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THE ETERNAL YOUTH FALLACY IN THE FACE OF A PANDEMIC: SENIOR SPENDING PATTERNS AND THE SILVER ECONOMY IN THE UNITED STATES

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Abstract

Population ageing in the United States has resulted in a substantial increase in retiree households. Understanding consumer behaviour among older individuals is crucial for assessing their well-being and living conditions. This study emphasises the importance of recognising the unique needs and preferences of older consumers, as their consumption patterns have a significant influence on household expenditures. While the stereotype of frugal retirees has evolved and active seniors are now portrayed as high spenders, the Covid-19 pandemic highlighted seniors' practical and realistic approach to their spending and challenged the popular notion of a lifestyle of forever-young seniors. Seniors still prioritise essential goods and services. During the pandemic, health-related expenditures increased, and they adapted their leisure activities to home-based alternatives. Our study investigates whether pre-retirees and retirees have shifted from prioritising retirement savings to focusing on essential needs like healthcare and housing, or whether they are allocating resources for experiences and travel to enhance their quality of life before and after retirement. Seniors exhibit distinct consumption patterns, with higher expenditures on health, personal care, and leisure activities than younger age groups. Consequently, businesses and policymakers need to develop strategies that account for the diverse consumption patterns of seniors, rather than assuming they will adopt the preferences of younger generations. The silver economy represents a dynamic and expanding market, particularly in the health and social care sector, offering substantial opportunities for investment.

Keywords: ageing, consumption, Covid-19 pandemic, household, silver economy, well-being
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INTRODUCTION

Household consumption constitutes a substantial portion – approximately sixty percent – of the gross domestic product in developed economies and serves as a fundamental indicator of individual and family well-being (*Olafsson and Pagel, 2018*).

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Understanding the factors that shape household consumption behaviour, both in terms of quantity and composition, is crucial for designing effective social welfare initiatives. As households become more affluent and expand their spending beyond basic necessities, increased demand and growth is generated across multiple industries. Consequently, this drives innovation on the supply side and enhances the well-being of individuals and families *(Chai, 2018*). While a significant portion of consumption among low-income households focuses on meeting basic needs, the preferences of wealthier households lead to greater diversification (*Chai, Rohde, and Silber*, 2015). Three essential forms of heterogeneity can be observed: variation in spending across different income levels, across various goods, and over time, all of which are influenced by household preferences. Therefore, spending is closely tied to societal inequalities and this should be taken into consideration.

External shocks can significantly impact the economy, leading to a decline in consumption. The Covid-19 pandemic, for instance, has imposed restrictions on social interaction and mobility, which led to a substantial reduction in household consumer spending and an unprecedented and challenging recovery of consumption rates (*Martin et al*., 2020; *Perry et al*., 2021). Consumption patterns are influenced by diverse factors, and age and life cycle are significant determinants of income levels and the availability of resources for consumption.

Consumer aspirations vary across different lifestyles and levels of well-being, but income often serves as a constraining factor in fulfilling these aspirations. Households purchase goods and services that range from essential necessities to luxurious items, the prioritisation of which is an individual choice that can be statistically inferred as a collective probabilistic pattern (*Hurd and Rohwedder*, 2013; *Velarde and Herrmann*, 2014). Throughout an individual's life, their demand for goods and services is influenced by their overall sense of well-being. As income rises and opportunities expand, preferences evolve, and consumption tends to increase.

However, greater consumption does not always lead to enhanced well-being, especially when spending capacity is already high (*Witt*, 2019). Typical expenditure patterns undergo significant transformations throughout the life course, with certain types of spending being more prevalent at specific stages. For example, expenditures on education are common in young adulthood, while expenses relating to children are typical during middle age. During old age, elderly individuals often experience a decline in income, leading them to approach household expenses differently, which provides valuable insights into their values and priorities (*Hurd and Rohwedder*, 2006; 2013).

By examining consumption patterns information about well-being can be gathered to some extent. For instance, significant spending on healthcare may indicate health concerns that are impacting a person's overall well-being, while higher expenditures on leisure activities or travel may reflect greater life satisfaction and well-being. As societies worldwide undergo population ageing, the elderly are becoming an increasingly substantial segment of the consumer population. This shift is driven by longer life expectancy, improved material prosperity, and declining birth rates. Traditionally, pre-retirees and retirees prioritised saving for retirement over immediate spending on basic needs like healthcare and housing. It is crucial to investigate whether material prosperity influences this profile and whether pre-retirees and retirees can afford to shift their focus from retirement savings to immediate spending on basic needs and experiences. The rapid growth of the ageing population has a substantial impact on household consumption, and the diverse trajectories of individual residents contribute to a changing consumption landscape for goods and services.

The research question this gives rise to is: To what extent pre-retirees and retirees today can afford to depart from the traditional habit of prioritising retirement savings and instead prioritise spending on essential needs such as healthcare and housing? Moreover, can they allocate more resources to experiences and travel to make the most enjoyable use of their time both before and after retirement?

Understanding behavioural patterns, consumption habits, and the focus and the extent to which people focus on well-being is crucial for businesses and policymakers so that they can better cater to the needs of this demographic group. The recent Covid-19

pandemic is another research motivation for exploring potential differences in consumption habits between the elderly and the younger population.

CONCEPTUAL FRAMEWORK: RETIREMENT, CONSUMPTION, AND WELL-BEING

The concept of successful ageing (*Fiocco – Yaffe*, 2010; *Rychtaříková*, 2002) significantly shapes the collective level and composition of consumption among senior citizens. The active ageing of the elderly population holds profound implications for economic growth, social welfare, and healthcare (*Páleník et al.*, 2015). Additionally, it presents new opportunities for businesses to tap into a growing market, particularly in areas such as telemedicine, e-health, adapted vehicles, bioproducts, and anti-ageing products. Consumer behaviour is influenced by age-related factors that correspond to different life stages, including career, reproduction, and ageing.

Significant shifts in consumption patterns can be attributed to the transition from the working phase of life, changes in family dynamics, and the gradual decline in health with age. Consumption towards the end of the working life is closely linked to the motivation to save and defer consumption for future needs. The Modigliani life-cycle model, a standard framework for analysing household consumption and savings, emphasises that individuals aim to maintain a stable level of consumption throughout their lifetime and accordingly adjust their saving and borrowing behaviour (*Miniaci et al.*, 2003; *Xiao et al.*, 2011). They are inclined to save more during periods of higher income to build reserves for their future decline, while during times of lower income. The concept of hump savings, initially recognised by Harrod in 1948 (*Baranzini*, 2005), remains relevant in current research. As individuals progress through their productive years, they accumulate personal assets, create reserves for retirement, and experience a hump-shaped curve in their lifetime wealth. Although the precise timing and shape of the savings hump may vary across countries and time periods due to socioeconomic factors, the general idea of saving more in the middle of one's career to prepare for retirement holds true (*Clark et al.*, 2015; *Zaidi et al.*, 2019*)*.

Typically, the accumulation of wealth reaches its peak around the ages of 60–65, followed by a subsequent decline in assets. The end of the working career signifies a transition to a phase where individuals need to rely on their accumulated savings to cover their expenses. During this stage, often referred to as negative savings according to Modigliani's life-cycle model, an individual's consumption exceeds their income. However, the effectiveness of the hump savings strategy can be influenced by various factors, including changes in retirement policies, evolving labour market conditions, and the availability of alternative savings options such as pensions and retirement plans (*Hurd and Rohwedder*, 2022).

Changes in values and priorities could also be factors that contribute to the decline in spending. Engel's law, a concept introduced by Engel in 1857, remains a relevant framework for understanding contemporary consumption patterns within the context of modern economic interpretation. Despite its historical origin, the law continues to clarify how the distribution of resources shapes spending behaviours. Individuals with greater resources allocate a smaller proportion of their budget to basic needs like food and housing, in accordance with Engel's original observations (*Engel*, 1857). Moreover, the law informs our understanding of how increasing incomes lead to shifts in expenditure patterns, with a greater focus on categories such as healthcare, leisure, culture, and charitable donations. During productive age, households typically have higher incomes compared to pensioners, and as a result the relative importance of food, housing, and energy in their consumption patterns is lower.

The underlying mechanisms that contribute to the observed decline in consumption after retirement remain poorly understood (*Miniaci et al.*, 2003; *Olaffson – Pagel*, 2018). Previous research has focused on factors such as the reduction in consumer debt and the increase in liquid savings among retirees, which cannot be fully explained by work-related expenses alone. This discrepancy challenges the rational agent theory, which predicts pre-retirement saving due to expected income loss and subsequent dissaving after retirement.

The relationship between income, spending, savings, and healthcare costs in old age is complex. *De Nardi et al.* (2010) found that, for many elderly individuals, the risk of living longer and requiring costly medical care outweighs the desire to leave bequests. Social insurance programmes not only provide a safety net for the poorest but also benefit the affluent by insuring them against high medical expenses in their later years. The authors suggest that the risk of incurring substantial healthcare costs in old age can be a significant driver of saving for many higher-income elderly individuals.

Households who engage in more intensive shopping pay lower prices for the same goods (*Becker*, 1965). Here we can aptly introduce the concept of the opportunity cost of time, where individuals gain more time at the expense of potential income by reducing work hours. Consequently, those with the lowest opportunity cost of time, such as the elderly and low-income groups, tend to spend more time searching for bargains and paying less for items. On the other hand, middle-aged individuals face higher time demands and consequently pay higher prices for the same goods. Therefore, the opportunity cost of time is crucial for examining well-being through consumption since household expenditures can fluctuate even without changes in actual consumption. Changing consumption patterns among new retirees were previously predictable based on income changes *(Olafsson – Pagel*, 2018). However, traditional stereotypes of pensioners as inactive, unproductive, socially disengaged, and struggling to adapt to new circumstances have been challenged in recent years.

The senior citizen population has become increasingly diverse and dynamic, with many individuals leading active and engaged lifestyles. Older individuals also often prioritise experiential spending, such as travel and cultural events, over material possessions (*Patterson and Pegg*, 2009), which highlights the need for a nuanced understanding of consumption patterns. This shift has been driven by the emergence of a new social segment of pensioners who perceive themselves as youthful and adjust their consumer behaviour accordingly (*Lusardi and Mitchell*, 2011), underscoring the economic importance of financial literacy. Considering this evolving trend, retirement is expected to have a limited impact on consumption patterns in the future, particularly in developed countries. This emphasises the importance of addressing the changing lifestyles and consumption habits of senior citizens when examining the relationship between retirement and consumption. However, it is important to note that not all retirees experience the same positive outcomes, as retirement can be a challenging and difficult period, particularly for those facing social isolation, financial insecurity, and health issues (*Kim et al.*, 2021*)*.

In developed countries, where household resources are generally sufficient, different age groups exhibit distinct consumption and savings behaviour patterns (*Baláž*, 2011). The 49–64 age group is typically focused on retirement preparation, with an emphasis on saving as a key aspect of their economic behaviour. Conversely, the 65–74 age group, consisting of relatively young retirees who enjoy good health and an active lifestyle, compensate for lost time by engaging in travel and cultural activities. Meanwhile, the 75 plus age group, or older retirees, transition to a less active lifestyle, reducing spending on work-related expenses, recreation, culture, transportation, and clothing. Consequently, this age group contributes to a slowdown in price growth, except for healthcare and social work prices. Older retirees face increased vulnerability as they realise the possibility of outliving their savings due to extended life expectancy and become aware of the relatively low value of their savings, which are often held in low-risk accounts (*Mason et al.*, 2022). Therefore, it is essential to understand how retirement preparation affects the spending habits of pre-retirees and retirees.

METHODS AND DATA

The silver economy concept refers to the increased demand for goods and services tailored to the interests of older individuals as the population ages, with a focus on healthcare, leisure, and personal care products. To examine the effect of the silver economy on consumer behaviour in the United States, we utilise public use microdata on the household expenditure structure that include information on the age of the reference person of a consumer unit. The reference person is the first individual named by the respondent when

asked to identify the owner or renter of the residence. It is important to note that households and consumer units, while sometimes used interchangeably, do not always coincide. In some cases, a household can have more than one consumer unit. Specifically, we study the influence of retirement age on the consumption patterns of older individuals, using the pre-retirement age group as a baseline.

We employ the age category and use the 55–64 age group as the reference. The presence of a statistically significant and positive coefficient for certain consumption categories would indicate the existence of the silver economy effect, whereby older households allocate more spending to these goods and services compared to their slightly younger counterparts, regardless of income level, location, or data collection timing. The life cycle of households provides a straightforward and effective approach to identify whether these expenditures primarily pertain to healthcare services or are for other purposes.

It is crucial to consider potential sources of distortion in this approach, including the absence of influential household characteristics that may impact the silver economy effect, even when common structural differences are taken into account. Caution must also be exercised in interpreting causality when examining the relationship between age and consumption. The inclusion of age in the model does not establish causation, and only experimental data can offer definitive evidence in this regard. This research focuses on the consumption behaviour of pre-retirees and retirees, particularly regarding their evolving income and expenditure patterns over the life cycle.

The consumer expenditure surveys programme in the United States offers valuable data on consumer expenditures, income, and demographic characteristics. These data are provided in various aggregated formats and in microdata files for public use. The U S Census Bureau collects the data on behalf of the U S Bureau of Labor Statistics through two surveys. The interview survey primarily focuses on gathering data on large and recurring expenses that respondents can reasonably recall over an extended period, typically three months. On the other hand, the diary survey is designed to collect data on frequently purchased items that may be challenging to recall accurately, even after a few weeks. This category includes expenses for food and beverages both at home and in restaurants, housekeeping supplies and services, nonprescription drugs, and various personal care products and services. Given that our model relies solely on data from the interview survey, the ability to accurately capture expenses relating to frequently purchased items may be limited, which could lead to underestimation in the model's representation of certain expenditure categories.

The primary use of consumer expenditure data is to revise the relative importance of goods and services in the consumer price index market basket. The public use microdata files contain individual responses to the surveys, with adjustments made to protect respondent confidentiality while allowing researchers to analyse expenditure, income, and demographic data beyond what is available in published tabulations. For our paper, we will utilise the interview survey. The interview survey follows a rotating panel design, where approximately ten thousand addresses are contacted each calendar quarter, resulting in approximately six thousand usable interviews. Each quarter, one-fourth of the contacted addresses are new to the survey, and after four consecutive quarters a housing unit is dropped from the sample and replaced with a new address (*US Bureau of Labor Statistics*, 2023).

During the survey, respondents provide information on all expenses incurred by the consumer unit, as well as financial and demographic data. However, the surveys do not inquire about the specific purchaser or consumer of each item, which limits the ability to connect the data with individual demographic information. Inferring demographic information for households with multiple members is challenging compared to single-member households. For our purposes, we rely on the concept of a reference person. Our approach distinguishes consumer units based on the age category of the reference person. However, it's important to acknowledge that seniors can be found in various household types, and this limitation affects our comprehensive understanding of senior-related expenses. The available data from the quarterly survey offer a comprehensive overview of household consumption at the national level in the United States, including detailed information on demographic, socioeconomic, and financial factors.

These data allow for chronological comparisons and the segmentation of households based on cross-sectional variables, with age being the key variable of interest. By utilising standard 10-year age categories, we can capture significant behavioural differences that may arise as individuals age beyond 65 and 75 years. To examine household consumption behaviour in relation to age, a multidimensional regression model is appropriate. We employ a fixed effects approach using dummy variables for relevant interest categories. The dependent variable in the model is expenditures on various goods and services for a given surveyed quarter ($C_{i,q}$).

The independent variables encompass reference person attributes, including age (D_a), gender, race, education, household attributes such as income and family size, location-specific characteristics (D_b), and temporal factors (D_q, D_y, P). The age categories of particular interest are 65–74 and 75 plus. In addition to incorporating a linear year-trend (D_y), we include a control variable to distinguish between pre-pandemic (2015–2019) and pandemic (2020–2022) expenditures (P), which is interacted with age ($P*D_a$). To account for the temporal autocorrelation inevitably present, we include the lagged dependent variable from the previous quarter ($logC_{i,q-1}$) among the predictors. The econometric model can be expressed as:

$$logC_{i,q} \sim logC_{i,q-1} + D_a + D_b + D_q + D_y + P + P*D_a + e$$

where $logC_{i,q}$ represents the logarithm of household expenditures in the surveyed quarter, $logC_{i,q-1}$ is the logarithm of lagged household expenditures, D_a represents the age categories, D_b includes household and reference person characteristics, D_q denotes quarter timing factor, D_y represents the linear year trend, P captures the distinction between pre-pandemic and pandemic expenditures, $P*Da$ represents the interaction between age and the pandemic distinction, and e represents the error term. The model incorporates a comprehensive set of variables, with estimated coefficients shedding light on household characteristics and their influence on expenditure decisions. In selecting reference categories for variables, our emphasis is on highlighting the primary age effect on retirement. Although certain reference categories, such as for race or residential location, may not represent the largest groups in the sample, they are chosen to account for demographic and environmental nuances. Importantly, these reference categories serve primarily as control variables and do not significantly impact the overall regression model, as our primary focus remains on understanding the age effect during retirement.

Financial items, representing both partial and total expenditures, are adjusted for inflation and expressed in a stable currency using the first quarter of 2015 as the base (indexed at 100.0). These values are then logarithmically transformed to estimate the consumption scaling coefficient relative to total household expenditures. This analytical approach reveals a power law model within the data, where one quantity is proportionally related to another raised to a specific power. It also unveils distinct scaling patterns in the expenditures across various consumption categories throughout the United States.

RESULTS

Table 1 compares demographic and socioeconomic characteristics between pre-pandemic and pandemic periods, based on weighted consumer expenditure surveys in the United States. The data provide insights into important trends and particularly about household consumption patterns in relation to population ageing. The data reveal an ageing population with a significant representation of older age groups.

This trend is crucial for understanding the changing dynamics of household consumption, as older individuals often have different spending patterns and priorities from younger age groups. There has been a notable increase in homeownership during the pandemic. This trend suggests a preference among individuals and families to invest in their own properties rather than renting. As the population ages, homeownership becomes increasingly important, as older adults often seek stability and the ability to age in place. This trend can have implications for the types of housing-related expenditures and investments made by households.

Considering income levels, there were decreases in the lower income brackets during the pandemic, while the higher income brackets showed increases. Income disparities have a significant impact on house-

hold consumption patterns. Higher disposable income provides more freedom to allocate expenditure, which differs from the patterns observed for individuals with lower incomes. This trend is key for understanding the variability in the impact of population ageing on consumption patterns, as older adults may have different financial resources and spending options.

Table 1 **Demographic and socioeconomic characteristics from consumer expenditure interview surveys, weighted to reflect the U S population (2015–2022)**

	2015–2019	2020–2022
Age (years, %)		
Up to 24	5.6	4.4
25–34	16.3	15.9
35–44	16.6	17.1
45–54	18.0	17.0
55–64	18.8	18.7
65–74	14.3	15.9
75 and more	10.4	11.0
Gender (%)		
Men	47.4	47.5
Women	52.6	52.5
Consumer unit (number)		
People	2.5	2.5
Housing tenure (%)		
Homeowner	63.0	65.2
Renter	37.0	34.8
Race (%)		
White	67.5	66.0
Black	12.9	12.8
Hispanic	13.3	14.5
Other	6.3	6.7
Education (%)		
Elementary or less	3.3	2.9
High school	30.5	28.2
College	66.3	69.0
Income after taxes (thousands of dollars, %)		
Up to 10	7.9	5.9
10–20	11.0	8.8
20–50	31.6	28.4
50–100	30.3	31.0
100–200	15.2	19.8
200 and more	4.0	6.2
Census region (%)		
Midwest	23.4	22.3
Northeast	17.7	17.1
South	37.9	38.9
West	20.9	21.6
Location type (%)		
Rural	6.5	6.2
Urban	93.5	93.8

Note: The variables include reference person attributes, such as age, gender, race, and education, along with location-specific characteristics and household-specific features like income and family size.
Source: Interview Survey, US Bureau of Labor Statistics (2023).

The model data indicate a slight increase in the proportion of individuals with a college education during the pandemic. Higher educational attainment often contributes to increased earning potential and economic stability. This trend suggests that the United States is undergoing a shift towards a more educated population. Higher education can likewise influence preferences, employment opportunities, and income levels. There were slight changes in the distribution of different racial groups during the pandemic. Diversity can impact household consumption patterns, as different cultural backgrounds may have distinct preferences and priorities.

Table 2 presents information on income and expenditures, which offers insights into the dynamics of consumer behaviour. Average annual income levels increased during the pandemic period, both before and after taxes. This suggests a positive trend in the financial wellbeing of the population. The growth in income levels may impact consumer spending patterns, as individuals potentially have more disposable income to allocate to various categories. Total expenditures exhibited a modest increase, indicating that consumers maintained their spending habits despite the challenges posed by the pandemic.

Within specific spending categories, several changes were observed. Essential categories like food, housing, transportation, and healthcare experienced moderate increases, reflecting the continued prioritisation of these necessities in consumer spending. Conversely, certain discretionary categories such as apparel and services, education, personal care products and services, and reading showed decreases in expenditures. These changes reflect the altered consumer preferences and priorities during the pandemic, with individuals scaling back on non-essential expenses. The overall positive trend in income levels and sustained consumer expenditures suggests relative stability and confidence in the economy.

Table 2 **Annual average income levels and quarterly consumer expenditures across primary spending categories, weighted to reflect the US population (2015–2022)**

	2015–2019	2020–2022	Difference (%)
Income (annual)			
Before taxes	72,600.1	76,255.4	5.0
After taxes	62,618.1	67,187.9	7.3
Expenditures (quarterly)			
Total expenditures	9,010.7	9,168.6	1.8
Food	1,320.9	1,383.5	4.7
Alcoholic beverages	80.5	76.4	-5.0
Housing	2,944.1	3,061.1	4.0
Apparel and services	161.8	104.8	-35.2
Transportation	1,537.2	1,558.9	1.4
Healthcare	726.6	745.8	2.6
Entertainment	418.0	410.2	-1.9
Personal care products and services	57.8	52.3	-9.4
Reading	11.8	10.0	-15.3
Education	192.6	129.8	-32.6
Tobacco products and smoking supplies	51.6	46.6	-9.7
Miscellaneous	82.7	91.2	10.2
Cash contributions	323.3	364.6	12.8
Personal insurance and pensions	1,102.0	1,133.6	2.9

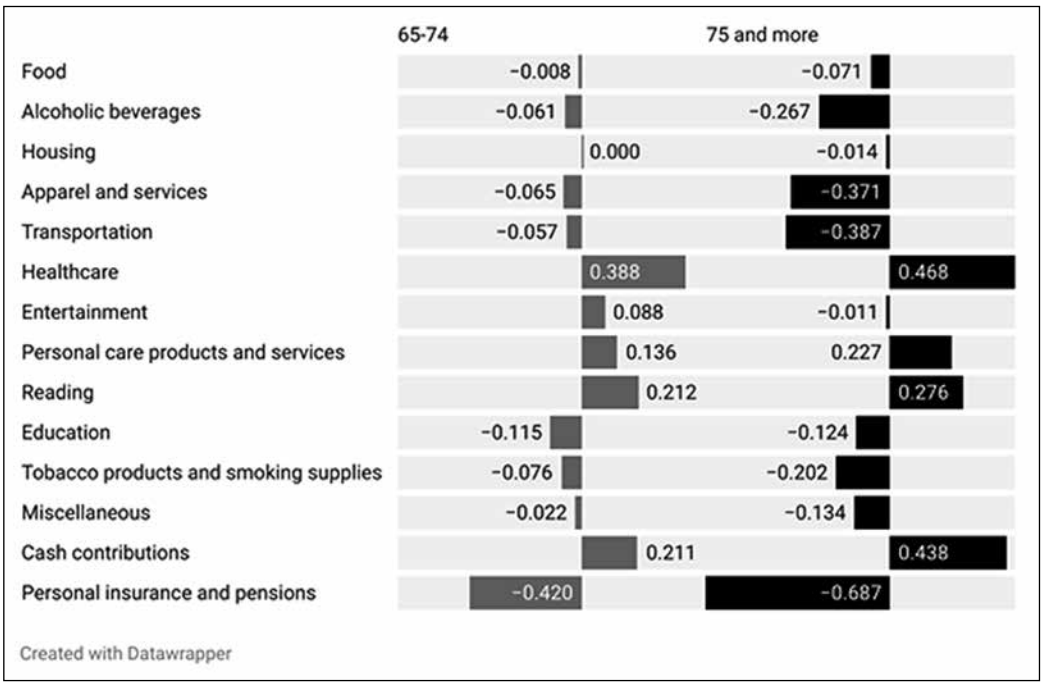
Note: Consumer expenditures are divided up into primary household expenditure categories. The third column presents the percentage difference between the pre-pandemic period (2015–2019) and the pandemic period (2020–2022).
Source: Interview Survey, US Bureau of Labor Statistics (2023).

As individuals transition from their working years to retirement, their consumption patterns undergo notable changes. The statistical analysis documented in Appendix 1 provides us with, among other findings, insights into these age groups' consumption behaviours. The closely aligned R^2 and adjusted R^2 values in regressions, given the substantial number of observations, signify a positive outcome. This suggests that the models effectively capture the variance in the data while indicating a reliable and robust fit for our analysis.

