Why fertility intentions remain unrealised?
A case study in Bulgaria

Dimiter Philipov and Maria Rita Testa

Vienna Institute of Demography
Wohllebengasse 14-16
1040 Vienna, Austria

dimiter.philipov@oeaw.ac.at
maria.rita.testa@oeaw.ac.at

FERTINT

Paper prepared within the project 'Fertility Intentions and outcomes: The Role of Policies to Close the Gap', funded by the European Commission, DG Employment, Social Affairs and Equal Opportunities (contract no. VS/2006/0685)

Abstract

This paper is part of the international EU project FERTINT which aims to investigate the conditions that lead about the realisation or non-realisation of fertility intentions. We studied the intentions to have a child within the next two years in Bulgaria using panel data from 2002 and 2005 as well as register data about vital events. This definition of intentions implies that their non-realisation may indicate either a postponement of a planned birth or its rejection. We provide descriptive analyses of intentions specified by intensity and order of intended birth, separately for men, women, and couples. Intentions not to have a child are more likely to get realised. Intentions for a first child are homogeneous in the couple, intentions for a second child are less homogeneous and less likely to be realised.

We search for an explanation of the realisation of intentions applying multivariate models. The explanatory variables include composite variables constructed according to the theory of planned behaviour, as well as other variables. The analyses refer to: (i) factors that influenced the construction of intentions, and (ii) changing factors between the two waves. The results bring diverse useful information mainly in the first type of analyses.

1. The gap between fertility intentions and actual fertility

Intended fertility in the developed countries is usually higher than actual childbearing. In Europe the discrepancy between intended and actual behaviour has been recently documented in comparative analyses based on the Eurobarometer data, rounds 2001 and 2006 (Testa 2002 and 2006). The gap between preferences and actual behaviour has been interpreted as an evidence of an "unmet need for family policies" (Chesnais, 2000), and has offered a justification for policies that may help people to have the desired number of children by allowing a better reconciliation between work and family life.

During the recent decades fertility preferences have been strongly characterized by the dominance of the two-child family through time. Since they have been found irresponsive to changes in actual fertility over time, irrespective on whether they were defined as ideals, desires, or intentions, they were not considered as a crucial variable in the demographic studies of reproductive behaviour. The paper by Goldstein, Lutz and Testa (2003) has marked a point of discontinuity in this respect. The authors pointed out for the first time that fertility ideals have declined below replacement level, e.g., 2 children, in some European countries and they interpreted such a result as a consequence of a temporal change. This finding gave a renovated emphasis to the studies focused on fertility preferences whose value and meaning was considered relevant independently from their predictive power that, indeed, may be rather weak. It is well known that fertility ideals or intentions may remain unrealised and, therefore, they are not the most suitable variable to be used in fertility projections and forecasts, nevertheless they are informative of reproductive behaviour because the factors that influence childbearing ideals or desires may also affect actual fertility (Kohler, 2001; National Research Council, 2001; van de Kaa, 2001).

In principle, the existence of a discrepancy between intended and actual fertility makes possible future rebounds of fertility, once the obstacles to childbearing and childrearing are removed. But the adoption of family friendly policies that allow women and men to reconcile family life and work, which are also encouraged by the

European Commission in the Green Paper[1] (2005), should be timely. Goldstein, Lutz and Testa (2003) provide two main arguments in favor of such an opportunity. First, the danger that a possible downward spiral of low fertility starts to work,[2] i.e., the family size ideals of each generation are influenced by the fertility regime in which it grew up (Testa and Grilli, 2006), with its own actual fertility remaining below this ideal, thus lowering the ideal family size of the next generation even more. Second, further fertility declines in the years to come may make it even more difficult to raise fertility levels in the future because they may indicate the end of a cultural 'momentum' of the two-or-more child norm.

The approach used by Goldstein et al. (2003) refers to the macro-level. But there is also plenty of literature discussing the discrepancy between actual reproductive behaviour and fertility preferences at the micro-level and trying to find out an explanation for such a gap (Miller and Pasta, 1995; Thomson, 1997; Liefbroer, 1999; van Peer, 2002; Smallwood and Jefferies, 2003). Usually these studies are focused on the realisation of reproductive intentions, the probability of having a child given that it is desired. The part of fertility that remains unrealised is rarely considered in a systematic way. Smallwood and Jefferies (2003) analyse fertility intentions in England and Wales where the gap between intended and actual fertility is called "fertility needs", evidently addressing non-realised intentions (2003). Morgan (2003) refers to the "revision" of intentions that may take place after intentions were constructed and before the actual birth of the intended child. This revision can be due to changing circumstances through the life course that have lead to consequent changes in some factors that define the construction of intentions.

