Branislav Šprocha & Pavol Tišliar

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Contents

Introduction

The period after the First World War in the history of population development in Slovakia is a distinctive segment of time in which several historically unique changes took place. In a relatively short time, these changes diametrically transformed the shape of reproductive and family behaviour, which until then had taken shape for many centuries and seemed to be unchanging. This mainly involved early entry into marriage and the almost universal presence of married life in the life paths of young men and women. Closely linked to this was the high normativity of motherhood and parenting, particularly the birth of children within marriage. The early beginnings of reproductive paths were also reflected in the relatively high fertility, since the majority of women born in the late 19th and early 20th centuries gave birth to 5 or more children. Like being childless, having only a single child was a marginal model. Only some areas of the southern part of central Slovakia, often associated with the Hungarian population and persons of the Evangelical faith, represented a certain exception. Another important attribute of population development in Slovakia during this period was the relatively high mortality rate. The short average life expectancy at birth was conditioned above all by high infant and child mortality and the overall close connection with the epidemiological situation, first and foremost with infectious diseases. High illiteracy, the rural character of society, low living standards, unsuitable housing conditions, poor coverage by engineering networks (especially sewerage, water supply), as well as problematic accessibility and frequent distrust of health care only contributed to the persistence of unfavourable mortality rates. Even though the birth rate was high, the combination with high mortality meant the dynamics of numerical growth of the Slovak population was relatively low. What's more, the agrarian overpopulation associated with the second half of the 19th century significantly worsened the living conditions of many large families and led to the emergence of temporary seasonal, but increasingly more common, long-term emigration abroad. These last decades just prior to the First World War brought unheard of losses to emigration. For population development, this meant not only direct losses in the form of an outflow of people, but given the young

age structure of those leaving, also indirect effects in the form of unborn children.

However, the onset of the first demographic transition in the late 19th century and its end after the Second World War completely changed the nature of reproduction. A significant decrease in fertility occurred, mainly as a result of the conscious regulation of the number of children born, as a family model with two, at most three children gradually began to gain ground. However, being childless and staying single remained rather marginal reproductive models. The process of mortality also underwent significant changes. Due to a significant reduction in infant mortality, in particular, and a notable drop in the intensity of mortality from infectious and epidemic diseases, a relatively dynamic extending of life occurred. The model of early and almost universal marriage endured, however, as did the early start along reproductive paths realised largely within a marriage union. The specific conditions created during the previous political regime also contributed to the reinforcing of this reproductive model, ultimately leading to the emergence of a stable-looking, but fundamentally fragile socialist model. Its close connection to the specific social and political determinants of the time was most likely what put the brakes on another historically unique transformation, which gradually began to occur in the former Western bloc from the second half of the 1960s. In Slovakia and in the other countries of the former Eastern bloc, these changes took hold only after the collapse of the socialist bloc. Of course, structural factors linked in part to the stormy 1990s as well as later mechanisms associated with the transition to a market economy played a major role in this process. The impact of value and normative changes tied to structural factors and discontinuity of living and social conditions thus created space for the rapidly shifting transformation of reproductive behaviour.

The discontinuity of the social, economic, political and cultural conditions brought about at the end of the 1980s and start of the 1990s contributed in many ways to the historically unique qualitative-quantitative transformations of family and reproductive behaviour in Slovakia. It has been shown above all that people born in the second half of the 1960s and the beginning of the 1970s, who in those years reached the age typical for the realisation of several family transitions on their way to adulthood, began to significantly change their patterns of demographic reproduction and matrimonial behaviour. The nearly uniform and universal transitions to marriage and motherhood, realised predominately at young to very young ages, began to significantly

diversify. Postponing (and also partly rejecting) maternity and the start of marriage and their shift to older ages became a key transformative element. At the same time, this conditioned not only the timing of the individual demographic processes affected, but also their intensity and selected structural characteristics of the Slovak population. We are further also witnessing changes in the legitimacy of reproduction, the uncoupling of the historically formed close connection between married life and the birth of children, the broader use of new forms of paired cohabitation, as well as a departure from the two-child family model in the direction of more frequent childlessness or having a single child. At the same time, new marriages at an increasingly advanced age face a much higher risk of divorce. From the viewpoint of the main development trends, the decrease in the importance of abortions can be perceived positively. It is evident from the above-stated that since the beginning of the 1990s a relatively complex transformation of family and reproductive behaviour has taken place in Slovakia. These transformational changes must also be seen in the context of wider shifts in the life paths of young people on their journey to adulthood. It is not possible to speak about some new uniform model, but the emerging pattern are markedly diversified not only in arrangement and timing, but also in the implementation or non-implementation of individual transitions.

The aim of the monograph is to form a more comprehensive view of population development in Slovakia and its individual demographic processes from the period following the First World War up to the present. We are aware that this is undoubtedly a very ambitious and demanding goal and that its complete inclusion in all aspects cannot realistically be managed in such a small space as provided by the presented monograph. Therefore, here at the outset, we point out to the reader that the publication represents one of the basic steps on the way to a comprehensive understanding of the changes that population development in Slovakia has undergone over the past hundred years and is still undergoing today. We believe that the results presented will help others interested in this issue gain not only basic, but also some deeper knowledge and will thus lay a good foundation for further research. We hope this aim has been achieved, and if our publication contributes in at least some small measure, we will be satisfied.

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We here wish to say a big thank you to the reviewers of the monograph manuscript, prof. Martin Hetényi, Prof. Peter Mičko, and Ing. Boris Vaňo, for their critical comments, suggestions and valuable advice, which made a major contribution to the improvement of the final text.

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Bratislava, 21 November 2023 The Authors

1. Data sources

The analysis of population development in Slovakia over a period of more than a century rests mainly on two fundamental sources of demographic data. The first comprises censuses and the intercensal balances of the age-sex structure of the population of Slovakia following from them; the second, even more important source, is data collected and published about individual demographic processes, compiled annually using an exhaustive method by the statistical offices of the time.

The breaking up of Austria-Hungary in the autumn of 1918 also meant the demise of the statistical service of the Hungarian Statistical Office for the territory of Slovakia. The new Statistical Office of Czechoslovakia was founded in January 1919, and the network of abandoned state offices was gradually occupied. The first major crucible of its functionality was the special census conducted in 1919 (Tišliar–Šprocha 2023). The original aim was to use the latest results obtained, particularly the data on the national composition of the population, when demarcating the borders with Hungary at the peace conference in Paris. Although this intention failed in the end, and only part of the results were finally published in 1920[1], the census in question confirmed the functionality of the new state administration and also pointed out some problems and shortcomings which helped in the conducting of the first regular Czechoslovak census in mid-February 1921. The definitive results were gradually published in the years 1924–1927 in the source edition of *Československá statistika*[2], on which we also base our analyses. Despite the fact that the law on censuses defined a five-year interval for censuses in the future, the next census only took place on 1 December 1930.[3] The results of this census were again published in several volumes of *Československá statistika*,[4] which were gradually issued in the years 1934–1938.

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[1] *Soznam miest na Slovensku dľa popisu ľudu z roku 1919* [List of places in Slovakia according to the census of 1919]. Bratislava : MPS, 1920.

[2] The territory of Slovakia was directly dealt with mainly in volumes no 9, 22, 23 and 37.

[3] Act No. 256/1920 Coll. and n. §2 and Government Regulation No. 592/1920 Coll., by which the 1921 census was carried out.

[4] These were volumes number 98, 104, 107, 113, 116, 126, 146, 151 and 153.

With the establishment of the Slovak Republic (1939–1945), a new State Statistical Office was organised in Bratislava that took over the entire statistical service, including demographic statistics. In 1940, it conducted a properly "planned" population census, which was carried out only in the territory of the then Slovak Republic. Unlike previous interwar censuses, however, it was never completely processed, nor were its results published. The original material from the census is currently located in the Slovak National Archives, where it forms a separate archive fund.[5]

After the Second World War, the first official census in Czechoslovakia took place on 1 March 1950. This was the last time the census was based on the so-called "present" population. A big problem connected with analysing the results of this census is mainly the low number of published source works. The overall official results were presented in four parts under the joint designation *Census of the People and Inventory of Houses and Flats in the Czechoslovak Republic as of 1 March 1950*.[6]

The second post-war census in Czechoslovakia was conducted on 1 March 1961. Unlike all preceding modern censuses in Slovakia, this one was based on the resident population. This made it possible to carry over (through the so-called interdistrict and interregional exchange) persons temporarily present in another municipality to their place of registered residence (permanent residence). The results were published in three volumes of *Czechoslovak Statistics* in 1965 under the common title *Population and Housing Census in the Czechoslovak Republic as of 1 March 1961*.[7] In this case, with regard to the aims of our work, we again

[5] SNA, f. 1940 census. The size of the set is 670.50 common metres.

[6] Census in the Czechoslovak Republic as of 1 March 1950. Part I. The most important results of the census and inventory of houses and flats for regions and districts and cities. In: *Československá statistika*, řada A, sv. 3. Prague: SÚS, 1957, 171 p.; Population census in the Czechoslovak Republic as of 1 March 1950. Part II. Age composition and professions of the population. In: *Československá statistika*, řada A, sv. 26. Prague: SÚS, 1958, 315 p.; Population census in the Czechoslovak Republic as of 1 March 1950. Part III. Fertility of women. In: *Československá statistika*, řada A, sv. 6. Prague: SÚS, 1957, 204 p.; Population census in the Czechoslovak Republic as of March 1, 1950. Part IV. Economic lexicon of municipalities. In: *Československá statistika*, řada A, sv. 27. Prague: SÚS, 1957, 345 p.

[7] Population and Housing Census in the Czechoslovak Republic as of 1 March 1961. Part I. Demographic characteristics of the population. In: *Československá statistika*, řada A, sv. 35, Prague: ÚKLKS, 1965, 350 p.; Population and Housing Census in the Czechoslovak Republic as of 1 March 1961. Part II. Social, economic and professional composition of the population. In: *Československá statistika*, řada A, sv. 36, Prague: ÚKLKS, 1965, 373 p.; Population and Housing Census in the Czechoslovak Republic as of 1 March 1961. Part III. Houses, flats, households and families. In: *Československá statistika*, řada A, sv. 37, Prague: ÚKLKS, 1965, 283 p.

primarily used data on the age-sex structure, marital status, highest achieved education, female fertility and economic activity.

The next census was carried out on 1 December 1970. Compared to the previous census, no significant methodological changes were made in the analysed structures. An important qualitative shift was the use of a computer, which enabled far greater possibilities for sorting and combining data and widely publishing results.[8] We already had digitally processed data available from the last two *Population and Housing Censuses in the Czechoslovak Republic* in 1980 and 1991 and the following three *Population and Housing Censuses in the Slovak Republic* in 2001, 2011 and 2021.

The second important source of demographic data is the annually realised statistics relating to individual demographic events. The Czechoslovak Statistical Office began this as early as in 1919. The resulting data in various combined classifications on births and their parents, deaths, marriages and divorces were published continuously in the years 1919–1937 as part of the edition of *Československá statistika*.[9]

A problematic period in the reconstruction of the history of the population of Slovakia after the First World War are the years 1938–

[8] These were publications: Population and Housing Census in the Czechoslovak Republic as of 1 December 1970. Tables for the SSR. In: *Československá statistika*, řada A, sv. 51, Prague: FSÚ, SŠÚ 1974; Census of population, houses and flats as of 1 December 1970. Fertility of all women and married women according to the age of the woman at the time of the census, married couples and de facto marriages according to the age of both spouses (partner and partner), married women according to the number and age of dependent children and according to the age and economic activity of the woman. In: *Československá statistika* sv. 116, Prague: FSÚ, SŠÚ, 1974.

[9] Movement of the population in the Czechoslovak Republic in the years 1919–1920. In: *Československá statistika* sv. 53, řada XIV., booklet 1 (hereinafter ČSS vol. 53). Prague: State Statistical Office (hereinafter SÚS), 1929; Movement of the population in the Czechoslovak Republic in the years 1921–1922. In: *Československá statistika* sv. 59, řada XIV., booklet 2 (hereinafter ČSS vol. 59). Prague : SÚS, 1929; Movement of the population in the Czechoslovak Republic in the years 1923–1924. In: *Československá statistika* sv. 63, řada XIV., booklet 3 (hereinafter ČSS vol. 63). Prague : SÚS, 1930; Movement of the population in the Czechoslovak Republic in the years 1925–1927. In: *Československá statistika* sv. 77, řada XIV., booklet 4 (hereinafter ČSS vol. 77). Prague : SÚS, 1932; Movement of the population in the Czechoslovak Republic in the years 1928–1930. In: *Československá statistika* sv. 121, řada XIV., booklet 5 (hereinafter ČSS vol. 121). Prague : SÚS, 1936; Movement of the population in the Czechoslovak Republic in the years 1931–1933. In: Československá statistika sv. 145, řada XIV., booklet 6 (hereinafter ČSS vol. 145). Prague : SÚS, 1938; Movement of the population in the Czechoslovak Republic in the years 1934–1937. In: *Československá statistika* sv. 163, řada XIV., booklet 7 (hereinafter ČSS vol. 163). Prague : SÚS, 1941.

1945. Although the State Statistical Office in Bratislava published[10] some basic results for the years 1939–1943 on the natural shifts of the population in the Slovak Republic, as well as certain more detailed classifications of marriages, births and deaths, most of the collected data ultimately remained only in manuscript form and it has not been fully preserve.[11] Additional reconstruction of demographic events was a highly problematic process. In the years 1945–1946, further entries were made in the registry offices that had been abandoned during the war, or whose operations were disrupted. Data for part of 1945 and especially for the years 1939–1944 were likewise obtained from the registers of the municipalities that were ceded to Hungary after the Vienna Arbitration, with the aim of reconstructing the basic indicators of the natural movement of the population of the whole of Slovakia.[12] These were subsequently published in the source work *Population Movement in Slovakia in the Years 1945–1948*[13] together with a detailed classification of data for the whole of Slovakia from 1945.

After the Second World War, Czechoslovak Statistics renewed publication of the series *Population Movements*, which were each published for one year. The Statistical Office of the Slovak Republic has continued with this practice from 1993 to the present. These became the main source of data on individual demographic processes until the last year analysed, 2022.

For calculating the majority of the demographic indicators, we also needed the age structure of the population of Slovakia along with the number of events in the relevant classification. Therefore, an important source of data on the age structure as of 1 July and 31 December for the period 1920–1970 was the publication of the Czech Statistical Office: *Age Composition of the Population in the Years 1920–1937 and 1945–1979*.[14]

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[10] *Statistical Reports* yr. 2, 6/1941, Bratislava: State Statistical Office, p. 19–24; *Statistical Reports* yr. 3, 1/1942, Bratislava: State Statistical Office, p. 2–9; *Statistical Reports* yr. 3, 2–3/1942, Bratislava: State Statistical Office, p. 22–32; *Statistical Reports* yr. 3, 4/1942, Bratislava: State Statistical Office, p. 58–72; *Statistical Reports* yr. 3, 7/1942, Bratislava: State Statistical Office, p. 102–103; *Statistical Reports* yr. *3, 10/1942,* Bratislava: State Statistical Office p. 142–154; *Statistical Reports* yr. 3, 11–12/1942, Bratislava: State Statistical Office, p. 158–180; *Statistical Reports* yr. 4, 3/1943, Bratislava: State Statistical Office, p. 26–37.

[11] *Pohyb obyvateľstva na Slovensku v rokoch 1945–1948* [Movement of the population in Slovakia in the years 1945–1948]. Bratislava: Slovak Statistical Office, 1959.

[12] Ibid.

[13] Ibid, p. 12–13.

[14] ČSÚ. *Věkové složení obyavtelstva v letech 1920–1937 a 1945–1979 (ČSSR, ČSR, SSR)* [Age composition of the population in the years 1920–1937 and 1945–1979 (*ČSSR, ČSR, SSR*)]. Prague 1981, p. 4–41 and 112–115.

For the years 1980–2022, we drew age structure data on Slovakia's population from the Data cube database of the Statistical Office of the Slovak Republic.[15] The situation was more complicated in terms of the age structure of Slovakia for the period 1938–1944. In the first case, we built an estimate based on interpolation between the last known data from 1937 and 1945.

[15] <http://datacube.statistics.sk/> [19.11.2023].

2. Some external conditions of population development in Slovakia

Reproductive behaviour can be influenced by a broad range of external factors whose effects are felt indirectly. Therefore, a change in some external conditions may or may not lead to a change in some internal aspects of demographic reproduction. In general, however, it can be stated that population development is not resistant to external societal transformations, and in the history of Slovakia's population, too, we can identify several cases of a rapid and relatively significant reaction to changed external conditions. The degree of influence, however, also depends on the demographic process itself as well as on the nature of the change. Those that are more comprehensive have a longer-term impact on reproduction or can even significantly transform it. If only partial and particularly short-term changes occur in external factors, the shifts in reproduction themselves may show a rather episodic character without a deeper response and effects on the given demographic process. In the case of Slovakia, in connection with external factors for the 20th century and the beginning of the 21st century, we can speak especially about economic development and the living conditions of families and households associated with this, further about the normative and value aspects manifested through official population and family policies, and ultimately also about setting the conditions that emerged in individual political institutions. Therefore, we divide our short excursion into the issue of external conditions that affected the demographic reproduction of the Slovak population into three blocks defined by the years of the main political breakthroughs.

2.1 Economic development, living conditions and the first demographic revolution

In general, three basic regimes can be addressed in relation to the population development of Slovakia. The first, referred to as the "old order" (*ancien regime*), is characterised by a high intensity of fertility as well as mortality and low population growth that gradually transformed from the end of the 19th and in the first half of the 20th century into a

model with both low fertility and low mortality. This process took place in the framework of more broadly conceived reproductive changes, which were collectively labelled as the (first) demographic transition. The new regime was characterised by significantly lower intensity of fertility which was achieved above all by the conscious regulation of family size by married couples. A significant extension of life also occurred due to a decrease in mortality at the youngest ages and a reduction in the risk of mortality from infectious and epidemiological diseases. This resulted in the gradual onset of the process of population ageing. The transformational changes within the (first) demographic transition thus brought not only a new quantitative but also a qualitative dimension of reproduction.[16]

The quantitative-qualitative transformation of reproductive behaviour represents a historical turning point in the nature of demographic reproduction; however, it actually conditioned an entire complex of other external factors that are interrelated. Their empirical expression in the case of Slovakia still runs up against very limited research on historical demography and other related scientific disciplines, which is why this issue can only be dealt with on a theoretical level, rather than being directly proved empirically.

We can say that the reproductive behaviour of a population is a reflection of the population climate. This expresses the perception of population or societal reproduction in a simple way and is outwardly manifested, for example, in the timing of marriages, parenthood, opinions and ideals about the number of children, the use of contraception, etc. It is therefore a set of socially accepted values and norms that relate to procreation and family life. Thus, it can also be described as a part of the social consciousness. Among its main features are a certain persistence, an inertia in regard simple external changes in conditions, which means that it forms over a long period of time, and some radical change in its orientation or shift in its nature usually occurs only in the case of more serious interventions in the life of a society, or from the long-term working of changes, especially in the economic and social spheres.

[16] We can find a similar division, for example, in the work of Chesnais (1992: 2). This author also speaks of three stages of connection with the process of fertility transformation within the demographic revolution. The first pre-transition stage is characterised by a long-term equilibrium of high fertility and mortality and corresponds to the old order mentioned above. After the establishing of the demographic revolution, it is then destabilised, which in itself represents a specific developmental stage. After the end of the demographic revolution, the post-transition stage begins with the modern equilibrium of low fertility and mortality.

To state it simply, socioeconomic and cultural conditions, population policies, environmental conditions and living standards may change, but they may not be reflected in changes in the population climate in the short term, and therefore not directly in the intensity and timing of fertility.

The preconditions for changes in the population climate towards the onset of a conscious limitation of fertility in Slovakia needs to be looked for as early as the second half of the 19th century, because the starting point was the socioeconomic changes that took place in this period. The basic source of the population's livelihood was the primary sector, in which extensive agriculture prevailed, with many places still employing the so-called "three-field" farming system (Průcha et al. 2004: 43–44). A large family which could be used as a labour force was an advantage for the extensive form of farming. The changes that took place in the second half of the 19th century, however, began to disrupt this method of farming.

Perhaps the most significant social and economic change in mid-19th century Hungary was the abolition of serfdom. This involved so-called *urbar* serfs and was linked with changes in land ownership[17] and the gradual end of labour obligations. This did not apply, however, to contract farmers and peasants, who had to redeem themselves individually from their obligations. The unevenly distributed land, which was also the result of inconsistencies in the processes of consolidation and segregation (Holec 1991: 37), began to create the foundations for a more advantageous life for families with fewer children. What's more, the land was inherited and divided, which led to the relatively rapid emergence of economically non-self-sustaining farmsteads, which forced their owners to seek other forms of employment. The dependence of the population on the primary sector and agriculture in particular as a basic source of livelihood persisted even into the beginning of the 20th century. For example, between 1890 and 1910, only a minimal decrease – from 70% to 61% – occurred in the share of economically active people in the primary sector (Faltus 1987: 73).

The increase of wage labourer in agriculture, working on large estates as well as in gradually developing other economic sectors, was also an important change. In the 1870s and 1880s, however, the agrarian crisis that erupted in Europe in relation to the import of cheap American grain began to appear in Hungary, too. It lasted until the mid-1890s, and one

[17] This initially concerned less than a quarter of the total area of land in the counties that today make up Slovakia.

of its consequences was a reduction in the number of self-employed farmers, whose tiny agricultural enterprises went bankrupt thus leading to them becoming unemployed (Holec 1991: 51). This situation created pressure about how to feed the growing population and led to gradual agrarian overpopulation in the countryside. The outlet for this situation mainly became labour emigration, which gradually took on a mass character. Emigration for work abroad also had an effect on population development in Slovakia, not only directly in the form of the physical loss of residents, but also indirectly, as a consequence of the fact that young people in particular emigrated, who then expressed their reproductive behaviour abroad.

After the First World War, economic development in Slovakia was influenced by several principle factors. The founding of the Czechoslovak Republic joined together very different economic units. The financially weaker and economically less developed Slovak part could hardly keep up with the competition in the Czech regions (Mičko 2010). Thus, for the interwar period, the effort to adapt to the new internal market was particularly typical. Slovakia, however, accepted the role of a passive outlet rather than an active producer and supplier and did so even in the primary sector, which was basically the dominant element of the Slovak economy. In addition to this, the low competitiveness of Slovak industry was reflected in the gradual absorption of smaller industrial enterprises, mainly by stronger Czech capital (Hallon 1995: 48; Vanek 2022b, 2023). The Czech lands, where more than 90% of industrial production was concentrated, thus had a dominant position in the Czechoslovak economy, and despite the eastern part of the republic clearly having an agricultural character, up to three-quarters of agricultural production paradoxically came from the Czech lands (Myth and reality 2000).

What's more, the young republic had to deal with several problems immediately in the first years of its existence. With the creation of the borders of the successor states, the Czechoslovak economy lost the typical outlets that had been formed in the past. The economically more industrial western part of the republic resolved this issue by obtaining a stronger position on the Slovak and Subcarpathian Rus markets, which brought with it increasing pressure on the undersized economy in these areas (Hallon 1995: 44).

Another problem in the interwar economic development was the emergence of several economic crises. The first post-war recession, which was preceded by a period of increased production (for more, e.g., Faltus 1966), affected Czechoslovakia at the end of 1921 and culminated

two years later (Průcha et al. 1987: 126). After a relatively peaceful period of gradual economic revival in the years 1924–1928, the first major manifestation of an agricultural crisis occurred (Bartlová 1984: 219; Vanek 2022a: 74–75), and this crisis lasted practically until 1933 (Lacina 1974: 38). The agrarian crisis was joined by the extensive global economic crisis, the Great Depression, which broke out at the end of 1929 and affected almost all areas of the economy in most of the developed countries of the world. This crisis was extremely deep in Czechoslovakia (Vanek 2022b).

The largest decline in production was recorded in 1933, and problems persisted in the economy practically until 1935. The subsequent revival was caused in part by the improvement of export conditions as well as by the rise of the arms industry. However, the pre-crisis level was achieved only in certain sectors (Faltus, Krajniaková 1992: 64).

Nevertheless, it is clear, that in the second half of the 1930s, investments in the development of Slovak industry gradually increased. This development was also heavily influenced by the geopolitical situation. The Czechoslovak economy was drastically affected by the Munich Agreement and, in the case of Slovakia, especially by the subsequent Vienna Arbitration. Almost 20% of Slovak industry remained on the occupied territory (more than 35% of which was agricultural). The occupation of agricultural land itself represented even greater losses, as this totalled about one-third of all arable land in the country and, it should be noted, that this was mostly land of the highest quality. Losses in livestock production were also significant. Despite these losses, however, due to the intensification of agricultural production, the Slovak primary sector was still able to ensure a food base for the population in the first years of the war (Mičko 2010: 37). The significant financial support that was released for agriculture in 1942 also contributed to this to a certain extent (Průcha et al. 2004).

Although Slovakia managed to avoid direct engagement in the Second World War, at least until the final two years (1944 and 1945), the war's negative impacts were still felt in most areas of Slovak society. The first five years of existence of the Slovak Republic (1939–1943) can be described as a period of significant economic revival.

According to Průcha et al. (2004: 531–532), the factors related to the relatively rapid economic growth, especially in industrial production, can be compiled into several interacting aspects. The beginning of the economic upswing dates back to the time of the Czechoslovak Republic, since under the influence of the political situation abroad and the direct

threat to Czechoslovakia, a relatively large share of the production capacity and inventories was moved from the Czech lands to Slovakia in a rather short period of time. This basically enabled the expansion of production to take place in a very short time without any major investments. What's more, the gradual process of industrialisation, which had cautiously begun in the early 1930s, led to the establishing of several key factories which launched production at the end of the 1930s. The structure of industry was suitable for the needs and demands of the largest importers of Slovak products, and they found buyers rather easily. On the other hand, the branches of the consumer industry that formed a very important part of the economy in other countries and experienced a significant downturn during the war were undersized in Slovakia. In some sectors, they were not even able to cover domestic demand; therefore, a certain expansion was possible in this sector, as well.

One important aspect was also the restriction on Czech competition, which enabled temporary prosperity even for technically backward companies. What's more, the raw materials deficit, the blockade, and the urgency of deliveries forced Germany to use even lower quality products. Rising inflation led to the prices of final products usually outstripping the rise in production costs. Payments in foreign trade (particularly with Germany) were resolved by the clearing method, which increased the demand for Slovak goods. This was only a temporary benefit, however, since the Slovak government attempted to suppress exports to a large extent due to the freezing of receivables. The acceptance of different subsidies, benefits adopted with the aim of supporting industrial production, was a very important factor. These were mainly tax breaks, lower transport tariffs, advantageous expropriation of lands, state guarantees for mortgages, state allowances for interest, the redemption of investment credits and customs reliefs for the import of machinery and equipment. Last but not least, it needs to be noted that before 1944 Slovakia was effectively spared any direct war operations, raids and other activities that would have damaged or otherwise slowed industrial production.

Production growth, however, ran into several limitations, represented mainly by a lack of fuel, electricity, strategic raw materials, means of transport and qualified labour. The one-sided focus and interconnectedness, especially for military purposes, did not allow industrial production to sufficiently meet the needs of the population.

Thus, the availability of several commodities and products was significantly worse than in peacetime.

Developments in unemployment, which had long represented a pressing economic and social problem in Slovakia, can be assessed positively (Vanek 2021). Several factors contributed to its rapid elimination during the wartime Slovak Republic. This was in part the above-mentioned wartime boom, which significantly raised employment, particularly in certain industrial sectors (e.g. metallurgy and engineering, chemical and tanning industries). In addition, the labour market in the countries of the Greater Germanic Reich also offered new job opportunities. Another major factor was the forced departure of Czechs from jobs in state and public administration, thanks to which members of the Slovak intelligentsia rapidly found employment (Hallon 2015: 140). Paradoxically, people living by means of agricultural production actually profited from the secession of the southern regions and their annexation to Hungary, as competitive pressure fell and demand for their products sharply increased.

Economic growth also brought an increase in nominal wages. However, the increase in living expenses, which was affected mainly by inflation, was a problem, despite price regulations introduced shortly after the founding of the Slovak Republic. The reason was the population's fears about the lack of basic commodities and the excessive purchase of food associated with this. Ultimately, the lack of certain commodities on the market (shoes, ointment, flour, etc.) and the introduction of a rationing system were connected with this (Lacko 2008: 134).

We can label 1943 as a turning point in economic development. During the last two years of the war, the index of industrial production markedly decreased, as did employment and labour productivity. The state budget sank into an increasingly large deficit, with the deterioration of foreign trade notably contributing to this, as individual key outlets gradually disappeared and the search for new ones was not successful. The export of products to Germany also became ever more disadvantageous (Mičko 2010: 222–223). What's more, in 1944 Germany no longer respected the economic possibilities of the country and, after the arrival of German troops, it effectively began its blatant plundering of Slovak material and financial resources (Mičko 2010: 225). The worst situation occurred in the civil sector and in the supply of the population, since Slovak plants mostly worked to a limited extent, or their production ceased completely due to ongoing military operations or a lack of raw materials (Mičko

2010: 234). The standard of living of the citizenry worsened especially after 1943 due also to rapidly rising retail and wholesale prices.

Structural factors, however, are only one area that could have been behind the change in reproductive behaviour. As Pavlík (1977: 66) states, population development does not directly depend only on the economic development of the given country. The material and cultural level of inhabitants also plays an important role. This explains why the demographic revolution occurred in countries with different economic levels at the same time or almost simultaneously. Pavlík (1977) further poses an important question: namely, to what extent is a demographic revolution dependent on the level of the population of its state and to what extent is it conditioned by the transfer (diffusion) of innovations in contact with another state where similar population changes are already ongoing, or where they have already finished? The Princeton European Fertility Project brought similar findings. One of its main results was that scientists have begun to approach the influence of cultural and regional factors much more seriously in connection with the demographic transition (Anderson 1986: 293).

According to the RWA (ready, willing, able) model,[18] three basic prerequisites must be met for a new form of reproductive behaviour to be accepted. Each change in behaviour is conditioned primarily by psychology. Married couples or co-habiting partners will begin following a new reproductive behaviour (model) if it brings them more benefits than the model thus far used. What's more, the new behaviour must be more profitable, i.e., its benefits must exceed its costs. On the other hand, people must consciously accept it, confirm that this form is better and that they want to follow it. A highly important aspect for the overall acceptance of changes in reproductive behaviour is the legitimacy of the means by which it is achieved. The new method of reproduction and how couples can achieve it must be culturally (ethically and morally) acceptable. The last and no less important condition is the existence of suitable, favourable conditions and tools and techniques to be able to engage in the new model of reproduction.

Unlike societies in Western and Northern Europe, those in Eastern European were characterised by lower mobility between social classes. The possibility of rising and changing social status by leaving the family was significantly more limited, particularly in the rural areas. This also encouraged the family ownership of land, which was formed by

[18] For more details, see, e.g., Coale (1973), Lesthaeghe, Vanderhoeft (2001), Lesthaeghe, Neels (2002).

all living generations. The size of such a common homestead, which did not allow for mutual dividing, was also often problematic, since it would subsequently be impossible to make a living independently from the newly formed homesteads (Horská 1998: 199).

Another important factor of reproductive behaviour in Slovakia was the specific nature of marriage as shaped by history. The population of Slovakia was for a long time characterised by early entry into marriage, especially among women, and a very high intensity of marriage, which was also associated with the timing and partly also the intensity of fertility itself.

The Coale's indices values (especially the marital fertility index) as well as the results of the Coale-Trussel model (and the small "m") also confirm that at the start of the 20th century we can already identify certain changes in fertility connected with the process of consciously limiting the size of the family, though it was not yet possible to speak of a broader society-wide application. However, the situation radically changed in the interwar period, when a significant push for changes in the fertility process is evident, and we can clearly speak of a conscious effort to regulate the number of children born in the family influencing the course of marital fertility rates. After the Second World War, the process of fertility control is completed, and the population of Slovakia is assigned to the group of countries with planned reproduction.

As already noted above, in addition to fertility, the mortality rate also underwent significant changes in Slovakia. Even as late as the 1870s, the average life expectancy at birth for men barely went beyond 31 years, and for women it was about 33 years (FSÚ 1978). According to Livi-Bacci (2003), such low numbers were rather typical for populations characterised by the old demographic regime, i.e. still located in the phase before the onset of changes within the (first) demographic transition. The fact that the mortality rates in Slovakia really started to improve in the decades that followed is clearly reflected in the average life expectancy at birth from the period just before the First World War, which rose to just over 40 years for men and almost 43 years for women (Grunt 1964). Although the First World War not only brought an end to life extension, but even a significant decrease, particularly among men (Šprocha, Tišliar 2018), the first post-war years immediately displayed a continuation of the positive trend. On the other hand, the interwar development of mortality also pointed to a still rather close connection to the existing epidemiological situation, when the influenza epidemic in particular and some diseases associated with mortality in infancy had a notable

impact on the overall intensity of mortality. Mortality caused by other infectious diseases (such as TBC) also had a negative impact. In general, however, the improvement of health care, widespread vaccinations, as well as the increasing availability of medical treatment and its better organisation were gradually manifested in the decreasing importance of infectious and epidemic diseases. The first epidemiological transition (Omran 1971), however, finally culminated in Slovakia only after the Second World War, when the intensity of infant mortality and mortality from infectious and epidemic diseases fell sharply and civilizational diseases came to the fore. The completion of this transition in the post-war years was accelerated especially by the further development of health care and medical technology, increasing its availability for the general population thanks to the building of new health care infrastructure, as well as new widespread types of vaccination and the deepening of care for mothers and children.

2.2 The socialist model of reproduction

After the Second World War, the (first) demographic transition comes to an end in Slovakia, though several attributes of reproductive behaviour remain preserved or became even more consolidated. Along with other countries of the former Eastern bloc, this model was labelled the socialist or Eastern European model (Monnier, Rychtaříková 1992, Ní Brolchaín 1993). To the end of the 1980s, Slovakia, together with other countries of the former Eastern bloc, remained more or less immune (Sobotka 2011: 258) to the changes in reproductive behaviour that had begun to take hold in the Western countries in the late 1960s, which were collectively labelled the second demographic transition (van de Kaa 1994, 1997, 2001; Lesthaeghe 1995, 2010, 2014). This stability in socialist countries is explained by the coexistence and combination of several institutional and cultural factors that were strengthened and deepened by the regime in power, which created conditions for almost universal reproduction at a young age (Sobotka 2011: 258). Paradoxically, while early marriage and parenthood were often considered obstacles to a happy and pleasant life for young adults in the countries of the Western bloc, they represented a path to independence for many young people from the Eastern bloc (van de Kaa 1994). In this regard Sobotka (2002a: 41) talks about the so-called a "socialist greenhouse", in which domains such as education, career and family were connected to the external

elements of the system formed by social security, and population policy contributed to the creation of this "socialist model of reproduction".

In terms of reproductive behaviour, Slovakia and the other countries of the former Eastern bloc were characterised by a very strong tendency towards early motherhood and parenthood, the almost universal and early marriage of single people, the two-child family model and low childlessness (Frejka et al. 2008). Having two children close to each other at a young age (20–25 years) and then returning to work after two or three years became a quite common pattern (Sobotka 2003: 698). The shortening of the interval between the birth of the first and second child resulted from the efforts of married couples to simultaneously take advantage of maternity leave and a maternity allowance (Kučera 2001: 64).

Aside from this, the use of abortion as ex-post contraception became an important component of the reproductive biography of many women. The life paths of different social groups in the population moved closer together as a result of specific conditions under the previous regime, and in many respects they were very similar in their setting as well as the content of individual life transitions (Sobotka 2011).

Young people ended their educational careers early, and the education acquired often had only a very weak impact on their further life and professional career. Because of the small differences in income, low pressure on flexibility, non-existent unemployment, ongoing labour shortages and generally low work demands, the majority of women had the resources and time to take care of children (Sobotka 2011). The state population policy and overall overarching social security system was also an important element in people's reproductive plans. The "cradle to grave" system of extensive and egalitarian social care limited the alternative possibilities of young people, but it also reduced the costs associated with motherhood and parenthood (Sobotka 2011). What's more, this helped co-create the conditions for predicting the reproductive and family behaviour of young people with relative ease, unencumbered by almost any amount of uncertainty. On the other hand, the authoritarian regime significantly limited the range of possibilities for self-realisation outside the family (Frejka et al. 2008). While it suppressed political and economic freedom, the previous regime provided some basic life guarantees as a substitute.

The existing specific conditions of the previous regime did not create an attractive alternative for postponing maternal and parental careers. On the flip side, family and family ties represented a very important

source of social capital. This special form of subordinating the interests and needs of individual family members led to a very strong normativity of life in families with children. We can understand this as a reaction to the meagre opportunities for self-realisation, namely in regard to leisure-time activities (limited possibilities to travel abroad, a lack of consumer goods, minimal possibilities for unofficial volunteering), as well as career prospects (low return on education, scant opportunities for private business and career growth – often more conditioned by party membership than one's own abilities and education) (Sobotka 2011).

Post-war industrialisation and the focus on heavy industry brought a demand for qualified workers, which Slovakia could not immediately satisfy due to its very low educational structure. The post-war development and unification of the education system in the former Czechoslovakia led to an increase in the average length of study, the broadening of secondary education, the introduction of evening and distance studies for wage-earners and equal rights and even preferential treatment for women. However, the previous political regime was negatively manifested in the stagnation of tertiary education (Simonová 2006).

The centralised interventions of the planned economy also significantly deformed the labour market. First and foremost, this was the degradation of mental and creative work, which required higher education, self-initiative and investment in human capital on the part of the individual. On the other hand was the promoting and favouring of employees performing manual, often routine work.

A very important aspect of the labour market in the period of true socialism was the attempt to achieve significant wage levelling, a phenomenon that was reflected in the deformation of income in individual sectors. Mainly, a significant increase in the salaries of employees in industry and construction took place, while wages fell in the health, education, banking and insurance sectors (Večerník 1998).

A massive transfer of the male workforce was also associated with this. Furthermore, mass industrialisation, the deportation of people of German and in part also Hungarian nationality, and the binding of a large number of young men in the armed forces gradually led to a shortage of workers (Kučera 1994). Women, who basically represented the last possible source of available labour, filled vacant jobs, and with a gradual increase in their educational level, the feminization of some industries took place. The total mobilisation of the whole population

escalated (Možný 1999), resulting in the formation of two-income families. This turned out to be a necessity, since given the continuing salary levelling and overall low pay evaluation of men, it was not possible to turn back, because the basic standard of living for families could only be maintained if both parents were employed (Možný 1999).

The major involvement of women in the labour process, however, was not accompanied by changes in regard to the gender redistribution of paid and unpaid work. Thus, the "traditional" division of roles between men and women in terms of caring for children and the household remained in place; i.e. they remained the exclusive domain of women (Heinen 1997). Women perceived having such a double burden of paid and unpaid work as particularly strenuous (Saxonberg, Sirovátka 2006: 185). Even though the network and capacity of facilities for the youngest children and pre-school age children were expanding, the increase did not correspond to the dynamic rise in the employment rates of young women. In addition, it should also be noted that these services were not available to all women with small children. The provision of other services for young families with children, including supplies, also remained problematic (Kučera 1994: 64). One result of the prevailing overloading of women with a combination of work, parental care and household responsibilities was a continued fall in the number of live births and an increasingly frequent leaning towards the two-child family model, ideally filled soon after each other, so that the reproductive career of a woman ended at a relatively young age (Kučera 1994: 64–65). This was also confirmed by several findings, since the standard of living of young families deteriorated with a growing number of children in families (especially three or more) and if a woman stayed at home with the children (Kučera 1994).

The question of housing was also an important issued associated with reproduction processes during this period. The process of industrialisation in Slovakia after the Second World War and the construction of new economic infrastructure associated with it did not enable material, financial and human capacities to be advanced to any great extent for the construction of new housing. What's more, an illusory conviction prevailed that there were enough flats; therefore, planned housing construction was very low in the first decades after the war (Kučera 1994: 65). The situation began to improve only in the 1970s, when along with cooperative construction the number of flats completed as part of municipal and partly construction for state enterprises also significantly increased. At the same time, there was no free market for flats, and

the state assigned flats to people as part of mass housing construction. The deficiency of flats primarily affected the urban environment, with young married couples suffering the most, especially in cases where both spouses worked in the non-production sector (Kučera 1994: 65). The allocation of flats was based mainly on a social class approach and was often characterised by a long waiting period. A certain advantage can be seen for married couples with children (Sobotka 2011). Another negative side of the housing issue was that the propagandistic practice of "housing for everyone at an affordable price" was fulfilled through low-quality housing and the inappropriate structure of flats under mass construction (Vaňo 2009: 305). As Kučera states (1994: 66), the long-term lack of flats, which young married couples felt the most, in combination with the low level of housing, represented one of the important factors limiting reproduction and family size. A notable portion of young people acquired their own flat late, often only after the birth of the last planned child. In connection with the housing policy of the previous regime, however, the introduction of a housing support tool for young families should also be mentioned. These were reformed loans for newlyweds from 1973, which could be used to buy or furnish a flat. It is estimated that nearly three-quarters of the families entitled to them did in fact use them. They were mostly requested to furnish households (Pelikán 1978: 331–332), and the maximum amount at that time represented about 1.5 years' worth of employment income (Rychtaříková 1995: 159). The advantage of the newlywed loans is also documented by the rate of household repayments, which was lower than 10% of the household budget (Pelikán 1978: 336). The disintegration of the socialist bloc and the gradual transition to a market economy in the context of other social and economic changes contributed to the cancellation of newlywed loans in their current form, starting from 1 January 1991.

We can assess the population policy of the regime at that time as pro-population growth and pro-natal.[19] This was not so much about demographic or social motivations as the fact that efforts to create high population growth resulted from economic necessity due to the extensive use of the labour force, as well as political propaganda aimed at demonstrating the vitality of socialist society in comparison with capitalist countries. The complex system adopted at the beginning of the so-called Normalization period was positively perceived even outside the Eastern bloc (Rákosník, Šustrová 2016: 72; Höhn, Schnubnell

[19] For more details on the issue, see, for example, Koubek (1981), Kučera (1994), Vaňo (2009).

1986). The non-existence of explicitly set quantitative aims in particular was assessed positively, as was the non-use of coercive or repressive instruments to promote them and above all the use of material measures to balance the differences between families with and without children, as well as a comprehensive educational programme for parenthood with the involvement of schools and the media with the goal of influencing public opinion (Bolz, Schmid 1980). Among the measures adopted, instruments focused on stimulating the birth rate predominated, especially those of a material nature (Koubek 1981: 32). On the whole, measures aimed at supporting families with children can be divided into several groups. These were primarily financial allowances, maternity and other maternity leaves, tax deductions, housing support, work allowances and services for families (Vaňo 2009: 301). Indirect assistance for families with children was also important, focusing on discounts and subsidising fees for children in day care, at nursery schools or for clubs and school dining facilities. Further, the prices for food, children's clothing and footwear were also heavily subsidised (until 1979), and a discount based on the number of children born, for example, was available on rent in state flats. Thus, a certain social security for families with children was created which were only exceptionally abolished (Kučera 2001).

Up to 1953, a rationing economy was in place in Czechoslovakia, which in the last years of its existence was able to cover rather securely the main needs of households. Then in 1953, currency reform was introduced, and the majority of the population lost their savings; what's more, the rationing economy was abolished and free pricing, though relatively high for food and industrial goods compared to the previous period, was introduced. Although prices gradually fell, these changes in general markedly worsened the living situation of young families with children through the 1950s and affected population development. Wages were set by economic sectors, were determined in the planned economy. At the same time, average wages grew only very slowly. However, the relatively low and increasingly state-subsidised food prices were also sustained, and these, together with the above-mentioned salary levelling and full employment, did not compel people into action, as they guaranteed a comfortable, though relatively limited, social security (Kučera 1994: 56 and 58).

Starting in 1958, abortions became one of the most important factors of reproduction and methods of regulating family size in Slovakia. This occurred for broadly defined social reasons, without prior scientific

and social discussion, under conditions when effective hormonal and intrauterine contraception were not yet available, in combination with only a very little effective method of family planning. A principle turning point was brought by Act No. 68/1957 Coll. on the Artificial Termination of Pregnancy (effective from 30 December 1957). The reasons stated in applications quickly revealed that women did not approach this option for health reasons, but above all for social reasons. The relatively easy access to abortion in the face of long-term problems with the availability of modern forms of contraception largely diminished interest in other forms of fertility regulation (Stloukal 1996: 37). Several authors even talk of the emergence of an abortion culture in this context (Stloukal 1999), when abortions were generally accepted as a kind of additional ex-post contraception (Kučera 1994: 120). Abortions provided a means to end an unwanted pregnancy, which was reflected not only in a direct fall in the intensity of fertility and the number of children born but also led to the underestimating and neglecting of the importance of family planning and contraception. Abortion thus became a kind of peculiar method of planning parenthood (Kučera 1994: 120). After the introduction of so-called mini-abortions in the 1980s, the situation even went so far that some women considered these procedures to be a kind of regulation of menstruation (Kučera 1994: 120). What's more, in 1987 a new Act No. 73/1986 Coll. on Artificial Termination of Pregnancy came into force, cancelling abortion commissions; a woman applying for an abortion no longer had to justify her decision at all. Thus the last obstacle was basically removed, and women could start making free decisions about their pregnancy.

After the Second World War, significant changes also took place in the epidemiological situation in Slovakia. The result was a significant drop in infant mortality and an extending of the life span. This was primarily a result of the deepening, expanding and making more available professionally organised health care, the success in the fight against infectious diseases through effective treatment, and the introduction of widespread vaccinations (Kučera 1994). However, the beneficial effects ran out as of the mid-1960s, and the subsequent stagnation in mortality rates was increasingly conditioned by a whole range of problems. These mainly involved a combination of the gradual obsolescence of technical equipment, a lack of capacity, the closed nature of the Eastern bloc and the resulting impossibility of importing medicines and technology, as well as the worsening of the environment, an increase in the number of people working in risky jobs and unhealthy lifestyles caused by

the excessive consumption of cheap state-subsidised food, alcoholic beverages and tobacco products (Kučera 1994: 67).

2.3 Factors affecting the transformation of reproduction after 1989

The disintegration of the Eastern bloc and the arrival of social, economic and political transformation had a major impact on the stability of mechanisms involved in the formation of the socialist model of family and reproductive behaviour. In Slovakia, the 1990s in particular brought several dramatic and in many ways negative effects on the population and its standard of living (inflation, low GDP growth, unemployment, growing income inequality, changes in the setting of social and family policies). At the end of the 1990s, the economic situation gradually stabilised thanks to economic reforms, and Slovakia recorded one of the highest economic growth rates in Europe (Potančoková et al. 2008: 1001). A set of new factors began to take effect and reshape people's life paths. On the one hand, there was social and political freedom with new and significantly expanded alternative possibilities in regard to certain demographic transitions on the way to adulthood; on the other, there was the hard reality of transforming centrally controlled economies into market-based ones (Sobotka 2011).

The overall erosion of social, economic, cultural and political conditions after 1989 in Slovakia resulted in marked discontinuity of reproductive behaviour. The generations of women born in the late 1970s and the1980s in particular saw an intergenerational deepening and abandonment of the previously widely applied model of early entry into marriage, parenthood and rapid completion of the family size (predominately by the age of 30).

