also indicate respondents' willingness to formulate or adjust fertility plans in accordance with their future partnership situation and their partner's preferences. As Schoen et al. (1999) show, fertility intentions are strongly contingent on marriage (or lasting union). For women in their mid- and late-30s, however, a different conceptualisation of uncertainty appears appropriate: Many 'older' uncertain respondents probably do not have a strong childbearing motivation and are unlikely to have a(nother) child later in life. A similar interpretation has been pursued in several studies suggesting that many women at later childbearing ages have a tendency "to keep the option of an additional child until there is a definitive decision to terminate it" (Westoff and Ryder 1977, p. 449; see also Morgan 1981, 1982; Smallwood and Jefferies 2003).

This study has confirmed that excluding uncertain respondents and analysing the data only for the 'decided' women biases the results (Morgan 1982) and leads to higher and less realistic estimates of the mean intended family size. The survey results analysed here have been affected by the selectivity of respondents with respect to their parity composition, with childless women being most under-represented. Re-weighting of the sample to make it correspond to the age and parity composition of the Austrian female population proved to be a very useful strategy that eliminated some of the initial odd results of the analysis. While many surveys provide weights that are designed to make them representative of the country's population, parity composition, which is a paramount determinant of fertility intentions, is usually ignored as a weighting factor.

Aggregate differences between fertility intentions and achieved family size as well as the predictive value of fertility intentions constitute a recurrent theme in fertility research (see Morgan 2001 for a useful review). The analysed data display high consistency of trends across cohorts and over reproductive years, which lends credibility to the predictive usefulness of the aggregate fertility intentions in this low-fertility country with stable fertility trends. In particular, the mean intended family size of the 'intended mothers' as well as the 'high childlessness' estimates came remarkably close to the eventually achieved family size among mothers and among all women, respectively.

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<sup>18</sup> Note, however, that the articles Goldstein et al. (2003) and by Testa (2007) focus primarily on ideal, not intended family size. *Eurobarometer* data, which suffer small sample size, indicate even lower values of intended family size among Austrian women than the *Microcensus* data presented here.

## 10 Is the Austrian Shift to Sub-replacement Family Size Preferences Unique in Europe?

Alongside Austria, an increasing number of European countries have experienced a fall in desired family size among young adult women to sub-replacement levels. Around 2002, young women in the Czech Republic, Hungary, the Netherlands and Spain expressed sub-replacement family size intentions of 1.80–1.85 (Table 5, data for Hungary refer to both men and women combined).<sup>19</sup> For England and Wales, a similar low desired family size emerges only when uncertain women are assumed to have low reproductive desires.<sup>20</sup> Outside Europe, women in the United States aged 18–24 intended a mean family size of 1.88 in 1998 (Hagewen and Morgan 2005, p. 521, Table 2). Low reproductive desires among young women in some countries of Europe mark the beginning of a new era in the history of low fertility. Obviously, the often reported pervasiveness of replacement-level fertility desires and preferences in Europe is no longer universally valid.

The Netherlands, England and Wales, the United States and Austria represent regions where aggregate expectations of women about their ultimate family size closely match their eventual fertility levels. A small ‘gap’ between childbearing intentions and realised fertility still remains, but it has been reduced to about 0.1 children per woman. This does not mean that individual respondents are consistent in their reproductive plans, but it suggests that their ‘prediction errors’ are frequently compensating (see Quesnel-Vallée and Morgan 2003 for the US evidence). Spain, Hungary and the Czech Republic, on the other hand, are countries where period fertility rates declined precipitously throughout the 1980s (Spain) and the 1990s (Czech Republic and Hungary) and where trends in fertility intentions seem to follow fertility trends with a certain time lag. In these countries, the desired family size still remains well above the actual period fertility rates as well as above the likely future cohort fertility and thus the familiar ‘gap’ between reproductive goals and fertility outcomes remains. In Spain, similarly to Austria, women embracing low reproductive preferences were still socialised in larger families.