This paper addresses the issue of unrealised fertility intentions in Bulgaria. Use is made of panel survey data from 2002 and 2005. We discuss a specific type of intentions: to have a child within two years, i.e. intentions about the timing of the next child. We provide descriptive analyses as well as multivariate discussion on the factors that may have lead to the non-realisation of the intentions.

[1] "Confronting demographic change: a new solidarity between the generations".
[2] The so-called "low fertility trap" described in the article by Lutz et al. (2006).

2. When fertility intentions should come closer to childbearing realizations

Demographers use diverse definitions of intentions. Some refer to the total number of children that an individual would like to have throughout the reproductive life, frequently referred to as the preferred family size. In other cases intentions refer to having a first child, when respondents do not have children, or having another child, when the respondents have at least one child. Intentions may refer to "ever" having a child without indicating to any period or point in time within which the realisation of the intention would be expected. Alternatively, a time- frame can be defined, such as having a child within a specific period, say within three years, or at a certain age, or after a certain number of years. Sometimes concepts like "preferences" or "desires" are used to denote what in the examples above was referred to as "intentions". This diversity in the use and definitions of concepts may mead to undesirable ambiguities.

We study intentions as a concept defined in social psychology. In particular, the theory of planned behaviour has become recently popular with respect to their construction. The theory sets a number of requirements which have to be met in order to expect a reasonable outcome with respect to realisation. Requirements have been discussed also in the demographic literature (Miller and Pasta 1995)[3]. With respect to fertility these requirements include:

(i) *Temporal stability*. The more stable intentions are through time, the more likely it is that they will get fulfilled. Intentions are usually stable within the short run. It is more likely to expect the fulfilment of intentions to have a child within a period of 2 years as compared to a period of 7 years for example, or till the end of the reproductive life.

(ii) *Certainty*. The more certain an intention, the more likely is its realisation. There exist diverse ways of operationalisation of certainly. One is to use a scale of 10 categories, where the lowest refers to "certainly no" and the highest refers to

[3] The FERTINT paper by Billari, Philipov and Testa discusses the theory of planned behaviour and its application to the study of fertility intentions.

"certainly yes". This scale is frequently used in the U.S.A. In our Bulgarian data a 4-scale item is used (described below).

(iii) *Properly defined with respect to the aim*. In the case of fertility this means that *parity* must be clearly considered. I.e. intentions to have another child should be preferred to intentions about the total number of children in one's life.

(iv) *Properly defined with respect to the individual's status at the time of construction of intentions*. This sets requirements about the age span, union status, and fecundity. Union status is necessary insofar as partner's intentions matters for the final outcome of the intention. Fecundity is a restriction with respect to giving a birth; it can be relaxed when intentions about adopting a child are included.

(v) *Proper measurement of the behaviour*. Miller and Pasta indicate that an intention to have a child can be considered as realised when a couple has started a proceptive behaviour, i.e. intended quest of a pregnancy. The latter is frequently approximated with the start of a pregnancy or with a birth itself. This approximation can be very crude because some real pregnancies might have been unintended.

In the theories on the relationship between birth intentions and actual reproductive behaviour (Miller and Pasta, 1995), three main reasons are seen as an obstacle to the realization of childbearing plans: conflict in partner’s intentions, fecundity impairments, and life course events. We add to these three main groups an additional reason, which refers to the way individuals conceptualise the influence of diverse factors on the construction of intentions, even when the above requirements have been fulfilled. Liefbroer (2007) in his FERTINT paper discusses the theoretical background for the inclusion of this reason.

3. Data

We use data from a survey in Bulgaria, carried out in 2002 with the purpose of studying family formation and childbearing.[4] The sample size included 10,003 men and women aged 18-34 completed years, in couples and singles, plus a small number of spouses beyond the upper age limit. The sample was representative by age, marital status, and region. The draw was based on mixed information from the population census carried out in the preceding year, and the civil registration system existing in this country. The upper limit of the age span was selected so that the major events referring to family formation should have taken place by that age. We note that Bulgaria is among the European countries with very low mean age at the birth of the first child; in 2003 it was 24.3 years for females. The survey aimed at testing of several fertility theories that looked relevant to the explanation of fertility changes.

The following basic question was used for the measurement of intentions: "*Do you intend to have a (another) child during the next two years*?" (for pregnant women the question is continued: "*...besides the one you are expecting*?"). The question is formulated separately for respondents without children and for respondents who have at least one child. The answer is selected among 4 items: "Definitely yes; probably yes; probably not; definitely not". This operationalisation shows that non-realised births might have been either postponed or rejected. Our data do not make possible this distinction.

The survey was repeated in 2005. The attrition rate was about 25%. Additional information became available from register data, which inform about realisation of intentions for nearly all participants in the first wave.