Younger seniors (aged 65–74) typically exhibit reduced expenditures in various categories, particularly in transportation (–0.057), compared to individuals in the pre-retirement phase (Figure 1). In terms of the percentage change, transitioning from pre-retirement to retirement age results in an expected decrease in the mean by approximately 5.5%, as calculated using exp(–0.057) = 0.945. Younger seniors may no longer have the same commuting needs as they did during their working years, which leads to reduced transportation expenses. Similarly, educational expenditures (–0.115) tend to decrease as individuals in this age group are less likely to pursue formal education anymore.

Elderly individuals aged 75 and over demonstrate a consumption pattern that closely resembles the one observed among those aged 65–74 but with more pronounced effects. They display reduced transportation expenditures and the decrease is substantial (–0.387). Additionally, older seniors tend to allocate a greater portion of their resources to healthcare (0.468) and to personal care expenses (0.227) compared to individuals nearing retirement. As age advances, healthcare becomes a more significant consideration. Similarly, personal care expenses rise as older individuals prioritise self-care and well-being. Furthermore, reading emerges as a category to which older seniors allocate more of their resources (0.276) compared to those approaching retirement. The need for intellectual stimulation often continues to grow with age, resulting in higher spending on reading.

Figure 1 **Regression coefficients for primary consumption categories in households with reference persons aged 65–74 and 75 and over relative to the pre-retirement category of 55–64**



Source: Interview Survey, US Bureau of Labor Statistics (2023).

The evolving consumption patterns observed as individuals transition from pre-retirement to post-retirement age groups provide insights into the intricacies of the United States' unique system, which sets it apart from other nations with comprehensive public services. Healthcare expenditures show an increase in both age groups (0.388, 0.468), underscoring the growing importance of medical services as individuals progress in age. The heightened focus on healthcare spending points at the role that health and well-being play in the lives of retirees. Additionally, we observe a surge in cash contributions in these age groups (0.211, 0.438), which include donations and personal gifts. This can be attributed to retirees potentially having more disposable income, enabling them to direct resources towards philanthropic and personal pursuits.

At the same time, the data reveal a decline in personal insurance and pension-related expenditures (–0.420, –0.687) as individuals transition into retirement. This indicates a reduced focus on financial safety nets during the later stages of life, which is potentially attributable to the accumulation of savings and investments built over their working years. This observation underscores the changing financial dynamics that occur as retirees manage their resources while navigating the complexities of the retirement system. The United States' system places a major responsibility on individuals to fund these facets of retirement, thus resulting in the disparities in expenditure behaviour. Our findings provide insights into the nuances of retirement economics in the United States, offering guidance for policymakers and researchers seeking to gain a deeper understanding of challenges encountered.

Spending patterns illustrate the changing lifestyles and priorities that accompany the ageing process. Younger seniors may still be more actively engaged in the workforce or exploring new passions and interests, resulting in different consumption patterns. However, as individuals progress into the older senior category, their focus shifts towards maintaining and enhancing their health, embracing self-care, and seeking intellectual fulfilment. Understanding these consumption patterns is crucial for various stakeholders, including policymakers and businesses. Policymakers can develop programmes and initiatives to support affordable healthcare and access to personal care services for the elderly. Meanwhile, businesses can tailor their offerings to meet the specific needs and preferences of older consumers.

The Covid-19 pandemic brought about significant changes in the consumption patterns of senior categories of consumers. During the pandemic, overall total expenditures experienced a decrease compared to the pre-pandemic period (–0.025). Also, seniors across both age groups reduced their overall spending in response to the economic uncertainties and disruptions. Specifically, the pandemic had a noticeable effect on certain expenditure categories. Apparel and services, which encompassed clothing, saw a significant decline in spending (–0.676). The restrictions and social distancing measures implemented during the pandemic led to a decrease in non-essential shopping and leisure activities. However, it is important to note that the pandemic's impact varied across different expenditure categories.

For instance, healthcare expenditures declined for all consumers (–0.083) but remained stable across age categories, suggesting that seniors maintained their healthcare-related spending. This can be attributed to the continued need for medical services and treatments despite the challenging circumstances. Additionally, the pandemic influenced the digital landscape, prompting a shift in consumption patterns. With the onset of stay-at-home measures, online shopping and digital services experienced a surge in popularity. The shift toward digital platforms has opened up new avenues for individuals of all age groups to access a range of goods, services, and entertainment (*Marston et al., 2020*). However, it is crucial to note, as highlighted by *Buffel et al.* (2023), the continued importance of maintaining non-digital channels for communication, participation, and access to services. These avenues include telephone-based interactions and the distribution of vital information in printed form in order to cater to those who may lack digital proficiency or experience digital exclusion.

The pandemic also led to reduced spending in certain areas, such as apparel and services, while it at the same time highlighted the essential nature of healthcare expenditures and the need to adopt digital platforms. The shifts underscored how priorities evolved and people adapted to the challenges brought

about by the pandemic. These findings reinforce the notion that the silver economy effect is real and robust, although it may take a slightly different form than that portrayed in popular marketing. The silver economy effect primarily applies to expenditures on well-being, healthcare, and specific products and services tailored to the needs of older adults, such as medical devices, senior-friendly housing, and specialised travel packages. As seniors transition into retirement, they often give priority to enhancing their immediate surroundings within their households to accommodate their new retirement lifestyle.

CONCLUSION

The global population is experiencing a significant and irreversible ageing process, driven by declining fertility rates and increasing life expectancy. This demographic shift has profound implications for household consumption patterns. The age and life cycle of the population play a crucial role in determining income levels and the availability of resources for consumption. As households age, their spending patterns undergo notable changes. Our research reveals that the 65 plus age group exhibits spending patterns that are distinct from other age groups. Retirees allocate a higher proportion of their expenses to health and leisure activities compared to households in the higher middle age range (55–64 years).

It is important to note that adopting a US perspective alone is insufficient for understanding global spending trends. The spending structure of households varies significantly across different economies, particularly in less developed regions. Low-income households, for instance, allocate a larger share of their expenditure to meeting basic material needs, such as housing and food, a share greater than what is observed on average among American consumers. Opportunities for businesses in the silver economy may be primarily limited to higher-income segments of the population. Policymakers and stakeholders face the challenge of improving the living standards of senior households, particularly in areas such as healthcare, senior-friendly housing, and other services that cater to the unique needs of seniors.

However, the response from policymakers thus far has been slow. The empirical analysis presented in this study provides compelling evidence that seniors continue to maintain their distinct consumption patterns and have not significantly deviated from their traditional preferences. They have not embraced the more liberal spending habits of younger generations and demonstrate a continued adherence to more conservative consumption behaviours. This challenges the notion that seniors defy ageing and try to stay forever young, as their consumption patterns suggests rather that they adopt a practical and realistic approach to ageing. The study thus highlights the need to embrace ageing gracefully and to recognise the unique needs of seniors. It also sheds light on how individuals adjust their consumption during unpredictable crises, such as the Covid-19 pandemic. The finding that seniors have higher expenditures on healthcare supports the traditional life-cycle theory and emphasises the importance of optimising well-being over the course of one's lifetime.

Instead of assuming that seniors will adopt the preferences of younger generations, businesses and policymakers should focus on developing strategies that cater to the distinct consumption patterns of seniors. Investments in healthcare technology, senior-friendly housing, and transportation services tailored to the needs of older adults are crucial for addressing the demands of the silver economy. Affordability and accessibility should be prioritised to enhance the overall well-being of seniors. Meeting the expectations of seniors for products and services that promote health and independence should be a focus for businesses and policymakers in order to tap into the growing potential of the silver economy.

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APPENDIX

Appendix 1 **Regression coefficients in log-linear models for total expenditures and primary household consumption categories within the U. S. population (2015–2022)**

	Total expenditures	1. Food	2. Alcoholic beverages	3. Housing	4. Apparel and services
Intercept	0.680 (2.355)	−5.913 (3.315)*	−3.761 (9.386)	14.670 (3.046)***	−50.817 (12.793)***
Lagged expenditure	0.729 (0.002)***	0.673 (0.002)***	0.673 (0.002)***	0.701 (0.002)***	0.366 (0.003)***
Age (Ref.: 55–64)					
Up to 24	−0.066 (0.010)***	−0.015 (0.014)	0.165 (0.039)***	−0.178 (0.013)***	0.126 (0.053)**
25–34	−0.004 (0.006)	0.007 (0.009)	0.211 (0.025)***	0.019 (0.008)**	0.259 (0.033)***
35–44	−0.005 (0.006)	0.015 (0.008)*	0.081 (0.024)***	0.015 (0.008)*	0.166 (0.032)***
45–54	−0.003 (0.006)	0.007 (0.008)	0.058 (0.022)***	−0.001 (0.007)	0.091 (0.030)***
65–74	0.000 (0.006)	−0.008 (0.008)	−0.061 (0.023)***	0.000 (0.007)	−0.065 (0.031)**
75 and more	−0.007 (0.006)	−0.071 (0.009)***	−0.267 (0.026)***	−0.014 (0.008)*	−0.371 (0.035)***
Gender (Ref.: Men)					
Women	−0.005 (0.003)*	−0.024 (0.004)***	−0.108 (0.012)***	−0.001 (0.004)	0.111 (0.016)***
Consumer unit					
People	0.015 (0.001)***	0.043 (0.002)***	−0.071 (0.005)***	0.016 (0.002)***	0.107 (0.007)***
Housing tenure (Ref.: Homeowner)					
Renter	−0.010 (0.004)***	−0.062 (0.005)***	−0.074 (0.014)***	0.061 (0.005)***	0.221 (0.019)***
Race (Ref.: Hispanic)					
White	0.015 (0.005)***	−0.008 (0.007)	0.120 (0.019)***	−0.004 (0.006)	−0.092 (0.026)***
Black	−0.014 (0.006)**	−0.051 (0.009)***	−0.096 (0.025)***	−0.017 (0.008)**	0.004 (0.034)
Other	−0.001 (0.007)	−0.011 (0.010)	−0.192 (0.027)***	−0.008 (0.009)	−0.202 (0.037)***
Education (Ref.: Elementary or less)					
High school	0.009 (0.009)	0.025 (0.012)**	0.059 (0.034)*	0.020 (0.011)*	−0.095 (0.047)**
College	0.055 (0.009)***	0.059 (0.012)***	0.204 (0.035)***	0.076 (0.011)***	0.196 (0.047)***
Income after taxes (Ref.: Up to 10)					
10–20	0.026 (0.007)***	0.031 (0.010)***	0.009 (0.029)	0.033 (0.009)***	0.007 (0.039)
20–50	0.147 (0.006)***	0.131 (0.009)***	0.201 (0.025)***	0.137 (0.008)***	0.235 (0.034)***
50–100	0.252 (0.007)***	0.200 (0.009)***	0.431 (0.026)***	0.228 (0.009)***	0.491 (0.035)***
100–200	0.368 (0.008)***	0.266 (0.010)***	0.668 (0.029)***	0.332 (0.010)***	0.847 (0.039)***
200 and more	0.494 (0.010)***	0.344 (0.013)***	0.974 (0.038)***	0.452 (0.012)***	1.318 (0.051)***
Census region (Ref.: Midwest)					
Northeast	0.016 (0.005)***	0.036 (0.006)***	0.065 (0.018)***	0.051 (0.006)***	0.161 (0.025)***
South	−0.003 (0.004)	0.040 (0.006)***	−0.110 (0.016)***	−0.005 (0.005)	−0.222 (0.021)***
West	0.029 (0.004)***	0.054 (0.006)***	0.032 (0.017)*	0.058 (0.005)***	0.043 (0.023)*
Location type (Ref.: Rural)					
Urban	0.034 (0.006)***	0.035 (0.008)***	0.108 (0.023)***	0.088 (0.008)***	0.229 (0.032)***
Time (Ref.: January–March)					
April–June	0.028 (0.004)***	−0.002 (0.006)	0.022 (0.016)	0.027 (0.005)***	0.327 (0.022)***
July–September	0.031 (0.004)***	−0.003 (0.006)	−0.028 (0.016)*	0.019 (0.005)***	0.231 (0.022)***
October–December	0.034 (0.004)***	−0.021 (0.006)***	−0.041 (0.016)**	0.007 (0.005)	0.831 (0.022)***
Year	0.001 (0.001)	0.004 (0.002)**	0.002 (0.005)	−0.006 (0.002)***	0.025 (0.006)***
Pandemic (Ref.: Pre–pandemic)	−0.025 (0.008)***	−0.019 (0.012)	−0.039 (0.034)	−0.001 (0.011)	−0.676 (0.046)***
Pandemic * Up to 24	0.012 (0.019)	0.024 (0.027)	0.114 (0.077)	0.098 (0.025)***	−0.095 (0.105)
Pandemic * 25–34	−0.010 (0.011)	0.000 (0.016)	−0.068 (0.045)	−0.009 (0.015)	−0.135 (0.062)**
Pandemic * 35–44	0.000 (0.011)	−0.010 (0.015)	0.053 (0.043)	−0.006 (0.014)	−0.127 (0.058)**
Pandemic * 45–54	0.007 (0.011)	0.005 (0.015)	−0.038 (0.042)	0.013 (0.014)	−0.136 (0.058)**
Pandemic * 65–74	0.003 (0.01)	−0.013 (0.015)	0.014 (0.041)	0.003 (0.013)	0.139 (0.056)**
Pandemic * 75 and more	0.006 (0.011)	−0.005 (0.016)	0.017 (0.045)	0.024 (0.015)	0.240 (0.062)***
Model details					
N	101,344	101,358	101,358	101,345	101,358
R^2	0.726	0.579	0.544	0.628	0.240
Adj. R^2	0.726	0.579	0.544	0.628	0.240

Continued	5.	6.	7.	8.	9.
	Transportation	**Healthcare**	**Entertainment**	**Personal care**	**Reading**
Intercept	–49.424 (7.062)***	–25.937 (8.416)***	71.821 (9.628)***	–17.933 (9.816)*	56.889 (7.595)***
Lagged expenditure	0.606 (0.002)***	0.713 (0.002)***	0.552 (0.003)***	0.534 (0.003)***	0.471 (0.003)***
Age (Ref.: 55–64)					
Up to 24	0.008 (0.029)	–0.675 (0.035)***	–0.059 (0.040)	–0.182 (0.04)***	–0.166 (0.031)***
25–34	0.050 (0.018)***	–0.286 (0.022)***	0.030 (0.025)	–0.107 (0.026)***	–0.159 (0.020)***
35–44	0.017 (0.018)	–0.236 (0.021)***	0.075 (0.024)***	–0.028 (0.025)	–0.152 (0.019)***
45–54	0.015 (0.017)	–0.106 (0.020)***	0.032 (0.023)	–0.020 (0.023)	–0.125 (0.018)***
65–74	–0.057 (0.017)***	0.388 (0.021)***	0.088 (0.023)***	0.136 (0.024)***	0.212 (0.018)***
75 and more	–0.387 (0.019)***	0.468 (0.023)***	–0.011 (0.026)	0.227 (0.027)***	0.276 (0.021)***
Gender (Ref.: Men)					
Women	–0.059 (0.009)***	0.032 (0.010)***	0.071 (0.012)***	0.056 (0.012)***	0.049 (0.009)***
Consumer unit					
People	0.060 (0.004)***	0.018 (0.004)***	0.030 (0.005)***	–0.008 (0.005)	–0.020 (0.004)***
Housing tenure (Ref.: Homeowner)					
Renter	–0.237 (0.011)***	–0.196 (0.013)***	–0.256 (0.015)***	–0.124 (0.015)***	–0.050 (0.011)***
Race (Ref.: Hispanic)					
White	–0.054 (0.014)***	0.194 (0.017)***	0.229 (0.020)***	–0.051 (0.020)**	0.179 (0.016)***
Black	–0.138 (0.019)***	0.056 (0.023)**	–0.014 (0.026)	–0.149 (0.026)***	–0.016 (0.020)
Other	–0.147 (0.021)***	0.086 (0.025)***	–0.089 (0.028)***	–0.257 (0.029)***	–0.018 (0.022)
Education (Ref.: Elementary or less)					
High school	0.188 (0.026)***	0.077 (0.031)**	0.264 (0.035)***	0.203 (0.036)***	0.018 (0.028)
College	0.299 (0.026)***	0.187 (0.031)***	0.452 (0.035)***	0.438 (0.036)***	0.206 (0.028)***
Income after taxes (Ref.: Up to 10)					
10–20	0.091 (0.022)***	0.111 (0.026)***	0.090 (0.029)***	0.006 (0.030)	–0.031 (0.023)
20–50	0.518 (0.019)***	0.318 (0.022)***	0.395 (0.026)***	0.333 (0.026)***	0.121 (0.020)***
50–100	0.655 (0.020)***	0.539 (0.024)***	0.667 (0.027)***	0.610 (0.027)***	0.229 (0.021)***
100–200	0.739 (0.022)***	0.66 (0.026)***	0.903 (0.03)***	0.964 (0.031)***	0.353 (0.023)***
200 and more	0.802 (0.028)***	0.742 (0.034)***	1.164 (0.039)***	1.274 (0.039)***	0.564 (0.030)***
Census region (Ref.: Midwest)					
Northeast	–0.049 (0.014)***	–0.098 (0.016)***	0.002 (0.019)	0.021 (0.019)	0.017 (0.015)
South	0.029 (0.012)**	–0.027 (0.014)*	–0.097 (0.016)***	–0.129 (0.016)***	–0.107 (0.013)***
West	0.049 (0.013)***	–0.109 (0.015)***	0.036 (0.017)**	0.020 (0.018)	0.082 (0.014)***
Location type (Ref.: Rural)					
Urban	–0.019 (0.017)	–0.017 (0.021)	–0.006 (0.024)	0.223 (0.024)***	–0.005 (0.019)
Time (Ref.: January–March)					
April–June	0.034 (0.012)***	–0.068 (0.014)***	0.254 (0.016)***	0.077 (0.017)***	0.011 (0.013)
July–September	0.014 (0.012)	–0.038 (0.015)***	0.218 (0.017)***	0.040 (0.017)**	0.042 (0.013)***
October–December	–0.050 (0.012)***	–0.026 (0.015)*	0.395 (0.017)***	0.025 (0.017)	0.112 (0.013)***
Year	0.025 (0.004)***	0.013 (0.004)***	–0.035 (0.005)***	0.009 (0.005)*	–0.028 (0.004)***
Pandemic (Ref.: Pre-pandemic)	–0.150 (0.025)***	–0.083 (0.030)***	–0.047 (0.034)	–0.298 (0.035)***	–0.010 (0.027)
Pandemic * Up to 24	0.022 (0.058)	0.030 (0.069)	–0.028 (0.079)	0.131 (0.081)	0.108 (0.063)*
Pandemic * 25–34	–0.025 (0.034)	–0.020 (0.041)	–0.048 (0.046)	–0.010 (0.047)	0.111 (0.037)***
Pandemic * 35–44	–0.034 (0.032)	0.025 (0.038)	–0.089 (0.044)**	–0.093 (0.045)**	0.099 (0.035)***
Pandemic * 45–54	–0.001 (0.032)	–0.044 (0.038)	–0.050 (0.043)	–0.039 (0.044)	0.048 (0.034)
Pandemic * 65–74	–0.040 (0.031)	0.013 (0.037)	0.014 (0.042)	0.015 (0.043)	0.004 (0.033)
Pandemic * 75 and more	0.003 (0.034)	0.021 (0.041)	0.068 (0.046)	–0.005 (0.047)	0.061 (0.037)*
Model details					
N	101,4	100,9	101,4	101,4	101,4
R^2	0.533	0.656	0.428	0.387	0.290
Adj. R^2	0.533	0.656	0.428	0.387	0.290

Continued	10. Education	11. Tobacco products	12. Miscellaneous	13. Cash contributions	14. Personal insurance
Intercept	45.552 (8.951)***	4.347 (6.827)	−12.932 (11.281)	44.624 (12.647)***	16.676 (6.557)**
Lagged expenditure	0.360 (0.003)***	0.776 (0.002)***	0.399 (0.003)***	0.588 (0.003)***	0.757 (0.002)***
Age (Ref.: 55–64)					
Up to 24	0.356 (0.037)***	−0.149 (0.028)***	−0.353 (0.047)***	−0.382 (0.052)***	0.268 (0.027)***
25–34	0.044 (0.023)*	−0.059 (0.018)***	−0.307 (0.030)***	−0.404 (0.033)***	0.163 (0.017)***
35–44	0.115 (0.023)***	−0.021 (0.017)	−0.162 (0.029)***	−0.214 (0.032)***	0.105 (0.017)***
45–54	0.281 (0.021)***	0.031 (0.016)*	−0.086 (0.027)***	−0.096 (0.030)***	0.085 (0.016)***
65–74	−0.115 (0.022)***	−0.076 (0.017)***	−0.022 (0.027)	0.211 (0.031)***	−0.420 (0.016)***
75 and more	−0.124 (0.024)***	−0.202 (0.019)***	−0.134 (0.031)***	0.438 (0.034)***	−0.687 (0.019)***
Gender (Ref.: Men)					
Women	0.018 (0.011)*	−0.014 (0.008)*	−0.031 (0.014)**	0.063 (0.016)***	0.015 (0.008)*
Consumer unit					
People	0.104 (0.005)***	0.021 (0.003)***	−0.011 (0.006)*	0.005 (0.006)	−0.003 (0.003)
Housing tenure (Ref.: Homeowner)					
Renter	−0.021 (0.013)	0.054 (0.010)***	−0.074 (0.017)***	−0.215 (0.019)***	0.056 (0.010)***
Race (Ref.: Hispanic)					
White	0.045 (0.018)**	0.175 (0.014)***	0.030 (0.023)	0.049 (0.026)*	−0.071 (0.013)***
Black	0.029 (0.024)	0.089 (0.018)***	0.018 (0.030)	0.112 (0.034)***	0.019 (0.018)
Other	0.072 (0.026)***	0.095 (0.020)***	−0.133 (0.033)***	−0.165 (0.037)***	−0.063 (0.019)***
Education (Ref.: Elementary or less)					
High school	−0.061 (0.033)*	0.060 (0.025)**	0.119 (0.041)***	−0.024 (0.046)	−0.088 (0.024)***
College	0.118 (0.033)***	−0.056 (0.025)**	0.268 (0.042)***	0.264 (0.047)***	−0.101 (0.024)***
Income after taxes (Ref.: Up to 10)					
10–20	0.001 (0.027)	0.021 (0.021)	−0.028 (0.034)	0.001 (0.038)	0.391 (0.020)***
20–50	−0.038 (0.024)	0.005 (0.018)	0.242 (0.030)***	0.264 (0.034)***	0.978 (0.018)***
50–100	0.024 (0.025)	−0.014 (0.019)	0.456 (0.031)***	0.501 (0.035)***	1.472 (0.020)***
100–200	0.190 (0.027)***	−0.082 (0.021)***	0.622 (0.035)***	0.692 (0.039)***	1.747 (0.022)***
200 and more	0.573 (0.035)***	−0.140 (0.027)***	0.716 (0.045)***	1.036 (0.050)***	1.950 (0.028)***
Census region (Ref.: Midwest)					
Northeast	0.003 (0.017)	−0.069 (0.013)***	−0.033 (0.022)	−0.095 (0.025)***	−0.028 (0.013)**
South	−0.030 (0.015)**	−0.034 (0.011)***	−0.255 (0.019)***	−0.059 (0.021)***	0.002 (0.011)
West	0.008 (0.016)	−0.085 (0.012)***	−0.019 (0.020)	0.012 (0.023)	−0.020 (0.012)*
Location type (Ref.: Rural)					
Urban	0.050 (0.022)**	−0.098 (0.017)***	−0.029 (0.028)	−0.074 (0.031)**	−0.002 (0.016)
Time (Ref.: January–March)					
April–June	−0.119 (0.015)***	0.019 (0.012)	−0.540 (0.019)***	0.475 (0.021)***	−0.012 (0.011)
July–September	0.388 (0.016)***	0.012 (0.012)	−0.481 (0.020)***	0.397 (0.022)***	−0.016 (0.011)
October–December	−0.161 (0.016)***	−0.005 (0.012)	−0.364 (0.020)***	0.977 (0.022)***	−0.017 (0.011)
Year	−0.023 (0.004)***	−0.002 (0.003)	0.007 (0.006)	−0.022 (0.006)***	−0.008 (0.003)**
Pandemic (Ref.: Pre-pandemic)	−0.035 (0.032)	−0.009 (0.024)	0.104 (0.040)***	−0.084 (0.045)*	−0.056 (0.023)**
Pandemic * Up to 24	−0.192 (0.074)***	0.030 (0.056)	0.004 (0.093)	−0.031 (0.104)	0.008 (0.054)
Pandemic * 25–34	−0.077 (0.043)*	0.018 (0.033)	0.126 (0.054)**	0.043 (0.061)	−0.009 (0.032)
Pandemic * 35–44	−0.167 (0.041)***	0.045 (0.031)	0.124 (0.051)**	−0.003 (0.058)	0.004 (0.030)
Pandemic * 45–54	−0.158 (0.040)***	−0.038 (0.031)	0.075 (0.051)	0.011 (0.057)	0.036 (0.029)
Pandemic * 65–74	0.056 (0.039)	0.015 (0.030)	−0.060 (0.050)	0.005 (0.056)	−0.004 (0.029)
Pandemic * 75 and more	0.104 (0.043)**	0.058 (0.033)*	−0.122 (0.054)**	0.071 (0.061)	−0.033 (0.032)
Model details					
N	101,4	101,4	101,4	101,4	101,4
R^2	0.205	0.647	0.206	0.420	0.839
Adj. R^2	0.205	0.647	0.206	0.420	0.839

Note: Standard errors are indicated in parentheses. Statistical significance is denoted as: *10%, **5%, and ***1%. The independent variables considered in the analysis encompass reference person attributes, such as age, gender, race, and education, as well as household characteristics, including income, family size, and location-specific features, alongside temporal factors.

