Research & Methods
ISSN 1234-9224 Vol. 25 (1, 2016): 17–46
The Ohio State University
Columbus, Ohio, USA
Institute of Philosophy and Sociology
Polish Academy of Sciences, Warsaw, Poland
www.askresearchandmethods.org

The Impact of Well-Being on Fertility Intentions – An Analysis Based on the European Social Survey (2010)

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This article examines the relation between well-being and fertility intentions in Europe and addresses three main research questions: Does overall well-being influence fertility intentions? What kind of well-being factors are more important in the determination of fertility intentions (individual-level subjective ones vs. individual-level objective ones vs. country-level ones)? Does the role of specific well-being variables change over the course of the life course, i.e. as age and parity increase? In accordance with the theory of planned behaviour (Ajzen, 1991), fertility intentions are studied as important predictors of actual fertility behaviour. And in line with established studies, a broad approach is taken towards the concept of well-being. The analysis is theoretically grounded in the framework of methodological individualism (i.e. micro-macro linkages). Use is made of data on women aged 20-39 in 27 countries, which were taken from the 'Family, work and well-being' module in the 5th round (2010) of the European Social Survey. The analysis of a comparable European population sample is made possible by taking account of both unit and item non-responses, and correcting for them. Our analysis shows overall positive but small correlations between well-being and fertility intentions in all countries: the higher the level of well-being, the higher the intended fertility, although the strength of the correlation differs between countries. Also, overall, individual-level objective well-being factors, such as level of education and employment status, have a larger impact on fertility intentions than individual-level subjective well-being factors and country-level well-being factors regarding human development, gender inequality and region. Changes in the effects of these well-being factors are found depending on the stage of the life course: as parity and age increase, the importance of country-level well-being effects increases. This shows that family-friendly country policies targeted to these groups can have positive effects on fertility.

Key words: fertility intentions, well-being, life course, linked lives, cross-national comparable sample, European Social Survey

Acknowledgements
A preliminary version of this paper was presented at the European Survey Research Association (ESRA) conference held in Reykjavik, Iceland, from 13 to 17 July 2015, in the session "The interplay of conceptual and measurement validity in cross-nation analysis" (chaired by Professor dr. Katarzyna M. Staszyńska and Professor Emeritus dr. Jaak Billiet). We appreciate the editors, members of editorial committee and anonymous reviewer who greatly helped to improve an earlier version of this manuscript.
The research is funded in part by the University of Leuven (KU Leuven) Geconcerteerde Onderzoeksactie (GOA) project "New Approaches to the social dynamics of long-term fertility change (2014-2018)" [grant 2014–2018; GOA/14/001].

1. INTRODUCTION

Many developed countries are marked by fertility levels below replacement level (2.1). Among those countries, a distinction can be made between those with fertility levels above and below 1.3, respectively. The latter are called "lowest-low" fertility countries (Billari and Kohler, 2002). The different fertility levels of these two groups of countries relate to differences in terms of female educational attainment, female labour force participation, the pursuit by women of higher order needs (e.g. individualisation), emancipation, and the use of modern contraceptives (Lesthaeghe, 2010). Empirical studies based on aggregate data have demonstrated that in Northern and Western Europe, the relation between female labour force participation and fertility turned from negative in the 1980s to positive in the 1990s. This has drawn attention to the important role played by the combinability of motherhood and work, and to the scope for policy intervention in this respect (Kohler, Billari and Ortega, 2006). Recent research shows that the number of "lowest-low" fertility countries has decreased dramatically in recent years (Goldstein, Sobotka and Jasillioniene, 2009). Whether a country is still marked by "lowest-low" fertility can be explained by the demographic trend of postponement, but also by the existing institutional structure comprising economic, policy and social factors supporting childbearing and childrearing activities by women and men.

At least in Europe, the concept of well-being has recently been an important issue on the policy agenda. Well-being is considered to have positive effects in different domains of life, including health and longevity, work, and partnership formation. It has been found, for instance, that individuals marked by higher levels of well-being are more likely to have stable partnerships and more children. A number of research projects on well-being and fertility are on-going.[1] What remains relatively unexplored, however, is the impact of well-being on fertility intentions. Fertility intentions are good proxies for actual fertility behaviour, in particular since fertility outcomes are increasingly planned through the use of

reliable contraception. Actual childbearing behaviour results from individual and joint (couple) choices based on intentions formed by past experiences (i.e. the outcomes of past behaviour based on past choices based on past intentions) and the parallel processes (Willekens, 1991). This perspective is in line with the theory of planned behaviour, which takes account of beliefs, attitudes, norms, perceived behavioural control and intentions as determinants of behavioural outcomes (Ajzen, 1991). These behavioural outcomes are influenced by choice processes based on one's reordering goals (e.g. selection and adaptation effect) (Lesthaeghe and Moors, 2000) in the life course perspective (Giele and Elder, 1998).

The objective of this paper is to study the impact of well-being on fertility intentions in several European countries. The first question is whether *overall* well-being influences fertility intentions in Europe. We then focus in particular on which type of factors (i.e. individual-level subjective well-being factors, individual-level objective well-being factors, country-level well-being factors) play a role. Important in our approach is the multi-dimensional perspective on the well-being concept. In addition to individual-level factors, account is also taken of country-level factors variables related to well-being. Finally, we study whether the role of well-being factors in the determination of fertility intentions changes over the course of one's life, i.e. as parity and age increase. The paper also aims to make a methodological contribution. The analysis makes use of response-sensitive items (e.g. subjective well-being, fertility intentions) and therefore addresses non-response bias (i.e. both item and unit non-response) in a cross-national context. The combination of micro-level and macro-level measurements of similar items of socio-economic characteristics is also tested and discussed in this paper.

The structure of the remainder of this paper is as follows. Section 2 presents the study background on fertility intentions and well-being, including the literature review, theoretical framework and general assumptions. This section is followed by a description of data and sub-samples, measures and methods in Section 3. Section 4 consists of two subsections on results. In the first part of the analysis, a descriptive analysis of measures and a correlation analysis is provided, followed by a second part of results based on multi-level models. The final and concluding section 5 provides a summary of results and reflects on directions for future research.

2. STUDY BACKGROUND ON FERTILITY INTENTIONS AND WELL-BEING

2.1. Fertility intentions determinants as proxies for fertility behaviour and outcomes

The theory of planned behaviour (Ajzen, 1991) is central to an appreciation of the predictive power of (fertility) intentions with respect to actual (fertility) behaviour and outcomes. The theory can be applied in the field of fertility since contemporary

populations generally use effective contraception. Much research shows that fertility intentions have predictive power with respect to actual childbearing (Testa, 2014). Fertility intentions are measured through, for instance, the stated strength of the desire to have a child in the next two years [intended (circumstances and perceptions) or desired (unconstrained) fertility] or personal predictions of how many more children will be had (expected fertility). Short-term fertility intentions are considered to be powerful predictors in particular for negative intentions, meaning the wish to remain childless or to have no further children (Kuhnt and Trappe, 2013). Negative fertility intentions have direct consequences for the number of children that the individual will eventually have, and for the total fertility level at societal level. Obviously, at societal level, the gap between fertility intentions and actual fertility behaviour is of particular concern, not only in Europe but also elsewhere (Philipov, 2009; Basten and Verropoulou, 2015).