Life paths are becoming more and more pluralised and a significant reconstitution of them is occurring (Shanahan 2000; Elzinga, Liefbroer 2007). While before 1989 completing one's education, starting a job, getting married, solving the housing issue and having a child often represented the sequence of life paths not too distant from each other in time, or even in that order, we today are seeing a significant transformation and hierarchisation of these individual events. The transition to adulthood is getting more and more complicated and life paths more turbulent, while partial transitions are not necessarily irreversible (Aasve et al. 2007; Chaloupková et al. 2010). They are relatively difficult to predict, and it turns out that they react quite sensitively to some changes in

external conditions. The recent global economic crisis or the COVID-19 pandemic only confirmed this. Therefore, it is evident that young adults must seek their own strategies for starting a family and harmonising the partnership and parenting path with their other life aspirations, which would better correspond to the dynamically changing social, cultural, political and economic conditions (Potančoková 2013). They are also exposed to higher levels of uncertainty (Mills, Blossfeld 2005) than their parents had growing up, following their family and reproductive aims in an environment of the so-called "socialist greenhouse" and its system of extensive and egalitarian social care, which once accompanied people from cradle to grave (Sobotka 2011). With their collapse after 1989, however, factors are forming that raise the level of uncertainty among young people (Mills, Blossfeld 2005) and condition the mentioned postponement of some long-term obligations (e.g. marriage and parenthood) until later, with the expectation that the measure of uncertainty will gradually decrease to an acceptable level (so-called strategic postponement, see Kohler et al. 2002).

A very important role with this is played by extending the period of life spent studying and preparing for an occupation and the time required to find permanent employment as well as sufficient capital for residential independence. In many respects entering into marriage and parenthood is incompatible with these transitions to adulthood, and this is also why a significant hierarchisation of individual life steps is taking place. The acquiring of an ample volume of human capital, obtaining a permanent place on the labour market and dealing with the housing issue comes first to the fore, and only then are issues related to reproduction and marriage considered. The extension of education along with the problematic situation of young people (and graduates in particular) on the labour market, the growing emphasis on flexibility and work instability, together with issues related to solving residential independence are causing reproduction to be postponed until an older age. The postponement of family transitions (entering marriage, the birth of the first child) to a higher age, which is in the broader context of shifts in carrying out individual transitions (completing education, finding a stable job, leaving the family of orientation and residential independence) on the path to adulthood, has at the same time become one of the primary attributes of changing reproduction after 1989.

In combination with normative changes, we are also witness to an increase in investments in the quality of our own human capital, which is then reflected in the extension of the period of study and preparation

for a profession. Thanks to this, young generations in these changing socioeconomic conditions are making an effort to cope not only with the mentioned economic uncertainty but also to take advantage of new opportunities created during the economic transformation after 1989.

The reconstitution of age norms linked with the ideal age of entry into marriage and parenthood, especially when the early timing of these life sequences is perceived rather negatively, is closely associated with the changes in question. What's more, the time sequence of individual steps leading to achieving the social status of an adult is also changing in the normative discourse. It also turns out that not all (especially family) transitions need to be completed, because important changes in reproductive behaviour also include an increase in the acceptance of intimate relationships between single individuals, childlessness, cohabitation not only as a premarital test of a relationship but also as an alternative to marriage and also to the birth of children outside of marriage, especially in connection with stable couples. At the same time, however, family and parenthood continue to be very important and highly valued and remain among the most important priorities in life for many people. What has changed, though, is the motivation for parenthood. Having children is less often perceived now as an obligation towards society or as an inevitable fate and is more often the result of planned decisions of couples, considering the various positive and negative effects of parenthood on their relationship, lifestyle and standard of living. Parenting, on the one hand, brings a sense of self-fulfilment and individual joy, but at the same time it is taken very seriously, as a great emphasis is placed on responsible parenting and the well-being of children (Frejka et al. 2008: 10).

The causes of changes in reproductive behaviour after 1989 in the former Eastern bloc and thus also in Slovakia are generally looked for at two basic levels of interpretation. The first puts emphasis on shifts in the values, norms, attitudes and opinions of the population, while the second focuses mainly on structural changes. Frejka (2008a) presented a relatively comprehensive summary of the main factors that have influenced the nature of the reproductive behaviour in the transforming countries of the former Eastern bloc. He divided them into four groups, with the economic ones forming two specific subgroups. The first group includes temporary factors associated with the first crisis-transformation years, while the second included long-term economic factors that formed with the transition to a market economy.

1. Economic factors operating mainly in the first years of the transformation:
   - massive inflation,
   - high unemployment, especially among young people and women,
   - the loss of previous certainties and entitlements (e.g., free medical treatment, education, employment, income, etc.),
   - the decline of social functions and services provided by various organisations (health clinics, canteens and childcare services),
   - the decrease in the real incomes of individuals and households,
   - delayed payments, or even non-payment for work done,
   - forcing people to take unpaid leave (often for a very long time),
   - a rise in discrimination against women on the labour market,
   - lowering the capacity and support for publicly provided care for children, especially the youngest children (up to 3 years old), a lack of vacant flats, rising housing costs, insufficient or no credit options (especially for young people),
   - growing income disparities, the emergence of a state of deprivation and anomie in some groups of population.[20]

2. Economic factors associated with the development of the market economy:
   - the restructuring of the market with more access to consumer goods and services,
   - the narrowing of the labour market and a rising level of competition on the labour market,
   - the need to increase qualifications and acquire necessary skills,
   - the growing uncertainty in employment,
   - new opportunities for career building, especially for selected individuals with higher education,
   - growing direct expenditures for child care, education, health, and increasing financial participation,
   - growth in indirect costs per child.

3. Social, cultural and psychological factors:
   - a change in norms, values and attitudes regarding marriage, cohabitation, separation, divorce, children being born out of wedlock, modern contraception,
   - despite the beginning of a more egalitarian modern perception of the status of women and men, a largely traditional view of the roles of both sexes in society still prevails,

[20] See also Philipov et al. (2006).

- the preservation of a significantly uneven distribution of responsibilities and work in households (shopping, childcare, cleaning, cooking, etc.) between men and women,
- a continuation or further deepening of marital instability,
- significantly better access and more common use of modern contraception,
- temporary or permanent emigration for work, studies ensuring an income, transfers of funds (remittances), but associated with the destabilisation of family ties,
- the deepening social stratification with emphasis on the differences between the lower, middle and upper social classes,
- massive expansion of education and the achievement of higher, especially tertiary education,
- the expansion of consumer behaviour,
- growth of opportunities in education, leisure activities and international travel.

4. Political factors:
   - disintegration and lack of concept in family policies,
   - the non-existence of clear goals and strategies of family policies,
   - the existence of limited benefits brought by the family policy.

The analysis of the transformation of reproductive behaviour in individual post-communist European countries showed that dividing the factors into crisis economic or cultural/ideational factors is a significant simplification and can lead to confusing, contradictory conclusions, even in cases where the influence of both types of factors is considered simultaneously (Frejka 2008a). Aside from the crisis economic factors, natural determinants forming as a consequence of shifts from a centrally controlled to a market economy are gradually being shown to be important for reproduction (see point 2 above). We can assume that the radical and relatively sudden transformation of the economic, political and social background in the first half of the 1990s was the basis for the coming changes in the value system, norms and attitudes connected with starting a family and having children. Their spread was then greatly supported by economic factors associated with the transition to a market economy.

The adoption of Western patterns of reproductive behaviour, however, is not entirely without exception. Some changes in Slovakia, as in other post-communist countries, turned out to be more the domain of lower-ranking social groups, people with low education, with a problematic

position on the labour market, etc. This is also a paradox, since it is specifically these groups of people who in general show an inclination towards traditional norms in reproductive and family behaviour, while university-educated persons, on the other hand, more often tolerate new forms of family and reproductive behaviour but in reality behave more "traditionally" (Sobotka 2008). In the process of their entire social and economic transformation, the more successful countries of the former Eastern bloc managed to draw closer to the structures of Western Europe with their whole institutional structure, which generates significant changes in values, living conditions and reproductive patterns. The process of "Westernisation" in these countries thus progressed more rapidly than in countries with a problematic transformation.

As Sobotka (2011) adds, poor economic expectations, uncertainty and a low level of social protection in some post-communist countries or social groups may contribute to the persistence of certain reproductive patterns of the socialist model of reproduction. This is primarily about the earlier timing of motherhood and parenthood. These strategies are often applied for the purpose of reducing future uncertainty, because alternative life strategies are unavailable in economically and socially unstable conditions or are characterised by a higher measure of risk (Friedman et al. 1994).

Perhaps the most complex theoretical framework that attempts to encompass the subject changes in reproductive behaviour is the concept of the second demographic transition. This represents a set of behavioural changes (not only reproductive) and a value system which lead to emphasising the importance of individualism and personal freedom and have an impact on the stability of marital ties as well as the very function of marriage and family itself, and in the original form, one of the most important signs is also a decrease in fertility below the replacement value. These changes are closely linked with substantial shifts in values related to the family, family formation, family life and children, and they are marked by the weakening of the traditional family as an institution (van de Kaa 1994, 1997; Lesthaeghe 1995, 2010, 2014). They follow several structural changes (modernisation, growth of the tertiary sector, the welfare state, expansion of higher education), cultural changes (secularisation, growth of individualistic values, a deepening of the importance of self-fulfilment and self-expression) and technological changes (the adoption of modern contraception, the development of assisted reproduction, the dynamic spread of new information technology) (van de Kaa 2001; Lesthaeghe 2010, 2014). Therefore, the

main feature of the ideals and cultural changes is a strong interest in self-realisation, the possibility of free choice, personal development and lifestyle, as well as emancipation, all of which are reflected in the method of family formation, attitudes towards regulating fertility and motivations towards parenthood (van de Kaa 1996). We are witnessing a shift from a time when a child was the centre of family relations to a time when a couple's relationship (not only a married couple) has become the central point. This is a shift from a golden age of marriage to the dawn of cohabitation, a shift from an era when the child was king for parents to an era when the couple and their child become the centre, a shift from preventive contraception to the idea of self-fulfilling conception, and also a shift from uniform families to plural families and households (van de Kaa 1996).

Even though the countries of the former Eastern bloc passed through several behavioural changes typical of the second demographic revolution only after the collapse of the communist bloc, some of these changes could be observed as early as in the 1960s–1980s and were associated with the specific conditions created by the former regime. For example, intimate, premarital contact was widely spread then. According to Potančoková et al. (2008), for example, up to three-quarters of Slovak women of reproductive age had a positive attitude towards premarital sex. This liberalisation of sexual morals and behaviour with poor use of effective contraception meant that women often entered into marriage pregnant, and it can be said that such premarital conceptions were the initiator of marriage. What's more, the instability of marriage bonds gradually increased, which was also supported by the liberalisation of divorce legislation, and in some countries post-marital cohabitation among divorced and widowed people was also quite common (Sobotka 2006).

Along with family and procreative behaviour, the process of mortality has also undergone important changes since the beginning of the 1990s. In the case of Slovakia, we are witnessing a reversal of stagnation in men and a low dynamic of improvement in women, and a continuous extension of life is taking place. This trend was temporarily affected only by the recent COVID-19 pandemic. According to some authors (e.g. Burcin, Kučera, 2008; Burcin, Mészáros 2008), the improvement of mortality ratios and the health status of the population after 1989 can be attributed to several concurring factors. Above all is the improvement of the quality of health care, which was made possible by the growing volume of finances directed to the health sector, further by the opening

of the market and the possibility of exchanging experiences, access to the latest medical techniques, methods and treatment procedures and also the availability of a wide range of the most modern drugs and technology. The increase in mobility and technical support of regional rescue services is also a big positive. Closely linked with the growing quality of care is also an increase in the performance of medical services. In terms of prevention, targeted screenings focused on risk groups have an irreplaceable place, as does the need for a healthy lifestyle and individual care for one's own health, which is widely presented in the media. The growing standard of living and the more varied offer of quality food is also closely related to this. Improvements to the living and working environment also play a certain role (a decrease in exhaust gases emission, a change in non-ecological work practices in the economy, a change in the structure of the economy now focused more on services, etc.).

3. Marriage and the divorce rate

Getting married and married life have long been an important transition in the life paths of young people for the process of demographic reproduction in Slovakia. It is thus necessary to realise that prior to the 1990s the vast majority of children were born to married women. Conversely, if a woman remained single, the probability was high that she would remain without the biological experience of motherhood. Above all, the Catholic rural environment with strong internal control mechanisms of local society made marriage the only acceptable construct of the legitimate paired coexistence of a man and a woman with a procreative role. Getting married in Slovakia has long been an almost universal transition in the life paths of young single people. It was also a transition that took place at a young age, particularly for women. The setting of family and reproductive conditions and the population climate during the last political regime also contributed to a significant measure to the consolidation of these characteristic features of marriage behaviour after the Second World War. However, at first glance, the stable mechanisms of early and almost universal marriage began showing cracks as early as the 1980s, and this model completely disintegrated very quickly with the arrival of the society-wide transformation that came with the stormy 1990s. In the little more than three decades that followed, the historically valid model of marriage fundamentally changed.

Even though the legal termination of marriage was still possible for couples during the time of Austria-Hungary, only after the Second World War did the process of divorce begin to play a more important role in the population development of Slovakia. This effectively involved one of two empirically tangible ways of ending a marriage in official demographic statistics (the other is widowhood). In general, a divorce has a significant impact on the lives of all those involved, with several social, economic, psychological and other consequences. Divorce also indirectly affects the character and intensity of demographic reproduction, contributing to the demise of complete families and the subsequent constitution of incomplete families or households of individuals. It is an equally

important factor in shaping the makeup of the population in terms of family status.

The divorce rate is closely related to a large number of external factors. These, above all, are the setting of divorce legislation, the normative perception of divorce and divorced persons in society, the measure of secularisation, the degree of individualism, the preservation of traditions and the previous development of marriage.

3.1 Marriage

For demographic reproduction in Slovakia, the timing, i.e. when (mainly) single men and women entered into marriage, and the intensity of the marriage process itself were key. Given the previously mentioned close link between married life and childbearing, both the timing and intensity of marriage of single people could represent a very important regulatory mechanism for realised fertility. The first can be expressed by the average age of men and women at first marriage. Aside from social conventions, customs and norms, this was also heavily influenced by legislative measures. The result of the intensity of marriage of single persons of reproductive age was the number and share of men and women who got married at least once. In addition, the length of time living together in marriage, especially in the past in Slovakia, was influenced by the death of one of the spouses. Thus, the key for potential further conception was when widowhood occurred and how quickly the widowed person managed to conclude another marriage. With improvement in mortality rates after the Second World War and the wider acceptance of divorce and divorced individuals, the divorce rate began to come to the fore, effectively taking on the role of the main disruptive factor.

With a certain generalisation and neglect of certain exceptions and transitional states in the case of some populations (Livi-Bacci 2003, Rothenbacher 2002: 33–35), Europe in terms of marriage in the late 19th and early 20th centuries was divided into eastern and western parts by an imaginary line running from St. Petersburg to Trieste. Upon a closer look, this line passed through the Moravian-Slovakia border, and the territory of Slovakia was already classified as an area with the so-called non-European[21] marriage behaviour. In the view of the author of this classification, John Hajnal (1965, 1982), the populations west of this line

[21] John Hajnal, the author of this classification uses for a certain simplification the designation "European model of marriage behaviour" for countries west of this line.

were characterised by a higher average age at marriage (mostly over 24 years for women and over 26 years for men) with a higher share of persons who had remained permanently single (more than 10%) at the end of the reproductive period. The model of marriage behaviour to the east of this line was typified by a significantly earlier age of marriage (women around 21 and men around 24) and a much lower share of men and particularly women who never got married (around 5%) (Livi-Bacci 2003).

The results on the structure of men and women based on age and marital status obtained from the population census in both the interwar period and the post-war period in Slovakia confirm the early start of marriages, while only a very small portion of the population were still unmarried at the end of the reproductive age.

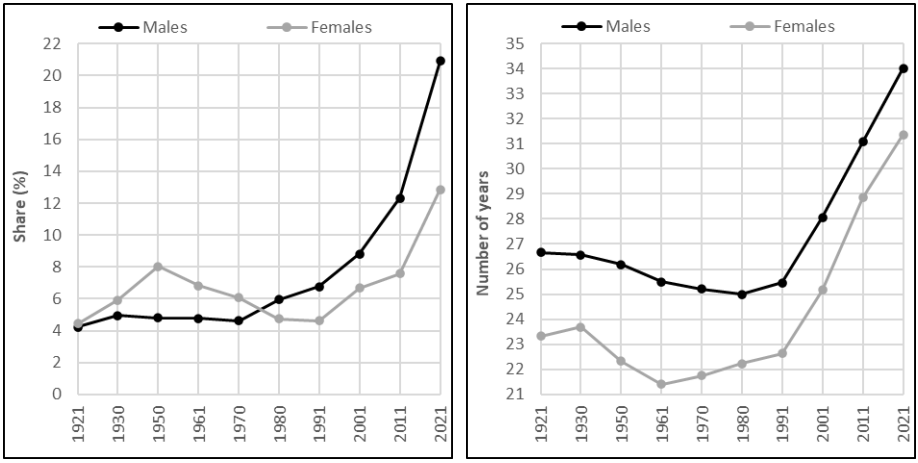
The development of the share of permanently single people (at the age of 50) and the average number of years a person lived single (the so-called SMAM indicator, *singulate mean age at first marriage*) in the interwar period was influenced to a certain extent by the First World War. Thus, it related mainly to the female portion of the population. Although in men we observe only a slight increase in SMAM values up to the age of 27 and the share of permanently single over 5% (1930 census), for women this trend was much more pronounced. Military losses contributed to a situation in which a certain imbalance between potential grooms and brides occurred in the marriage market. It was this lack of age-related grooms that could have contributed to the fact that not only did the share of single women at the end of reproductive age increase (to 8% in the 1950 census), but also the average age at first marriage rose to 24 years (1930 census). Despite these small changes, however, it is still evident that Slovakia was among those countries with early marriages and a very low share of permanently single people.

Census data collected after the Second World War only confirmed the model of early and almost universal marriages. What's more, the specific conditions that occurred during the previous political regime strengthened these qualities of marriage behaviour even more. Also as a result of this, the SMAM value for both sexes fell and the share of single people at the end of the reproductive age also decreased (to just over 5% in 1980).

As we will analyse in more detail below, after 1989 the marital behaviour of both men and women underwent major changes, and this was also reflected in the last three population censuses and the proportion of single persons by age and sex. Above all, we can identify a

significant rise in the SMAM indicator values, which is a reflection of the process of postponing first marriages until an older age. Furthermore, the share of single men and women who remain without the experience of married life even at the end of their reproductive age also increased significantly (Fig. 1 and 2).

Fig. 1 and 2: Share of single men and women aged 50 (left) and singulate mean age at first marriage (SMAM) (right) in Slovakia based on census results in the years 1921–2021

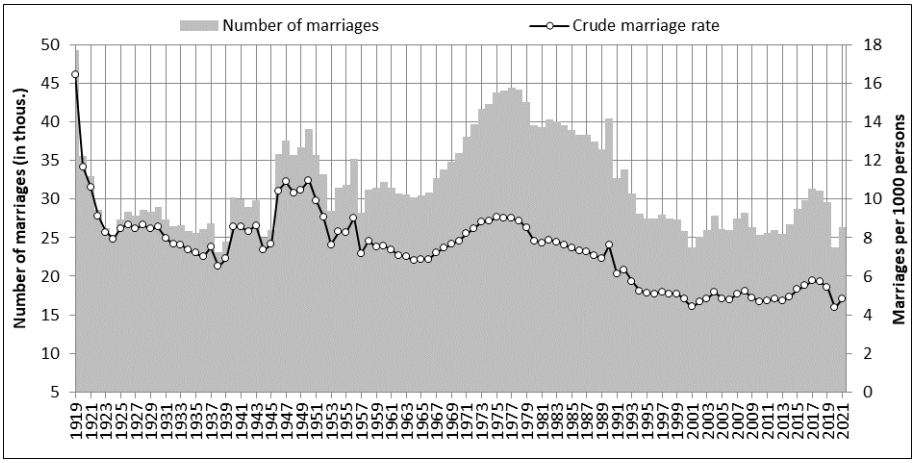


Data source: SO SR, authors' own calculations

The period of the First World War had a strongly negative impact on the development of marriage and was marked particularly by a significant fall in the number of marriages and thus also a fall in the intensity of marriage for both sexes (Dudeková Kováčová 2019; Šprocha, Tišliar 2008a). Then, still in the first post-war year, a significant compensation phase started, when the number of marriages concluded exceeded 48,400, and the crude marriage rate reached a level of 16.5‰. Slovakia thus entered the independent Czechoslovak state with a historically unprecedented high intensity of marriage. This was also confirmed by the total marriage rate, which was nearly 1.8 marriages per women and almost 2.4 marriages per man. Sharing in this atypical intensity was in part the compensation of the unrealised and postponed first marriages of young people whose entry into marriage had been prevented by the war and the adverse marital conditions associated with it, as well as the efforts of the widowed to get married again (see below). The decline in the number of marriages and the intensity of marriage that followed

confirms that this was a specific situation. This culminated temporarily in 1924 at slightly more than 25,000 marriages and 8 marriages per 1,000 inhabitants (Fig. 3). In that year, only 1.1 marriages occurred per man and even less than 0.9 marriages per woman (Fig. 4). In addition to the waning compensation phase and the anticipation linked with it, when in the first post-war years younger people were getting married more often (thus partially exhausting their effect on marriage in the following years), the first economic problems of the young republic also had an unfavourable effect on marriage. We can include the already mentioned existing disparity between the sexes among the negative aspects, especially in terms of the marriage rate of women, who only equalled the intensity of the marriage rate of men in the second half of the 1930s. We know, based on data from the first Czechoslovak census in 1921, that women predominated in reproductive age in almost every age group, and taking into account the typical age differences between engaged couples, we can estimate that approximately 60,000 young marriageable men were missing from the marriage market. An important factor was also the notable accumulation of relatively young widowed women, which increased the pressure and deepened the gender disparity in choosing a marriage partner.

Fig. 3: Number of marriages and crude marriage rate in Slovakia in the years 1919–2022

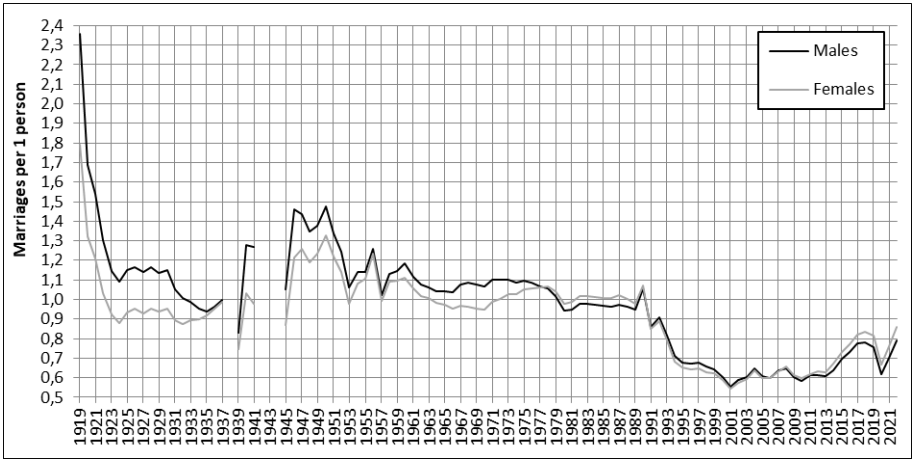


Data source: SO SR, authors' own calculations

The second half of the 1920s brought some stabilisation, however. The number of marriages concluded ranged between 28,000 and 29,000

and there were 8–9 marriages per 1,000 persons. The early 1930s brought a certain reduction in the number of marriages, which we can in all likelihood attribute to the poorer living conditions caused by the Great Depression, which hit interwar Czechoslovakia particularly strongly (Bartlová 1984). Also, as a result of this, in 1935 the number of marriages reached a second interwar minimum, when just over 25,000 couples got married, the crude marriage rate reached 7.3‰ and the total marriage rate reached 0.94 per man and 0.90 per woman. The waning of the main effects of the Great Depression, the revival of the economy thanks mainly to military industrial production, the fall in unemployment, and thus the improvement in living conditions at the end of the existence of interwar Czechoslovakia, also contributed to a minor increase in the marriage rate. In 1937, the number of marriages exceeded 26,800, the crude marriage rate 7.6‰ and the total marriage rate approximately 1 marriage per person for both sexes.

Fig. 4: Total marriage rates of men and women in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

Since marriage is a process that reacts relatively rapidly to changes in external conditions, there is no surprise in the development in the critical years of 1938 and 1939. The worsening of the political situation, the general mobilisation in the autumn of 1938 and the subsequent verdicts of the Munich Agreement and the first Vienna Arbitration created a relatively unfavourable social and population climate, and the tension did not subside even in 1939. The result of the complicated situation was

ultimately the breakup of the truncated Czecho-Slovakia, the creation of an independent Slovak state (from 21 July 1939 to May 1945, the Slovak Republic)[22] and the so-called "Little War" with Hungary in March 1939. As a result, in both mentioned years we can identify a decline in the number of marriages as well as the intensity of marriage, which fell to the level of the beginning and end of the First World War (Fig. 3 and 4). The calming of the political situation, the improving of living conditions and especially the eliminating of unemployment together with the adoption of some state family policy measures modelled on Nazi Germany contributed to the overall improvement of the population climate, which was subsequently reflected in the revival of marriage rates (Škorvanková 2020, Tišliar 2013). In terms of the frequency of marriages, the shift of the abundant generations of men and women born after the First World War into reproductive age also became an important factor. As a result, at the start of the 1940s, the number of marriages reached approximately 29–30,000, the crude marriage rate exceeded 8‰ and the total marriage rate for men was almost 1.2 marriages and for women approximately 1.0.[23] However, the final two years of the war, due to deteriorating conditions and especially the direct involvement of Slovak territory in war operations, resulted in a fall in the marriage rate and the number of marriages concluded. In 1944, the number of marriages fell to about 25,000 and in 1945 it was only slightly higher, at just over 26,000. Per 1,000 inhabitants, this meant 7.2 and 7.5 marriages, respectively, and the total marriage rate in 1945 fell below the level of 1.0 marriage per man and 0.9 marriages per woman.

In regard to the marriage process, the period following the Second World War can be divided into several stages of development (see also Fialová 2006; Rychtaříková 1995). In the first post-war years, a certain compensation phase began, whose effect, especially from in terms of the number of marriages concluded, was accentuated by the abundant generations from the 1920s. Furthermore, some legislative measures, such as lowering the age of adulthood from 21 to 18, the introduction of loans for furnishings and newlyweds, had a positive effect. A significant accumulation of events in a short period of time caused the overall marriage rate to rise above the limit of one marriage per person for both sexes. During this period, 35–39,000 couples entered into marriage in Slovakia annually, which meant 10–11 marriages per 1,000 residents.

[22] From 21 July 1939 until its demise in May 1945, the official name was the Slovak Republic.

[23] The data represents an estimate based on the age structure of the population of the Slovak Republic from the 1940 census.

The beginning of the 1950s saw a dramatic decline in the number of marriages as well as the intensity of marriage, with a peak in 1953. The total marriage rate fell below the threshold of 1 marriage per person for both sexes. Czech demographer Milan Kučera (1994: 54) explained this decline, which can also be identified in the Czech environment, by the worsening of living conditions for the population after the cancellation of the rationing system and the implementation of currency reform, which effectively stripped the general population of most of its savings (Pernes 2008). The exhaustion of the post-war compensation phase may also have been an important factor. In terms of the frequency of events, it is also necessary to consider the fact that less populous generations of men and women born in the late 1920s and early 1930s arrived at the highest age for marriage.

We can also see a close link between marriage and external conditions on the example of a noteworthy year-on-year increase in the number of marriages and the intensity of marriage in 1956 and the subsequent decline of both indicators one year later. The cause here is to be sought mainly in the planned cancellation of the bridal allowance from January 1957. The subsequent calming of the situation and the stabilisation of external conditions probably also contributed to a certain moderate revival of marriages at the end of the 1950s and in the early 1960s. A stabilisation of the marital behaviour model itself, when such significant year-to-year changes no longer took place, also occurred. Some 30–35,000 were marriages were concluded annually during this period. The crude marriage rate was in the range of 6.9–7.8‰, and the total marriage rate still exceeded the threshold of 1 marriage per person for both sexes.

The second half of the 1960s and the early 1970s brought another revival of marriage. On the one hand, populous generations of men and women born in the 1940s and early 1950s began to arrive at the highest marriageable age, but the adoption of a whole complex of population policy measures was especially important for the intensity of marriage. The invasion of Warsaw Pact troops and the subsequent period of so-called "Normalization" halted the democratisation process in society and contributed to the closure of a larger portion of the population in family structures and the privacy of family households, as well as a loss of interest in politics and the public sphere (Kučera 1994). A no less important factor was also the increase in mass housing construction, which, in combination with newlywed loans intended for acquiring or

furnishing a dwelling, contributed to the increasing chances of earlier residential independence.

The number of marriages in this period peaked in 1976–1978, when more than 44,000 couples got married and the crude marriage rate reached 9‰. The values for the total marriage rate of men reached their maximum (1.1 marriages) as early as in the mid-1970s. The growth trend in women lasted a little longer, and we find the maximum level only in the second half of the 1970s, when approximately 1.15 marriages occurred per woman. As is obvious from Fig. 3, the revival of marriage was only temporary, and already in the early 1980s and especially the second half of the 1980s, we record a decrease in the number of marriages. Not only did the shrinking population base of people of prime marriageable age contribute to this, but also the reduction of its intensity. Before marriage behaviour began to dramatically and dynamically change in the new social, political, cultural and economic conditions of the 1990s, approximately 36,500 couple were married in Slovakia each year, meaning approximately 7 marriages per 1,000 inhabitants. Due to the already mentioned gradual decline, the total marriage rate in 1989 fell below the threshold of 1 marriage for men and only slightly exceeded this level for women (Fig. 4).

Due to the scope, dynamics and nature of changes in marital behaviour, the past three decades represent a historically unique chapter in Slovakia. Among its primary features are the definite abandonment of the model of early and almost universal marriage. On the contrary, marriage is becoming a demographic transition for young single men and women which is increasingly absent in their life paths, and if it does occur, it takes place at a much older age than in the late 1980s. We can thus see the year 1990 as a kind of dividing line between the old and new models in the history of marriage behaviour of the population in Slovakia. However, this transformation period itself can also be divided into several phases.

The pre-announced cancellation of newlywed loans from January 1991 brought about the last major increase in the marriage rate and the number of marriages. This was partly associated with an anticipatory tendency, which was also confirmed by the fall in the average age at first marriage (see below). Further development, however, was also influenced to a certain extent by this specific development, since we identify in the following year a relatively dramatic decrease in the number of marriages and the intensity of marriage (Fig. 3 and 4). The extent and dynamics of this decline is further enhanced by the fact that

the abundant generations of men and women born in the 1970s entered the prime marriage age during the 1990s and the beginning of the new millennium. In essence, though the continuous decline peaked at the beginning of the 21st century, we can observe its greatest dynamics only in the first years of the transformation period. At the beginning of the new millennium, the number of marriages fell below 24,000 per year, and there were just slightly more than 4 marriages per 1,000 inhabitants. As a result of this development, the total marriage rate for both sexes fell below 0.6 marriages per man or woman.

Subsequent development was marked by alternating periods of temporary recovery and a subsequent decline in the marriage rate. The number of marriages ranged between 25,000 and 28,000, and the crude marriage rate remained stable below 5 marriages per 1,000 inhabitants. Likewise, the total marriage rate did not exceed 0.7 marriages for men and women. The start of the most significant increase in marriage intensity in Slovakia in the recent period is linked with the end of the most important manifestations of the global economic crisis. Thanks to this, the number of marriages rose above 31,000 in 2017, and the crude marriage rate was just below 6 marriages per 1,000 inhabitants. In the overall marriage rate we identify a maximum one year later, when maintaining its level, there were almost 0.8 marriages per man and more than 0.8 marriages per woman. Already in 2018, however, it is possible to see the first indications of the exhaustion of this positive trend, and a slight decrease in the number of events and the intensity itself was even recorded, which was also confirmed in 2019. The number of marriages in the last pre-pandemic year fell just below 30,000, and the crude marriage rate consequently reached the level of roughly 5.4‰. The development that followed was affected by the COVID-19 pandemic and the specific conditions associated with it. Above all else, various measures aimed at dampening the pandemic spread, which were focused predominately on reducing the spatial mobility of the population, bans on public events and gatherings of larger groups of people in combination with frequent changes in orders and prohibitions created a problematic environment for the founding of new marriages. This was confirmed especially in 2020, which saw a very sharp year-on-year fall in the number of marriages. Fewer than 24,000 couples were married in this first year affected by the pandemic, which in relative terms means only about 4.5 marriages per 1,000 inhabitants, and the total marriage rate fell to about 0.62 marriages per man and 0.67 marriages per woman.

Though the second year of the pandemic was even worse in terms of the number of infected, serious cases and especially the number of deaths, the marriage rate began to show the first signs of recovery. However, the compensation phase developed fully only when the pandemic ended in 2022, when the number of marriages once again rose to over 29,000, and the crude marriage rate was only slightly less than 5.4 ‰. The last known value of the overall marriage rate rose to nearly 0.8 marriages per man and even higher, to more than 0.85 marriages per woman, which was higher than the level found Slovakia in the last pre-pandemic year.

As the results of the census have already indicated, the model of early to very early marriage was effectively valid in Slovakia until the beginning of the 1990s. The long-term development of the mean age of men and women at marriage, constructed from age-specific marriage rates, is presented in Fig. 5.

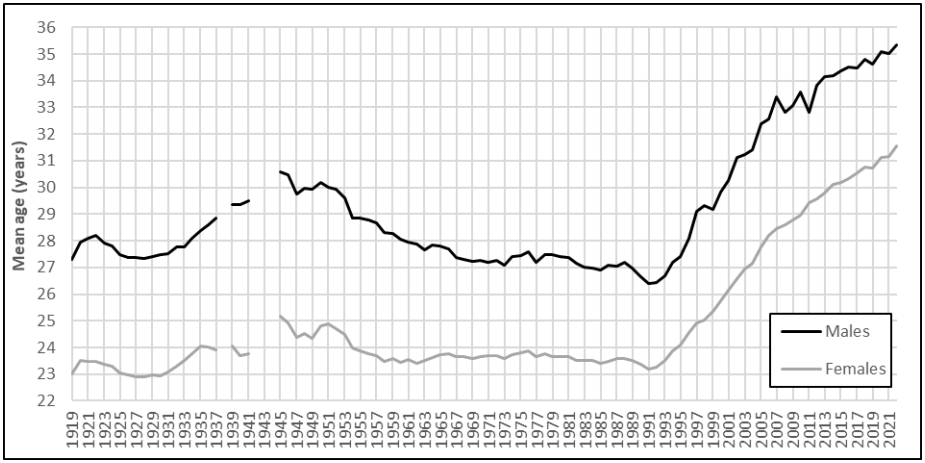
In the interwar period, the mean age at marriage for men was approximately 27–28 years and for women 23.0–23.5 years. The slightly higher values in the first post-war years were mainly linked with more frequent marriages of the widowed and thus also older persons. A certain increase in the average age is equally associated with the 1930s, when the unfavourable conditions associated with the economic crisis and, for men, the problematic political situation and the declaration of mobilisation at the end of this decade played a part. Thanks to this, even in the early 1940s, the average age of men at marriage in Slovakia slightly surpassed 29 years, while for women it stabilised already in the second half of the 1930s at approximately 24 years.

Given the increasing dominance of singles among engaged couples and the development of the timing of first marriages (see below), the period after the Second World War brought a relatively significant decline in the average age at marriage for women and especially for men. In the male part of the population, it fell to or below 26 years, and for women it was 22–23 years. From approximately the mid-1970s, we can observe a slight increase in the average age, which was temporarily interrupted in the early 1990s due to the cancellation of loans for young couples and the subsequent efforts to speed up the conclusion of planned marriages.

In the new conditions, however, the model of early marriage did not find application, and the average age of men and women at marriage grew quite dynamically. Along with the postponement of marriage starts, changes in the timing of repeated marriages, associated also with

the lengthening of the time elapsed from divorce to entry into another marriage, also contribute to this. A somewhat more dynamic increase in the average age at marriage took place among men. Between 1992 and 2022, this was an increase of 9 years, from approximately 26.4 years to 35.4 years. In women in the same period, the average age at marriage rose from slightly more than 23 years to 31.5 years.

Fig. 5: Mean age of men and women at marriage in Slovakia in the years 1900–2022



Data source: SO SR, authors' own calculations

3.1.1 Marriage of single people in a cross-sectional view

The structure of marriages concluded according to marital status is affected by the age of the betrothed, the marriage rate of the single, divorced and widowed, the previous development of the processes of marriage, divorce and mortality, as well as the makeup of the population based on marital status. For a long time, marriages of single people prevailed in Slovakia, always accounting for more than 90% of men and an even slightly higher number for women. The first post-war years represented a certain exception, as there was a higher representation of widowed person (25% for men and 15% for women). Since the beginning of the 1990s, given the decrease in the intensity of the marriage of single persons in combination with a relatively dynamic increase in the divorce rate, with a minimal effect of mortality in the productive age and a very low chance of remarriage among widowers, further shifts have occurred in the structure of the betrothed according

to family status. The representation of divorced men (13–14%) and divorced women (12–13%) is growing, particularly at the expense of single people. Widowed persons, however, represent only a marginal group of those getting married. Nevertheless, it is evident that the process of marriage in Slovakia is conditioned primarily by the intensity and at what age single people enter into their first marriage. Therefore, in the following section, we will look in more detail at the process of concluding first marriages.

A detailed analysis of the marriage rate of singles in Slovakia is based on the results of cross-sectional marriage tables. These were constructed for the interwar period (1919–1937) and for the period after the Second World War (1945–2022).

The compensation phase after the First World War was also expressed at the level of tabular first marriages. According to the results obtained, with the preservation of the intensity of entry into the first marriage from 1919, only about 0.5% of men and women would have remained single at the end of the reproductive period. With the waning of the compensation effect, the tabular share of single people at the age of 50 increased relatively rapidly, achieving a value in 1924 of approximately 9% for men and almost 10% for women. In the second half of the 1920s, we see a slight recovery for women, when the tabular marriage rate of single people at the age of 50 exceeded 91%, but with the arrival of the 1930s, it gradually got to the level of 89–90%. In the male portion of the population, after a temporary fall due to the economic crisis, we witness a certain recovery, peaking in 1937 above the 94% mark. Unfortunately, for the period of the Second World War, the necessary data for the construction of marriage tables and other indicators allowing for an evaluation of the process of entry into the first marriage are not available. On the basis of the development of the overall marriage rate presented above, however, we can assume that even in the case of the marriage of single people a certain revival occurred in the early 1940s, conditioned by an overall favourable population climate supported by several pro-natal and pro-family measures. The last years of the existence of the wartime Slovak Republic, marked by the direct impact of the war on the population, probably also reduced the intensity of entering into a first marriage. A short post-war recovery phase, when the values of the cross-sectional tabular marriage rate of single persons even approached the 100%, marks a certain reaction to the calming of the situation after the war ended. Such a high level remained longer especially in men (Fig. 6). Along with the favourable post-war "golden age of the family", the fall

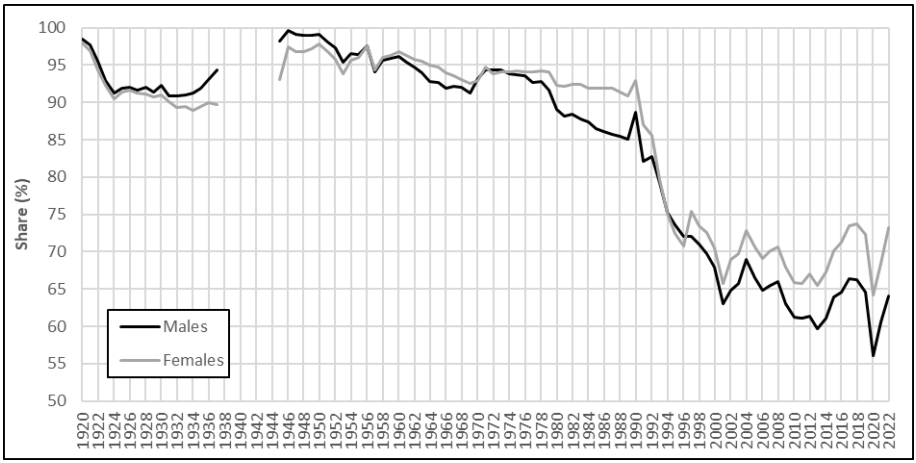
in the average age at first marriage (see below), gradually conditioned by the complex of emerging specific conditions of the previous political regime, had a certain influence on such a high level of marriage of single people.

The above-mentioned worsening in the standard of living after the end of the rationing system, as well as the currency reform and changes in the support for newlyweds, also contributed to a temporary decline in the marriage rate of single people. Therefore, in the years 1953 and 1957, the tabular marriage rate of single people at the age of 50 for both sexes fell below the 95% mark. The following decade showed a certain stabilisation, but at the same time a slight decline, too. This trend was somewhat more pronounced among men. According to cross-sectional tables from the end of the 1960s, approximately 9% of men and 7.5% of women would remain permanently single. However, the change in the social and political climate after 1968, as well as the gradual adoption of a set of various pro-natal and pro-family measures, contributed to a relatively significant revival of the marriage rate of single persons. At the beginning of the 1970s, the value of the tabular marriage rate of single people was over 94% for both sexes. In men, however, the favourable development had a shorter duration, and as early as in the mid-1970s a decline took place, and at the end of the 1970s, their tabular marriage rate at the age of 50 exceeds 90% for the last time. It remained above the 94% mark for women during this period. The decade that followed, however, also brought a gradual decline in the marriage rate to below 91%. The continual fall in the male part of the population meant that at the end of the 1980s, the tabular marriage rate of single men reached a limit of 85%.

The declared abolishment of newlywed loans from the beginning of 1991 was reflected in a temporary increase. As a result, in 1990 the tabular marriage rate reached 89% for single men aged 50 and nearly 93% for women. As has already been mentioned, the overall transformation of society in the 1990s had a significant impact on the nature of marriage behaviour, affecting mostly those concluding a first marriage. This was primarily manifested through a significant decline in the tabular marriage rate of single men and women. The first half of the 1990s in particular was crucial from this point of view, as its values fell below the 75% threshold for both sexes. However, the fall in the intensity of the marriage of single people continued in the following years, too, though not with such dynamics. If the intensity of marriage of singles observed at the beginning of the 21st century were to last, then nearly one-third

of women and approximately 37% of men would have no experience of married life by the end of reproductive age. Similarly as in the case of the overall level of marriage, in the case of first marriages, too, the years that followed alternated between periods of recovery and subsequent decline (Fig. 6).

Fig. 6: Table marriage rate of single men and women aged 50 in Slovakia in the years 1919–1937 and 1945–2022

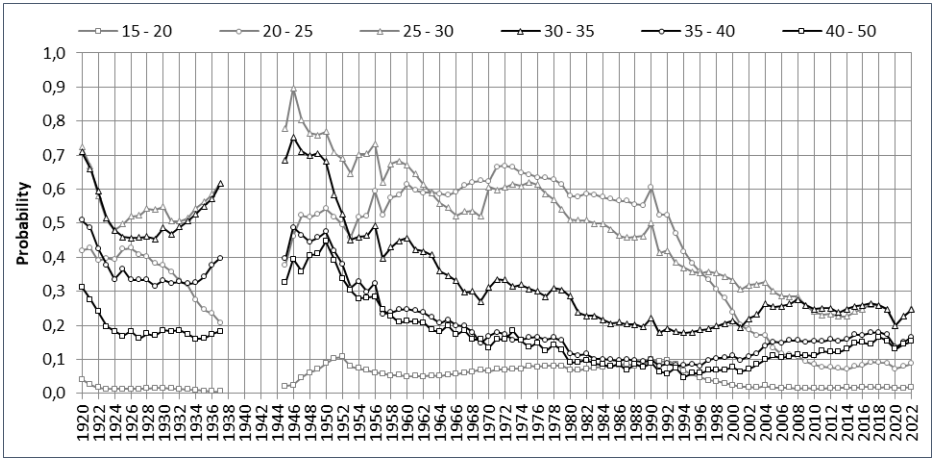


Data source: SO SR, authors' own calculations

We observe an especially significant decline in the period of the recent global economic crisis, peaking in 2013, when the tabular marriage rates of single men at the age of 50 reached approximately 60% and was less than two-thirds for women. In contrast, continuing development brought a relatively significant revival of marriage. We identify the maximum in men in 2017, when slightly more than two-thirds of men would marry at least once, were this intensity to be maintained. In the female portion of the population, we continue to see a revival in 2018. The value of the tabular marriage rate of single women peaked at almost 74%. Although the following year brought a slight decrease, the unfavourable social situation connected with the COVID-19 pandemic meant a sharp decline in the marriage rate of single people in Slovakia. Several restrictive and often changing measures, especially in the mobility and gathering of a larger number of people, the holding of social and cultural events and, finally, even the wedding ceremonies themselves, in no way created favourable conditions for concluding marriages. This was reflected not only in the overall intensity and number of marriages, but also in the

marriage rate of singles. In consequence of this, the value of the tabular marriage rate of singles in 2020 reached a new historical low. In men it was approximately 56% and for women it was just over 64% (Fig. 6). Even though the second pandemic year was significantly worse from the epidemiological and mortality point of view, the marriage rate of single people rose slightly. This compensation phase continued in 2022, thanks to which the tabular first marriage rate exceeded 64% for men and more than 73% for women (Fig. 6).

Fig. 7: The probability of single men getting married between two selected ages in Slovakia in the years 1919–1937 and 1945–2022



Data source: SO SR, authors' own calculations

In the interwar period, single men aged 25–29 and 30–34 had the highest probability of getting married. Given the set age of reaching adulthood at 21 and mandatory military service, there was a relatively low chance that they would marry for the first time before turning 20 years old. What's more, in the interwar period, the probability of marriage between ages 20–24 also decreased, which is why an increasingly large number of tabular marriages of singles gradually took place after the age of 25. This was also confirmed by our empirical data. While in the first post-war years approximately half of all tabular marriages of single men occurred before reaching the age of 25, in the second half of the 1930s this was only a little more than one-fifth. After the end of this specific phase, the chance of first marriage decreased in essentially all age groups, with the exception of the youngest ages.

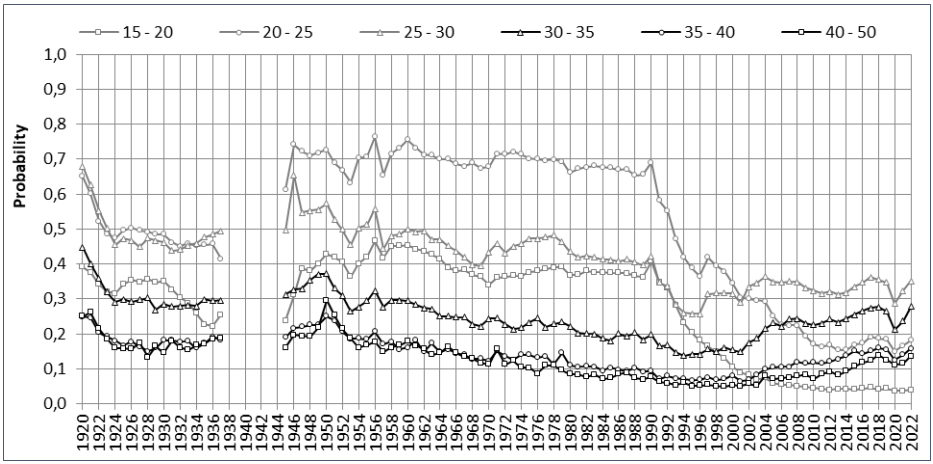
From roughly the mid-1920s, a certain stabilisation occurred, with the exception of the 20–24 age group, where we see a downward trend until the end of the interwar period (Fig. 7). In the older age groups, the economic crisis, mentioned several times already, slowed down the recovery. Its effect on the marriage rate, however, was only temporary, and with the gradual revitalisation of living conditions, there was also a revival of the marriage rate of single individuals, first at the age of 25–29 and, with a certain distance, also at the age of 30–39. Given the increase in the intensity of marriages over the age of 25 and especially in the second half of the reproductive period, not only did the share of marriages at this age increase, but the timing indicators also increased. While in the first post-war years the tabular mean age at first marriage for men was approximately 26 years, by 1924 it rose to 27 years, and after a period of temporary slight decline, it continued to rise again, to 28 years (year 1937, see Fig. 9).

