A comparative analysis of childbearing norms across Europe

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Abstract

This study is a first attempt to analyze the phenomenon of low and late fertility from a life course perspective and to explain how the perception of upper age limits to childbearing and attitudes towards childlessness are related to different factors and social processes. Moreover, we aim at significantly contributing to the existing literature on social norms and childbearing by adopting a comparative perspective, namely using the third round of the European Social Survey (ESS). The paper integrates the micro and the macro perspective in a way to analyze the perception of childbearing norms both at the individual and country level by running a series of multilevel models. Individual life styles and values play a major role in explaining differences in upper age limits to childbearing, while a much larger portion of variation in attitudes towards childlessness is attributed to country-level differences.

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1. Introduction

During the last decades European societies have undergone major social and cultural changes, which have hugely affected the perception of traditional values concerning family and reproduction. One important change is the postponement of key life transitions in adolescence and early adulthood: young women and men devote more time to education, leave the parental home and get married later. Relative to their parents' generation they also form families later. This can be interpreted as the consequence of different social processes, not necessarily unrelated to each other. On one hand, women spend more time in education and may more easily reach economic independence. Those investing in education may be more focused on careers, especially at younger ages, and may, as a consequence or in addition, tend to avoid stable partnership. Moreover, the introduction of modern contraceptives has made it easier for women to avoid unintended pregnancies. As a consequence, never before in history have European women attempted to borne their first child, on average, so late as at the beginning of the 21st century (Francesco C. Billari & Kohler, 2004; H.-P. Kohler, Billari, & Ortega, 2006; F. Prioux, 2005).

In this respect, we observe different patterns across Europe both in total fertility rates and fertility at advanced ages. It then becomes interesting to analyze this heterogeneous fertility context according to a life course perspective and, more precisely, to analyze the relationship between social norms and childbearing behaviour. With very few exceptions, the existing literature on low and late fertility has mainly focused on documenting the change in timing and quantum of childbearing from a demographic perspective. Notwithstanding the fact that a number of previous demographic studies have highlighted the importance of social norms (Francesco C. Billari & Micheli, 1999; Liefbroer & Billari, 2009; R. A. Settersten, Jr. & Hagestad, 1996), the literature has given limited attention to understand the countervailing effects of incentives for fertility postponement and social norms.

The contribution of this paper will be threefold. This study is a first attempt to analyze recent fertility trends adopting a life course perspective and to explain how the perception of upper age limits to childbearing and attitudes towards childlessness are related to different factors and social processes. The paper aims at integrating the micro and the macro perspective in a way to analyze the perception of childbearing norms and

childbearing behaviours both at the individual and country level. This is done by running a series of multilevel models which take into account the variation of upper age limits to childbearing at the individual and country level. The final aim is that of significantly contributing to the existing literature on social norms and childbearing by adopting a comparative perspective. This is done by using the third round of the European Social Survey (ESS) which was collected in 2006 and contains a specifically designed module on life-course norms. The analyses will therefore be mainly comparative. The ESS is particularly relevant to run comparative analyses and the third round includes a total of 25 countries belonging to the Eurasian region.

The paper is structured as follows. Section 2 describes recent patterns of fertility behaviours. Section 3 provides an overview of the literature on social norms and their definitions. Section 4 describes the European Social Survey. Section 5 presents descriptive statistics of the childbearing norms under study. Section 6 presents the multilevel models to highlight how individual and country level factors are able to explain variation in childbearing norms. Section 7 concludes.

2. New patterns of fertility behaviours

Fertility at advanced ages is in a sense an old phenomenon as up until the 19th century high parity women kept having children until the end of their reproductive period as a consequence of no family planning. The most significant factor in the decline of late fertility has been the gradual and virtually total disappearance of large families as a result of birth control, at first by means of traditional methods and later using more "modern" and efficient methods, namely birth control pill, IUD, sterilization, legal abortion (Frejka, 2008; F. Prioux, 2005). Late childbearing has been resurging again, starting from the 1970s in selected European and East-Asian countries. The long-lasting declining trend in late childbearing has reversed, but with different characteristics with respect to the past: late fertility it is now typical of older mothers who postpone their first or second births to an older age as the consequence of a general postponement of different demographic transitions (F. Prioux, 2005). The trend towards delayed parenthood has become universal across the developed world together with a progressive decrease to below replacement fertility rates.

The transition to the dominant use of modern contraceptives by the majority of the populations, "the contraceptive revolution", took place in Northern and Western

European countries during the 1960s and 1970s. Southern Europe saw the introduction of modern contraceptives some years later and their use, although relatively limited, has increased substantially during the last two decades. In Eastern Europe, reproductive behaviour has significantly changed during the 1990s and early 2000s following the collapse of the totalitarian regimes in the former socialist countries. Across countries of Eastern Europe and Former Soviet Republics, the "abortion culture" has been deeply absorbed by these societies for a very long time: this is the reason why it is taking a long time for birth preventing behaviour to modernize. On the other side, by the early 2000s, countries of central Europe with reliable abortion registration witnessed levels very close to the ones of Western Europe (Sobotka, 2004a).

More recently with respect to the diffusion of late childbearing, in many European countries cohort measures of completed fertility suggest increasing rates of childlessness (Frejka & Sardon, 2006); moreover, a number of recent studies highlight how attitudes towards childlessness have gradually changed such that childlessness is nowadays becoming socially acceptable and sometimes a declared choice (F. C. Billari, 2005; Hoem, Neyer, & Andersson, 2006; Sobotka & Testa, 2008; Tanturri & Mencarini, 2008; Testa, 2006). However, our understanding over the determinants of permanent childlessness still remain to be extensively improved (Sobotka & Testa, 2008). The work by Hoem et. al (Hoem et al., 2006), for example, reveals how surprisingly the field of education has more explanatory power when attempting to understand patterns to childlessness compared to the mere level of education attained.

The shifts in the tempo and quantum of childbearing behaviours were (and are still today) therefore linked to the diffusion of new contraceptives techniques, new ideas and social processes which made it more "normative" for women to start their childbearing experiences later in life and eventually to incur into (voluntary and involuntary) childlessness. However, substantial differences still exist today as some countries are much more advanced into the postponement of childbearing (Liberal countries, for example) than others (Eastern European and Soviet Union countries). The same holds for childlessness rates (Sobotka, 2004b; Tanturri & Mencarini, 2008). Studying current fertility dynamics through social norms in a comparative micro-macro framework can therefore provide useful insights in terms of links between attitudes, ideas, fertility behaviours and socio-economic changes. And perhaps, shed some insights on future trends as well.

3. The theoretical definition of social norms and their influence on demographic behaviour

Notwithstanding the theoretical importance of the concept of norms within demography and sociology in general, surprisingly little amount of research has been carried out in order to assess the actual existence and relevance of social norms in modern society. Moreover, norms on fertility behaviour and how they are associated with individual, cultural and economic determinants have received poor theoretical and empirical attention (Koropeckyj-Cox & Pendell, 2007). Comparative studies, to the best of our knowledge, are missing as well.

The importance of norms in shaping demographic choices has particularly been stressed by the proponents of the life-course paradigm (Liefbroer & Billari, 2009). The life course paradigm begins with the assumption that lives are socially structured and that age becomes most interesting as a social phenomenon (R. A. Settersten, 2003). Rather than focusing on individual status transitions, life course theory emphasizes the timing and sequencing of transitions. Transitions acquire different meanings and consequences according to when they occur in the life course. Life course theory therefore claims that the timing and sequencing of different transitions should be the focus of research (Paul et al., 2008). According to the life course paradigm, the occurrence, timing and sequencing of demographic behaviours are influenced by the norms about the appropriate occurrence, timing and sequencing of these behaviours that are perceived by the couple or the individual who are making the decisions.

According to Settersten (2003), in most Western societies, the life course is at least partially age-differentiated with social roles and activities allocated on the basis of age or life period. The degree of age structuring and the relative degree of formal and informal age structuring may vary by life sphere. For example the family sphere is not as structured as that of education and work. As a matter of fact, the public sphere sees the intervention and influence of social policies whereas the family is considered to belong to the private sphere and hence is not subject to the regulation and intervention of the State. Settersten argues that, whereas the life course in the public domain of education and work is mainly structured by formal age criteria and norms concerning the appropriate timing and sequencing of events, norms concerning cultural changes have caused norms on the "structuration" of the life course to become unclear, variation in the life course patterns to increase and life planning to become increasingly important.

Throughout the last decades, important historical changes in Western Societies have occurred in the structure and content of the education-work-leisure organization. In this respect, there is evidence that lives have become *de-chronologized*, *de-institutionalized* and *de-standardized* as new opportunities exist for individuals to move between or simultaneously pursue educational, work and leisure experiences throughout life. This suggests that lives have become more flexibly organized and experienced; as a consequence, study of social norms and their role in shaping demographic behaviour becomes crucial.

Liefbroer and Billari (2009) approached life course norms by first defining them; as a matter of fact, the concept of social norms has been widely used in the literature but never been properly defined. Three main categories of norms were identified: age, quantum and sequencing norms. Age norms are expectations about the appropriate age at or age range within which behaviours should occur. In this respect, both upper and lower age limits can exist. Quantum norms refer to the number of times an event should or should not be experienced. In this respect, lower and upper number limit can be defined. Finally sequencing norms refer to the order in which two or more events should occur in the life course.

Liefbroer and Billari defined life course or demographic norms as statements:

a. Related to the necessity (*prescription),* possibility (*permission)*, or impossibility (*proscription)* of undertaking certain behaviours.

b. Characteristic of a certain group of actors. Norms need not to be shared by a population as a whole.

c. Sustained by sanctions. This is the most controversial element when defining norms and their characteristics. According to this statement in order to be able to speak about norms, a sanction needs to be attached to moral expectations. Sanctions can be both positive and negative where the latter plays a more important role than the former since negative sanctions desist people from acting against the norm. On the other side, other scholars express the idea that sanctions don't necessarily need to be attached to norms, because people may have internalized them such that they may still have a strong regulating power even in the absence of social control, eventually supported by internal calendars which shape behaviour (Buchmann, 1989; Gibbs, 1981; Heckausen, 1999; Meyer, 1998). Liefbroer and Billari hypothesize that sanctions and internal calendars may not be mutually exclusive concepts. As a matter of fact, people may hold general ideas about the suitable timing and sequence

of life course events and at the same time sanction only transgressions of specific age and sequence norms. External sanctions allow norms to persist over time and not loose their way in the long run.

