SPATIAL DIFFERENTIATION AND FERTILITY POSTPONEMENT TRANSITION IN CZECHIA

BRANISLAV ŠPROCHA[1], LUDĚK ŠÍDLO[2]

[1] Institute for Forecasting of the Slovak Academy of Sciences; Department of Human Geography and Demography, Faculty of Natural Sciences, Comenius University in Bratislava, Slovakia
[2] Department of Demography and Geodemography, Faculty of Science, Charles University, Czechia

ABSTRACT

Over the last quarter of a century female fertility in Czechia has undergone dynamic and dramatic change. One of the main indications of this is the postponement of births and associated fertility ageing. This article analyses the spatial differences in the character and intensity of fertility in the early 1990s and the current era and attempts to highlight any stability or change in the spatial patterns resulting from the changes in reproductive behaviour. The authors use a number of indicators to analyse the rate, timing and distribution of fertility by woman's age at the district level (LAU1). Additional indicators are also used to assess the level of birth postponement in young people and recuperation during the second half of the reproductive life span. Since the results suggested that there were some areas which exhibited similarities in the characteristics and trajectory of the fertility postponement transition, cluster analysis was used to produce a spatial classification. Although all Czech districts are undergoing a fertility postponement transition, the tendency is for it to deepen the spatial pluralisation of reproductive behaviour, particularly the timing and internal structure of fertility by woman's age, which is the main spatial differentiation factor affecting fertility.

Keywords: fertility, spatial differentiation, fertility postponement transition, Czechia

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1. Introduction

For more than a quarter of a century female reproductive behaviour in Czechia has been undergoing dynamic and dramatic change.The main indications of this are a fall in fertility, stagnant levels of sub-replacement fertility, birth postponement and changes in the proportion of live births with legitimacy status (Sobotka 2004, 2011; Rychtaříková 2008, 2010). These trends have more or less been evident in all former eastern bloc countries since the late 1980s and early 1990s (Sobotka 2004, 2011). However, the first birth postponement that is gradually affecting all European populations is thought to be crucial (Kohler, Billari, Ortega 2002; Sobotka 2004; Frejka, Sardon 2004, 2006, 2007; Frejka 2011). The newly emerging plurality in family and reproductive life paths and the timing of the transitions lie in sharp contrast to the previous model, which was characterised by early motherhood and parenthood and reproductive lives ending at a relatively early age in narrow age intervals (most frequently by age 30 in women). However, under the new social, economic and political conditions, this model no longer features much in the life paths of men and women born since the late 1960s (Sobotka et al. 2008; Šprocha 2014).

First birth postponement has continued unabated in some European countries for more than four decades and has become one of the dominant symbols of reproductive behaviour in developed societies (Sobotka 2004). Lesthaeghe and Neels (2002, 333) have even ranked it amongst the main characteristics of the second demographic transition, in a shift away from van de Kaa's (1987) original conception in which the most important characteristic was a fall in fertility to below replacement level. Historically, European women have never entered into motherhood as late as they do nowadays (Kohler et al. 2006; Prioux 2005). Kohler, Billari and Ortega (2002) suggest that delaying childbearing is in itself a kind of specific "postponement transition" that is leading to a regime of later fertility. In their view, it is possible that this will lead to the rectangularisation of fertility – increasingly concentration into relatively narrow intervals in the late stage of the reproductive age-interval. Postponement transition leads to rapid, persistent and generally irreversible delays in childbearing across a wide range of socioeconomic conditions (Kohler, Billari, Ortega 2002). If these changes in the nature of reproductive behaviour become as universal and inevitable as some advocates of the second demographic transition believe, it may mean that there will be less international and regional differentiation in fertility (Coleman, 2002). Another potential contributory factor is the social and economic convergence fostered within the European Union by market and institutional integration and by the removal of labour market restrictions and the use of structural funds to promote economic growth in weaker regions (Coleman 2002; Compton 1991; Tomeš 2001; Wilson 1991). Many authors (e.g. Decroly and Grimmeau 1996; Wilson 2001; Dorius 2008; Basten et al. 2012) consequently consider the main trend

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in fertility among women in Europe to be one of convergence. Nonetheless, they also think the main regional differences will prevail (see also Hank 2001; Billari and Kohler 2000. According to Coleman (1996) and Lesthaeghe with Neels (2002), the main factors are persistent and historically-determined differences in cultural factors and attitudes, and they consider these to have far greater influence than socioeconomic differences. One important aspect is that the majority of analyses look only at fertility quantum, usually the total fertility rate. However, as Festy (1981) stated, similar rates levels need not meant that fertility is structured similarly. In this respect Basten et al. (2012) suggest that it is the potential divergences within the process of convergence that are the main indication of the current state and immediate changes in fertility at the sub-national level.

In Czechia a number of publications have dealt with regional fertility differences and their trajectories since 1989 (Bartoňová 1999, 2001; Kretschmerová 2003; Poppová 2004; Kraus 2007; Rychtaříková 2007; Šídlo 2008). Generally, despite the increase in regional social and economic differences seen in the 1990s, there has been a levelling out of fertility and the spatial distribution of fertility has changed (Bartoňová 2001; Rychtaříková 2007; Šídlo 2008). Since the research listed above was performed largely during an era that saw fertility decline and postponement expands, the question is whether this trend can also be observed in the era when Czechia experienced a revival in fertility associated with the onset of recuperation.

The aim of this paper is to highlight regional differences in the tempo and quantum of fertility in Czechia in relation to postponement and recuperation and to highlight any convergent or divergent tendencies in the post-1989 transitionary period. We also compare the early transitionary state with the current one (2012–2014). Furthermore we attempt to identify groups of areas where the nature and intensity of fertility differ. We assume that childbearing postponement is already manifesting in all districts. The question is whether there are already marked differences in the speed at which this is occurring and if so whether there are regional patterns in fertility ageing.

2. Research methodology and data sources

There is a close link between the methodology and indicators of fertility quantum and tempo at the district level, on the one hand, and the availability of the input data, on the other. We used data from the Czech Statistical Office's internal database, specifically live births by mother's age, biological order and place of residence (district) and age structure of female population, where the data refer to 1 July of the given year. Since the district populations are small, we decided to use three-year intervals. Moving averages are used. Since one of the aims of the study is to capture the spatial differences in the tempo and quantum of fertility at the beginning of the transitional period and compare them with the current state (or that of the last available period), we use two three-year periods: 1991–1993 and 2012–2014.

Quantum of fertility in particular districts and periods are expressed as total fertility. Mean age at first birth is used to investigate the tempo of fertility. Another important aspect is the rate of fertility among the youngest group of women (the under 25s) and those 30 and over as a proportion of total fertility. A typical feature of the socialist reproductive model was that fertility was concentrated into narrow age intervals, most frequently in the first half of the reproductive span. We attempted to establish the extent to which the regional populations had abandoned this model by investigating the interdecile range of fertility. A broadening of the range points to increased variation in reproductive paths.

A cross-sectional view of fertility postponement can be expressed as the total age-specific rate of decline in the age groups experiencing a real fall in fertility during the period investigated. Since this affects the younger age groups, we only considered the under 30 age groups. Construed in this way the postponement rate is expressed as the amount (in absolute or relative terms) by which the fertility rate fell in 2012–2014 compared to 1991–1993. Further analysis of the increase in fertility in Czechia between 1999 and 2014 shows that this was largely due to an increase in the fertility rate in the over 25s. This should be seen in the context of the shift to the delayed childbearing stage. The recuperation rate is expressed as the absolute (or relative) increase in the fertility rate among women aged over 25, since in some districts fertility began to increase from the age of 26. Running parallel with the postponement rate is the extent to which female fertility in the over 25s increased compared to the level at the beginning of the observed period. The cross-sectional view of the subsequent fertility postponement transition is provided by the index of recuperation, which was constructed as a fraction of the recuperation and postponement rate. In absolute terms it pointed to an overall decline (or growth) in total fertility in Czech districts.

The variation in the selected indicators – total fertility rate, mean age at first birth and proportion of fertility among women under 25s and over 30s – is measured using selected indicators of variability: mean difference, coefficient of variation and range.

A detailed analysis of fertility showed that the districts did not behave as entirely independent entities but included groups sharing similar features, characteristics and, to some degree, a fertility transition. This led us to create sets of districts containing populations that most resembled each other in terms of fertility. Of the various categorisation methods available, we opted for cluster analysis (Ward's method). The input data for the two periods (1991–1993 and 2012–2014) were standardised and factor analysis was performed to produce Z-scores. To

set the optimum number of clusters in order to maximise their internal homogeneity the grouping index was used and the Euclidean distance between groups of districts was also taken into account.

3. Process of the fertility postponement transiton in districts between 1991–1993 and 2012–2014

In the early 1990s Czechia recorded a dramatic fall in total fertility which peaked in 1999. Regionally in 1991–1993 only two districts (Plzeň-město and Praha[1]) had total fertility of less than 1.6 children per woman. In the city hinterlands and particularly to the south of the country there were other ditricts that had below-mean fertility rates (Fig. 1). Generally districts across Bohemia were affected by lower fertility, while in Moravia it were only the districts of Brno, Ostrava and Prostějov. By contrast many districts in Moravia, and especially those on the border between Moravia and Bohemia had above-mean levels of total fertility rate.