The gap between fertility intentions and fertility behaviour needs to be considered from at least two perspectives. On the one hand, when the 'two child ideal' becomes more prevalent in many European societies (Sobotka and Beaujouan, 2014), the existing gap will be mostly attributed to *structural and/or biological obstacles* as a result of the postponement of childbearing. On the other hand, this gap can be the result of *adjusting choices* of individuals responding to perceived societal norms, the so-called low-fertility trap (Lutz, Skirbekk and Testa, 2006). In the past, because of growing delays in motherhood, the intended family size was higher than the realised one (differences are 0.4 in the case of the British 1958 birth cohort) (Bennington and Pattaro, 2014). However, some evidence shows that fertility intentions are lower for the recent period and younger cohort. Austrian empirical research shows that in the period 1986-2001, fertility intentions were below replacement level among young adults (Sobotka, 2009). Fertility ideals in European countries are, therefore, showing the divergence of ideals between near-replacement and below-replacement ones (Sobotka and Beaujoudan, 2014).

2.2. Individual and contextual determinants of fertility intentions and the role of multi-dimensional well-being

Fertility intention determinants and the life course

Since the general research question is how well-being in all its aspects influences the fertility intentions of women, use is made of the theoretical framework of methodological individualism (Coleman, 1990). This framework attaches prime importance to micro-behaviour that is influenced by macro-conditions (e.g. social norms, socio-economic conditions, the gender system). The connectivity between intentions and behaviour is in line with the theory of planned behaviour (Ajzen,

1991). Macro-conditions refer to forms of institutions that convey information to and share information with individuals, emphasizing the importance of norms and beliefs as noted by Ajzen.

The theory of planned behaviour explains individual behavioural outcomes as results of biological and socio-demographic background, in addition to individual beliefs, attitudes, norms and perceived behavioural control (PBC) concepts. It is, therefore, not coincidental that fertility intentions are examined through the socio-economic attributes of the individual. Fertility intentions are primarily determined by age, gender, parity and education (Bennington, 2004). Based on an analysis of the British Household Panel Survey (BHPS – 1992, 1998), Bennington argues that, for instance, older childless women who are highly educated and (therefore likely to) have high earning levels and egalitarian gender attitudes, are less likely to intend to have children. The importance of determinants may differ slightly across countries, however, as cross-national analyses highlight the particular importance of education and income (Testa, 2014; König, 2011) with respect to the formation of fertility intentions. Testa (2014) argues that positive associations exist between women's level of education and fertility intentions, though this relationship differs across nations.

In addition to these aforementioned 'usual suspect' determinants of fertility intentions, a wide range of other factors are also examined as determinants. These are employment status, income, and the age of the youngest child (e.g. Iacovou and Tavares, 2011; Billingsley and Ferrarini, 2014). Research shows that a stable relationship, financial security and being a parent are strong determinants of fertility intentions in the case of Germany (Kuhnt and Trappe, 2013).

The rather static nature of the theory of planned behaviour can be circumvented by taking a life course perspective comprising the view that individual background (e.g. family characteristics, partnership status, individual socio-economic conditions) varies throughout the life course (Giele and Elder 1998) and that this has consequential effects on fertility plans. Giele and Elder (ibid. p. 11) define four key elements that are crucial in the operationalization of life course research: human agency; location in time and place; linked lives; and timing.

Across the life course, fertility intentions can change and shift either upward or downward (Iacovou and Tavares 2011). Revising intentions downwards as age increases, is more prevalent (Bennington, 2004). In other words, when women become older (mid to late 30s), intentions change, reflecting the life course status. Iacovou and Tavares (2011) argue on the basis of the BHPS (1991–2007) that females' revision of childbearing intentions arises from adjusting to partners' expectations with respect to having a child (couple agreement or disagreement). Such changes in intentions are in reality the process outcome of couples' and partners' childbearing plans, illustrating the life course 'linked lives' concept.

The linked lives concept is highly relevant for fertility intention determinants. The primary role of social networks in determining the fertility tempo and quantum, through social learning and social support by families and also friends, is well studied (Bernardi and Klärner, 2014; Montgomery and Casterline, 1996). The social network, including friends, colleagues and also family (parents), plays a beneficial role giving practical support to women with respect to childbearing and childrearing activities. Grandparents' involvement - providing emotional support and childcare help - can also have a positive effect on fertility intentions (Tanskanen and Rotkirch, 2014).

The interactions of family roles with macro-institutional and cultural contexts need to be considered in cross-national context (Balbo and Mills, 2011). Family support (e.g. emotional support, child care assistance) will have a positive effect in countries with limited institutional arrangements in places such as Southern Europe. When the state has put in place full institutional arrangements, strong family support provided for childbearing and childrearing is not necessarily required for achieving fertility intentions and may even have negative effects. The linked lives concept introduces complexity when early childhood experiences (Elder, 1974; Easterlin, 1980) are taken into account that influence parent-child relations.

Role of multi-dimensional well-being

The life course approach incorporates multi-dimensional well-being concepts. Important individual-level determinants of fertility intentions included in our analysis - such as education and economic security - are in fact dimensions of the multi-dimensional well-being concept, as demonstrated in established approaches in the field (Thompson and Marks, 2008, Abdullah, et al. 2011). The well-known Stiglitz Report (2009) already stipulated key dimensions of well-being including material living standards (income, consumption and wealth); health; education; personal activities including work; political voice and governance; social connections and relationships; environment (present and future conditions); and insecurity, of an economic as well as a physical nature. This report sets the views of people's well-being since it highlights the importance of improving measures of 'progress' of societies in all dimensions that is beyond economic growth. This means the framework identifies the position of human well-being in relation to the economy and environment. It is therefore self-evident to consider that a wide range of behavioural outcomes are influenced positively by well-being. For instance, on the basis of substantial national and cross-national surveys and longitudinal evidence, Huppert (2009) reports that individuals with higher levels of well-being as measured by 'happiness' or 'life satisfaction' tend to be more productive, have higher incomes, better health, and higher life expectancy.

How people evaluate and experience their lives is the essential concept of well-being (Jeffrey et al. 2015). Three concepts of well-being are closely related to subjective well-being: life evaluation, affect and eudaimonia (flourishing) (OECD, 2013). These concepts can be further defined by sub-components of corresponding measuring concepts: (1) life satisfaction (income, health, work satisfaction); (2) affect (anger, worry and happiness); and (3) eudaimonic (competence, autonomy, and meaning and purpose). Determinants of these sub-components and concepts include: income, health status, social contact, employment status, personality type and culture (ibid. p. 33, Figure 1.1). The same line of theoretical argumentation is present in Abdullah and others' (2011). Their dynamic model of well-being (Figure 3, p.13) clarifies the relation between different sub-components and concepts. As they argue: "The model describes how an individual's external conditions - such as their income, employment status, housing and social context - act together with their personal resources (bottom right) - such as their health, resilience and optimism - to allow them to function well (middle) in their interactions with the world and therefore experience position emotions (top) (ibid. p.13)." The model considers four areas: (1) a person's external conditions interact with (2) their personal resources to satisfy - to a greater or lesser extent - (3) their psychological needs, and to give rise to (4) positive feelings of happiness and satisfaction. This broad approach towards well-being is also taken by the European Social Survey, where attitudinal indicators concern societal progress incorporating individual cognitive evaluations of society's functioning and social well-being, which goes beyond the mere measurement of GDP (Harrison et al. 2011).