In the interwar period, the greatest chances of marriage of single women, as well as the highest share of tabular marriages (50–60%), occurred in women of age 20–29 years. On the other hand, the probability of entering into a first marriage over the age of 35 was relatively low. From a developmental point of view, after the end of the compensation phase, a relatively significant decrease and a certain stabilisation occurred, with the continued reduction of the chances of marriage among the youngest women. The revival of the marriage rate of single women in the second half of the interwar period was significantly limited (it related mainly to women of 25–30 years of age), and we can even identify a continuing decline at younger ages (up to 25 years old) (Fig. 8). The result of these changes in the first half of the 1920s was an increase in the average tabular age at first marriage from approximately 22 to 23 years in the first half of the 1920s, and then over 24 years in the 1930s (Fig. 9).

Development after the Second World War was mainly characterised by a strengthening of early marriage starts. This relates above all to the male portion of the population. In Fig. 7 we can see a relatively significant decrease in the probability of entering into a first marriage at the age of 30 or older. At the same time, younger age groups moved to the forefront. From approximately the mid-1960s, single men between the ages of 20–25 had the highest chances of getting married. The probability was somewhat lower in the next 5-year age group, and the chances of first marriage at the age of 30–35 varied only with a considerable gap. About eight out of ten tabular marriages of single men took place between the ages of 20 and 30. The share of the 20–25 age group rose from the original

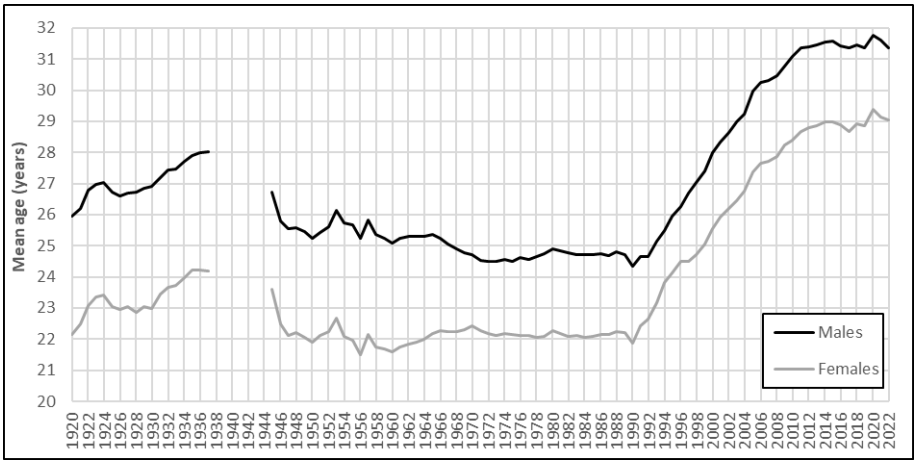
40% to 60%. In view of the mentioned changes in probabilities, the mean age at first marriage for men gradually fell below the 25 years mark and effectively remained at this level until the end of the 1980s (Fig. 9).

Fig. 8: The probability of marriage of single women between two selected ages in Slovakia in the years 1919–1937 and 1945–2022



Data source: SO SR, authors' own calculations

Fig. 9: Tabular mean age at first marriage of men and women in Slovakia in the years 1919–1937 and 1945–2022



Data source: SO SR, authors' own calculations

In women, the socialism era brought unequivocal dominance of the 20–25 age group in terms of the marriage age of single individuals (Fig. 8). The probability of marriage also gradually increased rather significantly among teenage girls. In contrast, in the second half of reproductive age, single women got married more and more rarely, and this was above all rather a marginal phenomenon at the age of over 35. Of the total number of tabular marriages of single women, 85–90% took place among those under the age of 25. The share of tabular marriages concluded before the age of 20 in the second half of the 1950s grew to a maximum of 45%, then stabilised at the level of approximately 40% until the end of the 1980s. After a rapid post-war decline, the values of the tabular mean age at first marriage more or less stabilised, reaching approximately 22 years until the end of the 1980s (Fig. 9).

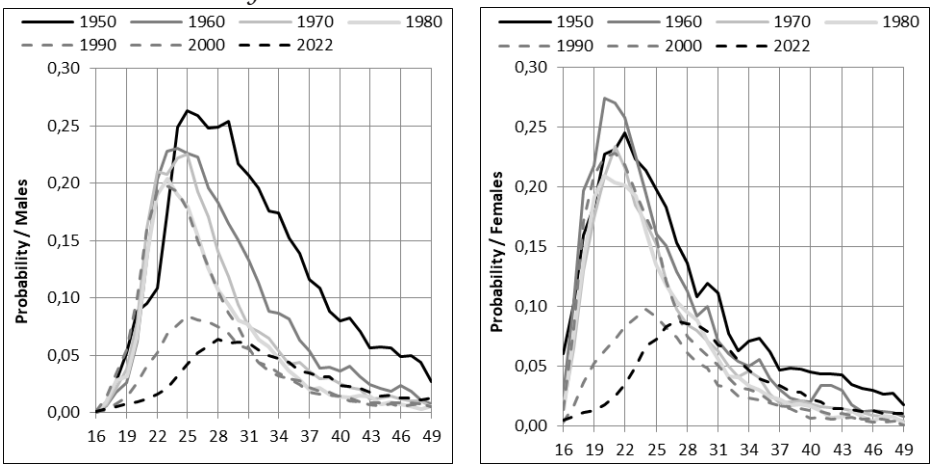
The post-war shift to a younger age of the marriage rate of single persons and the long-term existence of the model of the early start of married life, with a sharp maximum and a subsequent major decline in probability (Fig. 7 and 8), led to a further increase in the age concentration of this process. As a result, most marriages took place in a relatively narrow age range. Evidence of this can also be seen in the values of the interdecile range. These present the breadth of the age interval in which 80% of the total tabular marriages of single people in Slovakia took place. In the case of men, its gradually stabilised at 8–10 years (between roughly the ages of 20 to 29), and for women it was 8–9 years (between 18 and 26 years).

The new social, political, economic and cultural conditions forming after 1989 notably disrupted the stability of the historical model of marriage. The main signs were above all a dramatic fall in the intensity with which single people entered their first marriage (Fig. 6), as well as a rise in the mean age at first marriage (Fig. 9).

The process of transformation of the marriage of single persons after 1989 can itself be divided into two basic phases. The first is connected with a dramatic fall in the probabilities with which single men and women entered marriages in the first half of their reproductive age. This resulted in a drop in the conditional probabilities between age 15–25 for men and 15–25 for women (Fig. 7 and 8). The speed with which the transformation of marriage behaviour took place is also confirmed by comparing the curves of age-specific marriage probabilities for single people between 1990 and 2000 in Fig. 10 and 11. In single men and, above all, in women, a gradual increase can be seen in the probability of marriage at the age of over 25 (for men up to over 30) in the second

half of the 1990s (Fig. 10, 11). The process of recuperation of delayed marriage starts, however, only began to manifest itself to a larger extent in the age distribution of the marriage probabilities of single people at the beginning of the 21st century. The main feature of this second developmental phase of the transformation of marital behaviour was the gradual increase in the chances of entering into a first marriage for single men after the age of 30 and for women after the age of 27. If we compare the years 2000 and 2022 with the earlier development of the curves in the 1990s (Fig. 10 and 11), it is obvious that the recuperation process is thus far only moderate. The increase in the marriage rate of singe people in the second half of their reproductive age cannot significantly compensate for the previous dramatic decline among younger age groups. What's more, it appears that the first phase of the transformation of the marriage of singles (postponement) has not completely ended yet and we will continue to see a slight decrease in the probabilities of entering into a first marriage for both sexes. The crisis period caused by COVID-19 in particular strengthened this trend temporarily. A more detailed analysis of the marriage rate of singles by age confirmed that under the specific conditions created in 2020 and 2021, there was primarily a decline in marriage rates at a younger age, while older age groups were not affected as much. This factor, however, only happened temporarily, because the most recent data available already tell of a gradual recovery of marriage, not only in terms of intensity, but also in terms of age.

Fig. 10 and 11: Probability of marriage of single men and women by age in Slovakia in selected years



Data source: SO SR, authors' own calculations

These findings confirm that the historically formed and long-prevailing model of early and almost universal marriage of single people in Slovakia basically disintegrated in a short time after 1989. Entry into marriage at a young age is at present a marginal phenomenon in the life courses of young people born basically since the end of the 1970s. Postponing the start of the marriage path, but also age pluralisation about when such a decision will be made (if at all), have become typical features. As mentioned above, one of the characteristic features of the past marriage model of singles was its significant age concentration into a relatively narrow interval at a young age, an aspect strengthened even more under the specific conditions of the previous political regime. On the one hand, the path of the marriage probability curves of single people (Fig. 10, 11), but especially the development of the values of the interdecile range, point optically to the age pluralisation in question. While at the end of the 1980s, 80% of all marriages of single men were concentrated in an interval of a little more than 9 years, today the breadth of this interval has already been extended to almost 16 years. Similarly, for women, we also register a widening of the interdecile range, from approximately 8.5 years to 15 years.

Some other empirical data also point to the great importance of changes in the timing of entry into the first marriage in the transformation process of marital behaviour over the last three-plus decades. For example, the tabular mean age at first marriage (Fig. 9) in men has risen from slightly more than 24 years to more than 31 years since the start of the 1990s, and in women during the same period, it has increased from less than 22 years to approximately 29 years. In terms of dynamics, however, these changes did not occur continuously throughout the transformation period. Men and women both postponed marriage starts most significantly in the 1990s and at the beginning of the new millennium. Roughly after 2010, we can identify a gradual slowing down of this process until it stops. Even in the period before the COVID-19 pandemic, it is possible to speak about a very slight year-on-year decrease, which could have been an important factor in the mentioned revival of the marriage rate of singles after 2013. The specific conditions of 2020, affected by the pandemic, brought a certain increase in the values of the tabular average age at first marriage, which was conditioned especially by age-selective changes, when the decrease in the intensity of marriage mainly concerned younger people. However, as already confirmed by the development in 2021 and especially 2022, this was a temporary phenomenon, and the

last known values of the tabular average age at first marriage do not significantly differ from the pre-crisis values for both sexes.

Another of the important aspects linked with the change in timing is the emphasis on the importance of marriage in the second half of reproductive age (that is, after the age of 30). In particular for women, this was for a long time a marginal age interval in which only a very small portion of all marriages of single people took place. For example, in the interwar period, only about one-tenth of the total tabular marriages of single women and about one-fifth to one-fourth on the men's side were concentrated in the 30–49 age group. However, the further age concentration in the first half of the reproductive period and the rejuvenation of the age profile of singles after the Second World War associated with this led to a certain reduction. This is why up to the beginning of the 1990s, only about one-tenth of first marriages for men and about 5% for women took place in this age spectrum. The process of postponing marriage starts has contributed in a significant way to the situation being now diametrically different. At present approximately half of all tabular marriages of single men and nearly one-third of the first marriages of single women take place after reaching the age of 30.

3.1.2 Marriage of single people in a cohort view

The long-term stability of the internal mechanisms of the marital behaviour model of single men and women is also reflected in the development of cohort indicators. We obtain these thanks to the existence of a long and uninterrupted time series of cross-sectional probabilities of marriage for single persons (1945–2022), which can be transformed into a cohort form (since they are calculated in a second parallelogram).

The important development trends that we identified in the cross-sectional view we can also find in the development of the values of the total cohort first marriage rate, which presents the real intensity, i.e. the portion of single men and women who entered into a marriage before reaching the age of 50.

As can be seen from Fig. 12, the total cohort marriage rate of single women remained at 95%. In the cohorts from the 1940s a very slight decline and subsequent stabilisation occurred at around 93%. In men in the oldest analysed cohorts from the 1930s, there was initially a reduction from 94% to 90%. However, development in the younger cohorts from the first half of the 1940s brought about a slight revival, which can likely be connected to the adoption of pro-natal and pro-family measures in the

late 1960s and early 1970s. Even though the complex of these instruments in women brought only a certain inter-cohort stability (at approximately 91–92%), their effect was likely manifested somewhat longer. Namely, for men born in the early 1950s, we can already register a gradual but lasting inter-cohort decrease in the final marriage rate of single persons significantly below the 90% threshold. For those born in the mid-1960s, this was 85%. For women, a longer-term inter-cohort decline began only from the cohorts of the early 1960s, and only women born in the second half of this decade reached a final marriage rate of single people below the 90% mark.

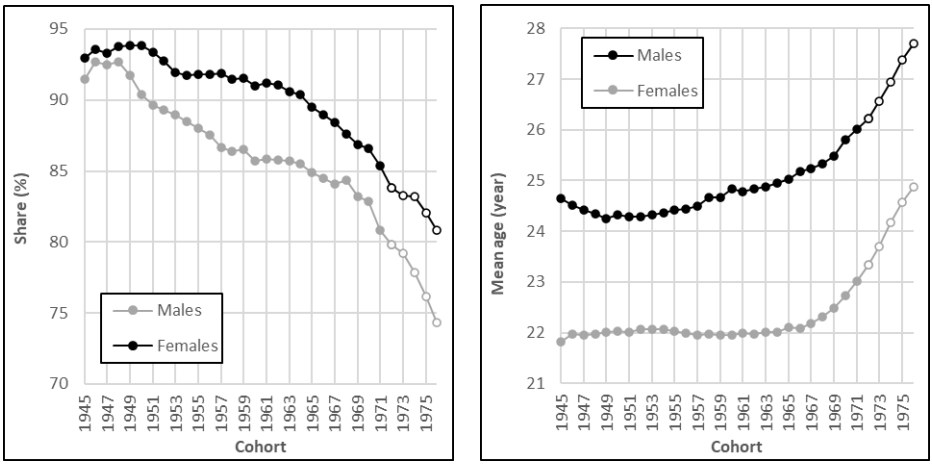
The dynamics of inter-cohort decline, however, then accelerated in both sexes. It needs to be realise that these are cohorts of persons who were most affected by the transformation process after 1989 (Šprocha 2016). In the case of men born in the mid-1970s, the preliminary value of the final marriage rate of singles persons reached the level of just over 76%, and in women it is just above 82%.

The cohort mean age at first marriage in men born in the 1930s ranged from 25.5–25.0 years, with an indication of a certain intergenerational decline (Fig. 13). Anticipation of marriage starts in the post-war period, as well as the continuing shift of first marriages to a younger age, was reflected in a sharper drop in the cohort's mean age (Fig. 13). It peaked in cohorts from the second half of the 1940s and beginning of the 1950s at below 24.5 years. However, in the generations from the first half of the 1950s, we can already identify the beginning of a gradual rise, which was probably behind the above-mentioned decrease in the final marriage rate of single men. However, this was a relatively less dynamic trend in comparison with the situation we see in the youngest analysed cohorts.

In women, we first also identify a slight decline in the cohort mean age at first marriage from just over 22 years to approximately 21.5 years for those born in the late 1930s and early 1940s. Although further developments again brought a return to the level of 22 years, the average age basically stayed at that level until the cohorts from the mid-1960s. The following development, however, similar to the male portion of the population, shows signs of a dynamic increase in the cohort's average age at first marriage. This clearly confirms the onset and gradual intercohort deepening of the process of postponing marriage starts for both sexes in Slovakia. Since we cannot yet talk about the definitive value of this marriage timing indicator in the youngest cohorts affected by the transformation from the second half of the 1970s and the beginning of the 1980s, we at the moment only have information for the cohorts from

the end of the 1960s and start of the 1970s, and given the very a low marriage rate over the age of 45, also a relatively reliable estimate for men and women born in 1972–1976. Based on these data, presented in Fig. 13, we can say that the cohort mean age of men at first marriage has gradually surpassed not only the 26-years-old mark but is already near 28 years in the youngest analysed groups. In women in the 1976 cohort, it has reached almost 25 years. If we look at the preliminary values of the mean ages in even younger cohorts, in whom there is a potential for further increase, and thus we cannot yet consider these numbers as final, then it is evident that the mentioned process is being shifted forward. The highest level recorded thus far has exceeded 29 years for men born in the early 1980s and reached 27 years for women from cohorts in the mid-1980s.

Fig. 12 and 13: The total cohort first marriage rate of men and women (left) and cohort mean age at first marriage (right), cohorts 1945–1976

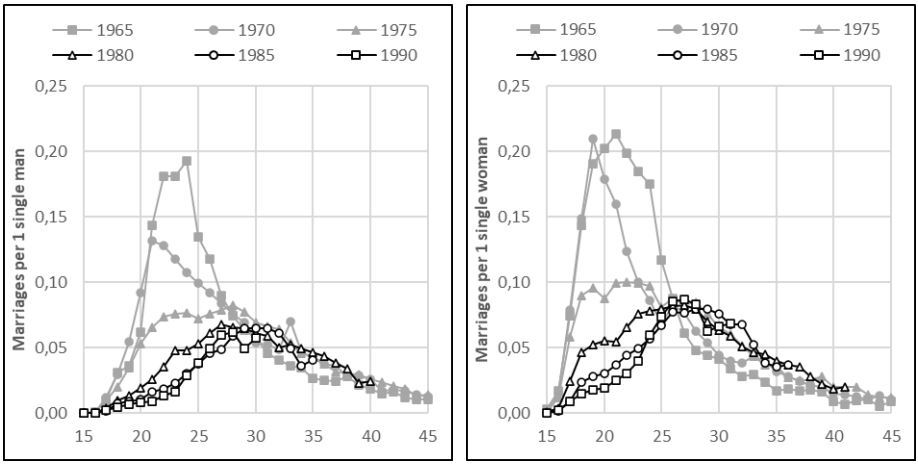


Note: unfilled marks represent cohorts that have not yet reached the end of the reproductive period at the time of writing
Data source: SO SR, authors' own calculations

The process of postponement altered to a significant measure the age course of the curves of the cohort probabilities of marriage of single men and women. As we can see from Fig. 14 and 15, even in the cohort of the mid-60s, the pattern of a rapid increase in marriage at a young and very young age, with a peak for men aged 22–24 and for women at the age of 21, was still largely present. A sharp decline in marriage then followed towards older age, while the intensity was already very low in the second half of reproductive age.

In the first cohorts affected by the transformation from the second half of the 1960s, a significant drop first occurred in the marriage rate at the age of 20–25. Paradoxically, however, the level of marriage did not significantly change at the youngest ages. From this it is clear that a share of men and women at the beginning of the new social, economic, political and cultural conditions did not significantly change their marriage behaviour in terms of timing and entered into marriage very early by today's standards. The negative effects of the transformation in the first half of the 1990s, however, ultimately contributed to the fact that other groups of people born in the early 1970s delayed entering their first marriage. Therefore, the marriage rate in the age interval from 20–25 years decreased significantly. The process of postponing and thus lowering the marriage rate of single people around the age of 27 for men and 25 for women deepened in the direction towards the younger generations. However, marriage at a very young age of up to 20 years old also fell significantly. This mainly concerned men and women born from the second half of the 1970s (Fig. 14 and 15).

Fig. 14 and 15: Cohort probability of marriage of single men and women in Slovakia in selected cohorts



Data source: SO SR, authors' own calculations

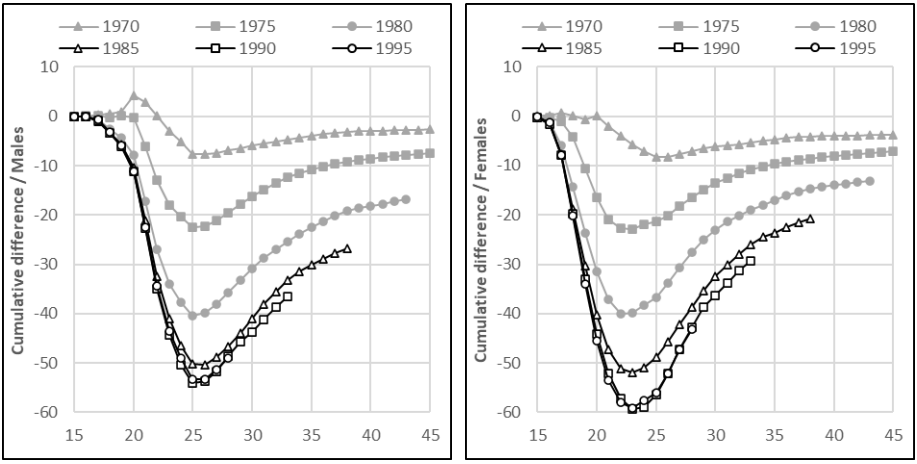
Regarding the youngest analysed cohorts from the second half of the 1980s and the early 1990s, a gradual inter-cohort stabilisation of the marriage level of single men in the first half of reproductive age

occurred. Although we can further identify some decline in women, the dynamics of this trend is much lower compared to older cohorts.

The development in higher age groups thus far shows signs of only a slow increase in the intensity of entering into a first marriage. In older transformation cohorts, in particular, the rise in probability at the age of over 30 (men) or 27 (female) years is very mild. On the other hand, when comparing Fig. 14 and 15, it is evident that this condition improves in younger cohorts with the deepening of the process of postponement, but at the same time, it is also true that this recuperation occurs somewhat more dynamically in women.

We can flexibly identify the effects of the transformation of the marriage rate of single persons in Slovakia after 1989 in a cohort perspective through the following analytical approach. The dynamism in the increase in the cohort average age at first marriage started to appear among men from the generation of 1965, while in the case of women, this cohort is clearly the initial one, from which for younger women we see an uninterrupted increase in the values of this indicator of the timing of marriage starts. According to Sobotka et al. (2011) and Yoo (2016), we can label the 1965 cohort as a benchmark with which we will compare the cumulative tabular marriages of single persons by age in younger cohorts.

Fig. 16 and 17: Cumulative differences of tabular cohort marriage rates of single men and women in Slovakia between the selected analysed cohorts and the reference cohort of 1965



Data source: SO SR, authors' own calculations

As is clear from Fig. 16 and 17, with the exception of the first transformation cohorts and even then only at the youngest age, we can identify in both sexes a gradual deepening of the lagging behind of the marriage rate of single persons. At the same time, the process of inter-cohort postponement took hold most prominently in people born in the 1970s. While in men and women from 1970, for example, the maximum postponement was at the level of less than 10 p.b., in persons from the mid-1970s, the cumulative differences rose to and above the level of –25 p.b., and the difference exceeded the level of –40 p.b. in the 1980 cohort. For younger cohorts, however, the postponement process is gradually dampened. This is confirmed empirically by notably smaller differences in the cumulative decline of tabular marriages between the 1985 and 1990 cohorts (Fig. 16 and 17).

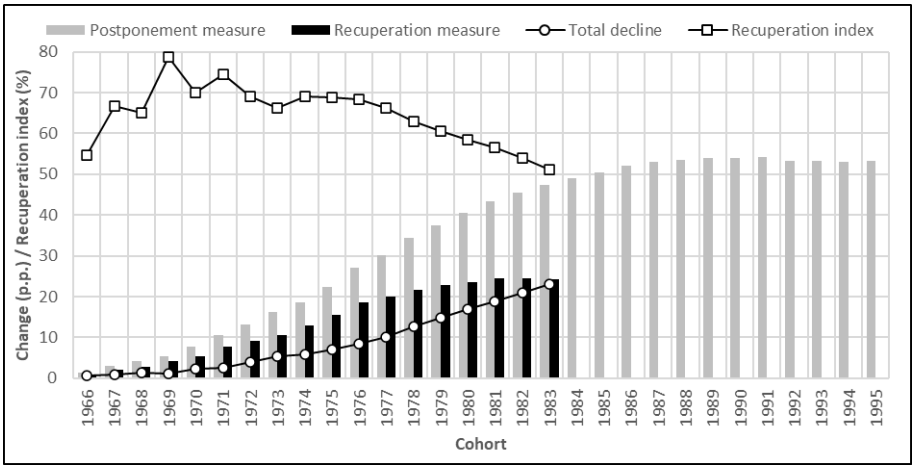
The development of differences between the analysed cohorts affected by the transformation and the reference cohort after reaching the maximum postponement indicates that these differences gradually decrease at older ages. This is the result of a partial recuperation of postponed cohort marriage. From Fig. 16 and 17, however, it is clear that, at least for men and women born in the 1970s, this catching-up was not and will not suffice to make up for the significant decline in marriage at a younger age. The consequence of this is and will be a further continuation of the decrease in the cohort marriage rate of singles.

The dimension of this recuperation in absolute (recuperation rate) and relative terms (recuperation index, as the ratio between the rate of recuperation and postponement) in combination with the degree of postponement and the resulting total decrease in the total cohort marriage rate for men is presented in Fig. 18 for men and in Fig. 19 for women.

Both figures clearly show an inter-cohort deepening of the postponement of marriage of single people. At the same time, the dynamics of this process is decreasing in the youngest analysed cohorts. Even if the recuperation rate is gradually increasing between cohorts, the recuperation index values clearly show an insufficient catching-up of the postponement of the marriage of single people at an older age. For men, its values in the youngest age cohorts at the end of the reproductive period, after the initial decline, have more or less stabilised at around 70% (Fig. 18). In women, on the other hand, we initially see a relatively dynamic and later gradual increase, which reached a level of approximately 72% in cohorts from the mid-1970s. Sticking to this level, it is clear that a further decline in the cohort first marriage rate will occur

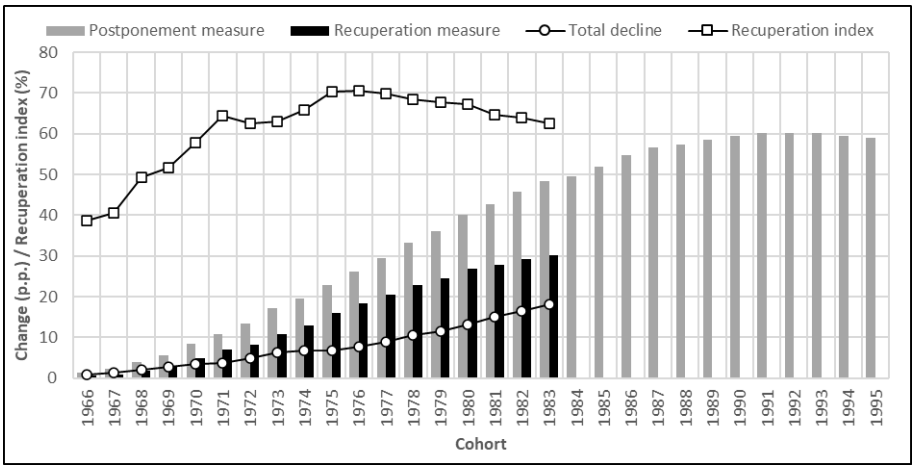
in younger cohorts. In cohorts from the late 1980s and early 1990s, this could reach about 68% in men and 72% in women.

Fig. 18: The process of postponement and recuperation of the cohort marriage of single men in Slovakia, cohorts 1966–1990 (benchmark cohort 1965)



Data source: SO SR, authors' own calculations

Fig. 19: The process of postponing and recuperation of cohort marriage of single women in Slovakia, cohorts 1966–1990 (reference cohort 1965)



Data source: SO SR, authors' own calculations

3.1.3 Marriage of divorced and widowed people

Although in the long-term population development of Slovakia the crucial factor in marriage has been the intensity and age at which single people entered into marriage, because of the high mortality rate in the interwar period and the rising divorce rate in the post-war period, especially since the early 1990s, numerous cohorts of widowed and divorced persons have also entered the group of marriageable persons. In this subsection we will focus on an analysis of the process of remarriage.

Demographic statistics in Slovakia provide two fundamental analytical approaches. The first rests on the age of divorced and widowed persons who are remarrying. Working with pure rates of marriage (I. category) is the ideal here. Since the structure of the population by age, sex and family status for such a long period is provided only by the census results, the indicator in question could only be constructed for the census years from 1921–2021.

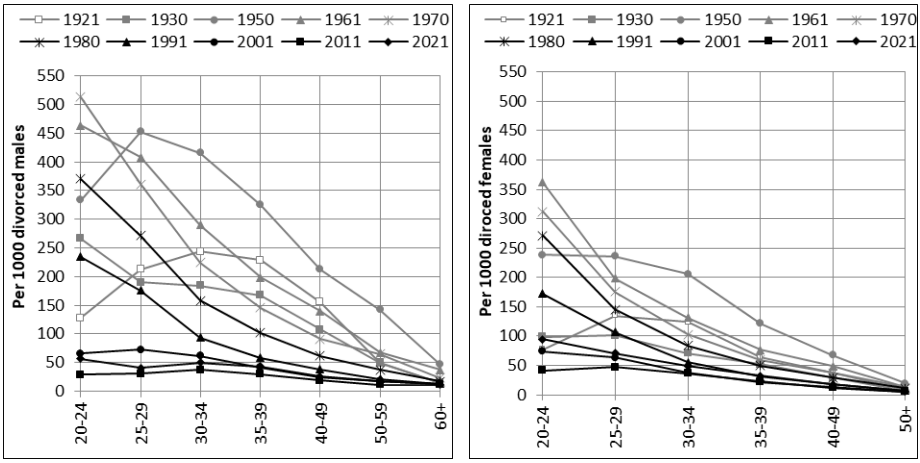
The second approach works with period of time segment that has passed from the divorce or widowhood to the entry into another marriage. It thus answers the question of what portion of divorced and widowed persons would remarry. It is likewise possible to identify in what period of time this happened after the end of the previous marriage.

If we focus on age, the results confirm that younger people had significantly higher long-term chances of remarrying after divorce or widowhood. This was especially true for men and women under the age of 30. In terms of gender, a rather significant difference is also clear, clearly in favour of men (compare Fig. 20 and 21). In the case of divorcees, the intensity of marriage gradually increased, with a maximum occurring in the post-war 1950s. Subsequently, in the 1960s and 1970s, stabilisation occurred at a relatively high level. In the period that followed, basically up to the present, we have witnessed a decrease in the chances of remarriage across the entire age spectrum for both sexes.

The high probability that a divorced person in Slovakia will remarry is also confirmed by the development of the total marriage rate of divorced persons constructed from the divorce rates based on the time elapsed since the divorce (Fig. 22). Until the mid-1970s, it was basically true that if the intensity of the given period was maintained, then 60–70% of divorced men and 50–60% of divorced women would marry. In the second half of the 1970s, however, a gradual decrease is seen in the intensity of divorces, which stabilised at 30–35% for men and 27–33% for women from around the mid-1990s. From roughly 2010, a certain revival in the marriage rate of divorced men and women can

then be identified. As a result, the total marriage rate of divorced men was just below 42% in 2018 and fell below 40% for women (Fig. 22). Developments in recent years have been affected by the COVID-19 pandemic. In this case, too, it turns out that the sharp decline in the first year of the crisis was then replaced by a two-year compensation period. At the same time, it is evident that the total marriage rate of divorced men and women has levelled off and, according to the most recent available data, is approximately 45%.

Fig. 20 and 21: Net marriage rates of divorced men and women in Slovakia in selected years

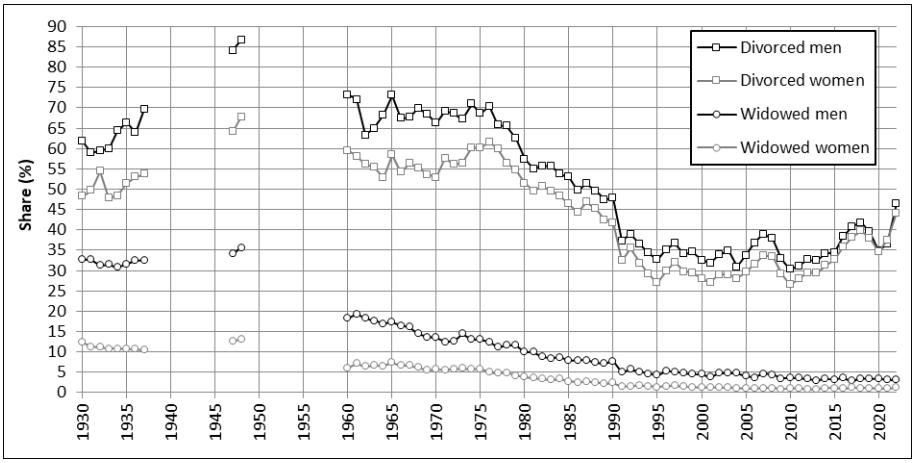


Data source: SO SR, authors' own calculations

The marriage rate of widowed persons reached its maximum level in the interwar period and in the second half of the 1950s. The unfavourable mortality ratios at a younger age meant considerable preconditions for the fact that still relatively young widows and widowers could enter into another marriage. Therefore, the intensity of widowed persons getting remarried was significantly higher in this period than it is today (Fig. 23 and 24). At the same time, it was also true that men got remarried more often. This is also confirmed by the total marriage rate of widowed persons calculated from rates based on the time since widowhood. In the 1930s, if the intensity of remarriage had been maintained, more than 30% of widowed men and about one-tenth of widowed women would have remarried, and in the second half of the 1940s, in the time of the post-war compensation phase, this would be even slightly higher. In this

period, we also identify the biggest differences in the level of remarriage. Ongoing development brought not only a fall in the overall intensity but also a convergence between men and women. This is associated mainly with the improving mortality ratios, especially in the reproductive and younger productive ages, which resulted in widowhood shifting to older age groups, where the intensity of marriage is generally lower. Had the marriage rates from the beginning of the 1980s been maintained, only about 10 widowers and fewer than 5 widows per 100 widowed persons would remarry. The continuing decline in the decades that followed means that the chances of remarriage are now very low, below 5% for both sexes (Fig. 22).

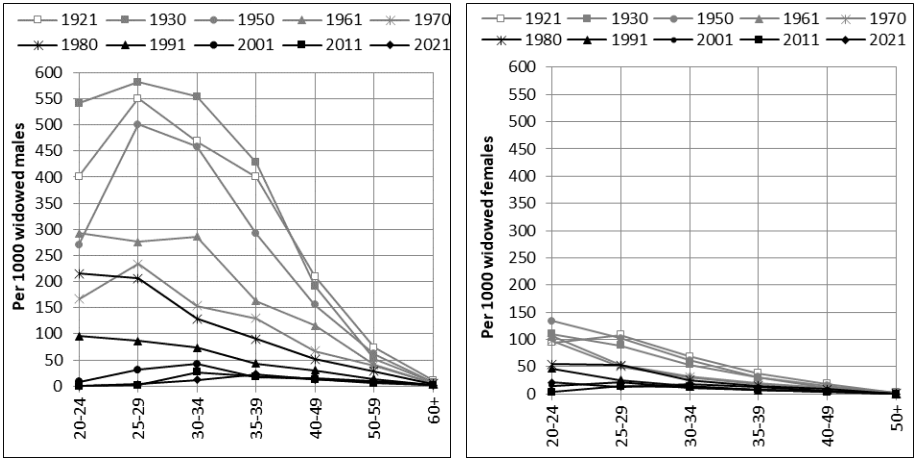
Fig. 22: Total marriage rate of divorced and widowed men and women based on the time elapsed since the end of the previous marriage



Data source: SO SR, authors' own calculations

In terms of the timing of repeated marriages, widowed women clearly took the longest to remarry. In the 1930s this was approximately 6 years, and in the post-war period, the average time from widowhood to remarriage was 7–8 years. Since the beginning of the 1990s, this indicator has continued to increase and is now above the 10-year mark. Closely related to this is the growing value of the average age of widowed men and women. Together, these changes are conditioned specifically by the postponement of previous (most often first) marriages, the general prolongation of life and the fall in the male mortality rate, and thus also the increase in the age at which widowhood occurs. We can thus say that

Fig. 23 and 24: Net marriage rates of widowed men (left) and women (right) in Slovakia in selected years



Data source: SO SR, authors' own calculations

the characteristic feature of the marriage of widowed men and women is that it is not only an increasingly marginal process, but these events are occurring at an increasingly advanced age and with a longer gap from the death of the previous spouse.

The shorter interval from divorce and, particularly in the interwar period, from widowhood to another marriage was closely linked to widowers' efforts to quickly start a new wife. In the 1930s, if a man became widowed and decided to remarry, this step on average took to two years, whereas when he was divorced, it was about 3 years. After the Second World War, this interval lengthened, but no relatively dramatic increase occurred until the 1990s. At present, the marriage of divorced men occurs on average after more than 9 years and divorced women after not quite 9 years.

3.2 Divorce rate

A marriage can be terminated by divorce (that is, during the lifetime of the spouses) in Slovakia only in justified cases and on the proposal of one of the spouses, if the relations between the spouses are so seriously disturbed and permanently disrupted that the marriage can no longer serve its purpose and the spouses cannot expect the resumption of marital cohabitation. The character and intensity of the divorce rate are generally affected by a whole range of mutually conditioning factors.

We can speak of value orientations, the degree of religiosity, the degree of individualism, the preservation of traditions, the level of education achieved, the character of the family orientation of both spouses or the gradual economic independence and emancipation of women. Questions related to the previous level and character of marriage are also unquestionably important,[24] as are the existing family (or population) policy and, last but not least, the development of divorce legislation.

The possibility of legislative termination of marriage was enacted in Slovakia as early as in the second half of the 19th century, i.e. rather early for a European country, but the divorce rate began to play a more significant role in the process of demographic reproduction only after the Second World War. At the same time, not only did the divorce process itself undergo significant changes, but so did some of the main factors that conditioned it.

The number of divorces in Slovakia remained well below 1,000 per year for a long time. It crossed that boundary for the first time only after the Second World War and only rose above it steadily from 1950 (Fig. 25). The very low divorce rate is also confirmed by the estimate of the total divorce rate constructed from the divorce rates based on the duration of divorced marriages. Had its values been maintained, only 3 couples would have divorced out of every 100 marriages. Slovakia crossed this threshold only in the second half of the 1930s.

The first more notable increase in the divorce rate came only after the Second World War, at the beginning of the 1950s. In 1952, the number of divorces surpassed the 2,000 events mark, and the total divorce rate rose from 6 to over 7%. In 1953 and 1954, the growing trend was slowed by an opinion of the Supreme Court and the investigation of the control system, which contributed to a temporary fall in the number of divorces, as well as the intensity of the divorce rate. In practice, divorce proceedings were prolonged and several decisions were postponed. Legal arrangements from the mid-1950s and 1960s contributed only to a slight increase in the number of divorces and the intensity of the divorce rate. This was still year-on-year (1966–1967) interrupted by a moderate decrease caused by the expectation of the courts in association with the implementation and publication of certain opinions of the Supreme Court in analyses and supervisory materials. A similar situation reappeared in the second half of the 1970s (see Fig. 25).

[24] Indicators such as the age at marriage, the age at divorce or the duration of a divorced marriage are also indirectly related to this and are among the main aspects associated with the analysis of the divorce process.

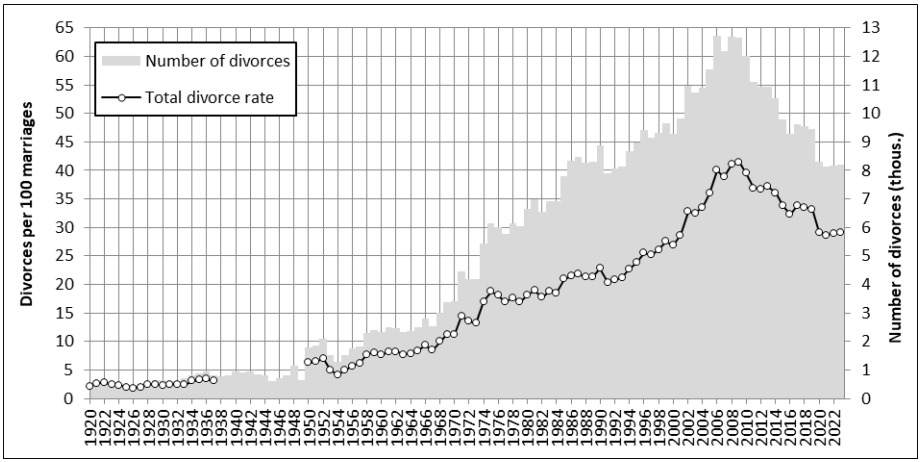
The number of divorces surpassed 3,000 per year only at the end of the 1960s, and the total divorce rate likewise exceeded 10% only in 1968. The beginning of the 1970s brought another notable increase in the number of divorces and intensity of the divorce rate. This was conditioned especially by the liberalisation of the legislation, when in 1973 the mandatory conciliation commissions were abolished. The annual number of divorces surpassed the 6,000 mark and remained at this level until approximately the end of the 1970s. If the overall divorce rate from 1974–1984 were maintained, approximately 17–19% of marriages would have been legally terminated.

Also due to this acceleration, the number of divorces has been above the 8,000 mark per year since 1986. The total divorce rate of marriages rose above 20% in the mid-1980s and basically continued to grow. A certain year-on-year decrease in the early 1990s was only a temporary interlude, after which a further dynamism of increasing intensity of the divorce rate, as well as the number of divorced marriages, occurred.

Thus, in the second half of the 1990s, more than 9,000 married couples were divorced in Slovakia (Fig. 25). With the preservation of this intensity of divorce, more than a quarter of married couples would have divorced. The commencement of the new millennium further contributed to the dynamism. In 2002, there were already nearly 11,000 divorces annually. At the same time, almost one-third of marriages would end in divorce. This trend peaked in 2006 and then in 2008–2009, when the number of divorces rose to almost 13,000. If the level of divorce from this period had been maintained, more than 41 out of 100 marriages would have ended by means of divorce.

In the next period, we identify a relatively rapid and also a significant decline. This first stopped at the level of approximately 9,300–9,600 divorces in the years 2016–2019, and the overall divorce rate was roughly one-third of the total number of marriages. The year 2020 then brought another dynamic decrease, when the number of divorces fell just below the threshold of 8,300, though this was likely due also to the specific social conditions of the COVID-19 pandemic. The last two analysed years, however, confirm such a low number. As a result, the situation in terms of the number of divorces is basically the same as could be identified at the beginning of the transformation period. Aside from the frequency, the first pandemic year of 2020 also brought a relatively significant year-on-year decrease in intensity. The total divorce rate has stabilised at the level of approximately 29% in the last four years (Fig. 25).

Fig. 25: Number of divorces and total divorce rate in Slovakia in the years 1920–2022



Data source: SO SR, authors' own calculations

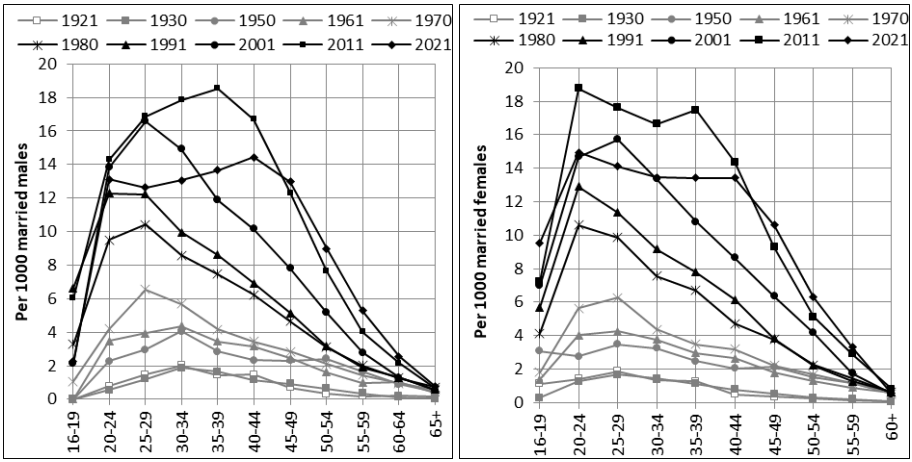
Explaining the drop in the intensity of divorce in the last decade is problematic without more complex multidisciplinary research. It is difficult to imagine that a reverse development of the relatively liberally viewed institution of divorce, as well as the divorced persons themselves, would have occurred in Slovak society. Demonstrating the possible explanation that in recent times spouses have made greater efforts to resolve their problems before they escalate to such a level that their solution becomes divorce is equally difficult. We can also put the society's exposure to several crisis phenomena in a short period of time among the explanatory factors, such as the global economic crisis after 2008, the COVID-19 pandemic, the current war in Ukraine and rising inflation. The reaction to them could specifically be a decreasing risk of divorce and thus the efforts of married couples to overcome these turbulent times together. From a demographic point of view, the preceding development in marriages also offers an explanation. Above all, a reduction in marriage intensity occurred, which was also reflected in the fall in the number of marriages concluded, and at the same time these occurred among significantly older people. Over the long-term, older age at marriage also represents one of the important factors of marriage stability. What's more, the selection of a spouse itself can take longer, while increasingly frequent premarital cohabitation and other forms of non-marital cohabitation make it possible to test the quality

and suitability of such a relationship prior to the act of entering into marriage. A no less important aspect may also be the fact that people with lower education, for whom the risk of divorce is higher in the long term, are choosing marriage to a lesser extent (Šprocha and Tišliar 2019). The general rising educational level of the population, especially among young people, may also be having a favourable effect on the stability of marriages.

3.2.1 Age of divorced people and length of marriage at the time of divorce

According to available data from the early 1920s and 1930s, the age distribution of the divorce rate of men and women in Slovakia did not change much. In comparison with selected years after the Second World War, the intensity of divorce measured by the rates of the first category was significantly lower in all age groups. In terms of the age distribution of the divorcing persons, about one-quarter to one-third of them were men aged 30–34, and divorced women aged 25–29 had almost the same weight. The second most numerous group comprised men aged 35–39 (making up more than one-fifth) and by women aged 30–34 (slightly more than 23%). It is specifically in these age groups that we can identify a certain insignificant maximum of the divorce rate (Fig. 26 and 27). In

Fig. 26 and 27: Net divorce rates of men and women in Slovakia in selected years



Data source: SO SR, authors' own calculations

the 1950s and at the beginning of the 1960s, the risk of divorce for both sexes increased markedly in all age groups. In terms of age distribution, however, no significant changes are seen. Only in the 1970s and particularly in the 1980s and early 1990s can we clearly identify a shift in the maximum level of divorce to a younger age. The risk of divorce was therefore highest among women at the age of 20–24 as early as in the early 1980s, and this state persisted until the beginning of the 1990s. Although in the 1970s and 1980s we still see the highest intensity of divorce among men aged 25–29, the influence of younger age groups was also clearly strengthened. This was a relatively intensive process, since at the beginning of the 1990s the risk of divorce was slightly higher precisely in the 20–24 age range (Fig. 26).

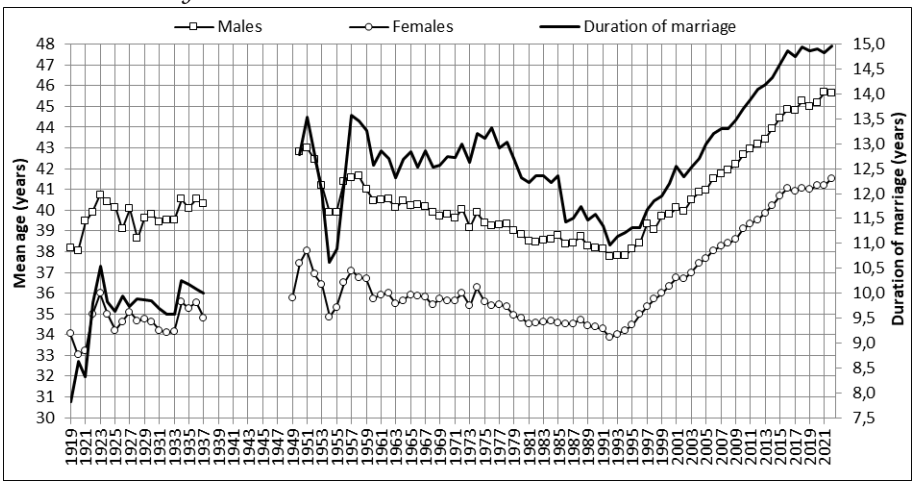
This getting younger of the divorce rate age profile was closely linked primarily to the shift of marriage to a younger age and its high intensity. The marriages of young couples who were often married after a short acquaintance or even under duress after the woman became pregnant were often characterised by lower stability. Further, due to the lack of available flats, multigenerational cohabitation in the first years of marriage should also be mentioned.

