The Transition of Childbearing Patterns from the Cohort Perspective in relation to Family Policy: a Comparison of the Czech Republic and Slovakia

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Abstract

A transition towards childbearing at later ages represents one of the most striking features of demographic change in recent years. Postponement transition commences with an increase in the age of the mother at first birth and usually results in a decline in TFR due to the tempo effect. Less attention has been devoted to the postponement of second childbirth and hence the extension of the childbearing interval between first and second births. We hypothesise that the postponement of the second childbirth following the first delivery negatively influences the second birth recuperation rate. The aim of the paper is to compare the recent transition in childbearing patterns in the Czech Republic (CR) and Slovakia in relation to family policy. We employed the basic benchmark model in order to analyse the postponement and recuperation in cohort fertility. We focus on childcare leave schemes, i.e. the key measure influencing the ability of women and men to balance work and family. Both the length of the parental leave period and the amount of the benefit have the potential to shape the timing of a subsequent birth. The parity-cohort method was used in order to investigate changes in the spacing and quantum of second births among women who had their first child between 1992 and 2012. Despite similar developments concerning childcare leave systems during the 1990s, the CR outperformed Slovakia from 2004 due to a significant increase in both the flexibility and the amount of the parental benefit. We discovered that the increase in TFR between 2003 and 2008 coincided with an increase in the second-birth rate during the third year following first delivery together with a decrease in the second-birth rate during the fourth year and later, and thus contributed towards the higher rate of recuperation of delayed second births in the CR.

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Introduction

A transition towards childbearing at later ages represents one of the most striking features of demographic change in recent years (Kohler et al. 2002, Goldstein et al. 2009). Women in developed countries have tended to reduce their fertility in their mid- and late-twenties and compensate for some or most of the reduction at a later childbearing age. Postponement transition commences with an increase in the age of the mother at first birth (Kohler et al. 2002, Billari and Kohler 2004, Billingsley 2010) and usually result in a decline in total fertility rate due to the tempo effect (Bongarts and Sobotka 2012). Less attention has been devoted to the postponement of second childbirth and hence the extension of the childbearing interval between first and second births. We hypothesize that the postponement of the second childbirth following the first delivery negatively influences the second birth recuperation rate. So far the recuperation of delayed second and higher-order births has remained weak in most post-communist countries (Frejka and Sardon 2007, Kapitány and Spéder 2012).

The aim of the paper is to compare the recent transition in childbearing patterns in the Czech Republic and Slovakia in relation to family policy. We employed the basic benchmark model in order to analyse the postponement and recuperation in cohort fertility (Sobotka et al. 2011). Both countries belong to five countries where postponement of childbearing played a major role in the initial decline in total fertility rate in the first half of the 1990s (Billingsley 2010). Moreover, both Czech and Slovak Statistical Offices provide records on individual births used for detailed parity-cohort analysis based on duration-specific second-birth rates. Finally, both countries shared identical family policies until their separation in 1993. We focus on childcare leave schemes, i.e. the key measure influencing the ability of women and men to balance work and family. Both the length of the parental leave period and the amount of the benefit have the potential to shape the timing of a subsequent birth. The parity-cohort method was used in order to investigate changes in the spacing and quantum of second births among women who had their first child between 1992 and 2012. Despite similar developments concerning childcare leave systems during the 1990s, the Czech Republic outperformed Slovakia from 2004 due to a significant increase in both the flexibility and the amount of the parental benefit. We discovered that the increase in total fertility rate between 2003 and 2008 coincided with the an increase in the second-birth rate during the third year following first delivery together with a decrease in the second-birth rate during the fourth year and later, and thus contributed towards the higher rate of recuperation of delayed second births in the Czech Republic.

Period trends and fertility postponement

Fertility trends during the socialist era were influenced by population-related policy measures especially the legalisation of abortion in 1957 and pro-natal policy measures implemented in the early 1970s which were associated with considerable fertility swings. However, the most pronounced changes concerning fertility have manifested themselves in the period since the early 1990s and are characterised primarily by a sharp decline in fertility rates and a steep rise in the mean age at childbearing. Both the Czech Republic and Slovakia have witnessed a sharp drop in the TFR. In the Czech Republic in the first half of the 1990s the yearly decline in the fertility rate was extremely significant with a sharp decrease in the TFR from 1.89 in 1990 to 1.18 in 1996. Fertility stabilised at a very low level from 1996 onwards (with a minimum TFR of 1.13 in 1999) and the TFR remained below 1.2 children until 2004. In Slovakia the total fertility rate dropped from the replacement level of 2.09 children per woman to 1.52 during the years 1990-1995 and subsequently reached a minimum of 1.19 in 2002.

Since the period TFR reflects the interplay of two components - tempo (timing) and quantum (level) of fertility, Figure 1 displays the tempo- and parity-adjusted total fertility rate (adjTFRp) proposed by Bongaarts and Sobotka (2012) in order to measure the level of fertility independent of the tempo effect (attributable to changes in the timing of childrearing) and the parity composition effect (attributable to shifts in the parity composition of women of reproductive age) and thus to provide a better indication of the average number of children per woman in a given year than is possible employing the period TFR. In contrast to the sharp decline indicated by the TFR post 1990, the adjusted TFR (adjTFRp) shows that fertility declined during the 1990s to around 1.8 children per woman. However, in the first decade of the 21st century it did not change significantly and fluctuated at around 1.7 children in Slovakia and 1.8 in the Czech Republic. This would tend to indicate that the decrease in fertility ceased post 2000 and the subsequent recovery in TFR was caused by the catching-up effect.

The on-going transition to the late childbearing pattern can be illustrated by a sharp rise in the mean age of mothers at first childbirth, notably in the Czech Republic. The mean age of mothers at first birth was below 22.5 years in the Czech Republic and oscillated at around 22.6 in Slovakia for the whole of the1980s and began to rise only after 1992. Whereas in 1992 the mean age of mothers at first birth was still 22.5 both in the Czech Republic and Slovakia, in 1995 it had risen to 23.0 in Slovakia and 23.3 in the Czech Republic, and by the end of the 1990s it had reached almost 24 years in Slovakia and 25 years in the Czech Republic (1999).

