

Realization of short-term fertility intentions in a comparative perspective: Which macro-level conditions matter?

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Abstract

This is the first large-scale comparative study on the fulfilment of short-term fertility intentions across the countries of Europe. Exploiting the unique follow-up feature of the Generations and Gender Survey and adopting rigorous definitions of intentions and outcomes, it reports on the level of fulfilment and identifies clear heterogeneity across the European countries. Adopting a multilevel multivariate approach, it investigates the kind of macro-level factors that may explain differences in the realization of fertility intentions. The modelling includes various individual controlling factors based on previous research, and focuses on working out and testing likely macro-level factors that contribute to an understanding of those country specificities that facilitate or hinder the realization of fertility intentions. Based on our analysis, we conclude that stability on the labour market (as measured by small swings in the unemployment rate), stability of prices, strong welfare state involvement, and the dominance of specific attitudinal conditions all support greater realization of short-term fertility intentions.

1. Introduction

Although fertility intention is a very good – in fact, arguably the best – predictor of childbirth at the individual level (Schoen et al. 1999; Toulemon and Testa 2005), still we are well aware of the serious discrepancies between intentions and realization. This is true both in the case of short-term, time-dependent intentions (Dommermuth et al. 2015; Régnier-Loilier and Vignoli 2011; Spéder and Kapitány 2009), and particularly in the case of lifetime (family size) intentions and individual outcomes (Morgan and Rackin 2010). The discrepancy between intended family size (or any related ideals of family size) and fertility is perhaps more visible when aggregate, country-level measures are compared (Goldstein et al. 2003; Ní Bhrolcháin et al. 2010; Sobotka and Lutz 2011). Correspondence is somewhat stronger when the ideal or desired number of children across different cohorts is compared with completed fertility (Livi Bacchi 2001; Beaujouan and Berghammer 2019); and we also know that this closer relationship of the cohort measures is, to some extent, a result of the over- or under-achievement of individual intentions (Morgan and Rackin 2010). Yet, the study of intention remains at the forefront in terms of understanding fertility behaviour (Philipov 2009a; Lutz 2020), and we believe that studying the correspondence between short-term intentions and their realization contributes especially to an understanding of reproductive decision making (Liefbroer et al. 2015).

Analysis of the link between intention and realization at the individual level reveals that the discrepancy is not unusual, and several factors influencing the link have been identified. Besides biological and emotional factors (Ajzen 1988), the dynamics of partnership relations or unexpected life-course events may modify intentions and lead to the postponement or abandonment of those intentions (Liefbroer 2008), and consequently to people forgoing having children. Furthermore, several socio-demographic factors – such as partnership status, parity, age, labour market conditions or

income – as well as cultural specificities and perceived normative conditions may also facilitate or hinder the realization of intentions (Kuhnt and Trappe 2016).

Studies that analyse several countries in parallel conclude that by far the greatest number of factors that influence the risks of realization work in a similar way within the countries concerned; but they also reveal some country-specific factors at work (Régnier-Loilier and Vignoli 2011; Kapitány and Spéder 2012). Moreover, country comparisons highlight the fact that there is considerable country-specific heterogeneity in the rate of realization.

The study reported here contributes to the literature of fertility intention in two ways. First, using a rigorous method of variable construction we can show the magnitude of differences across a dozen European countries, based on individual follow-up data. In doing so, we devote particular attention to the fact that the success rate of realization is highly time dependent (Schoen et al. 1999; Dommermuth et al. 2015), and an accurate comparison can only be made if time elapsed since the measurement of intentions is exactly the same. Secondly, we aim to identify macro-level factors that enable or inhibit the realization of short-term fertility intentions. Different societal (macro) conditions that stem from theoretical considerations and that are limited by the availability of relevant comparable macro-level data will be included in multilevel logistic regression. The theoretical considerations will highlight the domains of social and economic dynamism, welfare state involvement and the cultural condition of the different countries. In this study, we ascribe importance to individual factors as control variables that enable us to unravel macro-level influences, but the micro-level results will not be discussed in detail. However, a short review of micro-level effects is essential if we are to attain the former goal.

To achieve our task, we utilize the first two waves of 11 countries in the Generations and Gender Programme (Vikat et al. 2007). The dataset is recent and unique in the analysis of population processes; it is especially appropriate for the investigation of life-course intentions and their realization, since it includes a question that looks to the future (the next three years) and the subsequent waves measure changes in the various life domains. For our purposes, if the intention is stated of having a child within three years, we are able to measure whether a child is actually born between the waves. The dataset also has certain weaknesses, basically on account of deviation in the questions asked and unequal panel attrition. All in all, weighing up the pros and the cons, we believe we have been able reliably to measure European differences in the realization of fertility intentions and to identify important macro-level factors that support (or hinder) it.

We proceed as follows. First, we provide an overview of the relevant literature. While the brief overview of the literature related to the realization of intentions serves to highlight the selection of control variables, the discussion of macro-level conditions from a theoretical viewpoint helps to identify potential macro-level indicators. Then, the section on data and methods details the analytical

strategy, the variables and the rigorous way of defining the outcome variables. The results are shown in three steps: descriptive results, an overview of the effects of the control variables and a detailed report on the macro-level effects. In the final section, we discuss our findings, set out the limitations of our analysis and suggest further research.

2 An overview of the relevant literature: micro-level effects identified and potential macro-level conditions

Previous research on the realization of short-term intentions

Interest in fertility intentions is a recurring topic of research in population studies. The recent growth in interest can be linked to the persistent low fertility in several Western European countries and the plunge in fertility in the Eastern European countries; furthermore, contrasting the ideal family size and the fertility achievement enables us to identify a window of opportunity for policy making (Goldstein et al. 2003; Philipov 2009a). However, it is undeniable that new data sources – such as the Generations and Gender Survey (GGG) – have also motivated studies of fertility intentions and realization. The literature today is abundant, and it uses different kinds of measures of intention and outcomes at both the micro and the macro level. As we are analysing individual data and short-term intentions, we limit ourself accordingly, and only sporadically survey studies that work with a different concept.

Within-country factors

A quite extensive literature focuses on the *individual determinants* of the realization or non-realization of fertility intentions in one country (Berrington 2004; Dommermuth et al. 2015; Kuhnt and Trappe 2016; Heaton et al. 1999; Morgan and Rackin 2010; Philipov 2009b; Pailhé and Régnier-Loilier 2017; Schoen et al. 1999; Toulemon and Testa 2005). Furthermore, some comparative analyses highlight the universality of the micro-level characteristics supporting the realization of short-term fertility intentions (Régnier-Loilier and Vignoli 2011; Kapitány and Spéder 2012). Based on these studies, several common factors could be identified.

Demographic factors (such as age, partnership status and parity) clearly influence the success or failure of realization. A cohabiting partnership is self-evidently a prerequisite for successful realization of the intention. In some countries, the form of partnership also matters: whereas in the USA and Hungary the likelihood of a married couple realizing their intentions is greater than if they merely cohabit, in France and Norway there is no tangible difference. People in a ‘living apart together’ (LAT) relationship, or living alone, have the lowest chances of realizing their intentions (Schoen et al. 1999; Heaton et al. 1999; Spéder and Kapitány 2009; Testa and Toulemon 2006; Dommermuth et al. 2015). The findings related to age highlight the ‘ticking of the biological clock’: women in the later

phase of their fertility life course – usually those over 34 – are less likely to realize their childbearing plans (cf. references above). Additionally, in some countries younger women often put off having children. Lastly, parity also has a powerful influence on realization: people with one child are more likely to realize their intentions, whereas people with zero parity are, in many countries, typically postponers.

The influences of *socio-economic status* are less clear cut, and country-specific conditions and the way they relate to gender may play a bigger role (Hanappi et al. 2017; Kuhnt and Trappe 2016). The effects of position on the labour market are clearly gendered: in terms of the position of women, part-time jobs often support realization, whereas unemployment hinders it (Pailhé and Régnier-Loilier 2017). The link between full-time employment and realization may be influenced by sectoral (public/private) attachment or other characteristics of the job. If males are included in the analysis, the effects are clear: a well-integrated, full-time employed labour market position supports the realization of fertility intentions.