The dynamic rise in the divorce rate that occurred after 1989 was evident in effectively all age groups. The greatest changes in both men and women occurred in the age range of 35–59, where the intensity of divorce more than doubled. As a result, the nature of this process was also appreciably transformed. The maximum divorce rate for men has shifted to the age of 35–39 and likewise for women aged 25–49. we also identify a significant increase in the divorce rate. The relatively high divorce rate for both sexes at a young age still remains. This is associated with the relatively small number of married couples exposed to the risk of divorce but also to the fact that for a long time entering into marriage very early represented a risk factor in itself.

Changes in age-specific divorce rates were also reflected in the development of the timing indicators of this process. From Fig. 28, it is evident that no significant changes took place in the interwar period. Only the first post-war years were an exception, when we see a certain ageing of the age profile of divorce rates. Subsequently, the average age of a man at the time of his divorce ranged from approximately 38–41 years, and for women it ranged from 34–36 years. A certain fluctuation in the average age at divorce in this period must be attributed mainly to a relatively small number of events.

After the Second World War and right after the introduction of only a one-step divorce, the average age of divorcees grew significantly higher. Among men it reached the limit of 43 years, and for women it was in the range of 37–38 years. Also, given the length of marriage at the time of divorce (see below), it is clear that mainly accumulated dysfunctional marriages that could not be divorced in the previous period, or were only separated – a *mensa et thoro* – were legally ended to an increased measure. Since their impact on timing was only temporary, the value of the average age fell sharply in the subsequent years, even below the age of 40 in men and to 35 years for women. This was also connected with the overall shift of marriage to a younger age.

Fig. 28: Mean age at divorce and average time from marriage to divorce in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

In the second half of the 1950s, the opinion of the Supreme Court and the findings of the control system contributed to a certain temporary prolongation of divorce proceedings, and final decisions themselves were even postponed until later. This caused a lengthening of the time from marriage to divorce and thus a relatively sharp year-on-year increase in the average age at divorce for both sexes. The shift of marriages to ever younger ages (especially for men), the increasing risk of divorce in the first years of marriage together with the liberalisation of divorce legislation contributed to a more or less steady decline in the

average age at divorce in the next period. The mentioned development basically peaked only at the beginning of the 1990s, when the average age at divorce for men was 37.5 years and for women was even less than 34 years.

The development of the relevant indicators of the timing of this process are also related to the changes in the age profile of the divorce rate and, consequently, shifts in the divorce rate according to the length of the marriage. After a temporary decrease at the beginning of the transformation period, the average age for both sexes was marked by a significant increase, which ceased only around 2016. From the original level below 38 years, the average age for men rose to just under 45 years, and for women it increased from about 34 to 41 years. The several years of stagnation that followed was interrupted only in the recent period, when the average age of men and women again slightly increased. Not even the pandemic and post-pandemic development changed that. According to the latest available data (from 2022), men in Slovakia on average divorce at an age of not quite 46 years and women at 41.5 years.

One of the main characteristics of the divorce rate is the distribution of legally dissolved marriages according to the time that has passed since the marriage. This is formed above all by the risk of divorce depending on the duration of the marriage.

In the interwar period, approximately 30% of marriages ended in divorce within 5 years of the marriage. About one-third occurred within the marriage length of 5–9 years and one-fifth in the span of 10–14 years since the marriage. Marriages lasting 15 years or more accounted for less than 18% of divorces. The risk of divorce thus increased sharply in the first years and reached its maximum in the range of 3–5 years after the marriage (Fig. 29).

As we indicated above, with the legislative adjustment after the Second World War and the subsequent easier access to divorce, there was an effort to terminate long-lasting dysfunctional marriages to a greater extent. Therefore, in the second half of the 1940s and the beginning of the 1950s, divorces of marriages that had lasted 15 years or more were the most common. The settings of the maximum intensity of the divorce rate, which in this period we find only after 6–7 years after marriage, also corresponded to this. This was only a temporary state, however, until it was possible to legally end the accumulated long-lasting dysfunctional marriages. Therefore, in the second half of the 1950s, the divorce of marriages lasting less than 5 years and 5–9 years gradually came to the fore, and the smallest share was for marriages lasting 10–14 years. The

maximum risk of divorce, which was in the 4th and 5th year of marriage, also notably shifted with this.

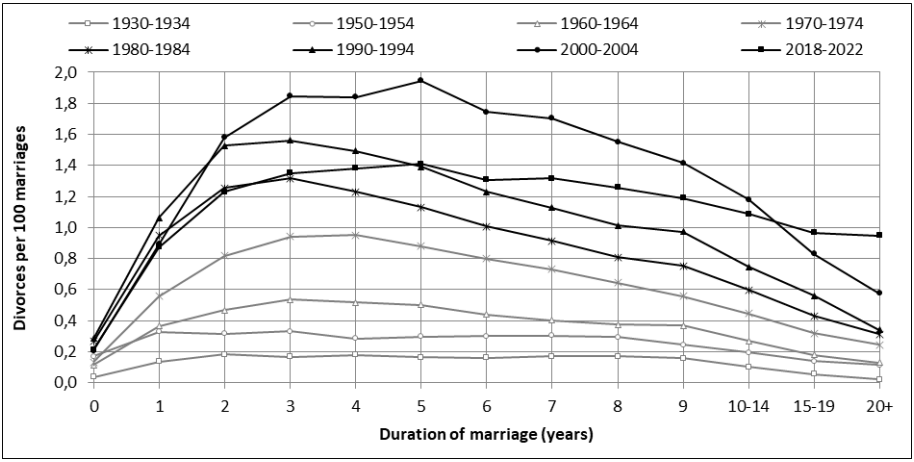
Following a certain revival of marriage with the adoption of a complex of pro-natal and pro-family policies in the late 1960s and the first half of the 1970s, a certain increase in the divorce rate of short-lived marriages (up to 5 years and 5–9 years) also occurred. Closely related to this was the strengthening of the risk of divorce, particularly in the first two to three years after entering into marriage (Fig. 29). In the 1980s, the divorce rate reached its highest intensity in the third year of marriage. The transformation period, however, also brought several important changes in terms of setting the divorce process based on the time elapsed since marriage. Above all, we see significant and, until recently, continuous growth in the divorce rate of long-lasting marriages, and it was this aspect that was key in the overall increase in the risk of divorce. As a result, the maximum divorce rate also shifted to the 4th and 5th year after marriage. The period of the most recent decade-plus has been marked by reduction in the divorce rate. The lowering of the risk of divorce until the 15 years after marriage in particular played a key role in this. The maximum divorce rate remained after 5 years of marriage.

Developmental changes in the distribution of the intensity of divorce based on the time elapsed from marriage to divorce were also reflected in the development of the average duration of marriages at the time of divorce (Fig. 28). In the interwar period (the first post-war years excepted), marriages were on average divorced about 10 years after the marriage.

At the beginning of the 1950s, longer-lasting marriages divorced more frequently; therefore, the average duration of a marriage at divorce in this period reached or exceeded 13 years. A period of decline (the predominance of shorter-lasting marriages) followed and was soon replaced by a sharp year-on-year increase as a result of the already mentioned postponement of final decisions by the courts. In the 1960s and early 1970s, the average length of a divorcing marriage remained more or less stable at the level of 12–13 years. It surpassed this limit only temporarily in 1974–1976 in connection with the putting of an amendment to divorce legislation into practice and with the implementation and publication of opinions contained in the analyses and materials of the Supreme Court (Tutterová, Rychtaříková 1989: 205). Subsequently, effectively until 1992, the average length of a marriage at divorce decreased to a level of 11 years. Since the subsequent transformational changes brought not only a shift in the maximum risk of divorce to a

later period after marriage and especially an increase in the intensity of the divorce rate of longer-lasting marriages, the average duration of marriage at divorce grew dynamically. In 2012, it crossed the 14-year mark and continued to increase slightly until 2016, when it stopped just short of the 15-year mark (Fig. 28). At this level, the average duration of marriage at divorce is maintained until 2022.

Fig. 29: Divorce rates of marriages based on the time elapsed since marriage in selected periods in Slovakia



Data source: SO SR, authors' own calculations

3.2.2 Causes of divorce and procedural activity of the courts

The reason for the breakdown of a marriage is presented according to the court's findings. The basic (primary) circumstance from which the following identified causes of the disruption emerge should be stated. The causes themselves were exhaustively defined until the new Family Act of 1949. For both sexes, two basic causes predominated in the interwar period: the abandonment of a spouse and the deep breakdown of the marriage. These two causes together were behind more than 90% of all divorces. If the man were to blame for the breakdown of the marriage, the cause in 60% of cases was his abandonment of his wife and in 30% it was a deep breakdown of the marriage.

Approximately 4% of cases resulted from adultery. For guilty women, the most common reason for the breakup of a marriage was her abandoning her husband, which was involved in two-thirds of

separations. Not quite one-quarter of cases were a deep breakdown of the marriage, and just over 6% were adultery.

After the Second World War, the list of published causes of divorce underwent frequent and relatively significant alterations. Therefore, comparing them over a longer time horizon is problematic, and the obtained information should be taken as illustrative only. What's more, the causes of marriage breakdowns investigated by the court brought, and in many respects still bring, only indicative and very rough information about the real reasons why the divorce occurred. The smoothest divorce proceedings took place if the spouses agreed in advance not only on the divorce, but also on its justification, including the division of property. In such cases, the court failed to determine the real cause of the marriage breakdown and, as a rule, made no effort to do so (Kučera 1994: 101).

The most common cause of marriage breakdown on the man's part in the 1950s was his infidelity. Depending on the survey year, this represented 25–40% of the total number of divorces. Another important cause was the departure from cohabitation (5–15% of cases) and character differences combined with imprudent marriages (6–15%). The share of cases in which the spouse's alcoholism was behind the breakup also gradually increased (from 3% to 12%). Courts found no cause of disruption on the part of the man in the 1950s in approximately 13–25% of cases.

A similar structure of the causes of divorce was also identified on the part of women. In their case, however, the courts more often ruled no cause (28–42%). If the court found a cause on the woman's side, the most common reason, similar to men, was infidelity (25–40%), with the group of character differences following closely behind, together with imprudent marriages (5–15%) and leaving cohabitation (6–20%). In the 1960s, the weight of infidelity on the part of men decreased slightly, accounting for about one-quarter of all divorces. Alcoholism, desertion and disagreements arising from differences in character or interests together accounted for about one-third of divorces (just over 10% each). The court did not find the cause on the man's side in only eight out of 100 divorces. For women, this situation predominated, along with infidelity, covering almost half of all cases together. Another tenth was due to abandoning the spouse and about 11% to disagreements arising from the different nature or interests of the spouses.

From the start of the 1970s to the mid-1980s, alcoholism of a spouse was given as the reason for the breakdown of one in four marriages on average. The infidelity of the husband accounted for a little more

than 22% and differences in character were attributed in just under 18% of cases. In not quite one-tenth of divorces, the court did not find the cause of the breakup on the part of the man. For women in this period, a gradual increase was seen in the weight of cases where the cause of the breakdown was not identified, occurring in four out of ten divorces on average. Difference of character and infidelity had approximately the same representation, together having a role in just over one-third of cases. Among the other reasons for the divorce of a marriage, lack of interest in the family appeared more often (8%).

The list of reasons for the breakup of a marriage at divorce has remained unchanged since 1986. The main development features included a notable increase in the category of diversity of natures, opinions and interests. While in the second half of the 1980s they represented just over one-quarter of all divorces, their current share has climbed to over two-thirds. This trend signals an increasingly frequent occurrence of divorces, which spouses approach after a previous mutual agreement. Therefore, the cause of the breakdown of marriage has at present lost its informational value, since different primary causes of the breakdown often lie behind it. Testimony to this is also data from the most recent period, when on the side of men, only alcoholism (5.3%), infidelity (10%) and a combined group of other causes (10.5%) accounted for more than a 5% of cases. For women, these were infidelity (8%), cases where the court found no fault (8%) and also other reasons (13%). The group of so-called pathological causes (infidelity, alcoholism, lack of interest in the family and mistreatment or conviction for a crime) in men shared in approximately one-fifth of divorces and were identified by the court in almost 12% of cases among women.

Regarding the course of divorce proceedings themselves, development trends since the early 1990s point to an increasingly simple process and hence also the general approach to divorce in Slovakia. On the one hand, we witness a decrease in rejected applications as well as applications withdrawn by one of the parties; on the other, an increase is seen in the share of cases in which both parties agree to the divorce. This has contributed to an overall rise in the share of positively processed divorce applications. From a level of about three-quarters, divorces now account for roughly 94–95% of all completed legislative proceedings.

The average number of proceedings required for a court decision, which was closely related to the growing share of marriages divorced at the first hearing, has also decreased. At present, these have already reached approximately 80% of all completed proceedings. The average

length of divorce proceedings has fluctuated between 6–7 months, with a slight downward trend in recent years.

Despite recent growth in the number of divorces and the divorce rate itself, it is possible to perceive the falling average number of minor children affected by divorce and, in contrast, the increasing proportion of marriages in which these children did not live, as a certain positive. In addition to changes in the intensity of fertility based on the number of children born, the postponing of the birth of children even within a marriage, and thus the longer childlessness of the married couple, the above-mentioned effect of lengthening the time elapsed from marriage to divorce has also contributed to this. The following empirical data also confirms this. While in the first half of the 1990s only about one-quarter of divorced marriages had no minor children involved, today such cases account for approximately 40%.

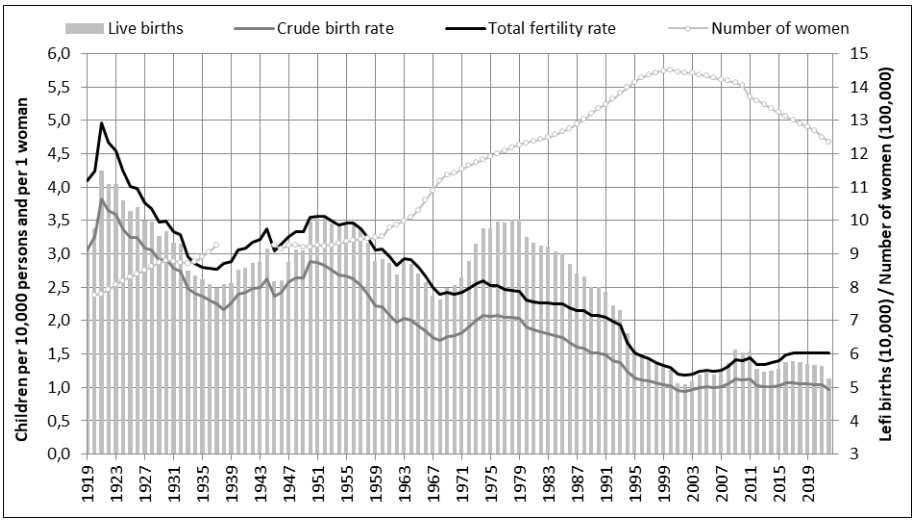
The identified changes in the parity structure of divorcing marriages were also reflected in the mentioned fall in the average number of minor children living in such a union. While in the first half of the 1990s just over 1.2 minor children were on average present per divorce, when the decline peaked in 2016, this was less than 0.9 children. Recent developments have brought about a small increase, which we can also link to the overall increasing fertility in Slovakia. This is also associated with a slight increase in divorced marriages having one or two minor children. Therefore, according to the latest available data from 2022, the average number of minor children belonging to one divorced marriage reached the level of almost 0.95 children.

4. Fertility

4.1 Fertility in a cross-sectional view

Up to the start of the First World War, the number of live births in Slovakia was more or less stable above the 100,000 mark per year. The value of the crude birth rate, however, due to the changes in reproductive behaviour promoted during the first demographic transition (see below), gradually fell from approximately 45‰ to a value of 33–34 live births per 1,000 inhabitants. The First World War significantly affected the intensity of fertility and thus also the number of live births. The declining trend basically continued until the last year of the war, when only slightly more than 43,000 children were born in Slovakia and the crude birth rate fell below the level of 15‰. Similarly as in the case of marriage, fertility also passed through a compensation phase in the first post-war years. A combination of several effects contributed to this: the end of a long-lasting war, the return of men from the front, the emergence of an independent republic, the gradual improvement of supplies and living conditions combined with a sharp post-war rise in marriage rates. The birth rate reached its post-First World War peak in 1921, when nearly 115,000 children were born, the crude birth rate rose to 38‰ and total fertility approached the limit of 5 children per woman. The positive effect turned out to be temporary, however, and from 1922, fertility again began to fall. Furthermore, this trend was a great deal more dynamic in the interwar period than it had been before the start of the First World War. It can be said that the First World War and the compensation phase that followed only temporarily disrupted the process of transformation of fertility, the beginnings of which, according to several authors (Fialová et al. 1990, Šprocha, Tišliar 2016; Vereš 1983, 1986), can be sought in the case of Slovakia at the end of the 19th century.

Fig. 30: Number of births, crude birth rate, total fertility and number of women of reproductive age in Slovakia in the years 1919–2022



Note: An estimate of the number of women aged 15–49 and the total fertility rate in the years 1938–1944

Data source: SO SR, authors' own calculations

The gradual promotion of a conscious limitation of the number of children born during the first demographic transition and the dynamism of this process in the interwar period contributed to the relatively rapid fall in the intensity of childbirth. In addition, some external factors should also be mentioned, such as the economic problems of the new state, unemployment, persistent agrarian overpopulation or the effects and reverberations of the global economic crisis in the 1930s. These factors sped up the decline in fertility even more (Šprocha, Tišliar 2008b, 2016).

The drop in fertility itself was so significant that its negative impact on the number of live births outweighed the positive development in the number of women of reproductive age. If we exclude the post-war compensation phase, then from the mid-1920s to 1937[25], the total fertility rate fell from about 4.1 children per woman to just under 2.8 children. Therefore, in the second half of the 1930s, the number of children born reached the limit of 80,000, and the crude birth rate fell significantly below the level of 25‰ (Fig. 30).

[25] The last year for which we have officially published data enabling the calculation of total fertility for the whole of Slovakia.

The decline in fertility, however, continued, and to a great extent, this development was conditioned by the unfavourable political and social situation. This escalated with the seizure of border territories and in 1939 with the disintegration of Czechoslovakia and the founding of the wartime Slovak Republic. Stabilisation of the situation, maybe even a certain euphoria from the founding of an independent republic, in combination with pro-natal and pro-family measures, contributed to a certain revival of recuperation in the years that followed. This likely peaked only in 1944, when almost 92,000 children were born, the crude birth rate exceeded 26‰, and the estimated total fertility rate was about 3.4 children per woman. Aside from the revival of reproduction itself, structural changes also played a part in the increase in the number of children born. The relatively small generations born during the First World War, which gradually entered the age of maximum fertility (about 20–29 years) in the first half of the 1930s, were replaced by much larger generations of women who had been born during the compensation phase in the first half of the 1920s. The course of war operations directly on the territory of Slovakia at the end of 1944 and in the first months of 1945, however, undermined this positive development, resulting in a significant year-on-year decrease in the number of children born (almost 82 thousand), as well as the intensity of the process (approximately 3 children per woman) (Fig. 30).

The period shortly after the Second World War brought only a slight increase in fertility. A more intensive recovery occurred only after the overcoming of the biggest problems and with stabilisation or improvement in the supplies for the population. Due to this, at the end of the 1940s more than 91,000 children were born annually, the crude birth rate exceeded 26‰ and total fertility was at 3.3 children per woman (Fig. 30). The post-war revival of fertility reached its maximum level in the early 1950s. More than 100,000 children were born in the years 1951 and 1952 (almost 29‰), and total fertility was 3.6 children per woman.

As Kučera (1994, 54) states, currency reform in 1953 and the abolition of the then sufficient rationing system offering low prices caused a deterioration of the living situation for families with children. What's more, the completion of the transformation of fertility and the gradually advancing of the two-, at most three-child family model contributed to the decline of multi-child families and thus also to the overall reduction of fertility intensity. The adoption of a law on interruption from 1958 was also a very important factor in the development of fertility. By the end

of the 1950s, total fertility rate gradually fell to 3 children per woman, while the number of children born fell below 90,000 (Fig. 30).

Not even the increase in the number of women of reproductive age, which gained momentum especially in the 1960s, could reverse the unfavourable development in fertility intensity. According to Czech demographer Milan Kučera (1994, 103), a certain stoppage in the decline in the number of births and even a slight increase in the first half of the 1960s (1963 and 1964) is linked with the promised extension of maternity leave. The non-fulfilment of this promise played a part in the fact that up to 1968 we can identify a stable and at the same time relatively rapid decline in fertility. In 1967 and 1968, the number of children born fell below 80,000, the crude birth rate reached 17‰ and the total fertility rate fell to 2.4 children per woman. At the same time, however, it should be added that these changes took place with a continuous increase in the number of women of reproductive age.

The worsening of population development, historically low fertility, as well as the efforts of political representatives to appease the wider masses after the invasion of Warsaw Pact troops contributed to the adoption of a complex set of several new pro-natal and pro-family measures at the end of the 1960s and in the first half of the 1970s. Their effect in terms of fertility intensity, however, was relatively limited, since total fertility only exceeded 2.5 children per woman in the years 1973–1976, with a maximum of 2.6 children in 1974. Furthermore, the adopted measures had only a short-term positive effect on fertility, because at the end of the 1970s the intensity of fertility was almost at the same level as before their introduction. Their impacts on the number of live births appears to be a bit more significant: from a level of slightly more than 76,000 (in 1968), their numbers increased to 100,000 (in 1976–1979). From a historical point of view, this was the last period when such a large number of children were born in Slovakia. However, aside from pro-natal measures, one important demographic factor also contributed to the creation of this demographic wave. Specifically, there were numerous cohorts of women born in the 1940s and early 1950s, who were gradually reaching the age of peak fertility during this period and thereby increasing the size of the reproductive base.

Since pro-natal measures were not further developed and their relatively wide availability became an integral part of the life paths of most young people, they stopped acting as a stimulus for further growth, or at least keeping fertility at the achieved level. As mentioned

above, their effect on the intensity of fertility was all but exhausted by the end of the 1970s.

Therefore, the last decade of the existence of real socialism continued in the trend of a falling number of live births as well as the intensity of fertility. In 1989, the number of children born fell to 80,000 and total fertility did not reach even 2.1 children per woman (2.08 children). In the second half of the 1980s, the liberalisation of the law on abortion – the abolishing of abortion commissions (1986) – contributed to a certain acceleration of this negatively perceived development.

In many ways the time after 1989 represents a specific period in the development of fertility in Slovakia. As in the case of marriage, we can divide it into two basic development phases. The first is represented by the 1990s and the beginning of the new millennium. The first decade in particular of the entire social, economic, cultural and political transformation took its toll in the form of a relatively sharp fall in fertility and the number of live births. While in 1990 and 1991 total fertility was still at 2 children per woman, in 1995 it was only a little more than 1.5 children, and in the same period, the number of live births fell from almost 80,000 to 60,000. The decline continued in the second half of the 1990s, too, but at a slower pace. The phase of falling fertility peaked in 2002, when total fertility fell below 1.2 children per woman, and the number of live births in that same year fell below 51,000. Thanks to such a dynamic transformation of the fertility process, within a decade Slovakia moved from being a country with one of the highest levels of fertility in Europe to being among those with the lowest fertility in the world. Slovakia reached the lowest-low fertility level (Kohler et al. 2002) from 2000 to 2007, and we now identify it as having very low fertility (below 1.5 children per woman) for almost two decades. The paradox of the whole situation lies in the fact that the fewest children were born at a time when there were historically the largest number of women (more than 1.4 million) of reproductive age and also the age of highest fertility. This, too, confirms the dramatic and dynamic changes that demographic reproduction in Slovakia has undergone, and is still undergoing, in the last three decades.

The second developmental stage showed signs of a gradual increase in the intensity of fertility. This trend, however, accelerated only between 2007–2009. Total fertility increased from 1.25 to over 1.40 children per woman in these years. However, unfavourable economic conditions connected with the global economic crisis stopped further growth, and in 2010 a slight decline even occurred. The negative impact of the

economic crisis on the level of fertility in Slovakia was only temporary, however, and the next development was marked by a growth trend.[26] The years 2020 and 2021, in which the society was adversely affected by the COVID-19 pandemic, did nothing to change this either. Even in the second mentioned year, a relatively significant increase occurred in the intensity of childbirth, as total fertility reached the level of 1.64 children per woman. Since fertility reacts to negative aspects with a certain time delay, it can be assumed that the identified decrease in 2022 is directly a consequence of some negative aspects of population development in the previous two crisis years. Nevertheless, it is evident that the total fertility rate in Slovakia has for several years been stable above the very low level, but despite the mentioned recovery, it is still rather markedly behind the situation observed at the start of the 1990s.

In terms of the number of live births, not even the mentioned increase in the intensity of fertility in recent years could prevent the start of a negative trend after 2017 (Fig. 30). The shrinking of Slovakia's reproductive base has turned out to be an important internal factor. At the beginning of the 21st century, there were still about 1.44 million women aged 15–49, but currently there are only just over 1.23 million. Thus, in just over two decades, Slovakia has lost almost 220,000 women of reproductive age.

4.1.2 Fertility by age and birth order

The age distribution of female fertility in Slovakia has passed through several complicated quantitative-qualitative transformational changes over a little more than a hundred years. We can speak about three developmental stages in relation to their external conditionality, each of which affected shape of the fertility rate curves in a different way.

The first phase began in Slovakia at the end of the 19th century with the onset of the first demographic transition (Fialová et al. 1990; Šprocha, Tišliar 2016; Vereš 1983, 1986). One of the important transformational changes was the promotion of a conscious limitation on the number of children born (Šprocha, Tišliar 2016). Actual fertility was thus closely linked with efforts to achieve a certain desired family size (number of

[26] Since 2012 (inclusive), there has been a methodological change in the reporting of the number of children born. Children born abroad to mothers with permanent residence in Slovakia are no longer counted among the number of live births, from which total fertility is also calculated. In consequence, a significant year-on-year decrease in the number of live births and total fertility occurred, and it also appears that fertility timing indicators were also affected.

children) and to prevent the birth of additional children. Reproduction was conditioned by the preceding reproductive history. Socioeconomic factors also began coming to the fore, and reproduction was no longer conditioned only by biological factors.

Since having children of a higher order is mainly associated with a higher reproductive age, efforts to prevent the birth of children were above all reflected in the decline of fertility rates over the age of 30. This is also confirmed by comparing, for example, the age distribution of fertility intensity in 1920, 1930 and 1950 (Fig. 31). In the interwar period, however, not only did a reduction in the birth of children at an older age occur, but fertility also gradually began to decrease at the age range of 20–29 (Fig. 31). Thanks to this, fertility rates between ages 25–29, where the highest fertility still remained, and ages 20–24, began to gradually level off. The lowest fertility occurred in women under 20 and over 40.

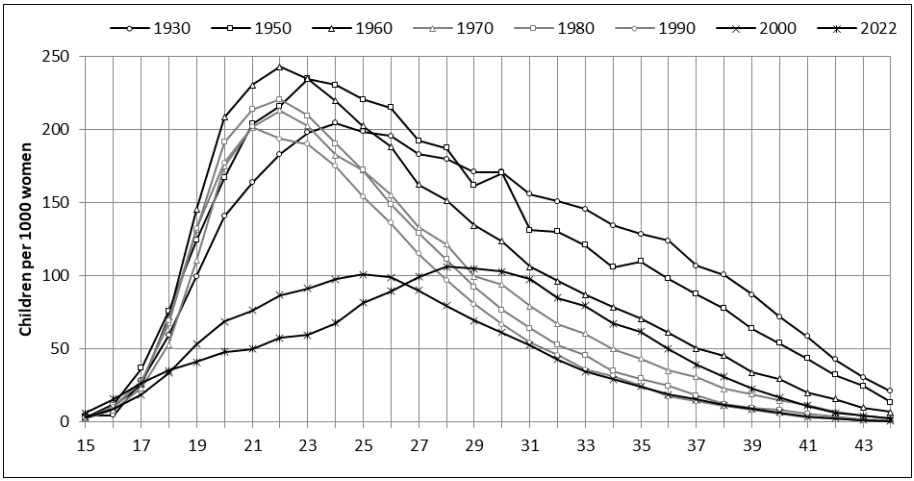
After the Second World War, the strengthening of fertility in the young and very young age groups became the dominant feature. Thus, the model of fulfilling reproductive intentions in the first half of the reproductive age, with maximum intensity around ages 21 and 22, was gradually consolidated (Fig. 31). The age group of 20–24 years, in which the intensity of fertility markedly increased, especially at the expense of older ages, became the most important for reproduction in terms of intensity. Although a slight decrease occurred even at this age in the 1960s, in the first half of the 1970s, this trend was reversed through a complex of various pro-natal and pro-family measures. Fertility at this age remained the highest and changed only minimally until the end of the 1980s.

After the Second World War, the drop in fertility intensity continued in the second half of the reproductive age. Not even the complex of pro-natal measures from the late 1960s and the first half of the 1970s could reverse this. In terms of development, fertility responded to the adoption of these measures only up to the age of 25 years and partially also at the age of 25–29 years. From the second half of the 1970s, however, the declining trend resumed here, as well. The orientation of fertility on the youngest ages was so strong in the period of real socialism that the contributions of teenage girls to total fertility were basically the same as those of the 30–34 age group in the late 1980s and early 1990s. Women giving birth after the age of 40 became a completely marginal phenomenon.

The third transformation period is associated with changes in reproduction that occurred in the Slovak population after 1989. Among

its main features are the dynamic and effective general abandonment of the model of early to very early fertility and the postponement childbirth (especially the first) until an older age. We observe an overall ageing of the age profile of fertility, which is also manifested in the course of fertility rates. We can speak of two successive sub-stages from a developmental point of view. The first is associated especially with the 1990s and the early 21st century. Its main feature was a sharp drop in the intensity of childbearing for women under the age of about 27. As is clear from Fig. 32, this was especially true of women in the age 20–24 group, which was crucial for overall reproduction. Although it was also initially possible to identify a slight decrease in the 25–29 age range, the intensity of childbearing at this age subsequently stabilised. In contrast, no larger changes in fertility intensity in older age groups appears in this first stage.

Fig. 31: Age-specific fertility rates in Slovakia in selected years

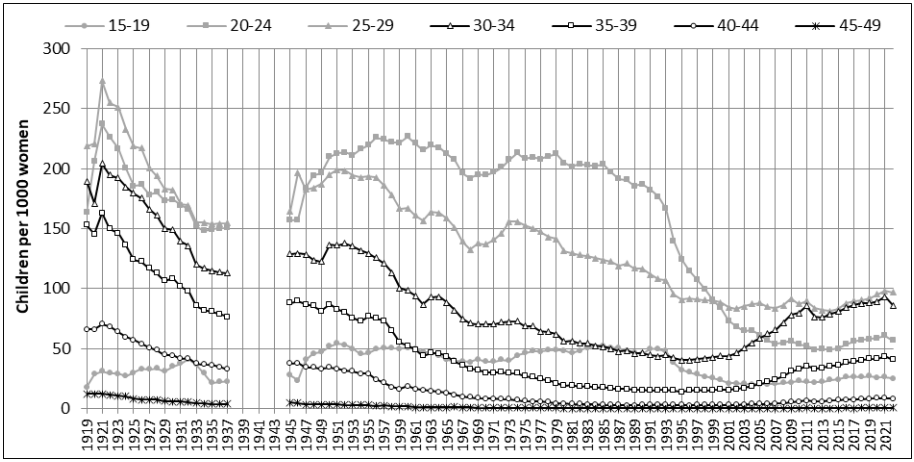


Data source: SO SR, authors' own calculations

The second stage runs roughly from 2002 up to the present and shows signs of the coming catching-up of postponed reproductive intentions and thus slightly increasing fertility. The key factor was the revival of reproduction in the 30–39 age range. Fertility at the age of 40 and over has also increased slightly. Nevertheless, it is nowhere near reaching the same level as in the interwar period (Fig. 32). It is clear from the above that the new model of reproduction is thus far using only the extreme

ages of the reproductive period for the birth of children. In addition, unlike the situation in the first half of the 20th century, maternal starts and possibly the births of second children are happening mainly at a higher age, while in the past at this age, the completion of family size and the birth of children of a higher order were more likely to occur.

Fig. 32: Fertility rates in selected 5-year age groups in Slovakia, 1919–2022



Data source: SO SR, authors' own calculations

From the comparison of the course of fertility rates between 1990, 2000 and 2022, we can also identify some other important transformational changes (Fig. 31). On the one hand, a certain "flattening" of the curves, the disappearance of a significant concentration of fertility into a narrow interval, and thus also a greater age pluralisation, took place. With the recovery of fertility, a certain stabilisation of the reproductive model at a younger age is also gradually taking place. This is expressed in the much slower decline in fertility rates at younger ages. The process of postponing fertility is thus significantly slowing. At first glance, it could be said that the model of reproduction has gradually stabilised in the first half of the reproductive age, and the crucial factor for the future direction will only be how fertility will continue to increase in older age. Data from recent years, however, do not confirm this assumption. It appears that not only the revival of reproduction in the second half of the reproductive age is behind the rise in fertility, but also that fertility rates are gradually increasing in young and even the youngest ages. This

attests to the constant presence of a non-negligible group of women, whose reproductive pathways have shifted to a young or very young age. In line with the conclusions of several works (e.g. Pukačová, Mládek 2014; Šprocha 2014), we can assume that these are primarily persons from marginalised Roma communities, women with low education or strongly religious persons. Their influence on overall reproduction is likely to increase, since fertility growth in this age spectrum has continued over the past decade.

The identified transformative shifts in the age distribution of fertility were also reflected in changes in the structure of the contributions of individual age groups to the total intensity of childbirth. In the interwar period, the main share of reproduction took place at the age of 25–29, where more than one-quarter of total fertility was concentrated, and at 20–24 with another quarter. Another one-fifth fell into the age 30–34 category (Fig. 33). It is evident from this that the process of having children has thus been spread over a wider age interval, as was the case after the Second World War.

As a result of the post-war strengthening of the intensity of fertility in the younger and youngest ages, in combination with the continued fall in the second half of the reproductive period, important changes took place in the contributions of individual age groups. The weight of the 20–24 age group increased from the original value of about 30% in the early 1950s to 45%. The share of the youngest women also increased, with fertility for those under the age of 20 increasing from about 5% to almost 13%. In the group from 25–29 years, however, the range of contributions to the total fertility value showed no change and remained at the level of 27–28%. On the other hand, in the second half of the reproductive period, an increasingly smaller portion of reproduction was gradually recorded. Contributions in the 30–34 age range fell from 20% to 11%, in the 35–39 age range from more than 14% to less than 4%, and finally at the age of 40 and older from about 8% to less than 1% (Fig. 33).

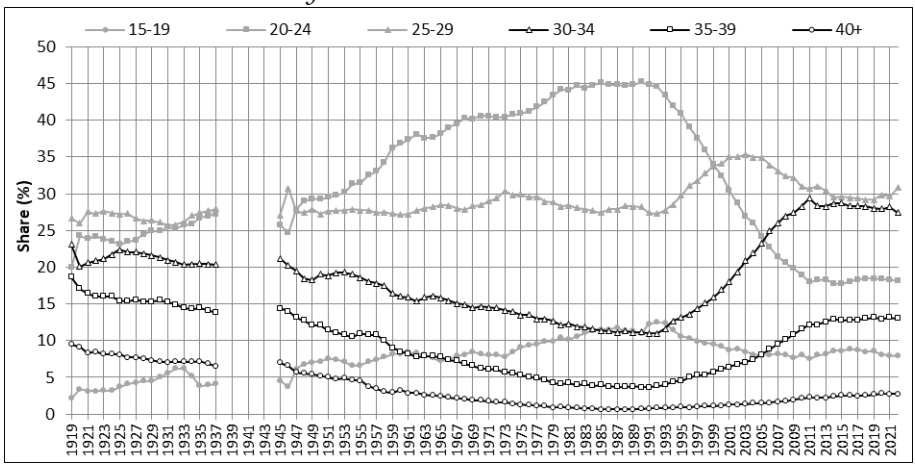
The period after 1989 brought, above all, a general ageing of the age profile as a reflection of postponing parenthood and, subsequently, a partial recuperation in higher age. Fertility in the second half of the reproductive age (30 and over) thus mainly increased at the expense of the youngest women (under 25). At the beginning of the 1990s, about 45% of total fertility was realised in the 20–24 years age range. In the first decade of the 21st century, these contributions fell below one-quarter, and since roughly 2009 they have stabilised below the 20% mark (Fig.

33). We also register a certain reduction and subsequent stagnation in the 15–19 age range, below the 10% level.

Since the process of postponement was mostly manifested in a decrease in the intensity of childbearing under the age of 25 (Fig. 31 and 32), in the first transformation phase an increase up to 35% initially occurred in the fertility rate of women aged 25–29. With the onset of the recuperation phase in the second phase, however, a slight reduction is seen in the contribution concentrated in the 25–29 years age group. This is conditioned by the increase in fertility and thereby the weight of fertility in the 30–39 age range. In the 30–34 age range in particular the contributions to total fertility increased from slightly more than 10% to almost 30%, and in the 35–39 age range they also exceed the 10% mark for longer. Thus, more than 40% of the total fertility of women in Slovakia is currently realised in the age interval of 30–39 years.

Even though fertility among those over 40 years old has increased slightly, it still remains very low and its share in the value of total fertility also remains low. In the latest available data, less than 5% is still concentrated in this age range, a fact that only confirms the marginal position of this age group for female reproduction in Slovakia.

Fig. 33: Share of fertility of selected 5-year age groups in the total fertility of women in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

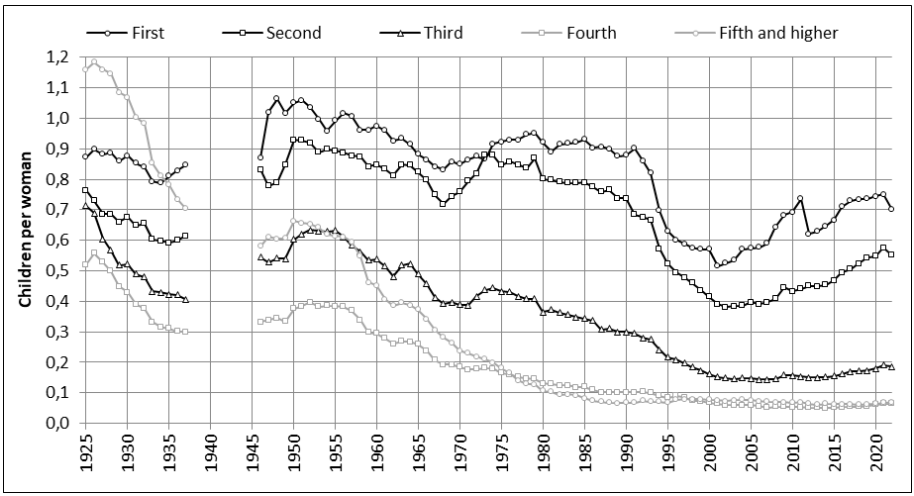
The overall fall in fertility in Slovakia was conditioned mainly by a long-term decrease in the intensity of the birth of children of a higher order. In the interwar period, the fertility rate for giving birth to the

fifth and higher children fell sharply, but the intensity of giving birth to a fourth and ultimately even a third child also gradually decreased. This points to a wider promotion of the process of conscious regulation of the number of children in a family as part of the first demographic transition. Although a temporary revival that essentially affected all parities took place after the Second World War, this was a period exceptionally favourable for the realisation of reproductive intentions. Evidence of the temporary anticipation of fertility is also seen in the values of total fertility of the first order, which for a short time was higher than one child. After the end of this "golden age of the family", a decrease in the intensity of the birth of children of the third and higher order again became a main factor. At the beginning of the 1980s, the decrease in the values of total fertility of the fourth and fifth and higher orders effectively stopped, and a stabilisation occurred at a very low level, which basically persists until the present day.

A minor decrease has also been recorded in first- and second-order fertility since the 1950s. It seems that their decline would have been even more significant had it not been for pro-natal measures from the late 1960s and the first half of the 1970s, and thanks to this, the value of total fertility of the first order during the previous political regime was maintained above 0.9 children per woman. The only exception was the second half of the 1960s (Fig. 34).

Fertility of the second order also recorded what is basically the same course. The post-war increase was subsequently replaced by a decrease, with the lowest level reached in 1968. The years that followed brought a prompt reaction to the adopted pro-natal measures. From Fig. 34, however, it is clear that in the mid-1970s second-order fertility began to fall again and after a brief period of stabilisation, also after 1985. In the case of the first children, the positive effect of pro-natal measures ended a little later, as we only observe a minor decline at the end of the 1970s. The slight recovery in the birth of first children that followed ended in the second half of the 1980s, when a gradual decline began. This was temporarily interrupted only in connection with the anticipation of marriage starts in the early 1990s as a reaction to the announced cancellation of loans for newlyweds. The subsequent development, however, was already influenced by the overall transformation of reproductive behaviour. But unlike the interwar period and the first decades after the Second World War, its main feature was not a lowering of the intensity of the birth of children of a higher order but a fall in first and especially second order fertility.

Fig. 34: Development of female fertility by borth orders in Slovakia in the years 1925–2022



Data source: SO SR, authors' own calculations

In connection with the changes in timing (see below), the cross-sectional indicators fell to extremely low values. For example, total first-order fertility in 1997–2007 dropped markedly below the threshold of 0.6 first child per woman. If, however, we clean its values of the change in the timing of the birth of the first children (the method of Bongaarts-Feeney 1998), we get a level of approximately 0.73–0.75 first child per woman in the period in question. What's more, from a developmental point of view, after 2002 we can identify a gradual increase in intensity, which is associated in particular with catching up with delayed first children. Furthermore, the effect of timing gradually began to soften; therefore, the values of classic and adjusted total fertility of the first order and changes in timing were balanced. Nothing, not even changes in the methodology of reporting children born abroad, altered anything in this. Although this did cause a year-on-year decrease (see 2011 and 2012), from a developmental perspective we can still observe an increase in the intensity of the birth of first children. According to the most recent data, the total fertility rate of the first order has already risen above 0.7 children per woman. If children born abroad are included, this would be even higher than 0.8 children. Fertility of the second order is also growing, though the dynamics of these changes are much lower. The intensity in the case of higher orders has remained at a very low level

for a long time, even though in their case, too, we can identify a certain slight recovery in recent years (especially in the case of third children).

4.1.3 Timing of childbirth

Having children in Slovakia has long been closely linked with married life. What's more, the short period of time between entering into marriage and the birth of the first child has become even shorter due to the increasing share of premarital conceptions (see Fig. 36). Social support for young families together with specific reproductive conditions during the previous political regime strengthened the model of early marriage and fertility. The model of getting married and becoming a mother at a young age (under 25) was a firm part of the normative discourse of society at that time and was considered advantageous in many respects. Declining fertility at the age of 30 and higher and the gradual limiting of family size to two or three children resulted in a significant concentration of reproduction in a relatively narrow interval.

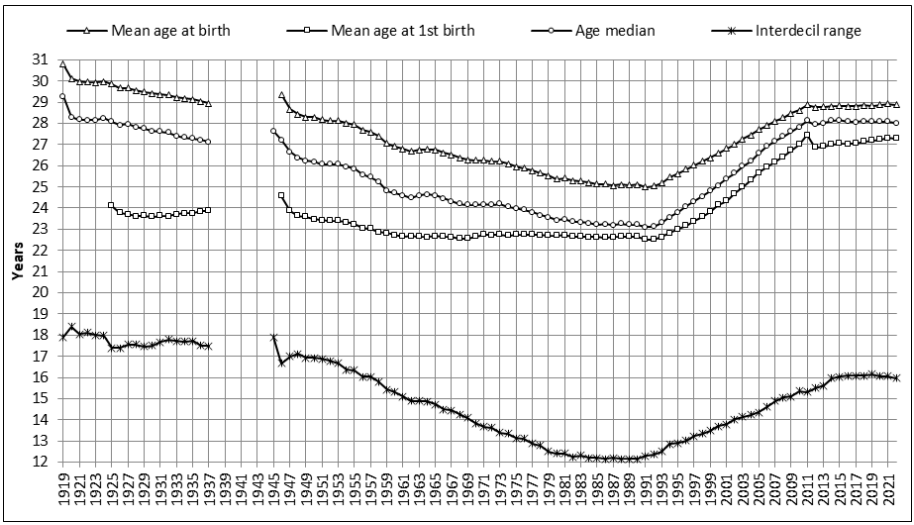
The early start of maternal trajectories was clearly present in Slovakia already in the interwar period, since the average age of women at the birth of their first child was in the range of 23.3–24.0 years. At the same time, a certain growth was connected especially with the adverse situation during the economic crisis in the 1930s. After the Second World War, the model of early entry into parenthood was even more consolidated, which is also confirmed by the slight decrease in the average age at the birth of the first child. Stabilisation occurred at the end of the 1950s at approximately 22.5–22.9 years, and its values moved in this narrow range for almost the next three decades. The inalterability of the timing indicators testifies to the stability of the mechanisms comprising the model of maternal starts and also points indirectly to its acceptance by society as a whole and its gainfulness in the context of the reproductive conditions of the time.

Up to the beginning of the 1990s the fall in the intensity of the birth of children of the third and higher order was a key factor in reducing the average age of a woman at the birth of a child (regardless of biological order). While this value moved above the level of 30 years after the First World War, before the breakup of Czechoslovakia it was about 5 years lower. Further development, however, brought a relatively dynamic increase. Since the fertility of third and other children already plays only a minimal role in overall fertility, the postponing of the birth of the first and subsequently the second children was the key factor. Thanks to this,

the average age of women at the birth of a child reached approximately 29 years.

As has already been mentioned, the model of early motherhood did not apply in the new circumstances, and one of the key transformational changes was the postponement of the birth of first children. Given the chain-like reaction with other reproductive intentions, shifts also occurred in the second and possibly third births. The average age of women at the birth of their first child has essentially been rising continuously in Slovakia since the start of the 1990s. The onset of a woman's maternity has shifted from less than 23 years to around 27 years. In the case of second children, the average age of women likewise rose from just over 25 to around 30 years. As is evident from the above values, the process of postponement was somewhat more dynamic for first children, with the 1990s being key. What's more, the development in the last decade brought a certain stagnation (second children) or only a very small dynamic increase (first children).

Fig. 35: Mean age of women at childbirth, at the first birth and interdecile fertility range in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

The degree of age concentration of fertility among women in Slovakia can be expressed through the interdecile range. This is the difference between the upper and lower decile of total fertility. Thus, it expresses the breadth of the age interval in which 80% of the total fertility was

concentrated. Its values decreased slightly in the interwar period due to the limitation of the birth of children of higher order, and thus they slightly fell in older reproductive age. From the initial approximately 18 years, it reached 17.5 years in the second half of the 1930s. However, in comparison with the values from the end of the 1980s (Fig. 35), it is clear that fertility in Slovakia was still relatively heterogeneous with regard to age. Development after the Second World War brought about a notable dynamism of the decline. The reason was above all the continuation of limiting the size of the family, the gradual predominance of the two-child family model as well as a significant concentration of fertility in the first half of the reproductive period for women. From the original roughly 17 years, the interdecile range fell to slightly more than 12 years by the 1980s (Fig. 35). Such an age concentration of fertility was conditioned mainly by a significant reduction in the upper decile, which decreased by 5.5 years from the 1950s to the early 1990s, while the bottom decile decreased by only about one year (from 20.6 to 19.6 years). As a result, the vast majority of fertility (specifically 90%) in Slovakia took place on average before women turned 32 years.