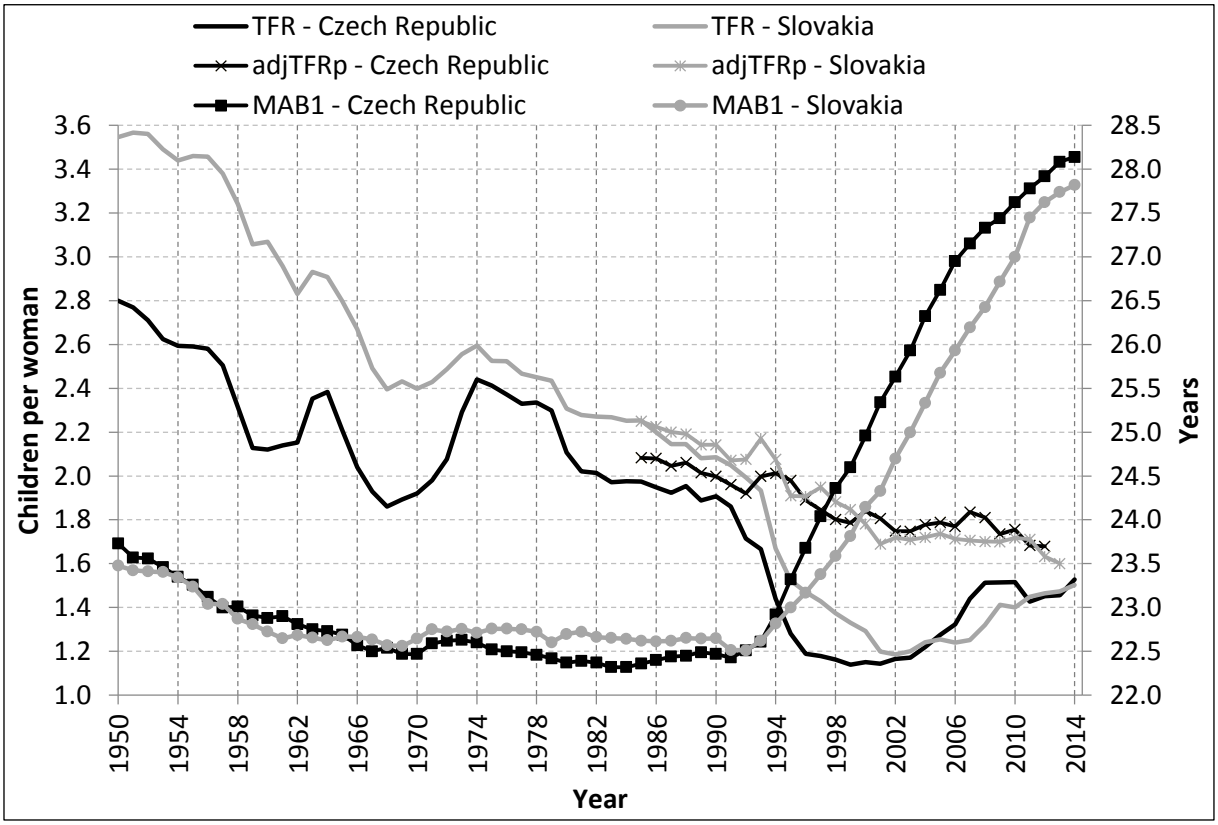
By 2014 it had reached 27.8 in Slovakia and 28.1 years in the Czech Republic, i.e. over five years more than in the early 1990s.

Fertility recuperation commenced in both countries in the early 2000s. In the Czech Republic a surge in the TFR from 1.18 to 1.5 children per woman between 2003 and 2008 was documented. However, this positive trend was followed by stagnation and a slight decline to below 1.5 in 2011-2013; the TFR exceeded 1.5 in 2014. In Slovakia the increase in the total fertility rate was slower and the TFR reached 1.5 as late as in 2014; thus, the TFR stood at below 1.5 for a period of 20 years, i.e. 1995 was the last year in which the TFR exceeded this level.

The rebound in the TFR between 2003 and 2008 in the Czech Republic occurred during a period of economic growth. Moreover, it also coincided with an improvement in the provision of state support for families. Nevertheless, such enhanced conditions for starting a family resulted neither in an increase in the TFR above 1.5 nor in its preservation at around that figure as witnessed by a further decline in 2011 (TFR=1.43).

In Slovakia, fertility recuperation began to manifest itself more strongly post 2007, however the optimistic outlook created by the improving fertility rate received a setback with the onset of the economic crisis which was reflected in a reduction in economic growth, rising unemployment and a growing sense of insecurity amongst the population (Potančoková 2013).

Figure 1 Total fertility rate (TFR), tempo- and parity-adjusted total fertility (adjTFRp) and mean age at first birth in the Czech Republic and Slovakia, 1950-2014



Family policy in the Czech Republic and Slovakia

The pro-natalist population policy of the former Czechoslovakia was abandoned by the various post-1989 political administrations. Moreover, only limited attention was devoted to family policy issues during the 1990s and socio-economic transformation was very much at the forefront of the policy-making agenda (Sobotka et al. 2008, Robila 2012); family formation and childbearing were, in the main, considered by politicians to be individual choices as the state attempted to relegate the paternalistic approach to families firmly to the past (Potančoková et al. 2008). The general tendency of post-communist family policies in both countries in the 1990s consisted essentially of re-familisation in that it encouraged women to leave the labour market and resulted in a deepening of the conflict between work and family (Saxonberg & Sirovátka 2006).

In this section the authors scrutinise Czech and Slovak family policy by examining key areas of childcare policy, i.e. childcare leave schemes and access to child day care. These measures significantly influence the ability of both women and men to balance work and family responsibilities. Indeed, they affect not only prevailing types of care for very young

children, the length of the parental care period and the timing of the return of a caring parent to the labour market, but they also have the potential to shape the timing of other life events such as the birth of subsequent children. Research shows that both the length of the parental leave period and the amount of the benefits paid out may influence fertility; however, such changes primarily tend to affect the timing of subsequent births (e.g. the well-documented case of the Swedish 'speed premium' by Hoem 1990, 1993 and Andersson 1999 and that of Finland Rønsen 2004 and Vikat 2002, Norway Aassve and Lappegård 2009, France Breton and Prioux 2005, and Austria Šťastná and Sobotka 2008) and, to date, no clear evidence has been presented of the long-term impact of leave policy changes on fertility levels and completed family size (Gauthier 2007; Neyer 2003).

Both the Czech Republic and Slovakia offer two basic types of paid childcare leave - maternity leave which is sickness insurance-based, relatively generous and intended for the first months of an infant's life, and parental leave which is non insurance-based and less generous, but available for long time periods (indeed, some of the longest parental leave periods offered in Europe).

Both the maternity leave period and maternity benefit remained relatively stable during the political transformation period. The leave period was gradually extended in socialist Czechoslovakia up to 28 weeks in 1987 (37 weeks in the case of lone mothers and multiple births). The Czech Republic has retained this length of maternity leave up to the present day (however, since 2008 lone mothers have not been eligible to take 37 weeks and only mothers who have multiple births are now eligible to benefit from this extension). In Slovakia the length of the maternity leave period was increased to 34 weeks in 2011 (the 37-week entitlement for single mothers was retained and was extended to 43 weeks in the case of multiple births). Thus, since 1987 both countries have provided one of the longest periods of entitlement to maternity leave with maternity benefit in Europe (e.g. Mitchell 2010).

Moreover, the replacement rate of the maternity benefit is relatively generous and stood at as much as 90 per cent of the net wage at the beginning of the 1990s. However, the rate was lowered in the Czech Republic in 1993 (67% of the individual daily assessment base based on the gross daily wage) and in Slovakia in 2002 (55% of the gross wage). Subsequent years witnessed a slight increase in both countries and currently it amounts to 70% of the daily assessment base in the Czech Republic and 65% of the daily assessment base in Slovakia; however, the assessment base is subject to reduction, i.e. a maximum daily limit has been set that disadvantages higher-income groups.