We analyse realisation in a period of three, rather than two, years. Thus we allow for some small deviations from the initial intentions. When considering a reporting period of three years we avoid the problem of dealing with pregnancies, were the reporting period equal to two years.

[4] We are grateful to the Max-Planck Institute for Demographic Research, Rostock, for providing the data.

Billari, Philipov and Testa (2007) in their FERTINT paper describe in detail all explanatory variables.

3. Descriptive findings.

An attrition rate of 25% can be regarded as being high and hence it is instructive to check how it relates to intentions. Table 1 shows that attrition increases with the decrease of the certainty of men's intentions to have a first child, and attrition is low among women with certain intentions to have a first child.

Table 1: Attrition, by stability of intentions

	For a 1st child		For a 2nd child	
Intention:	Males	Females	Males	Females
Certainly yes	24.0	23.3	25.4	20.3
Probably yes	25.9	33.5	25.8	18.3
Probably no	29.0	30.7	21.8	24.3
Certainly no	30.9	30.1	23.4	23.4

Where intentions to have a second child are considered, women who have a positive intention are less likely not to participate in the second wave of the survey as compared to women who do not intend to have a second child; however, the inverse relationship is observed for men's intentions. These observations indicate that intentions with high certainty have higher centrality in a person's set of possible actions, except for men who have one child. The observations also indicate that attrition causes a certain level of selection in the set of respondents who were interviewed in the second wave of the survey.

Table 2 gives the distribution of realisation of intentions to have a first and a second child, for men and women. For example, out of 212 men who had a certain intention to have a first child in 2002, only 88, or 41,5 percent could realise their intentions within a period of three years, while the other 124 failed to realise their intention. The

table shows that the "certain" intentions are more likely to get fulfilled as compared with the "probably" intentions. Women's intentions to have a first child are more likely to get fulfilled as compared to men's. Intentions for a first child are more likely to get realised.

Table 2: Intentions to have a first or a second child and their realisation, by gender and certainty of intentions

	Intended first child born?				Intended second child born?			
	Males		Females		Males		Females	
	No	Yes	No	Yes	No	Yes	No	Yes
Intention type:								
Certainly yes	124	88	117	111	81	54	94	59
	58.5	41.5	51.3	48.7	60.0	40.0	61.4	38.6
Probably yes	386	83	332	83	305	110	275	108
	82.3	17.7	80.0	20.0	73.5	26.5	71.8	28.2
Probably no	682	66	407	78	394	81	399	100
	91.2	8.8	83.9	16.1	83.0	17.1	80.0	20.0
Certainly no	844	71	448	79	296	47	482	78
	92.2	7.8	85.0	15.0	86.3	13.7	86.1	13.9
Total	2036	308	1304	351	1076	292	1250	345

The table also shows that intentions not to have a/another child are much more likely to be realised than intentions to have the child.

Table 3 informs that couples have very similar intentions: 55.1 percent of all couples have equal intentions, and in 35.5 percent of all couples the intentions are in adjacent categories. Only 9.4 percent of the couples have significantly different intentions.

Table 3: Intentions of couples:

Level of certainty:	N	Percent
Equal	1768	55.1
Adjacent	1138	35.5
Differ beyond 1 category	242	7.5
Differ beyond 2 categories	62	1.9
Total	3210	100.0

Further on tables 4a and 4b display cross-tabulations of the realisation of couple's intentions separately for the first (table 4a) and for the second (table 4b) child. Both tables are symmetric to the main diagonal because we do not distinguish the partner's genders.

Table 4a shows that couples' intentions are very homogeneous for intentions to have a first child. In 430 out of 479 couples both partners had exactly the same intention to become parents during the subsequent two years, i.e. 9 out of 10 couples. It is remarkable also to note that the rate of realisation of intentions to have a child is highest among partners whose intentions were certain: 61.5%, and it drops down to 35.7% for less certain intentions. The rate of realisation of intentions not to have a child is however much higher: 73% among the couples where both partners answered that they would probably not have a child during the next two years did not have a child, and this percentage rises to 77.4 points for couples with certain intentions not to have a child.

Table 4a: Realisation of intentions of couples to have a first child (intentions and actual births)

Intention of one partner was:	Intention of other partner was:			
	Certainly yes	Probably yes	Probably not	Certainly not
Certainly yes:				
No birth	38.5	71.4	100.0	100.0
Actual birth	61.5	28.6	0.0	0.0
N	174	14	3	4
Probably yes:				
No birth		64.3	76.9	66.7
Actual birth		35.7	23.1	33.3
N		140	13	3
Probably not:				
No birth			73.0	75.0
Actual birth			27.0	25.0
N			63	12
Certainly not:				
No birth				77.4
Actual birth				22.6
N				53

Where intentions for having a second child are considered, the data show a different picture (table 4b). 1266 out of 1907 couples have the same level of certainty of the intentions, i.e. two out of three couples. The percentage of couples with certain intentions to have a second child who did have a child three years later is 47.2 points, considerably lower as compared to the same intentions for a first child. Where intentions were not to have a child, the percentage of couples with no actual birth within the next three years is 85 to 90 points, i.e. higher than in the case of intentions for a first child.