Different studies have addressed social norms, some of them but not all, by taking directly a "life-course" approach. The first one dates back to the 1960s, Neugarten (1965). It was later followed by Settersten and Hagestad (1996), Billari and Micheli (1999) and (Liefbroer & Billari, 2009). Although these studies were carried out in different countries and contexts, they all revealed that a set of age expectations underlie adult life and that men and women are aware of the social clocks which operate in their lives and of their own timing in relation to them.

The study by Settersten and Hagestad was conducted in 1996 on a representative sample of 319 adults (18 and older) in the Chicago metropolitan area. The interviews demonstrated a high degree of consensus over the age-linked life transitions in the "timetables" and about the age-appropriate or inappropriate lifestyle behaviours in the "age norm" checklist. Interestingly, deadlines were mentioned more often in relation to family transitions then to educational and work transitions, both for men and for women. This evidence is in line with the idea that a higher degree of informal age structuring exists in spheres for which the degree of formal age structuring is not that prominent. Moreover, deadlines were generally perceived more often for men than for women regardless of the sphere under consideration (with the exception of childbearing, given the biological limits). This finding supports the evidence that women's lives are perceived as more discontinuous and unpredictable with respect to men's lives: this suggests that age norms should be studied as a gender specific phenomenon. Although age deadlines for most events were perceived by the majority of the respondents, there was a considerable amount of variation and disagreement with regard to the exact age at which the deadline is past. The answers to questions concerning the reasons and meaning of age deadlines and on the consequences of transgressing them suggested that only few informal sanctions were actually perceived by the respondents i.e. age norms were thus not perceived as "normative" i.e. age deadlines operate mainly as internal timetables about the optimal timing of events.

The study by Billari and Micheli was undertaken on groups of women aged respectively around 52, 38 and 24 years in the Italian region of Friuli Venezia Giulia. The results reveal that the transition to parenthood appeared to have a much more

distinctive normative character with respect to entering first union. Moreover, the survey revealed that the most frequently perceived limit for all three cohorts was the one related to having a child. According to the authors, the existence of biological limits and consequently the perception of a limited fertility window could possibly explain the existence of a strong social norm which entails biological features. The authors also showed that, in general terms, younger cohorts tend to less frequently recognize the existence of a limit for any of the considered life course events. This finding can be interpreted in two different ways: first, by hypothesizing the existence of a "cohort effect", where younger cohorts appear to be less conservative than the older ones; second, through the existence of an "age effect" where the person's own experience is then reflected on the perception of age norms. The two effects are not necessarily mutually exclusive.

Liefbroer and Billari (2009) used a representative survey among Dutch adults to revive the tool of social norms to understand demographic behaviour. The study was conducted in the Netherlands, using data from the Population and Policy Acceptance Survey (PPAS) held in the Netherlands (2000), where the module was entirely devoted to measure life-course norms. Given the potential gender specific character of age norms, a split ballot design was adopted. The survey revealed the existence and importance of social norms even within a strongly individualistic society like the Dutch one. The results suggest that Dutch people perceive the existence of age norms regarding entry into union and the timing of childbearing. Both this study and the one by Settersten and Hagestad draw our attention to the "gender difference", namely the fact that the upper age limits differed strongly between men and women (42 years for women and 47 for men).

A different approach was adopted by Mynarska (2007). Using a qualitative methodology, she analyzed the role of age norms in sustaining the pattern of early motherhood in Poland. The study consisted of interviewing 48 individuals (26 women and 22 men) at various stages of their family careers; the 24 childless respondents all intended to have at least one child. The analysis of the in depth-interviews suggested that age is a salient dimension that structures and regulates individual childbearing plans. The most commonly mentioned deadline for entering parenthood is 30 and the strongest argument related to the biological clock and reproductive limits.

Other relevant studies have assessed the role and existence of social control in influencing fertility behaviours, however not directly linking the issue of social norm

and/or pressure to the life course perspective. For example, Crook (1978) considers the inclusion of social norms-pressure into the classical economic model of utility maximization in the context of a developing country. Lesthaeghe (1980) attempts to document the ways in which the fertility transition is contingent upon changes in the normative code and the system of social control. Finally, Kohler et al. (1999) study the heritability of fertility behaviours across two samples of Danish twins born in cohorts ranging from 1870-1910 to 1953-1964. The results highlight very interesting insights, namely that in periods when fertility decisions are the most deliberate, and when social norms and economics conditions allow a broader range of life-course alternatives, the heritability of female fertility is high and shared environmental effects fade in relevance. On the contrary, this pattern reverses when the early adult and reproductive experiences are severely affected by events like economic crises and wars.

As far as voluntary childlessness is concerned, notwithstanding the fact that childlessness (as a behaviour) has been increasingly spreading across selected countries (see Mencarini and Tanturri, for an useful overview) together with its social acceptance, the literature has not yet devoted a lot of attention to the issue. Generally speaking, our understanding over childlessness and its determinants need to be extensively improved (Sobotka & Testa, 2008). The existing literature on the topic can be divided into two streams. On one side, studies have focused on the determinants of voluntary childlessness: more educated women, white women and with less strong religious beliefs are more likely to intend childlessness (Abma & Martinez, 2006; Heaton, Jacobson, & Fu, 1992; Rovi, 1994). On the other side, Koropeckyj-Cox & Pendell's work (2007) look at attitudes towards childlessness and reveals that positive attitudes towards childlessness were consistently found among female, college educated or childless women.

This summary of the existing literature brings up two fundamental considerations. All these studies have highlighted the relevance of social norms and how their influence and perception varies across the different spheres of the life course (family, education, entry into first union, entry into parenthood etc), by geographical regions (The Netherlands as opposed to the USA and Northern-eastern Italy) and by gender (women and men split ballot) together with cohort and age. Moreover, the study of the existence and relevance of social norms has been addressed in the literature according to different perspectives (life course perspective, but not exclusively) and different methodologies (representative surveys, qualitative methodologies, evolutionary approach and

theoretical approach). For the time being, however, few studies have analyzed childlessness and attitudes over it. Comparative work in this field of research is, to the best of our knowledge, still missing.

The main intent of this paper is contributing to the literature in three substantive ways. The initial aim of the present study is that of documenting the perception of childbearing norms adopting a comparative perspective, something which, to the best of our knowledge, has never been done before. This will be done by considering both split ballots. The second intent is that of assessing to what extent these norms are attributable to individual and country level factors. By integrating the micro and macro perspective, we aim at explaining which factors and combination of factors help to explain individual and aggregate variation in childbearing norms. More precisely, we will consider individual socio-demographic characteristics (age, education, childbearing status, partnership) together with country level fertility rates at country level together with economic indicators (GDP, HDI etc.). The methodological section will only analyze childbearing norms for women. The aim of the methodological analysis is that of assessing whether social norms are responsive to individual life style and values. On the other side, we aim at assessing whether some countries are more advanced into the acceptance of "modern" fertility behaviours and if yes, which socio-economic factors may help to explain these underlying differences. Integrating the micro-macro perspective becomes therefore crucial. Finally, the paper significantly contributes to the existing literature by analyzing the existence of quantum norms on childbearing and analysing childlessness attitudes from a comparative perspective, an area of research still reasonably under searched.

4. The European Social Survey

The European Social Survey (ESS from now onwards) was developed to pursue a comparison between more than 32 countries of the Eurasian region. The survey is representative of the population aged 15 and over. The ESS has been running a round every two years (2002, 2004, 2006, 2008); its ultimate scope is to outline the attitudes of different regions towards religion, politics, moral issues, while also outlining their social habits and how they are changing over time.

Each round is composed of two parts: a "core" module, which is repeated in every round, and a "rotating" module, which varies across rounds. We rely upon the 2006-

2007 round which concerned 25 European countries (see Appendix); the third round contained a specifically designed rotating module on "The timing of life: the organization of the life course in Europe". To study the existence of norms, respondents were asked different questions about when they considered themselves as too young or too old to experience an event and whether they would approve or disapprove certain behaviours. A split-ballot survey design was implemented in order to take into account the gender specific character of social norms. A randomly selected half of the respondents was asked to answer questions concerning age, sequencing and quantum norms referring to the behaviour of women, whereas the other half was asked the same question referred to men. Country estimates are computed using design weights in order to account for the fact that not all individuals aged 15+ (from each country's population) were given the same chance of selection.

Our analyses are largely based on two items of the questionnaire, namely the survey questions:

- *After what age would you say a woman/man is generally too old to consider having any more children?*
- *How much do you approve or disapprove if a woman/man chooses never to have children?*

Possible answers to the first question included a specific age, "never too old" (although not explicitly mentioned by interviewers to respondents), and "don't know." Interviewers were instructed to explain that "having any more children" referred to either the first or any additional children a woman may have. If respondents could not provide a specific age, answers were coded as "don't know." The second question was constructed according to a 5 points scale: disapprove strongly to approve strongly. We recoded the variable and the result was a binary variable, where 0 reflects "approval or neutral" and 1 "disapproval" towards childlessness.

The analyses using the ESS are combined with national-level statistics on fertility and socio-economic indicators (European Commission, WDI and Unece).

5. Descriptive findings

The initial aim of the present study is that of documenting the perception of social norms to childbearing adopting a comparative perspective. In terms of upper age limits to childbearing, there are two main aspects to consider. The first concern has to do with

the actual age at which it is no longer considered appropriate to have a/another child. Second, the strength of such norms will depend on its variation. That is, a very high mean age for the norm is only of importance as long as the variance is also small, which reflects higher homogeneity across individuals in their normative beliefs. More precisely, higher variance should reflect a weaker norm. In terms of attitudes towards childlessness, the analysis will be slightly more "crude", being the variable ordinal in nature. As was already explained in the previous section, the variable measuring attitudes towards childlessness was recoded into a binary variable. We will therefore assess what fraction of each country's population expressed negative views on voluntary childlessness.