While maternity leave and maternity leave benefits have remained relatively stable, a crucial change was made to the parental leave system during the political transformation period. Post-communist governments extended paid parental leave periods up to a child's 3rd birthday in 1990 (with no restrictions concerning the number of children; up to 1990 paid

parental leave was available only up to a child's 1st birthday for mothers caring for 1 child). A further extension of the entitlement to the parental allowance up to a child's 4th birthday was introduced in the Czech Republic in 1995; nevertheless, the period of parental leave set out in the Labour Code with respect to the mandatory reservation of work positions remained only up to a child's third birthday.

Entitlement to the parental allowance is universal and is paid in the form of a lump sum regardless of income in both countries. Even though there has been a gradual increase in the nominal value of the parental allowance, it has remained at a low level (around 26% of the average salary in the early 1990s, 28% in 2002 and nearly 24% of the average wage in 2015 in Slovakia) and has even been reduced in terms of the replacement rate (from around 26% at the beginning of the 1990s to around 15% of the average wage in 2003 in the Czech Republic). The parental allowance in the Czech Republic was increased by 40% in 2004 and doubled in 2007 (to 35% of the average wage in 2007) thus becoming the most important tool available in terms of family policy. Moreover, a restriction existed on the earning of extra income for caring parents (a very low cap was set on this amount in the Czech Republic in the 1990s and parents claiming parental allowance in Slovakia were not allowed to work at all) as well as a restriction concerning attendance at public childcare facilities (Czech Republic).

Even though parental leave was eventually extended to fathers, the proportion of men claiming parental allowance is very low in both countries (less than 2%) since the allowance is so low that, given the fact that men usually enjoy higher salaries than women, only in a very small number of families can men afford to take parental leave.

At the same time that both countries extended the parental leave period, the formerly extensive network of childcare facilities for children under three years of age practically disappeared due to a combination of the extension of parental leave, the withdrawal of state financial support, which led to a substantial increase in childcare fees, and the transfer of responsibility for childcare facilities to individual municipalities (Kocourková 2002). The availability of municipal crèche facilities for very young children is exceptional and, in the late 2000s, only 1% of children in the Czech Republic and around 5% in Slovakia attended such facilities (Kuchařová et al., 2009; Šimurková, 2009). Private childcare facilities are available primarily in large cities; however, they usually charge very high fees, i.e. several times higher than those charged by municipal facilities.

This combination of a long period of leave with low benefit rates constitutes an explicit re-familisation policy which promotes separate gender roles for men and women, since few men will be willing to exercise their right to claim parental leave under such conditions (Saxonberg, Sirovátka 2006). This trend, however, is not necessarily inconsistent with the attitudes of the populations of the two countries under study. Research shows that both the

Czech and Slovak public share conservative attitudes towards the gender division of labour between men and women and a low level of confidence in the potential for combining motherhood and employment (Hašková, 2010). The majority in both countries, as in other post-communist countries, are extremely positive with regard to state support for families; indeed, they are significantly more supportive than their counterparts in Western European countries (Saxonberg, Sirovátka 2006).

At this stage, the authors propose to provide a brief analysis of the manner in which these re-familisation policies have interacted with the needs and aspirations of the population using data from a sociological survey performed as part of the research project "Family, Employment and Education"[4] (2006) which focused on the identification of individual requirements and the chances of balancing three key spheres - family, employment and education. Data from this survey, which focused on young families[5], was chosen since the survey was conducted in both the Czech Republic and Slovakia by means of an identical questionnaire and quota sampling.

Although in general young Czech families more often than their Slovak counterparts considered the expansion of social services as rather important (37% vs. 21%), the main preference in terms of measures aimed at facilitating the combination of work and family life consisted of financial assistance for families (63% in the Czech Republic, 79% in Slovakia). Of a number of specific family policy measures that might assist in the reconciliation of work and family responsibilities, respondents in both countries selected financial security during periods of maternity and parental leave of sufficient duration as well as child allowances as being of highest importance (Table 1).

[4] Joint project of the Research Institute for Labour and Social Affairs (RILSA) and Masaryk University.
[5] Married couples with both partners aged 20 - 36 years; three quarters of respondents had at least one child aged between 3 - 7 years and one quarter were childless.

Table 1 Selected family policy measures according to importance

	Respondents with children		**Childless respondents**	
	CZ	**SK**	**CZ**	**SK**
Well paid and adequately long parental leave period	49%	47%	50%	44%
Well paid maternity leave	48%	56%	45%	58%
Sufficiently high child allowances	38%	39%	34%	38%
Possibility to work part-time and flexible working hours	33%	22%	26%	23%
Good availability of kindergartens	28%	32%	24%	29%
Affordable housing for families with children	26%	30%	34%	36%
Tax cuts for those with dependent children	14%	11%	20%	10%
Good legal protection of parents in employment	12%	9%	6%	9%
Good access of facilities for children younger than 3 years	11%	6%	15%	6%
Availability of facilities for children in after-school hours	10%	11%	11%	9%
High birth grant	10%	10%	10%	10%

Note: From a list of different family policy measures, respondents chose three measures that they deemed most important. Only those measures that were chosen by at least 10% of respondents are listed.

Conversely, the least important measure according to respondents consisted of the option concerning the sharing of maternity and parental leave between both parents. At the same time, a strong preference was expressed for maternal care for children up to the age of three years (63% both in the Czech Republic and Slovakia). A significant proportion of women expressed agreement that maternal care is the best form of care as long as up to the age of four – albeit more so in the Czech Republic (26%) than in Slovakia (16%) which reflects the extended opportunity to claim the parental allowance up to this age.

Respondents' own behaviour and attitudes was reflected to a great extent in the value they attributed to each of the measures suggested. They tended to expect that if the measures they supported were introduced or secured at the appropriate level, their personal lives would be affected significantly not only in terms of managing the care of their children, but also with respect to their reproductive behaviour, i.e. they considered that it would be easier for them to have the number of children they would ideally like (60% in the Czech Republic and 69% in Slovakia), to have more children or to have them earlier (43% in the Czech Republic and 56% in Slovakia).

Subsequently, these measures and particularly the duration of the parental allowance benefit were addressed in connection with objectives regarding the employment of women, the difficult position of women with small children in the labour market and gender equality (e.g. Hašková 2008, Kuchařová 2009, Kocourková 2009).

In accordance with trends throughout the rest of Europe the parental leave system in the Czech Republic was reformed so as to increase the level of flexibility. Since 2004 parents have been entitled to work without any restrictions while claiming the parental allowance and,

under certain conditions, they are entitled to place their child in a day care facility. The degree of flexibility was particularly enhanced following the introduction of a choice of three parental allowance regimes differentiated in terms of the duration of entitlement (2, 3 and 4 years) in 2008[6] which was followed by the introduction in 2012 of the choice to decide on the monthly amount of the parental allowance (a fixed total sum of CZK 220,000 distributed in monthly instalments with a maximum paid benefit of CZK 11,500 per month) and thus the length of time over which it is claimed (until the child reached 24-48 months old). Nevertheless, although the parental leave system was reformed so as to increase flexibility it was not accompanied by the adequate development of childcare facilities for children under three years of age.