Source: Interview Survey, U. S. Bureau of Labor Statistics (2023).

INTERNAL MIGRATION FROM AND TO MUNICIPALITIES IN SLOVAKIA WITH THE HIGHEST PROPORTION OF PEOPLE LIVING IN ROMA SETTLEMENTS

Nikoleta Slavíková[1] – Branislav Šprocha[2]

Abstract

The municipalities in Slovakia in which the majority of people live in Roma settlements are characterised by several specific features. However, only limited attention has been paid to the process of migration and especially internal migration. The main goal of this article is the analysis of internal migration in selected municipalities with the highest proportion (more than 80%) of people living in Roma settlements. We tried to identify both the total volume and intensity of internal migration from and to the analysed municipalities, along with the available structural characteristics of the persons who changed their permanent residence. The results we obtained confirmed lower migration dynamics in these municipalities. We also found that economic factors do not play a significant role in migration within Slovakia. The most important reasons for migration were housing, for younger people following a family member who migrated, and, in older age groups, health reasons, especially in the case of emigrants. Factors behind the younger age of migrants from and to these municipalities include the fact that these migrants tend to complete education and begin some family transitions (childbearing, marriage) earlier than the majority population. Higher chances of migration were confirmed for more educated persons and, except among younger people, for people who not married. The results also confirmed the relatively narrow geographical area in which migration occurs, with most moves taking place over a short distance.

Keywords: internal migration, municipalities with Roma settlements, reasons, family status, educational attainment, Slovakia

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INTRODUCTION

Those municipalities in Slovakia in which a significant proportion of the population live in marginalised Roma settlements are characterised by several specific features of reproductive behaviour and certain demographic characteristics. Persistent high fertility, early childbearing (*Šprocha,* 2014), high mortality rates (*Šprocha*, 2008; 2009), poor health status (*Filadelfiová et al.,* 2006; *Popper et al.*, 2009; *Šaško*, 2002), and a higher abortion rate (*Šprocha – Potančoková,* 2008) are observed in these municipalities, along with a significantly lower level of education, a younger age structure, and a specific composition of the population by economic activity (*Šprocha – Ďurček,* 2017).

The people who live in marginalised Roma settlements are a very specific population group that experiences several kinds of marginalisation (*Radičová*, 2001; 2002) and social exclusion (*Džambazovič – Jurásková*, 2002; *Mareš*, 2002, 2004). They often live in geographically marginalised regions, in settlements that are spatially separated or even remote from the non-Roma (or Roma middle-class) population (*Rusnáková – Rochovská*, 2014). Another important feature is their marginalisation in terms of poverty (insufficient income and a low status in the official labour market, more *Loran*, 2002; *Radičová*, 2001), health care access (*Popper et al*., 2009; Šaško, 2002), education (*Kriglerová*, 2002), and housing quality (*Mušinka*, 2002), as well as their symbolic exclusion (*Moravec*, 2006). In addition, many Roma settlements also tend to have a poor-quality natural environment (*Filčák*, 2012; *Filčák – Steger*, 2014) and insufficient or missing infrastructure (*Filčák – Škobla,* 2021; *Škobla – Filčák*, 2016). Moreover, these spaces are often perceived as no-go areas (*Bauman*, 1995; *Klimovský et al*., 2016). Therefore, a legitimate question to ask is to what extent the people who live in these municipalities try to escape from this marginalisation in multiple forms by physically leaving this environment. Little attention, however, has been paid to the issue of migration from and to the municipalities in Slovakia in which the majority of people live in Roma settlements. In addition, most such analyses have focused on international migration (*Jurásková*, 2002; *Vašečka*, 2001, 2002), especially in connection with asylum migration or migration flows in an earlier period (*Petrus*, 2002; *Vašečka*, 2000). However, the issue of internal migration has not received any attention in the recent period. We believe that the internal migration of people from such municipalities is a socially and scientifically significant topic of research given its importance and given the little data and information there is on this issue. Information on the migratory behaviour and reasons for migration of people who either move into this environment or leave is important and can be used to formulate evidence-based local policy. The lack of relevant and up-to-date information is one of the main reasons for writing this article.

The main aim of this paper is to analyse internal migration in selected municipalities that have the highest shares of people living in Roma communities. We try to identify both the total volume and intensity of internal migration from and to the analysed municipalities and the characteristics of the people from these municipalities who change their permanent residence. Another important question is *who* moves to and from the selected municipalities, whether there are any differences in terms of age, gender, family status, and education between those who tend to choose the strategy of leaving this environment. Equally important, we will also try to compare the intensity of migration in this population with the migration intensity in the population of Slovakia as a whole.

THEORETICAL BACKGROUND AND MAIN RESEARCH HYPOTHESES

Socioeconomic theories explaining the process of internal migration (e.g. *Keenan – Walker*, 2011, *Jia et al*., 2023) primarily cite the factors of the uneven regional distribution of work, employment, unemployment, and wages. According to the original theory of internal migration, the goal of migrants is to maximise their profit through migration. This means that by moving, a migrant's earnings should be higher in their destination than in their original place of residence. Although the original theory partly pointed to the psychological, non-monetary aspects of 'price of migration' (e.g. in the form of leaving the family, reducing the frequency of contact with family members and other acquaintances), the 'new economics of labour migration' argues that the decision to leave one's place of residence is not

just a matter for the individual, it is also a decision for the entire household (or family), and therefore the maximisation of profit from migration affects the family and household itself. As *De Haas* (2010) notes, families and households must deal with not just income maximisation but also the spread of risk. Some recent studies from developed countries (e.g. *Clark – Mass*, 2015; *Morrison – Clark*, 2011) point to the fact that economic factors are less important in decision-making than factors related to family events, health, or housing. This has an influence on the theoretical framework of migration, which foregrounds the relationship of migration and the realisation of certain life-course transitions. Migration is an age-specific process, and the motives for it can follow important life-course transitions (such as childbirth, study, the search for or a change of job, marriage, divorce, retirement, etc.). However, the situation is not so simple. As some research has shown (*Biagi et al*., 2011; *Halás – Klapka*, 2021), the economic motives for migration prevail mainly in the case of longer-distance migration. Non-economic reasons associated with life-course transitions are more often identified when people migrate shorter distances. Migrants who move a longer distance to a more economically developed region may benefit economically from this change, but they they experience the loss of (especially emotional) support from family and local kinship networks.

Education, social status, and ethnicity are among the important differentiating factors affecting the migration preferences of individuals (*Novotný – Pregi*, 2016). Some studies (e.g. *de Haan – Yaqub*, 2009; *McKenzie*, 2017) suggest that people with low education and low social status who come from poor regions are less likely to migrate. *McKenzie et al.* (2002) point to the persistence of an inverse-U-shaped pattern between income levels and emigration rates (sometimes called a migration hump). Among the reasons cited for this situation are the fact that poorer, less educated people cannot afford this strategy. Migration is costly and these people face liquidity constraints that make it hard to meet these costs (*McKenzie et al*., 2002). Their lower human capital means that the expected rewards from migration are also lower, and they are often at an even greater risk of poverty (*de Haan – Yaqub*, 2009). As shown by *Docquier et al.* (2014), less educated and poorer people are not only less likely to want to emigrate than more educated and richer people, but they are also far less able to realise such an aspiration. However, the existence of migration networks can be an important factor in this direction. Moving to a place where family relatives, neighbours from the village, or other acquaintances already live can make this decision easier (*McKenzie et al*., 2017).

Some studies from Slovakia (e.g. *Pregi – Novotný*, 2019; *Novotný – Pregi*, 2016; *Šprocha*, 2011) have arrived at somewhat similar conclusions. Among people with low education the intensity of permanent residence changes tends to be much lower, and they mostly move only a short distance (from one municipality to another within the same district), and, conversely, migration over a longer distance is least common among these people (*Šprocha*, 2011).

As already indicated in the introduction, there is little research that primarily focuses on Roma migration from Slovakia, and what there is deals with Slovakia rather as part of a group of countries, such as CEE countries (*Cherkezova – Tomova*, 2013; *Vidra*, 2013). So what does Roma migration look like in CEE countries? *Cherkezova and Tomova* (2013) found in their research that Roma migrants are typically between 25 and 39 years old (32%), tend not to have completed formal education (38%), are married or cohabiting, and migrate with or after their family (47%) or for the purpose of work and a better life (44%). The most interesting thing was that most Roma migrants (61%) were found to be women, but this was probably due to the given sample of respondents. Men are usually the first ones to go abroad to work, with women eventually following them, while women stay behind to take care of the household and eventually follow later on (*Cherkezova – Tomova*, 2013). The reasons for female migration are thus different from male and are more family-oriented. However, these findings are for CEE countries and not only Slovakia, where the situation may be different. There are several reasons for the migration of the Roma minority cited in contemporary studies. Unemployment as a push factor is presented as one of the factors that motivate Roma migration (*Vašečka – Vašečka*, 2003; *Matlovič*, 2005). Employment is portrayed as a pull factor that motivates migration abroad (*Cherkezova –*

Tomova, 2013; *Vidra*, 2013). As a factor in migration, discrimination is described as either a pull factor (*Cherkezova – Tomova*, 2013; *Vidra*, 2013) or a push factor (*Grill*, 2012; *Grill*, 2018).

In the case of Roma labour migration from Slovakia to the Czech Republic, *Uherek* (2007) identified the existence of chain migration, where kinship networks were used as a support point for short- or medium-term labour migration without the persons having to change their permanent residence. This strategy, when one or more members temporarily leave their place of residence for work, was and still is in some cases an effective life strategy practised in Slovakia (*Uherek*, 2007). The temporary aspect of this migration has also been confirmed by some research (*Kompaníková – Šebesta*, 2002a) on the life strategies of Roma when they are looking for work within Slovakia. However, as *Kompaníková and Šebesta* (2002b) add, this is mainly a strategy used by Roma from integrated Roma settlements. In the case of segregated Roma settlements, significantly less willingness to commute to work and to look for work outside the municipality of residence was found. The likelihood of people in segregated Roma settlements leaving for work in regions with more favourable economic conditions was in many cases very low (*Kompaníková – Šebesta*, 2002b).

One of the important reasons why the Roma, especially in the 1990s and the beginning of the 21st century, could not find employment in the economically more advanced regions of Slovakia and thus migrated abroad (mostly only temporarily) may be the fact that the Slovak labour market was at that time unable to absorb so many workers from the lowest educational and qualification categories (*Ham et al.*, 1998). Several papers (*Vašečka*, 2000; 2002) have also shown that those who went to live abroad for a long time tended to be from the Roma middle class. As *Kompaníková and Šebesta* (2002, p. 608) demonstrate in this regard, Roma from segregated Roma settlements are not potential migrants. The people who live in these places are not interested in leaving the safety provided by the settlement. At the same time, the people who live in Roma settlements are so socially dependent on each other that they are unable to leave that environment, which is the only one that is clear and understandable for them and thus provides them with the best refuge from the outside world.

As *Vašečka* (2003) adds in this regard, the collective migration strategies of the Roma vary from one location to the next, and thus each locality deals with the possibility of migrating in a different way. According to *Uherek* (2007), local strategies act in combination with family strategies and represent specific responses to economic, family, and other situations. In addition, within one locality (settlement), mutually distinct migration patterns are created, since individual kinship groups do not have to consciously cooperate with each other or are significantly different from each other (*Budilová – Jakoubek*, 2007).

An important part of the internal migration of Roma in Slovakia in the 1990s and at the beginning of the 21st century was 'return migration' to Roma settlements (*Matlovič*, 2005). Misunderstanding, ethnicisation, discrimination, and the indifference of the majority society together with the effects of the transformation-era changes caused the Roma to voluntarily return to the settlements they left or were evicted from under the communist regime. In addition, there were also reports that some local governments tried to get rid of their Roma. Moreover, *Matlovič* (2005) has identified a tendency for Roma to leave areas with higher living costs. An example is the migration of Roma people from north-eastern Slovakia to southern districts (e.g. Rimavská Sobota, Lučenec, Veľký Krtíš). This kind of movement of the population was usually in the direction of marginalised regions, to segregated Roma settlements, and only contributed to further deepening the social exclusion of the Roma ethnic group in Slovakia.

Based on the theoretical frameworks described above, the Roma's problematic socioeconomic status, the multiple forms of marginalisation they experience, and the existence of relatively close ties to family and place of residence, we can formulate the following hypotheses about the selected municipalities with the highest share of people living in Roma settlements:

Hypothesis 1: The intensity of migration from and to municipalities with the highest share of people living in Roma settlements will be low.

Hypothesis 2: Economic motives will figure minimally among the factors of migration, while certain life-course transitions will be the key causes of migration.

Hypothesis 3: Close family ties and the prevalence of family reasons for migration will be key factors for short-distance migration.

THE SAMPLE OF MUNICIPALITIES, AND THE SOURCES AND LIMITATIONS OF THE DATA

In line with the main objective of this paper, the selection of analysed municipalities in Slovakia was based on qualified estimates of the number and share of persons in the given municipality who were living in Roma settlements. These estimates represent part of the published results from three specific sociographic mappings known as the Atlas of Roma Communities (ARC) that were carried out in Slovakia in the last two decades (in the years 2003–2004, 2013, and 2019). Their goal was to identify all the Roma settlements there are in municipalities in Slovakia and, above all, their socioeconomic situation and existing infrastructure. Since the number of municipalities in Slovakia in which 100% (or close to that amount) of the population live in Roma settlements is small and the statistical sample of events analysed events does not reach the required robustness, it was necessary to expand the sample of municipalities. When determining the selection criteria, it was also necessary to reflect on the method used to report the share of people in Roma settlements in the last ARC (2019). It was based on interval distribution. Therefore, in our analysis, we worked with all the municipalities in which the people living in Roma settlements made up 80% or more of the entire population.

Based on this set of criteria, a total of 27 municipalities were selected. These municipalities are mainly located in the eastern part of Slovakia (Prešovský and Košice regions) and to some extent also in the southern part of central Slovakia (Banskobystrický region). According to the last Population and Housing Census in 2021, almost 38,000 people were living in these municipalities. The period analysed comprised the years 2000–2021, which also corresponds to the period in which the aforementioned sociographic mapping was carried out.

We drew our data on persons moving to and from the municipalities in our sample in Slovakia from a comprehensive survey that is carried out annually by the Statistical Office of the Slovak Republic (SO SR). In the case of internal migration, this investigation is based on Obyv 5-12 reports ('Migration Reports'), which are completed when a person changes their permanent residence within the territory of Slovakia. This is the first limitation of the data and the conclusions, as these reports only cover spatial movement from and to the municipalities with the highest share of people living in Roma settlements when a change of permanent residence occurred, and that change was also administratively recorded. The second limitation is that, because of the above-mentioned problems, it is not possible to work only with municipalities whose entire population consists of persons living in Roma settlements. Therefore, the obtained results cannot be completely generalised to just the population living in Roma settlements, and some events (albeit probably a disproportionately smaller number) will actually involve the migration of persons not living in a Roma settlement.

THE INTERNAL MIGRATION OF PERSONS IN THE ANALYSED MUNICIPALITIES WITH ROMA SETTLEMENTS

In the above-mentioned theoretical context and in some of the information about the migration of Roma population in Slovakia, we can assume that the intensity of migration from and to the municipalities with the highest share of people living in Roma settlements is lower than the national average of internal migration in the long term. A total of just over 6,700 people were identified as having physically departed from these municipalities in the form of leaving their permanent residence[3)] in 2000–2021.

3) It is only possible with the available data to analyse that part of migration involves a change of permanent residence. We can assume that the empirical data cover only some migrations. The results of our analysis cannot therefore reflect events in which there was no change of permanent residence.

In relative terms, this figure represented approximately 10 persons per 1,000 inhabitants. In the same period, the average for Slovakia overall was more than 16 changes of permanent residence per 1,000 inhabitants. The number of people who migrated to the analysed municipalities in 2000–2021 was approximately 7,000. The crude rate of net migration was only slightly more than 0.5 ‰.

The municipalities we analysed had slightly positive net migration only in the first decade of the 21st century. There has been a decline in the last decade, and in recent years we have even identified a slight population decline through migration. Likewise, the intensity of migration is decreasing. This contrasts with what is happening at the national level. In Slovakia we can identify a growing trend in the level of internal migration, which increased from approximately 14 to more than 18 persons per 1,000 inhabitants.

The lower rate of emigration of men and women from the selected municipalities with the highest proportion of population living in Roma settlements is also confirmed by the age-specific rates of emigration (Fig. 1). In almost all age groups, the rate of emigration from the analysed municipalities was significantly lower than in Slovakia (total population). The only exception was the age of 15–19 years for women and the oldest age groups (70 and over).

When women migrate at a younger age, we assume the main factor is marriage (see below), while the higher intensity of women's migration at a senior age is associated primarily with migration for health reasons.[4] The markedly different timing of family transitions and the earlier age at which people tend to end their educational career (*Šprocha – Ďurček*, 2017) observed in the municipalities with Roma settlements also significantly affects the distribution of migration rates.

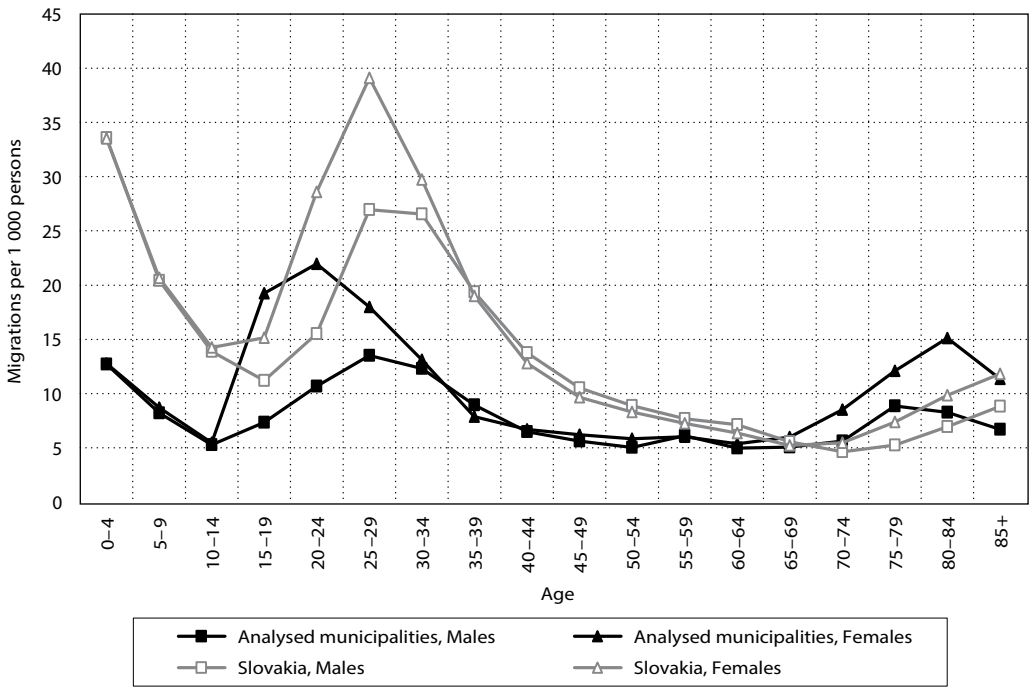
However, the age distribution of migration in these municipalities does not differ much from what we can see in the total population of Slovakia. In the youngest age groups, emigration rates are slightly higher due to the migration of entire families in the first years after childbirth. Migration rates then decrease and reach a minimum level at the age of 10–14 years. In the total population of Slovakia, however, this decline continues for males until the age of 15–19. These low rates have to do with the education process and with people proceeding to complete their educational career, as the drop-out rate in the total Slovak population is generally low. Because the Roma tend to leave education earlier, however, we can already identify the beginning of the increase in emigration rates at the age of 15–19. It mainly concerns women. This is probably because Roma women not only marry earlier and become mothers at a younger age, but also because of the common habit of them moving into the husband's household after marriage. The emigration rate for women living in the analysed municipalities peaks at the age of 20–24 and then declines relatively quickly. A similar situation exists in the total population of Slovakia, but the peak is at the age of 25–29 and the intensity of migration is approximately twice as high.

Among males living in the selected municipalities, the intensity of emigration also rises from the age of 15, but with much lower dynamics. The peak occurs at the age of 25–29 years, followed by a decline and then stabilisation at a low level. In this way, it differs little from what we see in the total population of Slovakia. It is at the ages associated with the highest emigration rates that we also find the biggest differences between the population of the municipalities with Roma settlements and the total population of Slovakia. At the youngest ages (0–10 years), emigration rates from the analysed municipalities are 2.5 times lower than in the total population, and in the age group of 25–44 years, emigration rates are less than half that see in the total population.

As already mentioned, a different situation is observed among women over the age of 65. Higher rates of migration of women from the municipalities with Roma settlements may be associated with the overall worse health status of this population (*Popper et al*., 2009; *Šaško,* 2002). This partly indicates a higher share of events caused by the health condition

4) This is migration due to the deterioration of a person's state of health and the need to seek care from a family relative or acquaintance, or as a result of the need to travel a shorter distance for a professional medical examination or care, or because of problematic housing conditions in the original residence that are no longer suitable given the person's state of health, etc.

Figure 1 **Age-specific emigration rates from the analysed municipalities and in Slovakia, 2000–2021**



Source: SO SR, authors' calculation.

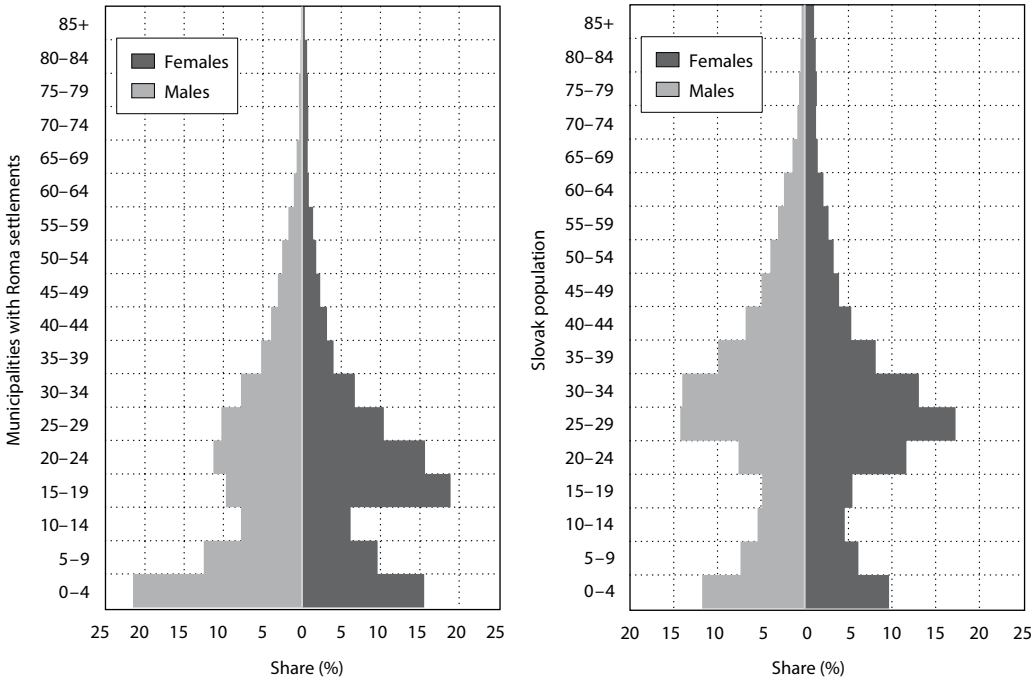
of migrants. It is also necessary to draw attention to possible problems with the size of the population sample in this age spectrum and the above-mentioned limitation of the obtained results.

The different age structure of the population in Roma settlements (see e.g. *Mládek – Pukačová*, 2012; *Šprocha*, 2014) and the different timing of some life transitions on the path to adulthood, combined with age-specific migration rates, significantly affected the age composition of people migrating to and from the analysed municipalities. As is clear from a comparison of Figures 2 and 3, children aged 0–4 and to some extent also those aged 5–9 are over-represented among immigrants. Together, these two age groups accounted for more than one-third of the males and about one-quarter of the females among migrants from and to analysed municipalities in 2000–2021. For comparison, in Slovakia, these age-groups made up less than one-fifth of the total number of migrants in the same period.