Since the discontinuity of living conditions after 1989 was reflected not only in the timing of the birth of the first children but also closely related to the shift in the average age of women at the birth of second and higher-order children, we are witnessing a certain age pluralisation of fertility patterns. The value of the interdecile range has already risen above the level of 16 years. Even in this period, however, the lower decile changed much less dynamically (from 18.5 to 19.6 years), while the main factor in the age heterogenization of fertility is mainly the shift of the upper decile (from 31.0 to 35.6 years). Thus, the first tenth of fertility in Slovakia still occurs at a very young age. Further, it has been shown recently that not only older age groups are taking part in the revival of fertility intensity, but fertility has also increased in the age group under 21 years. It seems that the presence of a certain group of women who not only start motherhood at a very young age but also become mothers of second children is beginning to be more noticeable even at the national level.

4.1.4 Legitimacy of children born

For nearly the whole 20th century, Slovakia effectively had a population in which the birth of children was associated with married life. Evidenced of this also lies in the low share of children born out of

wedlock. In the period of the compensation phase after the First World War, their share in the total number of children born was below 7%. Further developments brought a moderate increase, with a peak of almost 9% in the first half of the 1930s. We can assume that this was in part a response to the deteriorating living conditions that escalated during the Great Depression. Further development, however, brought a slight decrease (to less than 8%), which continued even during the wartime Slovak Republic, when the proportion of children born to unmarried women fell again to 7%. The favourable development trends in the process of marriage connected with efforts to revive the Slovak family, including through some pro-family and pro-natal measures of the official population policy at the time, certainly played a part in this. The problematic period at the end of the Second World War, the worsening of living conditions and especially the direct course of military operations on the territory of Slovakia also probably contributed to the rise in the proportion of children born out of wedlock. In 1945, a maximum that would last a long time was thus reached, when the share of illegitimate children rose to 11%. The post-war compensation phase, also linked with an increase in the marriage rate and the gradual consolidation of the specific reproductive conditions of the previous political regime, in combination with the enduring high normativity of motherhood and parenthood in marriage supported by the official state population policy, contributed to the rapid drop and stabilisation of the share of births to unmarried women at a very low level.

From the beginning of the 1950s to the end of the 1960s, the share of illegitimate children often fell and even dipped below the 5% mark. Although a slight increase is seen at the end of the 1960s, pro-population measures focused specifically on families with small children reversed this trend, and the proportion of illegitimate children again fell to the 5% mark (Fig. 36). This, however, was the last time this happened in the history of Slovakia's population. In the 1980s, we see a gradual increase, and the share of children born out of wedlock again rose above 7%. However, it was the last decade of the 20th century that brought key changes in terms of the legitimacy of children born. Another of the significant transformational signs after 1989 was the historically unique growth in the number and share of children born to single women.

These changes are also closely linked with the transformation of marriage behaviour, since as a result of the fall in the first marriage rate and the extending of the period of life outside the marriage union, the population of women who are exposed to the chance of becoming

a mother before marriage is increasing numerically. At the same time, however, some studies (e.g. Mládek, Širočková 2004; Tydlitátová 2015a,b; Džambazovič, Šprocha 2017) also point to the transformation of cohabitation, which no longer fulfils only the function of premarital relationship-testing for young people but is increasingly also a space for the fulfilment of reproductive intentions. No less important in this sense is the issue of single motherhood, i.e. whether the phenomenon of non-marital fertility and children born out of wedlock does not also include the reproduction of mothers without the presence of biological fathers.

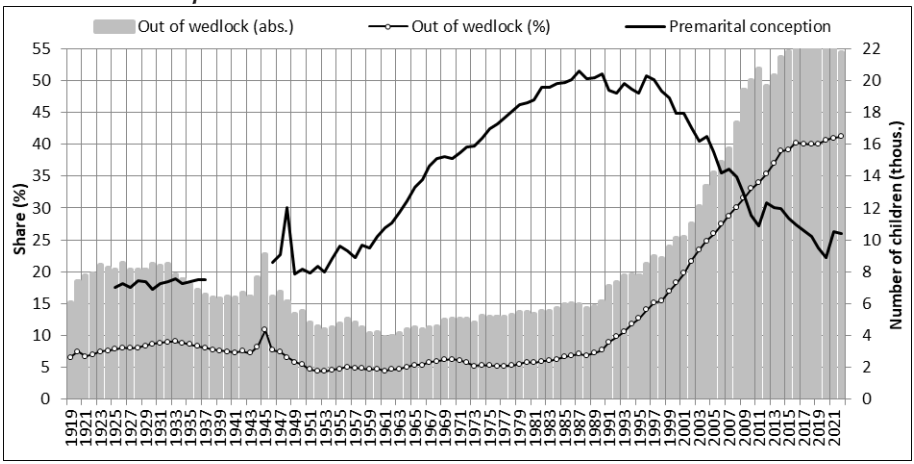
In the view of Potančoková (2013), the whole complex of transformational shifts after 1989, the change of the institutional context, the gradual value transformations and certainly also the generational experience with the consequences of early marriages provoked by the partner's pregnancy led to a reassessment of the strategy of legitimising an arriving child. She further adds (Potančoková 2013: 110) that the change in the context of reproduction has notably accelerated this process, as it has opened the possibility of innovation of well-established routine patterns of behaviour. The weakening of the influence of the original social norms, of social control and sanctions associated with parenting outside of marriage, together with a deepening emphasis on individualisation and the quality of the relationship of partners as an important factor for the concluding a marriage have a positive effect on the rising non-marital fertility and the share of children born out of wedlock (Potančoková 2013).

The share of children born out of wedlock rose above 10% as early as in the first half of the 1990s, and it effectively doubled by the start of the 21st century (Fig. 36). This growth trend then continued with almost unchanged dynamics over the next decade, peaking after 2014, when it more or less stabilised at just over the 40% level. From the above-stated, it is clear that the last three decades have brought a major breakdown in Slovakia of the historical model of a close link between married life and procreation.

In terms of internal demographic factors, some special analyses (Šprocha, Tišliar 2021) nevertheless clearly show that the dominant process associated with the historically unprecedented increase in the share of children born out of wedlock in Slovakia was the enlarging of the contingent of unmarried and especially single women. This was further supplemented by the impact of the increasing intensity of childbirth for unmarried women, while marital fertility had the opposite tendency until recently (Šprocha, Tišliar 2021). This testifies not only to structural

shifts, but also indirectly to the widening acceptance of extramarital fertility as such.

Fig. 36: Number and share of children born out of wedlock and the share of premarital conceptions in Slovakia



Data source: SO SR, authors' own calculations

A specific feature of the reproductive model formed during the previous political regime was a high share of premarital conceptions (Fig. 36). This relates to that portion of first children born to married women who were most likely conceived prior to the marriage (within 8 months of the marriage). Such a pregnancy in the environment of a strong normative setting of conceptions occurring within the marriage union could have been the trigger that initiated the entry into marriage.

Partial data from the interwar period signal that these efforts already existed in Slovakia in the first half of the 20th century. The portion of premarital conceptions in this period, however, was relatively low compared to the period that followed, since they totalled less than one-fifth of all first children born to married women.

Though premarital conceptions showed a slight increase, to approximately one-fifth, after the Second World War, the main increase is associated only with the period that followed. A certain freeing of societal norms regarding premarital sex in an environment of little available contraception and low awareness of family planning probably resulted in more frequent pregnancies at young to very young ages. These were subsequently the initiators of earlier marriages. Therefore, in the mid-1960s premarital conceptions accounted for one-third and in

the mid-1970s already rose above 40%. They reached their absolute peak from the mid-1980s to the mid-1990s, when approximately half of all marriages concluded were affected by the bride's pregnancy. We must also recall that the society of that time did not set up major obstacles to the early start of marriage and motherhood but rather supported them with some policy measures.

In the last three decades, however, a transformation has taken place in the social discourse related to pregnancy and parenthood at a very young age, as well as a shift of conceptions to an older age, which has been successfully helped by the major expansion of the availability of reliable contraceptives. As a result, a significant decrease has been seen in premarital conceptions. According to the latest data, they make up just over one-quarter of the total number of first children born in marriage.

4.2 Fertility in a cohort view

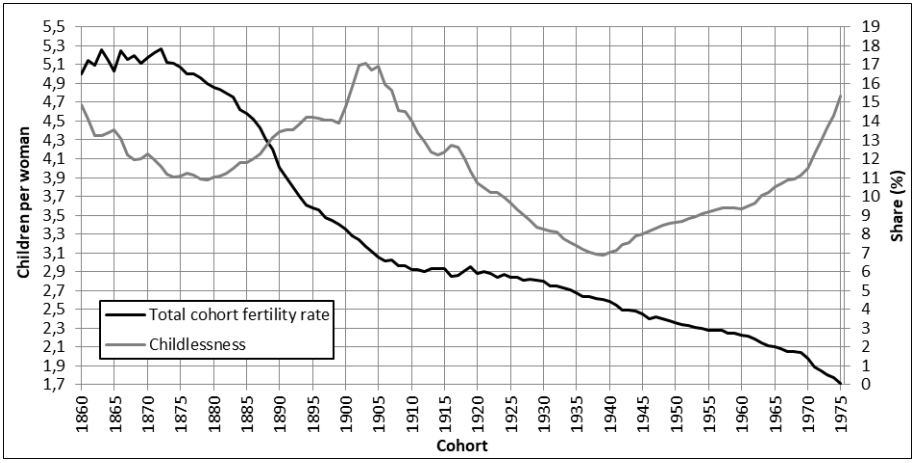
In contrast to cross-sectional indicators, cohort analyses examines the fertility process in a real group of women with the same year of birth. Thus, it does not work with a fictitious cohort consisting of 35 real cohorts, which are characterised by their unique reproductive history and its different phases. What's more, since changes in reproductive behaviour spread across individual cohorts, cohort analysis is a particularly suitable tool for monitoring them. Furthermore, the cohort approach measures the actual realised fertility (Sobotka et al. 2011a) and enables an analysis of its changes over time. The value *completed cohort fertility* as a basic indicator of intensity is thus cleansed of the effect of timing and changes in parity structures and is for the most part influenced only by the actual realised intensity of fertility. Therefore, cohort indicators are much more stable than cross-sectional indicators, and changes to them occur only in the case of a significant and long-term transformation of reproductive behaviour.

4.2.1 Completed cohort fertility and cohort childlessness

Among the main development indicators of the completed cohort fertility of women in Slovakia is its continuous intergenerational decline. While it was approximately 3.2 children for women born at the beginning of the last century, it had fallen to less than 3 children per woman from the end of the first and the beginning of the second decade of this century. At the

same time, a temporary inter-cohort moderation of the decline dynamics is seen in these cohorts. This was only a temporary phenomenon, however, since we have already identified another relatively significant reduction in realised fertility in women in the second half of the 1920s. Therefore, the completed fertility in cohorts from the first half of the 1940s was below the value of 2.5 children. Despite a further decline in the intensity by which the average number of live births decreased, the cohorts of women from the second half of the 1960s are the last in Slovakia to have more than two children on average. Looking at younger groups, the effect of the transformational changes that the Slovak society passed through after 1989 was reflected in the further dynamism of the reduction of realised fertility. As a result, Slovakia is gradually becoming a population with very low completed cohort fertility. According to several authors (Myrskylä et al. 2013, Zeman et al. 2018), these are those countries in which the average number of live births has fallen below the threshold of 1.75 children. The last known data for cohorts of women in Slovakia from the years 1975–1979 says that the completed cohort fertility was approximately 1.77 children. For the sake of completeness, we further add that in the analysis of individual cohorts, it was women from the late 1970s for whom completed fertility was at a level of less than 1.75 children.

Fig. 37: Total cohort fertility rate and childlessness of women in Slovakia in cohorts 1900–1979



Data source: SO SR, authors' own calculations

The early entry into marriage and almost universal marriage of women in Slovakia created conditions favourable for the forming of a low level of cohort childlessness. Since there was a very close relationship between married life and reproduction, it was true that women who were not married by the end of reproductive age most often remained childless. In contrast, the vast majority of married women became mothers at least once. Rowland (2007) and Sobotka (2006b, 2017) state that in the countries of Western and Northern Europe, the childlessness of women from the generations of the late 19th and early 20th centuries was at or above the 20% mark, while on the other hand, the countries of Eastern and Southeastern Europe were characterised by lower childlessness.

The proportion of childless women in Slovakia in cohorts from the beginning of the 20th century moved around 13–14%. It was these groups of women who in the European area (Rowland 2007, Sobotka 2017) belonged to cohorts with the historically highest known permanent childlessness. The cause may be in part the negative impact of the First World War, the emergence of large disproportions in the number of men and women of similar age on the marriage market, as well as the adverse effects of the great economic crisis of the 1930s. In contrast, some authors (Rowland 2007, Sobotka 2017) identify the lowest final childlessness in Europe among women born in the 1940s. The situation was also similar in Slovakia. A notable decrease in final childlessness from the mentioned almost 14% peaked in the cohorts from the 1930s and the first half of the 1940s at approximately 6–7%. Such low childlessness was an expression of the working of a set of several factors. As shown above, after the Second World War, the model of early and highly age-concentrated marriage and fertility was consolidated in Slovakia, and the mechanisms that shaped this model were also relatively stable. Among them we include, for example, limited opportunities for further education, full employment, a gradually developing complex of measures supporting young families with children, a minimum of alternatives to marriage and parenthood, the high normativity of motherhood, problematic availability of modern contraceptives, especially for young childless women, and others. What's more, as Kiernan (1989) and Toulemon (1996) add, voluntary childlessness was perceived in post-war Europe as something unnatural, selfish and effectively unthinkable. Having children was viewed as an inevitable consequence of deciding to live in a marriage (Kiernan 1989).

In younger cohorts, final childlessness did begin to grow, but the dynamics of this development were relatively low. Therefore, even

for women born in the first half of the 1960s, on average, only about one in ten remained without the biological experience of motherhood. Only women from the late 1960s and early 1970s surpassed this limit. In still younger cohorts, a relatively significant acceleration of the growth of final childlessness has been seen, and its level has already reached almost 15%. This trend arises from working of a whole set of different factors. On the one hand, it is associated with the process of postponing the birth of a first child until an older age and the increasing risk linked to this that women may never become mothers at all. The process of postponement itself is conditioned by overall shifts in the setting of individual transitions on the path to adulthood. Aspects of couple cohabitation also come to the fore. The detour away from married life and its replacement with various forms of couple cohabitation, the increased fragility of these relationships, and, until recently, the growing risk of divorce could also play a part in growing childlessness. No less important may be the high participation of women in the labour market, persistent gender stereotypes and thus multiple burdens on working women, the necessity for flexibility in a globalised and rapidly changing world, insufficiently developed care services for young children, as well as expanding the possibilities of effectively preventing unwanted conception, the growing competition from other ways of life fulfilment and the gradual social acceptance of childlessness in society.

4.2.2 Structure of women by parity and the parity progression ratio

Given the relatively low final childlessness over the long-term, it is clear that the absence of experience with motherhood was basically not a significant factor in the continuously decreasing the completed cohort fertility. In the background of this process stood other and more important changes in the composition of women based on the number of children born (parity) and thus shifts in the probabilities of having a child of a certain biological order. Before determining their impact empirically, we will first look at inter-cohort changes in the structure of women by parity.

As the analysis of cross-sectional fertility by order has already indicated, in the oldest cohorts of women in Slovakia, we mainly identify a decrease in the share of women with a higher number of children. While in the cohorts of the early 20th century nearly 38% of women had four or more children, for women born in the first half of the 1920s it was less than 30%, and in the cohorts of the second half of the 1930s the number

of this parity group fell below the level of 20%. This development trend continued, however, which is why in the cohorts from the second half of the 1970s less than 6% of women have four or more children.

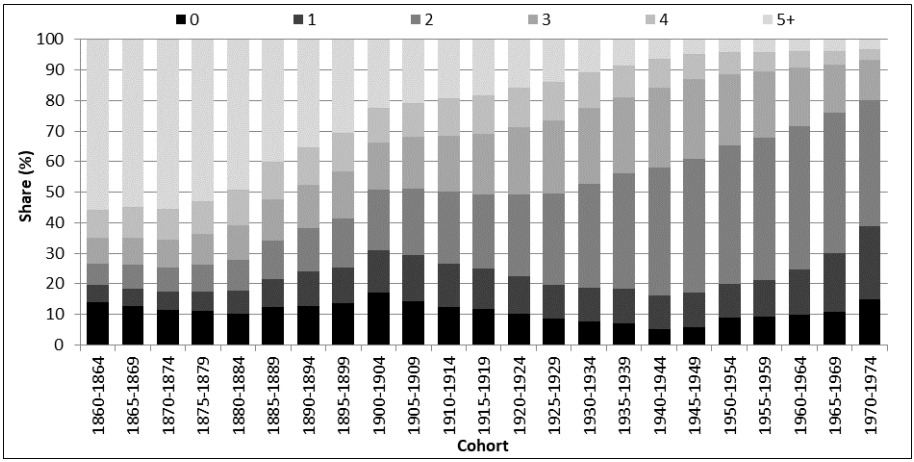
We see the opposite phenomenon in the development of the number of women with two and three children. Their share in individual cohorts initially showed an increasing trend. The maximum was reached by women with just three children in the cohorts from the second half of the 1930s and 1940s, where they represented, on average, about one-quarter of the relevant population year. In younger cohorts, however, we see a gradual decline in their case, too, which culminated in the youngest analysed cohorts from the second half of the 1970s. In their case, women with three children achieved only about half the representation.

The identified rise in the proportion of women with two children had a much longer duration and endured in Slovakia basically up to the group of women from the first half of the 1960s, going from the original less than 20% to 45%. It basically became the predominant reproductive model since the cohorts of women of the second half of the 1920s. Though this is true even in cohorts from the 1970s, its representation clearly shows a decreasing tendency. In the last analysed groups of women, those born in the second half of the 1970s, its share has already fallen to less than 43%.

Aside from childless women, having one child was also a marginal reproductive model in Slovakia for a long time. The share of women with one child increased very slightly at first. While in cohorts from the early 20th century this was slightly more than 13%, it was 14–15% for those born and the end of the first and start of the second decades of the century. The next inter-cohort development, however, was marked by a certain small decline, peaking in the cohorts from the second half of the 1940s. In their case, the share of women with one child was only a little more than one-tenth of the population year. In the younger cohorts, however, we already identify a relatively significant increase in the number of women having only one child. This accelerated particularly among women born in the 1960s and 1970s. As a result of this, the share of women with one child in the cohorts from the first half of the 1970s was over 22%, and among those from the second half of this decade it is almost 25%. In addition to the slightly rising childlessness, it is clear that the main impact of the transformational changes after 1989 in the fertility process in Slovakia has become a gradual reduction of the importance of the two-child family and, on the contrary, the increase of the weight of the one-child model. As we show below, the significant decline in the

probability of having a second child associated with the persistent low level of recuperation of this parity group at an older age contributes to this.

Fig. 38: Structure of women in Slovakia by the number of children born, cohorts 1900–1979



Data source: SO SR, authors' own calculations

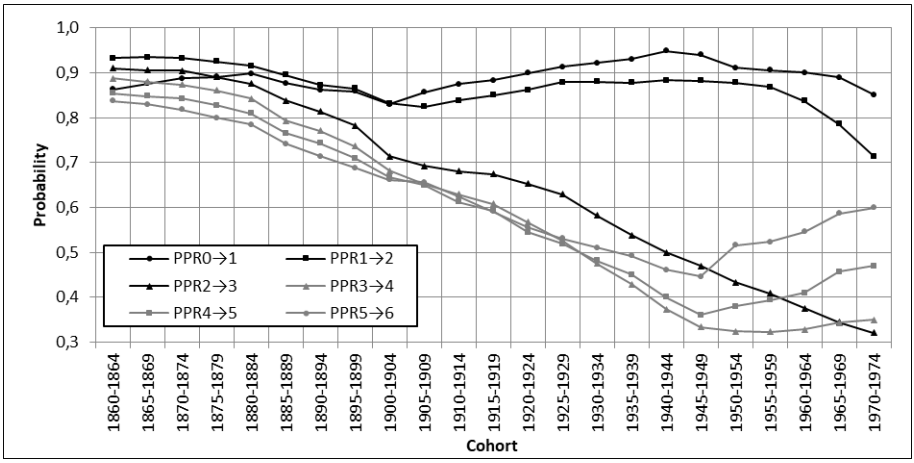
In populations with natural fertility (Henry 1961, 1964), i.e. in those that did not consciously interfere with their reproduction depending on the previous reproductive history and the number of live births, women had a relatively high chance of having another child even in the case of births of a higher order. With the gradual promotion of conscious regulation of family size, which, as we have shown in the case of Slovakia, was manifested mainly in the falling representation of women with four or more children, an inter-cohort reduction occurred in the probability of having children of a higher order. In populations in which family-size planning was promoted, the effort to limit pregnancy or the birth of an additional child after the marriage (couple) has already had the desired number of children is an important indicator. This is empirically reflected specifically in the significant decrease in the values of the subject probabilities.

As is evident from Fig. 39, in the oldest analysed cohorts of women from the beginning of the 20th century, we can identify relatively small differences in the probabilities between individual biological orders (parities). With the gradual establishing of the two-child family model in Slovakia, not only the chances of having a fourth and another child,

but also a third child, decreased. On the other hand, in view of the persistently low childlessness, the probability of having a first child for a childless woman remained high between cohorts. What's more, they still basically increased slightly up until the cohorts of the 1940s. We can also see a similar trend in the case of the probability of having a second child for a woman who has already become a mother. In the context of low childlessness and having only one child, and, in contrast, the gradually dominating two-child family model, the differences between the probability of the birth of the first and second child remained low between cohorts. However, in the cohorts from the first half of the 1960s, we can already register a certain acceleration of the decrease in the probability of having a second child. This trend was confirmed in the youngest analysed cohorts as well. However, we also see the probability of a childless women having a first child decreasing. Its dynamic is significantly lower, however; therefore, the above-mentioned increase in childlessness is nowhere near as significant as in the case of the growing share of women with one child. Hence, the result of these developmental differences is an increase in the differences in the probability of the birth of the first and second child.

Completed cohort fertility, as the average number of live births actually born to one woman from a certain cohort during her reproductive period, is a key indicator of the intensity of realised fertility. However, this is an average number, behind which different settings of reproduction models may be hidden. Several studies abroad have confirmed the effect of changes in the intensity of childbearing of certain orders on completed cohort fertility (see, e.g., Barkalov 1999; Frejka 2008b; Frejka, Sardon 2007; Zeman et al. 2018). It has been shown that the decline in the birth of third and other children was the dominant factor in shifts from large families and thus also high completed cohort fertility to the conservation limit. This is largely signalled by the results presented above in the case of Slovakia. On the other hand, the process of reducing realised fertility below the limit of two children may be conditioned by a fall in the probability of the birth of the first or second child (Zeman et al. 2018).

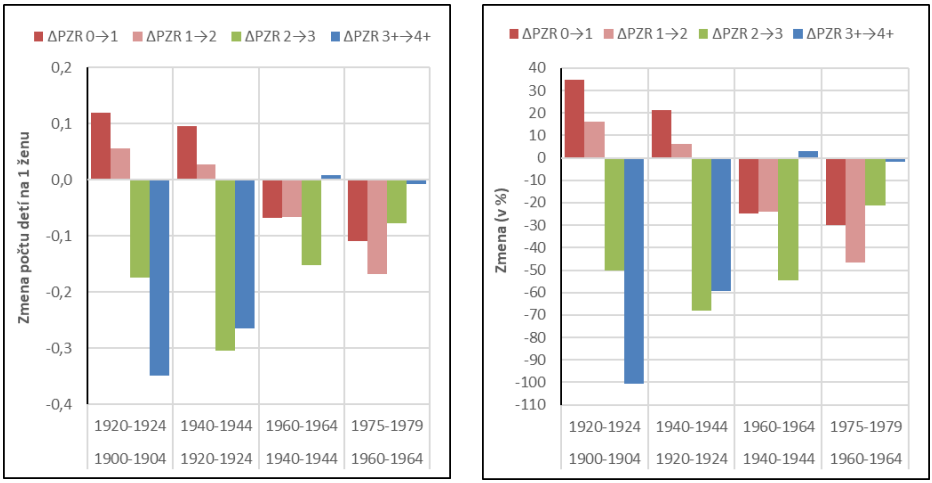
Fig. 39: Parity progression ratios in Slovakia, cohorts 1860–1974



Notes: PPR0→1 probability of birth of the first child to a childless woman; PPR1→2 probability of having a second child for a woman with one child; PPR2→3 probability of having a third child for a woman with two children; PPR3+→4+ probability of birth of a fourth and additional child for a woman with three or more children.
Data source: SO SR, authors' own calculations

As shown in the work of Zeman et al. (2018: 652), in the first phase realised fertility fell rapidly, especially in populations in which the first demographic transition started later and where the share of families with a larger number of children remained relatively high. This was also the case in Slovakia. The dominant factor of this process was specifically the lowering of the chances of having children of a higher order. Our results also confirm this, when the fall in completed fertility among the oldest analysed cohorts of women in Slovakia (1900–1904 and 1920–1924) was conditioned mainly by a lowering of the probability of having children of the fourth and higher order. The reduction in the probability that a woman with two children will give birth to a third child also had an approximately halving effect in absolute and relative terms (Fig. 40, 41). On the other hand, the above-identified inter-cohort increase in the probabilities of having a first and second child contributed to a slight rise in completed cohort fertility among the two oldest cohort groups of women in Slovakia (Fig. 40, 41).

Fig. 40 and 41: Absolute and relative contributions of changes in parity progression ratios to changes in the completed cohort fertility among selected pairs of cohort groups of women in Slovakia



Explanations: ΔPPR 0→1 change in the probability of the birth of the first child to a childless woman; ΔPPR 1→2 change in the probability of having a second child for a woman with one child; ΔPPR 2→3 change in the probability of having a third child for a woman with two children; ΔPPR 3+→4+ change in the probability of having a fourth and subsequent child for a woman with three or more children.

Data source: SO SR, authors' own calculations

Regarding younger cohorts, the significance of changes in the probability of having a fourth and additional child on the lowering of the completed cohort fertility decreased. The identified decrease in the probability of having a third child in particular began to come to the fore. At the same time, a certain reduction in the positive impact of the probabilities of having a first and second child occurred. When analysing the decline in the completed cohort fertility between the 1940–1944 and 1960–1964 cohorts, these also contributed to its reduction, but the change in the probabilities of having a third child continued to dominate both in absolute and relative terms. The significance of higher biological orders on the lowering of completed cohort fertility was minimal (Fig. 40, 41), a fact also confirmed in the youngest analysed cohorts. What's more, the main cause of the decline in completed fertility among the two youngest cohorts of women (1960–1964 and 1975–1979) is already the reduction in the probability of having a first and especially a second child.

4.3 Postponement of childbearing in a cohort perspective

A characteristic trait of the fertility of women who spent all or most of their reproductive life in the specific conditions of the previous political regime was the early birth of their first children. This is also confirmed by the notable stability of the values of the cohort mean age of women at the birth of their first child at around 22 years (Fig. 42). The timing of the birth of second children (Fig. 42), which was realised at 25 years old, was closely linked to this. As the course of cohort fertility rates shows, the reproductive model was thus characterised by a relatively high level of fertility at a young age, but also by a significant early decline in its intensity. This phenomenon was associated with the relatively early end of reproduction and the completion of the family size to the already mentioned most common two children. The result was thus also a significant concentration of reproduction into a relatively narrow age interval, and only a small portion of it was realised after the age of 30.

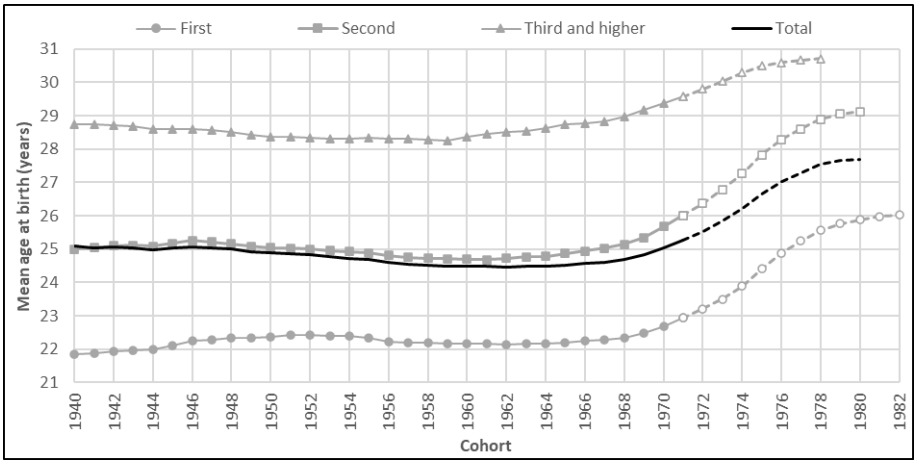
The stability of this model, however, experienced its first significant cracks in the cohorts from the second half of the 1960s and the beginning of the 1970s. The cohort average age of women at the birth of their first child and subsequently of their second child, too, began to rise relatively significantly between cohorts. In the case of first children, it reached almost 24.5 years already in cohorts from the mid-1970s and is even 26 years for women born in the early 1980s. Since at the time of writing this text these groups of women were not yet of an age that we can definitively refer to as the end of reproduction, the value in question may still increase slightly.

With respect to a certain chain-link connection of the timing of births of individual biological orders, changes in the beginnings of maternal starts also affected the timing of having a second child and additional children. This was ultimately confirmed by the values of the average age of the cohort. In the case of second children, this rose from the mentioned about 25 years to over 29 years, and in this parity group, too, there is still some potential for further increase given the age of the women in the 1980 cohort.

The average age at the birth of a third child and an additional child increased the least dynamically in the cohorts from the second half of the 1960s. Its value has been at 28–29 years in Slovakia for a long time. The highest known value for women whose reproductive behaviour was affected by the overall transformation of Slovak society after 1989 was just under 31 years (cohort 1978, Fig. 42).

Changes in the timing of the start of reproductive pathways, as well as second and additional children, gradually lead to an overall ageing of the age profile of fertility of women born in the second half of the 1960s and especially in the 1970s. The average age at the birth of a child has shown a slightly decreasing tendency over the long-term history of Slovakia. The main cause was above all the lowering of the influence of the process of giving birth to third and other children, the mentioned age concentration into a relatively narrow interval and the minimal use of the second half of the reproduction period for fertility. Thus, the overall cohort fertility shifted towards younger age groups. The values of the cohort average age of women at the birth of a child (overall, i.e. regardless of biological order) also responded to this. They fell from about 25 years in cohorts from the early 1940s to 24.5 years for women born in the mid-1960s. The subsequent overall ageing of the age profile of cohort fertility meant a reversal of this trend, and the last known value of the cohort's average age of women at birth reached almost 27.7 years (the 1980 cohort).

Fig. 42: Cohort mean age at birth, first and second birth, cohorts 1940–1982



Note: the dashed lines are the generations that were not yet 50 or older
Data source: SO SR, authors' own calculations

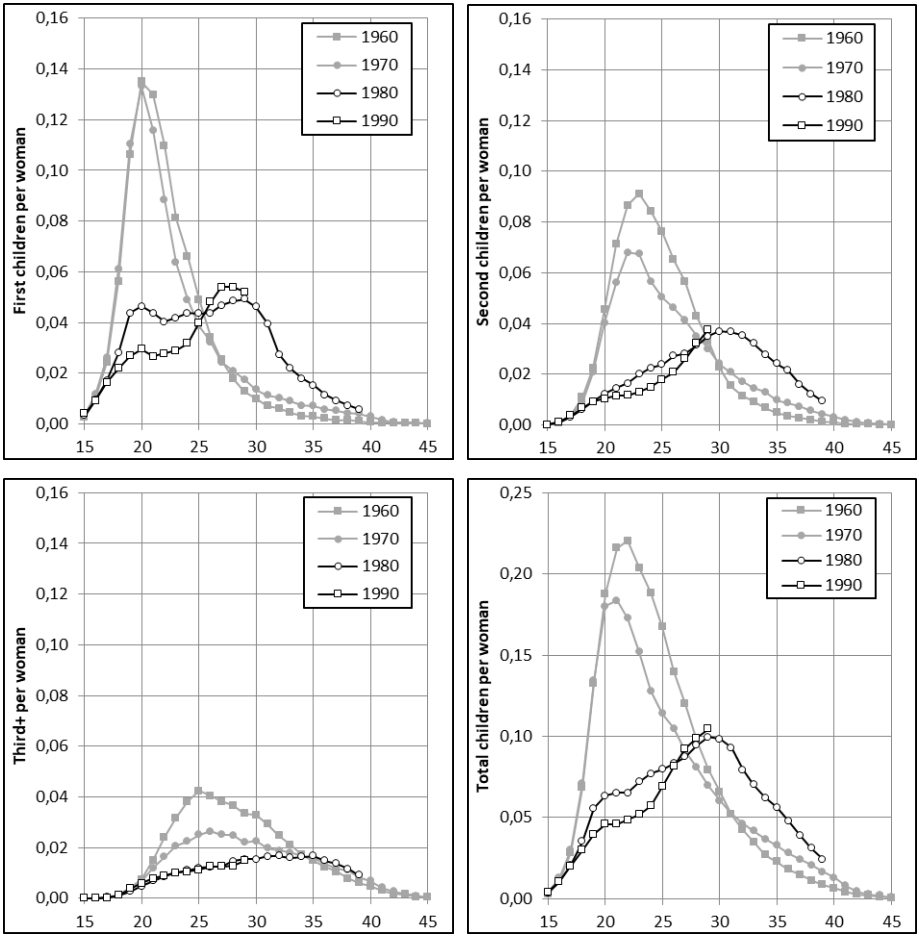
The early start of reproductive paths, the high concentration of fertility, as well as relatively early completion of reproductive intentions was reflected in the course and shape of fertility curves. The peak of the fertility rates of women born in the early and mid-1960s was at the

ages of 21 and 22. The curves were distinguised by a sharp increase in the intensity of childbirth from the youngest ages as well as a sharp decrease after reaching the mentioned peak. Only a very small portion (approximately 16%) of the total cohort fertility was realised at the age of over 30. For the sake of completeness, we will add that the concentration of cohort fertility in Slovakia peaked among women born from the mid-1950s to the second half of the 1960s, when the share of cohort fertility in the age range of 20–24 exceeded 45% of the total cohort fertility.

For women born at the beginning and especially in the mid-1970s, however, the path of the curves of the cohort fertility rates has changed significantly. From Fig. 43–46, it is clear that these changes can also be observed in individual birth order of children. The main transformative attributes of the cohorts of the 1970s included a relatively sharp decline in fertility in younger age groups (up to roughly 27 years old). At a higher age, only a very limited increase in the intensity of childbearing was identified compared with cohorts of women from the early and mid-1960s (Fig. 43–46). What's more, this recovery related mainly to the first and, to a much lesser extent, the second children. In the case of children of the third order and higher, we basically do not see any increase in cohort fertility at an older age. This important knowledge was also confirmed by a special analysis of the process of postponement and recuperation in a cohort perspective, conducted on the basis of the methodology developed for these purposes by Sobotka et al. (2011a).

Its basis is an assumption which is clearly fulfilled in the Slovak environment, that the present transformation of fertility is taking place in two consecutive and interconnected sequences. This involves the postponement of the birth of children until a higher age and then their subsequent catching up (recuperation). The term *postponement* means an absolute or relative decline in fertility at a younger age or in all age groups where such a decrease was recorded compared to the selected reference generation. In contrast, in the recuperation phase, it is assumed that postponed reproductive plans will be fulfilled (at an older age). Therefore, the recuperation phase is defined as an absolute or relative cumulative rise in fertility in all age groups in which this phenomenon occurs in comparison with the reference cohort.

Fig. 43–46: Age-specific fertility and fertility rates by birth order in Slovakia in selected cohorts



Data source: SO SR, authors' own calculations

The selection of the reference cohort is the key to the model. It should be an initiation, i.e. a cohort from which the relevant transformational changes begin. Since the main phenomenon of the postponement process is above all a change in the timing of the birth of the first children, Sobotka et al. (2011) propose that such a cohort should be chosen from which there is a continuous rise in the values of the cohort average age of women at the birth of their first child. As shown above, in the case of Slovakia, this requirement is met by the 1965 cohort.

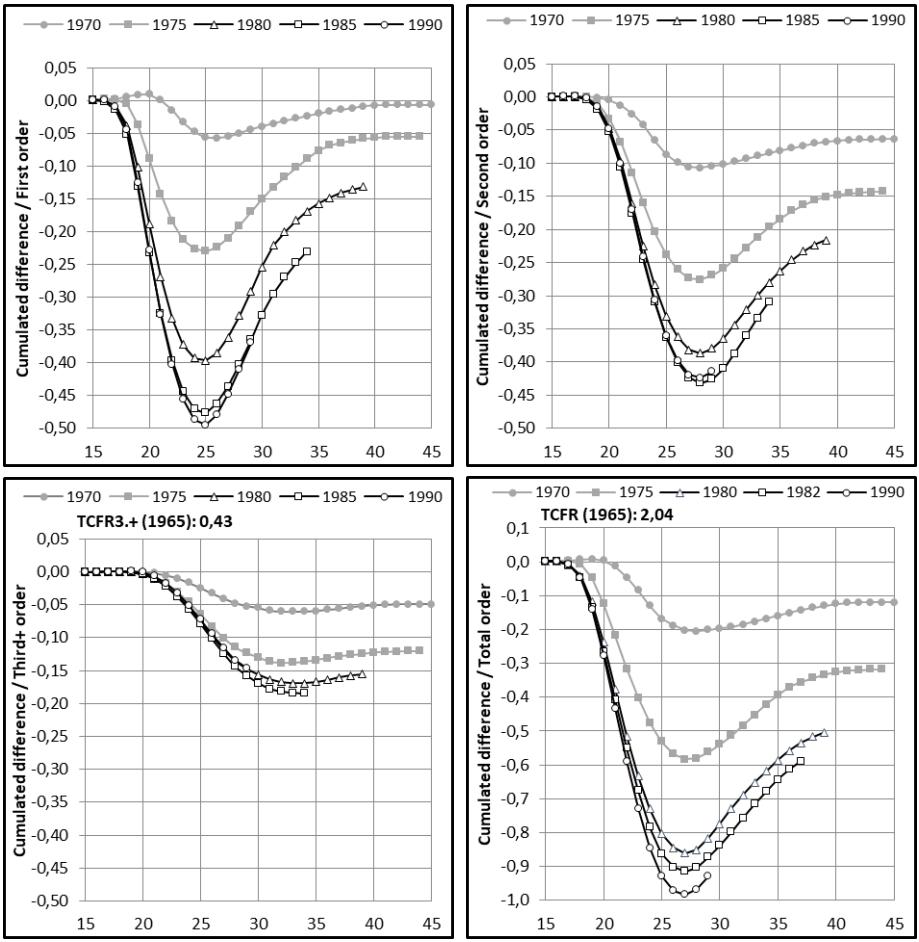
The cumulative differences in cohort fertility between the cohorts affected by the transformation and the reference group from the mid-1960s gradually deepened at younger ages (Fig. 50). This process occurred most dynamically among women from the 1970s. However, in the cohorts from the first half of the 1980s, the postponement process markedly slowed, and among women born in the second half of this decade, we even identify a stabilisation of nearly –1.0 children (Fig. 50). This means that the realised fertility of these cohorts compared to the reference (1965) is lagging behind by almost one child up to this age.

An important feature of the postponement fertility transition is its close connection with the biological order of the child born. In general, it can be assumed that women postpone in particular the start of their maternity paths at a younger age. Therefore, the rate of postponing the birth of a first child should also be at the highest values. With the shift in maternal starts, however, the timing of second and other children can also be affected. Thus, in the case of deepening postponement, the risk gradually occurs that these reproductive intentions are not necessarily fulfilled for various reasons, or only a portion of them manage to be born. This is then reflected in the very level of the completed cohort fertility of the second and higher order (Sobotka 2011). As the results show for some European countries in which the process of postponement began earlier than in Slovakia, while most women postponing their first child give birth at an older age, the key for the overall fertility level of the transition generations becomes above all how successful women are in catching up with others in having other children. It is here, however, where the final difference compared to the reference generation often turns out to be significantly greater than in the case of first-order children (e.g. Sobotka et al. 2011).

These findings can also be seen in Slovakia to a certain extent (Fig. 47–50). The above-mentioned formula about the greatest impacts of postponement on the birth of first children, however, did not apply in all cohorts. From Fig. 47, it is clear that up to the 1978 cohort, the rate of postponing second children predominated. We can assume that given the age of maximum postponement, these are the groups who were most negatively affected by the negative impacts of the socioeconomic transformation taking place for most of the 1990s. The obtained results thus suggest that these worsening living conditions were such a strong factor that they contributed to the slightly greater efforts of mothers to postpone the birth of a second child than to postpone the beginning of reproductive pathways. Thus, the classic picture of the postponement of

fertility based on the biological order of the child in Slovakia only occurs in cohorts from the 1980s, which hit the bottom of postponement at the end of the 1990s.

Fig. 47–50: Cumulative differences in cohort fertility rates of women by birth order in Slovakia, reference cohort 1965



Data source: SO SR, authors' own calculations

From the viewpoint of level of postponement, even considering the birth order of a child, it is true that this process took place most dynamically among women from the 1970s (Fig. 47–49). At the same time, however, it is clear that the intergenerational stabilisation of the postponement process occurs a bit earlier with second and subsequent

children. Namely, in the case of first children, we also register a certain deepening of the volume of postponement in women born in the second half of the 1980s (Fig. 47).

Thus far, we find the bottom of the postponement in this parity group only in the youngest cohorts from the early 1990s. The cumulative difference of cohort fertility of the first order compared with the reference group was about –0.5 for the first child (Fig. 47). For second children the postponement rate moves effectively from the cohorts from the first half of the 1980s on the level of –0.41 to –0.43 for the second child (Fig. 48). In the case of third and other children, the decrease in realised fertility compared with the reference cohort has thus far peaked among women born in 1981–1985 at the level of –0.15 of the third and additional child (Fig. 49).

The value of the completed fertility of cohorts of women affected by the postponement transition, however, does not depend only on the total volume of postponed reproduction at a young age. What is also important is how this delayed part of reproduction can be replaced at an older age. We can then perceive the ratio between catch-up (recuperation) and postponement in the form of the recuperation index (in %) as an indicator of a kind of success of individual cohorts in carrying out postponed reproduction. In this case too, knowledge of the recuperation index for individual birth orders is valuable.

As has already been mentioned, international analyses of the postponement and recuperation process (Sobotka et al. 2011) showed that the birth of first children is most affected by the shift of maternal starts to an older age, but at the same time, the majority of this cohort's fertility will be realised later.

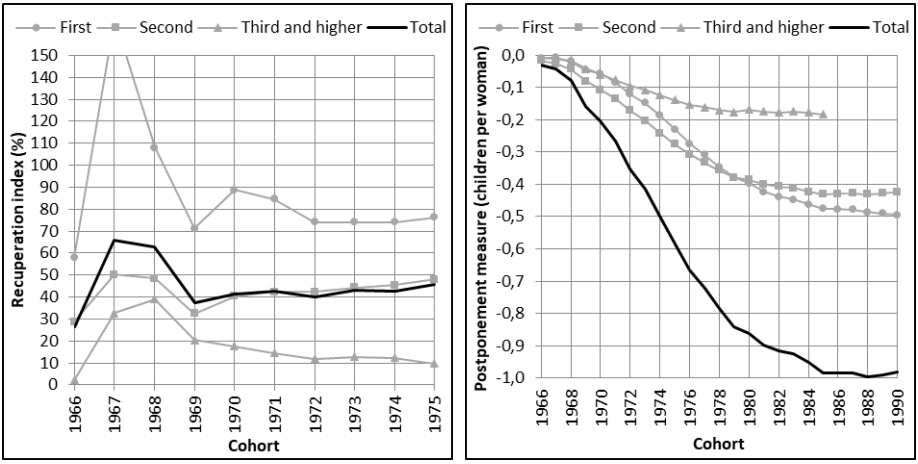
In the first transformation cohorts, the values of the recuperation index in Slovakia still showed non-standard values exceeding the 100% mark (so-called *overcompensation*), especially for first children, due to the initiation phase of the postponement process. In the cohorts from the first half of the 1970s, the level as well as the main development direction had already crystallised.

The recuperation index of first-order cohort fertility for women born in 1972–1975 was 74–76% (Fig. 52). From a developmental viewpoint, however, we can talk more about inter-cohort stagnation or only a very slight increase. In the case of second children, a certain developmental stabilisation has taken place since the cohorts of the early 1970s. Though the main development trend is moderate growth, the recuperation index has not yet surpassed the level of 50% even among women born in the

mid-1970s. This means that less than half of the identified decline in the intensity of having second children was made up in older age.

However, the situation is much more problematic in the parity group of third and higher. The volume of catch-up is minimal, and the recuperation index has a falling tendency, down to the level of 10% for women born in the mid-1970s (Fig. 52).

Fig. 51 and 52: The total volume of postponed cohort fertility of women and the recuperation index by the birth order of a child born in Slovakia



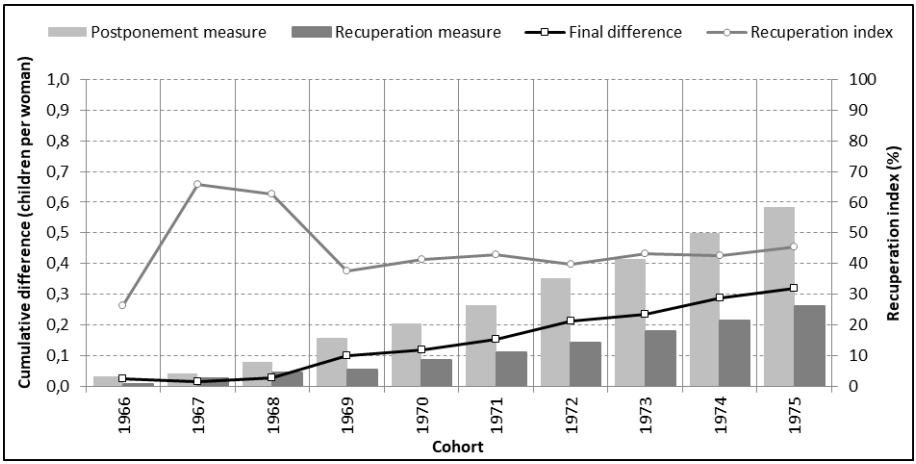
Note: Only data in generations that have reached the bottom of postponement in the relative parity are presented. The recuperation index in the 1972–1975 cohorts may even be slightly higher due to the age of these women (46–49 years).

Data source: SO SR, authors' own calculations

A comprehensive view of the process of postponement and recuperation of transformative generations for which we know the final level of postponement volume and the almost definitive form of catching-up is presented in Fig. 53. Not only did the mentioned intergenerational deepening of postponement take place, which in women born in the mid-1970s was by more than 0.58 children, but the volume and the recuperation index also gradually increased. Only the oldest transformation cohorts, in which the subject changes were only initiated and minimal shifts generally achieved compared to the reference cohort, are the exceptions. From Fig. 53, however, it is also clear that given the insufficient volume of recuperation compared with the level of postponement, a gradual intergenerational decrease

in completed cohort fertility is occurring, and this has already reached almost 0.32 children per woman in the youngest cohort of 1975. With an unchanged level of catching up in the last years of the reproductive period, this would mean that a definitive level of reduction in realised fertility compared to the reference cohort of 1965 would have also occurred. This is also why the completed cohort fertility of women in Slovakia continues to show a downward trend and has already fallen below the very low level (under 1.75 children per woman).

Fig. 53: Postponement and recuperation of cohort fertility of women born in 1966–1975 in Slovakia



The volume and index of recuperation in the generations of 1972–1975 may increase slightly due to the age of these women (46–49 years).
Data source: SO SR, authors' own calculations

5. Abortions and terminated pregnancies

Abortion was an important component of Slovakia's population development, especially after the Second World War and basically up to the beginning of the 1990s. As Kučera (1994) states, abortion represented a very important means of regulating the number of live births in the family and often represented a form of ex-post contraception in an environment of imperfect and poorly available contraception. The absence or low level of information among young people about the possibilities of family planning, poor sex education, the approach of doctors at that time to modern contraception (then prescribed only to older mothers and even then in an insufficient measure), as well as the existence of several negative social stereotypes contributed significantly to this. Some authors (Stloukal 1999) even write about the emergence of a specific "abortion culture", when abortion was quietly accepted throughout society as a means of preventing the birth of an unwanted child. What's more, access to induced abortion was all but problem-free, since the regulator in the form of abortion commissions had only minimal possibilities to examine the reasons leading to a woman to undergo an abortion. This is why the abortion commissions themselves were abolished in the second half of the 1980s.