Slovakia, however, has not witnessed the same changes in terms of enhancing the flexibility of the parental allowance system. However, following frequent changes to the conditions of entitlement to the parental allowance throughout the 2000s certain steps have been taken in recent years towards easing a return to the labour market. Since 2011 it has been possible for the caring parent to receive the parental allowance whilst working on the condition that the proper care of the child is ensured. For this purpose, the "allowance for a child in alternative care" was established in 2009 to cover part of the costs incurred by childcare (up to a ceiling of €230 per month per child) if the child does not attend a public (i.e. subsidised) institutional care facility. If childcare is provided by relatives or another person who is not registered to provide such care, the childcare benefit consists of €41.10 per month per child (no written proof of the cost of childcare is required). However, this benefit cannot be claimed in parallel with the parental allowance; therefore, parents are required to choose one of the benefits.

Data and methods

The analysis presented in this study of period and cohort fertility trends in the Czech Republic and Slovakia during the second half of the 20th century and the early years of the 21st century is based on data from the Czech Statistical Office, the Statistical Office of

[6] The three parental-allowance regimes differed in terms of the duration of entitlement and the amount of the benefit. (1) faster drawing of the parental allowance: following the period of maternity benefit, the parental allowance was set at the increased rate (CZK 11 400 - around 50% of the average wage in 2008) until the child reached 24 months old (2) standard drawing of the parental allowance – following the period of maternity benefit, the parental allowance was set at the basic rate (CZK 7 600 - around 33% of the average wage) until the child reached 36 months old and (3) slower drawing of the parental allowance – following the period of maternity benefit or from the birth of the child (if the parent was not entitled to the maternity benefit) the parental allowance was set at the basic rate (CZK 7 600) until the child reached 9 months old and then at the reduced rate (CZK 3 800 – around 16% of the average wage) until the child reached 48 months old.

Slovakia and the Human Fertility Database (http://www.humanfertility.org). Moreover, both the Czech and Slovak statistical offices provide single-year and order-specific fertility data.

In this paper the authors attempt to apply a primarily cohort approach to the analysis. Since the early 2000s many European countries have experienced a rebound in terms of the TFR (Luci-Greulich & Thevenon 2013). However, this rebound has differed significantly from country to country due to background structural differences. Frejka (2011) illustrated that it was merely a historical coincidence that TFRs were increasing in most European countries almost simultaneously. While in most north-western European countries the increase in the TFR occurred towards the end of the childbearing postponement process, in post-communist countries the recuperation in childbearing had only just commenced as the increase in the TFR passed the TFR trough.

The current fertility level depends on both the rate of postponement and the degree of fertility recuperation. Since the period total fertility rate became increasingly distorted by the timing shift, the cohort approach was used in order to analyse recent fertility transformations (Frejka & Calot 2001, Sobotka et al. 2011). From the cohort point of view the postponement and recuperation processes are interconnected within the life course history. Both the postponement and recuperation phases are subject to period effects which differ since postponement and recuperation occur at different times.

The cohort approach was employed so as to obtain a more detailed insight into cohort fertility dynamics in the Czech Republic and Slovakia, i.e. to assess what proportion of presumably postponed births was recovered. The aim was to identify those cohorts that best managed to recuperate fertility differentiated by birth order.

The authors applied the ***basic benchmark model*** in order to analyse the postponement of and recuperation in cohort fertility (Sobotka et al. 2011). They demonstrated trends in cohort fertility using three key postponement transition indicators – initial fertility level, absolute fertility decline at younger ages (P), and the relative degree of fertility recuperation at older ages (RI). The benchmark cohort in the Czech Republic and Slovakia was chosen as that generation of women born in 1965, since this cohort first initiated the fertility postponement trend. Sobotka et al. (2011) suggested, in this respect, choosing one of the cohorts that first experienced the onset of an increase in mean age at first birth that spanned over at least five consecutive cohorts.

In the case of Slovakia, the chosen benchmark cohort clearly fulfils these conditions. With respect to the Czech Republic, it is possible to observe an increase in mean age at first birth among previous cohorts, but only with very low dynamics. In addition, no shift of age-specific fertility rates occurred with regard to older cohorts towards the later timing of first births. Therefore, the 1965 cohort was chosen for the Czech Republic since it exhibits a clear shift in the timing of fertility towards older age.

The following analysis focuses on order-specific differences wherein the overall cohort fertility change is decomposed into three order-specific components: 1, 2, and 3+. The aim is to analyse how the postponement and recuperation process differs by birth order in the Czech Republic and Slovakia.

Moreover, since postponement in both countries commenced with the cohorts born in the mid-1960s and most of the Czech and Slovak generations under study have thus not yet exceeded reproductive age, the authors had to calculate the recuperation index *RI* by the age of 40. They are fully aware of the limitations in the interpretation due to the increasing trend to have children at an advanced reproductive age, i.e. older than 40. However, cross-sectional data shows that today (2014) only 0.5% of first-birth rates and 1.1% of second-birth rates in the Czech Republic and 1.8% of first-birth rates and 1.9% of second-birth rates in Slovakia refer to women older than 40 years. Overall, the shift in childbearing beyond the age of 40 remains slow and therefore does not constitute a significant distortion of the conclusions of the analysis.

The **parity-cohort method** was applied in order to investigate changes in the spacing and quantum of second births among women who had their first child between 1992 and 2012. This time period covers the political transformation period in both countries which featured high unemployment and inflation rates and worsening living conditions (particularly in Slovakia) a subsequent period of economic growth, more favourable housing and family policies between 2005 and 2008 in the Czech Republic, a period of significant economic growth from the early 2000s accompanied by strongly conservative family policies in Slovakia and the economic crisis from 2008 onwards. Both short-term changes in the timing of second births and long-term trends in parity progression ratios are analysed. For this purpose, the authors used a parity cohort design and organised data in a monthly format (month and year of birth and the biological birth order of each child). Data was employed on all live-born children of birth orders 1 and 2 born between January 1992 and December 2013 to women in the Czech Republic and Slovakia. The date of the first birth served for the computation of second birth order fertility rates by time period since the first birth. The data, sorted on a monthly basis, allowed a more precise analysis of possible shifts in fertility timing and quantum during the whole of the period 1992-2012.

Monthly first-parity cohorts represent cohorts of women defined by the month and year of giving birth to a first child. The unconditional fertility rate $f_2(d,c)$ for monthly parity cohorts m is given as:

$$f_2(d,c) = B_2(d,c) / B_1(m=c),$$

where B_2 indicates live births of order 2, d is the time period since a previous birth (birth interval), c denotes monthly parity cohorts and m the calendar month (i.e. $B_1(m=c)$ denotes the total number of live births of order *1* in month m which equals the total number of women

giving birth to their 1st child in month *m* (for more details see Šťastná, Sobotka 2009). According to this approach, births of order 2 at duration *d* are related to the initial number of women giving birth to their 1st child in month *t-d*. Moreover, cumulative progression rates to second birth at selected periods of time were computed for the first-parity cohorts of January 1992 to December 2012.