A more detailed analysis of the character of fertility showed that the areas with lower total fertility rate already had a mean age at first birth that was slightly above average. This was linked to lower fertility amongst the under 25s and slightly higher fertility amongst women aged over 30. Given the mean first-order total fertility rate (Fig. 2), it is clear that the main cause was the lower birth rate of second- and later-born children. Hence one cannot simply conclude that the onset of the fertility postponement transition occurred substantially later in city districts in Czechia. Instead the lower fertility rate and slightly higher mean age at first birth were the result of specific factors affecting the local population (e.g. a larger number of inhabitants with higher education, lengthier occupational training, etc.). On the other hand districts with above-mean fertility rates had higher first-birth fertility rates, a lower mean age at first birth, a greater proportion of births amongst the under 25s and a smaller proportion of births among women aged 30 and over. The quantum, tempo and internal distribution of fertility by age did not differ greatly during this period. In most Czech districts the early reproductive path model still prevailed as can be seen in the mean age at first birth and births in women aged under 25 and 30 or over as a proportion of total fertility. Most frequently, women tended to become mothers between the ages of 22.0 and 22.5 (in 48 of the 77 Czech districts). In a further 18 districts the mean age at first birth was lower. In the remaining 11 districts age at first birth was over 22.5, and only in three districts (Praha, Brno-město, Plzeň-město) did it exceed 23.0 years (Fig. 3). The predominance of early motherhood and parenthood was also reflected in the distribution of districts according to births in woman aged under 25 as a proportion of total fertility. Between 1991 and 1993 in Czechia, the mean value of this indicator only just exceeded 58%. A total of 17 districts were below this level, but only the capital (45%), and the cities of Brno (50%) and Plzeň (54%) had levels below 55% (Fig. 4). By contrast in the majority of Czech districts (46 in total) this indicator exceeded 60%; yet it only reached a maximum of 64%. During this period fertility in women aged 30 or over was still relatively low overall. The maximum level was found in the city districts and also partly in districts where births of third- and later-born children are more frequent (Fig. 5).

3.1 Four phases of the fertility postponement process in the regional level

Although fertility postponement affected all Czech districts, the tempo, quantum and extent to which they occurred varied. According to Sobotka (2003, 2004) cross-sectionally four interrelated phases can be identified in fertility postponement. Since postponement largely affected first-order births and was reflected in the rising age of women at first birth, this model depends on how these interact. In stage one before it began to change, first-order fertility was high and regularly exceeded 0.75 children per woman. The mean age at which first-order fertility occurred was well below 26 years of age. In 1991–1993 not a single Czech district had exceeded this limit. Even in city districts, total first-order fertility was still significantly above 0.75 children per woman (for instance in the capital city it was 0.83 children). Stage two saw the postponement of births of first-born children begin and consequently a fall in first-order fertility amongst younger women, which was subsequently reflected in the systemic fall in first-order total fertility. This fell substantially to below 0.75 children per woman. Great differences are not seen between Czech districts in the timing at which it fell to below this level. In 51 districts this occurred in 1992–1994 and in the remaining ones in 1993–1995. However, the timing of the decline to minimum first-order total fertility values displays more marked differences (Fig. 6). In addition an important distinguishing factor appears to be the length of period first-order fertility remained at the minimum level before entering the recuperation stage (Fig. 7). In the majority of districts the first-born fertility rate gradually fell to 0.50–0.55 children per woman, while in 26 it fell below this level.

1 The article used the names of districts in Czech; their locations within the Czechia can be traced in an appendix 1 at the end of this article.

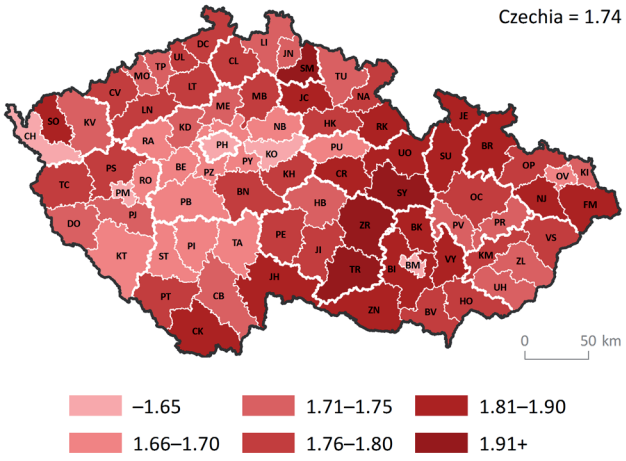

Fig. 1 Total fertility rate, 1991–1993.
Source: Authors' calculations based on CSO data.

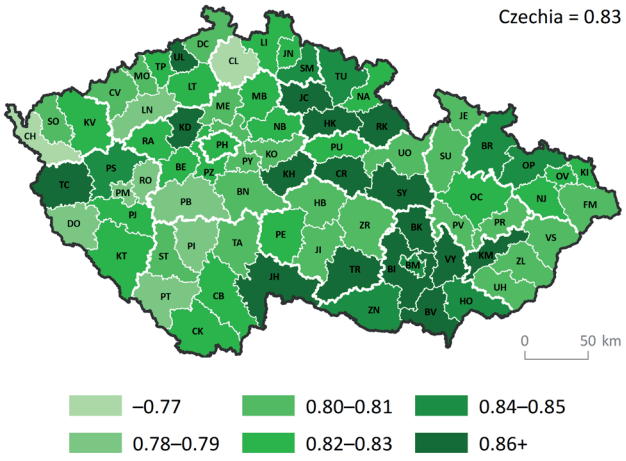

Fig. 2 First-order total fertility rate, 1991–1993.
Source: Authors' calculations based on CSO data.

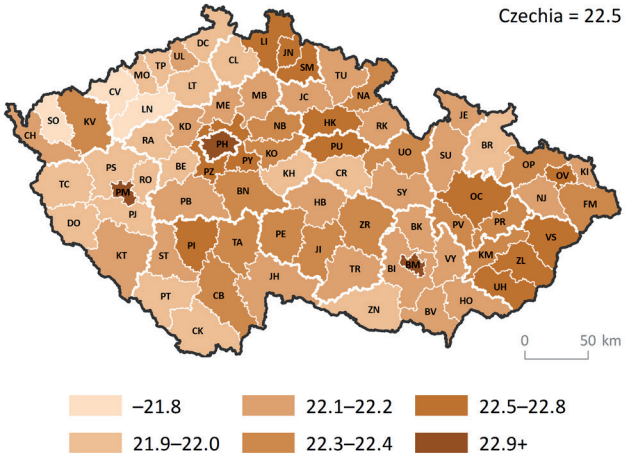

Fig. 3 Mean age at first birth, 1991–1993.
Source: Authors' calculations based on CSO data.

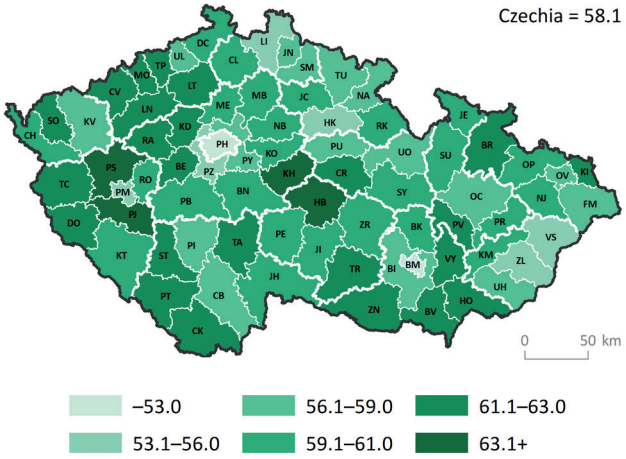

Fig. 4 Fertility of women aged under 25 as a proportion of total fertility (in %), 1991–1993.
Source: Authors' calculations based on CSO data.

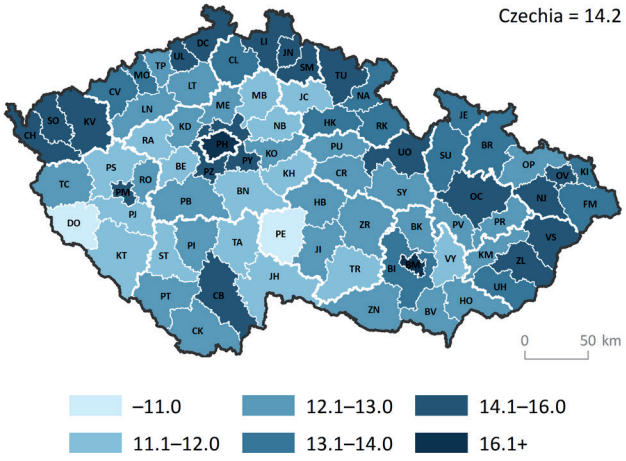

Fig. 5 Fertility of women aged 30+ as a proportion of total fertility (in %), 1991–1993.
Source: Authors' calculations based on CSO data

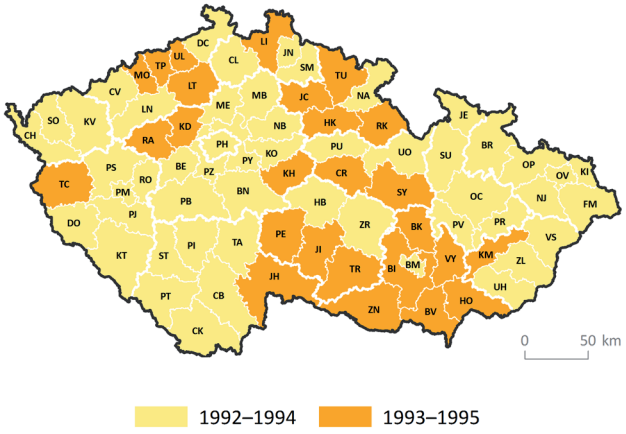

Fig. 6 Period of decline in first-order fertility rate to below 0.75 children.
Source: Authors' calculations based on CSO data

From the late 1990s onwards fertility intensity in Czechia began to rise gradually. This positive trend came to a temporary halt after 2008 as a result of unfavourable economic development (see, for example, Sobotka et al. 2011; Goldstein et al. 2013), but by 2014 total fertility rate had again exceeded 1.5 children per woman. Growth could gradually be seen in all districts (Fig. 8). However, it differed in onset and speed. Generally, the revival in fertility was associated with mothers catching up on delayed reproduction, and this is manifest in stages three and four of the fertility postponement transition. First-order total fertility rate again exceeded 0.75 children per woman and mean age at first birth was over 26. It is clear that the increases in the first-order birth rate and in total fertility rate were closely interlinked. Districts where mothers were more likely to delay the onset of motherhood also saw more dynamic growth in total fertility rate. The last available data from 2012–2014 show that in 16 districts first-order total fertility rate was more than 0.75 children per woman. This was mainly true of the city districts (Praha, Brno) and their hinterlands (Praha-východ, Praha-západ, Brno-venkov) and in districts with important economic centres (e.g. Olomouc, Pardubice, Liberec). In all Czech districts first-order total fertility rate exceeded 0.60 children per woman and in 29 of them it reached around 0.63–0.70 children (Fig. 9).