Miscarriages are fundamentally different from induced abortions and are rather closer to the process of mortality. Their mechanism is conditioned above all biologically, while abortions occur, with some exceptions (for health reasons), during normally developing pregnancies. Thus, in the case of miscarriages the occurrence of a pathological pregnancy is crucial, while abortions are mainly the decision of women (or couples) who consider the pregnancy to be such a serious problem that they decide to terminate it early. For this reason, we will analyse abortions and miscarriages separately in this chapter, focusing mainly on abortions and therefore the process of artificial abortion.

5.1 Induced abortion

From its legalisation in Slovakia in 1958, with broadly defined social reasons without prior scientific and social discussion and under

circumstances when effective hormonal and intrauterine contraception were not available at all in combination with only a very little effective method of family planning, abortion became one of the most important factors of reproduction and means of regulating family size. Some studies from the 1950s showed that women were indeed dependent primarily on traditional and not always reliable contraceptive methods (interrupted intercourse, the infertile days method) (Rákosník, Šustrová 2016). Furthermore, the production of hormonal contraception and intrauterine devices began in Czechoslovakia only in 1966 (Sobotka 2002). It is also necessary to note that more modern contraceptives were not paid for by the health insurance company and were only available on prescription and the price for them was relatively high (Stloukal 1997). What's more, many doctors approached them with distrust, and their various side effects were discussed even among the lay public. In many cases, gynaecologists even refused to prescribe contraception to young childless women or women with one child and would do so only for married women with several children. The domestic production of contraception itself languished for a long time. Under conditions of central planning of the economy, health research and the health industry as a whole were chronically underfunded, and imports from abroad were all but unthinkable, due mainly to the lack of foreign currency (Stloukal 1997: 37). However, this situation did not change much even in the 1970s and 1980s, despite certain steps to ensure better availability of contraception. Basically, up to 1986, the use of modern contraceptives in Slovakia was at the level of 12–13% of women. Even the free provision of hormonal and intrauterine contraception did not significantly change this detrimental situation (to slightly more than 14% in 1987 and 1988). It is therefore possible to agree with Stloukal (1997) that relatively easy access to abortion in the face of long-term problems with the availability of modern forms of contraception lessened interest in other forms of fertility regulation prior to 1989.

After the legalisation of induced abortion for reasons other than health in 1958, there was a rather dramatic increase in the number of abortions performed, as well as the intensity of this process itself. During the first year of the new law, about 12,400 induced abortions were performed in Slovakia. In 1959, this rose to more than 17,000 and in the years 1960–1962, the number of abortions rose above 20,000 per year. A certain refinement and partially also tightening of the legislation led only to a temporary decrease (below 20,000 in 1963 and 1964). Further development brought about the continuation of relatively dynamic growth, which effectively

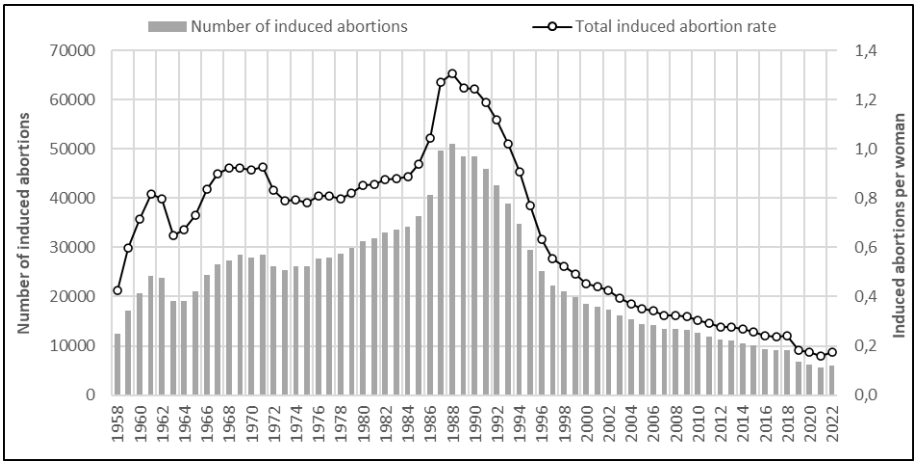
lasted until the start of the 1970s. The adopted package of pro-natal measures in the years 1968–1972, together with the social and political situation after 1968, created a pro-natal population climate, which was also expressed in an increase in fertility and a slight decrease in the number of abortions and the intensity of induced abortion. The partial limitation of access to abortion introduced in 1973 also temporarily contributed to this. We can assume, with a certain generalisation, that the adoption of pro-natal measures contributed to a change in decision-making, and many pregnancies that might normally be unwanted were accepted by couples as a result. The effect of these factors, however, ended relatively quickly, and in 1980 the number of induced abortions surpassed 30,000 for the first time. In the mid-1980s, more than 36,000 pregnancies were terminated by abortion, and in the two interannual periods that followed, growth dynamics exceeded all expectations. Already between 1985 and 1986, the number of abortions increased by more than 4,000, and the liberalisation of abortion legislation that followed, which mainly meant the abolition of abortion commissions with effect from the start of 1987, meant another rise, by more than 9,000 abortions. Their number thus rose to 51,000. From that moment on, the number of abortions in Slovakia then decreased every year. At the end of the 1980s, this trend was still not very pronounced, but in the first half of the 1990s, dramatic changes took place. While 1990 saw just over 48,000 abortions, in 1995 this was already below 30,000. The decline did not stop there, however; it continued, although with lower dynamics. In 1999, we fall below 20,000 (the first time since 1964) and from 2005 even below 15,000 abortions per year. According to the latest available data, from 2022, the number of induced abortions has now dropped below the 6,000 mark, which is the historically lowest value ever recorded in Slovakia.[27]

The development of the intensity of induced abortion basically followed the development of the number of abortions. After the legislative relaxation regarding abortions, the total induced abortion rate rose sharply to 0.8 abortions per woman of reproductive age. Subsequent refinement of regulations and certain restrictions temporarily lowered its intensity (to 0.6 interruptions per woman), but from the mid-1960s another increase occurred which peaked at the beginning of the 1970s (0.9 interruptions per woman). Overall, however, the 1970s were

[27] Since 2019, there has been a change in the reporting methodology for some abortions. Abortions with diagnoses O021 (Missed abortion) and O028 (Other abnormal conception) were reassigned from the group of artificial abortions to miscarriages.

characterised by a rather lower level of artificial abortion for the above-mentioned reasons. Had the intensity from 1973–1978 been maintained, there would have been fewer than 0.8 abortions per woman. However, near the end of the 1970s, this limit was again broken and the continuous growth peaked in the second half of the 1980s and the early 1990s. Between 1986–1992, the total induced abortion rate was steadily above 1 abortion per woman and it reached its highest level in the first two years after liberalisation. In 1987 and 1988 it was 1.25 and 1.29 abortions per woman, respectively. The development that then followed brought a dramatic decrease, and by the end of the 1990s the artificial abortion fell below 0.5 abortions per woman. This reduction in intensity continued in the next decade, too, though not as dynamically. Thus, since 2011, the average number of abortions per woman of reproductive age has fallen below 0.3, and according to the latest available data, it is only about 0.16 abortions per woman.

Fig. 54: Number of induced abortions and total induced abortion rate in Slovakia in the years 1958–2022



Data source: SO SR, authors' own calculations

The decline in the number of abortions and the intensity of induced abortion over the last three decades reflects several mutually conditioning facts. Pregnancy and the motherhood and parenthood related to it are not perceived as desirable in certain phases of the life cycle and under certain living conditions among the majority population; therefore, their relatively significant postponement has become one of the important aspects of the overall transformation of reproduction. To achieve

this state, abortions are used only as a last (extreme) solution, with emphasis placed on effective prevention of an unwanted pregnancy. This is made possible above all by a wide range of modern and effective contraceptives. At the same time, awareness and education in the area of sexual and reproductive behaviour and family planning, which is at a different qualitative and quantitative level than before 1989, also plays an important role. One's own responsibility for reproductive health is no less important. It is also necessary to consider the charging for abortions and the gradual increase of their cost, except when required for health reasons.

5.1.1 Woman's age and induced abortion

The age distribution of induced abortion rates in Slovakia has long been closely connected to age and, in particular, to the typical age of carrying out of reproductive intentions. As Stloukal (1997) adds, the risk of abortion is also closely associated with the phenomena that are connected to this age. This mainly relates to the physiological ability to conceive, the intensity of sexual life, the nature of the partner relationship, knowledge about and the availability of contraceptives, the frequency and consistency of their use, and also how a couple (or a woman) reacts to a potential pregnancy in combination with their life plans and circumstances.

With the exception of the end of the 1950s and first half of the 1960s, a model was created in Slovakia up to the mid-1990s in which we identify the age range of 25–29 as having the highest intensity of induced abortion. Two other two age groups of women, those age 30–34 and 20–24 years, were not far behind, with certain periods of time excepted (Fig. 55). We can thereby say with a certain generalisation that abortions were a matter for women in a wider age spectrum with a close connection to the age distribution of fertility rates. What is interesting is not only the development of fertility rates in individual age groups, but also their mutual relations to the overall intensity of abortion. While in the first years after abortion was made available for reasons other than health reasons it was used mainly by older women, after a certain tightening and particularising of abortion legislation in the first half of the 1960s, young women (20–24 years old) gradually began to come to the fore, and the previously mentioned slight predominance in the 25–29 age group occurred. These shifts were also associated with the gradual promotion of the two-child family model and the concentration of fertility in

a narrow, relatively young age interval. Since the mid-1970s, however, we can see certain developmental differences in induced abortion rates. While the intensity with which younger women (under 25) underwent abortions remained more or less stable, a significant increase at older ages (particularly in the 25–29 age range) is evident. It can be assumed that this process reflected the continued concentration of fertility at young and very young ages and the preference for the two-child family model, when these conceptions were desired, while for those who were older pregnancy was perceived as problematic, and women preferred to terminate them by undergoing an abortion. In the case of younger women, we can also assume that in the 1970s, a change in the population climate, a leaning towards family, as well as pro-natal policies and the use of their benefits, which were largely connected to the birth of the first or second child, played a role. What's more, starting in 1973, access to abortion was significantly restricted for married childless women or women with one child.

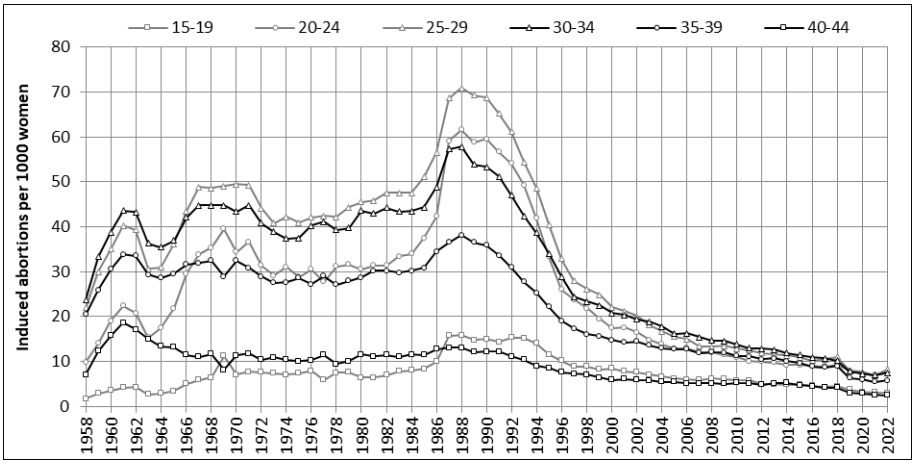
The ending of abortion commissions in 1987 affected all age groups in terms of the intensity of artificial abortion, but it grew most dynamically in the 20–24 age group. Aside from the effect of relaxing the conditions itself, we can partially identify in this process the effort of women not to enter into marriage as early only because of pregnancy. To a certain extent, the more frequent occurrence of prudent mini-abortions could also have contributed to this change in attitudes towards pregnancy. These were considered by the lay public as a form of regulating the menstrual cycle (Kučera 1994).

After reaching a peak in 1988, abortion rates basically began to decline sharply across all age groups. The biggest changes occurred in the age groups where the highest intensity of this process was identified. The dynamics of these changes were so striking that by the end of the 20th century the differences between individual age groups were already significantly reduced (with the exception of the oldest 40–44 and the youngest 15–19). The result is thus a model in which the intensity of artificial abortion is nearly the same and at the same time similarly low in the wide age range of 20–38 years.

Shifts in the timing of this process were also associated with changes in the distribution of abortions by age. The long-term trend up to the end of the 1980s was a gradual decrease in the age profile of abortion applicants, a fact also reflected in the falling value of the average age of a woman undergoing an abortion. At the beginning of the 1990s, this was approximately 29 years old. However, this trend was reversed in

the second half of that same decade, and we are currently witnessing a continuous increase, now well past the 30-year mark. This process was above all the result of the overall transformation of fertility by means of postponement and the associated shift of the risk of unwanted pregnancy to an older age. In the recent period, we identify a small decrease in the average age below 30 years, which we can associate with the mentioned process of reviving of reproduction even at a younger age, the overall slowing of postponement and probably also in part due to changes in the reporting of induced abortions.

Fig. 55: Induced abortion rates in selected age groups in Slovakia in the years 1958–2022



Data source: SO SR, authors' own calculations

5.1.2 Induced abortions, marital status of women and number of children

For a long time in Slovakia, abortions were more a tool for regulating family size for married women. This is confirmed by empirical data, when up to the beginning of the 1990s, eight out of ten abortions were performed at the request of a married woman. In this way, the nature of artificial abortion differed from the countries of the former Western bloc, where abortions served mainly to end unwanted pregnancies of young unmarried (and especially single) women (Frejka 1983). After 1989, however, the situation gradually began to change in Slovakia, too. The share of abortions performed on married women gradually fell to

60% at the beginning of the 21st century and below 50% in 2008, so that at present abortions for this group of women comprise less than 40% of all abortions. On the other hand, artificial abortions undergone by single women have come to the fore. While in the second half of the 1980s these procedures accounted for only a little more than 14% of the total, today they have a clear predominance, accounting for more than 50% as of 2017, and their weight continues to increase, currently to almost 56%. Abortions among divorced women have also increased slightly, but this group still does not make up even one-tenth of the total number performed, while the number and share of abortions among widows is negligible (less than 1%).

Along with changes in the intensity of artificial abortion (see Šprocha, Tišliar 2018), structural shifts also largely contributed to this development, namely changes in the composition of women based on marital status. The significant growth in the number and share of single women in Slovakia, together with the increase in the measure of divorcees, thus created after 1989 a significantly different character of the exposed population than before the start of the transformation. The increasingly numerous contingent of unmarried (and especially single) women exposed to a risk of abortion is also contributing to the change in the makeup of induced abortions based on the woman's marital status.

The main group of abortion applicants was gradually profiled among married women with two children, whose share in the total number of induced abortions was still above 40% in the early 1990s (Šprocha, Tišliar 2018). In the more than two decades that followed, however, this model changed considerably, as single, childless women, who at present have more than a one-fifth share of all abortions, came to the fore. Another third is comprised of single women with at least one child. A significant decrease in the weight of married women with two or more children has also occurred and currently accounts for less than one-quarter of all abortions. Childless married women requesting an abortion form a long-term marginal share (less than 4% of events), and a relatively low share is also achieved by married women with one child (approximately 9%). Among divorced women, only those with two children have a noteworthy representation (almost 5%).

5.2 Miscarriages

Miscarriages are a biologically conditioned process of intrauterine mortality prior to the foetus achieving viability. A miscarriage (also a natural abortion) is defined in Slovakia as the expulsion of a foetus

weighing less than 500 g and showing no signs of life (heartbeat, breathing, pulsation of the umbilical cord) from the uterus up to the 28th week of pregnancy.

The number of miscarriage as well as the level of miscarriages are closely associated with the intensity of pregnancies and their distribution based on the age of the woman. A woman's age is often referred to as being among the most important factors in the development of a pathological pregnancy (Nybo Andersen et al. 2000, Fretts et al. 1995, La Rochebrochard, Thonneau 2002). The unsuccessful termination of pregnancy may also be conditioned by the woman's previous reproductive history, with the number of pregnancies, the number of abortions and the number of miscarriages being the key factors (Gourbin 2006, La Rochebrochard, Thonneau 2002).

Until the mid-1960s the annual number of miscarriages in Slovakia was around 9,000. With the decreasing number of births and pregnancies, the number of miscarriages fell below the 8,000 threshold in the late 1960s and early 1970s. The subsequent revival of reproduction in the 1970s brought a certain increase to over 9,000 events per year, where the number of miscarriages remained until the second half of the 1980s. Further development was marked by a permanent decline, which peaked at the start of the 21st century, when the number of miscarriages was steadily below the 5,000 per year mark. Probably in relation to the deepening postponement of childbearing until an older age and the overall revival of fertility, a certain increase in the number of miscarriages has again occurred in the further development, and a methodological change in the reporting of the so-called "other abortions" from 2018 also contributed to this. These were reclassified as miscarriages, thanks to which a certain increase occurred in the number of events, as well as the intensity of miscarriages at the expense of abortions and induced abortions.

While the number of abortions and the intensity of induced abortion were at odds with the development of the birth rate and fertility up to the end of the 1980s, miscarriages and the rate of miscarriages were more or less closely linked to them. This is also why we can see that, with the exception of one short year-on-year increase (between 1962 and 1963), the level of miscarriages decreased. Specifically, the total rate of miscarriages fell from the late 1950s to the late 1960s, from more than 0.30 miscarriages to about 0.23. The subsequent revival of reproduction and thus of conceptions also led to a certain rise in miscarriages, and its intensity remained above 0.25 miscarriages until the mid-1970s. With

declining fertility in the late 1970s and 1980s, the total miscarriage rate also decreased. The key development, however, occurred after 1989, when the dynamic reduction in the intensity of childbirth also caused a significant reduction in the total miscarriage rate, now down to 0.11–0.12 miscarriages per woman. In the first decade of the 21st century, a certain irregular increase again occurred, and the level in recent years is in the range of 0.15–0.17 miscarriages per woman of reproductive age. Aside from the above-mentioned revival of fertility and the ageing of its age profile, the above-mentioned change in the methodology for reporting other abortions and the reclassification into miscarriages also contributed to this.

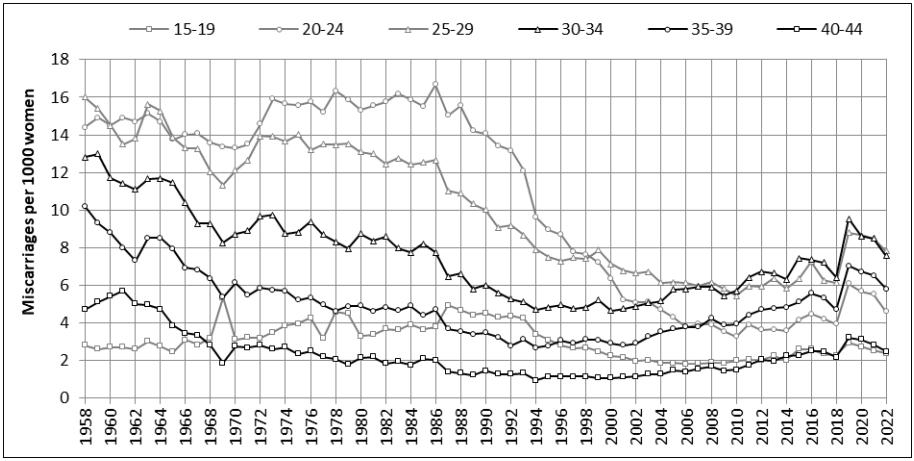
The present low level of miscarriages in Slovakia points to the stability of the ratio between normal and pathologically developing pregnancies. This likewise points indirectly to the steady state of health of women of reproductive age, which the improvement in prenatal care and the increasingly successful maintenance of high-risk pregnancies until delivery has definitely contributed to. The limited possibilities of prenatal care in the past, together with some of the above-mentioned factors (more frequent births, a higher number of often repeated abortions, a higher intensity of fertility at an older, but also at a younger age) could also be behind the relatively higher level of miscarriages in the 1950s and 1960s.

The close connection between abortion and fertility was also reflected in the distribution of miscarriage rates by age. The gradual concentration of fertility to young and even very young ages during the previous political regime conditioned the fact that the maximum miscarriages also occurred at the age of 20–24 (especially in the 1970s and 1980s). In contrast, miscarriage rates at higher ages had a more or less falling tendency (Fig. 56). With the arrival and gradual expansion of the new model of reproductive behaviour after 1989, the nature of miscarriage also began to change. Above all, a sharp decline was seen in the 20–24 age range combined with a slight increase in the second half of reproductive age (Fig. 56). Since roughly the start of the 21st century, the highest intensity of miscarriage in Slovakia has occurred in the 25–29 years age range, and in the last decade even in the 30–34 years age range. We identify the lowest intensity of miscarriages at the start and at the end of the reproductive age.

Shifts in the values of the average age of a woman at miscarriage were also associated with the distribution of miscarriages rates by age and changes to them. The overall getting younger of the fertility process

as well as the miscarriage rate in Slovakia meant that the value of the average age decreased up to the beginning of the 1990s. While in the late 1950s and early 1960s the average age at miscarriage was consistently above 29 years, in 1992 it was only 26.4 years old. From this moment on, in the context of the main development trend of postponement of fertility and thus to a large extent of conceptions, too, the mean age more or less continuously increased. Since 2008, it has steadily been above 30 years, and the latest available data show that it has already reached 31 years.

Fig. 56: Miscarriage rates in Slovakia in selected age groups in the years 1958–2022



Data source: SO SR, authors' own calculations

5.3 Pregnancy termination

The combination of data on abortions and births allows us to analyse the level, timing, as well as the very structure of concluded pregnancies of women in Slovakia from the end of the 1950s to the present. Since not all early pregnancies are empirically detected and miscarriages in particular may be underestimated, the data presented show only the portion of pregnancies identified in medical facilities.

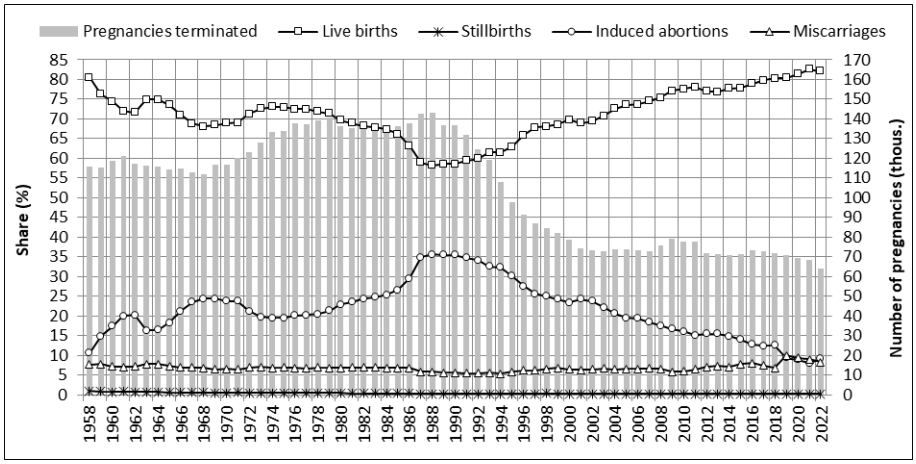
In terms of numbers, from the end of the 1950s to the beginning of the 1970s, approximately 112–121,000 pregnancies were recorded annually in Slovakia without significant year-on-year changes. Their internal structure gradually changed, however, primarily as a result of

the rise in the share of abortions, the weight of which rose from just over 10% to almost 25% during this period. On the other hand, the share of pregnancies ending in the birth of a live child fell below the 70% mark. The importance of the other components remained more or less the same and, it needs to be noted, very low. The revival of fertility that followed brought not only an increase in the number of concluded pregnancies, up to over 140,000 in 1979, but also increasing an proportion of live births. This reached its maximum in the first half of the 1970s, when approximately 73% of all identified pregnancies ended in a live birth. The development of abortions, the share of which fell below the 20% mark during this period, showed the opposite trend. As we have mentioned several times, the positive effect of the package of pro-natal and pro-family measures was exhausted relatively quickly, and this is also true in the case of concluded pregnancies. At the beginning of the 1980s, a certain decrease is recorded to below the threshold of 135,000 events. A much more significant factor in this period, however, was the legislative regulation of abortions and the associated abolition of abortion commissions. This led to the above-mentioned significant increase in the number of induced abortions, thanks to which a temporary increase occurred in the total number of concluded pregnancies identified. In 1987 and 1988, they again crossed the 140,000 mark, despite the continued decline in the number of births. These changes were also reflected in major structural shifts in the composition of concluded pregnancies. Abortions, which in the second half of the 1980s and the beginning of the 1990s made up 35–36% of all concluded pregnancies, came logically to the fore. In contrast, the representation of live births fell below 60% in this period (Fig. 57).

The last decade of the 20th century brought the previously mentioned significant interventions in reproductive behaviour and brought a significant decrease in regard to the frequency and intensity of fertility and abortion processes. Thanks to this, a dynamic reduction in the number of registered concluded pregnancies also occurred. While at the beginning of the 1990s this was more than 130,000 per year, at the beginning of the 21st century their number more or less stabilised at approximately 73–74,000. The number of pregnancies reached the level of 80,000 the end of the first and the beginning of the second decade of the 21st century due to the revival of fertility and a certain increase in the number of live births. However, recent years have seen a further decline, down to the level of 65,000 pregnancies. This development was in part the result of certain methodological changes in the reporting of children

born abroad, but it is primarily due to the shrinking reproductive base of Slovakia, which has led to a decrease in the number of live births in the last 5 years. Furthermore, this was supported by a certain reduction in the intensity of fertility in 2022. Like the decreasing number of pregnancies in Slovakia, a reduction in the number of abortions has also continued.

Fig. 57: Number and structure of pregnancies terminated in Slovakia in the years 1958–2022



Data source: SO SR, authors' own calculations

Aside from changes in the number, shifts have also occurred in the internal structure of concluded pregnancies since the beginning of the 1990s. The main development signs, due to the significant drop in the number of abortions, mainly include an increase in the proportion of pregnancies ending in the birth of a live child.

At the beginning of the 1990s, abortions still accounted for approximately 35% and live births accounted for less than 60%. At present, however, slightly more than eight out of ten identified pregnancies end in a live birth, and abortions make up less than one-tenth. Since after the change in the methodology of reporting some other abortions (see note 27) the number of miscarriages is slightly higher, their weight in the total number of empirically recorded pregnancies of women in Slovakia has been at the level of 9–10% in recent years. For a long time, stillborn children constituted and still constitute a negligible

part of concluded pregnancies. What's more, their share has gradually decreased from approximately 1% to below 0.5%.

6. Mortality

Mortality directly enters into population development and affects not only the number, but also the structural composition of the population. The mortality process itself is characterised by a relatively significant measure of persistence and inertia towards exogenous factors of a low level of complexity. This means that the intensity and character of mortality change only slowly, and the transformation process can only be accelerated by the working of a whole complex of external factors. This is also caused by the very nature of death as a biosocial phenomenon. In effect, a whole set of endogenous and especially exogenous factors operate on every individual from birth, the effects of which on the organism accumulate over time. Together with the different risks of death and individual care for their health, they are thereafter put their stamp on the average life expectancy at birth (Kučera 1994). The nature of the mortality ratios is thus not only the result of recent developments, but to a significant measure is also conditioned by the intergenerational burden of the population formed over a longer time horizon. Therefore, knowledge of the long-term development of mortality ratios enables a better understanding not only of the current situation, but also represents an important source of information for forming assumptions about its future development.

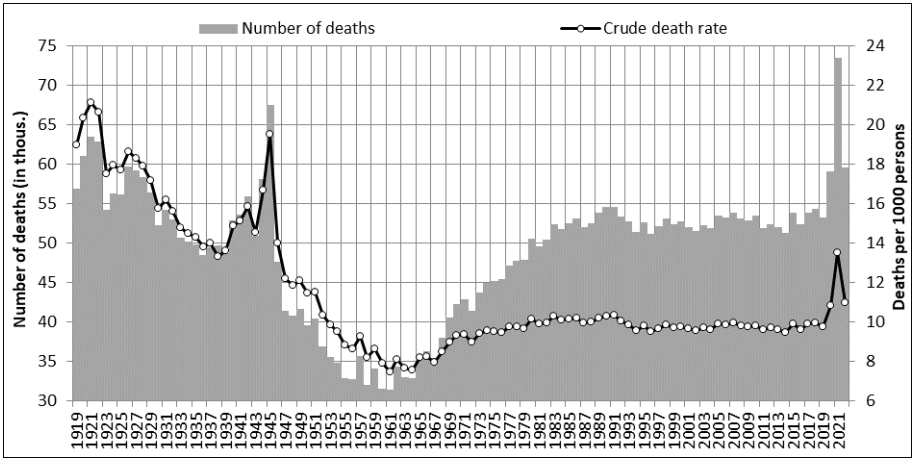
6.1 Mortality up to the end of the Second World War

Mortality conditions in Slovakia after the First World War can be characterised as highly unfavourable. The persistence of adverse epidemiological conditions, together with the low availability and thus also low use of healthcare services, their poor quality, in combination with the overall material and informational backwardness of Slovak society (especially in rural areas) created conditions favourable for the persistence of backwardness syndrome (Livi-Bacci 2003), which was thus underlined by the overall high intensity of mortality. At the same time, however, it should be added that, in the long term, there has been a gradual improvement in mortality rates in Slovakia (Mészáros 2008; Šprocha et al. 2015; Vaňo et al. 2001).

There still was, however, a relatively close interconnection with infectious diseases, especially seasonal flu epidemics. The year 1921 can be such an example, when the highest number of deaths (63,500 people) was recorded in the interwar period, as well as the highest crude mortality rate (more than 21‰). We subsequently monitor a similar worsening of mortality rates due to the influenza epidemic in 1926 and 1927. In general, however, the main development trend during the period of the First Czechoslovak Republic was a fall in mortality. This was also reflected in the number of deceased persons and the crude mortality rate values. From about the mid-1930s, the number of deaths fell below 50,000, which in relative terms meant fewer than 14 deaths per 1,000 inhabitants.

After 1937, however, the positive development temporarily ceased and, in contrast, we observe an increase in the number of deaths (to almost 56,000) and the crude death rate (16‰) until 1942. Given the unavailability of more detailed classifications of input data, it is not possible to identify what role the worsening of living conditions, supply problems, war losses or the epidemiological situation played in this. Regardless, we can already closely connect the years 1944 and 1945 with ongoing war operations on our territory. The number of deaths in Slovakia in the last year of the war reached the level of more than 67,500, and the crude mortality rate was just below the 20‰ limit.

Fig. 58: Number of deaths and crude mortality rate in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

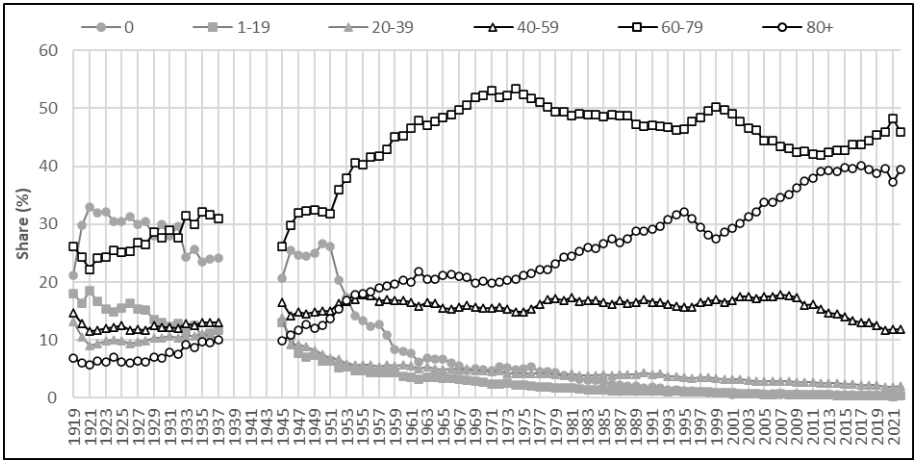
In 1919, after the end of the First World War and the amelioration of unfavourable epidemiological conditions caused by the Spanish flu, the average life expectancy at birth (life expectancy at birth) rose above 44 years for men and above 46 years for women. However, additional epidemiologically complicated post-war years were at first marked by a slight decrease in average life expectancy. Worsening infant mortality also contributed to this. In the years 1920–1922, the infant mortality rate in Slovakia was still higher than 180‰. Its subsequent fall to 150–160‰ was also reflected in the number of deaths and the average life expectancy at birth, which for the first time rose above 50 years (see Fig. 72) in 1923 and 1924. In the male part of the population, it rose to about 47–48 years during this period. The close connection between infectious diseases and mortality, however, was also evident in the following period. For example, in 1926 and 1927 an increase in the number of deaths and a slight decrease in life expectancy at birth (males 46.7 years; females 48.3–48.8 years) again occurred due to the worsening epidemiological situation caused by the influenza epidemic.

Overall, however, we can refer to the interwar period of Czechoslovakia's existence as a significant period in which the established trend of improving mortality rates in Slovakia accelerated. Infant mortality moved in the range of 140–150‰ from the mid-1930s, and the average life expectancy at birth rose to almost 52 years for men and even reached 55 years for women. Between 1920 and 1937, the potential number of years of life for a newly born boy increased by more than 9 years, and for a girl it rose by more than 12.5 years. Due to the different improvement dynamics of mortality ratios between the sexes, a deepening of the male mortality rate in the interwar period also took place. Its level, expressed as the difference in life expectancy at birth between men and women, was only about –1 year at the start of the 1920s, but in the second half of the 1930s it was nearly –3 years.

Mortality is closely connected to age and gender. The first glimpse into this fact is provided by the structure of the dead by age. In the case of Slovakia, the enduring great importance of the deaths of the youngest children, who still comprised a third of all deaths in the first half of the 1920s, is confirmed. Another roughly one-tenth of deaths were among children aged 1–4 years. However, thanks to the falling infant and partly also child mortality, the share of deaths in these age groups in the total number of deaths in Slovakia decreased in the period that followed. In the second half of the 1930s, infant deaths represented not quite 25%, and in total, those under the age of 5 accounted for about 30% of deaths.

In the early 1930s, the deaths of persons aged 60–79 gained a slight dominance, representing slightly more than 31% in 1937, while the deaths of the elderly accounted for only 10%. Deaths in the 20–39 years age range had approximately the same share, and only slightly more deaths (13%) occurred in persons aged 40–59 years. Thus, those dying under the age of 20 in the second half of the 1930s together represented just over one-third of all deaths, while at the start of the 20th century they had constituted almost 57%. After the Second World War, the process of age transformation of mortality was completed by a significant decline in infant and child mortality. Deaths in productive and post-productive age thus moved more and more to the forefront. The deaths of persons aged 60–79, which together with the deaths of those over 80 currently account for more than 80% of all deaths, became the main group.

Fig. 59: Structure of deaths by age in Slovakia in 1919–2022

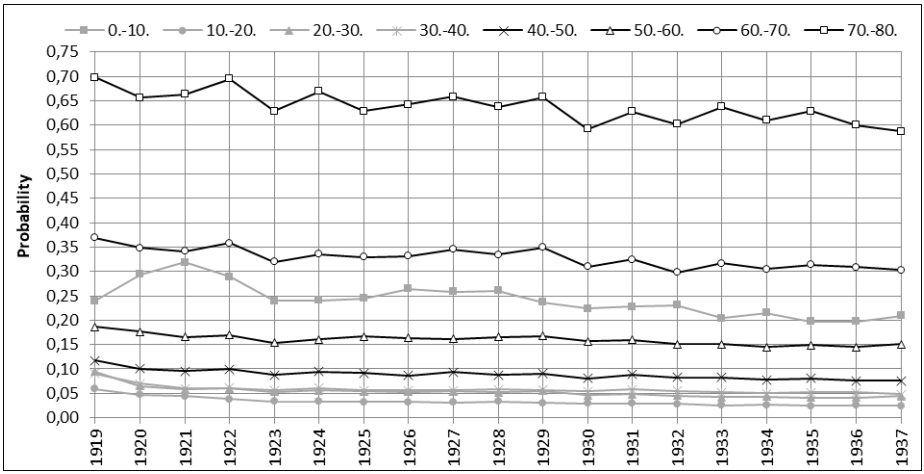


Data source: SO SR, authors' own calculations

To analyse the intensity of mortality by age itself, we use the probability of death. From the beginning of the 20th century to the end of the interwar period, mortality rates improved in basically all age groups and both sexes. Without a doubt, the mortality rate fell most dynamically in the age range from 1–9 years, as its level in the second half of the 1930s was only about 30% of the original value. The intensity of mortality in reproductive age also fell by half. However, such significant changes did not occur in post-reproductive and especially post-productive age. While in younger age groups it was true that the

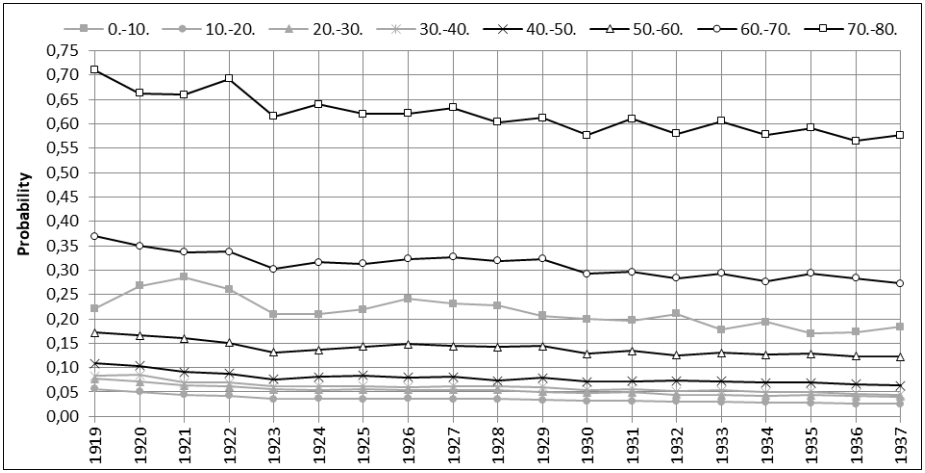
improvement of mortality ratios occurred at roughly the same pace for men and women, at older ages (50–69 years) the intensity of mortality decreased faster among females.

Fig. 60: Probability of the death of males among selected ages in Slovakia in the years 1919–1937



Data source: SO SR, authors' own calculations

Fig. 61: Probability of death of females among selected ages in Slovakia in the years 1919–1937

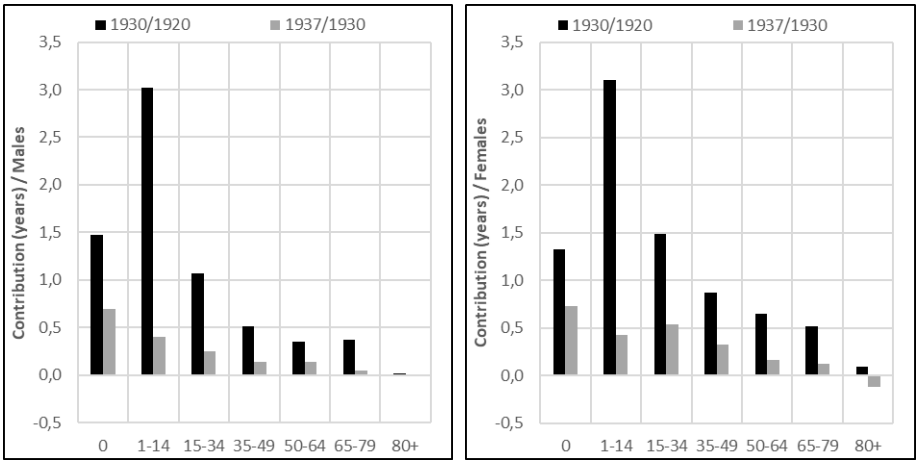


Data source: SO SR, authors' own calculations

A deconstruction of the contributions of age groups to the change in life expectancy at birth in the periods 1920–1930 and 1930–1937 shows that for both sexes in Slovakia, the main factor of life extension was the decreasing child mortality (0–14 years). For example, between 1920 and 1930, male life expectancy at birth increased by almost 7 years, with a reduction in infant mortality accounting for up to two-thirds of this. The situation was similar for women, as life was extended by 8 years in the 1920s, and 55% of that was due to improvements in mortality rates under the age of 15. The fact that in this group the reduction in the intensity of mortality of the youngest children (under 5 years old) dominated in this age is also a very important finding.

At the age of over 50, especially at senior age (65 and over), no significant changes in mortality ratios occurred; therefore, their contributions to the increase in life expectancy were considerably limited. In terms of the dynamics of life extension, the development in the 1920s was clearly crucial. It seems that in the course of this decade a notable depletion of the potential for improving mortality ratios occurred in Slovakia under the existing conditions in society. As a result, the rate of life extension in both sexes dropped significantly in the 1930s.

Fig. 62 and 63: Contributions of age groups to the change in the life expectancy at birth of males and females in Slovakia between selected years of the interwar period



Data source: SO SR, authors' own calculations

The level and internal character of the mortality process is closely connected to the causes of death. The most important of them enable an indirect assessment of the epidemiological situation and partly also the health status of the population in a given period. The process of life extension itself, which happened within the framework of the demographic revolution, was to a significant extent conditioned by such changes in epidemiological conditions. These were outwardly manifested both in shifts in the intensity of mortality as well as in the structure of those dying based on the causes of death. In the sense of Abdel Rahim Omran (1971), we can speak of the onset of an epidemiological transition. In connection with the population of Slovakia and the period of the first half of the 20th century, the postulate of changing patterns of mortality and morbidity is especially important, when infectious and epidemic diseases are gradually replaced by civilizational and degenerative diseases (Omran 1971). As the author adds, in this period the average life expectancy rises above 50 years, while civilization diseases gradually come to cause more than one-third of all deaths (Omran 1971).

In connection with the analysis of deaths according to the causes of death in Slovakia, however, it is in effect necessary to speak about a notable caution in relation to the quality of the data provided and mutual comparability up to the mid-20th century. On the one hand, the international classification (MKCH) was recognised only in 1893 and since then has undergone several revisions, each of which brought certain changes. A much more important factor related to why caution is needed when analysing causes of death is the fact that until the mid-1920s, cases where the cause of death was determined by a lay (non-medical) person significantly predominated, while the category of ill-defined causes of death also had a non-negligible share (Šprocha, Tišliar 2008c).

At the beginning of the 1920s, epidemic, endemic and infectious diseases had the largest share of deaths for both sexes (accounting for approximately 20%), followed by old age (14% of males, 19% of females) and diseases of early age together with birth defects (17% males, 14% of females). Diseases of the respiratory system (about 13% of both sexes) and a set of ill-diagnosed diseases and undetermined causes of death (11% of males, 13% of females) still surpassed the 10% mark. Civilization diseases in both sexes still accounted for less than 6% of all deaths, though we can assume that a certain proportion of deaths caused by "old age" may in fact have represented undiagnosed cardiovascular or oncological diseases. By the mid-1930s, the representation of poorly determined

and indeterminate causes of death dropped significantly (to about 2%) as well as deaths whose cause was classified as an early age disease or congenital defect (10% of males, 8% of females). The reduction of deaths from epidemic and infectious diseases (15%) was also very important. On the other hand, there was also a slight increase in the share of deaths due to "old age" (especially in women) and civilizational causes of death. Cardiovascular and oncological diseases accounted for approximately 15% of deaths among males and even almost 18% of females in this period. Since the presented overview is more informational and also influenced, among other things, by differences in the age structure, we proceeded to the construction of standardised mortality rates according to sex and selected groups of causes of death.[28]

In terms of intensity itself, the standardised mortality rates constructed for the years 1920–1937 confirm the decrease in the effects of epidemic and infectious diseases. We can favourably assess the development especially in the first half of the 1920s, when the epidemiological situation gradually stabilised after the end of the First World War and the waning of the Spanish flu. The temporary increase in the intensity of mortality for this group of causes of death in 1926 and 1927 was due largely to a stronger influenza epidemic. After its negative impact subsided, we can effectively talk about further improvement in mortality rates until the end of the monitored period. Thanks to this, in 1937 the intensity of mortality from epidemic and infectious diseases reached approximately half the level they were at after the end of the First World War.

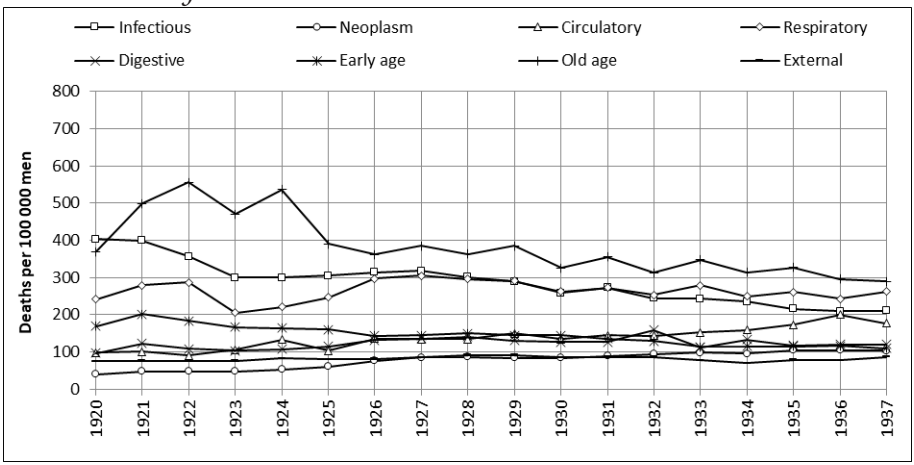
Also, due to the improved availability of health care and the better diagnosing of causes of death in an increasing number of deceased persons by doctors, the level of mortality due to old age and ill-defined causes fell significantly.[29] However, mortality from respiratory system diseases remained relatively unfavourable for a long time. Its intensity did not significantly change in the interwar period for both sexes. The epidemiological situation remained relatively stable in the other groups of causes of death as well. Cardiovascular and oncological diseases are exceptions in this regard, as we are witnessing an increase in their intensity in both sexes. At the end of the interwar period, the overall level

[28] This was made possible by published data on causes of death combined with the age and gender of the deceased for the period 1919–1937.

[29] Since in terms of intensity of mortality the group of ill-defined causes of death soon ranked among the least important and its level was more related to diagnostic possibilities and the rate of determination of causes of death by medical personnel, we decided not to present its standardised mortality rate values graphically.

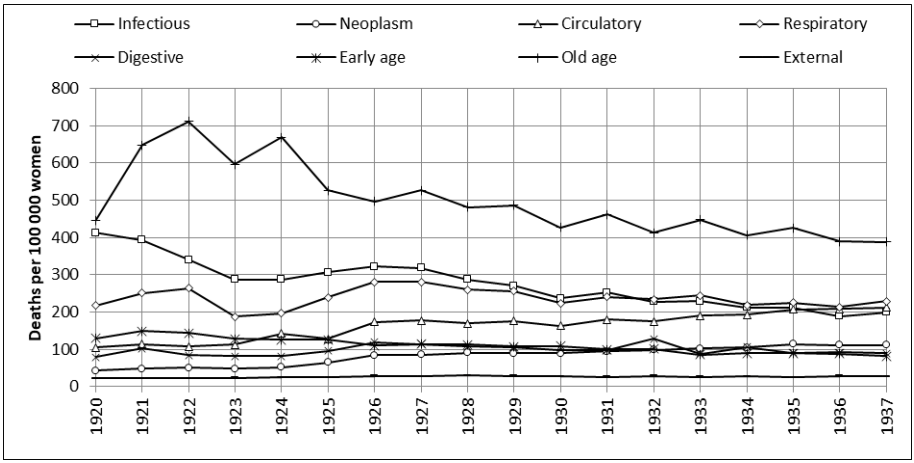
of mortality from these two civilizational diseases basically equalled the preceding most serious causes of death (Fig. 64 and 65).