On average, more than 90% of the respondents perceive the existence of an age deadline for childbearing and the percentage is higher for women (96%) than for men (91%). These percentages mostly resemble the ones reported by Liefbroer and Billari (95.5% for men and 96.2% for women), although in our case there is a higher gap across genders. Due to obvious differences in terms of biological limits, childbearing deadlines for women and men do not coincide: 42 for women and 47.6 for men. At the same time, standard deviations differ across genders as there is more normative consensus over the upper age limit for women than for men (standard deviation is 5.3 for women versus 7.7 for men). Again, the results are very similar to the ones reported by Liefbroer and Billari on Dutch respondents, where the mean upper age limit for childbearing was 42.3 and 46.7 for women and men respectively; standard deviations coincide with our results. As far as attitudes towards childlessness are concerned, 35% and 36% of respondents disapprove when females and males respectively choose to remain childless.

In order to assess whether there exist cross-cultural variation in the importance and perception of these norms, the same analysis is carried out by country. Table 1 and 2 report the results according to the split ballot design implemented in the survey

Table 1 Childbearing Norms across countries, women split ballot

Country	Obs	Upper age limit	sd	% perceiving an upper age limit	% disapproving childlessness
AT	1,115	43.79	5.17	96.78	30.49
BE	829	40.70	4.88	99.28	15.34
BG	527	41.27	4.72	89.20	86.73
CH	882	41.74	4.51	97.53	16.12
CY	464	42.69	5.26	97.81	62.21
DE	1,297	41.51	4.61	97.48	23.63
DK	684	40.53	4.14	98.54	5.72
EE	712	43.31	5.17	93.40	72.66
ES	872	42.92	5.31	96.74	23.02
FI	927	42.61	4.73	95.36	10.81
FR	926	42.16	4.54	100.00	24.74
HU	690	39.30	4.66	97.25	52.79
IE	670	42.25	4.87	95.02	15.91
LV	755	44.41	6.78	78.28	57.01
NL	876	40.77	4.28	98.54	12.26
NO	839	41.69	4.28	98.69	7.97
PL	755	40.78	5.14	97.03	51.68
PT	1,008	42.81	5.13	97.30	21.97
RO	938	42.81	6.64	94.24	62.04
RU	984	41.01	5.70	93.81	85.30
SE	858	42.52	5.06	95.80	3.39
SI	646	42.43	4.94	94.58	38.24
SK	772	40.84	5.61	95.21	55.50
UA	930	42.11	5.25	95.29	86.23
UK	1,047	42.53	5.33	96.78	6.81

Own computations based on the ESS (3rd round). Respondents whose perception of the limit was above 80 and below 25 have been excluded from the sample.

Table 2 Childbearing norms across countries, men split ballot

Country	Obs	Upper age limit	sd	% perceiving an upper age limit	% disapproving childlessness
AT	971	51.14	7.81	91.03	27.73
BE	884	45.46	7.22	97.40	18.33
BG	562	45.47	6.17	78.88	83.51
CH	809	47.14	6.60	96.37	16.76
CY	443	48.12	7.25	94.17	55.58
DE	1,269	47.39	7.21	93.86	23.65
DK	732	45.31	5.98	97.68	5.88
EE	646	51.20	7.88	86.22	74.15
ES	808	45.94	7.06	91.70	28.70
FI	878	50.42	8.08	92.48	20.50
FR	888	47.74	7.34	100.00	36.36
HU	692	45.99	7.31	89.26	50.70
IE	671	46.85	6.95	87.00	18.25
LV	760	50.08	8.55	68.16	58.01
NL	893	45.70	6.85	96.08	14.06
NO	844	47.30	6.68	96.80	7.34
PL	751	46.69	7.55	90.72	55.82
PT	919	48.32	8.21	86.75	23.16
RO	874	47.46	8.44	88.22	62.04
RU	921	47.66	8.34	80.76	82.24
SE	892	47.87	6.94	96.19	9.62
SI	678	48.70	7.69	86.73	43.28
SK	767	46.80	7.69	88.40	55.08
UA	756	46.46	7.45	88.14	85.86
UK	1,058	48.06	7.72	92.81	7.70

Own computations based on the ESS (3rd round). Respondents whose perception of the limit was above 80 and below 25 have been excluded from the sample.

For the great majority of the countries, a higher percentage of respondents is perceiving an upper age limit beyond which a woman should not have a child. The lowest percentage and the highest gap between men and women is reached by Latvia, where only 78% of respondents declare to perceive an upper age limit for women and 68% for men. The highest level of consensus is reached by France where almost 100% of respondents perceive an age deadline for both.

In all 25 countries, respondents perceive a higher mean age deadline for men than for women; the range of difference across genders varies from one year to almost eight. The upper age limit for women ranges between 39.3 (Hungary) to 44.5 (Latvia), whereas for men it ranges between 45.3 (Denmark) to 51.2 (Estonia). Again, the standard deviations follow the general trend in line with previous studies: they are

smaller for women than for men and the gender discrepancy ranges from 1.5 to 3.5 years of difference.
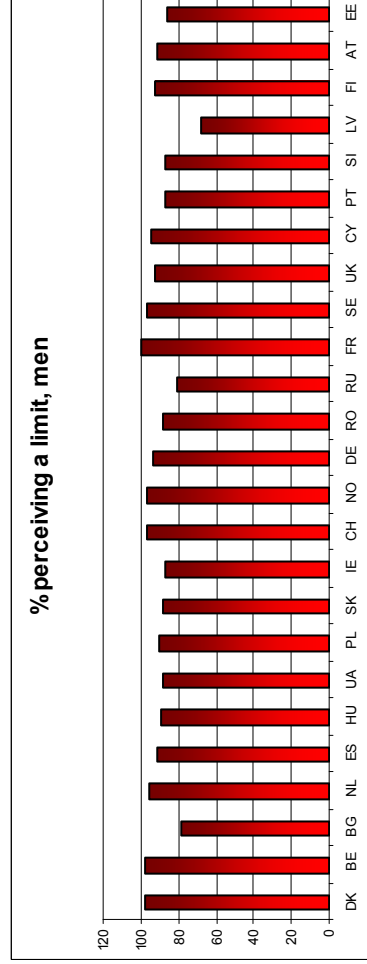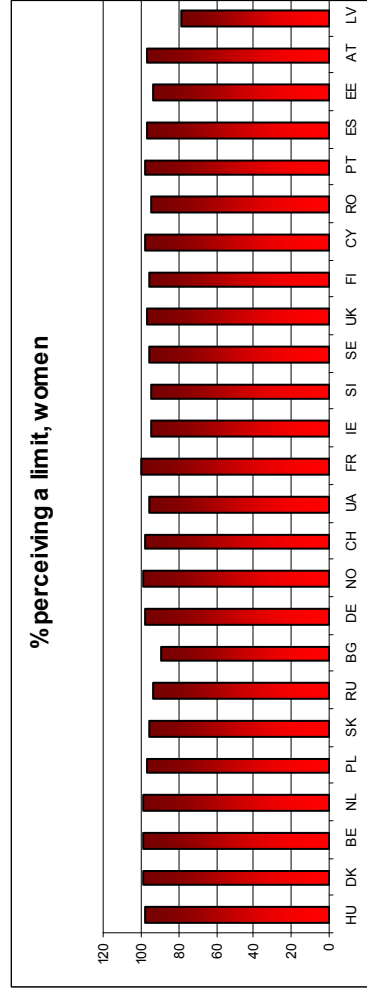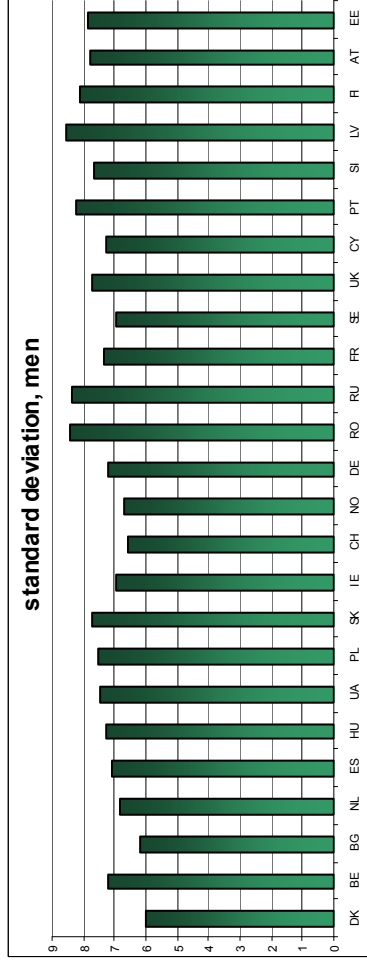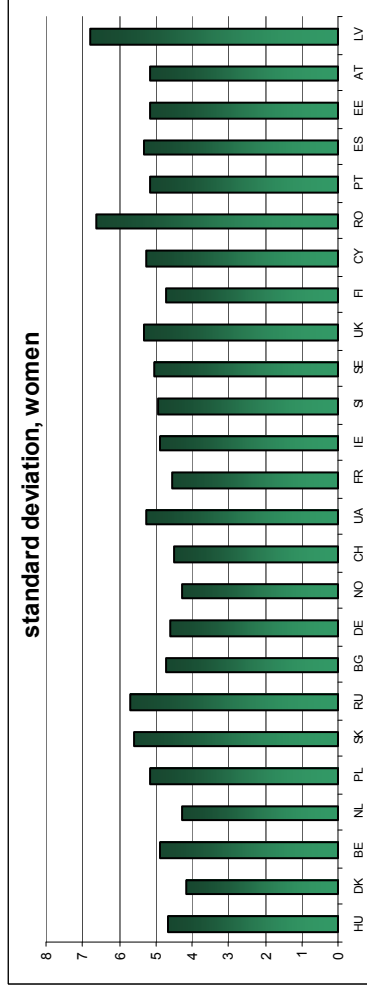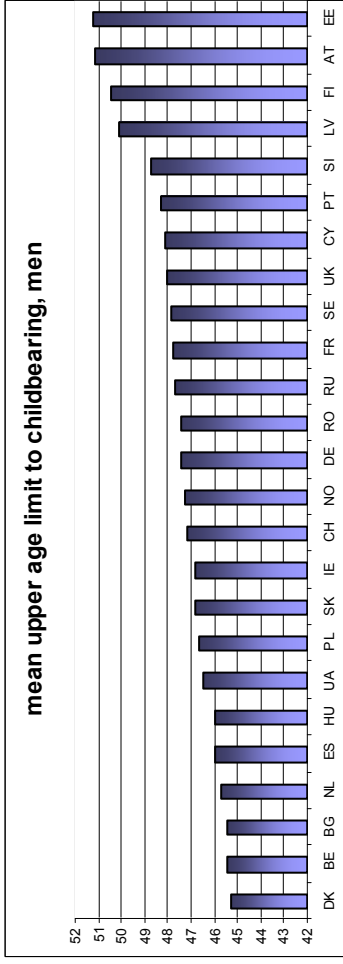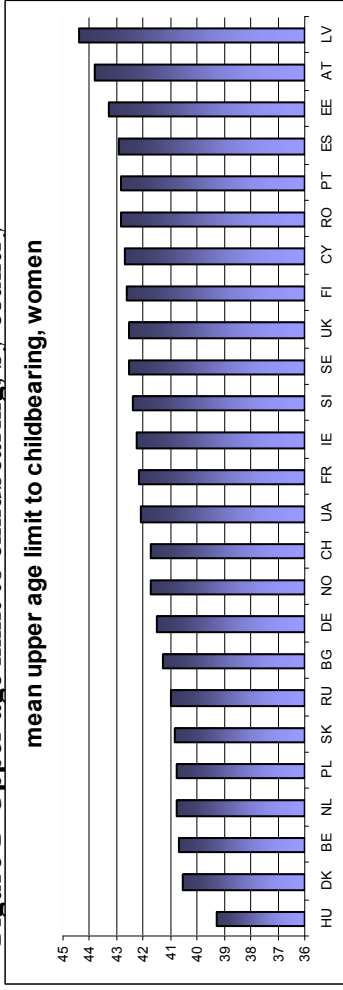
Figures 1 shows cross-country variation in terms of percentage of respondents perceiving deadlines, mean upper age limits to childbearing and standard deviations. To a certain extent, the figures suggest that there is normative consensus as the great majority of the respondents perceives a deadline, with limited variation across countries. Those countries perceiving higher upper age limits to childbearing are also the ones displaying the highest levels of standard deviations, further signalling a weaker effect of the norm.