The growth in first-order fertility at an older age associated with the onset of recuperation in stage three contributed to a sustained increase in mean age at first birth. With the exception of six districts (Teplice, Sokolov, Děčín, Tachov, Chomutov and Most), mean age at first birth in all Czech districts exceeded 26 years (see Fig. 10). Without doubt the longest postponement of motherhood occurred among women in the capital city, in districts in its hinterland and in Brno-město and in Zlín district, where the mean age at first birth in 2012–2014 was over 28 years.

The fertility postponement transition had a marked influence on the status and differences in the quantum and tempo of first-order fertility in the districts. As the graph in figure 11 shows, the districts were initially relatively homogenous but became more heterogeneous over time, and a number of main types of districts can be identified (see also Appendix 2). The first type comprises districts where postponement was less dynamic and where for some women becoming a mother at a young age continued to be an important part of their life biography. The birth rate clearly shows that the transformation in the reproductive behaviour of this group has yet to end. On the other hand there is a group of districts which have already entered the fourth quadrant indicating that the transformation process has ended for them. In 2012–2014 this affected 15 districts overall. There is also a subgroup within them in which the mean age at first birth is now almost 30 years of age. In these districts the fertility postponement transition occurred most rapidly and they currently have the highest rate of first-born children. Most districts fall into the third quadrant. There is little difference in the timing of motherhood or in the extent to which they have successfully entered the recuperation stage. Within this quadrant districts can be identified that have repeatedly exceeded the 0.75 children per woman mark; however, there are districts where the postponement of first-order births has not occurred so intensively. Figure 12 provides greater detail on the way the relationship between first-order total fertility rate and mean age at first birth has changed in selected districts. The districts selected are those where motherhood postponement has been most and least dynamic (Praha-západ and Teplice respectively) and those which have the highest mean age at first birth (Praha). In addition these indicators were also selected for the whole of Czechia for comparative purposes.

3.2 The postponement of motherhood has led to a deepening of regional differences in the character of fertility

The variation in dynamic and extent of shifts from the previous model of reproductive behaviour has led to a deepening of regional differences in the internal character and structure of fertility. The postponement of motherhood and parenthood has resulted in a fall in the intensity and proportion of fertility amongst the under 25s in all Czech districts. In the early 1990s most fertility was concentrated in this age group (45–64%, with a Czech-mean of 58%), but more recently, in 2012–2014, fertility amongst this group has fluctuated between 10% and 30% of overall fertility with a mean of 18% for the whole of Czechia. This process did not occur evenly throughout the country. There are districts where only a very small amount of total fertility occurred at this age. On the other hand there are those in which fertility among the under 25s continues to be an important feature of overall reproduction. The first group includes the districts of Praha and its hinterland and also a substantial part of Moravia, mainly the eastern and south eastern areas (Fig. 13). By contrast districts where fertility among women under 25 is higher than the mean are concentrated in the border areas in an almost continuous line stretching from Tachov to Děčín and Česká Lípa. Some other border districts can be included in this group (e.g. Bruntál and Karviná in the north and Český Krumlov in the south).

An initial fall in the fertility rate and then a gradual rise in the second half of the reproductive span is one of the main features of the transformation in reproductive behaviour. One important indirect symbol of delayed fertility is thought to be the number of births in those aged 30 or over as a proportion of total fertility (e.g. Lesthaeghe and Moors 2000). In the early 1990s fertility in those aged 30 or over was still unremarkable, accounting for only slightly more than 14% of total fertility rate on average. In all Czech districts, however, there was a gradual shift away from this model. An increasingly larger proportion of fertility, and also initial motherhood, began to

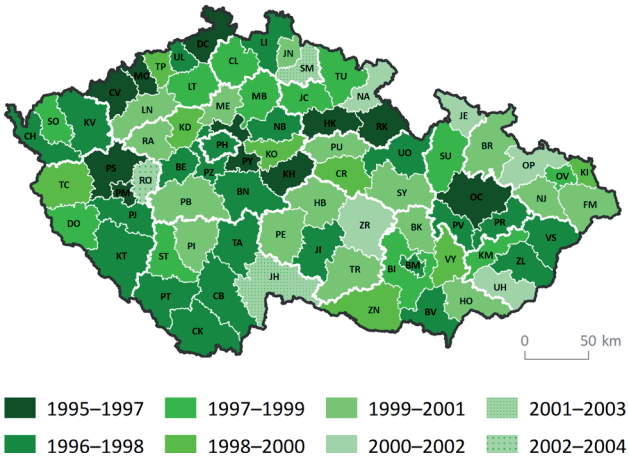

Fig. 7 Period in which total fertility rate fell to its lowest-low level.
Source: Authors' calculations based on CSO data.

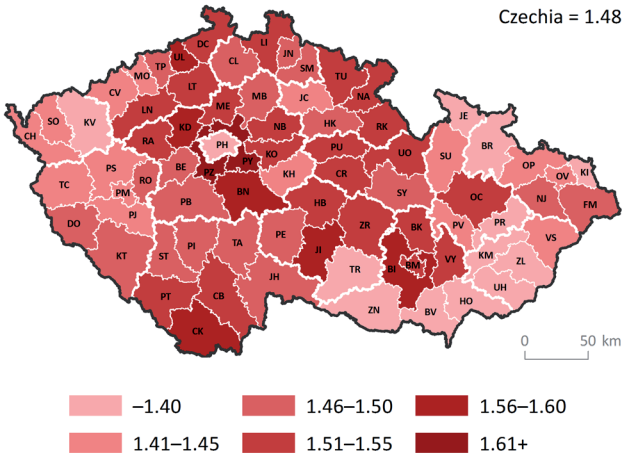

Fig. 8 Total fertility rate, 2012–2014.
Source: Authors' calculations based on CSO data.

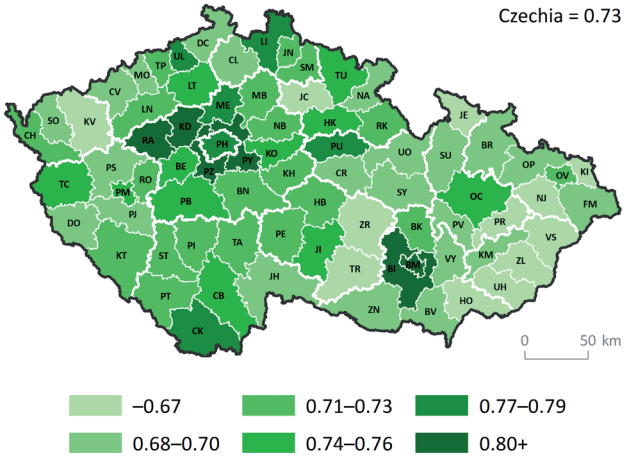

Fig. 9 First-order total fertility rate, 2012–2014.
Source: Authors' calculations based on CSO data.

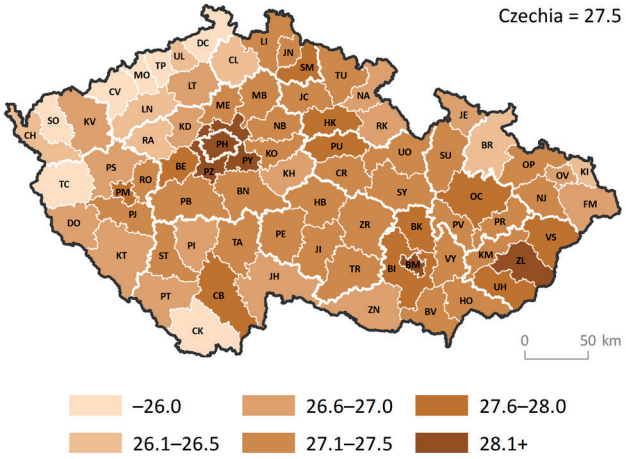

Fig. 10 Mean age at first birth, 2012–2014.
Source: Authors' calculations based on CSO data.

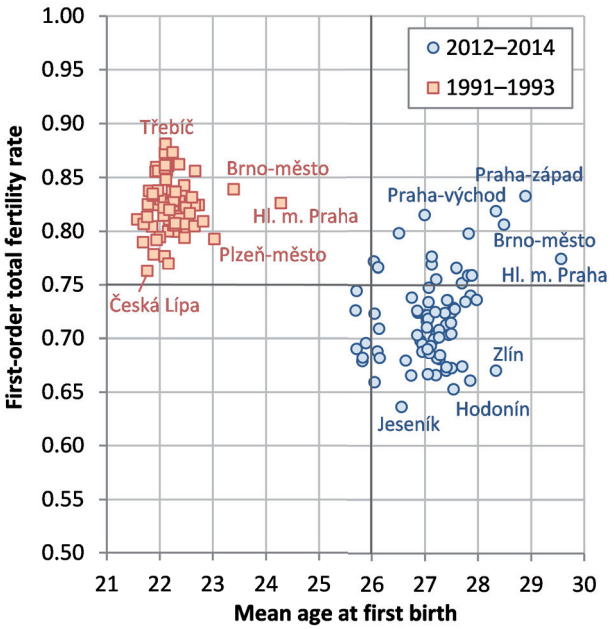

Fig. 11 Relationship between first-order total fertility rate and mean age at first birth, Czech districts, 1991–1993 and 2012–2014.
Source: Authors' calculations based on CSO data.