Results

Completed cohort fertility

Frequent swings in period fertility in the 1960s and 1970s had little impact on completed fertility among Czech women born after the mid-1930s. Women born between 1935 and the late 1950s achieved family sizes of around 2.1 children on average. A gradual decline in completed fertility commenced with those cohorts born after 1960, a trend which accelerated among cohorts entering parenthood after 1990. Completed cohort fertility by age 40 (CCF 40[7]) in the Czech Republic declined continuously below 2 during the fertility postponement process, suggesting that the recent decline in CCF 40 in the Czech Republic could be attributed to a weak level of recuperation, i.e. an insufficient increase in the fertility of women of higher ages.

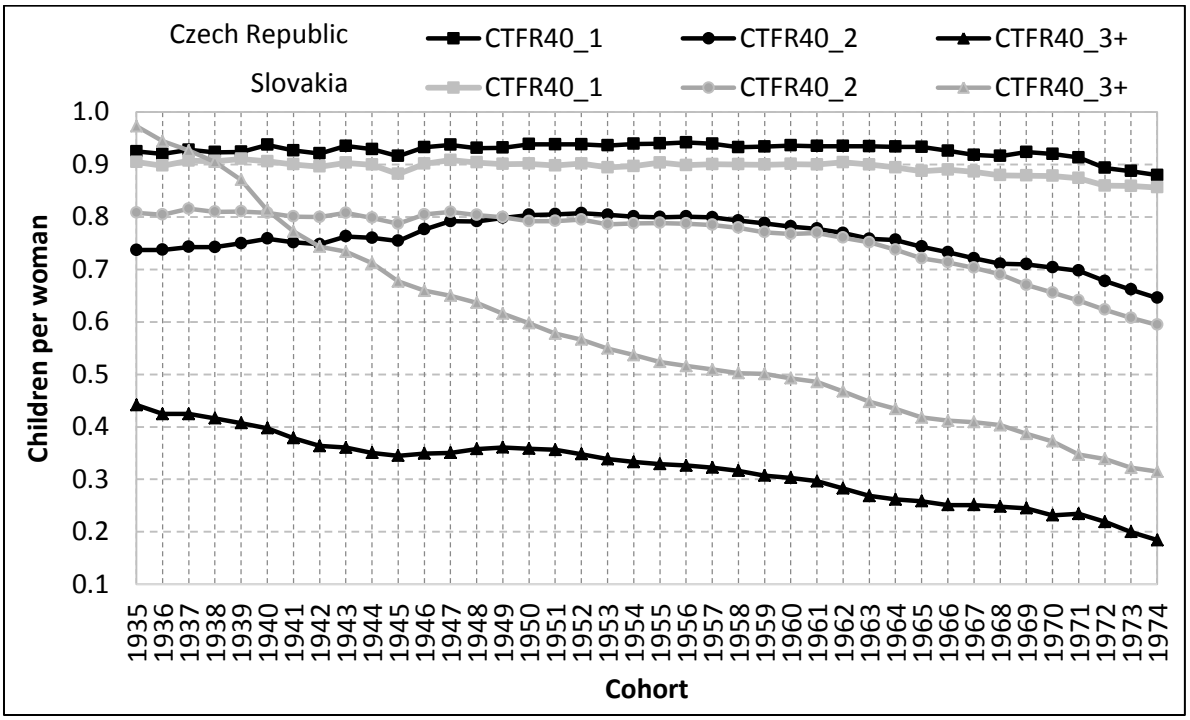
The declining trend in completed fertility rates in Slovakia reflects the transformation from an agrarian society with large families to a modern urbanised, industrial society (Potančoková et al. 2008). Among women born in the mid-1930s to the late 1950s, completed fertility declined from an average of 2.7 to 2.2 children. A CCF of below a level of 2.1 children per woman is documented for those cohorts born after 1964, and cohorts from the late 1960s have fewer than two children on average. A significant decrease in the CCF (as well as CCF 40) in Slovakia was driven mainly by birth order 3+. A higher proportion of families with three or more children historically represented one of the main differences in reproductive behaviour between Slovakia and the Czech Republic. Half of all Slovak women born before 1930 had three or more children compared to one-third of Czech women of the same birth cohorts (Potančoková et al., 2008). The reduction in completed family size applied to first to fourth and higher birth orders. During the communist era, the two-child family model began to prevail in both countries. Women in Slovakia born during the 1950s typically had two children (the proportion of women with two children reached around 45%, Potančoková et al., 2008) and the proportions of childless women and women with one child decreased to 10% and below. With respect to the Czech Republic around 55% of women born

[7] In order to describe the most recent cohorts possible, completed cohort fertility by age 40 (CCF 40) was analysed since the level of fertility after the age of 40 is very low in both the Czech Republic and Slovakia and, therefore, did not have a considerable impact on the level of completed cohort fertility.

between 1950 and the late 1960s had two children (Sobotka et al., 2008) which was at the time unusual in Europe even though the two-child family ideal was becoming popular throughout the continent (of 18 societies analysed by Shkolnikov et al. (2004, cit. from Sobotka et al. 2008), only Bulgarian women born in the early 1960s gave birth to two children more frequently (57%) than Czech women).

According to the latest available data for the early 1970s generation, completed cohort fertility in both countries declined at the same pace. This decline was no longer driven only by the continuing decline in higher order births, but also by a decline in second order births. The decline in completed second order fertility commenced with those generations that entered motherhood during the political and economic transformation period and which initiated the fertility postponement process in both countries. Therefore, it is important to focus not only on the postponement of entering into parenthood and its subsequent recovery, but also on the postponement and recuperation of second order births.

Figure 2 Completed cohort fertility by age 40 (CCF 40) by birth order for the cohorts 1935-1974 in the Czech Republic and Slovakia



