

Changing Risk of First and Second Birth After 1990 in Bulgaria. An Event History Approach

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Introduction

The establishment of fertility regime below population replacement level have been a common process recently witnessed in almost all European countries. Some researchers describe this trend as part of Second demographic transition that has been progressing in the western European part of the continent since 1970s. (Lesthaeghe and van de Kaa 1986) Eastern Europe and particularly Bulgaria, entered this transition at a relatively late period of time. This study focuses on fertility changes following SDT in Bulgaria since the early 1990s. It consists of two parts: at first, I study the impact of key social differentials such as educational and ethnic ones as a sources of divergence of fertility behaviors of Bulgarian women. In the second part I focus on the emergence of voluntary childlessness and the increasing preferences towards one-child family model among Bulgarian women as deliberately chosen reproductive choices in the recent period .

Data, methods and covariates

Data: Gender and Generation Survey, w.1 – 2004

Method: multi-level event history analysis & logistic regression models

Modeling strategy: 1. single level models of the risk of first, second and third birth estimated at first stage; 2. joint model simultaneously estimating the risk of first , second and third birth in which I control for the presence of unobserved heterogeneity in studied population. 3. logistic regressions on the intentions of stay childless and to forgo second birth in long-run life course perspective.

For multi-level event history model

$$\ln h_i^{B1}(t) = y^{B1}(t) + \beta^{B1}x_i(t) + z_c(c_i(0) - c_{\min} + t) + \sum_l a_l x_{il} + \varepsilon_i$$

$$\ln h_i^{B2}(t) = y^{B2}(t) + \beta^{B2}x_i(t) + z_{a1}(a_{i1}(0) - a_{\min} + t) + z_c(c_i(0) - c_{\min} + t) + \sum_l a_l x_{il} + \varepsilon_i$$

$$\ln h_i^{B3}(t) = y^{B3}(t) + \beta^{B3}x_i(t) + z_{a2}(a_{i2}(0) - a_{\min} + t) + z_c(c_i(0) - c_{\min} + t) + \sum_l a_l x_{il} + \varepsilon_i$$

Covariates:

1. Spline for mothers' age, age of previous child, calendar time and union duration.
2. Time varying covariates – union status, union order and educational level and activity
3. Fixed time covariates – woman's ethnicity, partner's education, sex of previous child, place of living until age 15, number of siblings.

For logistic regressions

Dependant variable: 1/ odds for choosing childlessness vs. one child family model; 2/ odds for choosing one child family model vs. having another child

After collapsing the categories definitely/possibly not of the questions regarding the short-term fertility intentions and the same categories of the questions regarding women's fertility plans in distant future I create a variable that distinguishes the group of women who declare they would remain voluntarily childless. The proportion of these women is approximately 10%. Similar strategy is applied for women at parity one. In this case I combine the negative answers of the questions regarding women's fertility intentions to have another child in near, or in distant future in one category in order to distinguish those who intend to forgo second birth (60%).