When looking at childlessness attitudes (last column of Table 1 and 2), we instead observe a rather heterogeneous pattern across countries. The lowest level of disapproval for those included into the women split ballot is observed across Swedish respondents (3.4%), while the highest among Bulgarians (86.7%). Lowest and highest levels of disapproval for the men split ballot are observed in Denmark (6%) and Ukraine (85.9%). Namely, the range of responses goes from countries where voluntary childlessness is almost universally accepted to countries where it is highly stigmatized and opposed. Interestingly, contrary to what we observe when comparing upper age limits across countries, we rather observe a "geographical" pattern in the distribution of responses. Figures 2 and 3 visually show the high cross-country variability and the distribution of responses. Countries from Eastern Europe and the former Soviet Republics are the ones more strongly opposing voluntary childlessness, while Northern European countries are those more strongly favouring individuals' decisions to remain childless. The rest of the countries lies in the middle in between these two extreme clusters, displaying levels of disapproval below 40%.

We find quite interesting the fact that these two norms display very different patterns across countries. If on one side we notice that the majority of respondents perceives a deadline to childbearing but no country is particularly restrictive on the limit, on the other side there are countries (especially those belonging to the Eastern and former Soviet Union block) where a strong stigma is attached to those individuals who voluntary opt for childlessness.

Figure 1   Upper age limit to childbearing, by country

mean upper age limit to childbearing, women

mean upper age limit to childbearing, men

standard deviation, women

standard deviation, men

% perceiving a limit, women

% perceiving a limit, men

Figure 2 Disapproval of childlessness, by country (women split ballot)
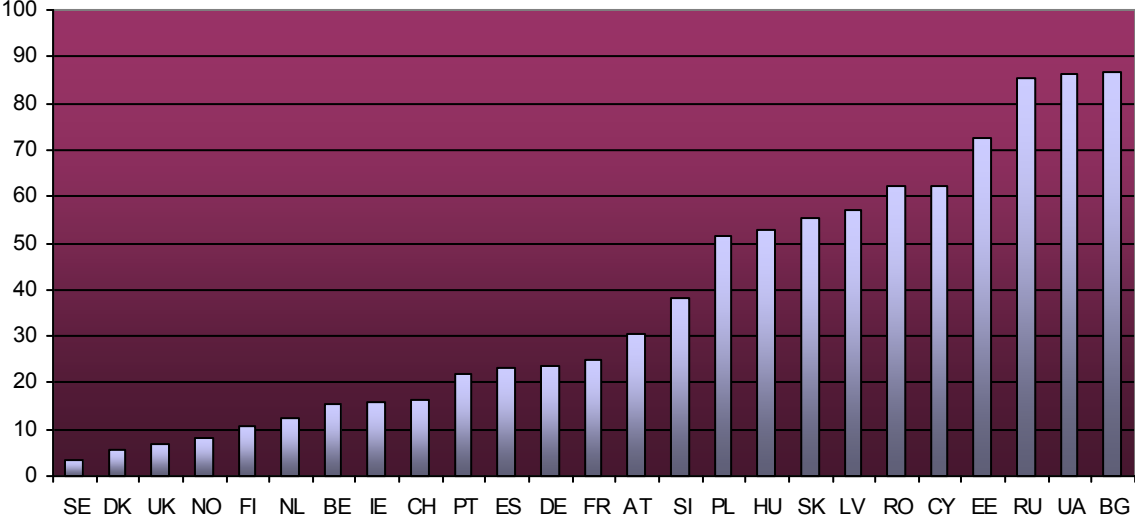
Figure 3 Disapproval of childlessness, by country (men split ballot)
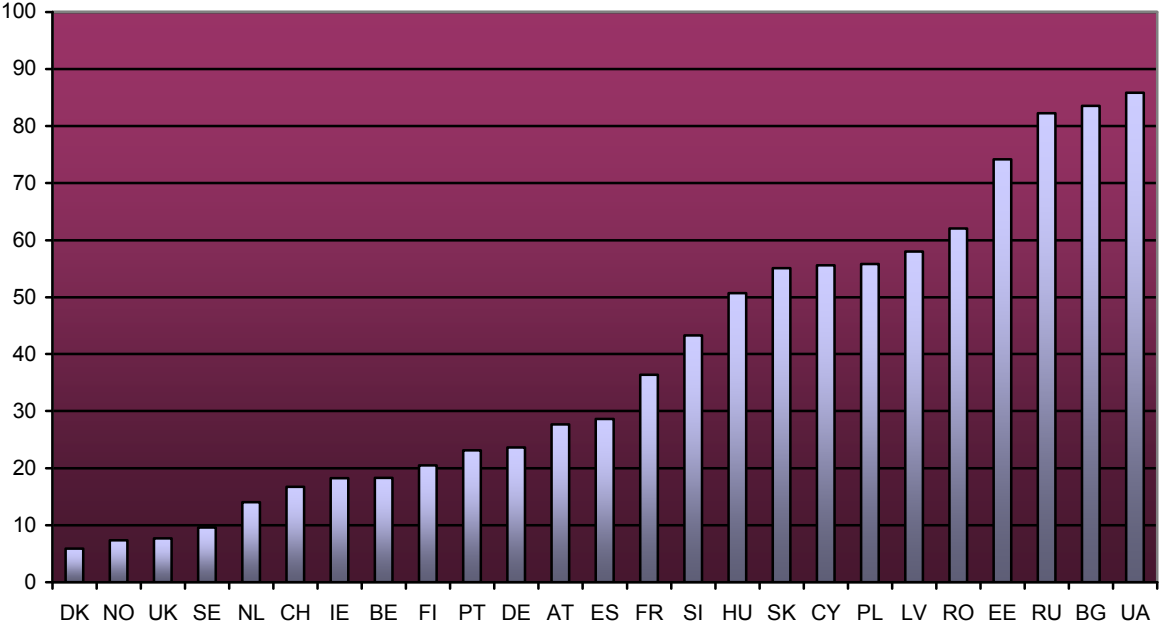
Being the perception of upper age limits quite homogenous across countries, we further investigate, from a descriptive point of view, if and to what extent individual level factors are associated to the perception of upper age limits to childbearing. We namely compare the perception of upper age limits by age class, parental and partnership status. The main reasoning behind these complementary analyses is the one of highlighting how individuals' experiences are directly associated with attitudes towards childbearing. We refer here to "associations" only, being the relationship clearly spurious. Namely, we cannot infer whether individuals are perceiving a higher upper age norm because of their current condition (for

example, childless respondents may declare a higher limit in order to motivate their childlessness status) or, rather, because of their attitudes they engage into particular behaviours. The intent of this analysis is simply to unfold the (potential) underlying associations between individual level behaviours and childbearing age norms. Table 3, 4 and 5 present the results, together with Figures 4 and 5.

Small differences in means are observed when looking at results in Table 3. As far as women's split ballot is concerned, parents perceive an upper age limit of 0.71 years lower with respect to non parents, while the difference is almost zero for men. Those who are currently not in a partnership tend to perceive a higher age limit with respect to the respective opposite category (difference is 0.4 years both for women and men split ballots). These results suggest that the perception of upper age limits is, to a certain extent, associated with and receptive to individuals' experiences in terms of childbearing and partnership.

Table 3 Upper age limits by parental and partnership status, by split ballot

	women split ballot			men split ballot		
	obs.	mean upper age limit	*sd*	obs.	mean upper age limit	*sd*
Parent	14050	41.53	5.11	12733	47.53	7.57
Non Parent	6041	42.24	5.53	5653	47.49	7.72
Partnership	10829	41.57	5.11	9919	47.11	7.54
Non-Partnership	8398	41.96	5.41	8398	47.50	7.74

Source: own computations based on the ESS (third round). The null hypothesis of equal means is rejected by performing t-tests for both men and women split ballots according to both parental and partnership status.