Table 4b: Realisation of intentions of couples to have a second child

Intention of one partner was:	Intention of other partner was:			
	Certainly yes	Probably yes	Probably not	Certainly not
Certainly yes:				
No birth	52.8	62.9	60.0	79.0
Actual birth	47.2	37.1	40.0	21.1
N	108	97	30	19
Probably yes:				
No birth		69.6	80.6	77.4
Actual birth		30.4	19.4	22.6
N		349	175	84
Probably not:				
No birth			84.9	83.9
Actual birth			15.1	16.1
N			405	236
Certainly not:				
No birth				89.4
Actual birth				10.6
N				404

The interpretation of these observations is connected with the strong prevalence of the social norm for entry into parenthood in Bulgaria. Young couples expect to become parents and it is not surprising to find that they have homogeneous views on this matter. The high level of realisation of the intention to have their first child namely during the two years after the survey can be explained again by a social norm: a couple is expected to have a child soon after an entry into a marriage,, and to some extent after an entry into a union. These considerations are supported by the findings of Billari, Philipov, and Testa (2007) in their FERTINT paper.

Where intentions to have a second child are considered, Billari et al. (2007) found that perceived social norms are among the important factors for the formation of intentions, but the importance of attitudes and perceived behavioural control was found to be even higher. These factors may differ between the two partners more than their perception of the social norms, and as a result their intentions and the relevant outcomes are more diverse.

4. Non-realisation: factors influencing construction of intentions

Intentions may remain unrealised because of two groups of reasons: (i) because at the time of their construction the person has made a biased assessment of the impact of a certain factor that determines the intention, or (ii) because after intentions were constructed and during the period when their realisation was expected there may have appeared some changes in the person's characteristics or in his/her surrounding environment that have an impact on intentions and cause their revision. In this section we consider the first group of reasons.

We consider only respondents who declared at the first wave that they intend to have a child within the next two years, independently of whether this intention was certain or probable. We apply logistic models where the dependent (dichotomous) variable is "actually had a child versus did not have a child". Apparently a study of this group of respondents implies a selection out of the total sample. We checked whether the selection might have an effect on the model outcomes using a Heckman selection procedure applied for probit models. The results indicated no particular selection effect, so we preferred the logit model to the probit because its estimates are easier to interpret. The models were applied separately for males and females and separately for intentions to have a first and second child, i.e. altogether four models were used, specified by gender and order of intended birth.

In an alternative attempt to avoid selection we applied the models to all respondents specified by gender and birth, independently of what intentions they declared, and added the type of intention with its four categories as an explanatory variable. This variable acquires a high level of statistical significance while all other variables

(except union status) would have no significance. This model outcome could be expected to some extent, insofar as, according to the theory of planned behaviour, the explanatory variables are the background variables of intentions, i.e. intentions intermediate their effect on behaviour. Hence this model was not informative. Intentions were retained as an explanatory variable in the second group of models discussed below, with the observations restricted only to the two categories "certainly yes" and "probably yes".

The effect of the explanatory variables was analysed in two separate models. We first consider the proximate antecedents to intentions, as discussed by Billari, Philipov, and Testa (2007), in their FERTINT paper. Table 5 informs about the influence of these three variables.

None of the variables was found statistically significant for women intending to have a first child, and for this reason these results are not included in the table. In the case of intentions to have a second child, it is only the variable "number of children of important others" that is of significance for women who have declared only probable but not certain intentions to have a child within the next two years. This variable indicates the effect of social learning with respect to having children, i.e. women will be likely to want to have a second child when respected friends or relatives have two or more children. interestingly, no other variable is of significance for women.

The results show that the realisation of males' intentions to have a first child depends to some extent on the positive attitudes of the person towards experiencing a birth. The influence of norms has a low level of statistical significance (p-value of 0.09). Both cases refer to an intention that is not fully certain ("probably yes"). Intentions to have a second child are dependent on the number of children of important others, like in the case of women, and on the positive and negative attitudes towards the person having a child within the next two years. Positive attitudes are of higher statistical significance. The effect of the attitudes is pronounced only for the "probable" intentions.