The role of the level of *education* appears to be mixed. Several studies demonstrate that better-educated women have a greater probability of realizing their intentions in some European countries (Testa and Toulemon 2006), whereas in others the effects are neutral (Dommermuth et al. 2015) – or even negative. This last relationship is especially pronounced in US studies (Schoen et al. 1999; Heaton et al. 1999; Morgan and Rackin 2010). Income position (however measured) is often included in the analyses, and an ‘income effect’ is generally apparent: women who belong in higher income brackets are more likely to realize their fertility intentions (Schoen et al. 1999; Dommermuth et al. 2015; Berrington 2004; Hanappi et al. 2017).

Finally, the *subjective characteristics* of people – their family norms and attitudes – also matter; however, here we have a greater spread of results, due to the inclusion of different measures in the research programmes. Family role attachment, for example, influences realization in the US and the UK: in the US, women who profess traditional family attitudes become parents as they intend (Heaton et al. 1999); meanwhile in the UK, more career-oriented women aged over 34 have a clearly lower likelihood of realization (Berrington 2004). *Subjective norms* have a significant effect in Germany (Kuhnt and Trappe 2016) and also in an international comparison (Spéder and Kapitány 2014). Those who state that their ‘significant others’ expect them to have a child stand a greater chance of realizing their intentions than those who do not. An increased feeling of uncertainty among highly educated Swiss women is hindering realization (Hanappi et al. 2017), while the optimistic evaluation of the life course among Hungarian men supports the realization of their intentions. Lastly, lifetime family size intentions help Norwegian people to realize their short-term intentions (Dommermuth et al. 2015).

Comparative studies

Comparative research, even if sparse, has found significant *country-level variations* in the realization of short-term fertility intentions, especially between Western European and Eastern European countries (Spéder and Kapitány 2014; Riederer and Buber-Ennser 2019a). Of those who planned to have a child within three years, two fifths actually succeeded in France and Germany, a third in Hungary and Georgia, and a fifth in Bulgaria. In accordance with the finding above, there is a deep division in terms of the rate of realization between France and Georgia (Bradurashvili et al. 2011). Furthermore, when a two-year time window between intention and realization is used to compare four countries (Netherlands, Switzerland, Hungary and Bulgaria), a clear West–East divide is visible (Kapitány and Spéder 2012).

More detailed country comparisons blur the picture somewhat. On the one hand, differences between some countries are minor or negligible – e.g. when France and Italy are compared, or the capitals of Austria and Hungary (Régnier-Loilier and Vignoli 2011; Riederer and Buber-Ennser 2018). On the other hand, some differences can also be identified between Western European countries (Switzerland has a lower rate of realization than the Netherlands) and Eastern European countries (Bulgaria has a lower rate of realization than Hungary) (Kapitány and Spéder 2012). Lastly, when multivariate modelling is used, we find that the difference between Western European and Eastern European countries is increasing: the chances of individuals realizing their childbearing intentions in post-communist countries are less than half those of people in the Western countries. Furthermore, in post-communist countries, lower subjective (self-assessed) income levels hinder the realization of childbearing intentions, highlighting the fact that an unfavourable financial situation *increases* the risk of people failing to realize their intentions only during ‘turbulent’ times. All these findings allude to possible macro or meso-level conditions and mechanisms that support or hinder the realization of fertility intentions. This is the point where our analysis is located. Based on the concepts below, we look for country-specific features (context) that may be responsible for the realization of short-term fertility intentions.

Supporting or hindering macro-level conditions

It would be plausible to start by considering the tried and tested macro-level factors studied as determinants of macro-level fertility. In this case, according to the literature (Macura 2000; Ahn and Mira 2002; Myrskylä et al. 2009; Goldstein et al. 2013; Luci-Greulich and Thévenon 2013), economic development, general social development, labour market conditions and family policy measures seem to be well suited to our analysis. Indeed, when considering likely macro-level factors, we kept in mind those conditions that have been shown to influence macro-level fertility changes. At the same time, we also had to bear in mind our key objective of unravelling the macro-level determinants of individual

goal attainment (realization of fertility intentions) – and more precisely, the likelihood of the realization of given fertility intentions – rather than macro-level fertility per se.¹ Furthermore, we have to be clear that we are interested in the conditions under which the intended child is (or is not) born, and not in the social conditions that may lead to higher or lower fertility.² We are looking for such macro-level mechanisms and conditions that block the realization of intentions or that bring about a change in intentions.

Economic and social dynamics, uncertainty

When we identified the striking difference in the realization of fertility intentions between Western and Eastern European countries, we assumed that the great discrepancy between ideas and values, on the one hand, and structural circumstances (labour market conditions, resources) on the other were responsible for the results. The discrepancies, according our assumption, may originate in the different pace of social change (Zapf 1996). Social change is inherent in modern society: change and renewal are continuous in Western societies, and economic and social innovations play a key role in the renewal of the social system. People act and take lifetime decisions (i.e. about having a child) in ‘peaceful’ times, taking account of the anticipated changing circumstances. But in times of socio-political transition, the shift from a redistributive economic system to a market economy and the associated transformation of the labour market are accompanied by unusual, unanticipated, wide-ranging, profound and rapid change in everyday circumstances (Zapf 1995, 1996; Müller and Frick 1996; Habich and Spéder 2000). Similarly, the Great Recession was also unanticipated, and brought with it a fall in fertility behaviour (Goldstein et al. 2013; Comolli 2017). At times of unanticipated change and turbulence, decisions are avoided or postponed (cf. Rodin 2011). Based on the above, we assume that unusual economic and societal dynamics play a key role in the non-realization of short-term fertility intentions. Fertility intentions are formed under given societal conditions, taking into account also fluctuations; but unusual and unanticipated fluctuations may bring about a *revision of intentions* (Liefbroer 2008). Accordingly, we suggest measures that capture fluctuations on the labour market and the consumer market (prices).

The unemployment rate – the key indicator of labour market fluctuation – is a proven macro-level factor that influences fertility (Macura 2000; Bhaumik and Nugent 2005; Goldstein et al. 2013; Comolli 2017). Its dynamic character is well suited to our analytical purposes. (In passing, we prefer *youth unemployment* – among people aged 15–24 – since it is more sensitive to labour market

¹ Nor should we neglect the fact that research results are mixed in several of the dimensions mentioned – for example, in relation to economic swings, family policy measures.

² Of course, a higher rate of fulfilment leads to a higher fertility level; and so indirectly we are also tracking factors of the fertility level.

changes and better related to younger generations.) However, if we focus primarily on changes, we can come up with additional indicators to measure the intensity of labour market changes. Thus, we suggest measuring change in the unemployment rate related to average unemployment – namely, the maximum deviation in the rate of unemployment from mean unemployment over a given time period.

As far as changes in the consumer market are concerned, the rate of inflation is well understood by the general public, and so may be a good candidate for measuring the dynamic effect on the realization of short-term fertility intentions. Inflation is often seen as a barometer of economic activity, but we also see it as a good measure of uncertainty.

Overall, we assume that the higher the stability and the lower the fluctuation on the markets (i.e. a low unemployment rate, low inflation rate, lower labour market intensity), the greater the chances of people realizing their short-term fertility intentions.

The institutional context: comprehensive social protection or spending on families

There is an extensive literature that investigates the influence of policy interventions on fertility. Summary papers on comparative studies come to the conclusion that family policy interventions may influence fertility, but the effects are small and irregular, which may be due to the heterogeneity of policy measures and to variations in the effects by parity and social status (Gauthier 2007; Thévenon and Gauthier 2011). A more recent analysis, however, which distinguishes five types of family support measures, proved that all measures affect fertility in developed countries. The conclusion points to the specific ‘mix’ of different measures that are influential (Luci-Greulich and Thévenon 2013). Country studies also prove the effect on fertility of policy interventions (e.g Hoem et al. 2001; Milligan 2005).