We proceed by comparing respondents according to a more sophisticated measure of childbearing status, namely we construct a dummy where the variable takes the value 0 when the respondents has no children or one child, while it takes the value 1 when it has two or more children. The value of two children or more is chosen to reflect the normative "ideal" of a two children family. The analysis is carried out by grouping individuals into age classes, i.e. 5 years age classes based on their year of birth. Not surprisingly, those individuals with two or more children do consistently perceive lower age deadlines with respect to those who are childless or have one child. On the other side, interestingly, differences are very small for the

younger cohorts[2] and for the older ones, while they are quite substantial for the middle age classes (28-36). More precisely, about 1 year differences lies in between the two groups for those included into the women split ballot, while a difference of 1.44 and 2.24 years is observed among those respondents participating to the males split ballot. The higher variation observed in the men split ballot is clearly a result of less strict normative consensus and biological limits over men's childbearing experiences. Based on the results, we could argue that the perception of the limits is responsive to current childbearing status.

Table 4 Upper age limits by parental status and age class, women split ballot

age_class	obs.	Two Children or more mean upper age limit	sd	obs.	One child or no children mean upper age limit	sd
15-20	8	43.00	4.96	1358	42.77	6.44
20-24	23	42.65	8.09	1053	42.15	6.06
24-28	90	41.49	5.33	1069	42.07	5.27
28-32	276	41.79	5.38	859	42.70	5.12
32-36	576	41.72	4.61	818	42.73	5.11
36-40	755	42.18	4.73	648	42.76	5.14
40-44	892	42.31	5.16	563	42.84	4.72
44-48	941	42.00	4.89	506	42.77	5.21
48-52	930	41.58	5.04	467	42.30	5.00
52-56	938	41.52	4.55	445	42.19	5.25

Source: own computations based on the ESS (third round).

Table 5 Upper age limits by parental status and age class, men split ballot

age_class	obs.	Two Children or more mean upper age limit	sd	obs.	One child or no children mean upper age limit	sd
15-20	7	45.00	5.00	1350	46.66	7.82
20-24	19	43.32	6.15	1067	47.00	7.29
24-28	86	45.70	7.10	1002	47.30	7.73
28-32	289	45.67	7.44	853	47.91	7.58
32-36	503	46.80	7.28	676	48.24	7.55
36-40	698	47.58	7.15	562	48.15	7.15
40-44	869	48.02	7.68	494	48.83	7.11
44-48	844	47.47	7.48	443	48.33	8.01
48-52	877	47.68	7.54	398	48.62	8.19
52-56	811	47.57	7.37	395	48.22	8.21

Source: own computations based on the ESS (third round).

The age range 28-36 turns out to be the most "critical" in terms of differences in declared upper age limits according to the variable (two children vs. childless or one child) under

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[2] Differences are actually negative for age classes 15-20 and 20-24 for women's split ballot. Being the number of respondents who declare to have two children at this early stage very small, we cannot really comment on the results.

consideration. Figures 4 and 5 report the frequency distribution of the responses. Results are quite striking as those respondents having two or more children are much more likely to perceive limits around ages 30 and 35 (women split ballot) and 40 and 45 (men split ballot), while those who are far behind into their childbearing experiences are much more likely to perceive limits towards the upper tail of the distribution. As already mentioned above, no causality can be established here. It is nevertheless relevant to highlight the fact that childbearing status at ages 28-36 is clearly associated with perceived upper age limits to childbearing: this could perhaps suggest that attitudes are in a sense responsive to current childbearing status and possibly to the rest of socio-economic incentives.

Very interestingly, the perception of these social age deadlines to childbearing is clustered around round ages (multiples of 5), mirroring the underlying normative character of these attitudes.

Figure 5 Frequency distribution for respondents aged 28-32, women split ballot
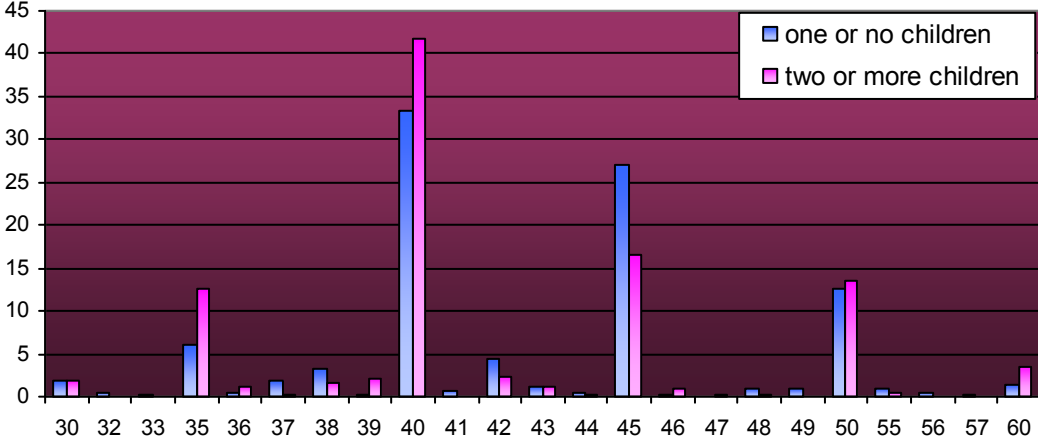
Figure 6 Frequency distribution for respondents aged 28-32, men split ballot
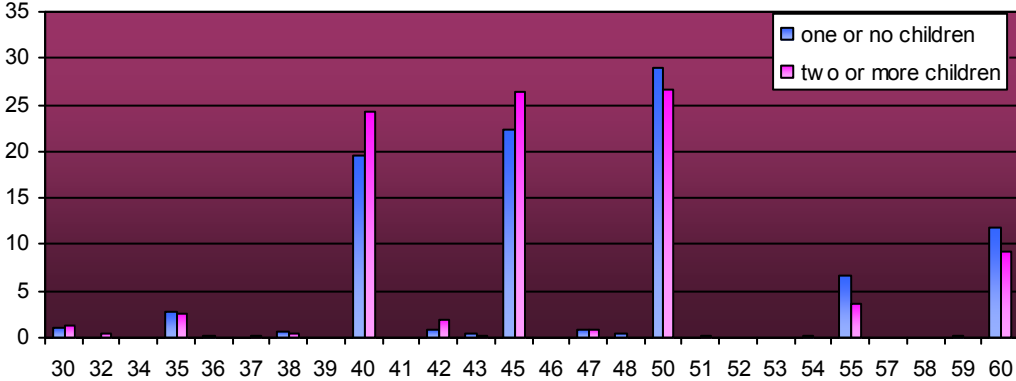
6. A multilevel analysis of childbearing norms

6.1 The statistical model

The modelling strategy we implement in what follows is based on a set of multilevel statistical models. The data presents a clustered structure, given that individuals (first level) are nested into countries (second level). In what follows, I will implement a two-level random-intercept model.

Multilevel statistical models assume that there are specific residual terms at each level. In the simplest formulation, the residual variance is partitioned into a between-country and within-country component. The underlying idea is that the existence of hierarchies cannot be ignored nor considered accidental, since the group and its members both influence and are influenced by group membership. Traditional modelling techniques are unable to partition the variation across levels, and they estimate a single error term, referring to it as the "error" term. In our case, a single level model would ignore the clustering of countries: resorting to a multilevel technique allows significant improvements for the interpretation of the relationship between variables. Moreover, traditional multiple regression techniques treat units of analysis as independent observations and, ignoring hierarchical structures, they lead to an overstatement of statistical significance (Goldstein, 2003).

The underlying intent of the next section is to study the relationship between the response variable (i.e. social norms to childbearing) and individual and country level variables. The residual variance, which is not explained by the model, is then partitioned into within and between-country components. The between-country component, or residual variance at country level, corresponds to the unobserved country-level characteristics which are responsible for inducing dependence among the units, even after controlling for observed heterogeneity at the country and individual levels through the covariates.

When modelling the perception of upper age limits to childbearing, given the initial distribution of the variable and its restricted range of variation (and, as a consequence, non-normality in the distribution of the error terms), we use the natural logarithm transformation of the response rather than the actual upper age limit itself. Conversely, being attitudes towards childlessness represented by a dummy variable, we simply adopt a logistic regression model. As a general estimation strategy, a "baseline" model is first estimated with unobserved variables at the individual and country level. Thereafter, through different extensions a complete model is built, which includes both observed and unobserved country- and individual-level variables. This procedure allows grasping what is the contribution of

individual- and country-level observed variables in explaining respondents' attitudes towards childbearing.

The model to be estimated on upper age limit to childbearing can be written in the following form:

$$y_{ij} = x_{ij}^{'}\beta + u_{0j} + \varepsilon_{ij}$$

Where y_{ij} denotes the response variable (i.e. the log of the upper age limit for childbearing) for the individual level unit i, nested within second level unit j; $x_{ij}^{'}\beta$ is the vector of covariates and the respective coefficients (the observed variables which are supposed to explain individual responses); u_{0j} is the component of the intercept which allows the overall level of the linear predictor to vary between countries over and above the variability explained by the covariates (Skrondal and Rabe-Hesketh 2003). The level one residuals, ε_{ij}, and the level two residuals, u_{0j}, are assumed to be independent, normally distributed and with respective variance parameters to be estimated σ^2_{e} and σ^2_{uo}.

The model to be estimated on attitudes towards childlessness is given by:

$$\ln\left(\frac{\Pr\left(y_{ij} = 1 \mid x_{ij}\right)}{1 - \Pr\left(y_{ij} = 1 \mid x_{ij}\right)}\right) = x_{ij}^{'}\beta + \eta_{0j}$$

where η_{0j} is a random intercept which takes on the same value for all units in the same cluster. We assume η_{0j} to be normally distributed with zero mean. The inclusion of η_{0j} allows the overall logit to vary across countries, even after controlling for the covariates x_{ij} (Skrondal and Rabe-Hesketh, 2003).