Table 5: Impact of attitudes, norms, and behavioural control on the realisation versus non-realisation of intentions to have a child: coefficients of a logistic model

	Intentions to have a first child			
	Certainly yes		Probably yes	
Males	Coef.	P-value	Coef.	P-value
Positive attitudes	-0.01	0.96	0.31	**0.05**
Negative attitudes	-0.20	0.18	-0.17	0.18
Norms	0.11	0.54	0.27	**0.09**
Children of others	0.15	0.35	-0.02	0.85
Perceived control	-0.12	0.46	0.13	0.36
	Intentions to have a second child			
	Certainly yes		Probably yes	
Males	Coef.	P-value	Coef.	P-value
Positive attitudes	-0.25	0.17	0.31	**0.02**
Negative attitudes	0.20	0.26	-0.23	**0.05**
Norms	0.18	0.40	-0.21	0.11
Children of others	0.65	**0.01**	0.22	**0.06**
Perceived control	0.16	0.48	-0.20	0.13
Females				
Positive attitudes	0.14	0.43	0.20	0.18
Negative attitudes	0.17	0.30	0.07	0.57
Norms	-0.10	0.66	-0.01	0.96
Children of others	0.24	0.22	0.29	**0.01**
Perceived control	-0.29	0.14	-0.07	0.58

Notes:
(1) Results for females intending a first child do not indicate any statistical significance and for this reason are not included in the table.
(2) Definition of variables can be found in the FERTINT paper of Billari, Philipov, and Testa (2007).

These results lead to the inference that the development of positive attitudes will encourage the construction of intentions to have a child within the next two years, particularly if these intentions are not fully certain.

Next we turn to the study of other factors on the realisation of intentions. Again a logistic model is applied with the same dependent variable. The explanatory variables are the background factors which Billari, Philipov, and Testa (2007, FERTINT paper) used for the analysis of the proximate antecedents of fertility intentions. They are observed during the first wave. We describe them here in brief and indicate the reference category for each one of the discrete factors:

- Age: three age groups are used, the third one (30-34 completed years) is used as a reference category;
- Union status: single, cohabiting, and married; the last one is the used for reference;
- Number of siblings: none, one, or more; "none" is used for a reference;
- Time since the birth of the first child: measured in months, refers to intentions to have a second child only;
- Employment status: (1) Neither works nor studies; (2) Studies, can be either employed or unemployed; (3) Works in a private firm (does not study), (4) Works in a state firm (does not study), and (5) In maternal leave. The fifth one is used for a reference.
- Household income: it is grouped into four quartiles, and the first quartile responding to lowest income is used for a reference;
- The respondent's attitude whether the birth of a child would impede the respondent's working career; three categories (disagrees, neither agrees nor disagrees, agrees that the birth will impede a career) with the first one (disagrees) used for a reference;
- Psychological well-being: a continuous variable; an increase in its value denotes an increase in the psychological well-being of the respondent;
- Exchange of help: a continuous variable whose increase in value indicates an increase in the extent of help, which the respondent has given to others or has received from others (it is used as a concise measure of social capital).

Table 6 displays the model outcomes. We consider first the demographic variables. Younger respondents are more likely to realise their intentions; a plausible explanation could be related to the individual life-course evolution, which is more advanced and more complicated at a more advanced age. Union status is included mainly as a control variable; it shows that intentions to have a first child are more likely to be fulfilled among those respondents who were in a union at the time of the first wave, but it has no statistical significance for the realisation of intentions to have a second child. Men who have at least one sibling are more likely to fulfil their intention to have a second child as compared to men who were a lone child in the family of their parents. Finally, realisation of intentions to have a second child depends on the time that has elapsed since the birth of the first child: the longer this time, the less likely is the fulfilment of intentions.

Education was found of significance only for the realisation of intentions for a second child. The values of the coefficients indicate that the likelihood of the fulfilment of these intentions has a U-shape form along the educational levels: respondents with a secondary level (app. 11 years in school) are less likely to have an intended child three years later as compared to those with a lower or higher educational level. Following the demographic literature, it can be inferred that persons with lower education are more family oriented and this helps them realise their intentions; persons with higher education are more cognitive and hence are expected to better plan their future, and consequently their intentions are more precise.

We received only restricted evidence that economic factors are of significance for the realisation of intentions. Persons who study were less able to meet their intentions, and women who worked in a private company were less likely to have their planned second child. The former result can be expected: it is known from the demographic literature that young adults tend to postpone having their children after the completion of education, as studying and childrearing are competing occupations (Blossfeld and Huinink 1991). Our respondents should have predicted this sequence of events when they were asked about having children at the time of the first wave. It is likely to assume that their prediction did not fulfil; for example an expected end of education has been postponed which has lead to the postponement of the planned birth. The latter result can be explained with the fact that private companies are less generous in granting certainty for a return to work after a period of motherhood.

