Census-linked study on fertility differentials in Lithuania: does ethnicity matter?

Aiva Jasilioniene, Max Planck Institute for Demographic Research, Rostock (Jasilioniene@demogr.mpg.de)
Domantas Jasilionis, Max Planck Institute for Demographic Research, Rostock
Vlada Stankuniene, Institute for Demographic Research, Vilnius
Ausra Maslauskaite, Institute for Demographic Research, Vilnius
Vladimir M. Shkolnikov, Max Planck Institute for Demographic Research, Rostock

Short Abstract

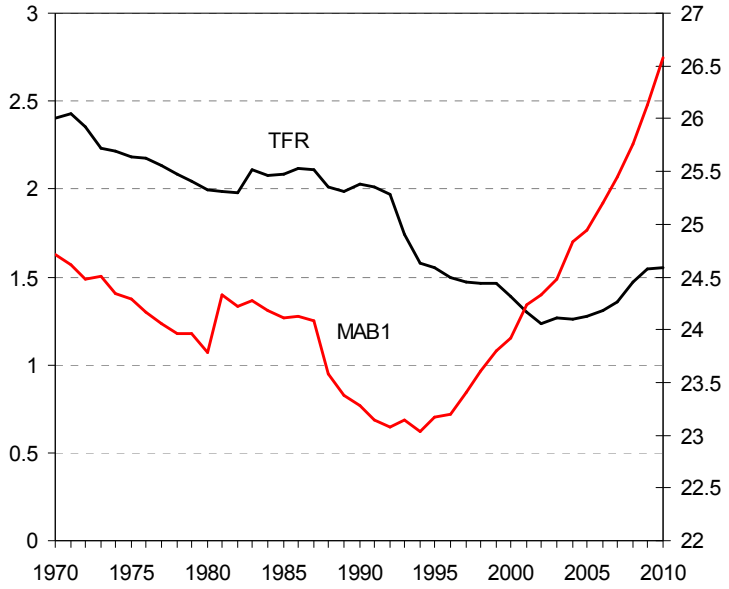
Fertility transformations observed in Lithuania since the early 1990s and their determinants have been rather thoroughly investigated. There are fairly numerous both national and international studies devoted to this topic that are based on survey data. However, none of these studies looks into the effect of ethnicity on fertility. It is to a large extent caused by limitations of survey data. Lithuania is relatively homogeneous by its ethnic composition: Lithuanians constitute more than 80 percent of the total population. Given the small shares of other ethnicities, detailed analysis of fertility behaviour by ethnic group is not really possible. This study uses a unique census-linked dataset, based on all records from the 2001 census and all birth records for the period between April 6, 2001 and December 31, 2002. The preliminary findings suggest that ethnicity is an important gradient of fertility in Lithuania. Lithuanians have higher fertility than other ethnic groups, especially Russians. The lowest total fertility rate found in the Russian ethnic group is mainly explained by lower rates of second births. Interestingly, the highest mean age at second birth is also found in the Russian subpopulation. Fertility of Lithuanians remains significantly higher even after controlling for compositional differences by education, urban-rural residence, marital status, and economic activity status.

Extended abstract

Introduction

In the beginning of the 1990s, significant transformations in fertility behaviour patterns started in Lithuania, with rapid fertility decrease and postponement of births to later ages being among the most pronounced features of this process. The total fertility rate, which for about twenty years stood close to the replacement level, decreased to unprecedented lows— in 2002 the TFR dropped to as low as 1.24 (Figure 1). Soon after, however, the trends reversed and fertility started increasing. According to statistical data, the TFR was 1.55 in 2010. The mean age at first birth has been continuously increasing since the mid-1990s; in the period 1994-2010 it increased from 23.04 to 26.57.

Figure 1: Total fertility rate and mean age at first birth, Lithuania



Source: Human Fertility Database (unpublished data)

Determinants of the observed fertility changes in Lithuania are diverse and are associated with demographic, social, economic, and cultural transformations experienced by a post-soviet society. There is a number, both national and comparative studies devoted to examination of fertility changes and their causes in Lithuania. Most of the existing analysis is done on the basis of survey data: the Family and Fertility Survey, the Population Policy Acceptance Survey, most recently the Generations and Gender Survey, and other. However, none of these studies looks into the effect of ethnicity on fertility. It is to a large extent caused by limitations of survey data. Lithuania is rather homogeneous by its ethnic composition: Lithuanians constitute more than 80 percent of the total population (Table 1). Given the small shares of other ethnicities, detailed analysis of fertility behaviour by ethnic group is not really possible. Research on ethnic differentials in fertility has a longer tradition in other two Baltic countries Estonia and Latvia where ethnic minorities constitute notable shares.

Table 1: Ethnic composition of Lithuanian population

	1959*	1970*	1979*	1989*	1997	2001*	2007	2011
Lithuanians	79.3	80.1	80	79.6	81.6	83.5	84.6	83.9
Poles	8.5	7.7	7.3	7	6.9	6.7	6.3	6.6
Russians	8.5	8.6	8.9	9.4	8.2	6.3	5.1	5.4
Belarusians	1.1	1.5	1.7	1.7	1.5	1.2	1.1	1.3
Ukrainians	0.7	0.8	0.9	1.2	1.0	0.7	0.6	0.6
Jews	0.9	0.8	0.4	0.3	0.1	0.1	0.1	0.1
Germans	0.4	0.1	0.1	0.1	0.0	0.0	0.1	0.1
Other	0.6	0.4	0.7	0.7	0.7	1.5	2.1	2.0

*Data originate from population censuses.