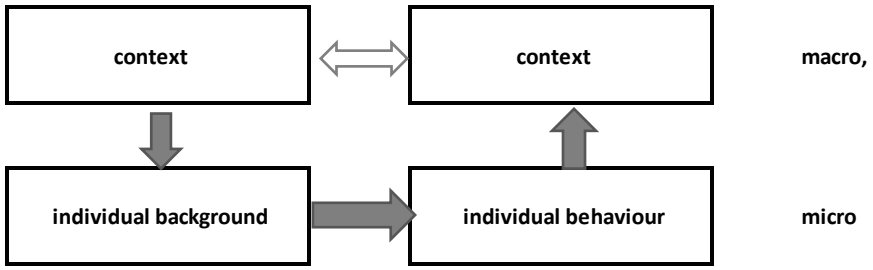
The relation between well-being indicators and fertility intentions at the individual level is highly dependent on country (institutional) measures related to childbearing and childrearing activities. As mentioned earlier, well-being is highly dependent on individual-level variables like education, economic security, health, social activities and the level of overall happiness. An analysis of EU-27 countries (Billingsley and Ferrarini, 2014) shows that countries where women are more likely to reach the highest levels of educational attainment are also those countries where family-friendly policies and programmes for childbearing and childrearing activities exist. The more family-friendly policies are, the more practical measures likely exist concerning flexible working hours, maternal and/or paternal leave and financial entitlements including child allowances and tax benefits, and formal and out-of-school childcare facilities (OECD, 2007). In line with the 'perceived behaviour control concept', which concerns the individual ability to engage in behaviour regarding the availability of resources, such institutional arrangements can take care of a wide range of domains (e.g. housing, work arrangements, child-care facilities) that can have a positive impact on childbearing intentions (Billingsley and Ferrarini, 2014; Mills, 2008). The above discussion is further examined in

recent analyses of Aassve and colleagues (2015) adding to the understanding of the relationship between subjective well-being and childbearing behaviour. They argue that subjective well-being is a direct function of the discrepancy between aspirations and attainment, and their analysis shows that when institutions adopt women's new preferences and aspirations, both fertility and happiness (form of well-being) are higher.

2.3. Research questions and hypothesis

The basic study framework is described in Figure 1. The framework integrates Coleman's methodological individualism (1990), complemented with the theory of planned behaviour (Ajzen 1991), the life course approach (Giele and Elder 1998) and the well-being concept (Abdullah, et al. 2011).

Figure 1 Theoretical framework of methodological individualism



Source: Coleman (1990)

Our main interest is to study as to whether and how well-being influences fertility intentions in Europe. Three research questions are addressed:

1. Does overall well-being influence fertility intentions? (RQ1);
2. Which factors - individual-level subjective well-being factors, vs. individual-level objective well-being factors, vs. country-level well-being factors - are more important in the determination of fertility intentions? (RQ2);
3. Does the role of specific well-being variables change in the course of one's life, i.e. as age and parity increase? (RQ3).

The first hypothesis is that a positive relation exists between well-being and desired fertility: the higher the level of well-being, the higher the desired fertility level (H1).

The second hypothesis is that individual-level objective well-being factors and country-level well-being variables are more important than individual-level

subjective well-being factors in the determination of fertility intentions (H2). The higher the level of education and economic security (i.e. employed) of women, the higher is their desired fertility level. The more advantageous the overall national context as reflected in the human development index and the lower the level of gender inequality at the country level, the higher the desired fertility level of the women living in that country. The reason is the impact these measures have on the affordability and likelihood of child support measures, which are taken into account when formulating fertility intentions.

The third hypothesis is that the role of individual well-being variables in the determination of fertility intentions changes over the life course, i.e. as parity and age increase (H3). We hypothesize that individual-level objective well-being factors and country-level well-being factors are more important for younger and lower-parity women, and less important for older and higher-parity women. On the other hand, individual-level subjective well-being factors are less important for younger and lower-parity women, and more important for older and higher-parity women.

3. DATA, MEASURES AND METHODS

3.1. Data

Our analysis is based on data from the European Social Survey (ESS), Round 5, which was carried out in 27 countries in the period 2010-2011 and included a repeat module on work, family and well-being.

For the purpose of this paper, data were tested for 27 countries (i.e. BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IL, LT, NL, NO, PL, PT, RU, SE, SI, SK, UA). As shown in Table 1, the average response rate for this Round, calculated on the basis of contact files, was 60.2%, ranging from 29.7% (DE) to 76.1% (BG). The average non-contact rate was 5.4%, ranging from 0% (BG, CZ) to 21.6% (IE). And the average refusal rate was 25.0%, ranging from 11.0% (BG) to 39.6% (DE) (Matsuo and Loosveldt, 2013). For the purpose of working with comparable European population sample, ESS is highly suitable. The Central Scientific Team (CST) has always designed ESS to ensure the highest methodological quality for all aspects of survey design and safeguard the cross-nationally comparable aspect. Notable challenges exist in survey research concerning measurement and non-response errors. The aim of ESS is therefore to minimize survey errors through strict instructions that cover the wide range of survey design and data collection activities including questionnaire development, translation of each item into national language, applying strict probability sampling to the target population (aged 15 and above), and ensuring responses by targeting minimum non-response and aiming for 70% response rates and 3% non-contact rates. The total number of sample units collected in 27 countries in ESS Round 5 reached 52,458.

Data were used for 27 countries where country level information is also available through the designated website. Because of the paper's focus on fertility intentions, the data were restricted to the 8,178 women (weighted sample) aged 20–39 years. The reason is that the question on fertility intentions targeted the age group of those born after 1965 in the survey design and this in order to measure and target the age group that realistically could be expected to want children.

Table 1 Sample characteristics of European Social Survey Round 5 and units for analysis, 27 countries.

	N total respondent sample	Response rates	N sub-sample for analysis
BE	1,704	53.4	276
BG	2,434	76.1	299
CH	1,506	53.2	178
CY	1,083	71.9	186
CZ	2,386	70.2	351
DE	3,031	29.7	399
DK	1,576	54.9	187
EE	1,793	56.2	280
ES	1,885	68.6	340
FI	1,878	59.4	263
FR	1,728	47.0	285
GB	2,422	56.3	394
GR	2,715	65.6	526
HR	1,649	54.2	251
HU	1,561	60.7	277
IE	2,576	59.8	470
IL	2,294	72.3	401
LT	1,677	39.4	223
NL	1,829	60.0	271
NO	1,548	58.5	226
PL	1,751	70.0	317
PT	2,150	67.1	277
RU	2,595	66.6	485
SE	1,497	51.8	202
SI	1,403	64.4	202
SK	1,856	74.7	301
UA	1,931	64.5	311

Notes: 3rd column, source based on Matsuo and Loosveldt 2013. Other columns based on own analysis.