The attitude towards a child impeding one's working career is the only ideational factor included in the table. It was found to have a restricted impact on realisation. The signs of the coefficients indicate that an agreement with the statement leads to a lower level of realisation of intentions, although statistical significance was observed only in one case, and in one case the sign was positive. Another ideational factor, namely religiosity, was not found to have any impact and was not included among the explanatory factors. However, Philipov et al. (2006) who used the same set of data found it of significance where life-time intentions to have another child were considered.

Table 6: Impact of explanatory factors on the realisation versus non-realisation of intentions to have a child: log-odds of logistic models

	1st child		2nd child	
	Men	Women	Men	Women
Age (ref: 30 +)				
Age 18-24	0.75**	0.77**	-0.01	0.81**
Age 25-29	0.25	0.51	0.42*	0.46
Union status (ref. single)				
Cohabiting	1.28***	0.81***	0.75	-0.21
Married	1.24***	0.67***	1.06	0.18
Siblings (ref. none)				
One sibling	0.34	0.21	0.81**	0.15
Two or more siblings	0.67	0.63	0.81*	-0.21
Time since birth of 1st child (incr.)			-0.09**	-0.10**
Education (ref. secondary)				
Lower than sec.	-0.12	-0.07	0.59**	0.64**
Higher than sec.	0.25	0.16	0.32	0.52*
Employment status (ref. works in a state or mixed company)				
No work, no study	0.44	0.19	0.56	-0.26
Studies	-1.82*	0.21	s.n.o.	-1.33**
Works in a private firm	0.30	0.35	0.23	-0.59*
Maternal leave	n.a.	n.a.	n.a.	-0.58
Household income (ref. lowest quartile)				
Quartile 2	0.00	-0.34	0.25	1.01
Quartile 3	0.42	-0.37	0.20	1.13
Quartile 4	0.04	-0.49	0.48	1.05
Dwelling (ref. large)				
Small	0.05	0.01	-0.30	0.19
A child would impede carrier (ref. disagree)				
Neither agree nor disagree	-0.03	-0.64*	0.40	0.10
Agree	-0.15	-0.26	-0.25	0.04
Psych. well-being (incr.)	0.34**	0.10	-0.03	0.25**
Exchange of help (incr.)	0.18	0.53***	0.34*	0.13
Certainty of intention (ref. certainly yes)				
Probably yes	-0.90***	-1.20***	-0.70***	-0.56***

Notes: p>0,01 is denoted with three stars, p>0,05 with two stars, p>0,10 with one star; reference categories indicated in the text; "s.n.o." = "small number of observations"; "n.a." = "not applicable".

A higher level of psychological well-being would infer a higher likelihood for the realisation of intentions among men who intend to enter into parenthood, and women

who intend to have a second child. Further on, exchange of help is a variable with a positive coefficient in all four models. The higher the exchange of help, the higher the social network-related social capital of the person, and the higher is the likelihood for realisation of the intention (Buehler and Philipov 2005).

The last explanatory variable in the table is certainty of intentions. As it could be expected, the "certainly yes" intentions are more likely to have been better planned and hence realised as compared to the "probably yes" intentions.

5. Changes in factors and realisation of intentions

In this section we discuss realisation of intentions from the perspective of factor changes that may take place after the construction of intentions. Use is made of the two waves of the panel survey, carried out in 2002 and 2005. Respondents reported in 2005 changes in union status, births, and educational level at the time when they were performed, i.e. the changes in these two variables are continuous during the period between the two waves. The other factors were observed at the time of the second wave only, and their changes refer to the comparison of the 2005 with the 2002 status. I.e., the exact time of the change remains unknown; it can be either before or after the birth. With these data we can only analyse an association but not a causal effect of the change in one factor on the realisation of an intention.

We used logistic models, similar to the ones discussed above, with a different set of explanatory variables. Table 7 gives the results. Age and intentions are the same factors as in table 6 and their impact is the same as in the above models. Changes in union status and level of education are defined by comparing 2005 and 2002, i.e. dismissing the information about the proper timing of the corresponding event. Thus we keep the opportunity to assess the validity of the intentions constructed in 2002, which is the main taks of this analysis.

Quartiles for household income per person were estimated for each one of the two waves. When this income was found to be in a different quartile in 2005 as compared to 2002, we record this as a change. This method reports changes relative to the

income level prevailing in the corresponding year. Changes in absolute terms, which would be received when comparing income per person in the household in 2002 and 2005 would refer to nearly all households because the economic development in the country during this period of three years was dynamic and income increased considerably. Changes in dwelling were recorded by comparing the 2005 with the 2002 average number of household members per room in the dwelling. Changes in help were recorded by simply subtracting the values of the 2002 variable from hose of the 2005 variable.