Results

RISK OF FIRST BIRTH

Fig. 1. Baseline intensity of first birth

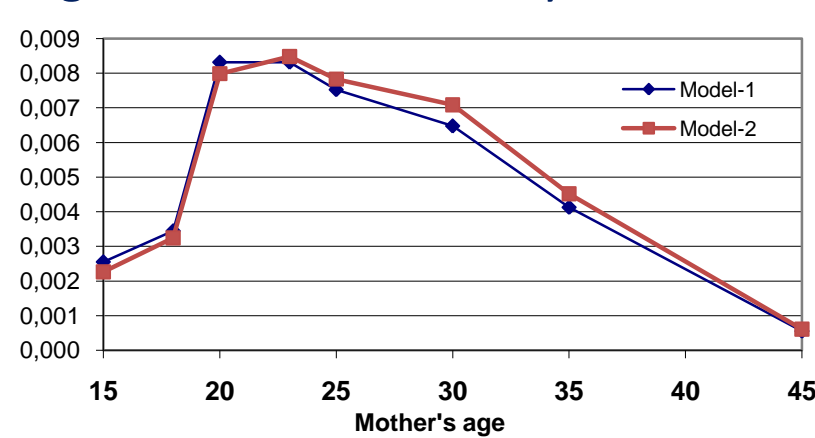


Fig. 2. Change of first birth intensity over time

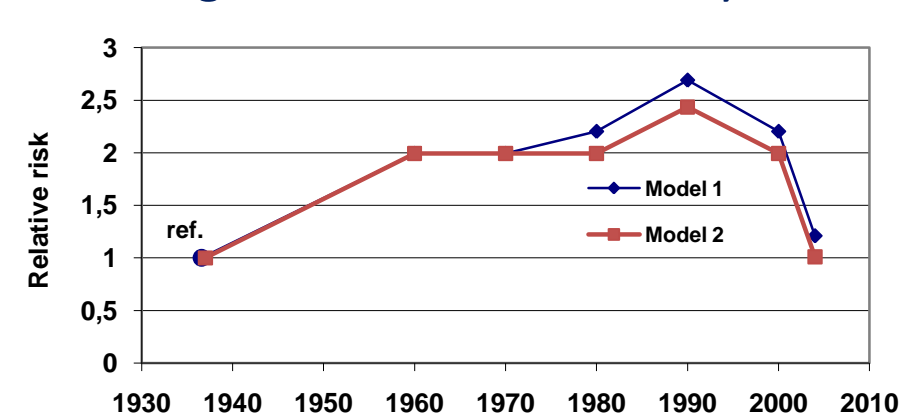
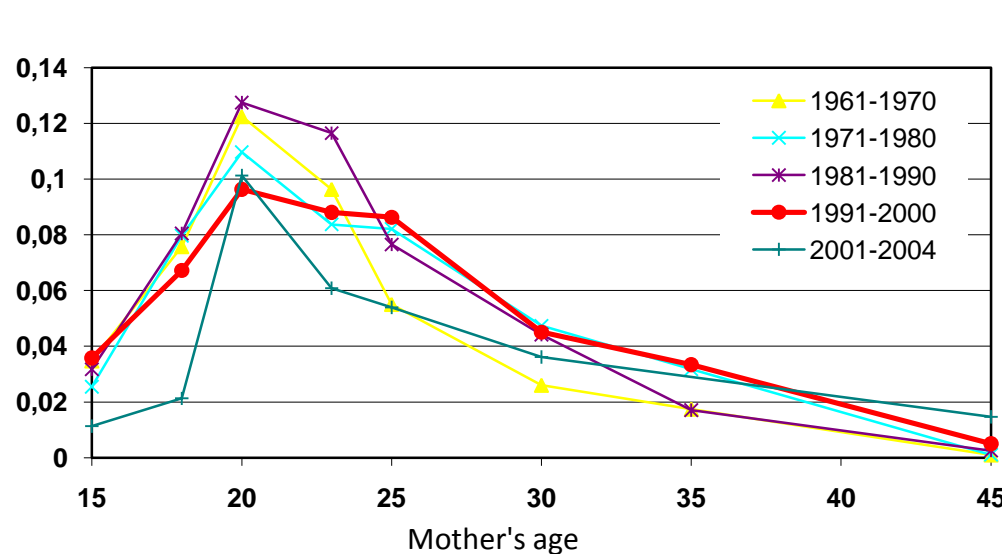


Fig. 3. Interaction between the risk of first birth and calendar time



- The population of women in Bulgaria who are at risk to give birth to their first children is heterogeneous – there is a select group of women who tend to progress quickly towards motherhood.

- There is a clear evidence for a process of postponement of first births and delayed start of reproduction of Bulgarian women in the period since 1990.