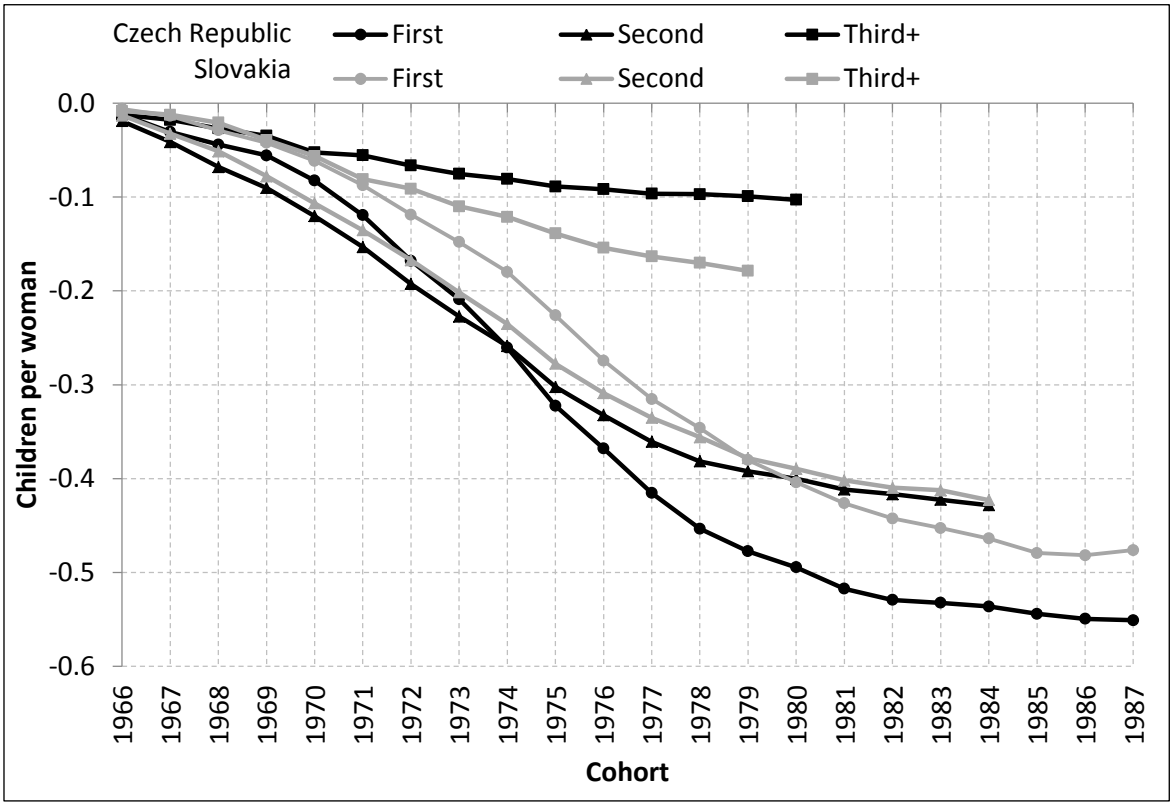
Source: Human Fertility Database

Figures 3 and 4 describe postponement and recuperation for first, second, third and higher births in the Czech Republic and Slovakia. Using the basic benchmark model the authors analysed this process for women born after 1966 using the 1965 cohort as the benchmark for the analysis.

The cohort trajectories of fertility decline at younger ages from the onset of the postponement transition, as measured by the size of the absolute fertility decline at trough age, P, are compared in Figure 3. The comparison of the absolute fertility decline by birth order indicates that in both countries the level of postponement and subsequent recuperation of fertility was closely linked to the biological birth order. Although the process of fertility postponement is generally linked with the postponement of first births, in some generations of Czech and Slovak women a reversal was identified since the postponement of second order births is more pronounced than that of first births. This situation affected cohorts from the second half of the 1960s and the beginning of the 1970s in the Czech Republic and up to the cohorts of the late 1970s in Slovakia. Thus, this concerned generations that commenced the process of fertility postponement and entered into motherhood during the political transformation period. In Slovakia, a more pronounced postponement of second births occurred among a larger number of cohorts than in the Czech Republic most likely as a result of worse living conditions during the transformation period than in the Czech Republic due to higher inflation and unemployment rates and slower economic growth.

Generations born from the first half of the 1980s onwards in both countries exhibit the greatest absolute differences in the cumulative fertility rate of first births - in the Czech Republic it stood at more than 0.5 first child less than in the reference cohort at trough age of postponement and in Slovakia the rate of postponement ranged from 0.40 to 0.48 at first birth. In the case of second births this figure was approximately 0.40 to 0.43 children per woman in both the Czech Republic and Slovakia. Only in the case of third and higher order births was postponement more intense in Slovakia than in the Czech Republic which is related to a significantly higher third and higher fertility rate in the benchmark cohort of 1965 in Slovakia.

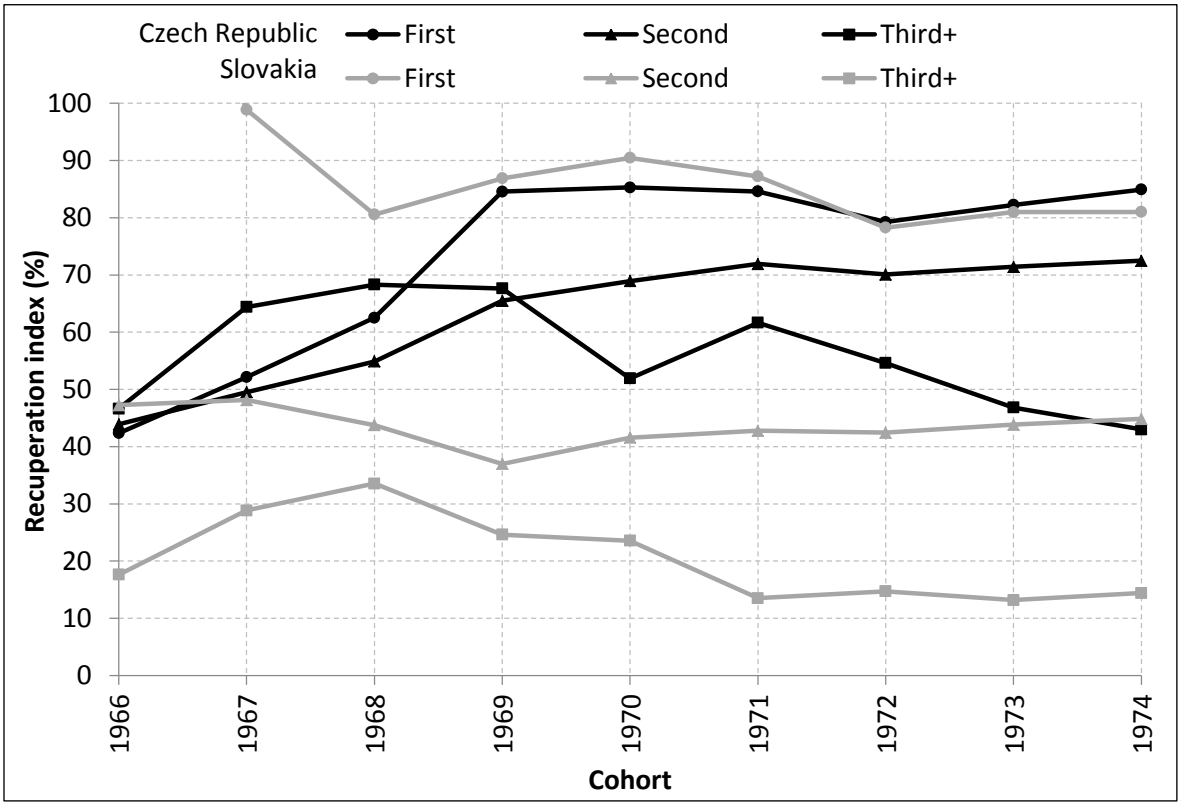
Figure 3 Absolute fertility decline in cohort fertility rates by birth order compared to the benchmark cohort of 1965, Czech Republic and Slovakia



The development of both the cumulative change in cohort fertility rates by birth order compared to the benchmark cohort of 1965 and the recuperation index indicates a more dynamic rate of development for women in the Czech Republic; this is particularly true in terms of children of the second order. In order to discover what proportion of presumably postponed births was eventually 'made up' at later ages, Figure 4 plots the recuperation index by age 40 by birth order for those cohorts born up to the mid-1970s.