3.2. Measures

Dependent variable: Fertility intentions

The specific module in ESS Round 5 on work, family and well-being (section G) includes, at the end of the survey (G88), a question on 'fertility intentions' (plan having child within next 3 years), which is asked to respondents born after 1964 (filtered question). The response to this question is a 4-point scale ranging from 1: definitely not, to 4: definitely yes. Responses to this question are rather incomplete as missing items exceed 9% in 27 countries. Differences in terms of average response scales by country are presented in Table 3. For the purpose of our analysis, we created a dichotomous outcome (no fertility plans in next 3 years=0, have fertility plans in next 3 years=1) based on the aforementioned 4 point scale items.

Individual-level subjective well-being variables

Several items concerning individual well-being items are included in our model estimate. These are items where questionnaire design module document is consulted to identify these respective items. In our analysis, we make use of three types of subjective well-being variables envisaged in the questionnaire design (ESS, 2009):

- How happy are you? (11-point scale: 0 = extremely unhappy; 10= extremely happy).
- How satisfied with life as a whole? (11-point scale: 0 = extremely dissatisfied; 10 = extremely satisfied).
- Subjective general health? (5-point scale: 1=very good; 5=very bad).

By reversing the scale for health, the scales were made consistent meaning that for each of the variables, the higher the value, the higher the level of well-being. Among all these variables, grand mean values are created.

Individual-level objective well-being variables

In our analysis, we made use of a number of individual-level objective well-being variables concerning education, economic security, partnership and social networks:

- Education is measured through an 8-point International Standard Classification of Education (ISCED) scale.
- Economic security is measured through the employment status for the main activities of the responding individual resulting into a dummy variable (0=not employed; 1=employed).
- Partnership status is measured through a combination of legal partnership status and relationship with partner currently living with, resulting in three

types of dummy variables concerning being in a consensual union or not, being single or not, and being divorced or not.

- Social networks are measured through answers to the question 'how often socially meet with friends, relatives or colleagues?' in the form of a 7-point scale (1=never; 7=every day).

For the analysis, grand mean values are created for 2 items of objective well-being, namely, education and social network. The remaining 4 items have dummy variables.

Country-level well-being variables

In order to examine the role of country-level well-being factors in fertility intentions (H2), three variables were included in our analysis: the Human Development Index (HDI), the Gender Inequality Index (GII) and region (Southern countries). The former two items were taken from 2008 United Nations Development Programme (UNDP) country data made available at the ESS website. The HDI measures country achievements in the area of long and healthy life (health), access to knowledge (education) and standard of living (income). The GII concerns the disadvantages for women in three domains: reproductive health, gender empowerment and labour market. Compared to the HDI, the GII is designed to identify national measures of human development specifically from the perspective of gender inequality. Being a Southern country or not, which is geographically determined, was included as a dummy variable in the model.

Life course variables

Age and parity were included in our analysis as important life course variables. Two types of age variable were used in our model in order to accommodate possible U-shaped relations, which are continuous and squared. Age has its biological dimension to consider for fertility behaviour. Parity concerns the number of children per woman, which is based on the household grid variables reported by the respondent at the time of survey. The number of children refers to those children who reside with the respondent including son, daughter, step-child, adopted and foster child. In order to capture children not residing with the respondent, 'presence of child living outside of household' (1=yes; 0=no) and 'presence of small child (below 3 years) living at home' (1=yes; 0=no) were included as dummy variables. The former was considered more as a control variable while the latter illustrates the woman's life course status in the childrearing activities' domain. Note that the actual use of these child-related items in the model was parity-dependent. For instance, 'presence of small child living at home' is irrelevant for childless women.

3.3. Methods

In order to work with cross-national data for 27 countries, and in order to examine fertility intentions as affected by a number of individual-level and country-level determinants, a multi-level analysis (two-levels) was applied. Several models were included in the multi-level analysis. The model was first estimated without any covariates (model 1), adding then individual-level subjective well-being factors (model 2), later individual-level objective well-being factors (model 3), and finally country-level well-being factors (model 4). The final model combined both individual-level and country-level level factors (model 5). The analysis was first carried out for women of all parities and ages in the weighted sample (N=8,178). The analysis was then carried out by parity and age: childless women (N=3,919); mothers with one child (N=1,826); mothers with two and more children (N=2,433); aged 20 to 29 years (N=3,761); and aged 30 to 39 years (N=4,417).

The purpose of model 1 was to assess the country variance with respect to sample data. In this model, the dependent variable equalled the dichotomous value of fertility intentions, for sample unit *i* by country *j*. The intra-class correlation (ICC) was firstly obtained using SAS PROC GLIMMIX for the null model and all models as we considered the sample units to be measured and modelled at level-1 and level-2 (Snijders and Bosker, 1999). The obtained total variance of the model was decomposed as the sum of the level-two and level-one variances. It was therefore possible to obtain intraclass correlation coefficients $(ICC)^2$ as this was the proportion of total variability due to the country level. The evaluation of the models and the identification of the best fitting model was done through the deviance test. The chi-square difference tests were performed by reviewing model fit information for all models estimated: the difference of the log likelihood ratios (-2LL) values across models. In each model's results, values on variance of both level 2 and -2LL are presented. In all models, it is shown that fertility intentions vary significantly across countries, and also across individuals within countries, where the variance of the random intercept across countries and intra-correlations are studied. These figures are mean values for 5 imputed datasets.

In order to correct for potential non-response bias, use was made of the combined value of population size weights and non-response weights in order to take into account country differences with respect to these biases. These values are made available publicly as they are integrated in the public data file (ESS). Multiple imputation (SAS Proc MI) with five imputed data sets (Rubin, 1976) was used to obtain item non-response items.[3] After reviewing the plausible auxiliary variables, in line with the theoretical construct, needed for the imputation procedure (SAS PROC MI), a combination of fully conditional specification (FCS) and regression (multivariate normal distribution) methods was applied referring to individual

variables (dummy variables) and continuous variables. During the process, the plausible auxiliary variables were tested by evaluating the correlations with all missing variables noted above.

A multi-level analysis was carried out in several steps. These steps were repeated for the models for all parities and for specific parities (i.e. childless, one child, and two child and above) and age groups using SAS Proc GLIMMIX and SAS MIANALYZE to work with imputed and weighted datasets. As a standard procedure for multi-level analysis, in order to interpret model results easier, all continuous variables were grand mean centred for level 1 and level 2 items.

4. RESULTS

Our results of descriptive analysis, correlation analysis and multi-level model analysis are based on an imputed, weighted sample. Descriptive statistics for all individual measures are shown in Table 2. This is followed by country-specific measures (mean or proportion) concerning original value of fertility intentions (scale 1-4) presented in Table 3. The results of each analysis are presented in Tables 4 to 6. Given the fact that we worked with 27 countries, and even though the intra-class correlation was relatively small, which will be shown below, we considered it most suitable to make use of multi-level models.