Table 7: Impact of changes in explanatory factors on the realisation versus non-realisation of intentions to have a child: log-odds of logistic models

	1st child		2nd child	
	Men	Women	Men	Women
Age, ref. 30+ :				
18-24	0.03	0.70*	0.51	1.40***
25-29	-0.10	0.36	0.68***	0.96***
Union status, ref. no change:				
Entered union b/n 2002, 2005	s.n.o.	1.64***	s.n.o.	1.11*
Income, ref. no change:				
In 2005 lower	0.20	0.09	0.21	-0.44
In 2005 higher	-0.64*	0.01	-0.04	-1.02*
Exchange of help increased in 2005:	-0.42**	-0.26	-0.16	-0.13
Education, ref. no change:				
In 2005 higher	-0.42	-0.22	0.22	-0.02
Dwelling, same size:				
In 2005 larger	1.00***	0.90***	0.44	-0.05
In 2005 smaller	-0.31	-0.37	-0.89***	-0.23
Intentions (ref. certainly yes):				
Probably yes	-1.41***	-1.37***	-0.74***	-0.73***

Notes: p>0,01 is denoted with three stars, p>0,05 with two stars, p>0,10 with one star; reference categories indicated in the text; "s.n.o." = "small number of observations".

The log-odds for an entry into a union during the period between the two waves indicate a strong association with the realisation of the intention to have a child. The data showed that out of the 284 single persons in 2002 who declared that they intend to have a first child (whether certainly or probably) within the next two years, 68 realized this intention, and 67 of them have entered a union before the birth. I.e. union status has a decisive role for the realization of the intentions.

Changes in income show that when the household income in 2005 was in a higher quartile as compared to 2002, the likelihood of realisation of men's intentions to have a first child and of women's intentions to have a second child will decrease. This finding can be seen as unexpected. Indeed, when a child is born the number of household members increases and hence equivalised household income per person will decrease. In this case we should observe that a higher likelihood of realisation of the intention to have a child would associate with a decline in income. However, this is not observed.

The variable "exchange of help" measures social networks-related social capital. It is expected, according to the theory developed by Buehler and Philipov (2005) that higher social capital would invoke a higher likelihood for an intention to have a child and its corresponding realisation. However, the negative signs of the log-odds indicate that this is hardly observed, although statistical significance was reached in only one case. This would mean that the birth of a child has lead to a decline in the exchange of help. Probably the association does not refer properly to the discussed causal link, or the causality holds under specific conditions, such as only for a short time after the birth when parents devote a lot of time to the child and less time to their social network. The finding could also indicate that the birth implies a change in the social network with an orientation towards families with children (Schoen et al. 1997); and the reorientation needs some time to develop and during this period exchange of help could be reduced. Apparently the findings cannot be interpreted easily and calls fro more detailed research.

An increase in the size of the dwelling (number of persons in the household per room) associates significantly with a higher likelihood of the realisation of intentions. As in the case of income, it could be expected that a birth would increase the number of household members and hence the variable would mark a decrease, were the dwelling i n2005 the same as in 2002. Probably some respondents have expected in 2002 that they will acquire a larger dwelling in a short time and hence have been more decided to have a child within two year.

6. Summary

Aim of our analysis was to study the reasons why people fail to meet their short-term fertility plans. Longitudinal data from a Bulgarian survey (wave 1 carried out in 2002 and wave 2 carried out in 2005) are exploited to this aim. In our approach we distinguish between to main categories of reasons. The first group of reasons is related to the way individuals conceptualise the influence of diverse factors in the construction of their intentions. The second group refers to the actual modifications in the individuals' status or life experience that may induce respondents to change their mind in respect to their previously stated childbearing desires.
The pre-requisite of our analysis was the availability in the questionnaire of a fertility intentions item where the respondents are required to be as much realistic as possible, this means that a temporal frame of intentions is explicitly considered and that individuals are asked to express the certainty of their childbearing plans.

We looked at these two distinct categories separately in the multivariate analysis. We run different logistic regression models where either the construction of intentions or the change occurred in some background variables (that may interpreted as changes in life course) are included as explanatory variables. The factors related to the construction of intentions are approximated by the so-called proximate determinants of fertility intentions deeply described in the paper by Billari, Philipov and Testa in the framework of the FERTINT project.

According to our results if childbearing intentions are certainly stated in the first wave they are also more likely to be realized in the next three years, as compared to probable intentions. This is true even after controlling for a given set of background factors. In general, the probability that certain intentions, either positive or negative, will be realized does increase in presence of a partner's agreement, i.e., if both partners state that they certainly want, or do not want, to have a baby within the next two years. However, the consistency between intended and actual behaviour is higher if the intentions are negative.

As far as the revisions linked to the changes in the individuals' life course are concerned, we observed a higher likelihood to get a child among those who enter a union in the inter-survey period.