The second significant difference was the effect of the migration of women aged 15–19 and 20–24. Almost 35% of all the changes of permanent residence among women in the municipalities we analysed were concentrated in these age groups. Conversely, the effect of men aged 20–34 on migration is significantly smaller. While in the total Slovak population, this age group accounts for 40% of migrants changing their permanent residence, in the analysed municipalities it was about 10 percentage points less. Despite the higher rates of emigration at an older age in selected municipalities, these older people only account for approximately half of the total number of migrants compared to the situation in the total population of Slovakia.

The overall significantly younger age profile of people migrating into the analysed municipalities with Roma settlements is also indicated by the average age. While in the case of the total population of Slovakia in the years 2000–2021 the average age of migrating men was under 30 years and for women it was almost 31 years, in the municipalities with Roma settlements it was approximately 21 years for men and 22.5 years for women.

Figure 2 and 3 **Age structure of persons changing permanent residence in the analysed municipalities and in Slovakia, 2000–2021**



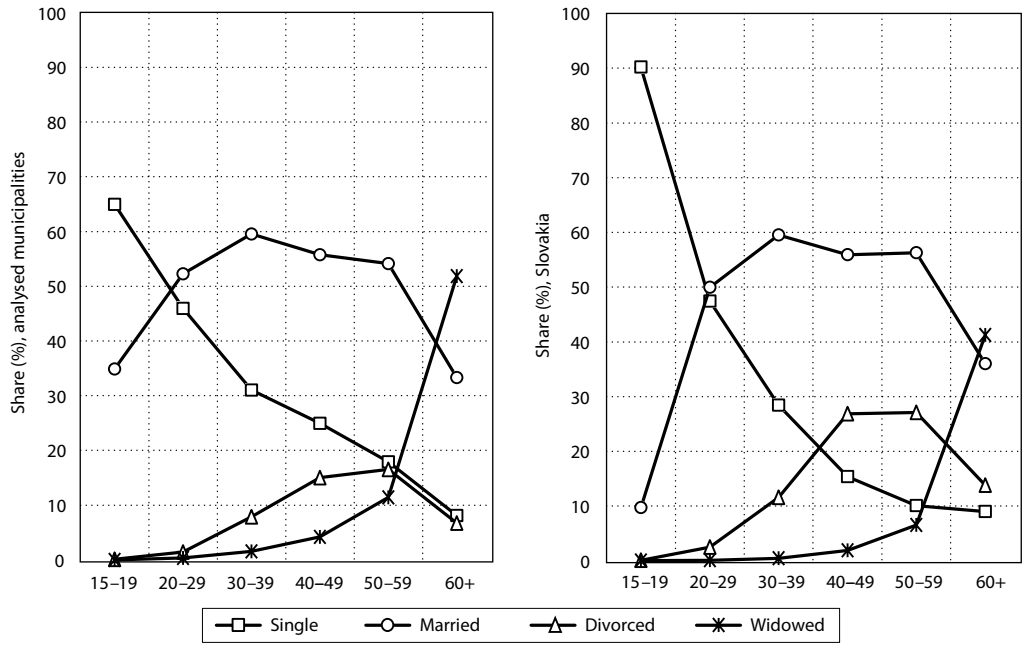
Source: SO SR, authors' calculation.

Children are more passive actors in the migration process as they are following other family members. Therefore, in the next part of our differential analysis, we will deal only with persons aged 15 and over. The choice of this age limit is related both to the identified increase in emigration rates at the age of 15–19 and to the analysed structural characteristics. The first such characteristic is marital status.

A younger age structure, more frequent cohabitation, and a lower proportion of divorced persons (*Šprocha – Ďurček*, 2017) represent the basic characteristics of the marital structure of migrants in the observed municipalities. There is a slight preponderance of married people among migrants (49%), but the share of single men and women is only slightly lower (41%). The rest of the migrants are almost equally divided between divorced and widowed persons. In comparison with the total population of Slovakia, it is true that in the years 2000–2021, there was significantly more migration to and from the analysed municipalities by single persons than by divorced persons. More detailed differences in the shares of persons changing their permanent residence according to marital status and age are provided in Figure 4 and 5.

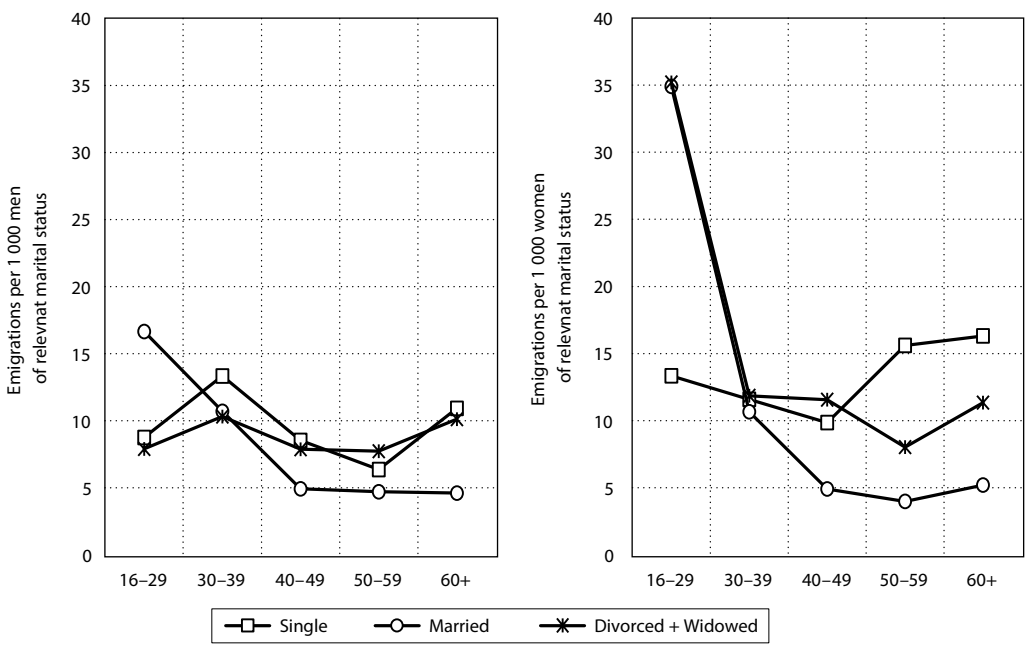
The intensity of emigration from the selected municipalities with Roma settlements, especially among women, is relatively closely related to age and marital status. In the youngest age groups, the highest rate of emigration is achieved by married and ever married women (divorced and widowed). Conversely, with increasing age, the intensity of emigration of married women decreases significantly and increases slightly among single women. We can also see a similar picture for men, but the influence of marital status and age on the rate of emigration is not so significant here. Research by *Cherkezova and Tomova* (2013) points to a migrant profile where a woman who migrates is either cohabiting or married, the explanation for which is that women are more family oriented.

Figure 4 and 5 **The structure of persons changing permanent residence in the analysed municipalities and in Slovakia by age and marital status, 2000–2021**



Source: SO SR, authors' calculation.

Figure 6 and 7 **Age-specific emigration rates from the analysed municipalities by family status, 2000–2021**



Source: SO SR, authors' calculation.

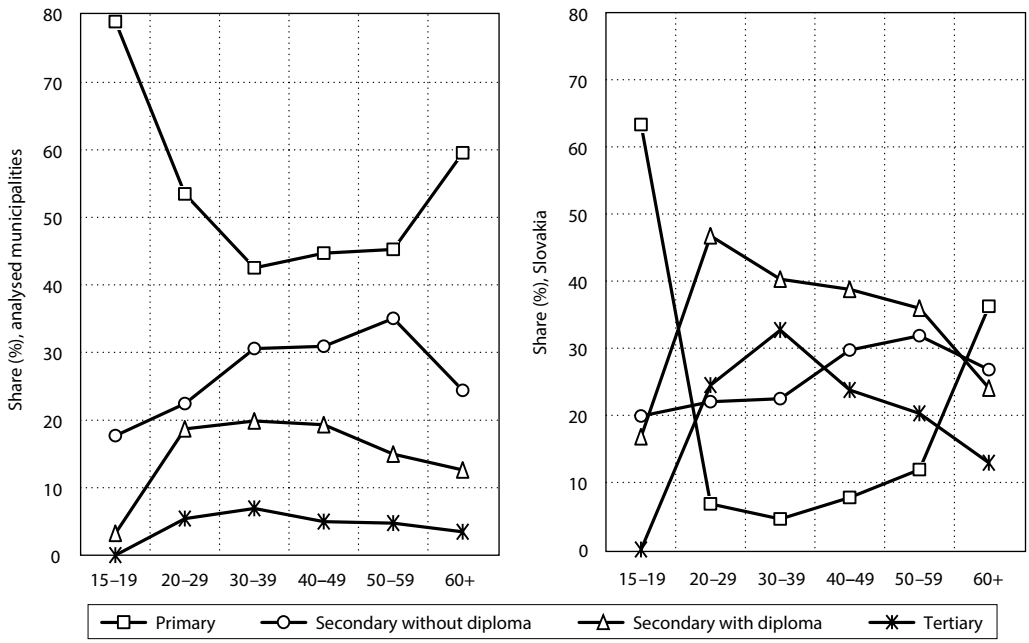
The early termination of the educational path and the related specific educational structure of persons from Roma settlements (*Šprocha – Ďurček*, 2017) also influence the composition of the men and women who change their permanent residence. As Figure 8 shows, in Roma settlements persons with primary education predominate in all age groups. In Slovakia, persons with secondary education with a diploma make up the highest share. In Roma settlements, persons with tertiary education or secondary education with a diploma make up a small share of those who change their permanent residence. This finding is confirmed in research by *Cherkezova and Tomova* (2013), where the profile of a Roma migrant is someone who has not completed their formal education. However, the proportion of people with secondary education without a diploma also increases towards older ages.

Education is also an important differentiating factor in terms of the chances of emigrating from the analysed municipalities. Figures 10 and 11 confirm that the lowest rates of emigration for both men and women are achieved by persons with primary education. At a younger age, and especially for women, their chances of leaving analysed municipalities are 2- to 3-times higher if they have attained a higher than primary level of education.

Some idea of the reasons for immigration into the analysed municipalities is provided by Figures 12 and 13. Among both male and female children up to 15 years of age, following a family member can be clearly identified as the predominant reason. At the age of 15–29, the highest share of women migrates for the reason of marriage, while for men the main reason is housing and a group of other unspecified reasons. Among young adults, the influence of housing grows significantly for both sexes, which becomes the dominant factor in immigration at the age of over 30. The second most important group was the unspecified group of other causes of migration.

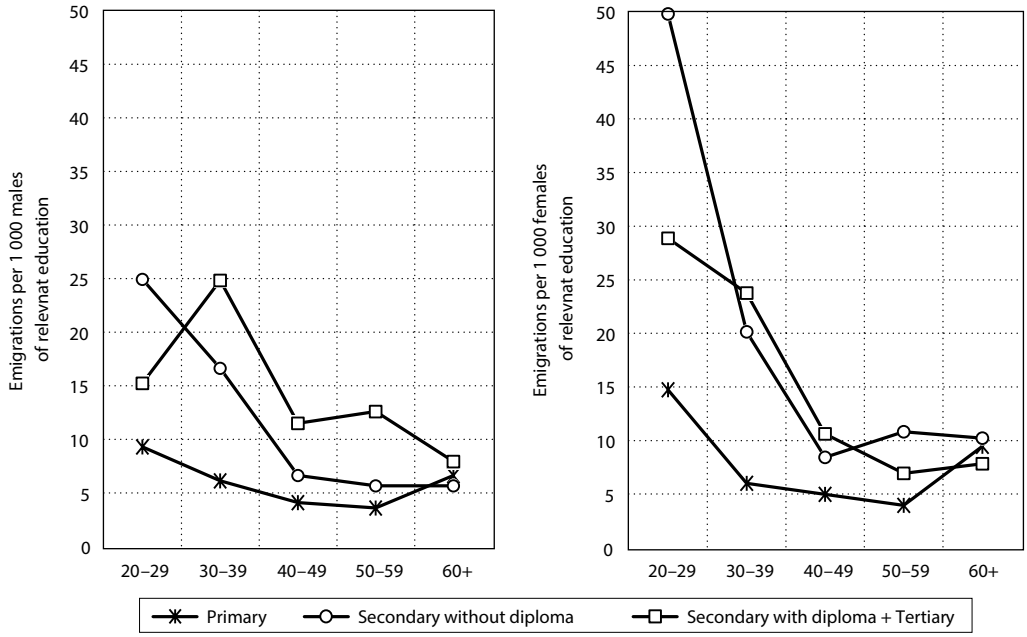
Economic reasons (change of workplace, moving closer to the workplace) and some other specific reasons for migration (divorce, study) were not a significant factor in any of the age groups. These are essentially marginal causes for both emigration from

Figure 8 and 9 **The structure of persons changing permanent residence in the analysed municipalities and in Slovakia by age and educational attainment, 2000–2021**



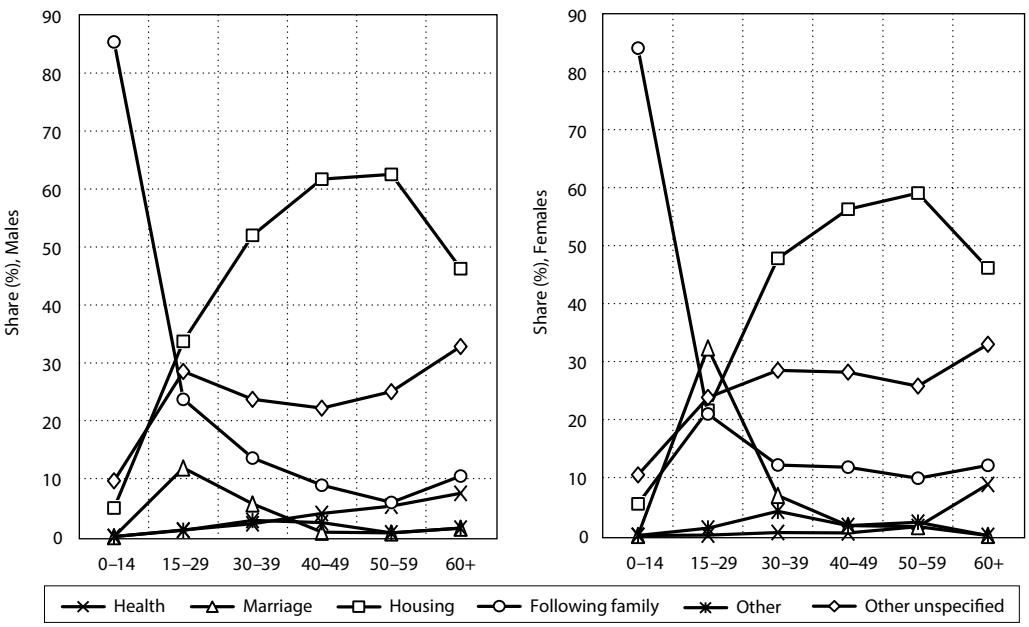
Source: SO SR, authors' calculation.

Figure 10 and 11 **Age-specific emigration rates from the analysed municipalities by educational attainment, 2000–2021**



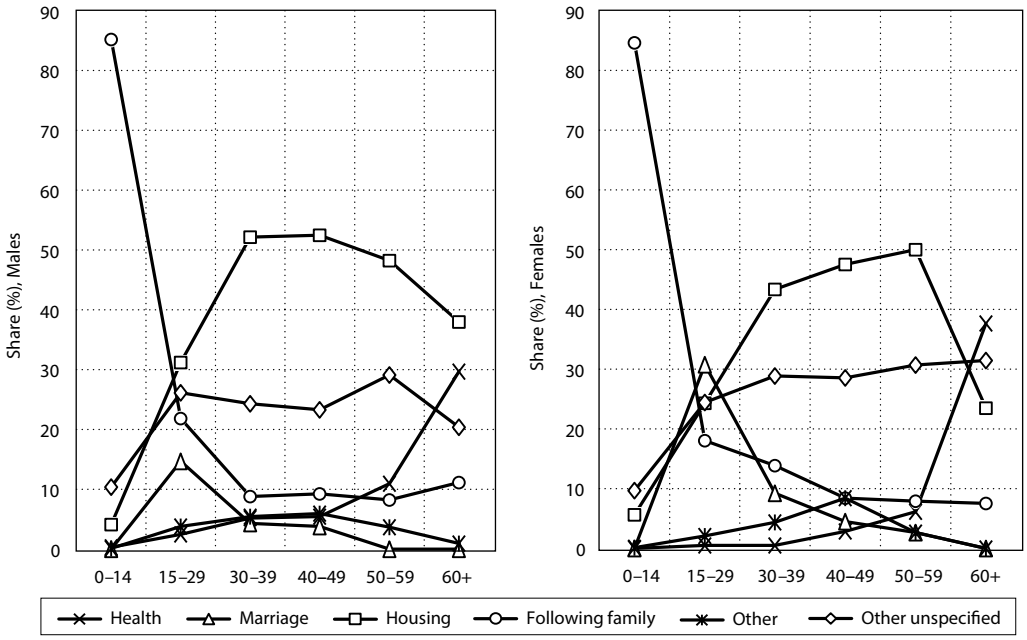
Source: SO SR, authors' calculation.

Figure 12 and 13 **The structure of reasons for immigration to the analysed municipalities, 2000–2021**



Source: SO SR, authors' calculation.

Figure 14 and 15 **The structure of reasons for emigration from the analysed municipalities, 2000–2021**



Source: SO SR, authors' calculation.

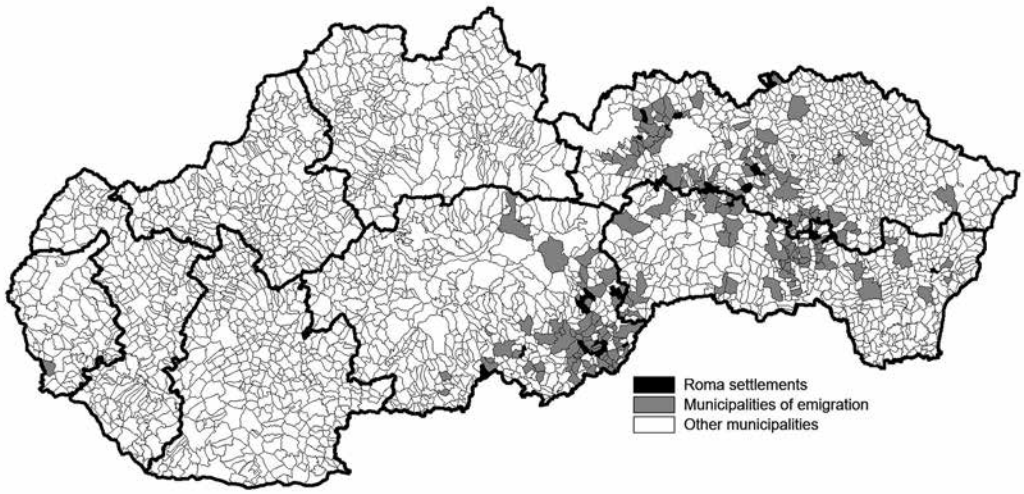
and immigration to the analysed municipalities. We therefore combined these categories of reasons into one category called 'other reasons'.

We can identify a similar picture when analysing the reasons for emigration from the analysed municipalities. At a young age, following a family member is the dominant reason. With increasing age, the influence of housing and the category of other unspecified causes increases. Marriage is also an important factor for emigration from the analysed municipalities among women at the beginning of reproductive age. In the oldest age group, the influence of health reasons increased for men and especially for women.

To conclude our analysis, we will look at types of migration and the direction of the main migration flows. In terms of types of migration, migration between municipalities within the district prevails. This accounted for more than half of all changes of permanent residence. In the period 2000–2021, by contrast, only about one-fifth of events occurred outside the region (NUTS3) of permanent residence. For comparison, in Slovakia, approximately 45% of all migrations took place between municipalities in the same district, while inter-regional migrations accounted for almost one-quarter of all changes of permanent residence. The stated finding indirectly indicates that the migration of persons from analysed municipalities takes place in a smaller geographical area and therefore migrations over a longer distance occur to a lesser extent.

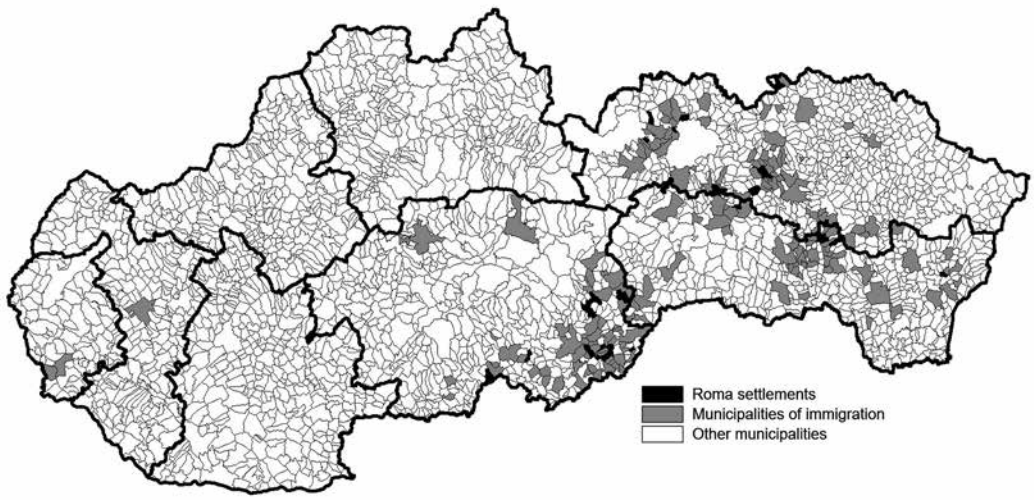
Figures 16 and 17 also confirm the small geographic area within which the internal migration of people from the analysed municipalities occurs. It is obvious that, with rare exceptions represented only by large economic centres (e.g. Banská Bystrica, Trnava, Bratislava), the centres of immigration and emigration are located in close proximity to the analysed municipalities.

Figure 16 **The most important source municipalities of immigrants migrating to the analysed municipalities**



Note: Only municipalities with 10 or more immigrants are presented
Source: SO SR, authors' calculation.

Figure 17 **The most important receiving municipalities for emigrants from the analysed municipalities, 2000–2021**



Note: Only municipalities with 10 or more immigrants are presented
Source: SO SR, authors' calculation.

CONCLUSION

The main aim of this paper was to analyse internal migration in selected municipalities in Slovakia that have the highest share of people living in Roma communities. The results of the analysis essentially confirmed all three hypotheses we formulated. Over the long term we find that migration to and from the analysed municipalities is lower than the average internal migration in Slovakia. While migration in these specific municipalities is gradually decreasing,

internal migration in Slovakia it is gradually growing. We hypothesised that since migration would do little to change the socioeconomic situation of persons living in these municipalities, there would be little potential for migration for economic reasons. Therefore, the potential for migration for economic reasons is also low. This was partially confirmed by an analysis of the reasons for internal migration mentioned in the Migration Reports (Obyv 5-12). Reasons relating to certain family transitions (marriage) and especially to housing conditions were found to be key factors for the migration of people from and to the analysed municipalities. Among older people, health reasons become a more predominant factor for emigrants.

Because migration is an age-related event, in a deeper analysis we focused on the combination of age and sex. The results confirmed that the intensity of women's migration to and from the analysed municipalities was lower than the Slovakia average. The only exception was in the age group of 15–19 years, because of the earlier marriage starts among people in the analysed municipalities, and in the age group of 70 and over, where the higher intensity of migration in the analysed municipalities was mainly due to health reasons. The intensity of migration of men to and from the analysed municipalities is even lower. This migration peaked at the age of 25–29, while in the case of women it had already peaked at the age of 20–24. The lower intensity of men's migration may be related to how weak a role economic reasons play in men's internal migration and how it is more frequently motivated by the reasons of housing, following a family member, and marriage. Given the existing significant gender differences and family customs, it is quite common for a woman to follow her husband/partner.

The results also confirmed certain differences in the age structure of people moving from and to the analysed municipalities compared to internal migration in the total population of Slovakia. Overall, the age structure of migrants from and to the analysed municipalities was found to be generally younger because of the earlier start of family transitions in this population and the related migrations after marriage, the birth of a child, etc. The younger age structure is also partly related to the more frequent change of permanent residence among unmarried persons, while divorced persons played a rather marginalised role in migration from and to the analysed municipalities (compared to the Slovak average). With age, the situation gradually reverses, and the highest intensity of migration is observed among unmarried persons. The results of our analysis also revealed differences in the intensity of migration from and to the analysed municipalities according to the level of education. The lowest emigration rates for both men and women are among persons with primary education. With increasing education, the chances of emigrating from the analysed municipalities also increase. Since we are not working with municipalities in which the population consists only of persons living in Roma settlements, we must point out that some of our findings may be partially distorted or affected by the migration (and especially emigration) of non-Roma persons. From the available data, it is not clear what part of this emigration could be attributed to the phenomenon of white flight.