Parity-specific results (i.e. childless, one child, and second child and more) capture women's fertility career, namely, 'starting' and 'stopping' of fertility. Starting behaviour can be observed comprehensively among the childless. Stopping behaviour can be observed for mothers of all parities who do not plan to have children in the near future (64% responds 'no').

Table 2 presents the descriptive analysis based on individual socio-demographic, attitude and country characteristics for all women. The mean age of the women in the 27 countries is 29 years. Most women are in a consensual union (57%), a substantial proportion is single (37%), and a non-negligible proportion is divorced (6%). Seventy percent of women are either childless at the time of the survey (48%) or have one child (22%). Most women (54%) are medium-educated (low medium and high medium) and a substantial proportion is tertiary educated (32%). More than half of the women are engaged in the labour force (57%). The socio-demographic profile differs by parity and country (Table not shown).

Table 2 Descriptive statistics (mean or %) on individual attributes used in analysis, 27 countries, N=8178 weighted sample.

(Individual)	Mean or %	Standard Error
Age	29.27	5.76
Age²	889.76	342.58
Education (ISCED above 5/tertiary)	31.58	N.A.
Employed	57.06	N.A.
In consensual union	57.42	N.A.
Single	36.61	N.A.
Divorce	5.66	N.A.
Small child at home	23.85	N.A.
Child living outside of home	2.47	N.A.
Number of children	0.84	1.10
Plan children	2.13	1.13
Happiness	7.19	1.95
Life satisfaction	6.63	2.23
Health	3.91	0.80
Social network	5.07	1.51
(Country)		
Human Development Index	0.85	0.05
Gender Inequality Index	0.16	0.08
Southern country	21.19	N.A.

Note: Variables are mean-centered in the analysis.

Table 3 presents correlations between subjective and objective well-being factors on the one hand and fertility intentions on the other hand. Small (Pearson scores 0.11 and 0.07, respectively) but significant correlations exist between two types of subjective well-being factors - happiness and life satisfaction - and fertility intentions. Even though the Pearson scores are low, this means that, in line with our hypothesis, the higher the level of subjective well-being, the higher the desired fertility level. When studying the correlation between an objective well-being factor (like social networks) and fertility intentions, a smaller but significant correlation is found (Pearson score 0.01). As expected, a significant negative (Pearson score -0.26) correlation exists between the number of children and fertility intentions meaning that the desired fertility level decreases as the parity increases. This finding is also observed for age (Pearson score -0.13). Cross-national differences are observed concerning the significance level and the Pearson score for these four correlations as shown in Table 3.

Table 3 Mean value of fertility intention, correlations between subjective well-being, number of children and fertility intention, N=8178 weighted sample.

	Mean fertility intention (SE)	Correlation					
		Happiness * intention (SE)	Life satisfaction * intention (SE)	Social network * intention (SE)	Age * intention (SE)	Age² * intention (SE)	Number children * intention (SE)
All countries	2.13(0.02)	0.11(0.01)***	0.07(0.01)***	0.01(0.01)	-0.13 0.01)***	-0.21(0.01)***	-0.26(0.01)***
BE	2.14(0.07)	-0.02(0.06)	0.05(0.06)	0.05(0.06)	-0.18(0.06)**	-0.33(0.06)***	-0.37(0.06)***
BG	2.03(0.07)	0.13(0.06)*	0.16(0.06)**	0.10(0.06)^	-0.35(0.06)***	-0.15(0.06)*	-0.46(0.06)***
CH	2.28(0.09)	0.02(0.08)	0.08(0.08)	-0.02(0.08)	0.09(0.08)	-0.30(0.08)***	-0.12(0.08)
CY	2.15(0.09)	0.05(0.08)	0.16(0.08)*	-0.04(0.08)	-0.05(0.07)	-0.32(0.08)***	-0.08(0.08)
CZ	2.18(0.06)	0.10(0.05)*	0.06(0.06)	-0.06(0.07)	-0.08(0.06)	-0.31(0.05)***	-0.29(0.06)***
DE	1.99(0.06)	0.11(0.05)*	0.13(0.05)**	-0.07(0.05)	-0.04(0.05)	-0.26(0.05)***	-0.26(0.05)***
DK	2.10(0.09)	0.001(0.07)	-0.07(0.07)	0.13(0.07)^	-0.13(0.08)^	-0.33(0.08)***	-0.25(0.07)**
EE	2.11(0.06)	0.21(0.06)**	0.18(0.06)**	0.02(0.06)	-0.01(0.06)	-0.28(0.06)***	-0.30(0.06)***
ES	2.00(0.06)	0.03(0.06)	0.01(0.06)	-0.08(0.06)	0.18(0.05)**	-0.31(0.06)***	-0.14(0.06)*
FI	2.27(0.06)	0.14(0.06)*	0.14(0.06)*	-0.004(0.06)	-0.04(0.06)	-0.28 0.06)***	-0.10(0.06)
FR	2.25(0.08)	0.09(0.06)	-0.02(0.06)	-0.09(0.06)	-0.13(0.06)*	-0.38(0.06)***	-0.33(0.06)***
GB	2.07(0.07)	0.23(0.05)***	0.08(0.06)	0.07(0.05)	-0.15(0.06)*	-0.18(0.06)**	-0.27(0.06)***
GR	1.98(0.05)	0.08(0.05)^	0.08(0.05)^	0.03(0.05)	0.03(0.05)	-0.30(0.04)***	-0.25(0.05)***
HR	1.99(0.06)	0.10(0.07)	0.11(0.07)	0.06(0.07)	-0.09(0.06)	-0.14(0.07)*	-0.23(0.07)**
HU	2.04(0.08)	0.13(0.06)*	0.16(0.06)**	0.12(0.06)*	-0.14(0.06)*	-0.29(0.06)***	-0.28(0.06)***
IE	1.81(0.05)	0.12(0.05)**	0.11(0.05)*	-0.02(0.05)	0.08(0.05)^	-0.30(0.05)***	-0.13(0.05)**
IL	2.58(0.07)	0.14(0.05)**	0.14(0.05)**	-0.08(0.05)^	-0.05(0.05)	-0.30(0.05)***	-0.07(0.05)
LT	1.86(0.07)	0.32(0.08)**	0.29(0.07)**	0.22(0.09)*	-0.27(0.08)**	-0.10(0.07)	-0.44(0.07)***
NL	2.17(0.08)	0.06(0.06)	0.10(0.06)^	-0.002(0.06)	-0.07(0.06)	-0.38(0.06)***	-0.37(0.07)***
NO	2.11(0.07)	0.18(0.07)*	0.18(0.07)*	-0.11(0.07)	-0.15(0.07)*	-0.25(0.07)**	-0.36(0.07)***
PL	2.12(0.06)	0.16(0.06)**	0.13(0.06)*	0.09(0.06)	-0.22(0.06)**	-0.24(0.06)**	-0.31(0.06)***
PT	1.93(0.06)	0.15(0.07)*	0.09(0.06)	-0.06(0.06)	-0.03(0.07)	-0.26(0.07)**	-0.08(0.06)
RU	2.22(0.06)	0.13(0.05)*	0.13(0.05)**	0.03(0.05)	-0.24(0.06)**	-0.13(0.05)**	-0.26(0.05)***
SE	2.25(0.08)	0.09(0.07)	0.08(0.07)	0.07(0.07)	-0.09(0.07)	-0.41(0.07)***	-0.36(0.07)***
SI	2.19(0.08)	0.01(0.07)	-0.06(0.07)	0.10(0.08)	-0.08(0.07)	-0.37(0.07)***	-0.35(0.07)***
SK	2.07(0.07)	0.12(0.06)*	0.15(0.07)*	-0.07(0.06)	-0.02(0.06)	-0.36(0.06)***	-0.28(0.06)***
UA	2.07(0.09)	0.03(0.06)	0.01(0.08)	0.01(0.06)	-0.29(0.06)***	0.01(0.07)	-0.37(0.08)***

Note: ^p<.1; *p<.05; **p<.01; ***p<.0001.