Recuperation patterns differed significantly between first and second births. In both countries, a significant recuperation in delayed first births is apparent with a recuperation index surpassing 80% (for all the analysed cohorts in Slovakia and for cohorts born after 1969 in the Czech Republic). In contrast, the recuperation of delayed second births reveals very significant differences between the two countries, with the Czech Republic registering a relatively high rate of recuperation in second birth order (above 70%) in the case of the first half of the 1970s birth cohorts, and Slovakia lagging behind the Czech Republic with less than one half of the early second birth order fertility decline being compensated for.

Figure 4 Recuperation index by age 40 by birth order in the Czech Republic and Slovakia for women born in 1966-1974 (benchmark cohort 1965)



Parity cohort analysis

Figures 5 and 6 show second-birth rates specified by period of time since a previous birth for women who had their first birth in 1992-2012. Rates are counted for monthly parity cohorts and in monthly intervals; however, due to fluctuations only yearly parity cohorts[8] are shown in order to illustrate the main trends. Nevertheless, compared to rates based on yearly information, the monthly format of the analysis allows changes in the timing of the second birth to be depicted more precisely (for more details see Sobotka et al. 2005).

The most noticeable shifts in the Czech Republic are linked with short time intervals (up to 46 months). Figure 5 reveals a decline in second-birth rates in the first three years following the first delivery among women who had their first child in the first half of the 1990s. Conversely, a gradual increase in second-birth rates over longer time (birth) intervals was restored during the 1990s, however it did not fully compensate for the decline in short intervals (the influence of the extended parental allowance up to a child's 4th birthday 1995 can be presumed to have been weak).

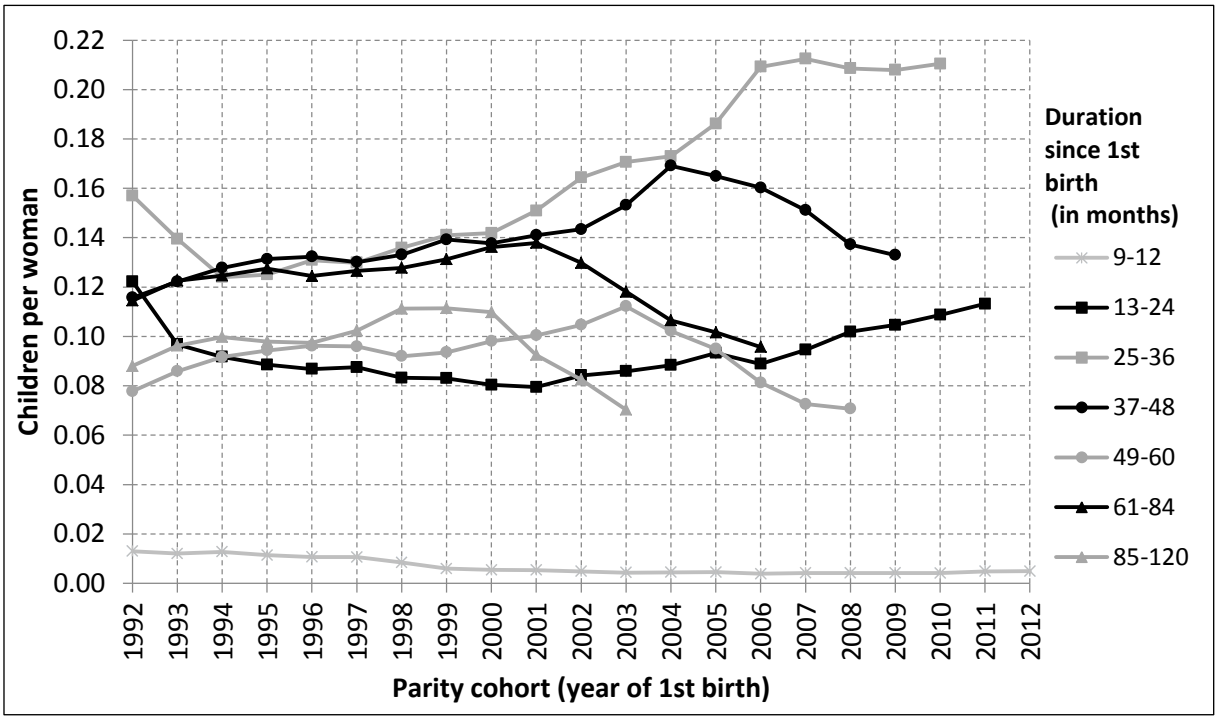
[8] Yearly parity cohort births of order 2 at duration *d* (in months) are related to the initial number of women giving birth to their 1st child in a given year.

With concern to the parity cohorts of 2001-2007 there was a subsequent considerable upward shift in second-birth rates after 25-36 months (3rd year). From the mid-1990s, the highest second-birth rates were found to be in the 3rd and 4th years after first delivery. The three-year interval in the timing of a subsequent child was, importantly, linked to parental leave legislation, i.e. parental leave was fixed in the Labour Code with the mandatory reservation of work positions up to a child's third birthday. The reservation of a work place does not apply to the fourth year despite the introduction in 1995 of entitlement to the parental allowance up to a child's fourth birthday. Therefore, this continuous increase in second-birth rates was probably linked both to a trend to postpone second births and the option to claim the parental allowance. However, from the 2005 parity cohort onwards second births during the 3rd year following the first delivery clearly dominate and fertility rates during the 4th year decline steadily. Figure 5 also shows a decline in second-birth rates in longer time intervals from the first delivery, a trend which was evident among previous parity cohorts.

Commencing with the 2006 parity cohort second-birth rates stabilised at a high level during the third year following first delivery accompanied by an increase in second-birth rates during the second year which may have been influenced by the introduction of the option to claim the parental allowance at an increased rate for a shorter time period in 2008[9]. In particular, mothers who wished to shorten the interruption to their careers caused by caring for children chose this option and shortened the interval between the birth of their first and second child.