In contrast with our expectations, the increase in the 'exchange of help', variable used a proxy for the networks-related social capital, is negatively associated with the probability to have a child. We interpreted this result with the circumstance that a birth may imply a change in the social network with a strong orientation towards families with children and that the reorientation needs some time to be developed. In the intermediate period the exchange of help may appear to be reduced.

Changes of in the income and the size of dwelling give also significant results in the regression analysis, but the structure of our data, and particularly the circumstance that individuals are not followed up, i.e., we cannot figure out whether the changes occurred before of after the birth of a child, do not allow us to interpret such results in an appropriate way and do only call for more detailed research.

References:

Billari, Philipov, and Testa, 2007: The proximate antecedents of fertility intentions: an application of the theory of planned behaviour in the case of Bulgaria. FERTINT paper.

Blossfeld, H.-P., and J. Huinink, 1991: Human capital investments or norms of role transition? How women's schooling and career affect the process of family formation. *American Journal of Sociology*, 97, 143-168.

Buehler, Ch. and D. Philipov, 2005: Social capital related to fertility: theoretical foundation and empirical evidence for Bulgaria, *Vienna Yearbook of Population Research 2005: 53-82.* Vienna Institute of Demography.

Chesnais, Jean-Claude, 2000, "Determinants of below replacement fertility", in: "Below replacement fertility", *Population Bulletin of the United Nations*, Special Issue 1999, No.40/41, pp.126-136.

Goldstein, Joshua, W. Lutz, M. R. Testa, 2003, "The emergence of sub-replacement family size ideals in Europe" *Population Research and Policy Review,* 22, pp.479-496.

Kohler, Hans-Peter, 2001, *Fertility and social interaction. An economic perspective*. Oxford, Oxford University Press.

Liefbroer, Aart C., 1999, "Life-planning during young adulthood: do intentions about timing of family life events come true?" Paper presented at the European Population Conference. The Hague, The Netherlands, 30 August - 3 September.

Liefbroer, Aart, 2007: How well do intentions about the timing of fertility predict actual fertility? Results from a Dutch panel study. FERTINT Paper.

Lutz, Wolfgang, Vegard Skirbekk, and Maria Rita Testa. 2006. "The Low-Fertility Trap Hypothesis: Forces that May Lead to Further Postponement and Fewer Births in Europe" *Vienna Yearbook of Population Research* 2006: 167-192.

Miller, W.B., and Pasta D.J. 1995. How does childbearing affect fertility motivations and desires? *Social Biology*, 42: 185-198.

Morgan, S.P. (2003) Is low fertility a twenty-first century demographic crisis?, *Demography* 40(4): 589–604.

NATIONAL RESEARCH COUNCIL, 2001, *Diffusion Processes and fertility transition: selected perspectives,* Committee on Population. John B. Casterline, (ed.). Division of Behavioural and Social Sciences and Education, Washington, National Academy Press.

Smalwood St. and J. Jefferies (2003), Family building intentions in England and Wales: trends, outcomes and interpretations. *Population trends* 112, Summer 2003.

Philipov, Dimiter, Z. Speder and F. Billari, 2006, Soon, later, or ever? The impact of anomie and social capital on fertility intentions in Bulgaria (2002) and Hungary (2001), *Population Studies* 60(3), pp. 289-308.

Schoen, Robert, Young Kim, Constance Nathanson, Jason Fields, and Nan Marie Astone. 1997. Why do Americans want children?, *Population and Development Review* 23(2): 333–358.

Testa, Maria Rita, 2002, *Attitudes of Europeans towards Fertility: Ideals, Desires, Intentions and Realizations*, mimeo.

Testa, M.R. 2006. *Childbearing preferences and family issues in Europe*. Special Eurobarometer 253/Wave 65.1 – TNS Opinion & Social, European Commission, available at: http://www.oeaw.ac.at/vid/download/ReportESEMPLAgeingandFertility20061027.pdf

Testa, M.R., and L. Grilli. 2006. The influence of childbearing regional contexts on ideal family size in Europe. *Population*, 61(1-2): 109-138

Thomson, Elisabeth, 1997, "Couple Childbearing Desires, Intentions and Births", *Demography*, Vol.34, No.3, pp.343-354.

Van De Kaa, Dirk J., 2001, "Postmodern fertility preferences: from changing value orientation to new behaviour", Global fertility transition, Supplement to *Population and Development Review*, Vol.27, pp.290-331.

Van Peer, Christine, 2002, "Desired and achieved fertility", in: KLIJZING Erik, CORIJN Martine (eds.): *Dynamics of fertility and partnership in Europe: insights and lessons from comparative research*. Vol.2, New York and Geneva, United Nations, pp.117-141.