Our analysis also confirmed that the internal migration of people from the selected municipalities tends to occur within a small geographic area. The source and destination municipalities are located within close proximity to each other. We can assume that this migration within a small area is partly related to the existence of family and kinship ties between the persons living in Roma settlements, is prevailingly for family and housing reasons, and is only minimally prompted by the economic factors for internal migration. On the other hand, the available data, based registered changes of place of residence, cannot reveal all the possible forms of spatial movement that can also take place over a longer distance. We can assume that a significant portion of these moves will also take place for economic reasons, but this migration is probably only temporary and involves certain groups (e.g. the Roma middle class). However, its analysis is still beyond our empirical scope and requires a different method of specialised (especially qualitative) research.

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RECENT CHANGES IN MARRIAGE FORMATION AND DISSOLUTION BEHAVIOUR IN CZECHIA

Friederike Feige[1)]

Abstract

Marriage formation and dissolution behaviours have changed significantly over time in Czechia. This article studies in greater detail the marital behaviour changes observed in the period 1993–2022 using the LIPRO 4.0 multistate programme, which allows for a detailed analysis of changes in life expectancy according to years spent in each marital state, marriage formation and dissolution behaviours, and the average ages at the time of different marital status events. The probabilities for the transition to the divorced and to the remarried state at selected ages are also presented, along with a status-quo projection of the Czech population until 2030. The results indicate the continued postponement of marriage and subsequent marital events. Czechs have been spending an increasing time never-married since the establishment of Czechia. However, recent improvements in first marriage and remarriage rates at the same time as declining divorce rates since 2019 suggest a renewed interest in marriage. Despite these positive developments, the population projection indicates a continued increase in the never-married population.

Keywords: multistate life tables, marital status, marriage formation and dissolution, Czechia
Demografie, 2023, **65(4): 200–217**
DOI: https://doi.org/10.54694/dem.0334

INTRODUCTION

Demographic shifts in nuptiality and marital behaviour observed in Czechia[2)] have coincided with major historical and political events that have had a significant impact on the social and economic circumstances of the Czech population, which in turn shaped their behaviours. During the period of state socialism, increases in nuptiality and fertility aligned with periods of a more favourable population climate, such as when people born during the post-war baby-boom reached marriage age and various pronatal measures were implemented to support young people. Decreases, on the other hand, correlated with the deteriorating economic situations in the 1950s and 1960s (*Fialova*, 2006; *Frejka*, 2008). The period from the end of the Second World War (WWII) to the start of the 1970s is regarded as the era of the nuclear family. The attitude in society was that most people wished to marry at least once, which was supported by the continuously high prestige associated with marriage and parenthood. This sentiment was reflected in early and frequent marriage, as illustrated in Graph 1, and in the small percentage of extramarital births (*Fialova*, 2006; *Rychtaříková*, 2018). Marriage at a relatively young age was facilitated by, among other factors, the full employment rate and the lowering

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2) The territory of present-day Czech Republic will be referred to as Czechia throughout this article.

of the age of marital consent from 21 to 18 years in 1950 (*Fialova*, 2006). Welfare measures in the late 1960s and early 1970s, including state loans for newlyweds under 30 years of age to help them obtain housing, helped to further increase an already elevated first-marriage rate (*Frejka*, 1980; *Rychtaříková*, 2018). Contemporary primo-nuptiality life tables show that 90% of men and 96% of women were married before age 30. The peak in the number of marriages in the 1970s further coincided with people born in the post-war baby-boom reaching peak marriage age, which was very young, at an average of 24 to 25 years for men and 21 to 22 years for women (*Fialova*, 2006; *Rychtaříková*, 2018).

During state socialism, divorces could be obtained relatively easily, though divorce by mutual consent was not yet possible. Nevertheless, positive attitudes towards marriage coupled with incentives meant that divorced individuals would typically remarry quickly. Consequently, consensual unions and lone motherhood remained uncommon (*Fialova*, 2006; *Kučera*, 2008). The participation of women in the workforce granted them a certain degree of economic independence and facilitated the expansion of their social contacts. The chronic lack of necessary childcare facilities and other services, poor housing, the double burden for women of holding a job and managing the household worsened the situation at home, which contributed to the increasing divorce rate before 1989 (*Rychtaříková*, 2018; *Křesťanová*, 2020). In 1950, 12.1% of marriages ended in divorce, which increased to 20.3% in 1965 after the aforementioned change in law, and by 1989, as Graph 1 shows, 37.1% of marriages ended in divorce (*Czech Statistical Office*, 2022).

The trend in mortality lagged increasingly behind Western European countries. From the middle of the 1960s, mortality conditions deteriorated. The healthcare system was under-financed, and the population's lifestyle was largely unhealthy, with smoking, alcoholism, and a poor diet being commonplace, which exacerbated the situation. Between 1970 and 1990, the life expectancy of men and women had only improved by 1.4 and 3.0 years, respectively. With a widening life expectancy gap between men and women, there were significantly more widows than widowers by 1991 (*Kučera*, 2008; *Rychtaříková*, 2018).

In 1989 the state-socialist era ended in Czechia. This was also the last year that marital behaviour exhibited the 'traditional' features (*Rychtaříková*, 2018) of high nuptiality and young age at first marriage, which was swiftly followed by the birth of usually two children, and high abortion, divorce, and death rates (*Rabušic*, 1996; *Kučera*, 2008). The change in the political system in 1989 did not immediately affect the marriage rate. As a pragmatic response to new policies (such as newlywed loans only being provided until the end of 1990), the number of marriages in fact slightly increased in 1990, but this increase was short lived, and the number of marriages started to decrease steadily afterwards. The intensity of (first) marriage among younger people in particular declined rapidly (*Fialova*, 2006; *Křesťanová*, 2020). The period since the founding of Czechia has been marked by the postponement of marriage and childbearing, declining marriage rates, and the rise of alternative living arrangements, as indicated by the increasing number of extra-marital births (*Sobotka – Zeman – Kantorová*, 2003). The aim of this contribution is to further study and understand the changes and processes of marriage formation and dissolution since the Czech Republic was established in 1993.

UNDERLYING THEORETICAL CONCEPTS

While in Czechia traditional nuptiality patterns still prevailed, a distinct shift in family behaviour started to emerge in northwestern Europe in the 1960s and 1970s, such as the marked postponement of marriage and fertility and an increase in non-marital cohabitation and divorce. These changes were summarised as features of the 'second demographic transition' (SDT) by Ron Lesthaege and Dirk van de Kaa. The SDT is set apart from the first demographic transition (FDT) in that it is driven by societal changes that lead to demographic changes. For instance, the FDT was defined by early and universal marriage with huge investments into children. The institution of marriage remained intact, as indicated by the high remarriage rates and low divorce rates. Following the SDT, however, marriage has come to be preceded by longer single (never-married) living and cohabitation. Childbirth is no longer confined to marriage and

divorce rates are increasing, while remarriage is declining in favour of other living arrangements. A crucial underlying component of the SDT theory is Maslow's theory of changing needs (1954); as populations become wealthier and more educated, i.e. once their material needs have been satisfied, greater weight is attached to individual self-realisation and other higher-order needs. The SDT is therefore a reflection of both sociological and cultural factors (*Lesthaeghe*, 2010; *Lesthaeghe*, 2014).

The new demographic trends seem to have emerged around the time of the contraceptive revolution in the 1960s, which made fertility postponement possible and uncoupled fertility from marriage, leading to the sexual revolution. Finally, there was the gender revolution, which resulted in greater female autonomy and the weakening of the traditional nuclear family model. These revolutions fit within the framework of a rejection of authority and the resulting ideational and value reorientation that shaped aspects of the SDT. In summary, the STD is commonly characterised as: a shift (1) from the 'Golden Age of Marriage' to cohabitation and other non-marital forms of living arrangements; (2) from the era of the king-child to that of the king-couple with a child; (3) from preventative contraception to self-fulfilling conception; and (4) from uniform to pluralistic families and households (*Kuijsten*, 1996; *Lesthaeghe – Surkyn*, 2004; *Lesthaeghe*, 2010).

The SDT theory was also used as a framework to explain and understand the rapid demographic changes observed in Czechia following the change of regime in 1989 (*Sobotka – Šťastná et al.*, 2008). A main point of contention was the fact that the SDT theory was based on trends observed in Western countries, specifically northern and western Europe. In fact, the SDT manifested itself much later in other European countries, specifically those in southern Europe, and exhibited regionally specific features, such as the absence of home-leaving and the continued importance of marriage for childbearing (*Lesthaeghe*, 2010). Czechia and other former state-socialist countries underwent a profound economic and societal transformation after the regime's collapse, which had regionally specific impacts on family life. In Czechia, features of the SDT, such as an increase in age at first marriage, the rise of non-marital living arrangements, and the decline in fertility, seemed to emerge simultaneously and within a very short period. Common criticisms of the SDT theory in the context of Czechia point out the very different external conditions in which the demographic changes took place. While the SDT was able to unfold more slowly and gradually in the West and under more favourable conditions, Czechia experienced unemployment and other insecurities as a result of the new political system. The sudden and rapid nature of the demographic changes that affected most indicators consequently resembled more of a crisis response than a new demographic regime (*Rychtaříková*, 1999; *Sobotka – Zeman – Kantorová*, 2003).

Others argued that the features associated with the SDT, such as high divorce rates, were already well established in Czechia before the change in regime. During the state-socialist period, the Czech population had also become secularised, which may have facilitated a quicker adoption of the new 'Western' system and its values and lifestyle (*Sobotka – Zeman – Kantorová*, 2003; *Fialová – Kučera*, 1997). Even though demographic behaviours changed under the influence of various external factors, it became clear over time that there was no return to the previous 'traditional' patterns of marriage and marriage behaviours. It therefore seems that the economic crisis due to the regime change destabilised this demographic regime during which some features of the SDT were already emerging. The new economic and social conditions allowed the SDT to take place at an accelerated pace and in the predicted direction (*Fialová – Kučera*, 1997; *Sobotka – Zeman – Kantorová*, 2003; *Lesthaeghe – Surkyn*, 2004).

DATA AND METHODS

To describe the demographic indicators of the total first marriage rate (TFMR) and total divorce rate (TDR) the analysis worked with the dataset Pohyb obyvatel České republiky v letech 1920–2022: analytické ukazatele (Population change in the Czech Republic in 1920–2022: analytic indicators), which is available on the website of the Czech Statistical Office (CZSO). Given that not all indicators were used prior to 1961, the period from 1961 to 2022 was selected

for the descriptive analysis, but the main focus is on the period from 1993 to 2022 (*Czech Statistical Office*, 2022).

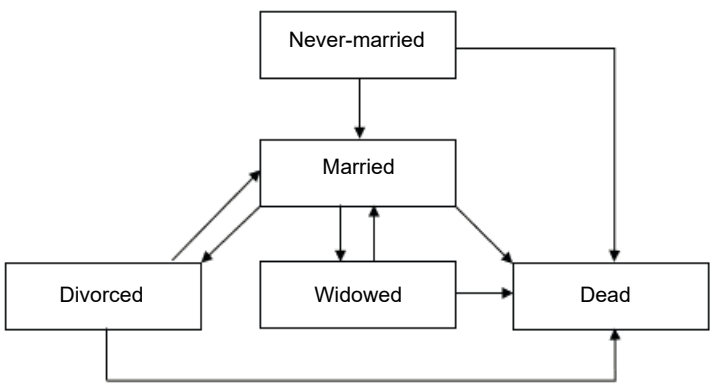
The multistate analysis was conducted using the LIPRO 4.0 (LIfetyle PROjection) model and programme, which was developed by Evert van Imhoff and Nico Keilman at the Netherlands Interdisciplinary Demographic Institute (NIDI) for the purpose of modelling and forecasting households. LIPRO is a general deterministic multidimensional demographic projection model, which contains a number of features that make it particularly suitable for dynamic household and marital status multistate analyses and projections (van Imhoff 2005). The multistate methodology considers decrement tables and increment tables, which allows for the inclusion of retrospective or repeated events (*Dušek – Šustová*, 2011; *Willekens – Putter*, 2014).

For the LIPRO 4.0 multistate analysis of marital status in Czechia, demographic balance datasets by sex, age, and marital status (Bilance obyvatelstva podle pohlaví, věku a rodinného stavu) produced by the CZSO were used for each year from 1993 to 2022. These datasets contain comprehensive information regarding the population structure, encompassing live births, deaths, migration, and demographic characteristics such as gender, age (year of birth), and marital status. These datasets also provide information on the initial population, as of 1 January of the given year and the final population as of 31 December of the given year, by year of birth, age, gender, and marital status, as well as information on deaths and net migration by year of birth, age, gender, and marital status. The data sets further contain information on live births according to the mother's marital status at the time of birth and mother's year of birth. Further, the CZSO datasets also include flow data and data on the transitions from one marital state to another by year of birth. As shown in Figure 1, the possible transitions are: never-married to married, divorced to married, widowed to married, married to divorced, and married to widowed. People may enter any marital state through immigration, while live births enter automatically into the never-married state. People may leave any marital state through death or emigration (*van Imhoff*, 2005).

The population under study is aged 0 to 85+ years and is studied in 1-year observation intervals. The methods of importing and setting up LIPRO for analysis have been described in detail in the LIPRO 4.0 Help Index (*van Imhoff*, 2005).

The analysis is divided into four parts. Firstly, a multistate analysis of marital status changes for the female and male population in Czechia is conducted for the period 1993 to 2022 based on 1-year observation intervals. The main outputs of this analysis are population-based multistate life tables, which provide information on life expectancy at birth (e0) according to the numbers of years spent in different marital states. Another output is formed

Figure 1 **Multistate representation of marriage formation and dissolution**



Source: Image adapted from Preston Heuveline and Guillot (2001).

by experience tables, which are marital status-based life tables limited to the members of the life table population who experienced a certain event at least once in their lifetime. The state 'experienced at least once' is absorbing, meaning that an individual once in that state can never leave it. Like traditional life tables, experience tables start with an initial radix (100,000) and age-specific rates are applied to the surviving population. Experience tables make it possible to analyse the transitions between different marital states and the average ages at which they occur. LIPRO 4.0 generates the average ages at the first and any marital event in order to account for multiple divorce or remarriage events. Here, the average age at a first event will be studied. The basic underlying assumption for the calculations is that the events are distributed uniformly throughout the year (*van Imhoff – Keilman*, 1991).

Next, the probability of the transition from the married to the divorced state and from the divorced to the (re)married state in women and men of selected ages by the end of the year over the studied period are investigated. This provides further insights into the dynamics of marital behaviours. An example of how this output is generated and displayed in LIPRO 4.0 is shown in Table 1. The selected ages are informed by the average ages at first divorce and first remarriage from the experience table outputs. To reflect the age difference between women and men at first marriage and at subsequent marital events, the ages selected for women are two years younger, with 34, 38, and 42 years for the transition of women from the married to the divorced state versus 36, 40, and 44 years for men, and 38, 42, and 46 years for the transition of women from the divorced to the married state versus 40, 44, and 48 years for men.

Lastly, a status-quo projection using the LIPRO 4.0 modelling software is conducted based on the observed trends in the last 'normal' 5-year interval from 2015 to 2019. For the projection the demographic balance datasets by sex, age, and marital status (Bilance obyvatelstva podle pohlaví, věku a rodinného stavu) for the years 2015 to 2019 are used and the populations aged 0–85+ years of the 1-year observation period are aggregated into 5-year age groups and a 5-year observation interval. The aggregation of the flow data must take into consideration that individuals will age, and children will be born during the 5-year

Table 1 **Transition probabilities for women and men aged 35 years, 2022, Czechia**

		Never-married	Married	Widowed	Divorced	Dead
Women	Never-married	0.9476[1)]	0.0510[2)]	0	0.0004[*)]	0,001
	Married	0[7)]	0,982	0.0007[3)]	0.0166[4)]	0,000
	Widowed	0	0.0224[5)]	0,977	0.0002[*)]	0
	Divorced	0	0.0582[6)]	0	0,941	0,001
Men	Never-married	0.9538[1)]	0.0442[2)]	0	0.0004[*)]	0,002
	Married	0	0,984	0.0002[3)]	0.0157[4)]	0,000
	Widowed	0	0.0368[5)]	0,963	0.0003[*)]	0
	Divorced	0	0.0653[6)]	0	0,934	0,001

Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*

Notes: 1) The probability that a never-married women or man aged 35 remains never-married by the end of the observation interval.
2) Probability of transition from the never-married to the married state at age 35 by the end of the observation interval.
3) Probability of transition from the married to the widowed state at age 35 by the end of the observation interval.
4) Probability of transition from the married to the divorced state at age 35 by the end of the observation interval.
5) Probability of transition from the widowed to the married state at age 35 by the end of the observation interval.
6) Probability of transition from the divorced to the married state at age 35 by the end of the observation interval.
*) Transition probabilities that are not possible directly, but may need to be entered before reaching the final state by the end of the observation interval.

interval. A more detailed account of the method of data aggregation and data input into the LIPRO 4.0 model is stated in Van Imhoff 1999. For this part of the marital status analysis a two-sex consistency constraint was imposed so as to ensure that (1) the number of men entering marriage equals the number of women entering marriage; (2) the number of divorcing men equals the number of divorcing women; (3) the number of married men who die equals the number of women who become widows; and (4) the number of men who become widowers equals the number of married women who die. (5) For simplicity, the net migration for married couples is the same (van Imhoff, LIPRO 4.0 Tutorial 2005). The population is projected until 2030 to get an understanding of how the Czech population would develop if the rates observed in 2015–2019 remained constant.

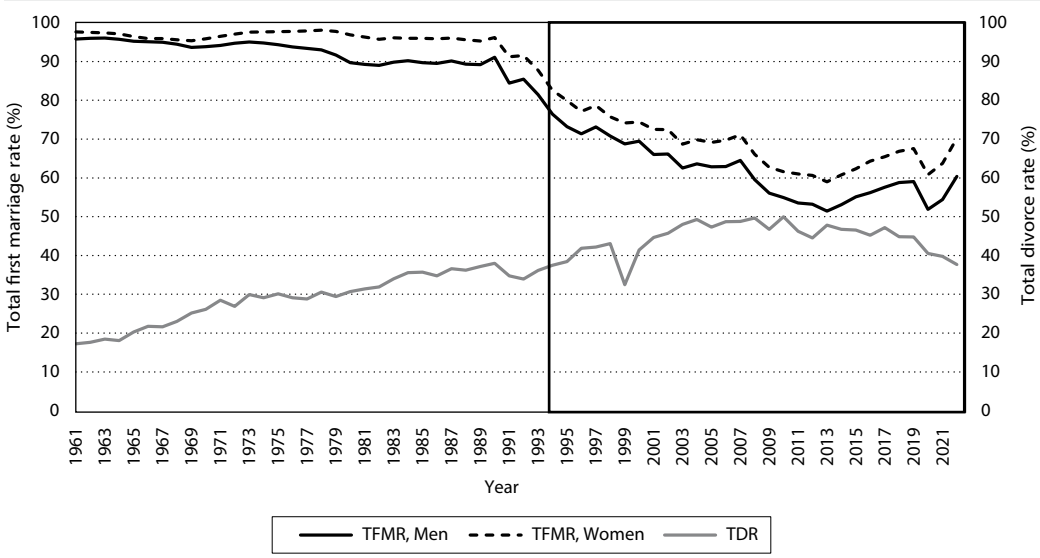
RESULTS

In this section, the results of the multistate analysis of marital status changes in Czechia from 1993 to 2022 will be presented, including the average amount of time spent in the different marital states, the average ages at which the different marital status events occur, and the probability of a transition from one marital state to another in each 1-year observation period at certain ages. The results of the status-quo projection of the Czech population based on the last 5-year period 2015–2019 exhibiting 'normal' nuptiality behaviours will also be described.

A multistate analysis of marital status in Czechia from 1993 to 2022

The collapse of state socialism in Czechia and the adoption of a new political system triggered demographic changes that brought about a departure from the previous characteristics of family (and fertility) behaviours (*Sobotka – Zeman – Kantorová*, 2003). Throughout the state-socialist period, the TFMR was very high, especially in the 1970s, when the values were as high as 98% among women. From 1990 onwards the TFMR started to decline (Graph 1), only increasing again after 2013 and continuing to increase until the Covid-19 pandemic. The TDR increased steadily from 1961, declined in the early 1990s, and from 1993, most likely in connection with the rise of individualism, it started to increase again, except in 1999, when

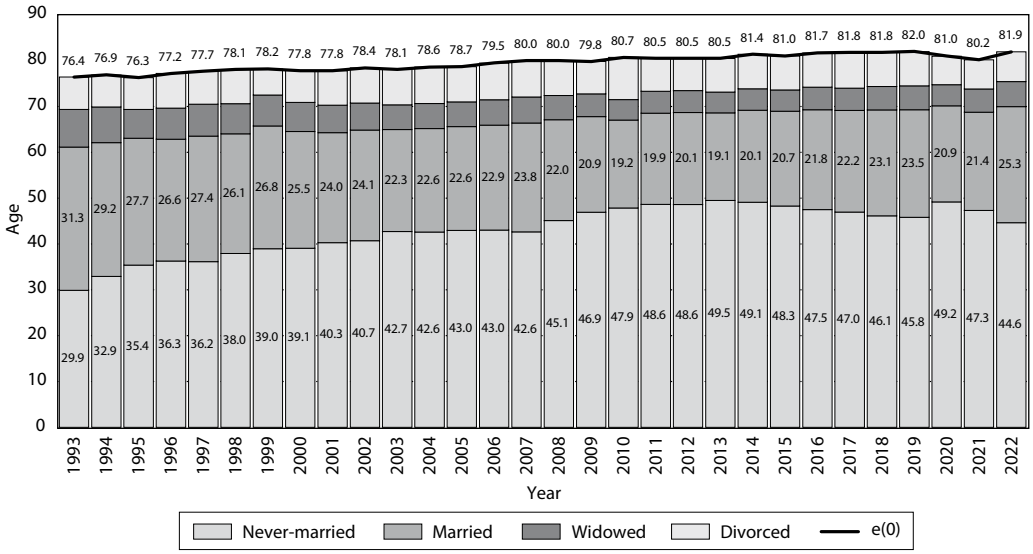
Graph 1 **The changes in the total first marriage rate (TFMR) and the total divorce rate (TDR), 1961–2022, Czechia**



Data source: CZSO, Population change of the Czech Republic in 1920–2022: analytic indicators (*Pohyb obyvatel České republiky*[1)] *v letech 1920–2022: analytické ukazatele).*
Note: Data obtained from primo-nuptiality life tables.

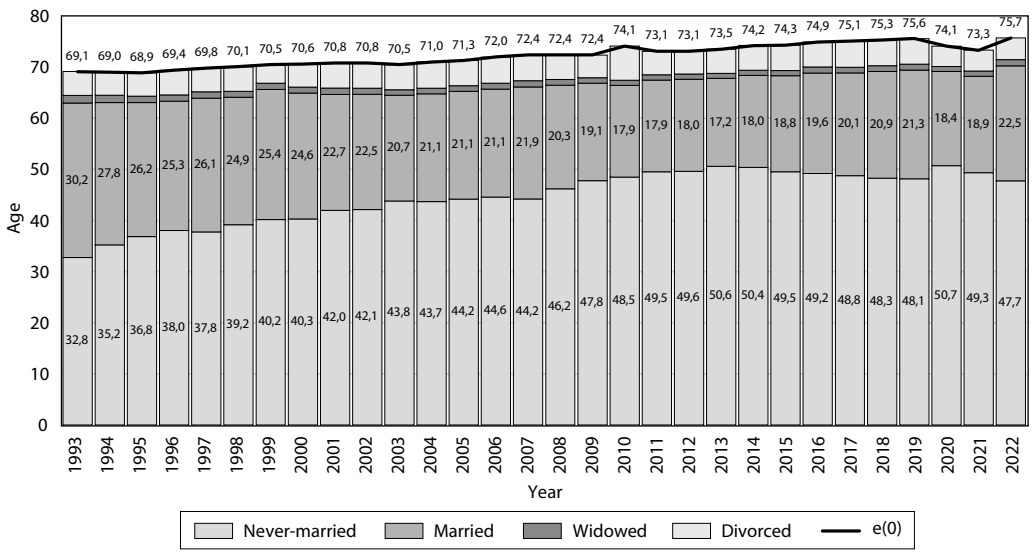
a change in the law made divorce for couples with minor children more difficult. The decrease in the TDR in the second half of the 2000s is related to the declining marriage rates, but while the TFMR increases again, the TDR continues to fall (*Křesťanová*, 2020). In 2020, the first pandemic year, the TFMR

Graph 2a **Life expectancy at birth (e0) by time spent in each marital state, women, 1993–2022, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*
Note: Output of LIPRO 4.0 generated population based multistate life tables; number of years lived in each marital status.

Graph 2b **Life expectancy at birth (e0) by time spent in each marital state, men, 1993–2022, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*.
Note: Output of LIPRO 4.0 generated population based multistate life tables; number of years lived in each marital status.

dropped significantly, but it recovered again in 2021 and 2022, when restrictions were lifted again (*MVCR*, 2023).