Shifting our attention to the model results (Table 4–6), we first run the model for all parities and ages (Table 4), then parity by parity (i.e. no child, one child, second child and more) (Table 5), and then by age group (20–29 years, and 30–39 years) (Table 6). Overall, and as expected, results differ substantially across parities and age groups, highlighting life course effects.

With respect to the following models, our first results show that both objective well-being factors and subjective well-being factors produce significant effects while country-level well-being factors do not. Significant results are found for being employed and partnership (i.e. consensual union) (model 3 and 5), and for happiness (model 2 and 5). A negative effect on fertility intentions is observed for parity (i.e. number of children) and age. As for the controlling variables, a positive effect is observed for the presence of a small child (i.e. the age of the last child is below 3 years) while a negative one is observed for children living outside the home although the effect is not significant. Overall, subjective, objective and country-level well-being factors show mostly consistent results, except for health effects, between the restricted (model 2) and full models (model 5).

The following step is to examine the effects of age and parity specifically. We begin our discussion with childless women. Like for women of all parities and ages together, overall, well-being affects fertility intentions. Positive effects are observed for objective well-being factors like education, employment and partnership (i.e. being in consensual union). An effect is observed for one subjective well-being item (i.e. happiness) in model 2 and 5. In the next step, comprising model 4, when only country effects are included in the model, a negative effect is found for being a Southern country, which was not observed in the previous model for all women.

Moving to the next step of studying mothers with one child, we observe once more the overall positive effect of well-being on fertility intentions. While country effects are not significant in this specification, both subjective factors and some objective factors impact upon fertility intentions. In the second model, which concerns subjective well-being factors, for instance, positive effects are observed for happiness and also health, effects that are partially observed for childless women. In the third model, which includes objective well-being factors, significant but small effects are observed for education while the employment effect disappears. A positive effect is observed for the presence of a small child at home. In the full model of both individual and country effects, the findings on individual socio-economic characteristics are by and large consistent with those of models 2 and 3. Once again, no country effects are found (model 4 and 5).

The following findings concern mothers with at least two children, i.e. high parity women. The overall positive effect of well-being on fertility intentions is once again observed. Here as well, more positive effects are observed for the subjective well-being factor happiness but not for health. However, the role of employment

Table 4 Estimates from multi-level regression dichotomous outcome models of well-being on fertility intentions, 27 countries, by all parity aged 20–39 years.

	Model 1		Model 2		Model 3		Model 4		Model 5	
N=8,178	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err
(Individual level)										
Intercept	-0.559***	0.052	-0.185*	0.082	-1.871	1.180	-0.556***	0.057	-1.795	1.178
Number of children			-0.833***	0.048	-1.012***	0.053			-1.029***	0.053
Age			-0.011^	0.006	-0.044***	0.007			-0.040***	0.007
Age²			-0.020***	0.001	-0.018***	0.001			-0.018***	0.001
Happiness			0.120***	0.023					0.094**	0.024
Life satisfaction			-0.013	0.018					-0.022	0.019
Health			0.044	0.036					0.068^	0.037
Education					0.019	0.020			0.007	0.020
Employed					0.135^	0.067			0.116^	0.068
Single					0.797	1.181			0.769	1.182
Consensual union					2.052^	1.169			1.995^	1.168
Divorced					0.639	1.193			0.660	1.194
Social network					0.023	0.019			-0.001	0.020
Child living outside home			-0.040	0.233	-0.131	0.241			-0.125	0.252
Small child living at home			0.391***	0.076	0.259**	0.081			0.227**	0.081
(Country level)										
HDI							1.987	1.921	3.680	2.677
GII							0.923	1.271	2.676	1.768
Southern country							0.023	0.135	0.031	0.191
-2LL	11,259.249		9,969.256		9,569.578		11,257.859		9,524.017	
Variance level 2 intercept	0.037	0.019	0.097**	0.038	0.096**	0.039	0.034*	0.018	0.087**	0.037

Notes: ^p<.1; *p<.05; **p<.01 ***p<.0001; -2LL=likelihood ratios; ICC = 0.026 in full model. Values based on SAS PROC GLIMMIX; Estimation Method = Laplace.

not observed before in the parity one sample appears. Results for both education and being employed produce negative effects, a fact that deserves attention. Further, unlike what is being expected, country effects (HDI) are considered relevant in model 4 and 5. This means that, in addition to individual subjective and objective items, country effects are important to understand the fertility intentions of high parity mothers. It is essential to understand that these women already experienced childbearing and childrearing activities, and that mothers who aim for higher parity will most likely be determined more by contextual (country) ones than the individual characteristics. While we expected that subjective individual well-being will have an increasing effect on fertility intention, the results show that in addition to country level well-being, objective individual level well-being plays an equally strong role in the fertility intention.

The role that individual well-being factors play in the determination of fertility intentions also differs by age. We focus first on the young age group. Examining the analysis of age group 20–29, positive effects are found for objective well-being (i.e. education and employment). For the highest age group of 30–39, well-being takes on more importance compared to the age group 20–29. Subjective well-being factors are important (i.e. happiness and health) and so are objective well-being factors like education and employment. The presence of a small child at home has negative effects on fertility intention in this age group. Although it was not in line with our expectation, all items on country effects are found in models 4 and 5.

Summarising all of the above it can be said that objective well-being factors produce stronger effects than subjective well-being factors, while country-level well-being factors produce limited effects although the highest age and parity groups have significant impacts on fertility intentions. Among objective well-being factors, employment produces stronger effects than education, while social networks play a limited role. It is interesting to observe that education positively influences intentions at all parities - this positive effect is greatest among old-aged (30-39) women - but is negative for high-parity women. These life course parity-specific effects are also found for employment status, as positive effects are found for childless women and negative effects for high parity (2+) women. Among subjective well-being factors, happiness and to some extent health, play a stronger role than life satisfaction. As the life course progresses, i.e. as age and parity increase, we observe the gradual strengthening of the role of subjective and objective as well as country level well-being factors.

Our analysis also sheds light on methodological issues discussed earlier. First, overall, our results show the importance of taking into account non-response bias (i.e. unit and item non-response) by including a combination of population size and non-response weights in the analysis, as model results with missing values and without weights show different results. The model results are different, changing

Table 5 Estimates from multi-level regression dichotomous outcome models of well-being on fertility intentions, 27 countries, by parity.