Bearing in mind that we are primarily looking for societal factors that influence the intention–behaviour link, we had to consider changes in the size of and entitlement to the different provisions, as well as in the extent and pace of change of the institutional settings. However only crude measures of welfare state involvement are available in comparative form: the extent of general social provision involvement related to GDP, and the financial scope of family policy measures related to GDP. Can these be understood as measures that influence the realization of intentions? Of course, but only in a limited way. The first indicator may signal the availability of state provisions in case of generalized risks. Having a child is a key life-course event, and one of the roles of welfare provision is to cover life-course risks (Leisering 2003; Mills et al. 2005; Mayer 2001). Therefore, it can be assumed that the broader the welfare state and the closer the welfare net is woven, the lower the risk from economic change and the less the uncertainty. (More concretely, people can rely on the welfare state to assist in reducing the risks of child-raising in the case of need, and so a stable welfare provision system may contribute to the fulfilment of childbearing intentions.) The second indicator clearly shows the extent to which the state contributes to the cost of children and how far families can rely on state

support when raising children.

Overall, we assume that the greater the scale of general social provisions as a proportion of GDP and the higher the financial involvement of the state in covering the cost of raising children, the greater the probability that childbearing intentions will be fulfilled.

Cultural conditions: insistence on traditional family values or autonomy?

If we consider the Theory of Planned Behaviour (TPB) (Ajzen 1988), beliefs play a crucial role in shaping attitudes, norms and perceived control – and consequently, the development of intentions. These individual beliefs are rooted in the tradition of the country concerned and are shaped by the normative system of that country (Liefbroer and Billari 2009; Mönkediek and Bras 2017). This includes, among many other things, norms concerning partnership and family forms, desired family size, the timing and sequence of family events, and mental timetables (Hagestad and Neugarten 1985). The stronger the internalized family-related norms are, the more people may insist on family-related practice and fertility intentions. Since European people living in different countries clearly differ in their attitudes generally (Hagenaars et al. 2004), and particularly in their family-related attitudes (Lück and Hofäcker 2003), we expect the normative environment also to influence the strength of the intentions, and for it subsequently either to encourage people to abide by their intentions, or to foster change in those intentions.

We assume, for example, that in a country where the traditional family is strongly supported, the insistence on fertility intentions is greater. This could mean, when all else is controlled for – i.e. when differences in social dynamics are also considered – that the prevailing normative environment encourages those concerned to implement their intentions. Consequently, a higher proportion of them do so. Yet a different kind of causation cannot be excluded: a society in which traditional values predominate may provide a stronger motivation or greater pressure to express the intention of having a child in the short term, since having a child is highly esteemed in society. Then, in the face of changing living conditions, that intention may turn out to have been overoptimistic, in which case it is more likely to be renounced. In this case, it is precisely those countries that favour more traditional family roles that encounter a greater revision (and non-fulfilment) of intentions. Examination of the two assumptions requires indicators that measure family orientation in the countries concerned.

To measure family orientation and the importance that society attaches to children, we devised various experimental macro-level indicators of cultural predominance and introduced them into the analysis. In the end, we included three dimensions that may influence the insistence upon intentions and the fulfilment of those intentions: preferences related to marriage sought to measure the acceptance of non-traditional family forms; the perceived importance of having a child to give a woman's life meaning indicates the role of the child in an individual's life; and a statement about

whether having a child is exclusively a private matter or is also partly public business sought to measure the division between private and public competence in society.

So far as the third kind of macro-level condition is concerned, we assume that a more traditional, family-oriented normative environment provides stronger support for an insistence on the fulfilment of one's intentions – i.e. on realizing one's fertility intentions.

3 Data and methodology

Data and sample

Our analysis is based on data from the Generations and Gender Survey (GGS), which captures the dynamic features of demographic change by collecting longitudinal data (Vikat et al. 2007). The GGS is a follow-up study: sample members are interviewed at three-yearly intervals. Our analysis takes into account *every European country* for which data are available for the *first two waves* of the GGS. In the countries under consideration, the first interview took place from 2004 (Hungary) to 2012 (Sweden), with the second following (in the main) three years later. The sample attrition rate between the two waves was average in most countries, although the Czech Republic, Germany and Lithuania had an extremely high attrition rate between the two waves, and therefore their samples are much smaller. However, based on a preliminary analysis of the longitudinal representativeness (Bartus and Spéder 2015), we also included in the pooled data those countries for which the attrition rate was unusually high. Because of the need for comparability, several decisions had to be made. In order to ensure an identical age range for respondents in all countries, only those aged 21–44 at the time of the first wave were included in the analysis.³ Pregnant women and men with a pregnant partner at the time of the first wave (defined on the basis of having given birth within six months of the first interview) were excluded. Lastly, and in accordance with our analytical framework, those who responded positively to the intention question were included in the analysis. As a consequence, our initial working sample contained 8,886 respondents from 11 countries. For the multivariate analysis, we had to accept a further reduction in our working sample. Since we decided to have the woman's age as a control variable in our multivariate analysis, *every woman* is included, but only those men *with a coresident female partner* (N=6453).⁴

³ Age 21 emerged as the lower age limit, in line with the Hungarian data; the upper age limit comes from the Austrian sample, where 45 was the upper age limit for both women and men.

⁴ Since for most countries we do not have information about the partners of respondents in a LAT relationship, the decision to include women's age as a control variable reduced the sample to N=7079. Lastly, the inclusion of subjective norms also led to a reduction, especially in France and Sweden.

Measures

Dependent variable

A valid comparison of fulfilment rates requires identical measures of intention (having a child within three years), fulfilment (childbirth) and time elapsed between expression of intent and realization. Two important decisions had to be made. First, we included in the sample those who *definitely* wanted and also those who only *probably* wanted a child within three years, even though we know that the degree of certainty influences the realization of intentions. Of course, this affects the overall country-level rate of realization; but for the sake of our analysis, we gain more if we collapse the two categories into one group. Secondly, since the degree of fulfilment of fertility intentions clearly depends on the time that has elapsed since the intention was measured (Schoen et al. 1999; Dommermuth et al. 2015), and since the timing of the second wave varied greatly across the countries, the shortest time period between the waves (Bulgaria) defined the time window between intention and birth: *births* are considered if they occurred in the period between the 7th and the 36th month after the first survey, when the intention was measured. Note that the time at risk is shorter than the time window of the intention question; consequently, this will depress the rate of realization. Since our main interest is to have a valid comparative measure, we have stuck to the 7th–36th month.

Individual control variables

The selection of our individual control variables is based on the findings of earlier studies and takes account of the limitations of our comparative datasets. The variables of sex, women's age group, partnership status, women's labour market status and education (as well as their categories) are self-explanatory (Table A1 in the appendix). But two variables require some elucidation: since a readily comparable indicator of income status is lacking, income position is replaced by perceived income position (i.e. the perceived income *needs of the household budget* ('*making ends meet*'). The values of this variable indicate whether the household is making ends meet i) easily, ii) with some difficulty, or iii) with great difficulty. The perceived *subjective norm index* measures the extent to which the respondent feels that 'significant others' – parents, friends, relatives – expect the respondent to have a child (a lower value indicates higher expectations). Reference categories are given in Table A1 of the appendix, where the variables are listed.

Country-level variables

Country measures are of key interest. Four measures of *economic and social dynamics* are included. The unemployment rate, and the rather more volatile youth unemployment rate (15–24), measured at the time of the first interview, are well-known measures of economic prosperity and recession. 'Swings in the unemployment rate' seek to capture the extent of the change in the youth

unemployment rate. The relevant indicator is derived from two measures that cover a nine-year period:⁵ i.e. the maximum difference⁶ in the unemployment rate is related to the average unemployment rate over that period. Inflation aims to capture economic and social uncertainty and unpredictability: the inflation rate is measured at the time of the first wave (actual inflation).⁷ *Welfare state involvement* could be measured only by two strongly related measures: the relationship between total social expenditure and total family expenditure to GDP (expressed as a percentage of GDP).⁸ Data limitations mean that we were not able to measure the changes in welfare state involvement. Three measures seek to capture the prevailing *cultural climate* related to family and childbearing. One – often found in related analyses – is support for and acknowledgement of the institution of marriage (agreement with the statement ‘Marriage is an outdated institution’). The second is whether having children is a private matter, belonging to the sphere of individual autonomy, or whether there are communal obligations (norms) involved as well (strong agreement with the statement ‘People should decide for themselves to have children’). And the third measure determines *how central the role of children is* to the lives of women (agreement with the statement ‘A woman has to have children to be fulfilled’). In each of these attitudinal measures, the percentage of people who agreed with the relevant statement became the country-level measure. Regarding the sources, different *comparative data sources*, namely Eurostat, International Labour Organization (ILO) data, TransMonEE data, and the European Values Survey (2008–10) are used.