In order to obtain the fraction of residual variability to be attributed to country level effects, it is useful to define to the concept of the "intra-class" correlation coefficient, namely the ratio of the between country variance and the total variance:

$$\rho = \frac{\sigma^2_{uo}}{\sigma^2_{uo} + \sigma^2_{e}}$$

When country-level variables are included in the model throughout the different extensions, the intra-class correlation coefficient may decrease being the covariates able to explain a fraction of the country-level variance which, in the previous specification, was entirely attributed to unobserved country characteristics. The models are run with the software STATA 11 and full maximum likelihood is used to estimate the variance component.

6.2 Micro level indicators

The following individual level variables will be included into the multilevel model.

- Age and age squared. In order to assess whether the perception of childbearing norms is subject to an age effect; by including the quadratic term, we allow for non-linearities in the association between age and childbearing norms.

- Parents' level of education: the maximum value between each respondent's mother and father level of education. Values range from 0 (lowest level of education) to 6 (highest level of education). We expect respondents with higher levels of education to be more likely to approve non-conformist childbearing norms.

- Childbearing: binary variable (as used in the descriptive analysis) which takes value 0 when the respondent has one child or no children and takes the value 1 when the respondent has two or more children.

- Income: binary variable which takes value 1 when the respondent's declared level of income (in the ESS is coded into 12 intervals and it refers to household income) is equal or above his/her own country's median; 0 otherwise. The variable can be interpreted as an indicator of economic well-being, and, although very "crude", it is not biased by countries' differences in purchasing power parities.

6.3 Macro level indicators

Table 6 reports country values of the macro-level variables included into the multilevel models. We aim at assessing if and to what extent country level indicators are associated with childbearing norms and are able to explain part of the residual variation at the country level. The variables we include into the model can be grouped into 4 categories: human development, economic well-being and growth, labour market participation and fertility behaviours at advanced ages. The intent is to assess whether countries with (current) higher economic development and with higher labour market participation rates are those ones more likely to perceive higher limits and more likely to approve childlessness. Moreover, we want to test if (in addition to current levels) the speed of growth of these indicators over the past 10 to 15 years is associated with childbearing norms. Finally, we test whether those countries experiencing higher levels of childbearing behaviours at advanced ages are more "liberal" both in the perception of upper age limits and the approval of childlessness. The idea here is to test if those countries which have experienced higher incentives (through economic growth, labour market participation, and human development in general) towards fertility

postponement are also the ones more likely to perceive less conservative childbearing norms. Finally, the aim of this methodological section is that of outlining whether current fertility rates at advanced ages are related to the perception of childbearing norms.

6.4 Results

Tables 7 and 8 report the results of the random intercepts multilevel models for the women split ballot. Extension (1) is the null (or empty model) where we assess what is the effect on childbearing norms of living in the same country. We then progressively add individual and country-level covariates to our model. The random effect represents the unexplained deviation of the value of the parameter in the jth cluster from the mean value in the population. The country-level covariates are included into our model in order to explain this deviation.

The intra-class correlation coefficient reported at the end of the table is a measure of the degree of homogeneity of units belonging to the same cluster. Unfortunately, due to of missing data, we will not be able to perform each and every extension across the 25 countries. As a matter of fact, information over respondents' income levels is not available for Estonia, Hungary, Romania and Ukraine. Moreover, we were not able to retrieve Belgium's ASFR at ages 40+ for recent years. We decided to nevertheless estimate the first model (i.e. the null model) including all 25 countries in order to give a complete picture at the degree of variation in the perception of the norm across countries.

Table 6 Macro level indicators, by country

Country	HDI	HDI growth	GDP capita	GDP growth	Women Labor Force Participation	ASFR 40+
AT	0.95	11.79%	33497	2.16	52.2	33.45
BE	0.95	11.03%	32063	2.17	45.3	na
BG	0.82	6.87%	9255	2.36	47.2	11.38
CH	0.96	11.62%	24402	1.54	52.8	44.11
CY	0.90	8.46%	33196	3.50	61	38.64
DE	0.94	6.04%	16390	1.35	54.1	32.91
DK	0.95	12.53%	30644	2.16	57.7	43.00
EE	0.86	11.21%	29759	6.73	49.6	32.29
ES	0.95	8.34%	31380	3.60	51.3	50.53
FI	0.95	11.20%	16959	3.66	52.3	57.09
FR	0.95	16.52%	38690	2.23	53.8	56.96
HU	0.87	7.28%	13038	3.94	56	25.18
IE	0.96	9.16%	35111	7.68	61.6	88.32
LV	0.86	11.26%	47319	6.24	46.7	27.56
NL	0.95	7.94%	13786	2.66	55.9	38.78
NO	0.97	13.11%	20657	3.07	47.9	45.21
PL	0.87	3.44%	9386	4.50	55.6	25.72
PT	0.90	3.47%	11864	2.63	47.3	39.49
RO	0.81	4.84%	16175	2.78	60.6	18.89
RU	0.80	7.76%	23454	3.23	59.9	14.00
SE	0.96	12.17%	27377	3.05	51.7	56.41
SI	0.92	9.63%	32298	3.96	55.8	22.98
SK	0.86	8.15%	35840	4.35	43.7	18.92
UA	0.79	3.57%	5605	1.58	54.3	13.41
UK	0.95	10.90%	32695	2.85	50.7	53.99
Source	United Nations (2005)	(% change 1995-2005)	Unece (2005)	WDI (1990-2005)	Unece (2006)	Eurostat (2005-2006)

GDP per capita: US$, at prices and PPPs of current year. HDI: when 1995 value were not available, estimates where computed for 1995-2005 (Slovakia, Russia and Ukraine)

Table 7 Multilevel models on upper age limits to childbearing, women split ballot (log transformation of the dependent variable)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age		0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.006***	0.006***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age squared		-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.0007***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Parents education		0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Two children		-0.015	-0.015***	-0.015***	-0.015***	-0.015***	-0.015***	-0.013***	-0.013***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
High Income		0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
HDI			0.138						
			(0.111)						
HDI growth				0.005***					
				(0.001)					
GDP growth					0.003				
					(0.004)				
GDP capita						0.000			
						(0.001)			
Female Participation Rate							0.001		
							(0.001)		
ASFR 40+								0.001**	
								(0.000)	
Principal Component									0.005*
									(0.003)
Obs.	11842	8445	8445	8445	8445	8445	8445	8011	8011
Number of Countries	25	21	21	21	21	21	21	20	20
Variance Between Countries	0.0007	0.0006	0.0006	0.0004	0.0006	0.0006	0.0006	0.0005	0.0005
Variance Within Country	0.0131	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0125	0.0125
Intra-Class Correlation Coefficient	5.06%	4.79%	4.46%	3.33%	4.70%	4.63%	4.67%	3.57%	3.85%

Source: own analysis based on ESS (third round).Standard errors are reported in parenthesis. P-values:
+p<=0.10;*p<=0.05;**p<=0.01***.Respondents who declared that no deadline exist are dropped from the sample.

Table 8 Multilevel models on childlessness norms, women split ballot (odds ratio)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age		0.910***	0.911***	0.910***	0.910***	0.911***	0.910***	0.919***	0.919**
		(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.028)	(0.022)
Age squared		1.001***	1.001***	1.001***	1.001***	1.001***	1.001***	1.001***	1.001**
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Parents education		0.852***	0.850***	0.849***	0.852***	0.854***	0.853***	0.840***	0.840***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)
two children		1.597***	1.597***	1.596***	1.597***	1.599***	1.597***	1.590***	1.589***
		(0.108)	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)	(0.11)	(0.11)
High income		0.850**	0.850**	0.852**	0.850**	0.849**	0.850**	0.862**	0.865**
		(0.058)	(0.058)	(0.058)	(0.058)	(0.058)	(0.058)	(0.06)	(0.06)
HDI			0.000***						
			(0.000)						
HDI growth				0.728***					
				(0.05)					
GDP growth					1.653**				
					(0.365)				
GDP capita						0.866***			
						(0.014)			
Female Participation Rate							0.854***		
							(0.052)		
ASFR 40+								0.935***	
								(0.011)	
Principal Component									0.463***
									(0.037)
Obs.	12176	8687	8687	8687	8687	8687	8687	8249	8249
Number of Countries	25	21	21	21	21	21	21	20	20
Variance Between Countries	2.3584	2.2683	0.3352	1.4025	1.8128	0.4395	1.1713	0.9178	0.3998
Intra-Class Correlation Coefficient	41.75%	40.81%	9.25%	29.89%	35.53%	11.78%	26.25%	21.81%	10.83%

Source: own analysis based on ESS (third round).Standard errors are reported in parenthesis. P-values:
+p<=0.10;*+p<=0.05;**+p<=0.01***. Respondents younger than 25 and older than 60 are dropped from the sample.

Table 7 reveals that variation in the perception of upper age limits to childbearing within countries holds higher importance than variation of the norm across countries: the intra-class correlation coefficient is 5% for the null model. The remaining variation is situated across individuals. Extension (2) reveals that age is positively related to the perception of the limit, but at a decreasing rate being age squared negative and significant: the maximum is located just below age 41. Parents' level of education is also positively related to the perception of the limit: more educated respondents tend to perceive a higher limit, possibly as a consequence of desired prolonged education and the establishment of a career before the childbearing transition. Income is not related to the perception of upper age limits to childbearing. On the other side, as expected, current childbearing status is negatively and significantly associated with the perception of the norm. The coefficients of the individual level variables remain unchanged in terms of magnitude and statistical significance across the different extensions.

When we include separately and progressively the macro-level indicators, very few of them display significant coefficients. Namely, in terms of development indicators (human, economic and labour market participation), HDI growth is the only indicator turning out to be positively related to the perception of the norm. Childbearing behaviours at advanced ages (40+) are significantly and positively correlated to the perception of the limit. The intra-class correlation coefficient is significantly reduced in extensions 4 and 8 (3.33% and 3.57%, respectively). Results from extension (8) raise two very important and interesting issues. On one side, we see that those countries further advanced into late childbearing behaviours tend to perceive higher age limits to childbearing which, by itself, is an interesting result: late childbearing behaviours and social age limits are correlated, generally speaking. On the other side, these results point out the fact that the interest in the normative impact of social influences depends not only on the direct effect of norms on individual's behaviour, but also because of the associated "social multiplier effect". The multiplier effect occurs, for instance, because changes in innovative subpopulations in response to socioeconomic conditions imply an erosion and transformation of the prevailing social norms that affect such behaviour. The behavioural changes in the innovators imply an indirect effect on the incentives and normative context of fertility decisions in the population in general and this indirect effect makes it more likely that others will adopt the new behaviour as well (Hans-Peter Kohler, Billari, & Ortega, 2002).