Fig. 64: Standardised male mortality rate for selected causes of death in Slovakia in the years 1920–1937



Data source: SO SR, authors' own calculations

Fig. 65: Standardised female mortality rate for selected causes of death in Slovakia in the years 1920–1937



Data source: SO SR, authors' own calculations

The period after 1937 until the end of the Second World War is a unique time when assessing the population development of Slovakia due to the absence of some data necessary for the construction of more

refined indicators. Aside from the crude mortality rate presented above, we can evaluate the process of mortality only through some partial data.

Despite the clearly declared efforts to improve care for mother and child, infant and child mortality remained high even at the end of the 1930s and in the first half of the 1940s. Although at the beginning, a partial decline to and below the level of 140‰ occurred, in the years that followed it rose significantly. The worst situation clearly occurred in 1942 (160‰) and 1945 (169‰). While the first peak could to some extent be linked to the previous higher birth rate, the second in all probability is connected to the ending war and unfavourable living conditions in the first months after its end.

Since data on the number of deaths, their age and sex were published only for the years 1939–1941 and 1945, it was possible to calculate the death tables only for those mentioned years. The average value for the period 1939–1941 shows that men then just born would have a chance of living just over 53 years and women 57 years. Compared to the last recorded value from 1937, this was an increase of roughly 1.3 years for men and even 2.5 years for women. The last year of the war, however, brought not only a significant increase in infant mortality, but also an overall increase in the intensity of mortality. The transition of the front, direct military operations on the territory of Slovakia, in combination with a worsening of the living situation not only at the end of the war, but also immediately afterwards, meant the emergence of a problematic epidemiological situation. This was also reflected in a relatively significant fall in the average life expectancy at birth, which in 1945 was only about 42 years for men and less than 51 years for women. Compared to the last known value from the late 1930s and early 1940s, the average life expectancy at birth decreased by almost 11 years among males and by 7 years among females. As the subsequent development showed, this was only a temporary phenomenon.

Regarding causes of death, the situation from 1938–1945 probably did not change significantly, the exception being the last year of the war. According to available data on the number of deaths by cause of death[30], at the end of the 1930s and start of the 1940s, some 13–15% of all deaths were caused by infectious and parasitic diseases, and respiratory diseases accounted for 16–19%. The most frequently diagnosed cause of death continued to be old age (19–21% of all deaths). Nearly one-tenth

[30] The data were also not combined with the age of the deceased; therefore, it is not possible to construct standardised mortality rates by age and cause of death for the years 1938–1941.

of deaths were caused by particular diseases of young age. In terms of civilizational diseases, the highest share is seen in cardiovascular diseases (more than 11%), while oncological diseases caused only about 5–6% of deaths.

The structure of deaths by the causes of death from 1945 was marked by a high proportion of the category death from violence and injuries (more than 20%). With a detailed look at this group, we find that the main component was the deaths of persons due to military operations and their related consequences. Of the total number of deaths in 1945, these causes accounted for more than one-fifth for men and almost one-tenth of cases for women.

6.2 Mortality in the years 1945–1990

The stabilisation of the situation, the improvement of supplies and the standard of living led to a relatively dynamic reduction in the number of deaths as well as the intensity of mortality in the post-war years. As early as 1946, the number of deaths fell to almost 47,600 and life expectancy at birth rose to more than 52 years for men and almost 56.4 years for women. Infant mortality was only slightly higher than 147‰. By the end of the 1940s, the number of deaths stabilised at approximately 41,000 and male life expectancy at birth rose to 57.5–58.0 years. For females, it even rose well above 61 years old. The dynamic fall in mortality and the number of deaths continued in the 1950s. Of great importance to this development was professionally organised health care for children, which dynamically reduced infant mortality as well as the mortality of older children (Kučera 1994). Compulsory vaccination of children meant the successful combatting of some infectious diseases, and the systematic suppression of the negative impact of tuberculosis on overall mortality, which had reduced the average life expectancy by 2–3 years in the interwar period, was also very important (Šprocha, Tišliar 2008: 115). This mainly involved the possibility of effective treatment, as well as the introduction of widespread vaccination in Slovakia in 1953.[31] Through comprehensive health measures and changes in health care prepared during the Second World War (Kučera 1994: 129), the average life expectancy at birth increased by 7.8 years for males and almost 9.3 years for females between 1950 and 1960. At the beginning of the 1960s, it passed the threshold of 68 years for males and 73 years for

[31] Primary vaccination against TB was abolished in Slovakia only by Decree of the Ministry of Health of the Slovak Republic No. 544/2011 Coll. effective from January 2012.

females. In a single decade, the infant mortality rate fell from more than 103‰ (in 1950) to below 30‰ (to just under 29‰ in 1960). The number of deaths in the early 1960s reached the lowest values in history, when 31–32,000 persons died annually.

In the second half of the 1960s, the favourable development of the mortality process stopped. The only exception was a slight improvement in infant mortality, which fell from just under 29‰ to 26‰. The annual number of deaths began to increase, and at the end of the 1960s they again crossed the 40,000 mark. The unfavourable development of mortality ratios was also reflected in the development of the average life expectancy at birth. Though its values for females continued to rise, the dynamics of this development lagged far behind the previous decade. An even worse situation arose for males, as between 1960 and 1970 even a decrease was recorded in the average life expectancy at birth.

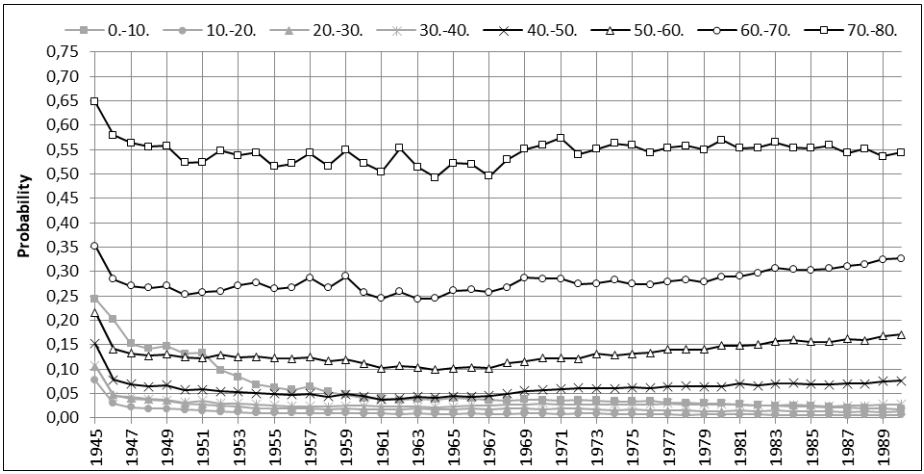
The two decades that followed did not bring any significant changes. The number of deaths continued to increase, and in the early 1980s they already exceeded 50,000 per year. Aside from the stagnant mortality rates, changes in the age structure and, above all, the gradual ageing of Slovakia's population contributed to this situation. Only the further slight reduction of infant mortality below the 20‰ limit, which Slovakia achieved at the beginning of the 1980s, can be seen as a positive. Male life expectancy at birth remained more or less at the same level (67 years) from the early 1970s. Although the life expectancy of females gradually increased, it only rose by 1.25–1.35 years per decade on average.

Regarding developmental differences, the male mortality rate further deepened. While in the second half of the 1930s the average life expectancy at birth for males was 2–3 years lower than that for females, at the end of the 1980s and early 1990s it was up to about 8.5 years.

The development of the probability of death in Slovakia between selected ages indicates the causes for both the positive trend in the mortality process until approximately the mid-1960s and, subsequently, the mentioned stagnation and deterioration until the end of the 1980s. Though in the first period mortality decreased most dynamically at the youngest ages, a certain decrease also occurred in men under the age of 60 and in women even in older age groups (Fig. 66 and 67). This trend, however, ceased in the case of older ages, and we even see a worsening of the situation in men. Above all, the probability of death between the ages of 50 and 60 and also between the ages of 60 and 70 has increased rather significantly. We basically see this trend continuously until the end of the 1980s. A notable increase also occurred in older (between 70

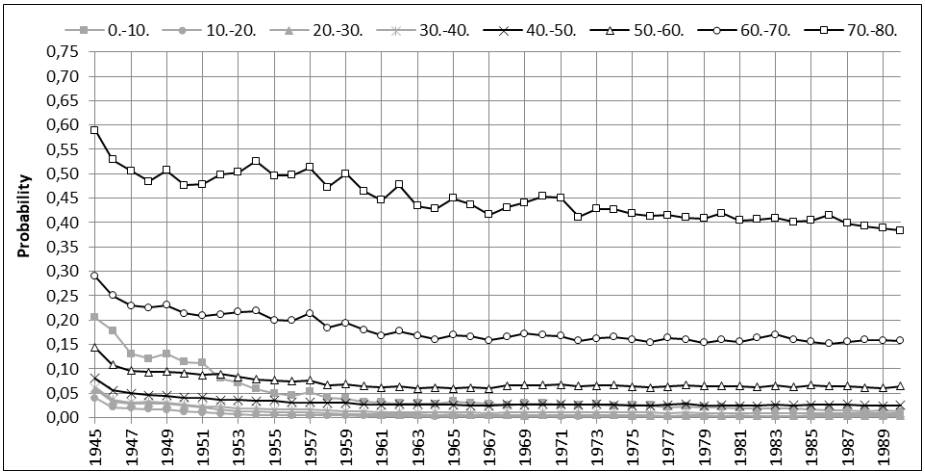
and 80) and younger ages (40 and 50). For women, the less dynamic life extension since the mid-1960s was mainly characterised by a stagnation of mortality rates in the 50–70 age group.

Fig. 66: Probability of the death of males at selected ages in Slovakia in the years 1945–1990



Data source: SO SR, authors' own calculations

Fig. 67: Probability of the death of females at selected ages in Slovakia in the years 1945–1990



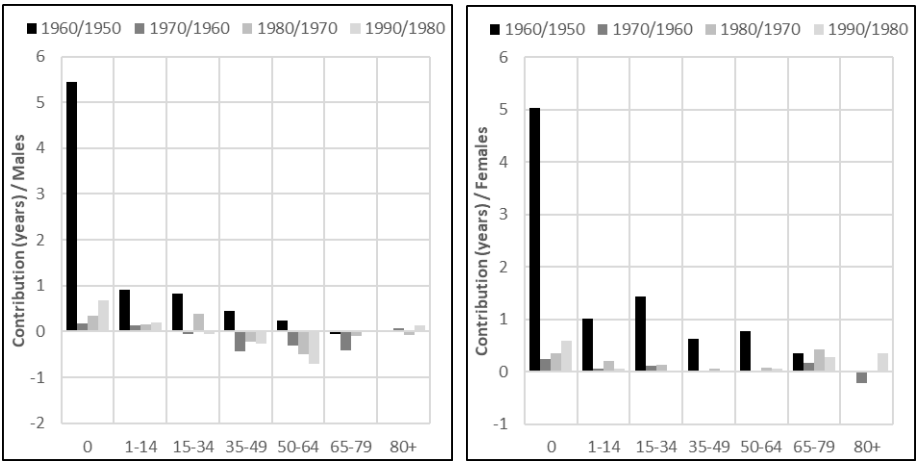
Data source: SO SR, authors' own calculations

As already follows from the analysis of the probability of death, after the Second World War, the dynamic rise in average life expectancy was mainly conditioned by the decrease in the mortality of the youngest children. The results of one-dimensional decomposition also confirmed this. A significant decrease in infant mortality increased the life expectancy at birth for males by 5.4 years, which accounted for nearly 70% of the total life extension. This in absolute terms was about 5 years, i.e. 54%, for females. The high concentration of contributions at young and very young ages is also indicated by the fact that of the total increase in life expectancy by almost 8 years among males, up to 90% was attributed to the improvement of mortality under the age of 35, while in females, this was approximately 80%, with an identified extension of more than 9 years.

The potential for further significant reductions in infant and child mortality, however, was thus exhausted. In the decades that followed, we still identify some contributions in this age spectrum, but their absolute values were very low. Paradoxically, it nevertheless remained the main factor acting towards prolonging life in relative terms. For males in particular, the age range of up to 15 years was the only one in which the average life expectancy increased between the 1960s to the beginning of the 1990s. Between 1970 and 1980 only the 15–34 age group joined the infant and child age. A completely opposite situation arose in older ages, where the results of one-dimensional decomposition confirmed the deterioration of mortality ratios. The main role in this development was played gradually by the increase in mortality in the age range of 50–64.

Among females Slovakia, although no overall decrease has occurred in the average life expectancy at birth since the 1960s, the growth dynamics and contributions of the productive and especially post-productive age ranges were very low. The main reason for the identified small progressive extension of women's life from the late 1960s to the late 1980s was only minimal increases in the age over 35 years. In the 1970s and 1980s, they represented only about 0.5 years, or 0.7 years, respectively.

Fig. 68 and 69: Contributions of age groups to the change in life expectancy at birth for males and females in Slovakia between selected years in the period 1945–1990



Data source: SO SR, authors' own calculations

The above-mentioned negative trends in the development of mortality ratios in the former Czechoslovakia since the mid-1960s were presented and explained by official circles as a consequence of the generational burden on the health status of the Czechoslovak population, a consequence of the war, or a reflection of the reduction in the effectiveness of antibiotics (Kučera 1994). What's more, the misconception prevailed that by providing quality free health care in a classless society, differences in terms of health status would also disappear. Critical voices also began to surface from the point of view of the quality of the health care provided. As Kučera (1994) further adds, the lack of financial resources and the closing of the country within the socialist bloc had a negative impact on the further development of the health care provided, which rather stagnated, gradually grew insufficient even in terms of capacity and became obsolete in terms of infrastructure and technical equipping. Further, the mentioned closing and insufficient financial resources not only prevented the import of foreign medicaments and technology, but also the "import" of innovative medical procedures. In an economy focused on the metallurgical, chemical and extraction industries, the quality of the environment rapidly deteriorated, the share of people working in risky jobs grew, and together with the excessive consumption

of cheap state-subsidised food (the so-called "full bellies" policy), the emergence of a specific consumer society, the excessive consumption of alcoholic beverages and the growing prevalence of smoking tobacco products led to an intergenerational accumulation of negative factors in the health status of the population (Kučera 1994).

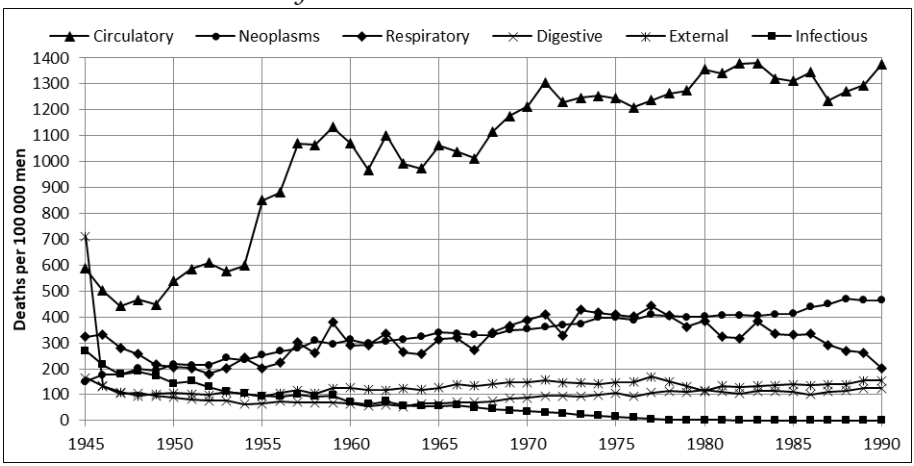
After the Second World War, the first phase of the epidemiological transition in Slovakia was completed, and cardiovascular diseases became the predominant causes of death in both sexes. Both the number and the standardised mortality rates for infectious diseases fell sharply, and as early as in the second half of the 1950s their influence on the mortality process in men and women became insignificant (Fig. 70 and 71). In men especially, a continuous increase occurred in the intensity of mortality from diseases of the circulatory system. The maximum standardised rates for this group of causes of death were reached only in the late 1980s and early 1990s, when they fell in the range of 1,300–1,400 deaths per 100,000 men. In the male portion of the population, mortality from cancers and until the end of the 1970s also from respiratory system diseases developed relatively unfavourably. Standardised rates reached very similar values for these groups of causes of death. In the case of respiratory diseases, we identify the maximum in the mid-1970s, when approximately 400–450 deaths occurred per 100,000 for men from this group of causes of death. Only the development in the following years brought some improvement and a fall in the rates by approximately one half.

In the case of cancer, the situation essentially worsened continuously until the 1990s. At the start of the 1960s, the intensity was already twice as high (300 deaths per 100,000 men) as it had been in the post-war years. Since the mid-1970s, standardised death rates from cancer were stable above the level of 400 deaths per 100,000 men and at the end of the 1980s even rose above 450 deaths (Fig. 70).

A significant increase in the intensity of mortality from diseases of the circulatory system also occurred in women. However, from approximately the 1970s to the first half of the 1980s, the level more or less stabilised at about 1,000 deaths per 100,000 women. We can even see some improvement in the second half of the 1980s, when the standardised rate dropped to 900–950 deaths. A similar situation took place in the case of the development of cancer mortality. In the first post-war years, we identify an increase and, roughly from the 1960s, a certain stagnation in the range of 200–250 deaths per 100,000 women. After the post-war fall in mortality rates from respiratory diseases, there

was initially a slight increase and subsequent stabilisation from the mid-1950s to approximately 200–250 deaths. From the second half of the 1970s, this was replaced by a reduction in mortality, up to the limit of 115 deaths per 100,000 women.

Fig. 70: Standardised male mortality rates for the main groups of causes of death in Slovakia in the years 1945–1990

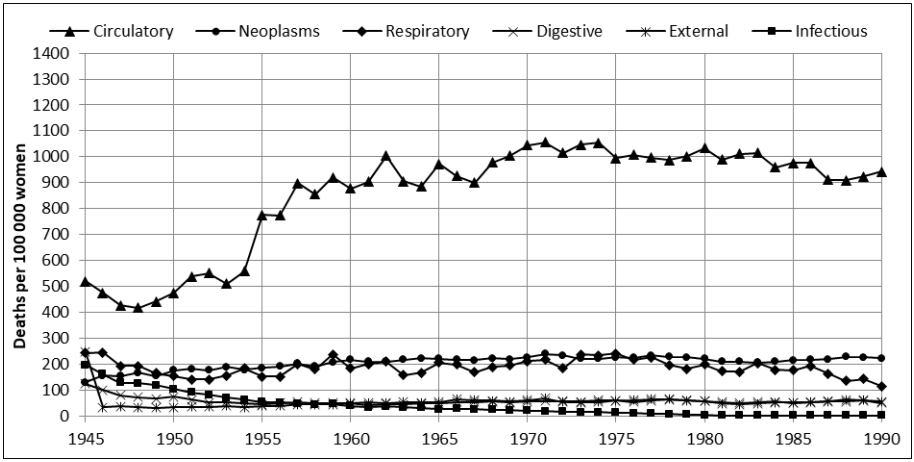


Note: deaths caused by cerebral haemorrhage, which until 1968 were classified as diseases of the nervous system, were moved to the group of cardiovascular diseases

Data source: SO SR, authors' own calculations

Diseases of the digestive system and mortality from external causes of death showed a unique development trend. In women, their intensity dropped rather sharply as early as in the second half of the 1940s and the beginning of the 1950s. Stabilisation followed at around 50 deaths per 100,000 women and lasted more or less until the end of the 1980s. In the male part of the population, after the initial post-war decline, there was a period of increase. In the case of mortality from digestive system diseases, this began to happen in the early 1960s, when from approximately 60 deaths per 100,000 men, standardised rates rose to over 100 deaths in the second half of the 1970s and surpassed 120 deaths in the second half of the 1980s. With external causes of death, the situation began to deteriorate from the second half of the 1950s. From the initial roughly 100 deaths per 100,000 men, mortality from this group of causes of death rose to over 140 events by the mid-1970s, where it basically remained until the end of the 1980s.

Fig. 71: Standardised female mortality rates for the main groups of causes of death in Slovakia in the years 1945–1990



Note: deaths due to cerebral haemorrhage which until 1968 were classified as diseases of the nervous system, were moved to the group of cardiovascular diseases
Data source: SO SR, authors' own calculations

If we leave aside the individual revisions of the ICD[32], the differences in diagnosis and its possibilities, as well as the rate of autopsies of the deceased, it is possible to say that the overall unfavourable development of mortality rates in Slovakia since the mid-1960s was above all the result of the deteriorating situation in terms of mortality from circulatory system diseases. However, the increase in mortality from cancer and respiratory diseases also contributed to this, particularly among men. The effect of other groups of causes of death on the overall level of mortality was already of lesser significance.

6.3 Mortality after 1990

The beginning of the 1990s opened a new stage in the development of mortality rates in Slovakia. Among its main features is the effective continuing extension of life in both sexes. The years 2020 and 2021,

[32] Since the Second World War the International Classification of Diseases (ICD) has gone through a total of five revisions. In the years 1949–1957 the 6th revision was valid, in the years 1958–1967 the 7th revision was applied, in the period 1968–1978 the 8th revision, for the years 1979–1993 the 9th revision was used and finally, the 10th revision has been used in Slovakia since 1994.

marked by the poor epidemiological situation during the COVID-19 pandemic, were the particular exceptions to this trend.

Since the beginning of the 1990s, we have essentially seen a continuous reduction in the overall intensity of mortality. Despite ongoing ageing, this trend was also manifested in the development of the number of deaths. In the first half of the 1990s, a certain decrease occurred from almost 55,000 deaths annually and then subsequent stagnation in the range of 51–53,000 deaths. Since the start of the 21st century, we have registered brief periods of growth followed by a subsequent decline in the number of deaths. In the last three "pre-COVID" years, the number of deaths in Slovakia was at 53–54,000, i.e. still lower than at the beginning of the 1990s, despite the fact that the Slovak population is much older. The subsequent development in the process of mortality and thus the number of deaths was very negatively affected by the adverse epidemiological situation associated with the COVID-19 pandemic, which was mainly manifested in the years 2020 and 2021. Since the first spring wave of the pandemic did not manifest itself significantly in Slovakia due to the prompt reaction, the introduction of strict measures and their compliance by the population, the number of deaths began to increase dynamically only in the fall and winter of 2020. Therefore, on the whole, the number of deaths recorded in that year was only slightly more than 59,000, or about 5,300 more than the pre-COVID three-year average. The second year of the pandemic, however, had a much greater impact on mortality in Slovakia. A significant rise in the number of infected and severe cases requiring hospitalisation ultimately caused a dynamic increase in the number of deaths, which rose to almost 73,500 in 2021. Although the pandemic basically ended in the last analysed year, the number of deaths fell only slightly below the threshold of 60,000.

In the context of development of the life expectancy at birth for both sexes, we can say that after 1989 a relatively dynamic extension of life occurred in Slovakia (Bleha et al. 2014, Mészároš 2008, Vaňo et al. 2001). While the life expectancy at birth for males in 1990 fell below 67 years, five years later it was already about 1.6 years higher, and by the end of the 20th century, it continued to rise, now to over 69 years. The potential number of years of life for newborn boys increased by almost 2.5 years in a single decade. Such a dynamic change did not occur in females. By the end of the millennium, life expectancy at birth for them had risen by about 1.5 years, from about 75.7 years to more than 77 years. The lowering of mortality in Slovakia then continued for nearly two whole decades. In the last pre-COVID year of 2019, the number of potential

years of life of just-born boys increased to 74.3 years, and for girls it climbed over 80 years for the fourth year in a row, even approaching 81 years (Fig. 72). In the whole period of 1990–2019, the average life expectancy at birth thus increased by a little more than 7.5 years for males and a little more than 5.1 years for females.

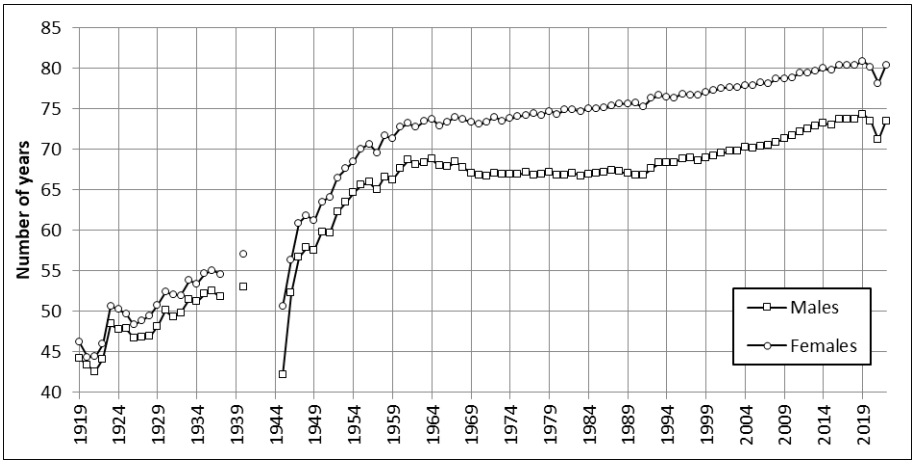
The notable stability of this development trend is also evidenced by the total number of interannual periods in which it was possible to identify a slight shortening of life. For the entire period of 1990–2019, a slight decrease occurred in only 5 cases for men and 8 for women. What's more, the average annual change in life expectancy at birth was 0.26 years for males and approximately 0.18 years for females.

The development of mortality rates, particularly in 2020 and 2021, was significantly affected by the unfavourable epidemiological situation caused by the COVID-19 pandemic. During the first year affected by the pandemic, the average life expectancy at birth for males fell by more than –0.8 years and for females by almost –0.7 years. The epidemiological situation worsened even more in the second year and was reflected not only in a sharp rise in the number of deaths, but also a significant shortening of life expectancy. Life expectancy at birth fell by an additional –2.3 years for males and by slightly more than –2.0 years for females. Thus, between 2019 and 2021, a total decrease of almost –3.2 years occurred for males and more than –2.7 years for females. Since the severity of COVID-19 gradually weakened markedly in combination with vaccination, the epidemiological situation stabilised in the last analysed year of 2022. This is shown not only by the noteworthy year-on-year decrease in the number of deaths, but also by the return of the growth trend of the average life expectancy at birth, which rose by a little more than 2.4 years for males and almost 2.2 years for females. The last known value of just under 73.6 years for men and 80.3 years for women confirms that a return to pre-pandemic values has not yet happened, but it will certainly happen in the near future, and we will see a continuation of the trend of overall reduction in mortality in Slovakia.

While from the mid-1960s to the beginning of the 1990s a deepening of male mortality occurred, the subsequent development brought, in contrast, a narrowing of the differences in mortality between men and women. From the original almost 9 years, the difference in life expectancy at birth was about 6.5 years before the COVID-19 pandemic. During the pandemic, however, the mortality rates of males in Slovakia were affected to a greater extent; thus, a certain deepening of the male mortality rate again occurred in these years, reaching its peak in the

second pandemic year, when the difference in life expectancy at birth between the sexes was just under 7 years. Although the subsequent reduction in mortality reversed this trend, and the difference in male mortality rate was a little over 6.7 years less than in females, even here there was still no return to the pre-crisis level.

Fig. 72: Life expectancy at birth of males and females in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

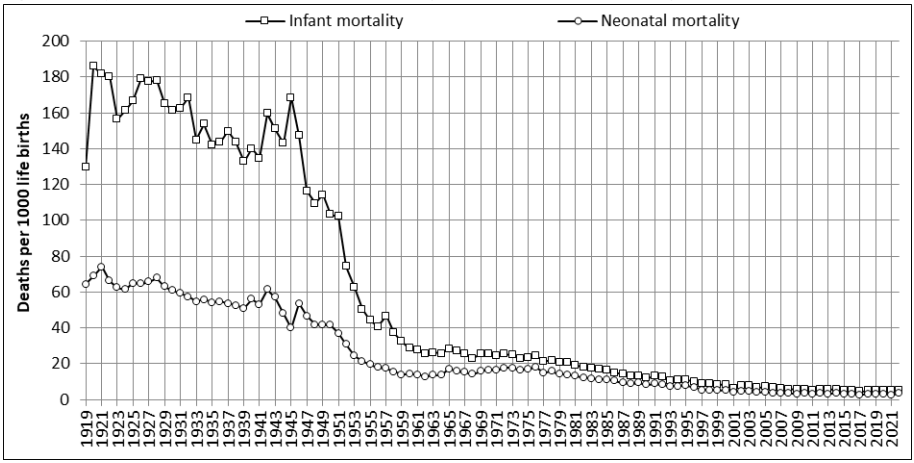
While up to about the mid-1960s, the main factor in increasing life expectancy at birth in Europe was the improvement of the mortality ratios of the youngest children and the reduction of mortality from infectious diseases, in the decades that followed we see a preponderance of contributions to the growth of life expectancy in older age (Oeppen, Vaupel, 2002; Meslé, Vallin 2002). In Slovakia, however, a non-negligible portion of such contributions was concentrated in infancy and childhood effectively until the end of the 1980s. This was not due to an unfavourable level of infant mortality, however, but to less dynamic improvements or even a worsening of mortality ratios at older ages.

Though in the early 1990s, infant mortality in Slovakia still exceeded the double-digits (12–13‰), in the second half of this decade it fell below 10‰. The improvement in the mortality of the youngest children also continued in the subsequent period, and since 2008 infant mortality rate has been stable below 6‰. The COVID-19 pandemic had no effect on

the mortality rate of the youngest children, which is why in recent years the mortality rate at the age of 1 has basically been stable at around 5‰.

The positive development of infant mortality was closely linked with the improvement of the mortality of children in the first four weeks of their life. The level of neonatal mortality in Slovakia fell below 9‰ at the beginning of the 1990s and continued to decline. In the second half of that decade, fewer than 7 children per 1,000 live births died within 4 weeks of birth, and at the beginning of the 21st century, this was fewer than 5 children. Today neonatal mortality is at or below the 3‰ mark (Fig. 73).

Fig. 73: Infant and neonatal mortality in Slovakia in the years 1919–2022



Data source: SO SR, authors' own calculations

No major changes have occurred in the structure of deceased persons by age since the start of the 1990s. Deaths of children under the age of one year accounted for less than 2% of all deaths in 1990, but due to the continued improvement in mortality rates at this age, along with a significant decrease in the number of live births and the overall ageing of the Slovak population, their share fell below 1% as early as in the second half of the 1990s. At present, they even represent only around 0.5%. The adverse developments in the last two pandemic years particularly affected mortality in the elderly. This was ultimately reflected in a further decline in the share of infants in the total number of deaths below the 0.5% threshold in 2020 and 2021.

We observe the same trend in the deaths of children aged 1–4 years and young people under 20 years of age. Together, these two groups accounted for just over 1.2% of deaths in the early 1990s. In the last pre-crisis year, however, their share was only around 0.4%, and during the COVID-19 pandemic it was even lower, at less than 0.3%.

The combination of the improvement in mortality rates and ageing in the age structure of the Slovak population was also reflected in the development of the share of deaths of persons aged 20–39. These deaths accounted for just over 4.3% of all deaths in the early 1990s, but by 2019, their weight had fallen to just under 2.3%, and in the two years affected by the pandemic, it was even less than 2%. Thus, deaths of persons under the age of 40 currently account for only around 3% of all deaths in Slovakia. For comparisons, in the early 1990s they accounted for about 7%. The share of those aged 40–59 who died also fell significantly, from almost 17% to less than 12%.

People aged 60–79 die most often in Slovakia. Moreover, the share of this group in the total number of deaths increased slightly in the 1990s from less than 47% to more than 50%. In the first decade of the new millennium, a certain decrease is seen, peaking at around 42%. The latest development was again characterised by a growth trend, which was amplified by the epidemiological conditions during the COVID-19 pandemic. As a result, the share of deaths aged 60–79 rose above 48%.

The second age spectrum in which the most deceased persons in Slovakia are concentrated is the age of 80 years and older. In the early 1990s, less than 29% of all deaths came from this age group. By the mid-1990s, however, their share had risen to more than 32%. After a temporary slight decrease, we again identify continuous growth, thanks to which prior to the COVID-19 pandemic, the proportion of deaths in this age range already reached around 40%. Since excess mortality in the pandemic years mainly affected slightly younger age groups, there was some decline during this period, to less than 38%.

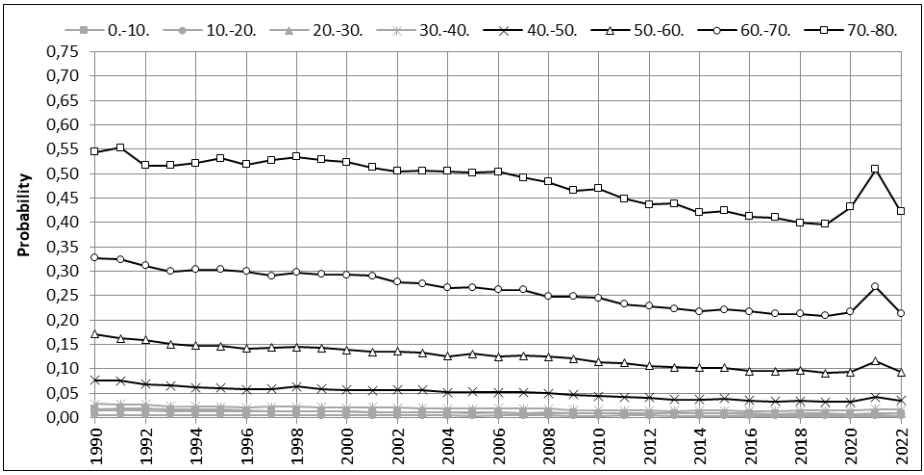
The significant fall in mortality in infancy, childhood and the younger age groups of the reproductive period contributed to the fact that in the early 1990s, we register very low probabilities of death for both sexes in individual 10-year age groups up to the age of 40 (Fig. 74 and 75). Furthermore, the improvement in mortality rates continued even after 1989. For males, the risk of death up to the 10th year, between the 10th and 20th, 20th and 30th, and also between 30th and 40th years of life fell below the 2% mark. The lowest probability was clearly at the age of 10–20 years, where the chance of dying was below 1%.

For females, the probabilities reached even lower values, and in their case, too, a further improvement in mortality rates is seen. Only the years hit by the COVID-19 pandemic brought a certain change in the set development trend. This related mainly to the crisis year of 2021, when a significant increase in mortality partly also affected younger age groups. Specifically, for both sexes, this was mainly in the age range of 30–40 years.

If we limit ourselves to the period not burdened by this unfavourable epidemiological situation (years 1990–2019), the decrease in the probabilities of death in both men and women affected all monitored groups. In males, in addition to the youngest age, we also identify a significant improvement at the age of 40–50 years and 30–40 years. Probabilities showed the least dynamic decrease in the oldest age groups. The adverse epidemiological situation in 2020 and 2021, however, reversed the positive development, and basically affected all the analysed intervals, with the exception of the youngest. We clearly identify the largest increase in the probability of death between the ages of 40–50 and also in the two oldest age groups (by 28%). The last analysed year, 2022, brought certain improvements to the mortality situation, though the probability values have not yet returned to the pre-crisis level.

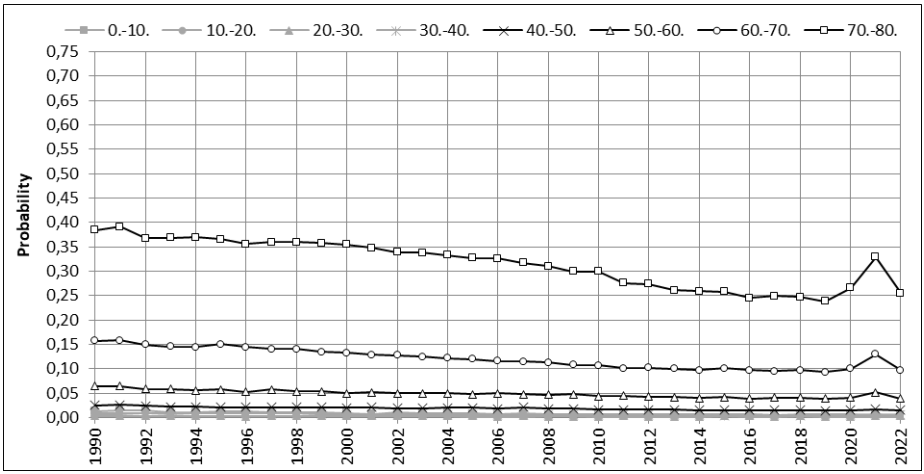
In women the probability of dying at the youngest age and after the age of 50 also decreased significantly between 1990–2019. However, no other major changes occurred in the age ranges of 10–20 and 20–30 years, but the mortality rate in them was already very low already in the early 1990s. The years 2020 and 2021, marked by the COVID-19 pandemic, also brought a worsening in the mortality rates in the female part of the population, the exception being only the two youngest age intervals (under 20). In contrast, the risk of death increased most significantly between the 60th and 70th and 70th and 80th years of age (Fig. 74). Likewise, for women we also observe that the first post-pandemic year immediately brought a reduction in mortality and thus a decrease in the probability of death, particularly in the ages most affected by the adverse epidemiological situation.

Fig. 74: Probability of male death between selected ages in Slovakia in 1990–2022



Data source: SO SR, authors' own calculations

Fig. 75: Probability of female death between selected ages in Slovakia in 1990–2022



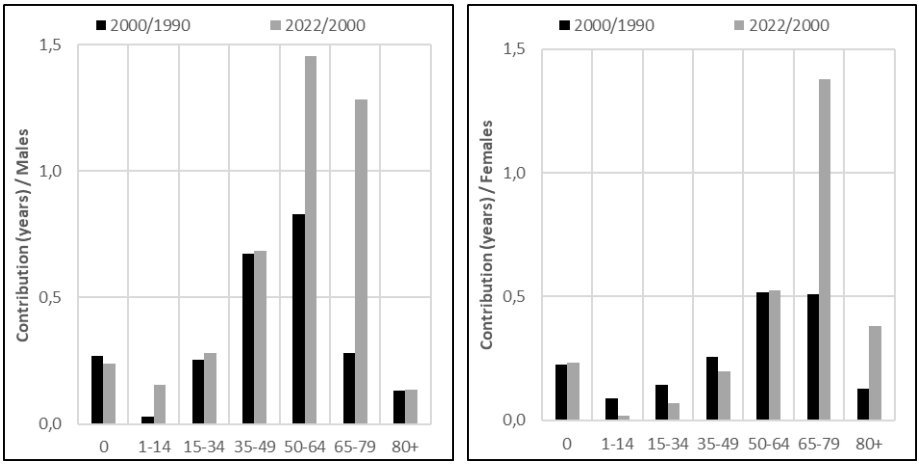
Data source: SO SR, authors' own calculations

From the overview above it is clear that the improvement in mortality ratios between 1990 and 2022 affected basically all age groups for both sexes. In absolute terms, because of this, the life of newly born boys was extended by almost 7.7 years. This reduction in mortality happened less dynamically in girls; therefore, the difference between the sexes in

average life expectancy at birth between 1990 and 2022 reached only about 5.4 years. However, we find certain differences between the sexes not only in the dynamics, but also in the structure of contributions to this life extension.

From Fig. 76, it is clear that the main factor was the decrease in mortality among men aged 50–64. The second most important age range was the interval 65–79 years. The development of mortality in the 1–14 age group had the least influence on the extension of male lives in Slovakia. For women, the development of mortality in the age range of 65–79 was particularly key (Fig. 77). Contributions from the 80 and older and 50–64 age intervals reached about the same level. However, the impact of the change in mortality ratios at the age of 1–49 years was already considerably limited.

Fig. 76 and 77: Contributions of age groups to the change in life expectancy at birth for males and females in Slovakia between 1990 and 2022



Data source: SO SR, authors' own calculations

The main driving force of the positive development in mortality rates in Western countries was the lowering of mortality from cardiovascular disease, some forms of oncological diseases and also shifts in the prevention of diseases connected with certain behavioural factors, such as smoking, alcohol consumption, etc. Last but not least, this was also the increase in road safety and the associated fall in traffic accident mortality (Meslé, Vallin 2002). These changes, however, no longer fully fit into the theoretical concept of Omran's epidemiological transition (Omran 1971),

and therefore other authors (Meslé, Vallin 2000; Olshansky, Ault 1986) followed up on his work, attempting to grasp these trends theoretically. Among the most often mentioned is the concept of a cardiovascular transition, which identifies the main tendencies in the development of causes of death in the last half century, with an emphasis on structural changes in connection with cardiovascular diseases. The main aspect of the cardiovascular revolution is above all the decrease in mortality from cardiovascular diseases, the beginning of which in north-western Europe can be dated to the end of the 1960s (Meslé, Vallin 2000). At the same time, the structure of the main cardiovascular diseases as causes of death is also changing, from rheumatic and other heart muscle diseases to cardiovascular diseases related to high blood pressure and atherosclerotic diseases (Yusuf et al. 2001). Most of the countries of the former Eastern bloc are in the last mentioned stage. Demographically, the most world's most developed countries have a similar structure of deaths from cardiovascular diseases, but the overall intensity is generally lower, and through prevention and improved diagnostics and more successful treatment of ischemic heart diseases and strokes, they have managed to delay morbidity and also mortality until an older age (Yusuf et al. 2001).

The structure of deaths grouped by the main causes of death has not changed significantly in Slovakia since the beginning of the 1990s. In 1990, deaths from cardiovascular and oncological diseases accounted for just over 72% of all events. Prior to the COVID-19 pandemic affecting mortality and significantly impacting the structure of deaths by cause of death, these two most important groups of causes of death accounted for not quite 73%. Within them, however, we identify a certain shift towards cancers. While cancer represented 19% at the beginning of the 1990s, based on data from 2019 it was already more than 25%. Changes in the share in the other main groups of causes of death were minimal. Only the weight of respiratory system diseases increased and did so only very slightly (to 7.5%). In the same period, the representation of external causes also fell slightly from more than 7% to 5%. The share of deaths from digestive system diseases basically remained the same (at a little more than 5%).

If we look in more detail at the structure of deaths by sex, we find that diseases of the circulatory system were more prevalent in women in the early 1990s and in 2019 (53% of women compared to 42% of men). For cancers the situation is the opposite (23% of women compared to 28% of men). Deaths from external causes also have a greater weight in the

male population, when in 2019 they accounted for almost 7% compared to 3% for women. However, we also find smaller differences in favour of men in diseases of the digestive and respiratory systems.

If we look in more detail at the individual causes of death, we find that ischemic heart disease is among the most common over the long term. Further, these are acute myocardial infarction and cerebral infarction. Cancers include mainly bronchial and lung cancer, colon cancer and, in women, breast cancer. In recent years, pneumonia has also been added to them.

The intensity of male mortality from diseases of the circulatory system, measured by a standardised rate, initially shows only a gradual decrease. From a level of about 1,400 deaths per 100,000 persons in the early 1990s, it fell to 1,200 deaths by the beginning of the 21st century. The following years brought a more dynamic decline, however. As a result, the standardised mortality rate for men from circulatory system diseases reached up to 740 deaths per 100,000 people prior to the COVID-19 pandemic.

The development was also very similar for women. In the 1990s, we register only a slightly changing level of mortality from cardiovascular diseases. The standardised mortality rate, which was approximately 940–960 deaths per 100,000 persons, gradually fell below the 900 that we register at the beginning of the 21st century. However, the subsequent rather dynamic decline meant that by 2019 the intensity of mortality from this group of causes of death had fallen to less than 540 deaths. However, development over the next two years, which were marked by the COVID-19 pandemic, differed from a developmental point of view. An increase in the intensity of mortality from diseases of the circulatory system is shown in both crisis years for both sexes; however, this was not confirmed in 2022. The level of the process itself has not yet returned to pre-crisis values.

Mortality from cancer has not seen such positive development since the early 1990s. In both sexes, we initially identify a certain worsening of the situation. For example, in men, the standardised cancer death rate between 1990 and 1998 rose from about 460 deaths to more than 540 deaths per 100,000 of the standard population. Only subsequent developments brought some improvement in male cancer mortality rates, when in 2019 there were approximately 410 deaths per 100,000 persons. This improvement in mortality rates was even less dynamic in women. From the original roughly 220 deaths, the standardised mortality rate first rose to almost 250 deaths (in 1998), so that the subsequent improvement

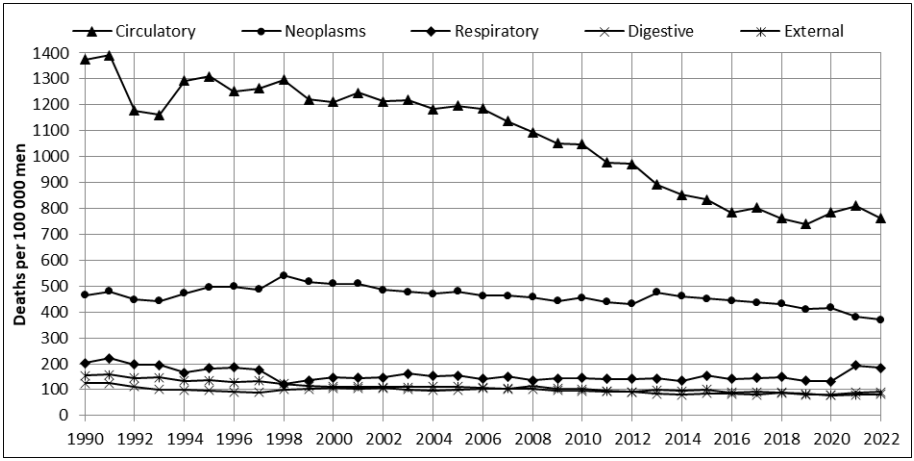
in cancer mortality contributed to a drop below 220 deaths per 100,000 persons by 2019. The first year of the pandemic brought a slight increase, but already in the second year we identify the opposite trend. This was also confirmed in 2022.

The intensity of mortality for other main groups of causes of death was significantly lower for both sexes. The third in terms of level is the group of respiratory system diseases. We initially identify a downward trend for both sexes in the 1990s. For men, the standardised rate fell during this period from more than 200 deaths per 100,000 persons to just under 120 deaths, and for women from about 110–120 deaths to less than 70. Near the end of the last century, however, we registered a certain worsening and subsequent stagnation of the level of mortality from respiratory diseases in Slovakia. For men, the standardised death rate first rose above 150 deaths and then stabilised in the range of 140–150 deaths per 100,000 persons in subsequent years. In women, the mortality rate from respiratory diseases at the beginning of the 21st century reached and then surpassed 80 deaths per 100,000 persons. In their case, too, a slight reduction and stabilisation was recorded to around 60–70 deaths. The first year of the COVID-19 pandemic at first brought a certain decrease, but in 2021, we already register a notable increase in the intensity of mortality, which from a developmental point of view has had no parallel since the start of the 1990s. We also register a higher level of mortality from respiratory diseases in 2022.

In the case of diseases of the digestive system, more significant changes occurred mainly in men. In the first half of the 1990s, we register a relatively dynamic drop from more than 120 deaths to less than 90 deaths per 100,000 persons. However, the subsequent development was marked by a slight worsening of the mortality ratios, when the standardised rate again rose above the 100 deaths mark. This was basically maintained until the end of the first decade of this millennium. From then on, we register a gradual decrease to about 80–90 deaths per 100,000 persons, which was maintained until the last analysed year, 2022.