RISK OF SECOND BIRTH

Fig. 4. Baseline intensity of second birth

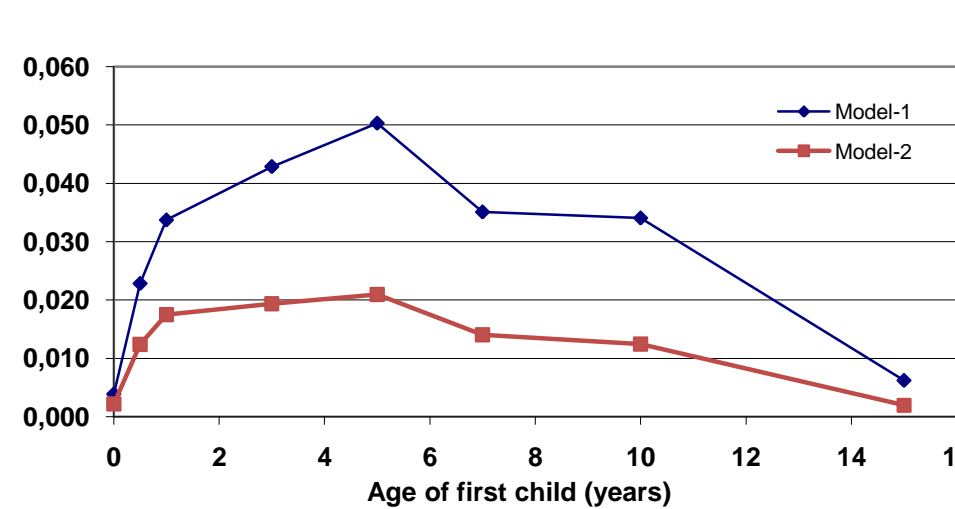


Fig. 5. Change of second birth intensity over time

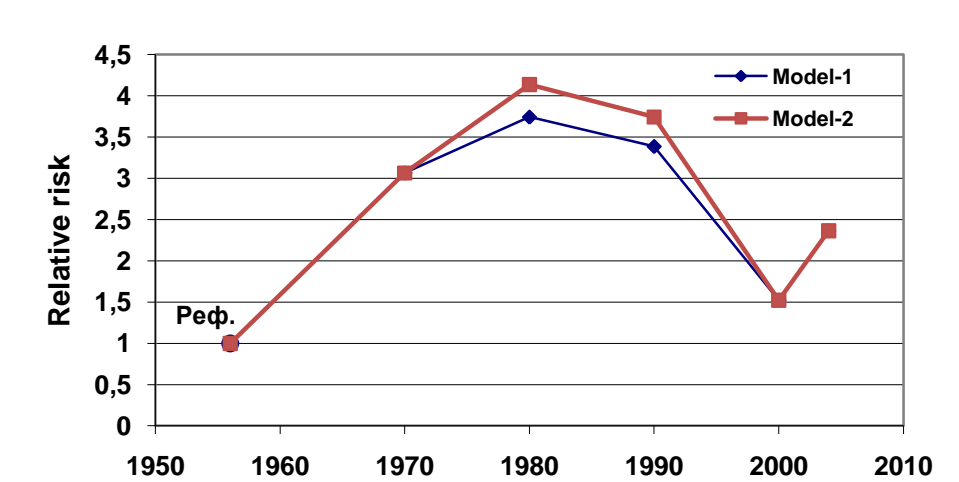
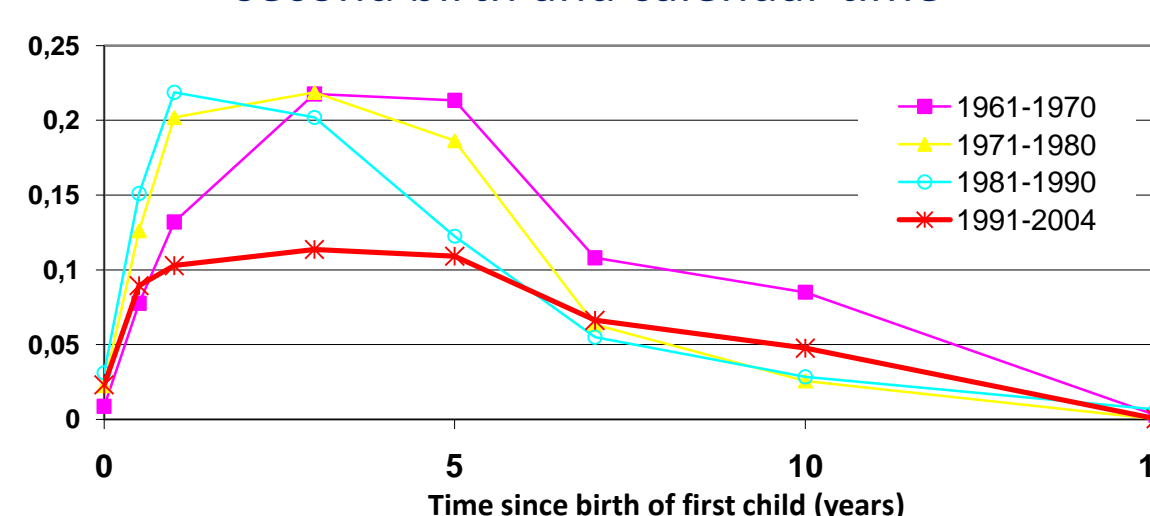


Fig. 6. Interaction between the risk of second birth and calendar time



- There is a select group of women in the population with stronger fertility desires who tend to progress quickly to another birth. If we do not control for the presence of unobservable characteristics of women we would have a biased picture of second birth risk that overestimates it.

- This is a clear indication of a process of postponement of second birth that has taken place since 1990 in Bulgaria.

The results from the models of the risk of first birth show also that:

- Marriage is preferred union form for childbearing compared to cohabitation
- The risk of first birth in first union is higher than the risk in next union
- Union formation and first birth are endogenous
- Bulgarian women have the lowest risk of first birth compared to women from ethnic minorities, especially Roma women
- Being in education significantly reduces the risk of first birth
- Strong negative educational gradient – highly educated women have the lowest risk of having first child.