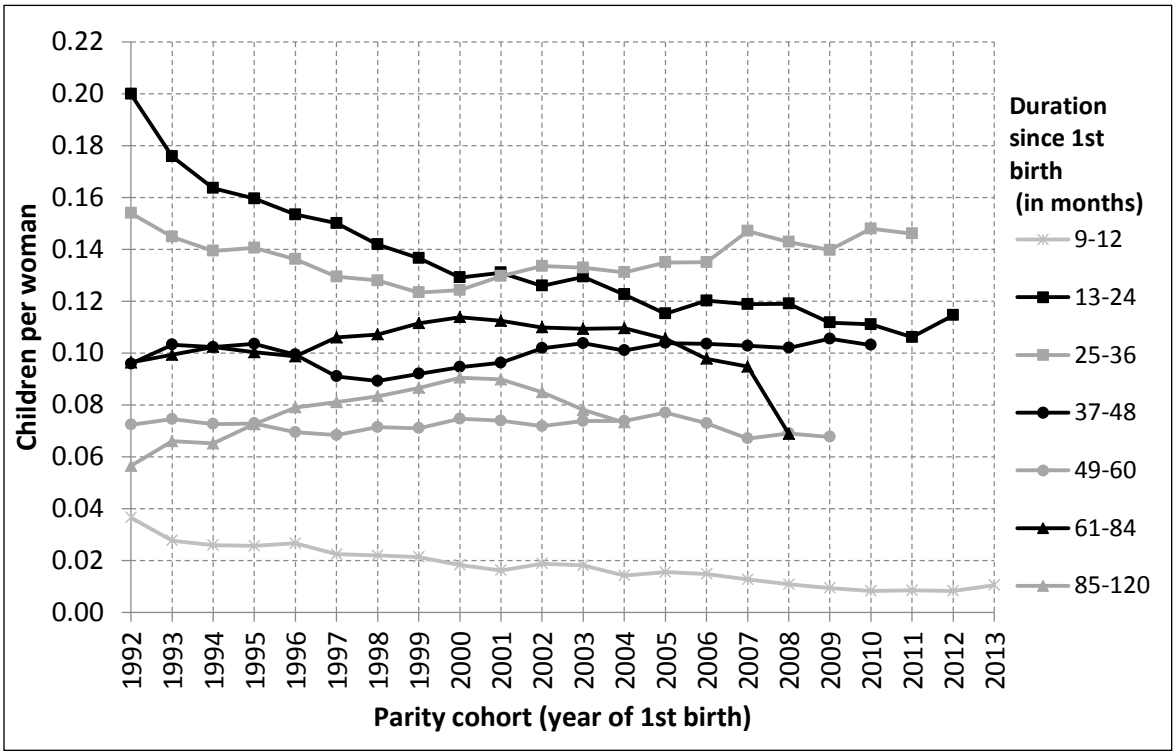
[9] For more details concerning the parental allowance regime see footnote 6.

Figure 5 Duration-specific second-birth rates by year at first birth in the Czech Republic, first-birth parity cohorts 1992-2012



In Slovakia, up to the beginning of the new millennium a trend for the timing of second births a short time following the birth of the first child dominated - the highest second-birth rates were found to be in the 2nd year following first delivery. However, first-time mothers after the year 2000 began to exhibit different behaviour and Figure 6 reveals a gradual long-term decline in the intensity of second births in the second year after the first child, whereas only a very small increase in intensity is evident in the third year. Moreover, there was no compensatory increase in longer birth intervals and there was even a noticeable decline in the interval of 6 years and over. The decline in the second year seems not to have been compensated for by the birth of a second child later and, therefore, the overall cumulative progression rate (see next graph) in selected time intervals was lower than in the Czech Republic.

Figure 6 Duration-specific second-birth rates by year at first birth in Slovakia, first-birth parity cohorts 1992-2012



The results illustrated in Figures 5 and 6 suggest important shifts in second-birth rates for different birth intervals, notably for Czech first-time mothers. In order to discover whether there was any lasting effect and how important such an effect might have been, Figure 7 represents (partial) parity progression ratios two, three, five and ten years after the birth of a first child.

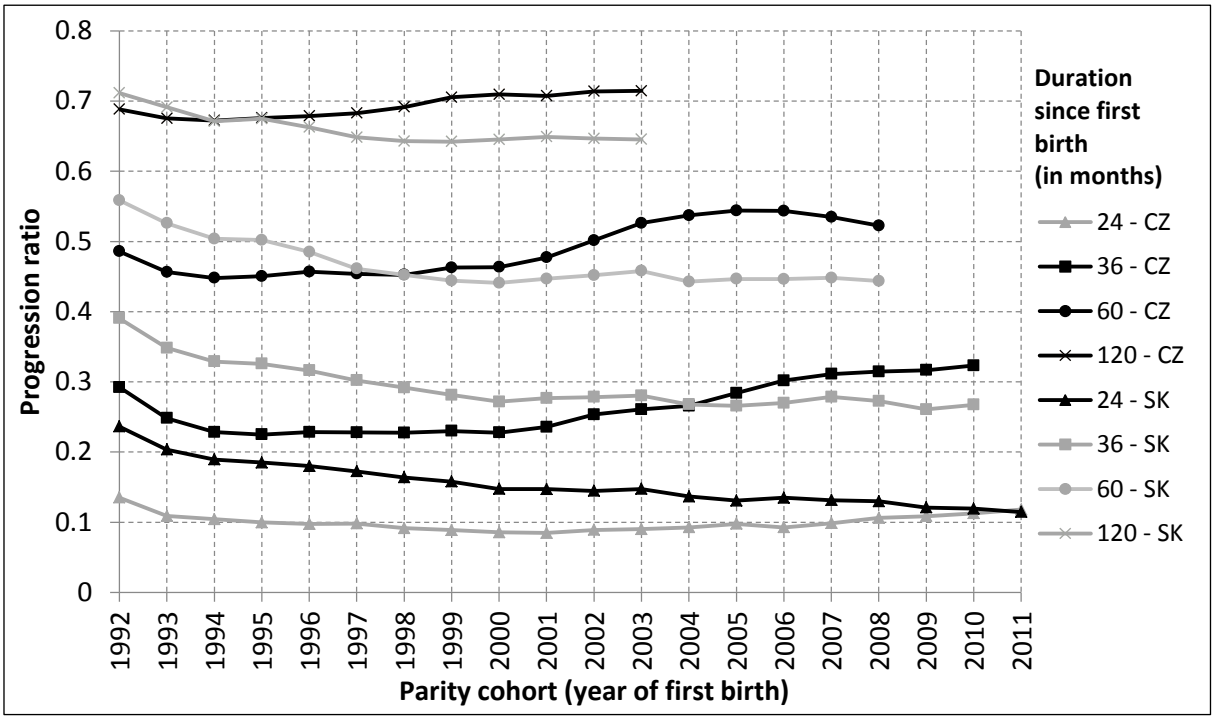
The prolongation of birth intervals in the early 1990s in the Czech Republic and a decrease in the intensity of fertility in short intervals accompanied with no substantial compensation in longer birth intervals in Slovakia had an effect on cohort second-birth progression ratios. Up to 5 years after first birth around half (49% in the Czech Republic and 56% in Slovakia) of 1992 first-time mothers had a second child. Only 67% of the 1993 parity cohort in the Czech Republic and 69 per cent in Slovakia had a second child 10 years after first birth.

Since the mid-1990s cohorts, the effect of birth rates in shorter intervals has ceased to reduce overall progression ratios to second birth in the Czech Republic. Relatively stabilised second-birth rates in the second and third year following first birth have been partly counterbalanced by higher second birth rates over longer time periods and the 1999 parity cohort again exceeded 70 per cent of mothers having a second child within 10 years of the first birth. Conversely, a gradual decline is evident in progression ratios to second birth in

Slovakia and, with regard to the 2003 parity cohort, only 64.5% of mothers had a second child within 10 years of the first birth.

It is apparent that progression ratios to second birth largely depend on the fertility quantum in shorter birth intervals. An increase in second birth rates during the 3rd year (25-36 months) following the first birth is reflected in an increase in progression ratios in each subsequent birth interval in the Czech Republic. Conversely, no increase in short intervals is reflected in the steady slight decline of progression ratios in Slovakia.

Figure 7 Duration-specific progression ratios to second birth in the Czech Republic and Slovakia, first-birth parity cohorts 1992-2011



Discussion and conclusion

To be completed.

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