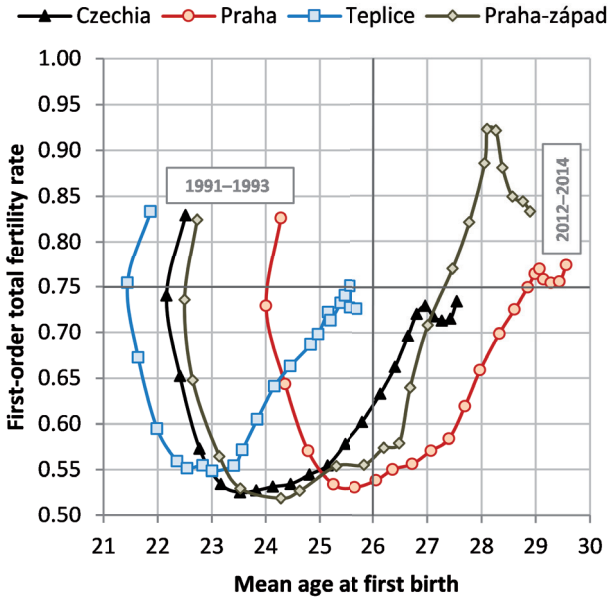

Fig. 12 Relationship between first-order total fertility and mean age at first birth, selected Czech districts, 1991–1993 to 2012–2014 (moving three-year averages).
Source: Authors' calculations based on CSO data.

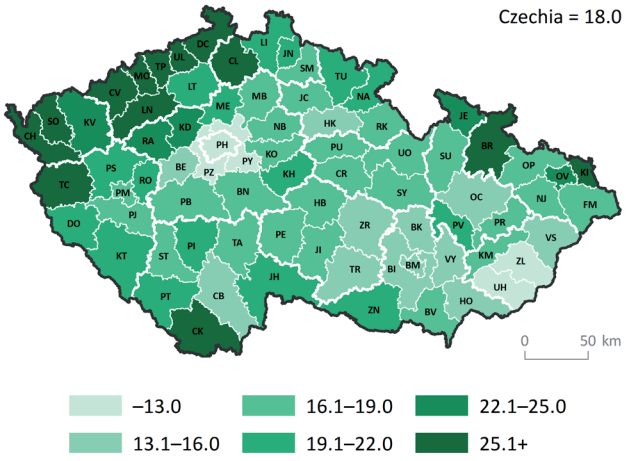

Fig. 13 Fertility of women aged under 25 as a proportion of total fertility (in %), 2012–2014.
Source: Authors' calculations based on CSO data.

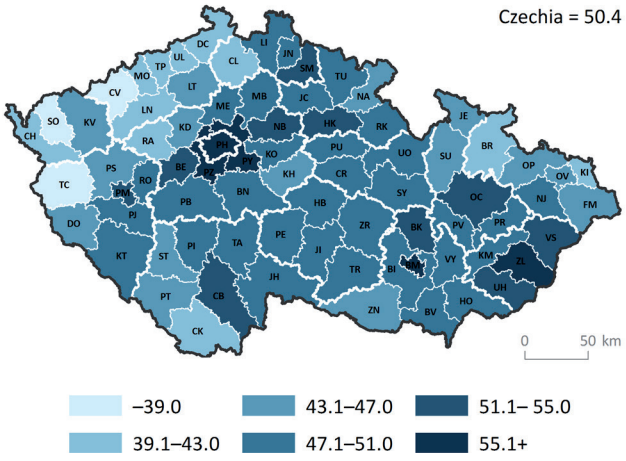

Fig. 14 Fertility of women aged 30+ as a proportion of total fertility (in %), 2012–2014.
Source: Authors' calculations based on CSO data.

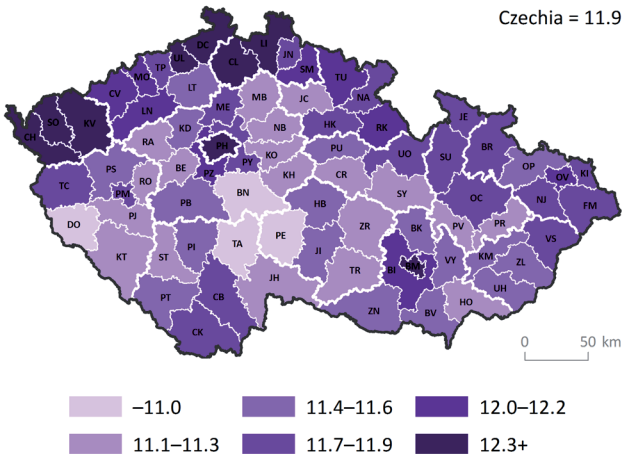

Fig. 15 Interdecile range, 1991–1993.
Source: Authors' calculations based on CSO data.

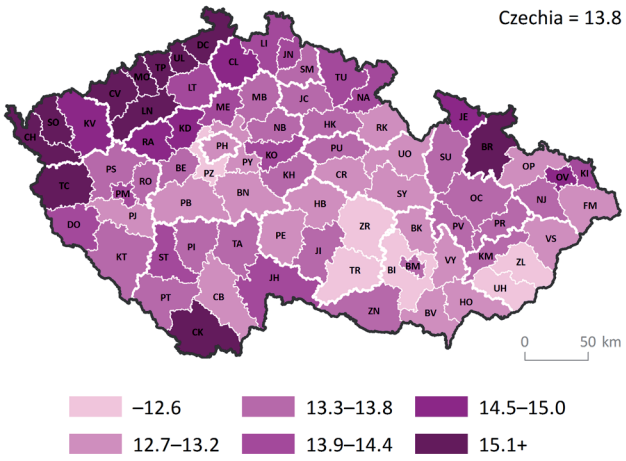

Fig. 16 Interdecile range, 2012–2014.
Source: Authors' calculations based on CSO data.

occur in the second half of the reproductive span. However, there is a marked difference in the rate and extent of postponement as well as in the subsequent recuperation of delayed births. To generalise somewhat, we can state that the mirror image is also true, since districts in which fertility amongst the under 25s dominated in 2012–2014 also had low fertility among women aged 30 and over; by contrast in districts which had the lowest proportion of fertility among the younger group, above mean fertility was concentrated into the second half of the reproductive span (Fig. 14).

Changes in the interdecile ranges also point to the emergence of a variety of models of reproductive behaviour. In the previous reproduction model was concentrated into a narrower age spectrum, with most reproduction occurring in the first half of the reproductive span. The newly emerging model (or models) indicates a lengthening of this interval. In the early 1990s the national interdecile range was just under 12 years (with a minimum of 10.5 and a maximum of 12.5). Data from 2012 to 2014, however, shows that 80% of overall fertility was concentrated into just under 14 years and that the variation in range had also increased (minimum 12 years, maximum 15.6 years). Although this trend can be observed in all districts, there are relatively large differences in the dynamism of this process (the increase is around 0.2–3.6 years). In the early 1990s two main areas can be identified that had a greater interdecile range (Fig. 15). There is a stretch of border districts in the east and north east of the country where reproduction not only began earlier but the proportion of higher-order births also meant that children were more frequently born in the second half of the reproductive span. City districts (Praha, Plzeň and Brno) and their hinterlands represented another area with a higher interdecile range. Here the variety was the consequence of a combination of different models of establishing a family and family size; however, higher-order births played a minimal role in this. Whilst in the first group the greater interdecile range can still be found today (see Fig. 16), this is not the case with the second group. In the city districts and their hinterlands the interdecile range is lengthening at a very slow rate, and in the current era

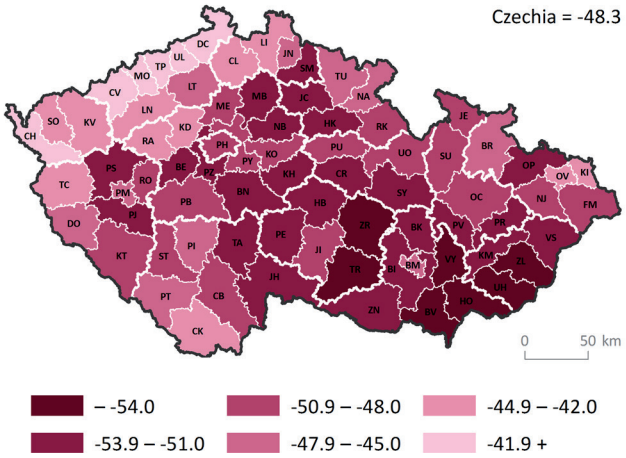

Fig. 17 Postponement rate.
Source: Authors' calculations based on CSO data.

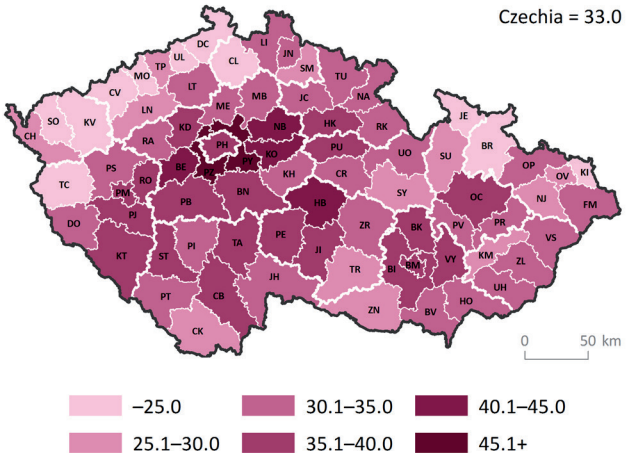

Fig. 18 Recuperation rate.
Source: Authors' calculations based on CSO data.

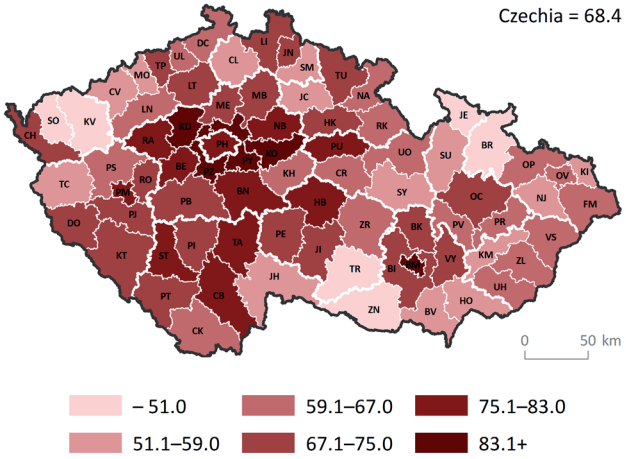

Fig. 19 Index of recuperation.
Source: Authors' calculations based on CSO data.

fertility is still most concentrated by age compared to the rest of Czechia. A similar situation occurred in a number of Moravian districts as well, which represents another area with a low interdecile range. This is caused by significant levels of fertility postponement and is also reflected in the lower decile values. Following Kohler, Billari and Ortega (2002), in relation to these districts one can state that fertility postponement led to the rectangularisation of fertility.