The results from the models of the risk of second birth show also that:

- The younger the age of mother at first birth, the higher the risk of having second child
- Married women have higher risk for giving birth to another child compared to cohabiting women
- Strong new partner effect – the risk of having second child is higher in second union
- Bulgarian women have the lowest risk of second birth compared to women from ethnic minorities, especially Roma women
- Being in education significantly reduces the risk of second birth
- Strong negative educational gradient – highly educated women have the lowest risk of having second child.

Tab. 1 Intention to stay permanently childless vs. to have a child. Childless women, age 18-45, not sterile, not pregnant.

none vs. one	exp(B)	Sig.
Age	1.12	0.000
Age^2	1.01	0.010
Woman's education		
Study	0.62	0.160
Higher	0.28	0.010
Secondary	0.46	0.030
Less than secondary	1	
Woman's ethnicity		
Bulgarian	1.13	0.750
Other	1	
Partnership status		
In union (marriage/cohab.)	0.5	0.460
No partner	1	
Woman's employment status		
Employed	0.48	0.010
Unemployed/ not econ. active	1	
Partner's employment		
Employed	0.48	0.050
Unemployed/ not econ. active	1	
Place of residence		
Urban	0.77	0.370
Rural	1	
Partner's ethnicity		
Bulgarian	1.06	0.950
Other	1	
Partner's education		
Higher	2.15	0.530
Secondary	2.39	0.380
Less than secondary	1	
Satisfaction with the relations with partner		
Not satisfied	2.41	0.500
Medium	0.67	0.590
Highly satisfied	1	
Constant	0.24	0.000

The results from the logistic regression model show that:

- The positive coefficient of the squared term, together with the positive coefficient of the linear term, indicates that the intentions to stay childless increases at older ages.
- Compared to women with less than secondary degree (ref. category) those with higher education (university or secondary degree) are less likely to choose voluntary childlessness.
- Ethnicity of woman and their partnership status is not significant predictor of the risk of remaining childless.
- The model shows that forgoing parenthood among women in Bulgaria is strongly dependant on woman's economic activity. Employed women are less likely to choose voluntary childlessness compared to those who are unemployed or economically not active (ill or disabled for a long time or permanently; retired).
- Having employed partner significantly decreases the risk of choosing to stay childless.
- Ethnicity and education of the partner does not appear as a significant predictors in the model as well as the satisfaction with the relations in the couple.

Tab. 2 Intention to forgo second birth or to have another child. Women at parity 1, age 18-45, not sterile, not pregnant.

one vs. second	exp(B)	Sig.
Age	1.22	0.000
Age^2	1.01	0.040
Woman's education		
Study	1.35	0.330
Higher	0.5	0.040
Secondary	0.84	0.560
Less than secondary	1	
Woman's ethnicity		
Bulgarian	0.65	0.330
Other	1	
Partnership status		
In union (marriage/cohab.)	0.75	0.570
No partner	1	
Woman's employment status		
Employed	1.37	0.060
Unemployed/ not econ. active	1	
Partner's employment		
Employed	0.72	0.130
Unemployed/ not econ. active	1	
Place of residence		
Urban	1.2	0.370
Rural	1	
Partner's ethnicity		
Bulgarian	1.31	0.570
Other	1	
Partner's education		
Higher	0.40	0.010
Secondary	0.63	0.130
Less than secondary	1	
Satisfaction with the relations with partner		
Not satisfied	4.06	0.020
Medium	0.77	0.290
Highly satisfied	1	
Constant	0.89	0.800

The model on the risk of forgoing or having second child shows that:

- The positive coefficient of the squared term, together with the positive coefficient of the linear term, indicates that the intentions to stay with one child increases at older ages.
- Highly educated women followed by those with secondary degree are less likely to choose not to have a second birth compared to less educated women (ref. category).
- Woman's ethnicity and partnership status are not significant predictors of the risk of stopping at parity 1 in this model.
- Employed women are more likely to choose to remain with one child than those females who are not employed or who are not economically active.
- Although the coefficient is not significant, the model shows that the women whose partners are employed are less likely to stop at parity one.
- The women whose partners are highly educated have lower odds of stopping childbearing after first birth compared to the reference group (the partner having lower education). The odds of forgoing second birth increases as the education of the partner decreases.
- Interestingly enough, women who report that they are not satisfied with the relations with their partners have significantly higher odds for refraining from next birth than those who are satisfied.