Table 1 shows the correlations between the eight country-level variables. Besides the two measures of unemployment and social protection, the measures of economic and social dynamics and the three attitudinal measures are not correlated. All in all, the selected measures are largely not correlated and that makes them suitable to be taken into consideration as different qualities of societies.

Table 1.
Correlations (Pearson’s) between the country-level variables

Unemployment rate at 1 st wave	1	
Youth unemployment rate at 1 st wave	.829**	1

⁵ The nine years cover the six years before the first wave of the survey, and the three-year period between the two waves of data collection.

⁶ The difference between the maximum and the minimum unemployment rate during a nine-year period.

⁷ During our investigation, we experimented with related variables, including different time dimensions, e.g. average unemployment rate, average inflation rate during the time between the first and the second wave, but were highly correlated with the measures we used. We also experimented with the ‘misery index’ (inflation + unemployment) often used in economic analyses, but due to non-significant effects not included in our analysis.

⁸ Unfortunately, more detailed indicators for welfare state involvement were not available for all the countries. Indeed, the OECD and Eurostat have no data at all for Russia or Georgia. Nor did we have full time series for the two variables, and we had to fall back on 2005 data published by the ILO.

Swing in unemployment rate as ratio of mean	.051	-.209	1					
Inflation at the time of the 1 st wave	.159	.133	.189	1				
Social expenditure as % of GDP, 2005	-.347	-.280	-.570	-.746**	1			
Family expenditure as % of GDP, around 2005	-.071	.107	-.644*	-.462	.621*	1		
Marriage is outdated (% agree)	-.281	-.357	-.338	-.391	.661*	.191	1	
People should decide for themselves to have children (% strongly agree)	-.264	-.125	-.815**	-.383	.827**	.786**	.580	1
Women need children to be fulfilled (% strongly agree)	.372	.286	.217	.790**	-.687*	-.376	-.298	-.439

sign: **0.01, *0.05

Analytical procedure

A *multilevel binary logistic regression* model was employed to model the realization of fertility intentions in 11 European countries, using the pooled dataset. Country-specific individual-level data typically have a multilevel structure, since subjects within the same country may have outcomes that are correlated with one another, due to the similarity of the general context. The conventional single-level logistic regression is unable to account for this kind of intra-cluster correlation. Furthermore, ignoring the multilevel structure of data can result in biases in parameter estimates and their standard errors. By taking account of the correlation within the cluster, we are able to make reliable parameter estimates of within-country effects.

We used random intercept logistic regression models. The model derives its name from the fact that the intercept is allowed to vary randomly across countries, through the introduction of cluster- (country-) specific random effects. The estimates of the extent of the similarity of subjects within a country can provide an important insight into the group-level effects on individual fertility behaviour. Moreover, in accordance with our primary interest here, we extended our models by adding country-specific attributes to measure explicitly the size of the effect of different structural conditions.

We are aware of the problem of an extremely low number of cases at the country level (Level 2), which can lead to estimation biases, as discussed in several studies (Bryan and Jenkins 2016). However, we accept and prefer the argumentation of Robson and Pevalin (2016), who contend that ignoring the group variance may lead to a bigger error (*ibid.*, p. 27). Note that, in the case of some important comparative datasets (e.g. SHARE), there are around a dozen countries, and multilevel models are successfully used (Engelhardt 2012). All in all, we regard our investigation as exploratory, rather than as testing specific theories; therefore, a theoretically grounded, but statistically less strong solution is favoured.

4 Some features of the 11 countries analysed

Detailed analysis of the countries is beyond the scope of our study, but a few basic indices (GDP, total fertility rate (TFR), religiosity) suffice to show the diversity of the 11 countries (see Table 2) – although the picture would certainly be more varied if southern European countries could be added. Differences between the Western and the Eastern, post-communist countries are frequently cited; but even the basic demographic indicators suggest considerable heterogeneity among countries, for instance in terms of per capita GDP or the prevalence of extra-marital births; meanwhile TFR shows no marked differences generally – and particularly not among the post-communist countries.

In terms of economic performance (GDP per capita), the four Western European countries have similar welfare levels, which far outstrip those of the post-communist countries. Still, there are marked differences among the latter: Georgia's economic performance is less than a quarter of Hungary's. Measured in purchasing power (over 2000–05), the developed Western countries show about 10 times the economic performance of Georgia.

In terms of TFR, the key measure of fertility, postponement and changes in the family pattern mean that all countries surveyed in 2005 (except France and Sweden) had a very low figure of around 1.3. Since then, TFR has risen somewhat in all countries. Of the Western countries, France and Sweden had very similar levels of fertility, at around the replacement level. The German-speaking countries have displayed low levels of fertility for several decades – for reasons other than changes in the fertility model. Some point to a bifurcation scenario (Rindfuss et al. 2016), and others (such as Sobotka 2016) emphasize a similarity between Austria and the Czech Republic. (High levels of childlessness in Germany and Austria contribute much to their low fertility rates.)

The goal here cannot be to provide an inclusive or accurate picture of each country's conditions. Still, the account is useful in showing a range of differences in European economic performance, institutional systems and cultural climates. It also points to the demographic and social

conditions to which our analysis refers.

Table 2.

Some features of the sample countries in 2005

	GDP per capita (PPP)	TFR	Mean age at first birth	Proportion of births outside marriage	Religiosity (in %)
Austria	35013.7	1.408	27.26	36.5	63.9
Bulgaria	10275.0	1.314	24.64	49.0	63.6
Czech Republic	21956.4	1.275	26.62	31.7	43.3
France	30603.5	1.920	29.90	48.4	46.9
Georgia	4364.8	1.390	24.00	49.7	96.6
Poland	13895.9	1.232	25.73	18.5	94.6
Lithuania	14526.1	1.294	24.80	28.0	64.3
Hungary	17081.8	1.307	26.63	35.0	47.7
Germany	31968.5	1.364	27.90	29.2	42.9
Russia	11822.4	1.294	24.11	30.0	73.6
Sweden	33967.2	1.787	28.66	55.4	33.4

Sources: World Bank, Human Fertility Database, TransMonEE, European Value Survey - World Value Survey Longitudinal File 1981–2014 (AT: 2008; BG: 2005; CZ: 1998; FR: 2006; GE: 2009; DE: 2006; HU: 2009; LV: 1996; PL: 2005; RU: 2006; SE: 2006).

5 Results

Descriptive results

First of all, the rate of realization is much lower among those who intend to have a child within three years (Figure 1) than among those who do not intend to have a child (or another child) (Figure 2) over the same period. This is in accordance with earlier studies, which always report near-perfect realization in the case of people who do not intend to have a child (Westoff and Ryder 1977; Schoen et al. 1999; Toulemon and Testa 2005). Before we draw any early conclusions about the very low level of realization among those who expressed the intention of having a child, it should be underlined that *for reasons of comparability*, we had to reduce the period at risk to 7–36 months after the first wave, when the intention was measured. Ideally, a period of 7–45 months would have been appropriate; in this case, we would have seen higher rates of realization. Note that in an earlier comparison, when the question of intention concerned the next *two* years and the period at risk was within three years, we arrived at clearly higher numbers: the overall rate of realization was 75% in the Netherlands and 40% in Hungary (Kapitány and Spéder 2012). Furthermore, the lower rate is partly a result of collapsing the two intention answers of ‘definitely yes’ and ‘probably yes’; if only those who answered ‘definitely’ were considered, the fulfilment rate would be much higher (cf. Table A2 in the appendix).