4. A spatial view of fertility postponement and recuperation

A cross-sectional view of the postponement of births, and particularly first-order births, shows that this manifests itself in a fall in fertility amongst young women (most frequently the under 27s). The increase in the rate of fertility in the older age group (most frequently 28 and over) indicates that women are catching up on postponed births. By comparing the age-specific fertility rate in the first (1991–1993) and second (2012–2014) period, it is possible to determine the extent to which this fell and the subsequent level of revival. Relatively speaking it is clear that postponement is substantially responsible for the fall in fertility in many Moravian districts, and for it falling to its lowest level in the border areas in the west and northwest. Consequently in these areas we also find that women under 25 contribute most to overall fertility. Up to 39 districts can be identified in which the fertility rate fell by more than 50% among young people (Fig. 17). Interestingly the city districts (Praha, Plzeň and Brno) tended to display average falls, since in these areas fertility was already lower in this age group in the early 1990s. Just as all districts showed a decline in fertility in the younger age group, there are also indications that they have entered the recuperation stage. The districts differed in the timing, onset and also rate of change. The degree of postponement and the rate of recuperation combine to create an overall deficit in total fertility comparable to that of the early 1990s.

A higher rate of recuperation can clearly be seen in the districts around the Praha periphery and hinterland and also in districts to the south. In Moravia a higher rate was found mainly in Brno and the surrounding area and in Olomouc district (Fig. 18). A low rate of recuperation is mainly found in the border districts in west and northwest Czechia and in some districts in south and north Moravia. This is also closely linked to the distribution of districts in relation to the index of recuperation. It is clear that, with the oft-mentioned exception of Brno and immediate surrounding area, the districts of Olomouc and partly also the city districts of Ostrava, the situation in Moravia is problematic. In Bohemia recuperation has primarily occurred in the area in the west (excluding Cheb) and some districts to the north. As in Moravia, the Bohemian districts that have most successfully compensated for the fall in fertility include those containing the largest economic centres (e.g. Praha and Plzeň) as well as some surrounding districts (Fig. 19).

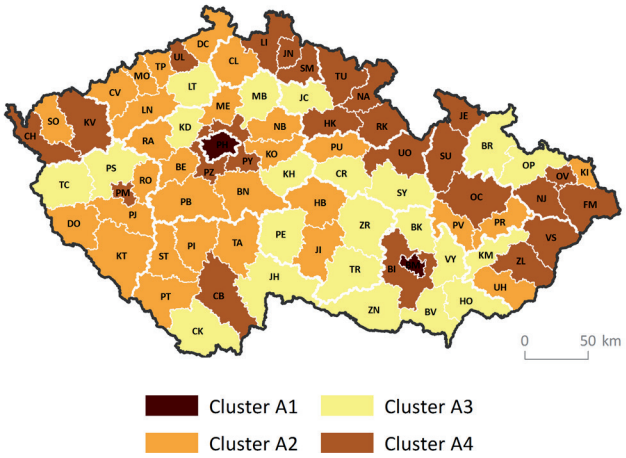

Fig. 20 Regional types of fertility, 1991–1993.
Source: Authors' calculations based on CSO data.

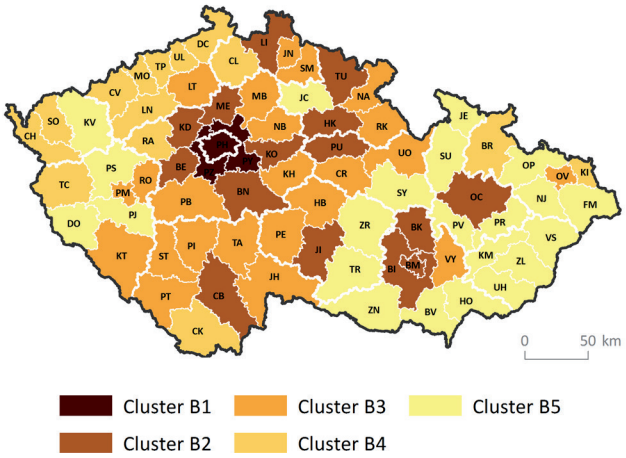

Fig. 21 Regional types of fertility, 2012–2014.
Source: Authors' calculations based on CSO data.

5. Regional typization of districts in Czechia

The fertility postponement transition affects the nature of reproductive behaviour in all districts in Czechia, and a more detailed analysis shows that there are relatively large differences in the timing of the onset, rate and extent of the changes. On the other hand when the indicators were assessed it was evident that some spatial patterns had remained stable and so we attempted to categorise the regions by type so as to identify districts that displayed similar characteristics. The aim was also to determine whether the fertility postponement transition had in any way disrupted spatial patterns. The typization was performed for the most recent analysed period (2012–2014) and the early 1990s (1991–1993). The results obtained are displayed in figures 20 and 21. From the clustering and Euclidean distance it is clear that in the early 1990s reproductive behaviour in the first cluster, comprising Praha district and Brno (Cluster A1), was distinct from the remaining Czech districts. It was characterised by a low level of total fertility rate and fertility among women aged under 25. On the other hand, however, in these districts the mean age was higher, as was fertility at age 30 and over and the interdecile range was greater. The total first-order fertility rate was within the Czech mean. The tempo and structure of fertility would suggest that the onset of the postponement fertility transition occurred earlier; however, the rate of first child births does not point to this (Tab. 1). It could be supposed that, given the particular character of the area, many of these indications existed before reproductive behaviour began to change.

As the values of the selected indicators for the clusters show in Tab. 1, with the exception of the first group, there are no great differences in the tempo and character of reproductive behaviour. Slightly greater differences can be seen in the total fertility rate, which was highest in the third cluster of districts (Cluster A3). The results obtained confirm that there is still a relatively marked uniformity in the reproductive behaviour (apart from the odd exception) established under the previous regime. The spatial distribution of the groups of districts can be seen in detail in Fig. 20.

Tab. 1 Regional categorisation of fertility types, 1991–1993: mean values of selected cluster indicators.

Indicator	Czechia	Cluster A1	Cluster A2	Cluster A3	Cluster A4
Total fertility rate (children per woman)	1.74	1.57	1.73	1.83	1.76
Total first birth fertility rate	0.83	0.83	0.81	0.85	0.82
Mean age at first birth (years)	22.50	24.1	22.10	22.10	22.50
Interdecile range (years)	11.90	12.6	11.60	11.40	11.90
Fertility in the under 25s (%)	58.10	46.5	60.90	61.60	57.60
Fertility at 30 and over (%)	14.20	20.0	12.70	12.30	14.40

Again, in 2012–2014, Praha and the districts to the east and west of Praha formed a separate cluster (Cluster B1). However, in contrast to the situation in the early 1990s, reproductive behaviour differed less, since early on (in terms of the distance and progression of the clustering) a second group attached itself to it comprising districts in Praha and Brno hinterlands and districts with important economic, administrative and cultural centres (e.g. Olomouc, Jihlava, Pardubice, České Budějovice, Hradec Králové and Liberec). In these groups (Cluster B2) the reproductive path typically had a later onset, fertility was concentrated in the second half of the reproductive span, fertility was lower amongst the under 25s, the interdecile range was narrower and recuperation was more rapid. This was also linked to higher first-order fertility rate (Tab. 2). Interestingly, the second cluster of districts had the highest total fertility rate in all groups and even the first cluster no longer had the lowest fertility rate.Generally there was increasing proximity in the fertility levels in the groups of districts. Paradoxically this contributed to the difference

in the intensity at which first children were born. The districts that had successful transformations (particularly clusters B1 and B2) saw a significant catch-up in the onset of motherhood, while in some other districts (primarily cluster B5) the recuperation process was suppressed and total first-order fertility rate remained substantially lower. Thus the first cluster of districts displayed a greater concentration of delayed fertility, while in the fourth group of districts (Cluster B4) the opposite occurred. The mean age at first birth and fertility at age 30 and over were lowest here. This is closely linked to fertility being most pronounced in the young (under 25s) and the interdecile range being the largest. Table 2 confirms that nowadays the main distinguishing factor in Czech districts is not fertility quantum but fertility tempo and distribution by age.

Tab. 2 Regional fertility types, 2012–2014: median values of selected cluster indicators.

Indicator	Czechia	Cluster B1	Cluster B2	Cluster B3	Cluster B4	Cluster B5
Total fertility rate (children per woman)	1.48	1.44	1.54	1.48	1.46	1.42
Total first birth fertility rate	0.73	0.78	0.77	0.72	0.70	0.68
Mean age at first birth (years)	28.00	29.90	28.20	27.70	26.50	27.80
Interdecile range (years)	13.90	13.00	13.50	13.70	15.10	13.10
Fertility in the under 25s (%)	18.00	10.90	16.60	18.70	27.90	16.80
Fertility at 30 and over (%)	50.40	62.90	51.60	48.30	40.60	48.80

6. Fertility postponement transition and divergence within convergence?

Opinions differ in the literature on developmental trends in spatial differences in fertility. As we stated in the introduction, on one side there are those who argue that the trend is one of convergence and on the other those who argue that divergence is key. In addition, it is important to note that some authors distinguish between the national and regional level. Regionally one can suppose that certain characteristics of reproductive behaviour are being maintained. The question remains whether the two-decade long dramatic changes in the nature of fertility ongoing in some Czech districts will bring them closer to local populations or whether they will have a distancing effect. Given that it has been shown that in all districts the main mechanism behind this is the onset of the fertility postponement transition, can they be expected converge over time? The majority of the research that attempts to resolve this issue looks at fertility rates alone. As Festy (1981) and more recently Basten et al. (2012) have noted, the internal structure and character of fertility is also important. In other words, it is possible to have the same total fertility rate even when the reproductive behaviour of particular populations is quite different. Hence we have attempted to analyse the variability in the timing and structure of this process.