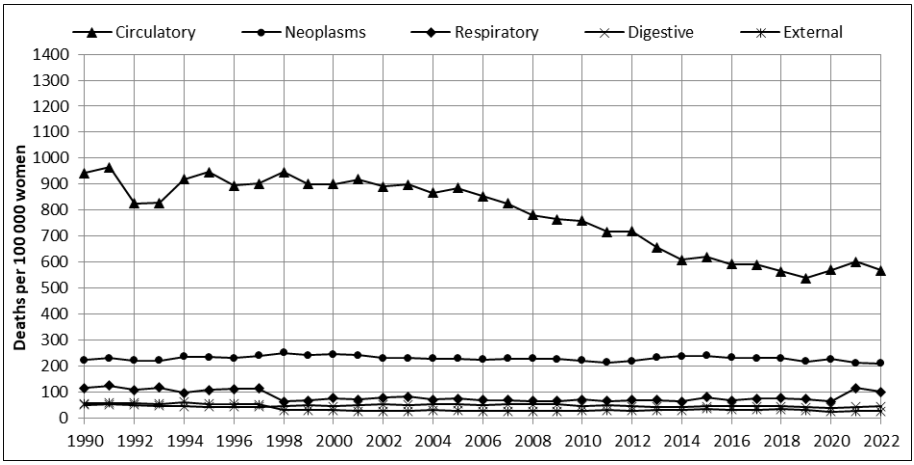
Likewise, for women, a slight decrease is recorded up to the mid-1990s, from 50 deaths to approximately 42 deaths per 100,000 persons. Developments then showed some deterioration, when in the first decade of the new millennium it reached about the same intensity as in the early 1990s. In this case, however, the last decade brought a reduction in intensity and a subsequent stabilisation around the limit of 40 deaths per 100,000 people.

Fig 78: Standardised male mortality rates for the main groups of causes of death in Slovakia in the years 1990–2022



Data source: SO SR, authors' own calculations

Fig. 79: Standardised female mortality rates for the main groups of causes of death in Slovakia in the years 1990–2022



Data source: SO SR, authors' own calculations

Mortality from external causes of death in men has effectively shown a continuous downward trend since the beginning of the 1990s. From the original value of more than 150 deaths per 100,000 men, it has fallen to just over 80 deaths. In women, the level itself, as well as the dynamics of changes, were significantly lower. In the second half of the 1990s, the standardised rate fell below 50 deaths. After another small decline,

stabilisation occurred in the range of 25–35 deaths per 100,000 persons of the standard population, where it still remains.

We can empirically derive the influence of changes in the mortality rate for individual main groups of causes of death on the identified life extension in Slovakia from the beginning of the 1990s to 2019 using a two-dimensional decomposition (the method of Arriaga 1984).

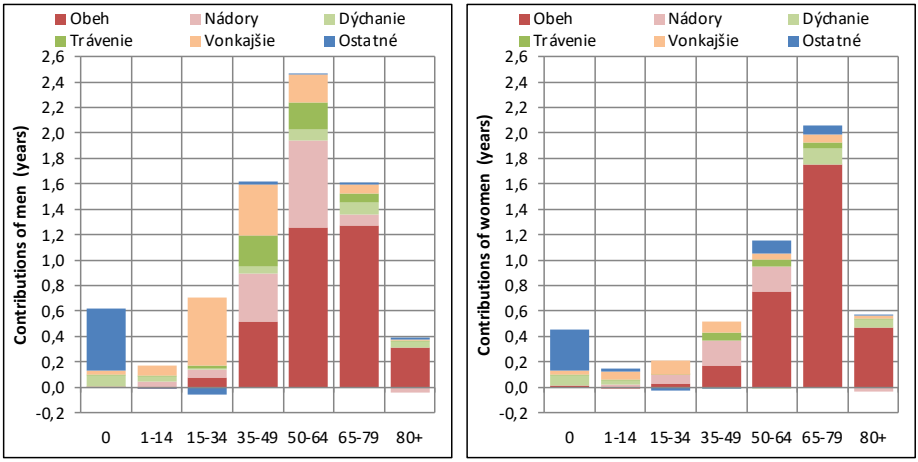
For men, the improvement in mortality rates for circulatory system diseases clearly played the main role in this development. They contributed an almost 46% share (more than 3.4 years) to the overall extension of life. We identify the highest contributions of this group of causes of death in the age ranges of 50–64 and 65–79 years.

The second most important source of the increase in the potential number of years of life of newborn boys was the fall in mortality from external causes (1.4 years; more than 18%). This primarily related to the age range of 15–49 years. The lowering of mortality from oncological diseases (more than 1.2 years; 16%) had only a slightly smaller effect. This mainly involved the age range of 50–64 years.

The development of mortality from respiratory diseases (an increase of 0.4 years) and digestive system diseases (0.6 years) also contributed to the extension of life, though their importance was significantly less. Within the aggregate category "other causes of death", the decrease in infant mortality was key. In this case, however, this was only a relatively small contribution to increasing the life expectancy of men at birth.

In women, the impact of improved mortality rates for circulatory system diseases was even more striking. The reduction in mortality from this group of causes accounted for almost 3.2 years of the total rise in life expectancy at birth between 1990 and 2019, which represented almost two-thirds of the total life extension of just-born girls. Without a doubt the most important from this point of view was the decrease in mortality from cardiovascular diseases in the age range of 65–79. However, contributions were also significantly concentrated in the younger age group of 50–64 years.

Fig. 80 and 81: Contributions to the change in the mean length at birth of males and females by age and cause of death in Slovakia between 1990 and 2022



Data source: SO SR, authors' own calculations

The fall in mortality from oncological diseases, especially at the ages of 35–49 and 50–64 years, and the combined group of "other causes of death" contributed an additional tenth. In women, too, the development of mortality in infancy above all had an effect. The impact of the other main groups of causes of death on the extension of women's lives was effectively negligible.

7. International migration

Migration represents one of the key demographic processes in the historical population development of Slovakia. It directly influenced the population size as well as its economic, social, cultural and demographic structures. Given its structural conditionality, when changes of residence are linked mainly to certain groups of persons, this also affected the population of Slovakia indirectly. For a long time, the process of foreign migration thus represented one of the most important factors of population development.

The problematic nature and complexity of assessing this process follows mainly from its multifaceted conditionality with interacting factors of a diverse nature. The individual components of the spatial movement of the population are important synthetic indicators of the mutual interaction of a whole complex of social, economic, demographic, psychological and ecological conditions, and at the same time of actively or passively behaving subjects (persons) (Mládek et al. 2006).

From the viewpoint of data possibilities, these remained substantially limited for most of the first half of the 20th century. Statistics on foreign migration were first introduced in Czechoslovakia in 1922, but as Boháč (1927) added a few years later, they were not complete and the data obtained had to be taken with a certain reserve. The information sources that they were drawn on were of a different nature and cannot be said to be completely reliable (Srb 2002). Moreover, after the disintegration of Czechoslovakia before the Second World War, this source also ended, and the wartime Slovak Republic did not create its own system to track data on foreign migration. The collection and publication of data on foreign migration was only resumed in the post-war period in 1948. These data, however, are only considered reliable from 1950. The introduction of the concept of permanent residence and the obligation to report changes to it created a completely new approach and opportunities for the analysis of foreign and internal migration.

This is ultimately reflected in the division of this chapter. We will first devote our attention to the period from 1919 to 1950. Then, in the second part, we will focus on foreign migration analysed through data on registration and deregistration from permanent residence. At this

point, however, we wish to point out that, despite a clear qualitative shift, the record of foreign migration even after 1950 was not without problems, too, especially in connection with the emigration component. This was regularly confirmed indirectly by the differences between the balanced number of inhabitants between censuses and the number of persons enumerated in individual censuses. However, this does not change the fact that foreign migration represents one of the key demographic processes of population development in Slovakia and is increasingly important in the current setting of the natural movement of the population.

7.1 International migration in the years 1919–1949

Slovakia entered an independent Czechoslovakia as an area with relatively significant population migration losses over a long period of time. Its agrarian backwardness and low degree of development of the secondary and tertiary sectors, combined with a growing population, created a disproportionate pressure on livelihood options. Emigration, therefore, became one of the most important active strategies. The First World War, however, clearly had a negative effect on the migration process, temporarily dampening it, and in the first years after the founding of an independent Czechoslovakia, the young republic experienced several significant waves of migration, which the official demographic statistics did not and could not capture. Above all, these were repatriates from overseas, or some European countries, where large numbers of people had moved from Slovakia for work, even before the First World War. It is estimated that up to 200,000 people could have arrived in the new state, and it is thought that about a quarter of them remained in Slovakia.

We observe a completely opposite phenomenon in the case of the Hungarian minority. These were mainly former Hungarian civil servants and various church dignitaries who refused to swear allegiance to the Czechoslovak Republic (Šprocha and Tišliar 2012). In this case, too, we can only work with estimates that are at the level of 70,000 persons. As stated by Jakešová (1987) and Tišliar (2015b), Hungarian interwar statistics even speak of nearly 110,000 persons.

Since even the lowest official positions in Slovakia during the Austro-Hungarian period were occupied by Hungarians or persons who did not speak Slovak particularly well and their loyalty was more towards Budapest even after the demise of the Habsburg Monarchy, a big problem

arose for the young republic (Chorvát 2018). The use of the intellectual reserves from the Czech lands appeared as a temporary solution. Already in the first years of the Czechoslovakia's existence, they filled vacancies in state and public administration, in education, on the railways and in many specialised professions in which knowledge of the Czech or Slovak language was required. In the end, it turned out in many cases that this would not just be a temporary stay in Slovakia, so the families of these people also started moving here, and this accelerated the influx of Czechs even more. Official data on the number of persons of Czech nationality living in Slovakia also indirectly point to this. While before 1918, it is estimated that there were only about 7,500 persons of Czech origin present on the territory of Slovakia (Bystrický 1997), in the first interwar Czechoslovak census in 1921 this was already almost 72,000 (Šprocha and Tišliar 2012). This influx continued, and nearly a decade later nearly 121,000 persons of Czech nationality were living in Slovakia.

Since this was basically migration within the borders of a single republic, Slovakia showed migration losses for almost the entire interwar period based on the existing (albeit imperfect) statistics on foreign migration. Particularly in the first half of the 1920s, the number of people leaving was relatively high and ranged from approximately 13,900 to 16,600 persons per year. On the other hand, the number of immigrants decreased (from more than 5,000 to 2–3,000), which meant that Slovakia lost 10,800–14,400 persons annually during this period. Thus, in relative terms, the crude immigration rate decreased from approximately 1.8 immigrated persons per 1,000 inhabitants to below 1 person, while the crude emigration rate hovered at the level of 4.4–5.5‰ in the same years. Migration losses represented 3.4–4.7 persons out of 1,000 inhabitants. The reasons for this situation must be sought not only in the above-mentioned departure of Hungarian officials, teachers and other persons who did not identify with the new republic, but also in the complicated economic situation. The unsuccessful solution to land reform, the demobilisation of the army, the low competitiveness of Slovak businesses compared their Czech counterparts and the significant disruption of trade relations with traditional outlets after the collapse of Hungary (Tišliar 2015) all worsened living conditions, caused a rise in unemployment and deepened the pressure on the subsistence possibilities of the internal economy. What's more, in 1922 and 1923, Czechoslovakia was hit by a post-war economic crisis made worse by a deflationary crisis. Since the domestic market could not generate sufficient job openings, emigration abroad came into play again.

However, the mid-1920s brought a certain reduction in the number of emigrants. In 1925, only slightly more than 10,000 people departed Slovakia, and in the next two years this was approximately 11,700 and 12,700, respectively. As a result, the crude emigration rate fell to 3.2‰ in the mid-1920s. The number of immigrants was around 2,700, which in relative terms meant only about 0.8 persons per 1,000 inhabitants. The result of this for immigration and emigration was a drop in population losses to less than 7,600, or –2.4‰. This was in part due to the consolidation of the economy in Western Europe, which no longer needed such high numbers of labour migrants; also, restrictive measures introduced by the USA, one of the main immigration targets, played a part, as did the emerging economy in Czechoslovakia. The just mentioned legislative changes on immigrants in the USA gradually turned out to be important for the development of foreign migration and in particular its direction in the interwar period. Already in 1921, a new immigration law was adopted, which significantly restricted the maximum number of immigrants, and three years later, the quotas were further tightened (Tišliar 2015b). The considerable sums that immigrants had to have available also proved to be an important limiting factor for the conditions of the time. For example, in the case of the USA, this was about 7,800 Czechoslovak crowns and to Canada about 6,800 crowns (Jakešová 1987, Tišliar 2015b). In the case of Canada, there was also an immigration regulation (*Money-in pocket law*) which stated that every immigrant must carry a certain amount of cash to cover the most necessary needs (Jakešová 1987).

The second half and especially the end of the 1920s were once again marked by an increase in the number of emigrants. The causes this time are probably to be found in the agrarian crisis, which preceded the Great Depression and significantly affected the poorly developed primary sector in Slovakia (Lacina 1974). Thus, in 1928 the number of departing persons reached almost 15,000, but in 1929 and 1930 it already surpassed 17,000. In relative terms, this meant that more than 5 people per 1,000 inhabitants moved out. On the other hand, the number of immigrants fell below 3,000 per year, and as a result, the crude immigration rate moved steadily below the 1‰ limit. Thus, in the late 1920s and early 1930s, Slovakia again lost more than 14,500 persons per year through foreign migration, which represented more than 4 persons per 1,000 inhabitants. However, with the onset of the Great Depression, most of the target countries had big problems; unemployment grew significantly, and foreign migration, especially for labour, generally slowed down

significantly. Data for Slovakia from the 1930s also confirm this. On the one hand, we identify a notable drop in the number of emigrating people, which peaked in 1932 at just over 2,300 persons, meaning the crude rate emigration rate reached a value of 0.7‰. At the same time, a certain increase is also seen in the number of immigrants from 1931–1933, to about 4,000 persons per year (less than 1.2‰). We can assume that it was in part due to return migration as a consequence of the mentioned poor situation on labour markets abroad and thus the inability to find employment there. This resulted in a temporary situation when the number of immigrants from abroad exceeded the number of emigrants, and the migration balance showed positive values in 1932 and 1933. Since starting-up the domestic economy, hit hard by the economic crisis, was complicated and the deepening problems could only be resolved thanks to the pre-war boom, an active strategy in the form of emigration again came into play. The deteriorating political situation likely contributed to this. Thus, the number of emigrants approached 5,000 persons in 1936, rose to almost 8,400 in 1937, and then was just over 6,400 in the last year of pre-war Czechoslovakia. In relative terms, this meant 1.7 or 2.4 persons, respectively, per 1,000 inhabitants left Slovakia. The problems with economic recovery after the Great Depression that began in the early 1930s probably contributed to the low number of immigrants. Their numbers ranged from roughly 1,400–2,300 in the years 1935–1938, and the crude rate of immigration thus reached only 0.3–0.6‰ in this period. As a result, a situation again arose when the migration balance was negative. According to available data, it gradually rose from not quite –1,500 to more than –6,100 persons in 1937. Slovakia's migration loss expressed per 1,000 inhabitants thus increased from just over –0.4 to more than –1.7 persons per 1,000 inhabitants. The politically complicated final year of Czechoslovakia's pre-war existence brought a slight decrease in emigration and thus also in the migration balance.

According to published data, in the years 1922–1938, not quite 49,000 persons immigrated into Slovakia from abroad. In contrast, nearly 167,500 emigrants went abroad in the same period. This would represent a migration loss of almost 119,000 people. As we mentioned above, however, these numbers are not fully reliable; therefore, the data in question should be taken with some caution and not overestimated. Nevertheless, they do confirm the country's ongoing internal problems, especially with the employment of the growing young population of Slovakia in the interwar period and the active solution to them in the form of emigration abroad. At the same time, to a certain extent they also

point to the relative promptness with which migration responded not only to internal, especially economic shocks, but also to global economic problems that came with the 1920s and 1930s.

In addition to officially published statistics on foreign migration, some other specific sources are often used in the historical analysis of this process. A certain image can be created, for example, through the statistics of emigration passports issued abroad. Their number for the period 1920–1937 and the territory of Slovakia reached almost 212,000. Of interest is that in terms of the goal of emigration, although overseas countries prevailed (a little more than 139,000 people), a non-negligible share of potential emigrants planned to stay in Europe (Šprocha, Tišliar 2008b). However, in association with emigration passports, it needs to be noted that the actual departure from Slovakia did not always take place, and often they are perceived only as an indicator of a potential intention to emigrate.

A second frequently used alternative source of emigration data is the number of persons travelling on ocean shipping companies. In the case of Slovakia, for the period 1920–1937, this was almost 113,000 persons (Šprocha, Tišliar 2008b). As is clear from the nature of the data, however, this only involved those emigrants who travelled overseas.

After the breakup of Czechoslovakia and the establishment of the independent wartime Slovak Republic (1939–1945), no official data on foreign migration is available. Nevertheless, it should be noted that this period in many ways brought with it historically unprecedented changes in the number and some structural characteristics of the population of Slovakia, conditioned specifically by spatial movements of people across national borders.

One of the first groups that negatively felt the political, social and ultimately state changes were persons of Czech nationality. The negative attitude towards persons from the Czech lands, which culminated in the late 1930s, brought several waves of dismissal of employees of Czech origin (Chorvát 2018) and their departure to the Czech lands or the Protectorate of Bohemia and Moravia. As Bystrický (1997) estimated, approximately 62–63,000 Czechs left Slovakia after 1938.

The end of the Second World War and the first post-war years had a negative impact on the ethnic Germans living in Slovakia. The total numbers of ethnic German evacuees from Slovakia in the face of the advancing front obviously vary in a confusing situation, but the most frequently reported numbers (e.g. Gabzdilová-Olejníková, Olejník 2004; Kováč 1995) speak of about 70–120,000 persons. In 1946, a forced

displacement was ordered, and more than 32,000 persons of German origin had to leave Slovakia.

Post-war efforts to build a nation state without the presence of a larger number of non-Slavic minorities also affected the Hungarian population. This mainly involved a resettlement campaign between Czechoslovakia and Hungary (for more details, e.g. Šutaj 2010; Vadkerty 2002). The same number of persons (of Hungarian nationality) were to be resettled from the territory of Czechoslovakia (especially Slovakia) to Hungary as in the opposite direction (persons of Czech and Slovak nationality) (Šutaj 2010). The result was the resettlement of almost 90,000 persons from Czechoslovakia to Hungary and slightly more than 73,000 moving in the opposite direction (Šutaj 2010).

Undoubtedly, the most tragic period of the Second World War took its toll on the Jewish and partially the Romani ethnic groups. In the first phase of the transports from March 1942 to October 1942, approximately two-thirds of all the Jews in Slovakia (almost 58,000 people) were taken away (Tišliar 2011). Only a few hundred Jewa survived until the end of the war. In the second phase of transports, this time carried out by the German side, an additional 13,5000 people were transported, some 10,000 of which never returned (Nižňanský 2005). What's more, in the post-war years, a large portion of the surviving Jews then left Slovakia for good and moved to the new state of Israel. The result of the relatively short period of the Second World War and the first post-war years was that the ethnic groups of Germans and Jews that had been forming and living on Slovak territory for centuries all but ceased to exist.

A post-war population exchange also took place between Czechoslovakia and the USSR. The basis was a bilateral agreement from 1946 on the mutual resettlement of persons of Czech and Slovak nationality living in the former Volhynian Governorate and Czechoslovak citizens of Ukrainian, Russian and Belarusian nationality living in post-war Czechoslovakia. An estimated 33–34,000 persons resettled to Czechoslovakia in 1947, when the repatriation actually began, while slightly more than 12,000 Ruthenians and Ukrainians went in the opposite direction (Šprocha, Tišliar and Šmigeľ 2015). While in the case of emigrants, this mainly involved people from eastern and north-eastern Slovakia, the immigrants were mainly settled in the Czech border area in estates left behind by displaced Germans.

Similar agreements were also signed with other countries of the Eastern bloc (Romania, Bulgaria, Yugoslavia). In addition to them, people from relatively distant countries in Latin America, the USA, Iran and others

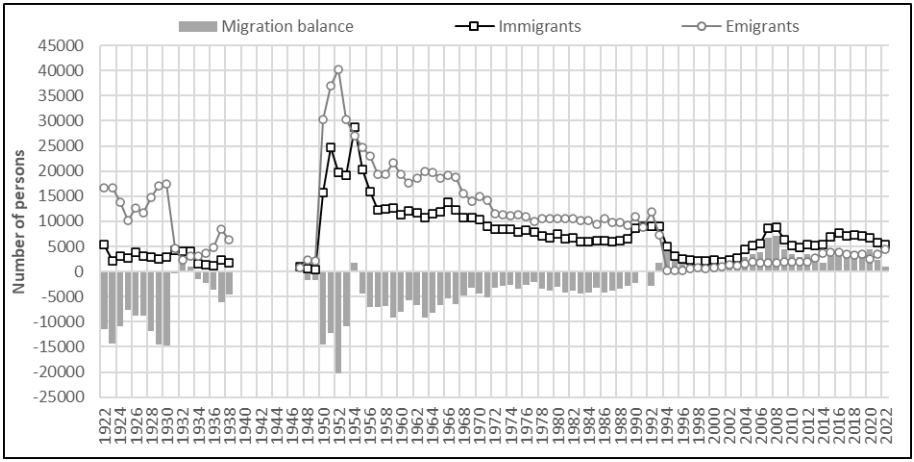
also attempted to return to the restored Czechoslovakia. It is estimated that by 1950 the number of re-emigrants reached almost 203,000 persons (Vaculík 2002), most of whom, as in the case of Volhynian Czechs and Slovaks, ended up in the Czech lands.

7.2 International migration in the years 1950–2022

The period after the Second World War brought significant changes in data possibilities for studying the migration process. Given the existence of a common state with the current Czech Republic until 1992, it is important to distinguish between foreign migration without today's Czech Republic and migration between the Czech Republic and Slovakia, which until the disintegration of Czechoslovakia represented a specific type of internal migration.

The worsening political situation, the gradual formation of two power blocs and the communist coup in 1948 led to Czechoslovakia becoming a country largely closed to migration for roughly five decades. As Kučera (1994) adds in this regard, a Czechoslovak citizen needed a special permit to emigrate to another country, but most such requests were rejected (Kučera 1994). From the viewpoint of official data, foreign migration in this period represented an insignificant component of the overall movement of the population. A certain intensification took place only at the end of the 1940s in connection with the above-mentioned seizure of power by the Communist Party and in the second half of the 1960s during the period of temporary relaxation of the regime (Kučera 1994; Vaňo et al. 2001). This is also confirmed by official statistical data on foreign migration, excluding migration between the Czech Republic and Slovakia. According to the data, with some exceptions, Slovakia has been gaining in terms of population through foreign migration. The situation changed in the 1980s, when even official statistical data show a negative migration balance. In terms of frequency, however, with the exception of the mentioned second half of the 1960s, only a few dozen to hundreds of events took place each year. Thus, from the beginning of the 1950s to the end of the 1980s, the migration balance ranged from approximately –500 to 400 persons per year, and only in 1966 and 1967 did it rise to not quite 1,300 or 2,200 persons, respectively. In relative terms, the crude rate of migration balance (not including moving to the Czech Republic) reached –0.12 to 0.51 persons per 1,000 inhabitants. The total absolute volume of the migration balance between 1950 and 1989 was only slightly above 5,200 persons.

Fig. 82: Number of immigrnats, emigrants and migration balance in Slovakia in the years 1922–2022



Data source: SO SR, authors' own calculations

In addition to official foreign migration, however, illegal emigration existed during the previous political regime and had an increasingly important impact. Reliable statistical data on its extent are absent, however (Kučera 1994). It can be assumed that it played a greater role especially after 1948 and 1968. Overall, according to some estimates, Czechoslovakia could have lost some 255,000 people between 1948 and 1968, and only 60,000 of them emigrated shortly after the communist coup. A similar number probably departed illegally in the years 1968–1989, and even in this case it is estimated that the largest portion of them (more than 100,000) did so after the invasion of the Warsaw Pact troops in 1968. Kučera (1994) estimates that up to three-quarters of these migration losses fell on the population of the Czech lands. Based on this, it can be assumed that the number of illegal emigrants from Slovakia could have been 120–130,000 persons.

Migration between the Czech Republic and Slovakia after the Second World War until the end of 1992 was a specific type of internal migration. Intensive migration flows from Slovakia to the Czech Republic had already occurred in the first post-war years and were related both to the settlement of the Czech borderlands and the development of the mining and metallurgical region of Ostrava. Since we do not yet have available official statistical data for this period, we can only estimate the number of migration flows. For example, according to the post-war census

conducted in the second half of May 1947, more than 110,000 people moved to the border regions of the Czech Republic from Slovakia (Vaňo et al. 2001). The border areas of western and north-western Bohemia became the primary target.

The introduction of statistics on internal migration confirmed that even at the beginning and partly also in the second half of the 1950s, Slovakia lost thousands of people per year due to migration to the Czech Republic. So, between the years 1950–1953, for example, the total migration balance reached almost –59,000 persons, which in relative terms represented approximately –3 to –6‰. Even though further developments brought a certain reduction in migration losses, between 1956 and 1967 they still represented 6,000 to 9,000 persons per year. Thus, out of 1,000 inhabitants, the population of Slovakia lost almost 2 persons annually during this period due to migration to the Czech Republic, while the total volume of migration losses in the given years was more than 90,000 persons. The politically crisis year 1968 also represents a certain dividing line in terms of immigration between the Czech Republic and Slovakia. The period that followed was marked by a relatively significant decline in the migration balance, which by the end of the 1980s even fell below the level of –3,000 persons. Nevertheless, Slovakia still remained disadvantaged in terms of migration. The scope of these population declines in 1968–1989 was fewer than 79,000 persons. At the same time, the crude rate of the migration balance stabilised below the level of 1 person per thousand.

With the creation of new jobs and deepening industrialisation of Slovakia, economic emigration to the Czech Republic gradually began to lose importance, which is why a reduction is seen in the negative migration balance. What's more, in the 1970s and especially in the 1980s, relatively great efforts were made by Slovak planning authorities to actively prevent such emigration (Kučera 1994). The beginning of the 1990s brought a further decline in the migration balance, with the exception of the last year of Czechoslovakia's existence.

Thus, the total population loss that Slovakia felt through migration with the Czech Republic from 1950 to the end of the common state can be set, based on internal migration, data at about 240,000 persons.

The fall of the Iron Curtain, the change of political regime, the disintegration of Czechoslovakia, as well as the transition to a market economy and the problems associated with it in the first years of the transformation significantly affected foreign migration. However, the migration opening of Slovakia is also linked to the problem of recording

migration, which is caused mainly by a failure to fulfil reporting obligations. In particular there are indications that official statistical data capture only a part of the total number of emigrants from Slovakia.

Already at the beginning of the 1990s, a situation arose when the population of Slovakia showed slight population increases every year due to migration with the Czech Republic and other foreign countries. A certain revival of mutual migration relations between the Czech Republic and Slovakia were also associated with the first years after the dissolution of the common state. It is assumed that after the change of the political regime and the creation of independent Slovakia, this was mostly a return migration, while for some emigrants it can be assumed that the main reason was the restitution of property (Vaňo et al. 2005). With the passage of time, however, a gradual reduction in this internal migration occurred along with an increase in the importance of migration with foreign countries. The absolute level of the migration balance with the Czech lands thus gradually fell from more than 3,000 persons (year 1994) to permanently below 1,000 persons, the only exception being 2010. According to official data, Slovakia gained nearly 19,000 people through migration with the Czech Republic between 1993 and 2022, and only the first and last year of this period show a slightly negative migration balance. In the case of other foreign countries, Slovakia has been gaining from migration for the entire period of its existence, with the volume of these increases totalling slightly more than 71,500 between 1993–2022.

While in the case of the migration balance with the Czech Republic, the development trend was characterised by a fall and subsequent stagnation below the mentioned level of 1,000 persons, in the case of other foreign countries the situation was different. The process of foreign migration responded relatively quickly to the most important political changes as well as some external factors, particularly of a negative nature, such as the recent global economic crisis or the COVID-19 pandemic. From the first named group, it is necessary to mention above all the admission of Slovakia to the European Union, the gradual easing and removal of restrictive measures of the old member states, as well as admission to the Schengen area or the entry of Romania and Bulgaria into the EU in 2007 (Jurčová 2009). These all had a major impact on the direction and overall level of foreign migration in Slovakia after 1992.

Due to the mentioned revival of migration with the Czech Republic and other foreign countries, the first half of the 1990s saw higher, albeit gradually decreasing, values of the positive migration balance. This reached its maximum in 1994, when, according to official data, almost

4,800 people were added to Slovakia. The crude rate of the migration balance thus reached a value of almost 0.9‰. Further developments were marked by a reduction in the migration balance in absolute and relative terms. Not only the decrease in the number of immigrants and emigrants in the mid-1990s contributed to this, but also the further development of both components. While in the case of the number of immigrants, we can speak of a certain developmental stagnation in the second half of the 1990s and at the start of the new millennium to a little more than 2,000 persons per year, in the case of emigrating persons there was a gradual continuous increase up to the level of 1,000 persons per year.

Slovakia's admission to the European Union brought a certain revival of foreign migration. This was mainly reflected in the number of immigrants and the crude rate of immigration. Already in 2004, the number of immigrants rose to almost 4,500, and in the following two years it was about 5,300 and almost 5,600 immigrants, respectively. In relative terms, this meant that approximately 1 person immigrated to Slovakia from abroad per 1,000 inhabitants. In 2007, Slovakia was admitted to the Schengen area, and Romania and Bulgaria also joined the European Union. Thanks to immigration from these two countries, the number of immigrants increased year-on-year again and reached the highest values in recent history. In 2007 and 2008, this totalled 8,600 and 8,800 persons, respectively. The crude rate of immigration reached approximately 1.6‰. Although the registered number of emigrants from Slovakia has also increased slightly since the beginning of the 21st century, it has still remained below 2,000 persons per year. Thus, the crude rate of emigration did not exceed the level of 0.5‰ from 1994 to 2012. The result of such an arrangement of immigration and emigration was historically the highest migration gains. In 2007 and 2008, the migration balance of Slovakia was at almost 6,800 and just over 7,000 persons, respectively, meaning approximately 1.3 people were added per 1,000 inhabitants. However, further development of foreign migration was marked by a relatively significant fall in the number of immigrating persons, which peaked in 2011, when only slightly more than 4,800 persons immigrated to Slovakia. The crude immigration rate thus fell below the level of 0.9‰. We can assume that the key factor in this development was the ongoing global economic crisis. After its main symptoms were eliminated, we gradually see a revival of Slovakia's foreign migration. In the years 2012–2014, the number of persons immigrating first rose above the 5,000 mark, and in years 2016–2019 it

exceeded the level of 7,000. As a result, the crude immigration rate once again climbed above the level of 1.3‰. Immigration reached its peak in 2016, when just under 7,700 persons immigrated to Slovakia, which represented about 1.4 immigrants per 1,000 inhabitants. Alongside this immigration, however, the number of emigrants heading abroad also increased, achieving its maximum in 2015 and 2016, when more than 3,800 people emigrated from Slovakia. From 2014 to 2019, emigration continued to remain above 3,000 thousand persons per year. In relative terms, this meant that an average of 0.6–0.7 people left abroad per 1,000 inhabitants per year. From the above it is evident the official values of the migration balance continued to remain positive, but they no longer rose to the same level as in the pre-crisis period. What's more, due to the more rapidly rising emigration, migration increases effectively slowed until 2014, when the population of Slovakia increased by only a little more than 1,700 persons due to foreign migration. As a result of this development, the crude rate of the migration balance decreased to 0.3‰. The last years before the start of the COVID-19 pandemic, on the one hand, brought the previously mentioned revival of immigration, and on the other hand, stagnation in the number of people moving abroad, which resulted in a slight increase in the migration balance. In absolute numbers, this ranged from 3,600–3,900 persons in the years 2016–2019 and in relative terms about 0.7 persons per 1,000 inhabitants.

Development in recent years has been negatively affected by the specific situation relating to the COVID-19 pandemic. One of the important features in this period was the different efforts of individual countries to reduce the movement of the population as a way of limiting the disease spread. In addition, unfavourable conditions also affected economic development, which the current war in Ukraine also contributed to. This was partly reflected in both immigration and emigration in Slovakia. The number of persons immigrating has shown a falling tendency since 2020, and according to the latest data from 2022, it has already dropped below 5,500 persons, thus only slightly more than 1 immigrant per 1,000 inhabitants of Slovakia.

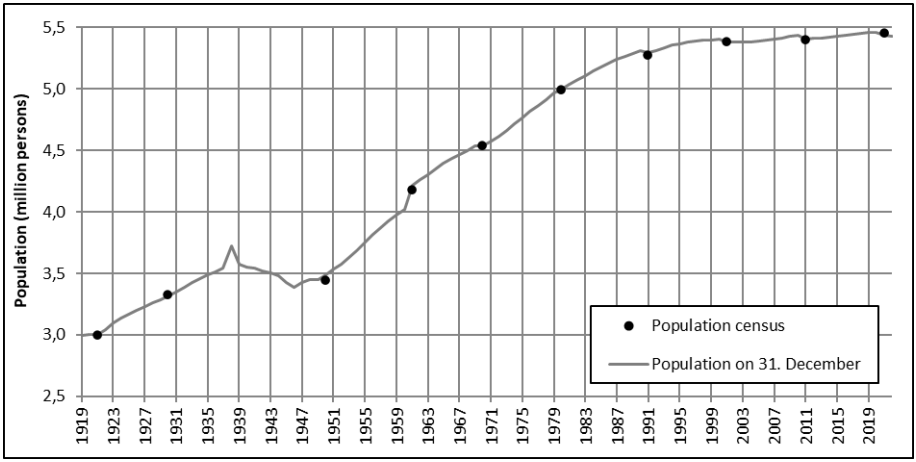
In the case of emigration, the situation was more complicated. The first year of the pandemic was marked by a notable decrease in the number of people leaving, down to about 2,500 persons. Further developments did not confirm this trend and, on the contrary, an increase is seen in emigrating persons. In 2021, almost 3,400 people migrated out of Slovakia, and in the last analysed year this rose to almost 4,500. This is the second highest level recorded in the history of the independent

Slovak Republic. We can assume that it is a certain compensation for the specific migration situation that arose at the start of the pandemic, as well as a response to the current problematic economic situation. As a result, since the beginning of the COVID-19 pandemic the crude emigration rate has risen from slightly more than 0.4‰ to the current value of more than 0.8‰. The contrary development trends of immigration and emigration also meant a decrease in the migration balance. In 2020, Slovakia's population increased by slightly more than 4,300 due to foreign migration, but in 2022 this was less than 1,000 persons. In relative terms, the migration balance fell from 0.8‰ to less than 0.2‰.

8. Population dynamics and the number of inhabitants

According to the results of the first Czechoslovak census from 1921, fewer than 3 million people (2,993,859) lived in the territory of Slovakia. After the First World War, there was a temporary revival of the birth rate and fertility with the dynamism of the reduction of mortality and the relatively important restriction on foreign migration. These factors were then reflected in the faster growth of the population of Slovakia, as the 1930 census showed that there were now more than 3.3 million people in Slovakia. Thus, in the 1920s just over 300,000 people were added in total. Since the natural increase reached approximately 463,000 persons, we can estimate that Slovakia still lost a relatively large number of inhabitants through migration (approximately 163,000 persons). Despite this, however, the growth index reached the highest recorded value of 11% up to then (Šprocha, Tišliar 2018).

Fig. 83: Development of the population of Slovakia based on the results of the population censuses and demographic balance in the years 1919–2022

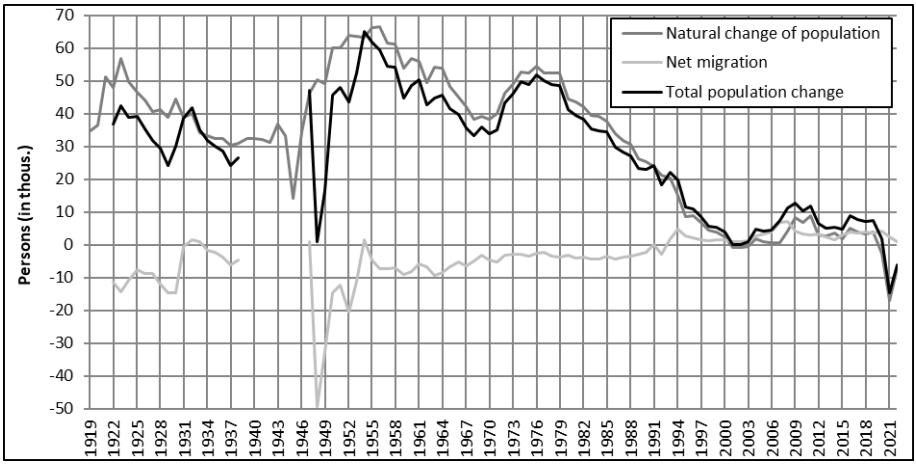


Data source: SO SR, authors' own calculations

After the waning of the effects of the First World War and the post-war compensation phase, we see a relatively significant decline in the crude rate of natural increases. Aside from the continued decrease in mortality, a significant fall in the birth rate also contributed to this. In the second half of the 1930s, the crude rate of natural increase fell below the 10‰ mark, and with the exception of a short-term revival in the first half of the 1940s, it remained at this level until the end of the Second World War. The crude rate of the total increase with respect to the estimated negative migration balances reached a somewhat lower level in the long term (roughly 5‰ and less than 10‰ in the interwar period). Large population losses during the Second World War and shortly after its end meant, according to the 1950 census, that the total number of inhabitants of Slovakia (3,442,317 people) increased by only about 118,000 compared to the 1930 census. The growth index between the 1930 and 1950 censuses thus reached only approximately 3.6%. Furthermore, high natural increases from the second half of the 1940s accounted for a significant portion of them. These even slightly increased in the 1950s. On the other hand, the process of migration gradually stabilised, and even though Slovakia was effectively a migration loser up to the end of the 1980s, the volumes were nowhere near the same as in the 1940s and the beginning of the 1950s. The combination of these two factors contributed to the fact that the period between the 1950 and 1961 censuses is characterised by the highest population growth index in the history of Slovakia (21.3%), with a total increase of almost 732,000 persons. Thus, in 1961, almost 4.2 million people had permanent residence in Slovakia.

Population growth continued in the period that followed, though natural increases as well as the crude rate of natural and total increases fell. The revival of reproduction in the 1970s meant a certain exception to this (Fig. 84). Due to the very low negative migration balance, total increases as well as the crude rate of total increases depended mainly on the development of natural increases. In the 1991 census, Slovakia passed the threshold of 5 million persons (5.27 million people) for the first time in its history. Thus, between 1961 and 1991, the number of persons with permanent residence in Slovakia increased by approximately 1.1 million. However, the growth momentum slowed significantly, as between the 1980 and 1991 censuses, the growth index was just under 6%.

Fig. 84: The crude rate of natural change of population, total population change and net migration in Slovakia in the years 1919–2022



Note: the data on the crude rate of net migration up to 1950 was estimated using the balance method

Data source: SO SR, authors' own calculations

A significant decline in the birth rate, despite moderate increases due to migration and a decrease in mortality, meant that in the 1990s the total increases, as well as their crude rate, fell relatively rapidly. In the years 2001–2003, more people even died than were born in Slovakia; thereby, the crude rate of natural increase showed negative values. A certain revival of the birth rate followed, however, and thus also the level of natural increases, but these continue to remain very low. However, since foreign migration also reached a low level, years 2007 and 2008 excepted, the overall growth of Slovakia's population was very slow. Until 2019, the crude rate of the total increase was only about 1–2‰. The population growth index fell to less than 2% between the 1991 and 2001 censuses and was only 0.3% in the last intercensal period. Due to such small increases, Slovakia's population in this period rose by just over 122,000. According to the results of the census of inhabitants, houses and flats from 2011, it was under 5.4 million persons. Although further development was marked by the continued numerical growth of Slovakia's population, as we have already stated, this was on the whole only a gradual increase. According to data from the last census from 2021 (1 January), 5,449,270 persons were counted in Slovakia, which means the growth index was just below 1%.

Population development of Slovakia in recent years has been significantly affected by the COVID-19 pandemic. This affected not only the number of deaths, but also foreign migration, and in the last year of 2022 probably affected the number of live births indirectly. The significant increase in the number of deaths in 2020 and especially 2021 brought a natural decrease in Slovakia's population and, together with the decreasing positive migration balance in 2021 and 2022, contributed to a decline in total increases. Ultimately, in these two years, for the first time in the modern history of Slovakia, the country showed a population decline. The overall loss was of almost 20,500 persons, which in relative terms meant –1.0 to –2.7 persons out of 1,000 inhabitants of Slovakia. As a result of this, the last known population of Slovakia from the end of 2022 (31 December) is 5,428,792 people.

Conclusion

The population of Slovakia has passed through several important changes since the establishment of Czechoslovakia to the present, thus is in a relatively short period of time, which have had a significant impact on the dynamics of its population development. In many ways, the individual demographic processes have seen such extensive and rapid transformations during this period that we can speak of a complex quantitative-qualitative transformation. These transformations took place with differing intensity, dynamics and timing, as well as the scope of their impacts and connections to external factors of the development of Slovak society. As we confirmed in our publication, the present state of demographic reproduction is the result of multidimensional changes which are an integral part of complex societal transformations.

Based on the knowledge gained, it is clear in a broader general line that the first half of the 20th century in Slovakia largely followed and deepened the quantitative-qualitative transformations of reproduction that had begun within the first demographic transition. Slovakia at the same time entered the new state structure after the First World War with significantly unfavourable mortality rates, high infant and child mortality and, in contrast, still relatively high fertility and marriage and very low divorce rates. Foreign migration in the interwar period, particularly as a result of the tightening of migration policies overseas, not only changed its target areas, but its dynamics also declined to a certain extent.

During the decades that followed, this demographic picture of Slovakia changed rather significantly. The First World War and the interwar period that followed in many ways accelerated the transformational changes in the process of mortality and fertility, with effects on the age structure as well. We observe a decrease in mortality, an extension of life and a change in the epidemiological situation, in which civilizational diseases are gradually coming to the fore in the place of infectious diseases. An important factor for the increase in life expectancy was the lowering of the risk of death among the youngest children. In terms of fertility, we observe its significant decrease, which primarily resulted from a complex transformation of reproduction in connection with the effort

to consciously regulate the number of children born in the family. These transformational changes gradually had an effect until the beginning of the 1960s, when a new demographic regime began to form which in many aspects were conditioned by the specific social and political conditions of real socialism. They largely consolidated the model of early and almost universal marriage, low age at the start of motherhood and low childlessness. On the other hand, a certain stagnation in mortality rates occurred, the divorce rate increased and abortion was increasingly used as a tool to regulate family size. Migration abroad, the illegal component of it aside, played no significant role in population development, and migration with the Czech lands was key.

The end of the 1980s and the fall of the Iron Curtain hastened the disintegration of the socialist model of reproduction and, along with the entire societal transformation, laid down the conditions for the onset of other dynamic changes in reproductive behaviour. These again comprehensively changed the nature of reproductive behaviour and in many ways are unique shifts in the history of Slovakia, with which Slovak society has had no previous experience.

The collapse of the marriage rate and its longer-term stabilisation at a very low level became the main features, and these changes are closely linked with postponing and, among a certain part of the population, possibly even the rejection of transitions to marriage from life paths. On the other hand, not only were fewer young people getting married, but existing marriages were becoming increasingly fragile and ending in divorce at an unprecedented rate. In recent years, however, we can see a decline in the divorce rate, which is probably associated with the low marriage rate and the shift of marriage starts to an older age. As a result, a significant selection of couples is likely occurring, and thus to a greater extent couples are entering into marriage for whom marriage is an important confirmation of the strength of their union and for whom married life has high value.

As with marriage, the process of having children has also responded to new living conditions. In terms of cross-sectional indicators of fertility intensity, Slovakia has moved from being a country with one of the highest levels of fertility in the European area into the group with the lowest fertility worldwide in the course of one decade. Not even the recovery in recent years has significantly affected this fact, and the current level of childbearing is well behind the situation at the end of the 1980s. From a generational viewpoint, it is thus clear that women born at the end of the 1960s are the last to average two or more children.

The dynamics and scope of these changes turns out to be closely linked to the timing of reproductive intentions. While the model of very early maternal start prevailed up to the end of the 1980s, and after the Second World War a relatively early completion of the family size (mainly before the age of 30) stabilised, in the last quarter-century we have seen a complete transformation of this model. It seems that the old model did not find application in the new social and economic conditions and was intensively abandoned between generations and replaced by a model whose main feature is the postponing of the start of parenthood and thus the birth of more children until a higher age. At the same time, however, it needs to be noted that there is considerable pluralisation in the setting of these transitions. The result is thus not only a dramatic increase in the average age at first birth, but also a complex transformation of the nature of fertility curves and the contributions of individual age groups to total fertility, where the second half of the reproductive period increasingly takes on importance. It is the extent of postponement and subsequent recuperation that represent and will represent crucial elements not only of the overall fertility intensity, but also of women's structures based on the number of children born. It also seems that the birth of a first child is still quite successfully catching up at an older age, but the main factor of persisting low fertility is the drop in the level of the birth of a second child and other children. This is and will be reflected in the very composition of women according to parity, when we will most probably witness the abandonment of the dominant two-child model and heterogenization will occur, when women in Slovakia more often become mothers only once or remain permanently childless compared to generations born before the end of the 1960s.

The period after 1989 also brought significant changes in abortion and mortality. Above all, we witnessed a dramatic decrease in the number of abortions and the intensity of artificial abortion, whose close connection to the development trends of fertility is being lost. At the same time, a gradual change in character is happening, when abortions are no longer used mainly by married women with two or more children as a tool for regulating family size, but mainly by single, childless, younger women.

Stagnation or even an increase in the risk of death in productive age and younger post-productive age from the mid-1960s to the end of the 1980s contributed to Slovakia's overall lagging behind a more demographically advanced Europe. Since the early 1990s, however, we can again identify the start of the process of improving mortality rates and thus prolonging life. This is mainly the result of the further reduction

of mortality in the youngest children, but also in the productive age. At the same time, this process is running somewhat faster in men, which also means a decline in the male mortality rate.

Recent years have been significantly affected by the unfavourable epidemiological situation associated with the COVID-19 pandemic. In addition to the significant rise in mortality and subsequent shortening of life expectancy, the marriage rate fell and the divorce rate continued to decline. After a small increase in foreign migration in the first pandemic year, the next two brought a significant reduction, though this may also be related to the deteriorating economic situation in the world. A decrease in the birth rate and fertility has also occurred, which could reflect the previous negative development in marriage, as well as ongoing uncertainties caused by the mentioned negative development of the economy and the ongoing war in Ukraine.

In addition to natural movement, migration movements in their various forms have affected the historical development of the population in Slovakia. The period of real socialism was characterised by a notable migration closure due to the very limited possibilities of foreign migration. More intensive migration relations were established with the Czech lands, which were profitable in terms of migration for a long time with Slovakia. The situation changed after the fall of the Iron Curtain and the subsequent admission of Slovakia to the European Union and the Schengen Area. Based on the data on the change of permanent residence, Slovakia has become a profitable country for migration. However, it is also necessary to note that the foreign emigration component is underestimated in this case, and Slovakia is probably losing its population due to foreign migration.

Changes in reproductive behaviour and migration were also reflected in population additions and thus the overall growth of the population. Slovakia has shown a long-term increase in the number of inhabitants, and this trend was most dynamic in the first decades after the Second World War. Not until the beginning of the 21st century do we observe the predominance of the deaths over births. The main factor of the total increases thus became the positive migration balance. However, both elements of population development are relatively low; therefore, the total population growth, and thus the number of inhabitants, is showing stagnation or only very slight increases, and recent years, hit by the COVID-19 pandemic, have resulted in population declines.

Despite the advanced stage of the transformation, when we can talk about more than three decades of prevailing changes in the population

of Slovakia, a new stable model of reproductive and family behaviour has not yet been formed. We are continuing to see certain shifts in the intensity and timing of individual processes, and though these are less dynamic than they were in the first half of the 1990s, they still indicate that the transformation process has not yet ended. A legitimate question then is whether these shifts should lead to some stable model, or whether the instability of individual demographic processes will be a characteristic feature of population development in the post-transformation period.

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