Secondly, the rate of realization differs greatly across the countries when positive intentions are compared, whereas there are practically no country differences in the case of people who say they

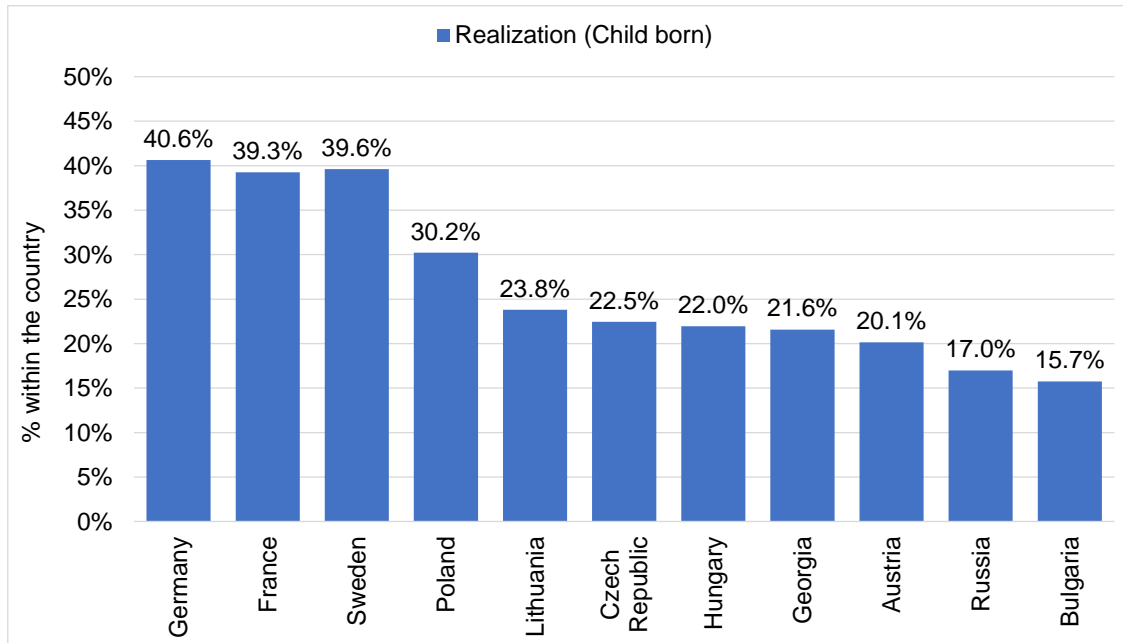
do not want to have children. (Discussion of the realization of negative intention is beyond the scope of our current study.) As far as *country differences* are concerned, it is immediately clear that they are large and significant: two fifths of short-term childbearing intentions in Germany, France and Sweden (39–41%) were realized, but less than a fifth in Bulgaria and Russia (15.8% and 17.0%, respectively). It is noteworthy that three neighbouring countries – Austria, the Czech Republic and Hungary – with quite different social systems exhibit very similar levels of fulfilment.

Since realization is dependent on individual characteristics (see below), country differences in fulfilment are partly due to the different proportions of specific groups (*compositional effect*). Thus, for example, if in a particular country there are lots of women or men who live alone, and who intend to have a child within the next three years, that will depress the country's fulfilment rate, since the probability of realization within those groups is very low. The countries examined clearly have a higher fulfilment rate if only those people in cohabitation or those with one child (Parity 1) are considered. For example, if we look at cohabitees, then – whatever form of partnership they had at the time of the first wave of data collection – half the intentions in France and Sweden (49.7% and 49.4%, respectively) were realized, but the figure in Russia was only a fifth (18.9%) and in Bulgaria a quarter (23.1%). Hungary is in an intermediate position, since 29.1% of cohabitees who intended to have a child actually did so. (For the proportions of all the countries examined, see Table A3 in the Appendix.) Although the proportions may be higher or lower if individual characteristics are controlled for, country differences seem to remain. Having compiled an inventory of the individual effects, this leads us to investigate the influence of the likely country features at play.⁹

⁹ Using a 9–45 month period after the first wave would also be appropriate from the point of view of the intention variable (having a child within three years), and would produce a somewhat higher rate of fulfilment; however, country differences – our main area of interest – would certainly remain. In actual fact, the dataset does not allow us to construct such a variable.

Figure 1.

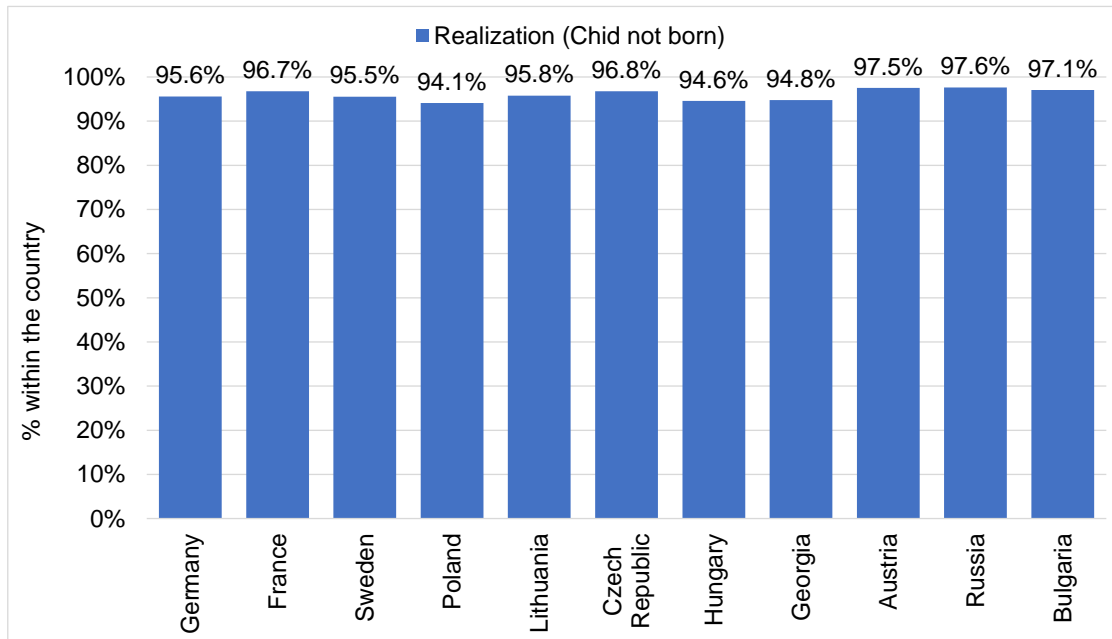
The rate of having a child within 7–36 months among those who intended to have a child within three years, European countries, all females aged 21–44 and partnered males aged 21–44, at the beginning of the century (various years between 2004 and 2015)



Source: own calculations, GGS first and second waves.

Figure 2.

The rate of not having a child within 7–36 months among those who did not intend to have a child within three years, European countries, all females aged 21–44 and partnered males aged 21–44, at the beginning of the century (various years between 2004 and 2015)



Source: own calculations, GGS first and second waves.

Controlling variables, individual effects

Since the parameters of the individual variables are very stable across all models, and hardly change when we include different macro-level variables, in this section we show the parameters using the multilevel random intercept model without a macro covariate (Table 3).¹⁰ The associations comply with what was known hitherto from the literature review, and are in line with what we expected.

For a woman in the latter half of her thirties, the chances of realization clearly decline: those aged over 35 have half the chance of fulfilling their intentions as 29–34-year-olds. Furthermore, in some models, when macro variables are included, women aged 24–28 have a higher chance of realization than the reference age group. Partnership clearly counts: cohabiting couples have more than three times the chance of realization as people living alone, and LAT couples have almost double the chance. As far as parity is concerned, women with Parity 2 or more have significantly less chance of having the intended child. In line with the literature, women with Parity 1 have the best chances. In the multilevel models, the coefficient is in the expected direction, but the effects are only significant in some models – and then at a very low level. Considering the labour market position of women, those on maternity leave have a greater chance of realization than unemployed women, while inactive woman have a smaller chance. Education does not generally have an effect, but in some models there are signs that those with more education realize their intentions more readily than do those with only a medium level of education. Subjective norms are significant in all models: those who have a sense of greater normative expectations are more likely to realize their intentions. Lastly, level of income has an effect in line with the expected direction: economic hardship (major difficulty) hinders the realization of intentions. As we showed in our earlier studies, subjective (self-assessed) income counts mainly in the former communist countries (Spéder and Kapitány 2014).¹¹ Overall, the individual factors show great stability across the modelling (they are identical to the third decimal place); thus, we will not bother to show them when we present the results of the multilevel models.