Given the high degree of correlation among several of the variables included into the model, we suspect that a Principal Component Analysis (PCA, from now onwards) might help us to learn more about the underlying structure of the data. PCA is a common statistical

technique used for data reduction where a set of variables is reduced in a smaller set of components. PCA provides a roadmap for how to reduce a complex data set to a lower dimension to reveal the sometimes hidden, simplified structure that often underlie it (Shlens, 2005). Moreover, the nice advantage of PCA is that once you have found patterns in the data, you can compress the data by reducing the number of dimensions without much loss of information (Smith, 2002). PCA is performed on the variables HDI, HDI growth, GDP growth, GDP per capita, female labour market participation and childbearing behaviours at advanced ages. One component is extracted and we interpret it as an indicator of development which includes several dimensions (economic, human, labour and fertility) and it accounts both for current levels of development together with current levels in relation to starting ones (i.e. growth). The principal component holds a positive coefficient, statistically different from zero. The intra-class correlation coefficient is reduced and 3.85% of the country-level variation is to be attributed to unobserved country level factors.

The picture looks very different when we start modelling the perception of attitudes towards childlessness. As a matter of fact, extension (1) of Table 8 reveals that over 40% of the variance is to be attributed to country level factors.

The dependent variable is a dummy which takes the value 1 when the individual's attitude leans against voluntary childlessness. Extension (2) reports the coefficients of individual level factors (reported as odds ratio), which coincide in sign and statistical significance to the ones of Table 7. There is a negative and significant association between negative attitudes towards childlessness and respondents' age: older respondents are more likely to approve voluntary childlessness, but at a decreasing rate being the coefficient for age squared positive and significant. Parents' educational level and childbearing status are respectively negatively and positively related to the perception of attitudes towards childlessness. Reporting a income level equal or above the country's income is negatively associated with disapproval of voluntary childlessness.

Once we turn to the models including macro level indicators, we notice some important differences with respect to the ones presented in Table 7. What seems to be mostly relevant to explain country-level variation in the perception of attitudes towards childlessness across Europe are current HDI and GDP per capita levels. Both indicators are negatively correlated with the disapproval of voluntary childlessness and, once included into the models, significantly contribute to explain the residual variation at the country level (the intra-class correlation coefficients are 9.25% and 11.8%, respectively), which corresponds roughly to a

75% decrease in the intra-class correlation coefficient with respect to the null model. Current advancement in terms of economic and human development are able to explain a good portion of the residual country-level variation. The remaining extensions display significant coefficients: HDI growth, female labour market participation rate, ASFR 40+ and the principal component are negatively associated with the probability of disliking voluntary childlessness. Surprisingly, GDP growth is instead positively related to the probability of perceiving a negative attitude towards childlessness. Finally, the principal component is also negatively associated with the likelihood of opposing voluntary childlessness. The intra-class correlation coefficient is reduced by 75%, as only 10% of the remaining variation is now attributed to unobserved country-level factors.

7. Conclusions

Analyzing social norms within recent demographic trends and the heterogeneous fertility context characterizing Europe, becomes of enormous interest and outmost importance. The present paper has analyzed the existence and perception of age norms concerning the end of the reproductive period (i.e. upper age limits) and childbearing quantum norms (i.e. voluntary childlessness).

The existing demographic literature has, up to now, been mainly concerned with analyzing behaviours and documenting interesting and fascinating phenomenon such as fertility postponement and very-low fertility. On the other side, different studies have consistently stressed the existence and relevance of social norms, but no attempt has been done in order to document attitudes and their variation adopting a comparative perspective. The main intent of this paper has been to reconcile these "complementary" streams of the literature by analyzing attitudes towards childbearing in light of recent fertility patterns of behaviour across Europe. The third round of the European Social Survey offers tremendous opportunities in this respect, as it includes a specifically designed module "The timing of life: the organization of the life course in Europe" and it allows to adopt a fully comparative perspective on 25 countries..

The first part of the analyses is devoted to assess the existence of childbearing norms across Europe. Descriptive evidence suggests that social norms regarding childbearing indeed exist and they may vary across countries. Close to 90% of the respondents perceives a limit to childbearing: namely the great majority of respondents perceive an age after which is it no longer considered appropriate to consider having a/another child. A limited amount of variation is observed when looking at countries' mean upper age limits and the distribution of responses does not follow any particular pattern in terms of welfare regimes and/or geographical location. However, in line with previous studies, we observe clear-cut gender differences in the perception of social age deadlines to childbearing, clearly a reflection of the fact that the reproductive period for women is strictly bounded by biological rules and, as a consequence, is also more sensitive to normative pressures.

On the other side, very interestingly, attitudes towards voluntary childlessness are highly heterogeneous across countries. Results are quite striking when looking at both women and men split ballots. While some countries (Northern European) openly approve the individual choice not to have children, others (Eastern European and Former Soviet Republics) formally disapprove childlessness. In other words, the ordering of countries according to the

percentage of respondents opposing childlessness follows a cultural-welfare-geographical type of clustering.

To conclude the first section of the paper, we further investigate into the perception of upper age limits to unfold existing links between individual socio-demographic characteristics and childbearing age norms. Interestingly, those individuals who are not in a partnership at the time of the interview and childless are consistently declaring higher social deadlines with respect to those respondents who are in a partnership and parents. Moreover, when we compare individuals by childbearing status (i.e. two children or more vs. one or no children) and grouped into age classes, the most prominent differences are observed for the middle aged group 28-34, compared to both the younger and the older groups. In this respect, we could argue that the perception of childbearing deadlines is indeed responsive to childbearing experiences and planning together with socio-economic incentives (e.g. education, career, partnership, current childbearing status etc.).

The second aim of the present work is to assess how much of the variation in childbearing norms is to be attributed to individual and country level factors by running a series of multilevel models. Given the normative character surrounding women's childbearing norms as opposed to men's, the methodological analysis disregards the latter and solely concentrates on the former. In so far women's upper age limits to childbearing are concerned, very little variation can be attributed to country-level factors (roughly 5%). Life styles and values in terms of educational levels and childbearing status (in particular) play a major role in explaining variation in the perception of upper age limits to childbearing. Socio and economic factors partially contribute to explain the (small) residual variation at the country level. In particular, human development growth and fertility behaviours at ages 40+ are the factors mostly contributing to the explanation of between-country differentials in the perception of the limits. Moreover, a composite measure of development (i.e. the principal component extracted through the PCA) is also able to explain a good portion of the unexplained variation at the country level. On one side, a combination of social trends, values, economic factors provide incentives (especially for women) to postpone childbearing later in life: the underlying different incentives across countries results in different levels of postponement (i.e. behaviours). On the other side, the perception of upper age limits to childbearing is to a great extent dependent on individual factors (life-styles, values and behaviours) and to a limited extent on country-level unobserved and observed factors. Following these results, we may argue the existence of internal clocks which regulate (and are regulated by) individuals'

behaviours more or less equally across countries as these clocks do not appear to be particularly influenced by countries' cultures.

On the other side, quantum norms on childbearing are subject to much larger country-level differences. As a matter of fact, by modelling the disapproval/approval of childlessness, it turns out that 40% of the total variance is to be attributed to unobserved country-level factors. Older (at a decreasing rate), more educated, those respondents with one child or childless and affluent individuals are more likely to approve voluntary childlessness: these results are clearly in line with previous studies. Current HDI, GDP per capita levels and the composite measure of development (i.e. principal component), when included separately into the model, are able to respectively explain almost 75% of the unexplained country-level residual variance. As Sobotka (2004) argues "if we assume a strong childbearing motivation as given, the question remains how to explain increasing differences in childlessness levels between countries": strong differences in attitudes towards childlessness could, to a certain extent, explain the remaining variation in childlessness behaviours which cannot be attributed to different institutional arrangements such as the structures of childcare institutions and policies facilitating a flexible combination of work and child-rearing.

In line with previous studies (R. A. Settersten, Jr. & Hagestad, 1996), we do not observe that a de-standardization in terms of childbearing norms has been occurring and spreading uniformly across Europe. If on one side, upper age limits to childbearing are not particularly restrictive nor highly different across countries, on the other side it is the case that, in every country, a large fraction of the respondents perceives a deadline and, most frequently, age 40 as a normative age deadline to childbearing after which motherhood becomes considered as undesirable and too late. Moreover, we clearly observe that responses are clustered on ages multiples of 5 (25, 30, 35, 40 etc). This clearly suggests that upper age limits to childbearing, not only reflect a biological component, but also still retain a strong social regulating power. On the other side, when analyzing attitudes towards childlessness, we assess that quantum norms to childbearing are deeply and firmly grounded into socio-cultural contexts: differences across countries are large and attributable to cultural factors and institutional settings.