Following the collapse of the state-socialist regime, mortality decreased over time in women but especially among middle-aged and older men (*Kučera*, 2008). This is also reflected in life expectancy at birth e(0) according to the number of years spent in the different marital states,[3] which increased throughout the period from 1993 to 2022, except in the pandemic years, as seen in Graphs 2a and 2b. While a girl born in 1993 would be expected to live to 76.4 years, by 2019 she would be expected to live to 80.0 years. Although life expectancy at birth for males also increased over time, it remained lower than that of women throughout the studied period. In 1993 average life expectancy at birth for men was 69.1 years and by 2019 it had increased to 75.6 years. During the Covid-19 pandemic years, e(0) decreased temporarily in both women and men but recovered again in 2022.

There was also a notable increase in the amount of time spent in the never-married[4] state for both women and men. In 1993 women would spend 39.1% and men 47.4% of their lives in the never-married state. In 2013 the time spent never-married peaked at 61.5% for women and at 68.8% for men. As the time spent never-married increased, the time spent married declined from 40.9% in 1993 to 28.6% in 2019 for women and from 43.7% to 28.2% for men in the same period. Both women and men saw the smallest amount of time spent married in 2013, at 23.8% and 23.4%, respectively. This historical low was followed by a period of recovery suggesting that marriage is still, or again, valued in Czech society (*Křesťanová*, 2020). Men overall spend more time never-married and married compared to women, likely because they spent less time in the widowed state due to their higher mortality at older ages. In the early 1990s women would spend up to 10% of their lifetime in the widowed state, which decreased to 6.4% in 2019. The proportion of time spent in the divorced state has remained stable over the study period for both women and men, with women spending slightly more time divorced, at around 9% of their lives, compared to around 6% to 7% in men. The pandemic impacted the amount of time spent in each marital state. The time women spent never-married increased, while the time spent married declined, as the time spent widowed and divorced increased temporarily as well. The time men spent never-married also increased during the pandemic and still exceeded the amount of time seen for women, but they spent less time in all the other marital states.

An analysis of the marriage formation and dissolution processes in Czechia from 1993 to 2022

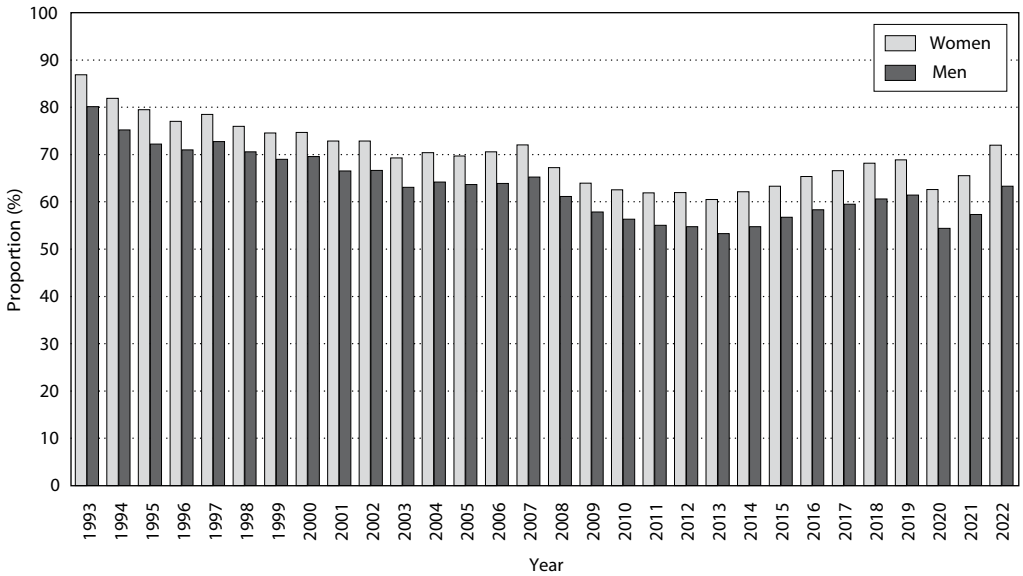
This section presents an analysis of the experience tables outputs, i.e. the transitions between different marital states and the ages at which these events occur.

Graph 3 shows the proportion of women and men who experience marriage at least once after the entire experience table cohort has died (the lifetime probability of marriage). The proportion of ever-married women exceeds that of men throughout the studied period. From 1993 the proportion women and men who marry at least once decreased from 86.9% and 80.1% to 60.5% and 53.3%, respectively, in 2013. The near-immediate decline in the total first marriage rate and the number of marriages and the increase in the age at first marriage in the early 1990s have been attributed to young persons wishing to live more independently on their own or in unmarried cohabitation. With the adoption of a new political, economic, and social system, people's values changed too, and the trend of declining nuptiality continued (*Chromková Manea – Rabušic*, 2019). After 2013 the share of the ever-married population increased again and reached 68.9% for women and 61.4% for men in 2019. This is consistent with the trends observed in the previous section. During the Covid-19 pandemic the share

3) Life expectancy at birth calculated using the LIPRO 4.0 multistate software differ from the life expectancies at birth published by the CZSO. This is because changes in the marital status structure affect the life expectancy in LIPRO 4.0 structure i.e., higher number of deaths by marital state at older age groups (*van Imhoff – Keilman*, 1991).

4) Refers to all women and men irrespective of whether they ever marry or not (*van Imhoff*, 1999).

Graph 3 **The proportion of ever-married women and men, 1993–2022, Czechia**



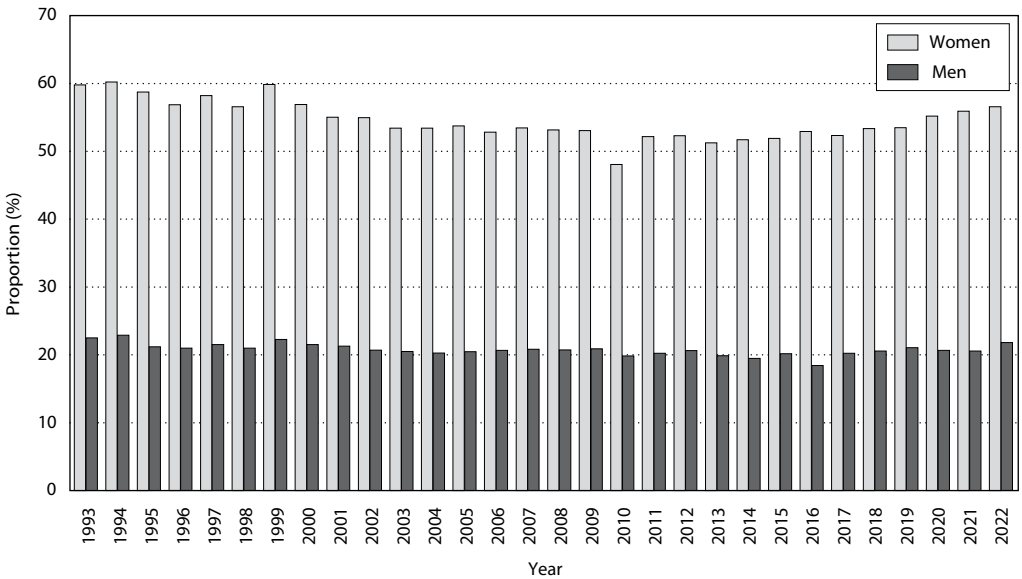
Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*.

Note: This graph presents the probability of a person aged 0 ever marrying, i.e. lifetime probability of first marriage: $\Sigma d_{sm}/\ell(0)$.

Where: s = never-married, m = married, ℓ(0) = number of individuals alive at the beginning of the interval aged 0, dsm = population with event never-married to married (Schoen, 1988).

The ever-married state is absorbing, i.e., it can occur only once in a person's lifetime.

Graph 4 **The proportion of ever-married women and men who experience widowhood, 1993–2022, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*.

Note: This graph presents the probability of a marriage ending in widowhood: $\Sigma d_{mw}/\Sigma(d_{sm} + d_{wm} + d_{vm})$.

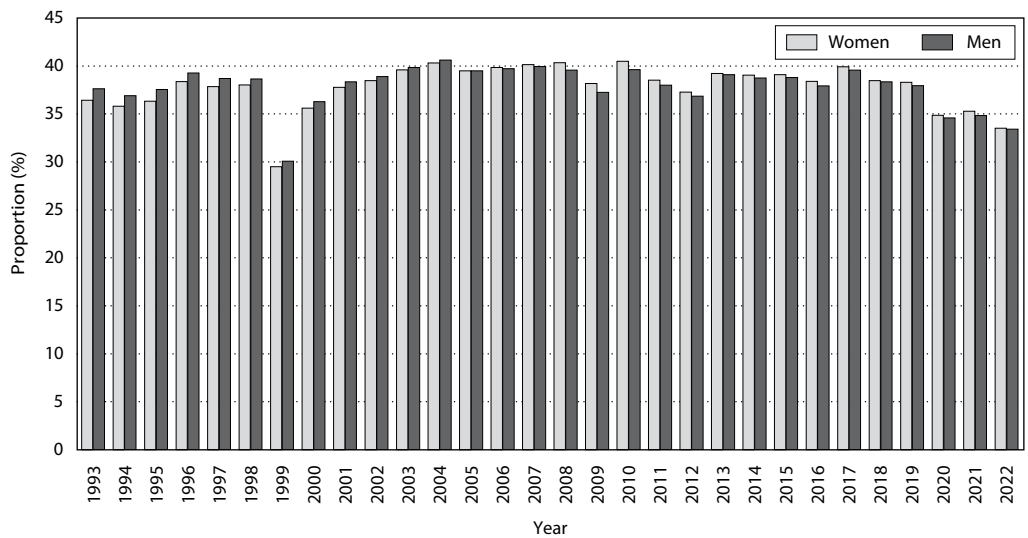
Where: s = never-married, m = married, w = widowed, v = divorced, d = population with event (Schoen 1988).

of ever-married women and men dropped again, likely due to the restrictions imposed on social gatherings (*Slabá*, 2022).

Graph 4 illustrates the changes over time in the proportion of the ever-married female and male experience table population who experience widowhood at least once (the probability of a marriage ending in widowhood). With the increase in life expectancy at birth and the decline in male mortality in middle- and older age groups, a decline in the share of ever-widowed women was observed as well (*Rychtaříková*, 2018; *Křesťanová*, 2020). In 1993, 59.8% of women experienced widowhood, while in 2010 it was 48.1%. Overall, the share of men who experience widowhood is considerably smaller compared to women, and the trend is more stable over time, but declining. In 1993, 22.5% of ever-married men experienced widowhood, which decreased to 18.4% in 2016 but increased again to 21.8% in 2022. The proportion of women whose marriage ended in widowhood slightly increased again from 2013 and throughout the pandemic years, while in men it temporarily declined in those two years.

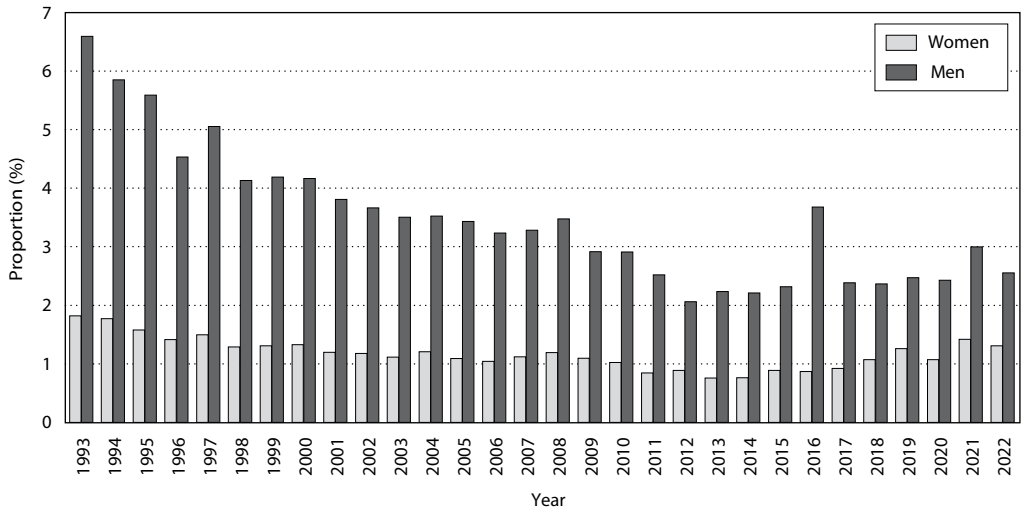
As described, in Czechia divorces under the previous regime divorces were easily accessible and tolerated, which resulted in a high divorce rate. Most divorces occurred within three to five years of marriage (*Rabušic*, 1996; *Fialova*, 2006). From 1993, the TDR continued to increase (Graph 1), which is also reflected in the increasing share of ever-married women and men who experience divorce, as seen in Graph 5. A new law was implemented in 1998 that made divorces among couples with minor children more difficult, resulting in a short-lived, yet significant drop in the number of divorces in 1999 (*Křesťanová*, 2020). Throughout the early 2000s the share of divorced women and men slightly increased or stagnated. A general declining trend was observed from 2007 until 2012, which coincides with the period of declining numbers of marriages. An increase in the proportion of women and men experiencing divorce was seen again in 2013, followed by a decline until 2016. In 2017 the figures peaked again and have declined since then, apart from a small increase in 2021. The proportion of women and men who experience divorce is very similar throughout the studied period, but until the mid-2000s more men tended to experience divorce than women, whereas from the mid-2000s women were more likely to experience divorce.

Graph 5 **Proportion of ever-married women and men who experience divorce, 1993–2022, Czechia**



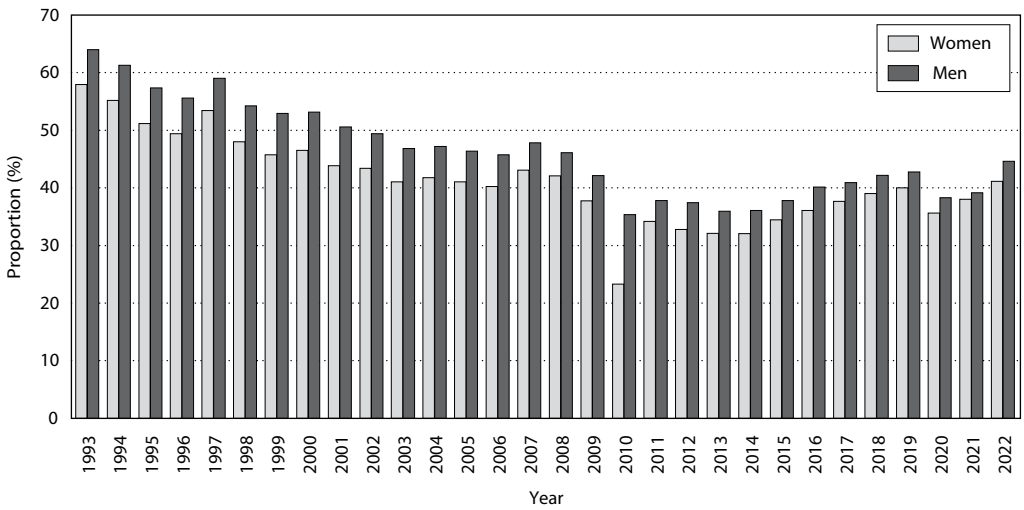
Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: This graph presents the probability of marriage ending divorce: $\Sigma d_{mw} / \Sigma(d_{sm} + d_{wm} + d_{vm})$.
Where: s = never-married, m = married, w = widowed, v = divorced, d = population with event (Schoen 1988).

Graph 6 **The proportion of ever-widowed women and men who remary, 1993–2022, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*.
Note: This graph presents the probability of remarriage from widowhood: $\Sigma d_{wm} / \Sigma d_{mw}$.
Where: m = married, w = widowed, d = population with event (Schoen 1988).

Graph 7 **The proportion of divorced women and men who remarry, 1993–2022, Czechia**



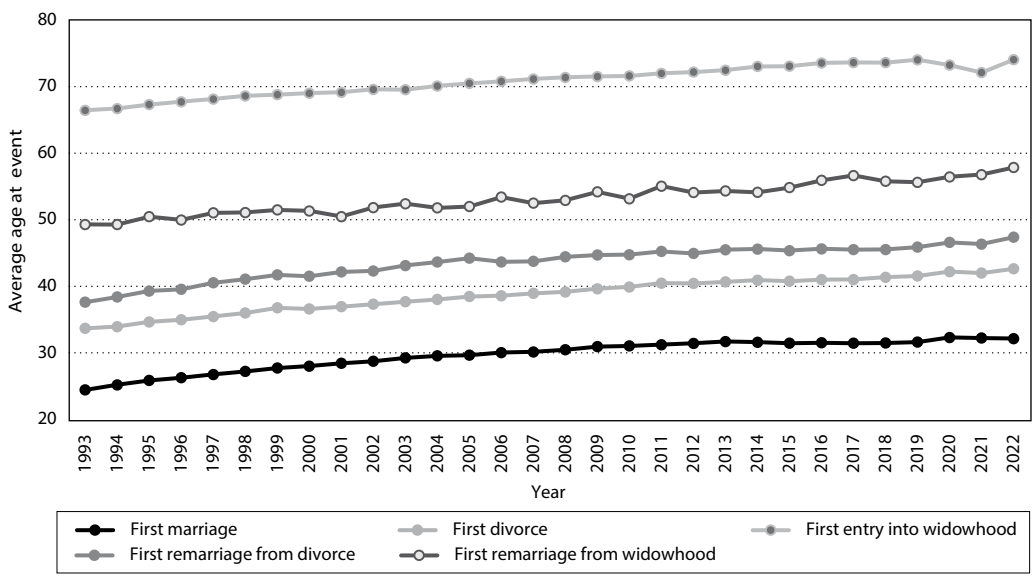
Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu)*.
Note: This graph presents the probability of remarriage from divorce: $\Sigma d_{wm} / \Sigma d_{mw}$.
Where: m = married, v = divorced, d = population with event (Schoen 1988).

Graph 6 shows the change in the proportion of widows and widowers who remarry at least once (the probability of remarriage from widowhood) in the period from 1993 to 2022. The share of remarried women and men from the widowed state decreased throughout the 1990s and early 2000s, increasing again from 2013. The proportion of widowed men significantly exceeds that of women throughout the studied period, but the gap between the genders is decreasing over time.

Divorcees, rather than widowed individuals, most often enter repeat marriages. Over time, the total remarriage rate of divorcees, as published by the CZSO, has fluctuated and it reached its lowest level in 2013. The total remarriage rate of divorcees is higher for men, as they tend to remarry more quickly (within 5 years of divorce) than women (*Křesťanová*, 2020). As seen in Graph 7, the share of women and men of the experience table cohort who experience remarriage after divorce at least once in their lifetime (the probability of remarriage from the divorced state) decreased in the period of 1993–2013, from 58.0% for women and 64.0% for men in 1993 to 32.1% and 35.9% by 2013 for women and men, respectively. The drop in 2010 may be the result of the observed peak in the TDR (*Křesťanová*, 2020). Until 2019, the proportion of divorced women and men remarrying increased again, followed by a temporary decline during the pandemic years. Throughout the period from 1993 to 2022, the share of remarried divorced men exceeds that of women, suggesting that men are more likely to remarry than women.

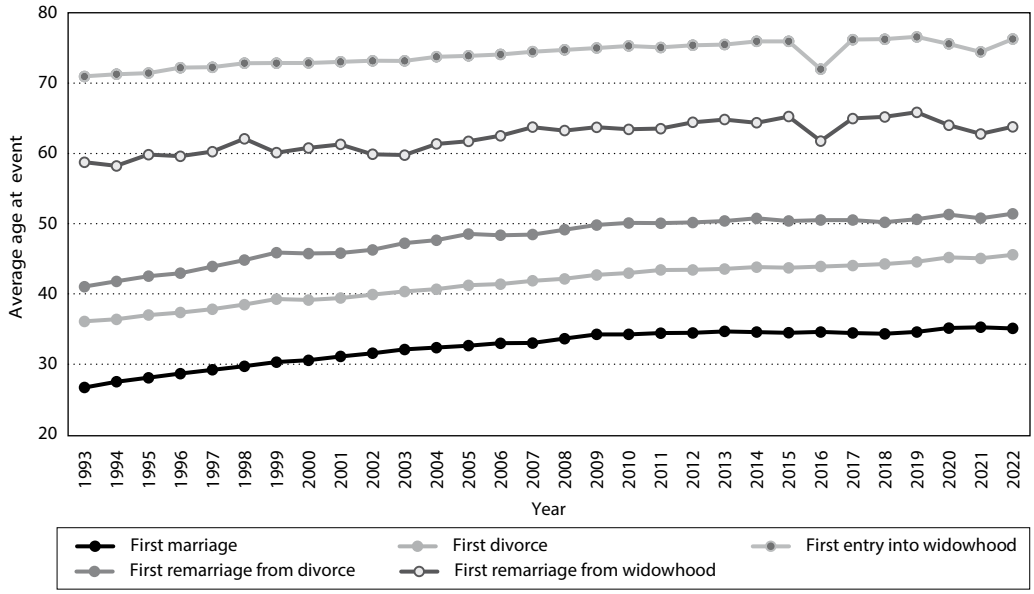
Another output of the LIPRO 4.0 experience table is that of the average ages for women and men at a marital status event, which are presented in Graphs 8a and 8b. The first event experienced by an individual is first marriage, followed by first divorce and by remarriage from the divorced state. The next event is remarriage from the widowed state, which precedes the final event, entry into widowhood. The average age at first marital status events for both women and men has increased over time. With the increasing age at first marriage, the age at first divorce and remarriage from divorce naturally increases as well. The increasing length of marriage over time also contributed to the rise in age at first divorce (*Křesťanová*, 2020). Women tend to experience the events generally at a younger age than men. With increasing male life expectancy at birth, the age gap for women and men entering widowhood decreased over the studied period. The biggest age difference between women and men was observed for the event of remarriage from widowhood, which men experience significantly later than women. This might be explained by men entering a subsequent marriage at a higher intensity at older ages, despite becoming widowed at an older age, compared to women, who might enter marriage mainly at younger ages (*Dušek – Šustová*, 2011; *Křesťanová*, 2020).

Graph 8a **The average age of women at first marital status event, 1993–2022, Czechia**



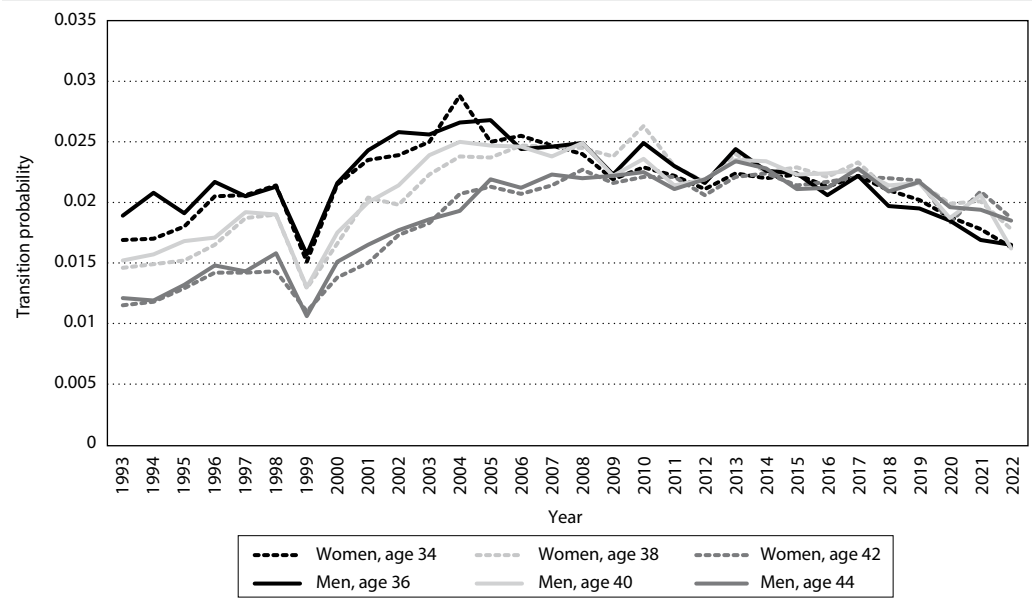
Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: This graph is an output from LIPRO 4.0 generated multistate (experience) life tables by marital status.