¹⁰ See also Table A4, the only individuals (M1) model in the Appendix. Here readers who are interested can find the parameters of the individual effects in different models.

¹¹ During our modelling, we reran our earlier East–West model, using the data for 11 countries, rather than the five earlier available, and we arrived at the same results as presented in Spéder and Kapitány (2014). On the one hand, individuals in the former communist countries were only half as likely as people in Western countries to succeed in realizing their intentions; on the other hand, the odds ratio of realization among those income categories perceived as the poorest in both Western European and the former communist countries is 2.8:1 (see Spéder 2019: 176–77; models available on request).

Table 3.

Parameters of individual control variables in multilevel random intercept model without macro covariate (Only individual characteristics (M1) model)

Intercept	0.2901	***
Micro-level variables		
<i>Sex</i>		
female	1.0401	
<i>Age group, female</i>		
-24	1.1439	
25-28	1.1359	
35-	0.4639	***
<i>Partnership status</i>		
Cohabiting partner	3.3082	***
LAT	1.8423	***
<i>Number of children</i>		
0	1.1316	
2+	0.6990	***
<i>Labour market position, female</i>		
Working	0.8077	
Maternity	1.1045	
Inactive	0.6436	**
<i>Level of education, female</i>		
Primary	1.0288	
Tertiary	1.1067	
<i>Subjective norm</i>		
	0.9434	***
<i>Subjective income</i>		
Very difficult	0.8208	*
Difficult	0.8563	*
Statistics		
Between-country variance	0.2685	
Interclass correlation (ICC)	0.0755	
Akaike Information Criterion (AIC)	7112.5	

Reference: male, aged 29–34, no partner, 1 child, female unemployed, primary education, easily making ends meet.

Significance level: ***=0.001; **=0.01; *=0.05

Multilevel models, effects of macro-level factors

The ensuing multilevel models help to reveal how the macro-social conditions characteristic of specific countries affect the fulfilment of childbirth intentions. Before going into detail, let us take a look at the statistical measures and concepts used (cf. Engelhardt 2012; Robson and Pevalin 2016).

First, we are interested in whether the country-specific (Level 2) variables introduced have a significant effect on the realization of fertility intentions. Secondly, two measures – the between-country variance and the related inter-class correlation (ICC) – show whether a multilevel model is worth employing and whether the introduction of country variables reduces the error term. The between-country variance shows the effect of country-specific predictors that have not been controlled for. If a country-level variable that is introduced is significant, then the between-country variance should be expected to decrease. The ICC represents the ratio of the unexplained variance in the country level to the total variance. If it is close to zero, then there is no sense in using the multilevel

model. On the other hand, if the introduction of a macro variable makes it decrease markedly, then the variable in question contributes significantly to the explanation. Thirdly, the Akaike Information Criterion (AIC) measure reports on the fit of the model, and this is relevant if we are comparing two models. A clear reduction in the AIC signifies a more robust model. In the event of a small change in the AIC, we used the likelihood ratio (LR) test to identify the better model fit.

We start with the empty model (Model 0) without any covariate, but assuming the multilevel structure of the data. Then, step by step, we introduce first the individual-level variables and then – always just one at a time – the macro variables (Level 2), to see whether and how they influence the fulfilment of fertility intentions (see previous section). Lastly, we present a model where two macro variables are included.

The empty model (Model 0) and the model of the individual variables without any macro covariate (Model 1) serve as benchmark models (see Table 4). The ICC of our empty model, which measures the share of variation attributable to country characteristics, is above 0.05 – that is, according to the rule of thumb, the cut-off point for using multilevel models. However, if we include the individual variables (Model 1), the ICC increases to 0.0755. This indicates two things: 1) it tells us that individual effects predominate; and 2) it also reveals some slight compositional effects. The fact that in our Model 1 the between-country variance and the ICC are clearly larger than in the empty model tells us that there are greater country differences than in the empty model.

Now, pursuing our main interest – namely, how do the macro indices affect fulfilment of intentions? – we consider the effects of the different country variables. First of all, six of the nine variables show significant effects (cf. Table 4), but reduce the between-country variance to different degrees. On the other hand, the macro indicators included do not always have the expected influence. Let us look at each of the three domains and consider whether the given macro-level variable influences the fulfilment of intentions significantly, and to what extent it reduces between-country variance.

The *unemployment rate* – one of the most reliable macro indicators in explaining macro-level fertility change – does not influence the fulfilment of fertility intentions, irrespective of whether the general rate is used or the youth unemployment rate. However, a different aspect of unemployment – the swing (amplitude) in the unemployment rate – does seem to affect the realization of intentions. Comparing Model 1 and Model 4, we see that the ICC is reduced by more than a third, from 0.0755 to 0.0446. The parameter of the unemployment change – the odds ratio lower than 1 (0.286) – tells us that the greater the swing in the unemployment rates in a country, the lower the chances of realizing short-term fertility intentions. In other words, stability on the labour market fosters the realization of fertility intentions, whereas intensive change and instability hamper it. The reduction in between-

country variance is greater¹² if inflation is included in our model (Model 5). The ICC – the rate of unexplained country-level variance – more than halved, decreasing to 0.0344. According to the parameters we see, the higher the inflation, the lower the likelihood that short-term fertility intentions will be realized.

Both indices that measure welfare state involvement show a significant effect. Since they are correlated, it is not surprising that their effects should go in the same direction and should be relevant in the same way. Both total social expenditure as a percentage of GDP and spending on family support facilitate the realization of intentions. The higher the expenditure as a percentage of GDP at the country level, the greater the chances of realization. Total expenditure further reduces the variance, and the ICC of 0.024 is the lowest of all the models. Our assumptions led us to expect a stronger effect in the case of family expenditure; but from a statistical point of view, the role of social expenditure seems to be more decisive.

Now we turn to examine *cultural (attitudinal) characteristics* dominant in the countries. The variable measuring support for marriage, often used as an indicator of traditional views in a society, exhibits no significant effect on the fulfilment of fertility intentions. However, the two indices related to the role (private or public) of childbearing influence the chances of realization: there seems to be a greater likelihood of people having a child (if they so intend) in those countries where the prevalent view is that the decision to have children is entirely an individual one (i.e. where fewer people believe that childbirth is also a collective matter). Furthermore, the proportion of intention fulfilment is greater in those countries where fewer people believe that children play a central role in making a woman's life complete. Taking into account individual parameters, the chances of childbirth intention fulfilment are greater if the decision to have a child is perceived to be a private one, but if individuals feel some social pressure from the people closest to them.

We should be extremely cautious in assessing which model seems most relevant in explaining the realization of fertility intentions. According to the LR test, the model including the rate of social expenditure (Model 5) is the best, followed by the model featuring inflation (Model 4) and the model that includes the prevailing ideas about whether childbearing is a private matter (Model 9). But note also that there is significant correlation between the rate of social expenditure and the notion of childbearing being a matter for the individual; however, neither a causal relationship between the two variables nor the dependence on a third country-level factor can be excluded.

Both the small number of the countries (Level 2) and possible associations between the potential macro-level variables prevent us from including several different combinations of the Level 2 variables in the models. Nonetheless, we experiment by including two unrelated country variables in

¹² And according to the LR test, Model 5 shows a better fit than Model 4.

our model at the same time. Model 11 pairs inflation and the variable for support for the statement that having a child is a ‘private matter’ (cf. Table 4).

The model markedly improved statistically (between-country variance is 0.489, ICC=0.0146) and both variables remained significant, and the parameters are as earlier. The lower the inflation rate (the less the uncertainty) in a given country and the stronger the view there that childbirth intentions are a private matter, the greater the chances of childbirth intentions being fulfilled.¹³

Based on these results, we conclude that the specific features of the *macro-social environment* – whatever they are – may play a *considerable role in the realization of fertility intentions*. The model that includes inflation (uncertainty) and prevalent ideas related to individuality in childbearing proved the most promising; however, given the limitations of our analysis, caution is called for.