Generally all the characteristics of variability used (range, coefficient of variation, mean difference) indicate that in the 1990s variation in total fertility rate declined initially and there was greater proximity between districts. This corresponds to the fact that in all districts fertility rates fell among the younger women as a result of the postponement of births, especially first-order births. In the majority of districts this process peaked in the late 1990s which is also when we find the lowest values in the variability indicators. In the next stage of development the key factor is how successfully women catch up on delayed reproduction. It has been shown that timing, rate and extent of recuperation are spatially distinct and this is reflected in the growing variation (Fig. 22). However, we identified a gradual revival in fertility amongst the older population in all districts and recently a degree of convergence has been evident. In the recuperation stage of the transformation overall fertility increases and the new model of reproductive behaviour stabilises. The difference in timing and extent of this process means we can expect fertility rates in Czech districts to display greater proximity. On the other hand, however, the level of compensation in the successful and less successful districts selected suggests that total fertility rate values will also continue to exhibit significant regional differences.However the situation is completely different when we come to analyse the variation in mean age at first birth and the contribution fertility in women under 25 and aged 30 and over makes overall, which reflects the timing and internal structure of the process. As many of the previous findings have indicated, at the district level there is significant diversification in the reproduction models that affect the age of entry into motherhood and parenthood. This has been confirmed by the variation in mean age at first birth, which rose continually until stabilising in the last decade at a significantly higher level than it was in the early 1990s (Fig. 23). The divergence in fertility among women aged under 25 and 30 and over as a proportion of total fertility rate continues into the present (see Fig. 25). The main factor behind the variation in fertility in Czech districts is timing and internal structure of fertility by age. Following the onset of recuperation, the fertility rate begins to convergence across districts; however, the timing and especially distribution by age exhibit marked divergence. This confirms earlier conclusions that there are multiple models of reproductive behaviour emerging at the regional level, and these will continue to influence the character of fertility in the near future.

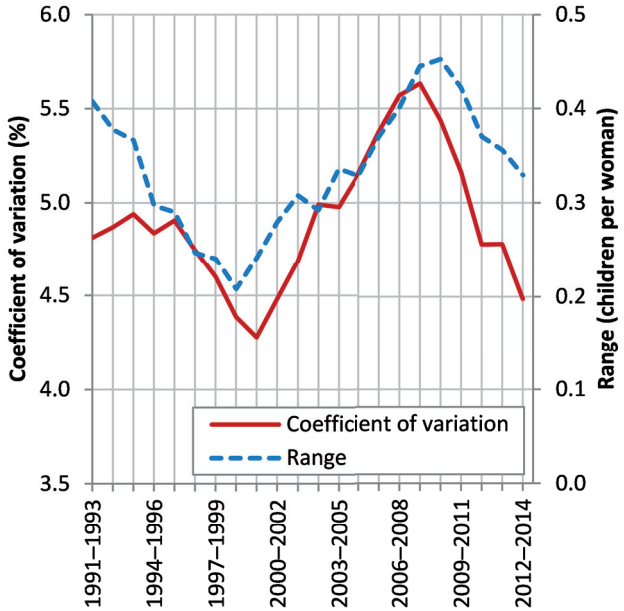

Fig. 22 Range and coefficient of variation in total fertility in Czech districts.
Source: Authors' calculations based on CSO data.

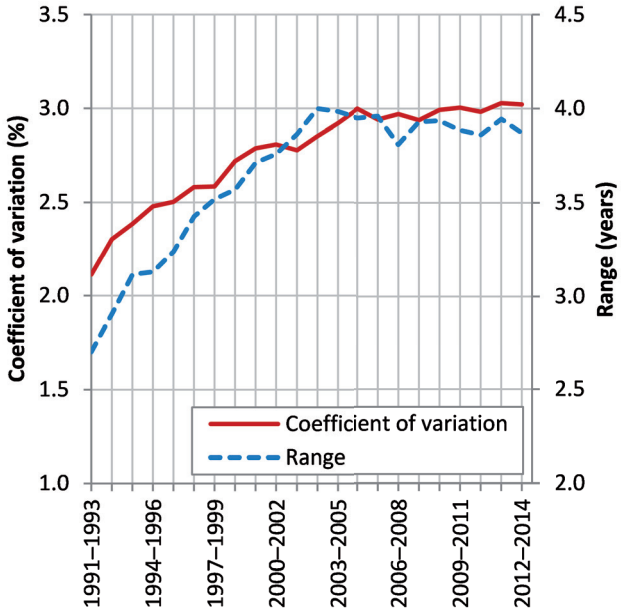

Fig. 23 Range and coefficient of variation in mean age at first birth in Czech districts.
Source: Authors' calculations based on CSO data.

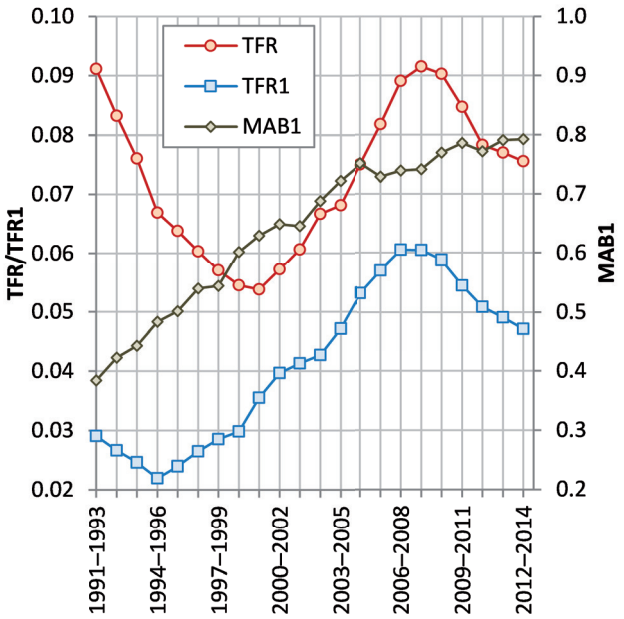

Fig. 24 Mean difference in total fertility rate, first-order total fertility rate and mean age at first birth in Czech districts.
Notes: TFR = total fertility rate, TFR1 = first-order total fertility rate, MAB1 = mean age at first birth.
Source: Authors' calculations based on CSO data.

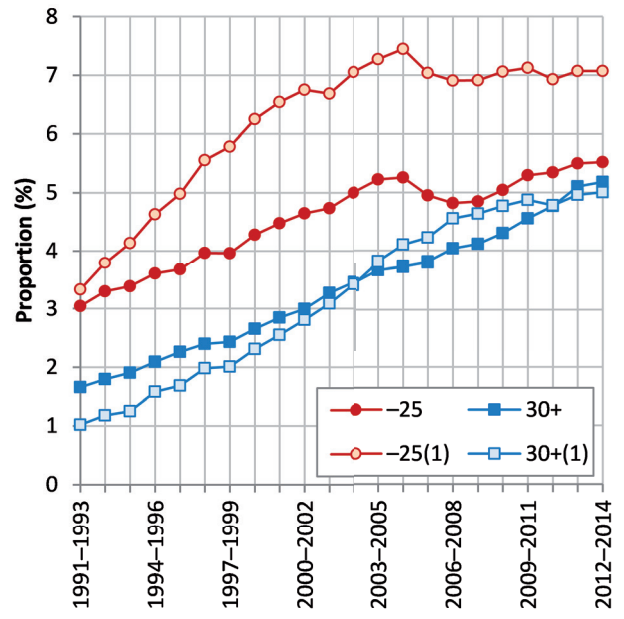

Fig. 25 Mean difference in fertility in women under 25 and 30 or over as a proportion of total fertility in Czech districts.
Note: (1) indicates fertility among women in that age group as a proportion of first-order total fertility.
Source: Authors' calculations based on CSO data.

7. Conclusion

Since the early 1990s fertility in Czechia has undergone substantial change. The post-late 1960s generations have gradually rejected the early reproductive path pattern and increasingly opted to have their first child at an older age. The changes in the timing of fertility are closely linked to the fall in the cross-sectional intensity indicators (see e.g. Bongaarts and Feeney 1998; Kohler, Billari and Ortega 2002) to well below replacement level. The reconstituted paths to adulthood and associated multiplicity of life paths at the reproductive age are behind the changes in the character and nature of young women's reproductive careers. We are witnessing a marked heterogenisation of reproductive behaviour. These and other changes can clearly be seen in all districts in Czechia. At the early stage of transformation the differences in timing and the internal age distribution of fertility were not substantial because the