It is possible that European countries will become more diverse in family size preferences, as they are becoming increasingly differentiated in their actual fertility levels (e.g. Frejka and Sobotka 2008). If such a development is indeed to take place, women and men outside the ‘higher-fertility belt of Europe’ (Nordic countries, France, United Kingdom, Ireland and Benelux) will increasingly adopt low fertility desires, and many more will express intentions to remain childless (Sobotka and Testa 2008) or to have only one child. At present, the two-child family norm still firmly dominates fertility desires and family size ideals across Europe. Further persistence of this norm is becoming uncertain, however, especially in the countries of southern, eastern and central Europe.

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<sup>19</sup> Comparability of results for these countries may be affected by using different data sources, different surveys and also by the differences in the questions on fertility intentions. Also the choice of uncertainty, when allowed, hinders this comparability. Nevertheless, these methodological issues do not affect general conclusions on the spread of sub-replacement family desires.

<sup>20</sup> The data reported in Table 5 assume that uncertain respondents will have either no (additional) child or only one additional child (Smallwood and Jefferies 2003, p. 21, Table 5).

**Table 5** Mean intended, expected or desired family size among young adult women in selected countries of Europe, around 1996 and 2002

Country	Age	Period: around 1995	Period: around 2002
Austria			
Medium variant	20–25	1.73 (1996)	1.68 (2001)
High variant (excluding uncertainty)	20–25	1.81 (1996)	1.75 (2001)
Czech Republic	18–24	1.92 (1997)	1.85 (2005)
England and Wales			
Medium variant (excluding uncertainty)	21–23	2.13 (1994–1996)	2.14 (1998, 2000–2001)
Alternative var. (including uncertainty) <sup>a</sup>	21–23	1.73 (1994)	1.85 (1998, 2000–2001)
Hungary (both men and women)	20–24	n.a.	1.82 (2004–2005)
The Netherlands	23–27	1.77 (1998)	1.81 (2003)
Spain	20–24	2.20 (1995)	1.80 (1999)

*Sources:* Austria: author's own computations from *Microcensus* data; Czech Republic: Sobotka et al. 2008; England and Wales: Smallwood and Jefferies 2003; Hungary: Spéder and Kapitány 2008; Netherlands: de Graaf and van Duin 2007; Spain: Delgado et al. 2008

*Notes:* Question wording differed between the surveys listed; see the listed sources for precise question wording

<sup>a</sup> Estimate in Option (a), Table 4 in Smallwood and Jefferies (2003, p. 21)

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## Appendix: Questions on Fertility Intentions in Austrian *Microcensus* Surveys

### German text

XK3 "Haben Sie den Wunsch, irgendwann in Ihrem weiteren Leben (noch) ein oder mehrere Kind(er) zu bekommen? Bitte rechnen Sie eine allfällige gegenwärtige Schwangerschaft mit!":

[Responses: R01 "Ja", R02 "Nein", R03 "Weiß nicht", (R04: no reply)]

XK4a "Wie viele Kinder wünschen Sie sich (noch)?"

[Responses: 1..15]

XK4b "Und wenn Sie gebeten werden, doch eine ungefähre Zahl anzugeben, wie viele Kinder wünschen Sie sich (noch)? Sie können auch eine Von-bis-Anzahl angeben."

### English translation:

XK3: "Do you desire to have (yet) a(nother) child at any point in your future life? Please include also current pregnancy"



Possible responses:

- Yes (→ XK4a)
- No (→ END)
- Does not know (→ XK4b)
- No answer, refusal (only in 1986–2001 waves, → END)

XK4a: “How many more children do you desire?”

Possible responses:

- Number (1–15)
- Does not know (only in 1986–2001 waves, → XK4b)
- No answer, refusal (only in 1986–2001 waves, → END)

XK4b: “And when you were asked to provide an approximate number, how many children do you desire (yet)? You can also choose a range from—to”

Possible responses:

- Number <from x to x>, excludes possibility of choosing no additional children
- Does not know
- No answer, refusal (only in 1986–2001)

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