Graph 8b **The average age of men at first marital status event, 1993–2022, Czechia**



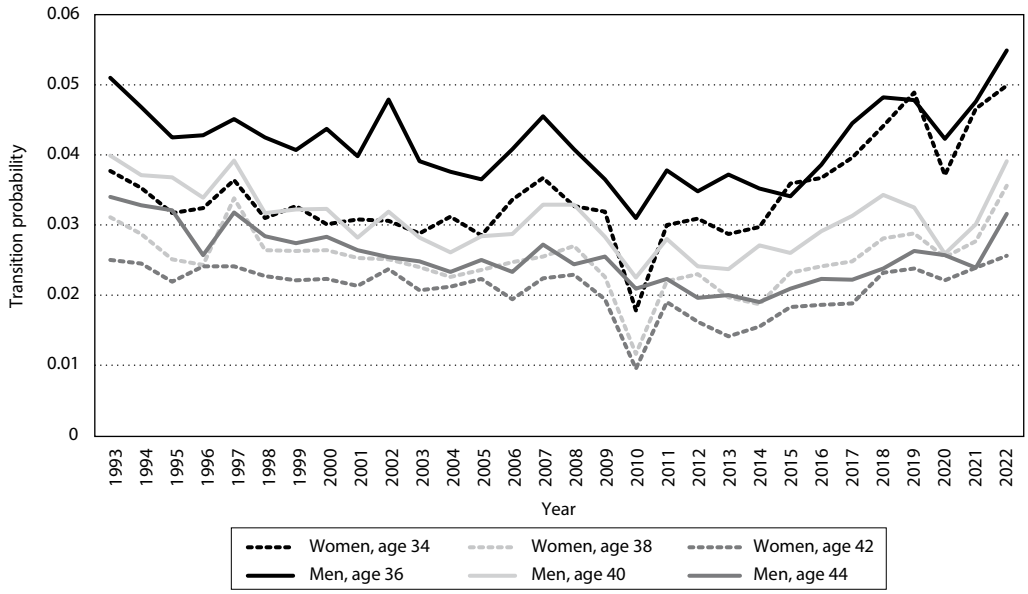
Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: This graph is an output from LIPRO 4.0 generated multistate (experience) life tables by marital status.
The low age at first entry into widowhood and remarriage from widowhood in 2016 in men, might be due to more than usual events at younger ages and small numbers of that population overall.

Graph 9 **Probability of the transition from the married to the divorced state by the end of the year at selected ages, 1993–2022, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: Output of LIPRO 4.0 calculations.

Graph 10 **Probability of the transition from the divorced to the married state by the end of the year at selected ages, 1993–2022, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: Output of LIPRO 4.0 calculations.

The postponement of marital events to an older age is a major driver of the recent trends observed in Czechia (*Křesťanová*, 2020). Graphs 9 and 10 show the development of the probability of the transition from the married to the divorced state and the probability of the transition from the divorced to the married state by the end of the year in Czechia from 1993 to 2022 for women and men at selected ages. The older ages for men were chosen to account for the age difference at marital status events between the two genders.

The probability of the transition from the married to the divorced state within the 1-year observation interval appears to be generally higher for men than women. Apart from 1999, the probability of the transition to the divorced state increased throughout the 1990s and early 2000s in men and women across all the studied ages. But women and men aged 34 and 36 years, respectively were more likely to divorce by the end of the year compared to their older counterparts. The probability of the transition at older ages (42 years for women and 44 years for men) increases over time before stabilising throughout the 2010s. The probability of the transition to being divorced at younger ages on the other hand starts to decline in the second half of the 2000s before finally stabilising throughout the 2010s, reaching the lowest probability of all ages at the end of the studied period. From around 2017 onwards a decline in the transition probability is observed again across all age groups, with the exception of married women aged 42 and men aged 40, who experienced an increased probability of divorcing during the second year of the Covid-19 pandemic. It is also interesting to note that the difference in the probability of the transition from the married to the divorced state is quite marked for the different ages throughout the 1990s and 2000s. This changes, however, from around 2012, when the trends in probabilities converge to become more similar.

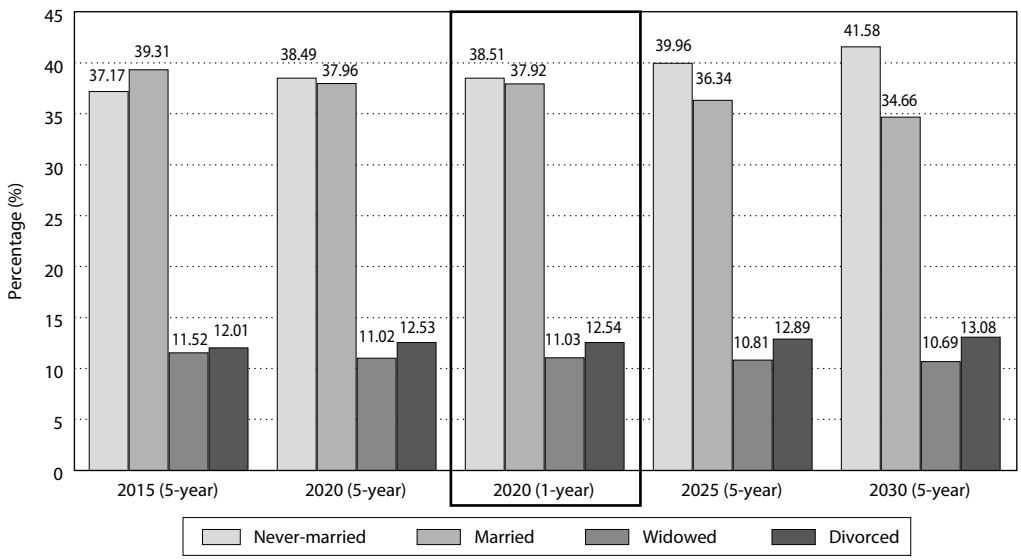
Most remarriages occur from the divorced state and they play an important role in the study of marital behaviours overall. The total remarriage rate is slightly higher among men than women, which is also reflected in the higher probability of the transition from the divorced to the (re)married state in men by the end of the observed year. Men aged 40 and women aged 38 have the highest probability of remarrying throughout the study period. The trends for both genders of all

the ages studied are subject to fluctuations, but, overall, the transition probabilities appear to be stagnating or slightly increasing. In 2010 the total divorce rate peaked and the transition probabilities for remarriage from the divorced state by the end of the year dropped. From around 2013 the probabilities of transition increased for men and women at all the ages studied, which is consistent with the observed increase in marriages overall (*Křesťanová*, 2020). During the pandemic years, the transition probabilities declined but recovered quickly.

Constant projection of changes in marital status from 2015 to 2030

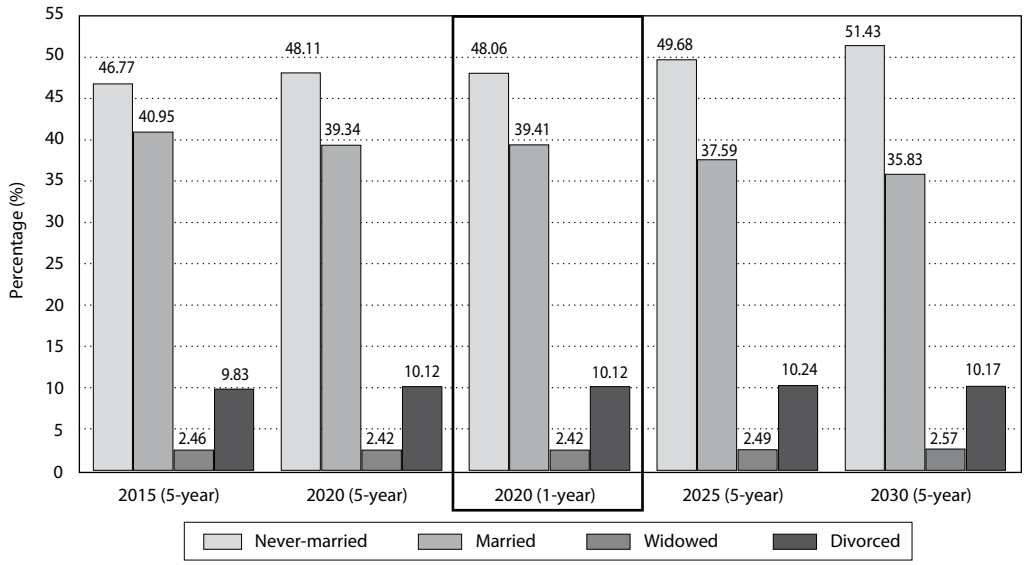
Lastly, the changes in marriage formation and dissolution were projected into the future until 2030 based on the rates of the 5-year period 2015–2019 at ages 0–85+, assuming the transition rates and migration remain constant over the projection interval. A comparison of the projected data for women and men for the year 2020 (as of 1 January) and the actual data collected by the CZSO for the year 2020 and presented as of 1 January (highlighted) shows a very small difference in the percentage of women and men in the different marital states. For women, as shown in Graph 11a, the projection model predicted marginally lower percentages for the never-married, widowed, and divorced states, but slightly higher percentages in the married state than were actually seen in the year 2020. In men (Graph 11b), the model projected a slightly lower percentage of married men and a slightly higher percentage of never-married men and the percentages of widowed and divorced men were the same. Assuming the rates and migration remain the same, in 2025 and 2030 there would be an increase in the percentage of never-married women and men, but a decrease in the percentage of married individuals. The percentage of widows would decrease, while the percentage of divorced women would increase. The percentage of widowers on the other hand is projected to increase in 2025 and 2030, but the percentage of male divorcees would increase until 2025 and decline again in 2030. Consistent with recent trends, more men would be never-married and married compared to women, while there would be more widowed and divorced women. The (longer-term) consequences of the recent Covid-19 pandemic, the resulting economic situation, and the war in Ukraine on marriage behaviours remain to be seen (*Slabá*, 2022; *Štyglerová – Němečková*, 2023).

Graph 11a **Constant projection of the female population by marital status, 2015–2030, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: The highlighted year 2020 represents the 1-year observation interval real life data.

Graph 11b **Constant projection of the male population by marital state, 2015–2030, Czechia**



Data source: CZSO, demographic balance dataset *(Bilance obyvatelstva podle pohlaví, věku a rodinného stavu).*
Note: The highlighted year 2020 represents the real life date of the 1-year observation interval.

CONCLUSION

The aim of this article was to study the changes in marital formation and dissolution in Czechia since 1993 using the LIPRO 4.0 multistate model and programme. The LIPRO multistate model is well suited to the dynamic multistate analysis of marital states, as its methodology allows for the inclusion of retrospective and repeat events. The first output studied was life expectancy at birth based on the number of years spent in different marital states, followed by experience tables, the average ages at events, and the probability of the transitions between different states. The analysis was concluded with a population projection.

Overall, the observed recent trends in marriage formation and dissolution appear to follow the trajectory predicted by the SDT: Life expectancy at birth increased for both genders, but despite significant mortality improvements, women's life expectancy exceeds that of men, which is reflected in the higher proportion of ever-married women who become widowed. Over time both genders spend an increasing amount of time never-married. This development is mirrored in the decreasing proportion of ever-married women and men until 2013 when the time spent married and the proportion of married individuals increases again. Following the change in regime in 1989, divorce was the only indicator that stagnated or slightly increased. Initial increases during the 1990s may have been linked to increasing self-realisation, while later declines were a result of declining marriage rates. As marriage rates increased again from 2013 onwards, the TDR kept declining, suggesting a renewed interest in the institution of marriage. First marriages, as well as remarriages, have played a crucial role in the observed increase in nuptiality in Czechia in the past ten years. While the proportion of widowed individuals who remarry is small, especially among women, there has nevertheless been a small increase after years of decline. Similarly, the number of divorced women and men who remarry also increased again from 2013 onwards. In both cases, more men remarry than women, as supported by the shorter amount of time spent in these states compared to women.

Another significant change observed since the founding of Czechia is the overall postponement of marital events. As the average age at first marriage increased, so did the average ages at all subsequent events, changing the age structure of divorced, widowed, and remarried individuals. While the probability of the transition from the married to

the divorced state has been declining overall since the second half of the 2010s, it also indicates an increasing probability of divorce with increasing age and a declining probability at younger ages over time. While the probability of the transition from divorce to remarriage is more stable over time overall, an increase after 2013 could be observed. And remarriage has remained most likely in men and at selected younger ages. The final analysis of the status-quo projection predicts an increase in the number of never-married and a decline in the number of married individuals until 2030, despite the apparent reversal of negative marriage trends.

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The 15th Conference of Young Demographers will take place in February 2024

The Conference of Young Demographers traditionally offers an exceptional opportunity to spend three days discussing current demographic issues. It gives students and early career researchers the chance to learn and get feedback and advice from their colleagues from all over the world in a very friendly environment. This year the conference is again co-organised in cooperation with the Association for Young Historical Demographers (AYHD).

The 15th annual Conference of Young Demographers will take place from 7 to 9 February 2024 in Prague at the Faculty of Science, Charles University. Although the conference is mainly focused on (historical) demography, all young researchers (including those who are young in mind) from various fields of population studies (sociology, epidemiology, and maybe even economics) are welcome. The working language of the conference is English.

As in previous years, we support the use of posters as a main form of presentation, not only for finished projects, but also for works in progress. Posters are the best!

Abstract submission is already closed. However, you can still join us as a passive participant in the conference. Registration for passive participation will open in January 2024.

The final programme of the conference will also be announced in January.

For more information, including information about passive participation in the conference, please visit our website (youngdemographers.github.io). Please feel free to contact us with any questions at: yd.demographers@gmail.com.

We look forward to seeing you in Prague!
On behalf of the Organising Committee:
Anna Altová, Kateřina Brázová, Klára Hulíková, Joris Kok (AYHD), Barbora Janáková, Louise Ludvigsen (AYHD), Tim Riswick (affiliated supporter), Jitka Slabá, Adéla Pola, Martin Vondrášek and Lukáš Kahoun.

Redakce

The 2023 (eng)aging! Conference & Technology Fair

The sixth edition of eng(aging)![1], an international conference on population ageing associated with a technology fair, took place in Prague and was streamed online on 19–20 June 2023. The event was attended by many world-renowned experts, including the Deputy Director of the International Institute on Ageing at the United Nations-Malta, Rosette Farrugia-Bonello, along with Jérôme Pigniez, the founder and

1) The long-term (eng)aging! project focuses on fostering a society-wide debate about accelerating demographic change and population ageing. The project aims to stimulate a constructive discussion about these trends and to look for ways to make use of them for the benefit of society.

president of On-Medio and SilverEco.org, Matt Flynn, Director of the Centre for Research into the Older Workforce and a lecturer at the University of Leicester School of Business, and Michal Halperin Ben Zvi, an expert on digital engagement and the use and adoption of digital products and services by older adults.

The 2023 edition of the conference discussed two topics: the potential of the silver economy to benefit all generations; and how to build capacity to manage crises and their impact on older persons' lives. Key insights from prominent figures in the field of healthy ageing and the silver economy were shared. The speakers captured the core ideas surrounding ageing, the silver economy, and the importance of an inclusive perspective. 'Healthy aging should be viewed as an investment with benefits and returns', noted Rosette Farrugia-Bonello. Jerôme Pigniez (FR) stressed the pervasive impact of ageing on products and services, stating, 'No product or service can avoid being suitable for older people. The ageing factor affects everything'. Pigniez advocated for an intergenerational perspective to prevent conflicts, stating, 'We must counter things like #okboomer. To avoid generational strife, we must prioritise an intergenerational mindset'. Recognising the diverse nature of the senior demographic, Pigniez further noted, 'Seniors encompass a remarkably diverse group. A single solution cannot apply to all; it's a magic notion if everyone were alike'. Summing up the essence of the silver economy, Pigniez concluded, 'The concept of the silver economy isn't about pessimism; it's about seizing opportunities'.

Special panels featuring experts from the Visegrad countries (V4), Ukraine, Georgia, Moldova, and Germany took place and underlined crucial challenges in supporting older people during crises. Iryna Kurylo (UA) stressed the 'urgent needs for medicines, food delivery, and transport of older people' during wartime. Lucie Vidovicova (CZ) underscored the role of 'emergency agents' during crises and emphasised the need for their training in crisis care for older people. Kaja Zapedowska-Kling (PL) addressed food insecurity, noting 'budget constraints, knowledge gaps, geriatric care limitations, and affordability' as key factors.

Scholars also illuminated crucial aspects of digital inclusion and ageing and underscored the critical importance of addressing digital inclusion for older adults. Tomasz Drabowicz (PL) noted that 'older age is the biggest predictor of a drop in digital skills', signalling a concerning decline in digital proficiency with age. The shift to digital services was emphasised by the observation that 'access to digital services has become digitalized. Those excluded risk becoming second-class citizens', underlining the potential consequences of digital exclusion for older individuals. Marek Hasa (CZ) proposed a forward-looking approach: 'Connecting generations through digital media co-creation can tackle loneliness as a by-product'. This approach emphasised the dual benefits of digital engagement. 'Volunteering-driven, cross-generational digital literacy transfer projects' were highlighted as solutions to bridge digital gaps. Collaboration and shared knowledge were underscored as tools for fostering inclusivity.

In the context of the economic implications of ageing, experts provided insightful perspectives. 'Age is a pivotal factor influencing people's economic behaviour', noted Olga Gagauz (MD). This underlines how age shapes financial decisions and actions. Gagauz further pointed out that '[i]ntergenerational redistribution in an ageing society necessitates careful evaluation of social, economic, and fiscal consequences'. This highlighted the complexities of balancing resources across generations. Łukasz Jurek (PL) highlighted the impact of pension instability on retirement choices, noting that 'in countries with uncertain pension systems, individuals tend to opt for earlier retirement, seeking greater certainty'.

At the Technological Fair, a diverse range of presentations offered insights into innovative solutions for older people. Michal Halperin Ben Zvi (IL) highlighted the importance of understanding the ageing stages for inclusive design: 'Learning about the ageing stages aids in implementing inclusive design'. Patrícia Szabó (HU) introduced a virtual reality game project focused on rehabilitation and memory exercises that shows potential for providing older adults with health support. Tibor Guzsvinecz (HU) discussed aiding indoor navigation by using voice commands, QR codes, and cell phone cameras, emphasising their functional role. Adam Kaczmarek (PL) shared the benefits of accessible games, where health and mood can be monitored through gameplay

sessions. Rongbo Hu (DE) showcased the motivating potential of exergames for encouraging older people to exercise. Kateřina Macháčová (CZ) presented the platform PERMANENTO and described its role in combating physical inactivity. Ann-Kristin Schwarze (DE) from Biozoon discussed ethical responsibility in health enhancement through texture modifiers and high-protein food products. Cecilia Sik-Lanyi (HU) talked about holistic accessibility design, including templates, alternative text, fonts, and approaches tailored to older people. Bence Halmosi (HU) discussed the potential of using chatbots in rehabilitation, while also acknowledging their limitations. Ali Raheem Mandeel (HU) highlighted the positive impact of APH-ALARM on Aphasia patients' independence and security through pictogram use. Charlie Zhao (DE) addressed the evolving landscape of service robots, unveiling new possibilities in the service industry. Lenka Víznerová (CZ) presented the 'Život 90' Emergency Care project's comprehensive technological system for emergency signalling. Vítězslav Mergl (CZ) introduced the 'Bless System' for seniors living alone, which employs non-disruptive monitoring sensors for households.

The event, which took place under the auspices of Marian Jurečka, Minister of Labour and Social Affairs, was co-organised by the Active Ageing Centre and the KEYNOTE company.

The partners of the conference were the International Visegrad Fund, Czech-German Future Fund, JTI, and Česká spořitelna.

Detailed outputs from the Conference & Technology Fair in the form of a report, a photo/video gallery, and PowerPoint presentations are available at www.engagingprague.com.

SAVE THE DATE – The 2024 edition of the *(eng)aging!* Conference & Technology Fair will physically take place in Prague on 20–21 June 2024 and will also be simultaneously streamed online.

POPULATION DEVELOPMENT IN THE CZECH REPUBLIC IN 2022

Jana Koukalová[1)]

Abstract

The article analyses the demographic development of Czech Republic in 2022 and sets it in the context of demographic trends in the last decade 2013–2022. The study focuses on the main demographic processes, namely fertility, mortality, nuptiality, divorce rate, and migration. The population of the Czech Republic grew as a result of the positive balance of international migration in 2022. Although the number of deaths decreased significantly year-on-year, the number of live births decreased considerably as well. Life expectancy at birth has increased for both sexes. The number of marriages increased to the level of 2018. The divorce rate continued its decline and, unlike nuptiality, it did not return to its pre-pandemic level.

Keywords: demographic development, population, age structure, nuptiality, divorce, fertility, mortality, migration, Czech Republic

Demografie, 2023, **65(4): 221–239**

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POPULATION BY AGE AND MARITAL STATUS

At the end of 2022, the Czech Republic had a population of 10,827.5 thousandinhabitants. Compared to 31 December 2021, the population grew by 310.8 thousand people during the year 2022, which was both absolutely and relatively (by 3.0%) the largest year-on-year increase in history. This increase occurred as a result of a massive wave of immigration away from the armed conflict in Ukraine. Population growth was caused by international migration not only in 2022 but also in the last decade from 2013 to 2022 (Table 1). The natural change in the total population caused a significant decrease in the number of inhabitants for a third year in a row (–18.9 thousand in 2022). Apart from a decline in 2013 (by 3.7 thousand people), the population grew year-on-year in the last decade (between the beginning of 2013 and the end of 2022), including during the year 2021, when the population increased by 21.9 thousand people (or 0.2%) from its state on 1 January 2021 to the end of the year. The change in the numerical size of the population between 2020 and 2021 reflects the use of new starting states (the number of inhabitants by sex, age, and marital status) as of 1 January 2021 in the 2021 census (the number of inhabitants by sex, age, and marital status) as of 1 January 2021 based on the 2021 census (*Koukalová*, 2022).

The number of children aged 0–14 years has increased since 2008 but remains the smallest of the main age groups (Table 2). At the end of 2022, there were a total of 1.75 million children under the age of 15 and they made up 16.2% of the total population (1.3 p.p. more than at the beginning of 2013). The 3.4% increase (an increase of 57.4 thousand children of this age) during 2022 was the highest not only in the last decade but since the end of

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Table 1 **Population development of the Czech Republic, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Natural increase	–2,409	2,962	1,116	–131	–19,089	–28,098	–18,920
Net migration	–1,297	28,273	38,629	44,270	26,927	49,969	329,742
Total increase	–3,706	31,235	39,745	44,139	7,838	21,871	310,822
	Per 1,000 population						
Natural increase	–0.2	0.3	0.1	–0.0	–1.8	–2.7	–1.8
Net migration	–0.1	2.7	3.6	4.1	2.5	4.8	30.6
Total increase	–0.4	2.9	3.7	4.1	0.7	2.1	28.9

Source: Czech Statistical Office.

the Second World War. The increase in 2022 was influenced by the wave of immigration from Ukraine, which brought mainly women and children to the Czech Republic (conversely, the number of live births decreased year-on-year by 10.5 thousand). At the end of 2022, there were 562.5 thousand children aged 0–4, 584.2 thousand children aged 5–9, and 604.0 thousand 10–14 year olds in the population

Table 2 **Age distribution of population, 2013 (1 Jan.) and 2017–2022 (31 Dec.)**

Age group/Indicator	2013	2017	2018	2019	2020	2021*)	2022
	Population (thousands)						
Total	10,512.4	10,610.1	10,649.8	10,693.9	10,701.8	10,516.7	10,827.5
0–14	1,577.5	1,670.7	1,693.1	1,710.2	1,719.7	1,693.4	1,750.8
15–64	7,109.4	6,899.2	6,870.1	6,852.1	6,823.7	6,654.2	6,868.9
65+	1,825.5	2,040.2	2,086.6	2,131.6	2,158.3	2,169.1	2,207.8
	Share in total population (%)						
0–14	15.0	15.7	15.9	16.0	16.1	16.1	16.2
15–64	67.6	65.0	64.5	64.1	63.8	63.3	63.4
65+	17.4	19.2	19.6	19.9	20.2	20.6	20.4
	Characteristics of age distribution						
Average age	41.5	42.2	42.3	42.5	42.6	42.8	42.6
Median age	40.8	42.3	42.6	43.0	43.3	43.8	43.7
Index of ageing[1)]	115.7	122.1	123.2	124.6	125.5	128.1	126.1
Age dependency ratio[2)]	58.6	64.8	66.3	67.8	69.0	71.0	71.5

Note: *) The number and structure of the population from 2021 is based on the results of Census 2021, while the data for previous years follow the results of Census 2011.
1) The number of people aged 65 and over per 100 children aged 0–14.
2) The number of children aged 0–19 and people aged 65 and over per 100 people aged 20–64.
Source: Czech Statistical Office; authors' calculations.

of the Czech Republic. The largest year-on-year increase was in the age category of 5–9 year olds, which grew by 31.3 thousand; 10–14-year-old children increased by 21.8 thousand and children aged 0–4 by 4.4 thousand.

The people in the 15–64 age group represented a total of 63.4% of the population of the Czech Republic in 2022 (Table 2). Absolutely, there were 6.87 million people of this age at the end of 2022, 214.7 thousand more than in the previous year. The population aged 15–64 declined every year from 2009 to 2021. The significant increase in numbers in 2022 was caused by a way of immigration from war-torn Ukraine. Viewed from the perspective of five-year age groups, in 2022 the largest (not only within the 15–64 age group, but also the entire population) was the 45–49 age group, which included 939.7 thousand people at the end of the year, i.e. by 40.2 thousand more than at the end of the previous year. This group had beeng growing in number since 2014 and became the largest group at the end of 2021, replacing the 40–44 age group that dominated from 2016 to 2020. The main reason was the shift of the numerically large cohort of people born in the 1970s from the 40–44 to the 45–49 age group. The population of 40–44 year olds decreased in number for the fourth year in a row and at the end of 2022 there were 824.6 thousand people in this group.