Table 4.

Parameters of macro-level effects in the random intercept multilevel (ML) models

	Parameters of macro effects		Statistics		
			Between-country variance	ICC	AIC
Reference ML models					
Empty model (Model 0)	-		0.2213	0.0630	7530.5
Only individual factors (Model 1)	-		0.2685	0.0755	7112.5
ML models with 1 macro variable					
Unemployment rate at 1st wave (Model 2)	1.0087	ns	0.2682	0.0754	7114.5
Youth unemployment rate at 1st wave (Model 3)	1.0048	ns	0.2676	0.0752	7114.5
Swings in youth unemployment (Model 4)	0.2860	**	0.1536	0.0446	7108.5
Inflation rate at 1st wave (Model 5)	0.8828	***	0.1173	0.0344	7106.3
All social protection as a percentage of GDP (Model 6)	1.0657	***	0.0822	0.0244	7101.2
Family cash benefits as a percentage of GDP (Model 7)	1.5083	**	0.1441	0.0420	7108.1
Marriage outdated (Model 8)	1.0259	ns	0.2326	0.0655	7112.9
Autonomous decision about childbearing (Model 9)	1.0260	***	0.1108	0.0326	7105.5
Child gives meaning to a woman’s life (Model 10)	0.9880	*	0.1816	0.0523	7110.5
ML model with 2 macro variables (Model 11)					
Inflation rate at 1st wave and autonomous decision about childbearing	0.9153	***			
	1.0186	***	0.0489	0.0147	7099.9

Note: Individual (Level 1) variables in the multilevel (ML) models: sex, age group of the women, partnership form, number of children, women’s labour market status, women’s education, perceived social norms, subjective income position of the household

¹³ In a model (not shown) containing two related variables – namely, the social support ratio and support for the notion that having a child is a private matter – the two country variables proved to be not significant.

6 Discussion and future research

We are aware of the exploratory nature of our studies and of the limitations of our analysis; however, it has enabled us to provide some new insights into the study of fertility intention realization.

First of all, utilizing the individual-level follow-up character of the comparative GGS, and using rigorous methods to construct variables, we have shown that there are considerable country differences in the realization of short-term intentions in Europe. In some countries and in some demographic groups, the realization of short-term (three-year) intentions is around 50%, while in other countries, in the same social groups, the figure is only around 20%. Of course, specific groups with high odds – for example, those who are married, already have one child, where the woman is below 30 and the household can easily make ends meet – the rate of realization is higher. Since the results are based on individual follow-up, the rate of realization at the group level and the country-level estimations are reliable. Our results can be compared to the estimations based on group-level measures made by Harknett and Hartnett (2014). Using two consecutive waves of the cross-sectional European Social Survey data, they measured short-term (three-year) fertility intentions at the group level in the first wave, and drawing on the second wave they examined childbirth within the subsequent three years, also at the group level; based on all this, they estimated realization at the country level. Using the individual follow-up surveys of the Generations and Gender Survey data, we arrived at a generally lower level of realization at the country level; however, as we have emphasized, this is partly due to the shorter time at risk (7–36 months). More disappointingly, our country ranking differs quite substantially from theirs in several respects: we found that France has a clearly higher realization than Hungary, while Hungary and Austria have roughly the same rate; they found Hungary's realization to be somewhat higher than France's, and Austria to be clearly lagging behind, with a very low realization rate (*ibid.*, p. 269). The two estimations should logically be expected to converge; given the differences, we argue that the estimation based on individual follow-up data is more reliable.¹⁴

It would open up a new avenue of thinking, if, in seeking to understand the generally low(er) rate of realization, we were to consider Weinstein's concept of 'unrealistic optimism' (Weinstein 1980). Without going into detail, we can say that in their assessment of major life-course events, people are often optimistic and sometimes pessimistic (Shepperd et al. 2013). For example, college graduates were optimistic about not falling pregnant within the next year (Rothman et al. 1996). Could we not, perhaps, view the low level of realization as being a result of people's optimism about their ability to

¹⁴ We found the group-level estimation based on the subsequent ESS waves appealing, but we do not see it as our task to discuss whether low sample size, differences in the time window between the fieldworks, or some other reason may lie behind the different country estimations.

have a child within the three-year period? Or as an overly positive belief in their ability to control the immediate (or indeed all kinds of) circumstances surrounding childbearing?

We also showed (but did not explore further) that the short-term intention *not* to have a child is almost totally – perfectly – fulfilled in all countries. It should be mentioned here that this is partly due to compositional effects: large groups of non-intenders live alone, are nearing the end of their reproductive career, or have already achieved their intentions in terms of final family size. A focus on non-intenders who are married and already have one or two children would have resulted in lower rates of realization (i.e. not to have a child), and in visible country variations as well.

Exploring the country-level conditions using multilevel binary logistic regression with individual-level controls, we considered three major dimensions of likely influences. Among structural factors, the unemployment rate has been shown to be one of the most significant macro-level factors determining fertility development (Goldstein et al. 2013). In our case, the realization of short-term fertility intentions was not influenced by the unemployment rate. By contrast, swings in the unemployment rate were significant, as was the inflation rate: the less marked the swings in unemployment, and the lower the inflation rate, the greater the chances of fertility intentions being realized. More generally, we might consider whether the two factors can be understood as indicators of *structural uncertainty* in a given society.

We assumed that the type and the level of socio-political involvement might contribute to the realization of intentions, since they signify the availability of institutional resources. The two highly associated variables – the ratio of social protection to GDP and the ratio of family support to GDP – had a positive association with the likelihood of realization. This highlights the importance of the economic safety net in society. Nevertheless, it would be useful to include more specific comparative indicators of government involvement in future research.

Lastly, we also considered the cultural/ideational conditions of the societies. The use of three indicators demonstrated that cultural conditions are at play when we explore the rate of realization. And notions regarding the individual nature of the decision to have a child proved to be the most significant: the more prevalent the idea that ‘People should decide for themselves to have children’, the greater the chances of respondents having the intended child. To put it another way, in communities with weaker expectations, people are less likely to ‘overstate’ their fertility intentions. Two kinds of background processes may contribute to this: on the one hand, in societies with strong views about the importance of children, people may exaggerate their fertility intentions and therefore have less chance of fulfilling them; on the other hand – and now we are back to Weinstein’s concept – unrealistic optimism may differ from culture to culture (Heine and Lehmann 1995), and this may also be related to attitudinal conditions that strengthen or weaken realization. Note that there is a very closely related individual factor – the strength of perceived norms: i.e. the more a person feels that

those closest to her/him expect her/him to have a child, the greater the chances of realization. Thus, taking account of attitudinal variables, the greatest chances of someone intending to and having a child are in a society where having a child is a private matter but where there are strong perceived norms (expectations). Furthermore, the model with two macro variables suggests that the greatest chances of intention fulfilment occur where there is low structural uncertainty, and where the notion is prevalent that the decision to have a child is a matter for the individual.

A comparison of the empty model and the model with only individual variables suggested to us that the composition of the population that intended to have a(nother) child within three years contributed only slightly to the country differences.

We mentioned above that we are aware of the limitations of our study. The biggest limitation is the small number of countries (Level 2 cases). Increasing the number of countries and the heterogeneity of the country conditions would certainly improve the accuracy of the possible explanatory factors. However, there is no clear signal that the number of countries could be increased considerably in the near future in the longitudinal sample of the Generations and Gender Survey. Nor are we relaxed about the high attrition rate in three countries, although our preliminary analysis suggests that there are no strong biases. As for the country-level variables used, our selection should not be regarded as final. New theoretical assumptions may yield fresh evidence. And so, future research should certainly explore additional country conditions.

The interaction of individual and country-level factors is also a challenge for future research. We have emphasized that the greatest likelihood of intention fulfilment occurs when normative expectations are felt strongly at the *individual* level (subjective norm), but at the same time people generally agree at a *country* level that the decision to have a child is a private matter. Other possible interactions may arise from different theoretical approaches, or from the construction of new micro- and macro-level indicators.