Finally, given the rising importance and spreading of Assisted Reproductive Technologies (ART), we would like to raise a final issue in a way to perhaps to stimulate future work in this particular area of research. Billari et. al. (2007) speculate that upper age limits for childbearing will increase as ART will improve and their use will become more accessible. A clear link between the life course perspective and the adoption of assisted reproductive technologies is made in the works by Friese et al. and Becker (Becker, 2000; Friese, Becker,

& Nachtigall, 2008). The authors claim that older mothers can be understood as part of a new middle age, engaging into new life course patterns which reflect changing societal, cultural, physical, and economic realities (Friese et al., 2008). The fact that women are potentially able to conceive after menopause suggest that cultural ideas about ageing and the course of life will necessarily change, by reshaping ideas about the perceived upper age limits to motherhood (Becker, 2000). Even though only a small portion of women is currently resorting to reproductive technologies, the awareness of the existence of such option will unquestionably have an impact on societies' perceptions of age and limits by affecting women's role in later life, extending the period of mid life and postponing what people think as old age, potentially refashioning adulthood (Becker, 2000).A second important remark, in this respect, is that, despite sceptical and cautious perspectives in the medical literature, Beets et al. (1994), Tough et al. (2006) and Bewley (2005) among others, argue that the information available to women may not be sufficient to make them aware of the uncertainties associated with plans for childbearing at an advanced age. Women incur into the risk of postponing childbearing too long, but often they are not fully aware of the costly processes, low success rates and strong psychological pressures involved when resorting to assisted reproductive technologies. Increased availability and public use of ART could have countervailing effects on childbearing norms: on one side they could transmit a new perspective on age limits to childbearing and diffuse the idea of childbearing as a viable option beyond menopause. On the other side, diffusion of ART could also imply more information and, consequently, higher awareness of biological limits and the risks (in terms of pregnancy outcomes and low success rates) incurred by postponing motherhood to an undefined age. A lot of this will also largely depend on the media portrayal of these events. An interesting venue for future research would be to precisely assess whether childbearing norms will be affected as a result of higher availability/use of reproductive technologies, will cease to exert normative power due to a restructuring of the life course and how this will vary across countries.

This preliminary analysis of childbearing norms across Europe suggests that studying norms in relation to current fertility behaviours is both interesting and useful. It is interesting because social norms are responsive to individual and country level factors. Individuals' educational background and childbearing experiences are clearly associated with attitudes towards childbearing. New life course patterns are emerging which reflect changing realities in terms of economic, social and human development. As a matter of fact, current levels of development together with rates of growth over the past 10 to 15 years are associated with

increasingly open attitudes towards later childbearing and voluntary childlessness. Clearly, we cannot establish any causality here but simply assess that more "liberal" childbearing norms go hand in hand with modern life-styles and progress. Finally, studying childbearing norms is useful as observing and documenting childbearing norms today may help to predict future fertility trends in relation to different socio-economic incentives and possible scenarios. In a comparative analysis of European country-level data on late fertility, for instance, Prioux (2005) noted that age-based social norms related to fertility may play a significant role in accounting for variability in childbearing behaviours across countries. What remains to be assessed by future studies in this context, which clearly goes beyond the scopes and limits (due to the basic cross-sectional nature of the ESS) of the present study, is whether further development, economic growth and increased rates of fertility postponement will ultimately lead to higher convergence across countries in both childbearing attitudes and consequently or simultaneously in behaviours over the next coming decades. The diffusion of reproductive technologies definitely represents an interesting challenge for this area of research. Moreover, we still hold very limited knowledge on how binding social norms are nowadays for behaviours.

REFERENCES

Abma, J. C., & Martinez, G. M. (2006). Childlessness among older women in the United States: Trends and profiles. *Journal of Marriage and the Family, 68*(4), 1045-1056.

Becker, G. (2000). The elusive embryo: How women and men approach new reproductive technologies. In. Berkeley: University of California Press.

Beets, G., te Velde, E., Verloove-Vanhorick, P., Merkus, H., & Bruinse, H. (1994). Medical complications of aging fertility. In G. Beets, H. v. d. Brekel, R. Cliquet, G. Dooghe & J. d. J. Gierveld (Eds.), *Population and Family in the Low Countries 1993: Late fertility and other current issues* (Vol. 30). Amsterdam: Swets and Zeitlinger.

Bewley, S., Davies, M., & Braude, P. (2005). Which career first? The most secure age for childbearing remains 20-35. [Editorial]. *British Medical Journal, 331*, 588-589

Billari, F. C. (2005). Europe and its fertility: from low to lowest low. *National Institute economic review*(194), 56-73.

Billari, F. C., & Kohler, H.-P. (2004). Patterns of low and lowest-low fertility in Europe. *Population studies [London], 58*(2), 161-176.

Billari, F. C., & Micheli, G. A. (1999). Le scelte demografiche: la percezione dei costi e delle norme sociali. In L. Mauri & F. C. Billari (Eds.), *Generazioni di donne a confronto, Indagine socio demografica* (pp. 163-190). Milano: Franco Angeli.

Buchmann, M. (1989). The Script of Life in Modern Society: Entry into Adulthood in a Changing World. In. Chicago: University of Chicago Press.

Crook, N. R. (1978). On social norms and fertility decline. *The Journal of Development Studies 14*(4), 198-210.

Frejka, T. (2008). Overview Chapter 3: Birth Regulation in Europe: Completing the contraceptive revolution. *Demographic Research, 19*(5), 73-84.

Frejka, T., & Sardon, J. P. (2006). First birth trends in developed countries: Persisting parenthood postponement. *Demographic Research, 15*, 147-180.

Friese, C., Becker, G., & Nachtigall, R. D. (2008). Older motherhood and the changing life course in the era of assisted reproductive technologies. *Journal of Aging Studies, 22*(1), 65-73.

Gibbs, J. P. (1981). Norms, Deviance and Social Control: Conceptual Matters. In. New York: Elsevier.

Heaton, T. B., Jacobson, C. K., & Fu, X. N. (1992). Religiosity of married couples and childlessness [Article]. *Review of Religious Research, 33*(3), 244-255.

Heckausen, J. (1999). *Developmental Regulation in Adulthood*. Cambridge: Cambridge University Press.

Hoem, J. M., Neyer, G., & Andersson, G. (2006). Education and childlessness: The relationship between educational field, educational level, and childlessness among Swedish women born in 1955-59. *Demographic Research, 14*(15), 331-380.

Kohler, H.-P., Billari, F. C., & Ortega, J. A. (2002). The emergence of lowest-low fertility in Europe during the 1990s. *Population and development review, 28*(4), 641-680.

Kohler, H.-P., Billari, F. C., & Ortega, J. A. (2006). Low fertility in Europe: Causes, implications and policy options. In F. R. Harris (Ed.), *The Baby Bust: Who will do the Work? Who Will Pay the Taxes?, .* Lanham, MD: Rowman & Littlefield Publishers.

Kohler, H.-P., Rodgers, J. L., & Christensen, K. (1999). Is fertility behavior in our genes? Findings from a Danish twin study. *Population and development review, 25*(2), 253-288.

Koropeckyj-Cox, T., & Pendell, G. (2007). The Gender Gap in Attitudes about Childlessness in the United States. *Journal of Marriage and Family, 69*(4), 899-915.

Lesthaeghe, R. (1980). On the social control of human reproduction. *Population and development review, 6*(4), 527-548.

Liefbroer, A. C., & Billari, F. C. (2009). Bringing norms back in: a theoretical and empirical discussion of their importance for understanding demographic behaviour. *Population, Space and Place.*

Meyer, J. M. (1998). Levels of Analysis: The Life Course as a Cultural ConstructionSocialChange and the Lifecourse Vol. 1. In M. W. Riley, B. J. Huber & B. B. Hess (Eds.), *Social Structures and Human Lives* (pp. 40-62). Newbury Park, Cal: Sage Publications

Mynarska, M. A. (2007). Fertility postponement and age norms in Poland: is there a deadline for parenthood? MPIDR.

Neugarten, B. L., Moore, J. W., & Lowe, J. C. (1965). Age norms, age constraints, and adult socialization. *American journal of sociology*, 710-716.

Paul, R. A., Nancy, S. L., Tara, C. H.-B., Alan, B., David, J. E., Robert, S., et al. (2008). Precursors of Young Women's Family Formation Pathways. *Journal of Marriage and Family, 70*(5), 1271-1286.

Prioux, F. (2005). Late fertility in Europe: some comparative and historical data. *Revue D Epidemiologie Et De Sante Publique, 53*, 2S3-2S11.

Prioux, F. (2005). Late fertility in Europe: some comparative and historical data. *Revue d'Épidemiologie et Santé Publique, 53*, 2S3-2S11.

Rovi, S. L. D. (1994). Taking no for an answer-using the negative reproductive intentions to study the childless childfree *Population Research and Policy Review, 13*(4), 343-365.

Settersten, R. A. (2003). Age structuring and the rhythm of the life course. In. New York: Springer-Verlag.

Settersten, R. A., Jr., & Hagestad, G. O. (1996). What's the latest? Cultural age deadlines for family transitions. *Gerontologist, 36*(2), 178-188.

Shlens, J. (2005). A tutorial on Principal Component Analysis.

Smith, L. (2002). *A tutorial on Principal Component Analysis*

Sobotka, T. (2004a). Is lowest-low fertility in Europe explained by the postponement of childbearing? *Population and development review, 30*(2), 195-220.

Sobotka, T. (2004b). *The postponement of Childbearing and Low Fertility in Europe*. Amsterdam: Dutch University Press.

Sobotka, T., & Testa, M. R. (2008). Attitudes and Intentions Toward Childlessness in Europe. In Höhn C., Avramov D. & Kotowska I. E. (Eds.), *People, Population Change and Policies: Vol. 1: Family Change* (Vol. I, pp. 177-211): Springer Netherlands.

Tanturri, M. L., & Mencarini, L. (2008). Childless or Childfree? Paths to Voluntary Childlessness in Italy. *Population and development review, 34*(1), 51-77.

Testa, M. R. (2006). *Childbearing preferences and family issues in Europe*. Retrieved 26 October 2009. from http://ec.europa.eu/public_opinion/archives/ebs/ebs_253_en.pdf.

Tough, S., Benzies, K., Newburn-Cook, C., Tofflemire, K., Fraser-Lee, N., Faber, A., et al. (2006). What do women know about the risks of delayed childbearing? *Revue Canadienne de Sante' Publique, 97*(4), 330-334.

APPENDIX

Country	Code
Austria	AT
Belgium	BE
Bulgaria	BG
Switzerland	CH
Cyprus	CY
Germany	DE
Denmark	DK
Estonia	EE
Spain	ES
Finland	FI
France	FR
United Kingdom	UK
Hungary	HU
Ireland	IE
Latvia	LV
Netherlands	NL
Norway	NO
Poland	PL
Portugal	PT
Romania	RO
Russia	RU
Sweden	SE
Slovenia	SI
Slovakia	SK
Ukraine	UA