previous reproductive behaviour model was largely spatially uniform. The exception was city districts where the mean age of childbearing and the proportion of fertility in the second part of reproductive span were slightly higher than the national mean, while the fertility rate was below it. In this case the transformation in reproductive behaviour started very rapidly. It seems that in this environment the discontinuity in living conditions was most quickly reflected in changes in fertility. During the transition to the new reproductive regime a number of advantages emerged or one could say this was a pragmatic response to market conditions in the economic centres that were exercising greatest pressure on high-quality, flexible human capital, which is largely incompatible with early motherhood and parenting. Moreover this affects districts near cities or containing cities, and new reproductive patterns emerge here with greater ease because of the anonymity of the urban environment. Above all they are the areas least affected by the negative consequences of the economic transition and have a higher living standard over the long term. In conjunction with education level the quickest means of spreading information about the new opportunities in planning parenthood and greater accessibility accelerate the process of postponed childrearing. It seems that these environments can be identified as the forerunners of the transformation in reproduction, whose inhabitants are according to Coale (1973) ready, willing and able to rapidly change their reproductive behaviour. The postponement of first-order births, however, began in all Czech districts back in the early 1990s. This also testifies to how quickly the young generation of women was able to abandon the reproduction model that had prevailed for decades. On the other hand, postponement differed in speed, level and length. From around the end of the 1990s, it is possible to identify the onset of recuperation of postponed births in Czechia. Again it was the case that this stage in the transformation of reproductive behaviour began earlier in the largest city districts and districts with economic centres. Moreover, it was shown that these areas also often numbered among the most successful ones. This means that they saw total fertility rate increase overall and in many cases to above the national mean, but there was also a significant shift towards postponed fertility. This can be seen in the fact that these areas had the highest mean age at first birth and the greatest proportion of fertility among those aged 30 or over. Reproduction among the under 25s has become a marginal phenomenon in these areas. In this respect the neighbouring districts found in the west and north-west of Czechia and some border regions to the north and south stand out since fertility at a younger age is still an important part of the life stories of the female population (we assume that in these regions the fertility in young age will remain important parts of the reproductive behavior of the local population – this is not temporary effect of the process of postponement fertility transition). The current fertility rate in Czech districts is affected not only by a decline in fertility among the young but also increasingly by the extent to which it is pushed into the second half of the reproductive span. The low rate of recuperation from the substantial postponement in fertility has been shown to be the most important cause of the lag seen in most of the Moravian districts, which are behind the national mean. The ongoing transformation in fertility in Czechia has led to a significant change in spatial patterns of reproductive behaviour. On the other hand some aspects have been maintained over a long period of time. These are the nature of fertility in the largest city districts and economic centres across the country and in border areas in the west and north-west. What is new is the status of a number of districts in Moravia. It seems that the Moravian regions, with the odd exception, can be categorised as belonging to a group of districts s that have adapted least well to the new changes in reproductive conditions. Since the early 1990s these have contributed not only to the convergence but also the increasing heterogenity of the fertility rate in regions, and this is closely linked to the timing and extent to which reproduction has been postponed. In recent years all districts have started to recuperate from postponement and so a degree of convergence can be seen. On the other hand, what was originally an almost spatially uniform model of early reproductive paths and the fertility associated with it no longer apply in the new conditions and have been largely abandoned. The tempo and distribution of fertility by age, which is closely linked to the process of postponement and subsequent recuperation, has become one of the most important spatial factors distinguishing reproductive behaviour in Czech districts.

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RESUMÉ

Prostorová diferenciace transformace plodnosti Česku v důsledku procesu odkládání)

Reprodukční chování žen v Česku se od počátku 90. let minulého století výrazně změnilo. Generace žen, které se narodily na konci 60. let, a které by za předpokladu trvání předchozího reprodukčního modelu vstupovaly do mateřství, postupně odkládaly tento vstup do vyššího věku. Důvodem byly celkové změny ve společnosti a nové možnosti seberealizace žen v reprodukčním věku v rámci svých životních drah. Změny v časování měly za následek také snížení celkové intenzity plodnosti, a to hluboko pod záchovnou míru, přičemž v rámci jednotlivých okresů Česka se tyto změny projevovaly s rozdílnou intenzitou a délkou trvání.

Změny v reprodukčním chování však byly natolik výrazné, že docházelo po celá devadesátá léta k postupné homogenizaci reprodukčního chování, jelikož meziregionální rozdíly v časování a vnitřní struktuře plodnosti nebyly velké. Výjimkou byly pouze okresy s populačně velkými městy, které měly specifické podmínky (hospodářské, vzdělanostní…) pro to, aby transformace reprodukčního chování u nich nastoupila dynamičtěji než na ostatním území. Teprve na přelomu tisíciletí začalo docházet k postupné heterogenizaci plodnosti, přičemž proces odkládání rození dětí prvního pořadí byl započat ve všech okresech Česka již v první polovině 90. let. Můžeme to vnímat jako důkaz, jak razantně dokázala mladá generace opustit desetiletí převládající model reprodukce. Na druhou stranu se ukázalo, že i proces odkládání měl různou dynamiku, úroveň i délku trvání. Probíhající transformace plodnosti výraznou měrou přispěla ke změně některých prostorových vzorců reprodukčního chování, přesto některé aspekty zůstávají dlouhodobě zachované. Jde především o charakter plodnosti v okresech s populačně největšími městy, kde došlo k nástupu rekuperace odložených porodů již na konci 90. let, či příhraniční oblasti západu a severozápadu, vyznačující se celkově vyšší intenzitou plodnosti, a to především v mladším věku. Celkově novou pozici naopak zaujímá pozice většiny okresů na Moravě, které můžeme až na malé výjimky zařadit do skupiny okresů nejhůře se přizpůsobujících novým reprodukčním podmínkám, přičemž důležitou příčinou zaostávání většiny moravských okresů za celorepublikovým průměrem se ukazuje být především nízká rekuperace porodů ve vyšším věku. V posledních letech lze ale již sledovat ve všech okresech dobíhání procesu odložených porodů, čímž jsme opět svědky určitých konvergenčních trendů. Vývoj v posledních letech ukázal, že původně takřka uniformní model brzkých reprodukčních drah, a s tím související charakter plodnosti, se v nových podmínkách. Právě časování o rozložení plodnosti podle věku, které úzce souviselo s procesem odkládání a následné rekuperace, se staly jedním z nejdůležitějších prostorových diferenciačních faktorů reprodukčního chování v okresech Česka.

Branislav Šprocha
Institute for Forecasting of the Slovak Academy of Sciences
Šancová 56, 811 05 Bratislav, Slovakia

Department of Human Geography and Demography
Comenius University in Bratislava, Faculty of Natural Sciences
842 15 Bratislava, Mlynská dolina, Slovakia
E-mail: branislav.sprocha@gmail.com

Luděk Šídlo
Department of Demography and Geodemography
Charles University, Faculty of Science
Albertov 6, 128 43 Praha 2, Czechia
E-mail: ludek.sidlo@natur.cuni.cz

Appendix 1 Administrative divisions of Czechia into districts.

Appendix 2 Table of calculated and used indicators of fertility.

District	1991–1993						2012–2014						PR	RR	IR
	TFR	TFR1	MAFB	–25	30+	IDR	TFR	TFR1	MAFB	–25	30+	IDR			
ČR	**1.74**	**0.83**	**22.5**	**58.1**	**14.2**	**11.9**	**1.48**	**0.73**	**27.5**	**18.0**	**50.4**	**13.8**	**–48.3**	**33.0**	**68.4**
Hl. m. Praha	1.54	0.83	24.3	45.1	20.7	12.6	1.40	0.77	29.6	10.8	64.1	13.1	–48.0	38.4	80.1
Benešov	1.79	0.80	22.4	60.1	11.9	10.9	1.57	0.73	27.5	16.9	49.6	12.9	–51.2	39.2	76.6
Beroun	1.69	0.83	22.0	61.6	11.6	11.3	1.50	0.75	27.7	15.6	52.4	13.7	–52.7	40.9	77.7
Kladno	1.71	0.87	22.2	62.0	12.6	11.6	1.60	0.81	27.0	22.6	46.4	14.7	–44.1	37.5	85.0
Kolín	1.65	0.80	22.3	60.6	12.2	11.1	1.52	0.74	27.4	18.4	50.1	13.9	–48.0	40.4	84.2
Kutná Hora	1.79	0.86	21.9	63.8	11.2	11.1	1.45	0.72	27.0	19.9	46.7	13.6	–53.2	33.8	63.6
Mělník	1.74	0.80	22.2	60.5	13.0	11.8	1.51	0.77	27.1	20.1	48.3	13.9	–48.5	34.9	72.0
Mladá Boleslav	1.77	0.83	22.2	60.8	11.8	11.3	1.48	0.71	27.4	17.7	49.5	13.4	–51.6	35.0	67.9
Nymburk	1.67	0.82	22.3	60.8	11.5	11.1	1.51	0.72	27.5	16.9	51.1	13.4	–51.8	41.9	80.9
Praha-východ	1.69	0.81	22.5	58.4	14.4	11.9	1.68	0.82	28.3	12.3	56.4	12.6	–50.7	50.4	99.3
Praha-západ	1.70	0.82	22.7	55.2	14.5	12.0	1.64	0.83	28.9	10.2	59.0	12.4	–51.9	48.4	93.2
Příbram	1.70	0.78	22.1	60.4	12.5	11.4	1.47	0.74	27.4	16.2	50.0	13.0	–50.5	36.4	72.2
Rakovník	1.69	0.82	22.0	63.0	11.8	11.3	1.52	0.80	26.5	22.9	41.9	14.5	–44.3	34.1	76.8
České Budějovice	1.73	0.83	22.4	57.0	14.8	11.9	1.52	0.76	27.8	14.5	53.3	12.8	–50.3	38.1	75.7
Český Krumlov	1.87	0.83	21.8	61.5	12.8	11.7	1.56	0.77	26.0	26.0	42.6	15.2	–44.7	27.8	62.1
Jindřichův Hradec	1.86	0.86	22.1	60.5	12.0	11.3	1.46	0.70	26.9	19.1	47.6	13.8	–51.6	30.4	58.9
Písek	1.70	0.79	22.5	58.0	12.9	11.4	1.47	0.72	27.0	19.4	47.8	13.6	–46.7	33.2	71.1
Prachatice	1.79	0.79	22.0	62.1	12.8	11.5	1.52	0.72	26.9	20.1	44.4	13.6	–47.4	32.9	69.3
Strakonice	1.69	0.81	22.2	61.5	11.7	11.1	1.49	0.73	27.1	18.9	46.7	13.8	–49.0	37.3	76.2
Tábor	1.70	0.81	22.4	61.3	11.2	10.7	1.48	0.71	27.5	17.5	49.4	13.2	–52.7	40.0	75.9
Domažlice	1.72	0.78	21.9	62.7	11.0	10.9	1.47	0.68	26.6	21.9	44.2	13.9	–47.8	32.9	68.8
Klatovy	1.69	0.82	22.2	60.9	11.3	11.1	1.48	0.72	27.0	20.0	47.5	13.4	–49.5	36.6	73.9
Plzeň-město	1.54	0.79	23.0	53.9	15.6	11.9	1.41	0.74	27.9	17.0	52.4	14.0	–45.7	37.0	80.9
Plzeň-jih	1.73	0.83	22.0	63.2	11.2	11.1	1.45	0.68	27.3	17.9	48.0	13.0	–53.5	37.4	69.8
Plzeň-sever	1.77	0.84	21.8	64.1	11.6	11.4	1.42	0.69	27.0	19.6	46.5	13.6	–52.1	32.3	62.1
Rokycany	1.69	0.79	21.9	60.7	12.4	11.2	1.46	0.72	27.1	19.4	47.8	13.4	–49.5	35.2	71.1
Tachov	1.79	0.86	21.9	62.2	12.6	11.8	1.45	0.74	25.7	29.2	37.8	15.4	–42.2	23.0	54.5
Cheb	1.61	0.77	22.2	59.9	14.8	12.5	1.44	0.71	26.1	28.1	40.2	15.5	–37.2	26.4	71.1
Karlovy Vary	1.74	0.83	22.4	57.0	15.2	12.4	1.35	0.67	26.7	23.4	45.8	14.9	–44.8	22.3	49.9
Sokolov	1.82	0.81	21.6	62.1	14.1	12.5	1.42	0.69	25.7	29.7	39.0	15.5	–42.4	20.4	48.1