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Appendix

Table A1.
Individual variables in the models

Sex	Male (reference) Female
Age groups (women)	Under 24 25–28 29–33 (reference) 34–45
Partnership relations	Cohabiting with husband or partner Visiting relationship (LAT) Living alone (reference)
No. of children	Childless Single child (reference) Two or more children
Labour-market status of woman	Wage-earner/worker Unemployed (reference) On maternity leave, or housekeeping Other inactive status, etc.
Educational attainment	Elementary, ISCED 0-2 Middle, ISCED 3-4 (reference) Higher, ISCED 5-6
How making ends meet	With great difficulty With minor difficulties Easily (reference)
Subjective norm	Higher value denotes stronger feeling of normative expectation (continuous)

Table A2. Fulfilment of fertility intentions within three years (child born within 7–36 months), country percentages according to different samples, 11 European countries

Countries	Sample of respondents intending to have a child at wave 1			Sample of multilevel analysis		
	Ratio (%) having a child			(N=)	Ratio (%) having a child	(N=)
	ALL	definitely want a child	probably want a child			
Austria	20.1	32.2	12.1	940	25.3	780
Bulgaria	15.8	22.4	13.5	1151	19.6	790
Czech Republic	22.5	36.1	13.7	277	25.8	203
France	39.3	54.3	23.8	769	44.9	522
Germany	40.6	44.9	36.6	200	43.6	162
Georgia	21.6	33.6	15.8	1241	23.4	857
Hungary	22.0	--	--	1574	25.4	1170
Lithuania	23.8	(42.1)	18.3	196	24.0	173
Poland	30.2	41.4	21.8	869	31.1	809
Russia	17.0	25.3	13.9	636	17.7	518
Sweden	39.6	55.9	24.4	1033	44.4	524
Cases (=100%)	8886	--	--	8886	6508	6508

() = No. below 80

Sources: Own calculations, Generations and Gender Survey, using 1st and 2nd survey data.

Table A3.

Fulfilment of fertility intentions within three years (child born within 7–36 months) among selected socio-demographic groups, 11 European countries

Countries	Subsamples of aged 21-44			Sample of multivariate analysis	
	All living in a cohabiting partnership at wave 1	Childless at wave 1	Parity 1 at wave 1	Ratio having a child	(N=)
Austria	29.5	14.8	32.1	25.3	780
Bulgaria	23.1	12.5	20.5	19.6	790
Czech Republic	28.2	18.6	31.1	25.8	203
France	49.7	38.4	48.9	44.9	522
Georgia	27.7	19.4	33.8	23.4	857
Germany	45.7	(30.8)	(54.1)	43.6	162
Hungary	29.1	19.4	30.8	25.4	1170
Lithuania	25.6	(28.6)	21.2	24.0	173
Poland	33.1	29.4	31.1	31.1	809
Russia	18.9	16.9	20.1	17.7	518
Sweden	49.4	29.7	62.5	44.4	524
Cases (=100%)	5283	3112	2703	6508	6508

() = No. below 80.

Sources: Own calculations, Generations and Gender Survey, using 1st and 2nd survey data.

Table A4

Parameters of individual and macro-level effects in the random intercept multilevel models

	Model 0	Only individual (M1)	Unemp. (M2)	Youth unempl. (M3)	Unemp. swings (M4)	Inflation (M5)	Social expend. (M6)	Family expend. (M7)	Attitude to marriage (M8)	Decision (M9)	Child important (M10)	Two macro var. (M11)
Intercept	0.348 ***	0.290 ***	0.269 *	0.265 *	0.627	0.052 *	0.084 ***	0.118 ***	0.172 ***	0.070 ***	0.588 ns	0.155 **
Micro-level variables												
Sex	female	1.040	1.040	1.040	1.041	1.038	1.037	1.040	1.039	1.039	1.039	1.0356
Age group, female	-24	1.144	1.144	1.144	1.142	1.151	1.154	1.146	1.145	1.145	1.148	1.1574
	25-28	1.136	1.136	1.136	1.135	1.139	1.139	1.136	1.136	1.135	1.137	1.1394
	35-	0.464 ***	0.464 ***	0.464 ***	0.464 ***	0.465 ***	0.464 ***	0.463 ***	0.464 ***	0.463 ***	0.464 ***	0.4643 ***
Partnership status	cohabiting	3.308 ***	3.309 ***	3.309 ***	3.307 ***	3.290 ***	3.261 ***	3.315 ***	3.294 ***	3.289 ***	3.297 ***	3.2524 ***
	LAT	1.842 ***	1.843 ***	1.843 ***	1.841 ***	1.828 ***	1.809 ***	1.848 ***	1.831 ***	1.830 ***	1.836 ***	1.8027 ***
Number of children	0	1.132	1.131	1.131	1.132	1.135	1.139	1.139	1.132	1.136	1.133	1.1437
	2+	0.699 ***	0.699 ***	0.699 ***	0.697 ***	0.705 ***	0.709 **	0.701 ***	0.700 ***	0.702 ***	0.702 ***	0.7118 **
Labour market position, female	working	0.808	0.808 *	0.808 *	0.808 *	0.806 *	0.799 *	0.809 *	0.806 *	0.803 *	0.805 *	0.7981 *
	maternity	1.105	1.105	1.105	1.104	1.101	1.098	1.102	1.104	1.102	1.102	1.0955
	inactive	0.644 **	0.644 **	0.644 **	0.644 **	0.641 **	0.638 **	0.643 **	0.643 **	0.640 **	0.640 **	0.6351 **
Level of education, female	primary	1.029	1.029	1.029	1.030	1.028	1.022	1.027	1.026	1.023	1.028	1.0185
	tertiary	1.107	1.106	1.106	1.107	1.113	1.118	1.112	1.108	1.111	1.109	1.1227
Subjective norm		0.943 ***	0.944 ***	0.944 ***	0.944 ***	0.943 ***	0.942 ***	0.944 ***	0.943 ***	0.943 ***	0.943 ***	0.9421 ***
Subjective income	very difficult	0.821 *	0.820 *	0.820 *	0.816 *	0.830 *	0.835 *	0.823 *	0.820 *	0.822 *	0.828 *	0.8380 *
	difficult	0.856 *	0.856 *	0.856 *	0.854 *	0.864 *	0.865 *	0.857 *	0.856 *	0.855 *	0.862 *	0.8665 *
Macro-level variables												
Unemployment rate at 1 st wave			1.009 ns									
Youth unemployment rate at 1 st wave					1.005 ns							
Swings in youth unemployment						0.286 **						
Inflation rate at 1 st wave							0.883 ***					0.915 ***
All social protection as ratio of GDP								1.066 ***				
Family cash benefits as ratio of GDP											1.508 **	

	Model 0	Only individual (M1)	Unemp. (M2)	Youth unempl. (M3)	Unemp. swings (M4)	Inflation (M5)	Social expend. (M6)	Family expend. (M7)	Attitude to marriage (M8)	Decision (M9)	Child important (M10)	Two macro var. (M11)
Marriage outdated									1.026 ns			
Autonomous decision about childbearing										1.026 ***		1.019 ***
Child gives meaning to woman's life											0.988 *	
Statistics												
Between-country variance	0.221	0.269	0.268	0.268	0.154	0.117	0.082	0.144	0.231	0.111	0.182	0.049
Interclass correlation (ICC)	0.063	0.076	0.075	0.075	0.045	0.034	0.024	0.042	0.066	0.033	0.052	0.015
AIC	7530.5	7112.5	7114.5	7114.5	7109.1	7106.3	7102.2	7108.1	7112.9	7105.5	7110.5	7099.9
Log Likelih.(LL)	-3763	-3538	-3538	-3538	-3535	-3534	-3532	-3535	-3537	-3534	-3536	-3530
No. of obs.	6454	6454	6454	6454	6465	6454	6454	6454	6454	6454	6454	6454

Sign: Significance level: ***=0.001; **=0.01; *=0.05; .=0.1