	Model 1		Model 2		Model 3		Model 4		Model 5	
Parity 0 N=3,919	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err
(Individual level)										
Intercept	-0.217 **	0.069	-0.221**	0.071	-2.126	1.506	-0.162*	0.068	-2.152	1.552
Happiness			0.120**	0.028					0.103**	0.030
Life satisfaction			-0.030	0.023					-0.037	0.025
Health			-0.041	0.044					0.011	0.049
Education					0.104***	0.025			0.092**	0.025
Employed					0.528***	0.086			0.530***	0.086
Single					1.055	1.497			1.114	1.543
Consensual union					2.640^	1.495			2.690^	1.539
Divorced					1.407	1.493			1.521	1.542
Social network					0.018	0.033			-0.002	0.034
Child living outside home			-0.067	0.224	-0.420	0.246			-0.414	0.248
(Country level)										
HDI							-0.053	2.217	-0.609	2.423
GII							0.787	1.480	1.664	1.633
Southern country							-0.258^	0.155	-0.144	0.169
-2LL	5,874.002		5,836.587		5,236.942		5,869.804		5,208.837	
Variance level 2 intercept	0.057	0.025	0.063*	0.027	0.068*	0.030	0.033*	0.019	0.037^	0.021
Parity 1 N=1,826										
(Individual level)										
Intercept	-0.131	0.110	-0.479***	0.106	-0.948	2.127	-0.105	0.107	-0.821	2.131
Happiness			0.088*	0.037					0.057	0.040
Life satisfaction			-0.001	0.033					-0.019	0.035
Health			0.168*	0.078					0.190*	0.082
Education					0.096**	0.035			0.096**	0.035
Employed					0.048	0.125			0.028	0.125
Single					-0.342	2.146			-0.356	2.147
Consensual union					0.701	2.126			0.678	2.129

Divorced					-0.987	2.161			-0.986	2.165
Social network					-0.005	0.039			-0.022	0.040
Child living outside home			-6.551	75.601	-5.928	69.442			-6.284	77,107
Small child at home			0.627***	0.107	0.617***	0.124			0.542***	0.126
(Country level)										
HDI							4.506	3.721	4.073	3.674
GII							0.166	2.414	0.905	2.307
Southern country							-0.063	0.261	-0.200	0.245
-2LL	2,795.272		2,711.136		2,588.807		2,788.561		2,569.186	
Variance level 2 intercept	0.139	0.072	0.067^	0.045	0.105*	0.058	0.094*	0.052	0.058^	0.040
Parity 2+ N=2,433										
(Individual level)										
Intercept	-1.860***	0.145	-2.004***	0.162	-2.283	2.222	-1.907***	0.134	-2.408	2.264
Happiness			0.192**	0.054					0.180**	0.054
Life satisfaction			-0.022	0.038					-0.019	0.038
Health			-0.075	0.088					-0.039	0.089
Education					-0.097*	0.046			-0.104*	0.046
Employed					-0.392**	0.150			-0.378*	0.153
Single					-0.155	2.237			0.065	2.277
Consensual union					0.593	2.219			0.595	2.257
Divorced					-0.303	2.265			-0.153	2.306
Social network					-0.016	0.051			-0.044	0.051
Child living outside home			8.174	128.979	8.498	135.337			8.295	145.580
Small child at home			0.176	0.134	0.090	0.139			0.070	0.140
(Country level)										
HDI							11.704*	4.612	11.417*	4.992
GII							5.596^	2.966	5.841^	3.206
Southern country							0.461	0.307	0.445	0.328
-2LL	1,777.801		1,748.306		1,740.124		1,769.278		1,710.270	
Variance level 2 intercept	0.286	0.127	0.276*	0.124	0.307*	0.134	0.143*	0.087	0.174*	0.096*

Notes: ^p<.1; *p<.05; **p<.01 ***p<.0001; -2LL=likelihood ratios. ICC in full model parity 0 is 0.01, parity 1 is 0.02 and parity 2 is 0.05. Values based on SAS PROC GLIMMIX; Estimation Method = Laplace.

Table 6 Estimates from multi-level regression dichotomous outcome models of well-being on fertility intentions, 27 countries, by age groups.

	Model 1		Model 2		Model 3		Model 4		Model 5	
Age 20-29 years N=3,761	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err	Estimate	Std Err
(Individual level)										
Intercept	-0.397***	0.080	-0.382***	0.085	-3.001	2.347	-0.346***	0.075	-2.928	2.287
Happiness			0.098**	0.027					0.064*	0.030
Life satisfaction			-0.009	0.023					-0.007	0.025
Health			-0.086	0.054					0.009	0.057
Education					0.072**	0.026			0.060*	0.026
Employed					0.443***	0.088			0.448***	0.088
Single					1.925	2.349			1.897	2.289
Consensual union					3.383	2.336			3.335	2.275
Divorced					1.604	2.327			1.647	2.268
Social network					-0.003	0.027			-0.049^	0.027
Child living outside home			0.979*	0.430	0.881^	0.456			0.878^	0.460
Small child living at home			-0.254**	0.092	-0.757***	0.119			-0.799***	0.120
(Country level)										
HDI							-1.127	2.552	-0.347	2.697
GII							0.724	1.707	1.760	1.840
Southern country							-0.276	0.182	-0.193	0.186
-2LL	5,902.153		5,848.525		5,365.763		5,897.402		5,348.386	
Variance level 2 intercept	0.096	0.039	0.108**	0.042	0.097**	0.040	0.054*	0.030	0.054*	0.030
Age 30-39 years N=4,417										
(Individual level)										
Intercept	-0.758***	0.079	-0.672***	0.071	-1.038	1.268	-0.811***	0.048	-1.145	1.260
Happiness			0.068**	0.026					0.058*	0.027
Life satisfaction			0.013	0.023					-0.014	0.024
Health			0.181**	0.052					0.109*	0.052
Education					0.210***	0.024			0.201***	0.022

Employed					0.199*	0.086			0.182*	0.088
Single					0.148	1.270			0.254	1.263
Consensual union					0.278	1.263			0.346	1.256
Divorced					-0.481	1.289			-0.361	1.281
Social network					0.048	0.030			0.031	0.030
Child living outside home			0.191	0.229	0.354	0.235			0.335	0.236
Small child living at home			-0.274**	0.085	-0.325**	0.096			-0.354**	0.097
(Country level)										
HDI							6.132**	1.970	7.379**	2.098
GII							1.529	1.169	2.090^	1.204
Southern country							0.306*	0.123	0.305**	0.118
-2LL	5,101.425		5,046.923		4,923.112		5,078.166		4,882.351	
Variance level 2 intercept	0.092	0.041	0.055*	0.030	0.127**	0.051	0.008	0.009	0.004*	0.003

Notes: ^p<.1; *p<.05; **p<.01 ***p<.0001; -2LL=likelihood ratios. ICC in age 20-29 is 0.02, and age 30-39 is 0.001.
Values based on SAS PROC GLIMMIX; Estimation Method = Laplace.

the number of significant effects and coefficient levels. We consider that working on the basis of a comparable sample (Billiet, 2013) including both population size and (standardized) non-response weights – based on population-based age, gender and educational level – is a necessary condition. Second, while including both individual and country-level measures capturing similar concepts concerning societal progress and well-being, our analysis demonstrates a somewhat small intra-class correlation, although model fit substantially improves in the full model. Country-level measures, namely Human Development Index (HDI), Gender inequality index (GII) and region (Southern countries) produced significant effects for women at high ages and parities. Questions remain, however, as to whether similar concepts such as employment/education and HDI/GII present in a different level (e.g. level-1 and level-2) can be modelled together.