Appendix 2 continuation

District	1991–1993						2012–2014						PR	RR	IR
	TFR	TFR1	MAFB	–25	30+	IDR	TFR	TFR1	MAFB	–25	30+	IDR			
Děčín	1.78	0.80	21.9	60.1	14.4	12.3	1.53	0.70	25.9	28.7	41.1	15.2	–39.0	25.0	64.0
Chomutov	1.76	0.81	21.7	62.1	13.6	12.2	1.42	0.68	25.8	29.5	38.4	15.2	–41.7	22.2	53.3
Litoměřice	1.77	0.83	21.9	62.2	12.6	11.6	1.53	0.74	26.8	21.4	44.8	13.8	–45.8	32.4	70.6
Louny	1.76	0.79	21.7	61.9	12.8	12.0	1.51	0.72	26.1	27.4	40.9	15.3	–42.0	27.5	65.6
Most	1.74	0.81	21.8	61.6	13.5	12.2	1.43	0.68	25.8	29.4	40.0	15.2	–40.7	22.4	55.1
Teplice	1.71	0.83	21.9	61.9	12.7	11.9	1.50	0.73	25.7	30.3	40.0	15.5	–39.2	26.7	68.3
Ústí nad Labem	1.80	0.86	22.2	59.0	15.9	12.5	1.57	0.77	26.1	29.1	41.3	15.4	–37.5	24.7	65.9
Česká Lípa	1.80	0.76	21.8	60.4	14.0	12.3	1.47	0.69	26.1	26.0	42.8	14.7	–42.2	24.0	57.0
Jablonec nad Nisou	1.72	0.82	22.5	56.9	14.6	11.9	1.49	0.72	27.4	20.2	49.1	14.1	–46.0	32.6	70.9
Liberec	1.75	0.82	22.7	55.5	15.8	12.3	1.55	0.78	27.1	20.9	48.7	14.1	–43.0	31.4	72.9
Semily	1.91	0.84	22.5	56.2	14.7	12.0	1.46	0.73	27.6	16.5	51.3	13.2	–51.6	28.0	54.2
Hradec Králové	1.77	0.86	22.7	55.8	14.0	11.7	1.50	0.74	28.0	14.7	53.4	13.2	–52.0	36.8	70.8
Jičín	1.83	0.86	22.2	60.1	11.8	11.2	1.41	0.67	27.2	17.7	49.5	13.3	–53.4	30.6	57.3
Náchod	1.79	0.83	22.3	57.7	13.8	11.9	1.52	0.70	26.9	20.4	46.9	14.3	–46.6	30.8	66.1
Rychnov nad Kněžnou	1.89	0.87	22.1	59.4	14.0	12.1	1.54	0.71	27.0	16.3	48.5	12.7	–50.6	31.9	63.1
Trutnov	1.72	0.84	22.2	58.8	14.1	12.0	1.51	0.75	27.1	20.2	48.2	14.2	–45.5	33.1	72.7
Chrudim	1.88	0.86	22.0	62.8	12.1	11.3	1.51	0.70	27.2	17.1	48.1	13.0	–53.6	33.7	62.8
Pardubice	1.67	0.82	22.5	57.8	12.9	11.4	1.51	0.77	27.6	16.5	50.6	13.3	–48.6	39.1	80.4
Svitavy	1.92	0.86	22.1	60.6	12.4	11.3	1.48	0.68	27.2	18.1	47.4	13.1	–52.8	29.5	55.8
Ústí nad Orlicí	1.90	0.81	22.3	57.8	14.5	11.7	1.54	0.70	27.2	16.2	50.0	13.1	–50.1	31.2	62.3
Havlíčkův Brod	1.74	0.81	22.2	63.4	12.4	11.4	1.54	0.72	27.2	16.4	48.6	13.0	–51.9	40.1	77.2
Jihlava	1.80	0.81	22.3	59.2	13.0	11.4	1.57	0.76	27.2	17.7	48.4	13.3	–48.3	35.4	73.3
Pelhřimov	1.76	0.83	22.3	60.9	10.4	10.5	1.48	0.71	27.3	17.4	48.6	12.6	–52.6	36.5	69.5
Třebíč	1.95	0.88	22.1	61.9	12.0	11.2	1.40	0.67	27.4	14.1	48.9	12.2	–57.3	29.1	50.7
Žďár nad Sázavou	1.92	0.81	22.3	59.6	12.6	11.2	1.51	0.67	27.5	13.9	48.6	12.2	–54.3	33.2	61.2
Blansko	1.86	0.86	22.1	60.7	12.8	11.6	1.54	0.73	27.8	13.8	51.3	12.6	–53.1	35.9	67.7
Brno-město	1.65	0.84	23.4	50.4	18.1	12.6	1.53	0.81	28.5	14.2	57.1	13.5	–46.1	38.8	84.2
Brno-venkov	1.85	0.87	22.2	58.9	13.6	12.0	1.60	0.80	27.8	14.2	50.6	12.2	–51.2	37.5	73.2
Břeclav	1.79	0.86	22.1	61.8	12.9	11.6	1.38	0.70	27.4	16.1	50.9	12.9	–54.8	31.7	57.9
Hodonín	1.79	0.85	22.1	62.2	12.2	11.3	1.35	0.65	27.5	15.4	50.5	12.8	–56.0	31.5	56.2
Vyškov	1.85	0.86	22.1	62.7	12.0	11.4	1.52	0.70	27.5	15.2	50.9	12.8	–54.4	36.5	67.1
Znojmo	1.88	0.84	22.0	61.8	12.8	11.6	1.40	0.69	27.0	19.2	45.1	13.6	–51.3	25.9	50.4

Appendix 2 continuation

District	1991–1993						2012–2014						PR	RR	IR
	TFR	TFR1	MAFB	–25	30+	IDR	TFR	TFR1	MAFB	–25	30+	IDR			
Jeseník	1.83	0.81	22.1	60.0	13.7	11.8	1.37	0.64	26.6	24.4	46.4	15.0	–48.0	23.1	48.1
Olomouc	1.77	0.83	22.6	57.9	14.1	11.7	1.51	0.76	27.9	15.4	53.0	13.3	–50.6	35.9	71.0
Prostějov	1.73	0.81	22.4	61.6	12.3	11.2	1.42	0.69	27.1	19.3	48.0	13.5	–51.1	33.1	64.7
Přerov	1.75	0.81	22.3	59.4	12.2	11.3	1.39	0.67	27.4	17.0	48.6	13.3	–51.7	31.2	60.5
Šumperk	1.83	0.81	22.1	60.0	13.7	11.8	1.45	0.69	27.1	18.3	46.8	13.3	–49.8	29.3	58.9
Kroměříž	1.79	0.86	22.4	59.8	13.0	11.6	1.39	0.68	27.3	17.2	49.7	13.5	–52.7	30.0	56.8
Uherské Hradiště	1.74	0.81	22.5	58.8	13.7	11.5	1.37	0.66	27.9	12.4	51.8	12.0	–55.0	34.0	61.7
Vsetín	1.80	0.80	22.7	55.7	14.8	11.7	1.44	0.67	27.7	14.1	52.1	12.9	–51.7	31.6	61.1
Zlín	1.74	0.81	22.8	55.3	14.7	11.6	1.37	0.67	28.3	11.0	55.2	12.2	–54.6	33.3	61.0
Bruntál	1.89	0.84	21.9	62.6	13.1	11.7	1.40	0.68	26.1	26.4	42.3	15.1	–47.9	21.9	45.7
Frýdek–Místek	1.82	0.81	22.3	58.9	13.5	11.7	1.48	0.69	27.0	17.9	46.5	13.1	–49.4	31.0	62.8
Karviná	1.75	0.82	22.1	61.7	13.1	11.8	1.38	0.66	26.1	26.7	40.4	14.4	–44.7	23.7	53.0
Nový Jičín	1.85	0.82	22.2	59.4	14.1	11.9	1.46	0.67	27.1	17.8	49.4	13.2	–50.6	29.5	58.3
Opava	1.77	0.84	22.3	61.0	12.4	11.4	1.43	0.70	27.3	16.6	46.7	12.6	–52.3	32.8	62.8
Ostrava–město	1.69	0.82	22.6	58.7	14.2	12.0	1.45	0.73	26.9	23.5	44.8	15.0	–43.2	28.9	66.9

Explanation
TFR = Total fertility rate
TFR1 = First–order total fertility rate
MAFB = Mean age at first birth
–25 = Fertility of women aged under 25 as a proportion of total fertility (in %)
30+ = Fertility of women aged 30+ as a proportion of total fertility (in %)
IDR = Interdecile range
PR = Postponement rate
RR = Recuperation rate
IR = Index of recuperation
Source: Authors' calculations based on CSO data.