Source: Stankuniene and Jasilionis 2009, Statistics Lithuania 2011.

Data and methods

This study uses a census-linked dataset provided by Statistics Lithuania. The linkage was implemented by employees of Statistics Lithuania, who have permission to work with individual-level data. The dataset is based on all records from the 2001 Population and Housing Census and all birth records for the period between April 6, 2001 and December 31, 2002. The data used to calculate conventional period fertility indicators cover all females between the exact ages 12 and 49 and include 1.67 million person-years of population exposure, and 51.3 thou. births.

The data were provided in an aggregated multi-dimensional frequency table format that combines births and population exposures split by socio-demographic variables, including age, birth order, education, ongoing education/studying, ethnicity, economic activity status, and urban-rural residence. The regression analysis of the second births was based on a sub-sample of females having the first child at the moment of census (16 thou. second births and 370 thou. person years of exposure). Second birth rate ratios by ethnicity and their 95% confidence intervals were obtained by applying Poisson regression. Confounding effects on ethnicity-specific regression coefficient were assessed using models controlling for age only (Model 1), additional socio-demographic variable (Models 2-6), and all variables (Model 7).

Results

Table 2 shows ethnicity- and birth order-specific total fertility rates for Lithuania in 2001-2002. The data suggest that the TFR for all birth orders is the highest in the Lithuanian and Polish ethnic groups, whereas the lowest indicators are among the Russian and Other ethnic groups. Further analysis by birth order demonstrates that the observed differences in the overall TFR between Lithuanians and Russians is mainly attributable to differences in the TFR for birth order 2 and 3+, whereas the TFR for birth order 1 is fairly similar in both groups.

Table 3 presents ethnicity-specific estimates of the mean age at birth by birth order. It can be seen that the mean age at birth and mean ages at first and third and higher order births are quite similar across all ethnic groups. The largest difference concerns the mean age at birth of the second child: Russian mothers on average give the second birth by about one year latter than Lithuanian, Polish, and Other ethnicity mothers.

Ethnic groups in Lithuania are quite unevenly distributed by educational level and place of residence (e.g., the majority of Russian population resides in urban areas). In order to check whether compositional differences can explain the discovered differences in the risk of second births, models controlling for additional variables were tested. The findings suggest that although some effects of compositional differences by education, urban-rural-residence, marital status, economic activity status are evident, they do not change the direction of the observed ethnicity-specific gradient of second births (Table 4). Out of five control variables, urban-rural place of residence have the most significant effect. After controlling for all variables under study (Model 7), a lower risk of second births in other than Lithuanian ethnic groups (especially among Russian females) remains pronounced.

Table 2. Ethnicity- and order-specific total fertility rates. Lithuania, 2001-2002

Ethnicity	TFR	TFR1	TFR2	TFR3+
Lithuanian	1.23	0.59	0.42	0.23
Russian	1.07	0.56	0.33	0.18
Polish	1.22	0.61	0.43	0.19
Other	1.13	0.55	0.37	0.22

Note: Due to rounding, the sum of order-specific TFRs does not always equal the TFR.

Table 3. Ethnicity- and order-specific mean ages at birth. Lithuania, 2001-2002

Ethnicity	MAB	MAB1	MAB2	MAB3+
Lithuanian	27.34	24.72	28.52	31.96
Russian	27.37	24.67	29.54	31.67
Polish	27.00	24.46	28.43	31.95
Other	27.30	24.75	28.75	31.27

Table 4. Poisson regression rate ratios for the second births by ethnicity. Lithuania, 2001-2002.

Ethnicity	Model 1 Age only	Model 2 Age+Mar. st.	Model 3 Age+Educ.	Model 4 Age+Study	Model 5 Age+Activ.	Model 6 Age+Res.pl.	Model 7 All var.
Lithuanian	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Russian	**0.64*** 0.60-0.69	**0.66*** 0.61-0.71	**0.65*** 0.61-0.70	**0.64*** 0.60-0.69	**0.65*** 0.60-0.70	**0.69*** 0.64-0.74	**0.72*** 0.67-0.77
Polish	**0.90*** 0.85-0.96	**0.90*** 0.84-0.95	**0.92*** 0.87-0.98	**0.89*** 0.84-0.95	**0.91*** 0.86-0.97	**0.87*** 0.82-0.93	**0.88*** 0.83-0.93
Other	**0.77*** 0.69-0.85	**0.78*** 0.70-0.87	**0.78*** 0.70-0.86	**0.77*** 0.69-0.85	**0.77*** 0.70-0.86	**0.80*** 0.72-0.89	**0.83*** 0.74-0.92

Note: Model 1 - controlled for age only; Model 2 - controlled for age and marital status; Model 3 - controlled for age and education; Model 4 - controlled for age and studying; Model 5 - controlled for age and economic activity status; Model 6 - controlled for age and place of residence; Model 7 – controlled for all variables. * - second birth rate ratios are statistically significant ($p<0.05$). Lithuanian ethnicity is used as the reference group.

References

Stankūnienė, V. and D. Jasilionis (Eds.) (2009). *The Baltic Countries: Population, Family and Family Policy*. Vilnius: Institute for Social Research.

Statistics Estonia (2011). Online database for the 2000 census. Accessed on 12 October 2011

Statistics Latvia (2011). Online database for the 2000 census. Accessed on 12 October 2011.

Statistics Lithuania (2011). *Demographic Yearbook 2010*. Vilnius.