5. CONCLUSION AND DISCUSSION

Against a background of persistent low and lowest-low fertility in Europe, and considering the attention increasingly being paid in the literature to the concept of well-being, the focus of this paper was on the role of well-being in the determination of fertility intentions. Fertility intentions are important since they can be taken as strong predictors of actual fertility behaviour in accordance with the theory of planned behaviour and in accordance with empirical results reported in the literature. 'Perceived behavioural control' is defined as the individual's perception of his/her ability to adopt certain behaviour. Individuals are highly dependent on their individual socio-background but also on their beliefs, attitudes and norms, which are highly dependent on the contextual conditions governing their individual lives. The more the adoption of certain behaviour is perceived as easy by the individual, also indicated by higher well-being status, the higher the likelihood of the intention resulting in actual behaviour. Specifically for childbearing and childrearing, the more societies ensure that these activities are perceived as easy to undertake, the higher the fertility intentions and achievements. The opposite is true for low fertility intention countries.

The objective of the paper was to study the impact of well-being on fertility intentions among European population. Considering that fertility intentions are proxies of actual fertility behaviour, and since women and couples are increasingly planning their fertility behaviour given the use of effective contraception, we have constructed a micro-macro theoretical framework (Coleman, 1990) that incorporates Ajzen's theory of planned behaviour (1991) and Giele and Elder's life course theory (1998). Paying attention to the multi-dimensionality of well-being, a broad approach was taken in this paper to the concept of well-being through the consideration of individual-level subjective well-being factors, individual-level

objective well-being factors, and country-level well-being factors. The latter were included in accordance with Coleman's methodological individualist micro-macro framework. In accordance with life course theory, the impact of well-being factors on fertility intentions was analysed for all women, and then by parity (childless; one child; two and more children) and by age group (age 20–29 years; age 30–39 years).

We asked three main questions in this paper: i. Does overall well-being influence fertility intentions?; ii. What kind of well-being factors are more important in the determination of fertility intentions (individual-level subjective ones vs. individual-level objective ones vs. country-level ones)?; iii. Does the role of specific well-being variables change in the course of one's life course, i.e. as age and parity progress? A range of analyses, including by age and parity, were applied to data for women aged 20–39 in 27 countries taken from the European Social Survey Round 5 (2010a/b) family, work and well-being module. The analysis of a comparable sample across countries was made possible by imputing missing values and using combined weights correcting potential bias.

Overall, some results are in line with our hypotheses, and some are not. Well-being plays a significant role in the determination of fertility intentions. Objective well-being factors produce stronger effects than subjective well-being factors, while country-level well-being factors produce somewhat limited effects. These findings, particularly those concerning country-level effects, should be treated with caution, however, as they may impact more indirectly than directly on fertility intentions, influencing the extent to which policies and programmes are family friendly. Our analysis shows that country factors are important for higher fertility intentions when women are at higher age and parities. Among objective well-being factors, employment produces stronger effects than education while social networks play a rather limited role. Among subjective well-being factors, happiness plays a stronger role than health and life satisfaction. Across the life course, i.e. as age and parity increases, we generally observe a strengthening role for individual level subjective and objective well-being factors as well as country level well-being factors.

Analysing the role of subjective and objective well-being factors in fertility intentions through cross-national surveys has both advantages and disadvantages. ESS contains much well-being information in line with the multi-dimensional approach taken in this paper, notably through the inclusion of a specific module on family, work and well-being. ESS also takes a rigorous approach towards quality. And further, ESS gathers data for a large number of European countries (27 countries for our analysis), allowing researchers to gain a comparative understanding of important attitudes and behaviours. The wide range of country measures in ESS supports efforts to conduct cross-national analysis. The main challenge is the correction for non-response bias and for non-equivalence of

measurement across countries. This condition depends on the level of survey errors (i.e. total survey error, Biemer 2010) that are equally dependent on country specificity which are detailed documented (ESS, 2010b). Different response rates (i.e. deviation of more than 30 percent), different levels of response qualities (i.e. proportion item non-response) and equivalent construct measures in the survey items (i.e. loading of factors initially tested on self-reported well-being items) are at least identified in the initial explorative analysis. An attempt is made to minimize these errors through corrections in our analysis making it possible to draw important conclusions.

The current findings call for further analysis and reflection. Our results show that fertility intention determinants are largely dependent on individual level objective well-being characteristics particularly related to education and employment status. The fact that more and more women opt for higher education and wish to be employed, calls for more attention to be paid to creating an enabling environment for childbearing and childrearing activities for women and couples (OECD, 2007). The fact that effects for societal indicators and region are found for high age and parity women, suggest that the existing institutional arrangements including norms and values matter more when women opt to have children at higher age and/or when they intend to have more children. It should also be noted that the survey design and its analysis may also play a role here. The current survey design of ESS lacks retrospective information and longitudinal data (with repeated measurements among the same respondents). And finally, the fertility intentions should be additionally studied from male's perspective as childbearing and childrearing activities are, in most cases, jointly done by couples.

NOTES

1 For instance, "Subjective Well Being and Fertility (SWELL-FER)" [http://www.carloalberto.org/research/eu-funded-projects/subjective-well-being-and-fertility-swell-fer/]. Also see Myrskylä and Margolis (2014).

2 Intraclass correlation can be defined as follows:

$$\rho I = \frac{population\ \ variance\ \ between\ \ macro\text{-}units}{total\ variance} = \frac{\tau^2}{\tau^2 + \sigma^2}$$

where population variance represents τ^2 and σ^2 represents within group variance (Snijders and Bosker, 1999, 17-19). Since the logistic distribution for the level-one residual has a variance of 3.29 ($=\pi^2/3$), for a two-level logistic random intercept model with an intercept variance of τ_0^2, the intraclass correlation is calculated as follows (ibid. 17-23, 304-305): $\rho I = \frac{\tau_0^2}{\tau_0^2 + \frac{\pi^2}{3}}$.

3 The choice of number of imputed data sets (5) is justified by the aforementioned literature, although several tests (e.g. 10, 50, and 100) are performed by reviewing the fraction of missing information and overall variance information by each item. A higher number of imputed data sets is useful from these benchmark indicators (level of variance),

although the differences between 5 imputed data sets and 10, 50, 100 imputed data sets on the actual model effects are largely not observed. We therefore decided to work with 5 imputed data sets. Also note should be made on the model selection. We included combined weights of multiplying post-stratification weights with the population size weight in the imputation model.

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