The seniors age group (aged 65 and over) underwent the most dynamic changes over the last decade of all three main age groups. In 2022, it accounted for one-fifth (20.4%) of the population, which was an increase of 3.0 percentage points from figure observed at the beginning of 2013 (Table 2). In total, there were 2.21 million people aged 65 and over in the Czech Republic at the end of 2022. Over the last decade, the seniors age group recorded the largest year-on-year increase (by 3.3%) in 2013 (when the numerically large cohort born in 1948 entered the seniors age group), after whichy its year-on-year growth rate decreased slightly, and then it decreased more significantly in 2020 and 2021 as a result of COVID-19 and its effect on mortality. The 0.8% increase in the senior population in 2021 was the lowest observed in a decade. In 2022 the seniors age group increased by 1.8%. Viewed from the perspective of five-year age groups, the seniors group aged 65–69 remains numerically the largest group, but it has been decreasing in number since 2016. While at the beginning of 2013, this age group made up 36.0% of the total number of people aged 65 and older, by the end of 2022 the share was only 29.6%.

The wave of migration from Ukraine, which mainly included children and women of working age, had the effect of slowing down the pace of population ageing, which is demonstrated in all the analytic indicators of the age structure (Table 2). The average age of the population of the Czech Republic decreased by 0.2 to 42.6 years in 2022. During the last decade, since the beginning of 2013, it has grown by 1.1 years. The difference between the average age of men and women in the last decade ranged from 2.8 to 2.9 years. In 2022, the average age of men was 41.2 years and for women it was 44.0 years. The index of ageing increased until 2021, when it reached the level of 128 seniors aged 65 and over per 100 children aged 0–14. Owing to the bigger increase in the number of children aged 0–14, caused by the wave of immigration from Ukraine, there was a year-on-year decrease in the index of ageing to 126 seniors per 100 children by the end of 2022. The total age dependency ratio increased continuously between 2013 and 2022, rising from 59 to 72 dependent persons per 100 people of working age. The rise in this figureex was mainly a reflection of the increase in the size of the elderly population, which grew significantly in relation to the size of the working age population.

Despite the significant events that have occurred in recent years – the COVID-19 pandemic and the wave of immigration from war-torn Ukraine – the age distribution of the population by marital status continued to change in 2022 in the direction of long-term trends. While the share (absolute and relative) of single and divorced people in the population is increasing, the share of married, including widowed, people is decreasing. The share of single people in the population aged 15 years and over increased by 0.5 p.p. year-on-year to 32.8% in 2022 (Table 3). This was the largest year-on-year increase in the last decade, and it was influenced by the immigration of people from Ukraine, which was mostly made up of single people. Married men and married women form the majority, but their share has been decreasing since the early

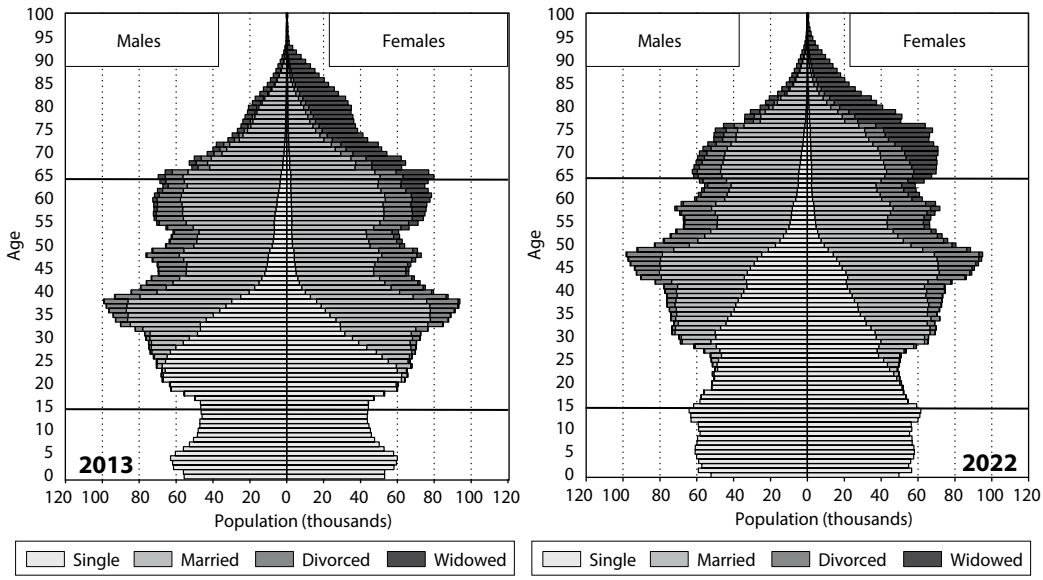
1980s. At the end of 2022, 45.3% of the population aged 15 years and over were married (a year-on-year decrease of 0.2 p.p., and 2.9 p.p. less than in in 2013). The share of divorced persons in the population shows a long-term increasing trend (since the 1960s), but in 2022 there was a slight year-on-year decrease in their representation, both for men and women. At the end of 2022, 13.8% of the population aged 15 and over were divorced (0.2 p. p. less year-on-year, but 1.0 p. p. more than in 2013). The share of widowed persons in the population aged 15 and over changes the least. Between the beginning of 2013 and the end of 2022, their share decreased from 8.5% to 8.0%, with a decline in the proportion of widowed women owing to the faster improvement of male mortality. The structure of the population has changed the most for persons between the ages of 35 and 49 over the last decade, as the cohorts born in the 1970s, who have had a crucial influence on changes in demographic behaviour since 1989, have passed through these age groups. In these age categories, the share of single people increased the most, while at the same time the share of married persons decreased the most because of the decline in the marriage rate and the postponement of marriage to a later age (or rejection of marriage). After about 45 years of age, the share of divorced people generally increases, due to the high rate of divorce, the increasing length of average time elapsed after divorce, and the shift in marriage (and divorce) to an older age. In the oldest age groups (65 years and over), the structure of men and women by marital status depends mainly on the level of mortality. Most men aged 65+ years were married (69.5% in 2022, 74.0% at the beginning of 2013). Among women aged 65+, the share of widowed and married is much closer, and the difference between these two groups of older women has decreased thanks to the steadily decrease in the male mortality rate. At the beginning of 2013 the majority of women aged 65+ were widowed (47.7% compared to 39.1% of married women), but married women have predominated in this age group since 2019. In 2022, 41.1% of senior women were married and 40.7% were widowed.

Table 3 **Population 15+ years by marital status, 2013 (1 Jan.) and 2017–2022 (31 Dec.)**

Marital status	2013	2017	2018	2019	2020	2021*)	2022
	Population (thousands)						
Single	2,725.3	2,801.3	2,822.5	2,849.0	2,887.4	2,852.3	2,980.6
Married	4,309.1	4,191.8	4,181.9	4,176.2	4,136.3	4,013.7	4,111.5
Divorced	1,144.8	1,206.6	1,216.2	1,225.5	1,229.3	1,234.0	1,254.5
Widowed	755.7	739.8	736.2	733.1	729.0	723.3	730.1
	Percentage of the population 15+ years						
Single	30.5	31.3	31.5	31.7	32.1	32.3	32.8
Married	48.2	46.9	46.7	46.5	46.1	45.5	45.3
Divorced	12.8	13.5	13.6	13.6	13.7	14.0	13.8
Widowed	8.5	8.3	8.2	8.2	8.1	8.2	8.0

Note: *) The number and structure of the population from 2021 is based on the results of Census 2021, while the data for previous years follow the results of Census 2011.
Source: Czech Statistical Office; authors' calculations.

Figure 1 **Population by age, sex, and marital status, 2013 (1 Jan.) and 2022 (31 Dec.)**



Source: Czech Statistical Office; authors' calculations.

NUPTIALITY

The total annual number of marriages had a declining trend from the 1990s until 2013, when it reached a historical low of 43,5 thousand. This was followed by a six-year period of growth with an average year-on-year increase of 4%. A significant decrease in the number of marriages in 2020 and 2021 was caused mainly by epidemiological measures (*Slabá*, 2022), namely the pandemic-era regulations restricting wedding ceremonies or the number of attendees at these ceremonies. A large part of the year 2022 was no longer affected by pandemic restrictions, and the total number of marriages rose to 54.8 thousand (a year-on-year increase of 17.2%) and almost returned to the pre-pandemic level of 2019 (Table 4). In 2022, there was an increase in the number of marriages of both single and divorced persons and among women only in the case of widowed persons (there was a slight decrease in the case of men). A total of 40.8 thousand men (74.5% of the total number of grooms) and 41.1 thousand women (75.0% of the total number of brides) married for the first time in 2022. In addition, 14.0 thousand men and 13.7 thousand women entered a second or higher-order marriage. Compared to the previous year, the number in both groups of grooms and brides increased significantly. A total of 80% of marriages were concluded between engaged partners with the same marital status, and in 65% of cases it was the first marriage for both (the share of these so-called protogamous marriages has been in the range of 63–68% since the mid-1990s).

In 2022, 65.3% of marriages were registered in the period of June–September, and the largest number of marriages took place in June (9.8 thousand). Conversely, the least popular month for marriages was January, as is traditionally the case, when only 840 couples got married. The most popular date (in 2022) was Saturday, 18 June 2022, when 1.8 thousand couples got married. A very popular day for marriages in 2022 was the palindromic date 22/02/2022, when 1,100 couples said their 'I dos', despite this date falling on the otherwise less popular weekday for weddings, a Tuesday.

If the intensity of marriage among singles were remain steady at its 2022 level, 60.4% of men and 70.2% of women would be married by the age of 50, which is the highest level since 2008. Based on the first-marriage probabilities for 2022, the mean age of men and women at the beginning of their first marriage changed only very slightly year-on-year

Table 4 **Marriages by order, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Total marriages	43,499	52,567	54,470	54,870	45,415	46,778	54,820
in: – marriages of singles	28,877	35,574	36,593	36,690	29,694	30,519	35,869
Male order of marriage – first	32,743	40,038	41,316	41,606	33,814	34,930	40,847
– higher	10,756	12,529	13,154	13,264	11,601	11,848	13,973
Female order of marriage – first	33,029	40,336	41,592	41,724	33,974	34,856	41,138
– higher	10,470	12,231	12,878	13,146	11,441	11,922	13,682
Protogamous marriages (%)	66.4	67.7	67.2	66.9	65.4	65.2	65.4
Remarriages (%) – males	24.7	23.8	24.1	24.2	25.5	25.3	25.5
– females	24.1	23.3	23.6	24.0	25.2	25.5	25.0

Note: Protogamous marriages = both groom and bride are single.
Source: Czech Statistical Office; authors' calculations.

in 2022: for men it was 32.5 years (a year-on-year decrease of 0.03 a year) and for women it stagnated at 30.3 years (Table 5).

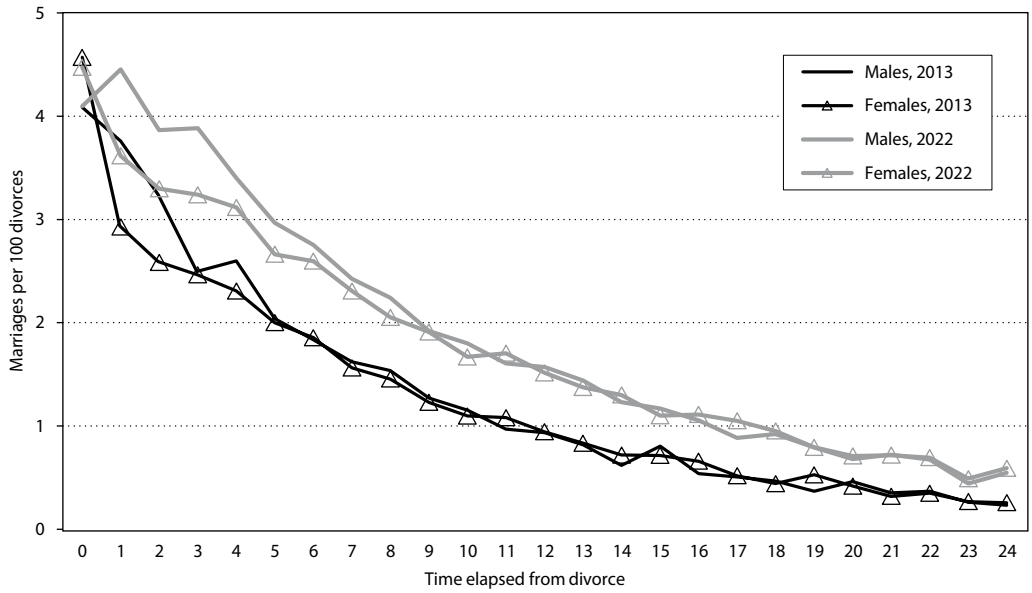
In 2022, the intensity of marriage also increased year-on-year for remarriages (2nd- and higher-order marriages), for both men and women in almost all five-year age categories in the 25–49 age range and was higher than the average for the period 2017–2019. In 2022 the total remarriage rate of divorcees was 51.3% for males and 48.9% for females, which were the highest levels since 1993. Divorced persons most often enter into a new marriage in the first years after divorce (divorced men more often than women), and the remarriage rate decreases with the time elapsed since divorce and the gender gap in remarriage gradually disappears (Figure 2). In 2022, men remarried on average 9.7 years after divorce and women after 10.1 years (assuming remarriage rates remain stable in the future), there was a significant year-on-year increase of 0.4 years for both sexes. The increase in the average elapsed time from divorce has been occurring regularly in recent years, mainly due to the increase in the number of divorced people marrying at a longer interval after divorce.

Table 5 **Nuptiality indicators, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Total first marriage rate (%) – males	51.4	57.6	58.8	59.0	51.9	54.4	60.4
– females	59.0	65.4	66.9	67.5	60.8	63.7	70.2
Mean age at first marriage – males	32.3	32.2	32.2	32.1	32.6	32.6	32.5
– females	29.8	29.8	29.8	29.8	30.4	30.3	30.3
Total remarriage rate of divorcees (%) – males	34.7	42.5	45.0	46.0	40.8	42.5	51.3
– females	33.5	40.8	43.4	44.5	39.4	42.0	48.9
Average elapsed time from divorce – males	8.0	8.6	8.8	8.9	9.3	9.3	9.7
– females	8.3	9.0	9.1	9.4	9.6	9.7	10.1

Note: First marriage indicators are based on the single decrement primo-nuptiality tables. The remarriage rates of divorcees are constructed from the distribution of remarriage rates by time elapsed from divorce.
Source: Czech Statistical Office; authors' calculations.

Figure 2 **The remarriage rates of divorcees by sex and time elapsed since divorce, 2013 and 2022**



Source: Czech Statistical Office; authors' calculations.

DIVORCE

According to data obtained from the Ministry of Justice of the Czech Republic, a total of 19.8 thousand divorces were registered in 2022 (Table 6). The number decreased year-on-year by 6%, a decrease of almost one-third compared to 2013. Thus, the declining trend in the number of divorces continued, when it decreased by an average of 4.5% between 2013 and 2022, except for a slight increase in 2013 and 2017. Most men and women (over 80%) who divorced did so for the first time. In 2022, it was the first divorce for 16.0 thousand men and for 16.0 thousand women. The remaining one-fifth (3.9 thousand men and 3.8 thousand women) had already been divorced before (meaning these were second or higher-order divorces).

In 2022, divorces occurred in 11.5 thousand marriages with minor children (a year-on-year decrease of 10.8%) and 8.4 thousand without minor children (a year-on-year increase, by contrast, of 1.5%). The share of divorces in marriages with minor children out of the total number of divorces decreased by 3.1 p.p. year-on-year to 57.8% in 2022 and reached its lowest share since 2015, while it fluctuated in the range of 56.8–60.9% in the period 2013–2021 (Table 6). Divorce affected 18.4 thousand minor children, which was 10.1% less than in the previous year and the lowest number in the history of the independent Czech Republic. Between 2013 and 2022, there was an increase in the share of divorced families with two children (from 40.4% to 44.7%, with a peak in 2020 (except in 2020 when the share peaked at 45.7%), while there was a decrease in the share of divorced families with one child (a decline from 54.0% to 48.3%). By contrast, the share of divorced families with three or more minor children had long remained stable at 5–6%, but a turn occurred in 2021, when the share increased significantly by 0.8 p.p. to 6.8%, and then in 2022 by another 0.2 p.p. to 7.0%, which was the highest level since 1989. The average number of children per divorced marriage with children increased from 1.53 in 2013 to 1.60 in 2022.

In terms of the duration of a marriage until divorce, most divorces occur after 5–9 years of marriage (absolutely 4.3 thousand in absolute figures) and their share (22%) did not deviate in any way from the interval of 20–23% from the previous period 2013–2021. In the period 2013–2022, the intensity of divorce

Table 6 **Divorces, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Total divorces	27,895	25,755	24,313	24,141	21,734	21,107	19,846
Percentage of repeated divorces – males	20.0	19.3	19.1	19.2	19.0	18.9	19.5
– females	19.1	18.6	18.7	18.0	18.6	18.4	19.2
Divorces without minor children	11,974	10,559	10,120	9,905	9,015	8,253	8,378
Divorces with minor children	15,921	15,196	14,193	14,236	12,719	12,854	11,468
– percentage of total	57.1	59.0	58.4	59.0	58.5	60.9	57.8
Number of minor children in divorced marriages	24,335	23,752	22,294	22,644	20,187	20,444	18,369
– average number of minor children per divorce with minor children	1.5	1.6	1.6	1.6	1.6	1.6	1.6

Source: Czech Statistical Office; authors' calculations.

rates decreased relatively steadily when viewed from the perspective of five-year intervals across almost all marriage durations (Table 7). In a comparison between 2013 and 2022, the most significant change in the intensity of divorce rates was observed in the shortest durations of marriage until divorce, namely in the interval 0–4 years (by 30%), 5–9 years (by 22%), and 20–24 years (by 22%). Year-on-year, the intensity of divorce rates in 2022 decreased in the range of 3–7% in all five-year intervals.

If the intensity of divorce in individual lengths of marriage remained at the level of 2022, 37.7% of marriages would end in divorce, a decrease of 2.0 p.p. compared to the year before (Table 7). The total divorce rate thus decreased for the third time in a row and was the lowest since the beginning of the century. Between 2013 and 2019, its intensity ranged between 44.8% and 47.8%, but in 2020 it significantly decreased year-on-year by 4.2 p.p. to 40.6% and in the following year by another 0.8 p.p. to 39.7%.The mean duration of marriage at divorce has been increasing for more than two decades, with small fluctuations, and between 2013 and 2022 it increased from 13.0 years to 13.5 years.

Table 7 **Divorce indicators, 2013 and 2017–2022**

Indicator / Time elapsed	2013	2017	2018	2019	2020	2021	2022
Total divorce rate (%)	47.8	47.2	44.8	44.8	40.6	39.7	37.7
Mean duration of marriage at divorce (years)	13.0	13.2	13.4	13.5	13.7	13.6	13.5
	Divorce rates (per 100 marriages)						
0–4	2.1	1.8	1.7	1.7	1.5	1.5	1.5
5–9	2.3	2.4	2.2	2.1	1.9	1.9	1.8
10–14	1.8	1.8	1.7	1.7	1.6	1.6	1.5
15–19	1.4	1.3	1.3	1.3	1.2	1.2	1.1
20–24	1.0	1.0	1.0	0.9	0.9	0.8	0.8
25–29	0.6	0.6	0.6	0.6	0.5	0.5	0.5
30+	0.2	0.3	0.3	0.3	0.3	0.2	0.2

Note: Total divorce rate and mean duration of marriage at divorce resulted from the distribution of reduced divorce rates by time elapsed since entering into marriage.
Source: Czech Statistical Office; authors' calculations.

FERTILITY

The Czech Statistical Office recorded a total of 101.3 thousand live births in 2022, which was 10.5 thousand children (i.e. 9.4%) less than in the previous year (Table 8). In the years 2014–2017, the number of live births increased annually up to 114.4 thousand children, after which their number decreased year-on-year until 2020, when it reached 110.2 thousand. In 2021, there was a slight year-on-year increase (to 111.8 thousand children), and in 2022 the downward trend from previous years continued. The number of stillbirths compared to the preceding year dropped from 404 to 377. The highest stillbirth rate (3.9‰) in the last decade was recorded in 2020, while the lowest was recorded in 2017 and 2018 (3.3‰). In 2022, it reached 3.6‰.

From the perspective of the mother's marital status, the majority of children have long been born to married women, and it was no different in 2022 (Table 8), when more than half (51.8%) of all live births in that year were to married women. Over the last ten years, the proportion of children born to married women has gradually decreased from 55.0% in 2013 to a historic low of 51.0% in 2017. Since then, it has remained at just under 52%. Currently, almost half of all children are born outside marriage. Most of them have an unmarried mother, while the predominance of single women within the unmarried group has increased over time. In 2013, 87% of unmarried mothers were single, while in 2022 the figure was 92%. The share of divorced mothers in the group of unmarried mothers, by contrast, decreased in recent years/the last decade, from 13% in 2013 to 8% in 2022.

The structure of live births by birth order has been relatively stable in the last ten years, during which time first-born children accounted for 46.3% (in 2022) to 48.7% (in 2016 and 2017) of all live births, second-born children accounted for 36.6% (in 2017) to 39.0% (in 2021) of all live births, and third- and higher-order births accounted for 14.6% (in 2013, 2016, 2019, and 2021) to 15.1% (in 2014 and 2022) of the total. In 2022, there was a year-on-year decrease in the absolute number of live births out of all births (by 10% for first- and second-borns, by 6% for higher-order births).

A significant year-on-year decrease in the number of live births (by 10.5 thousand) was reflected in the total fertility rate, which reached a value of 1.62 children per woman in 2022. There was a year-on-year decrease of 0.21 children per woman from 1.83 per woman, which was the biggest decrease

Table 8 **Live births by birth order and by marital status of the mother, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Live births	106,751	114,405	114,036	112,231	110,200	111,793	101,299
– first order	51,092	55,726	54,755	53,647	52,414	51,900	46,905
– second order	40,078	41,832	42,462	42,173	41,432	43,623	39,130
– third and higher order	15,581	16,847	16,819	16,411	16,354	16,270	15,264
Marital status of mother							
Single	41,655	50,379	49,956	49,137	48,799	49,950	45,091
Married	58,751	58,314	58,698	58,138	56,792	57,590	52,427
Divorced	6,134	5,539	5,227	4,818	4,482	4,140	3,678
Widowed	211	173	155	138	127	113	103
Percentage of live births outside marriage	45.0	49.0	48.5	48.2	48.5	48.5	48.2
– first order	55.7	58.6	57.9	57.3	58.1	58.5	57.6
– second order	33.4	39.0	39.0	39.2	38.9	39.7	39.7
– third and higher order	39.3	42.3	42.0	41.5	41.9	40.2	41.5

Source: Czech Statistical Office; authors' calculations.

recorded since the mid-1990s. The last year-on-year decrease in the total fertility rate occurred between 2010 and 2011, when it dropped from 1.49 to 1.43 children per woman. After that it grew until 2021, when the highest relative increase (7%) since 2008 was recorded. Year-on-year growth in 2014–2018 was 1–5%, while in 2013, 2019, and 2020 the total fertility rate stagnated. Compared to 2013, the total fertility rates of all birth orders increased in 2022 (by 7–16%). The first-order total fertility rate reached 0.78 children per woman, while the second-order fertility rate reached 0.61 and the third and higher-order rates were 0.23 children per woman in 2022. The mean age of mothers at childbirth increased by a total of 0.6 years to 30.4 years between 2013 and 2022, while its level remained unchanged year-on-year. The biggest absolute and relative increase in this indicator between 2013 and 2022 was observed among first-time mothers (by 0.7 years from 28.1 to 28.8 years). The mean age of mothers at childbirth in the the case of second-order children increased by 0.4 years from 31.0 to 31.4 years in the same period, while the mean age of mothers at childbirth in the case of third- and higher-order children fluctuated between 33.2 and 33.4 years. In the last year, there was no change in the mean age of mothers at childbirth in the case of any birth order.

A comparison of the fertility rates for five-year age groups over time shows that between 2013 and 2022 the only decline in fertility was among women aged 15–19 (down by 39%), while in all the other age groups fertility increased. In the 20–24 year old age group it was 2% higher in 2022 than in 2013 (though it decreased in 2019–2022). Among 25–29 year olds, fertility increased by 14% between 2013 and 2022, for 30–34-year-olds it increased by 29%, and in older age groups it increased by more than half. The most significant increase, a 2.3-fold rise, was among women aged 45–49, but their fertility makes up just a minor part of the total. However, in the last year of the last decade, there was a decline in fertility in all five-year age groups. It decreased the least among the oldest women – aged 40–44 by 1% – and among those aged 45 and older, by 8%. In the 15–19, 20–24, and 25–29 age groups, fertility decreased by 10–11%, while among women aged 30–34 and 35–39 fertility was 12–13% lower compared to the previous year .

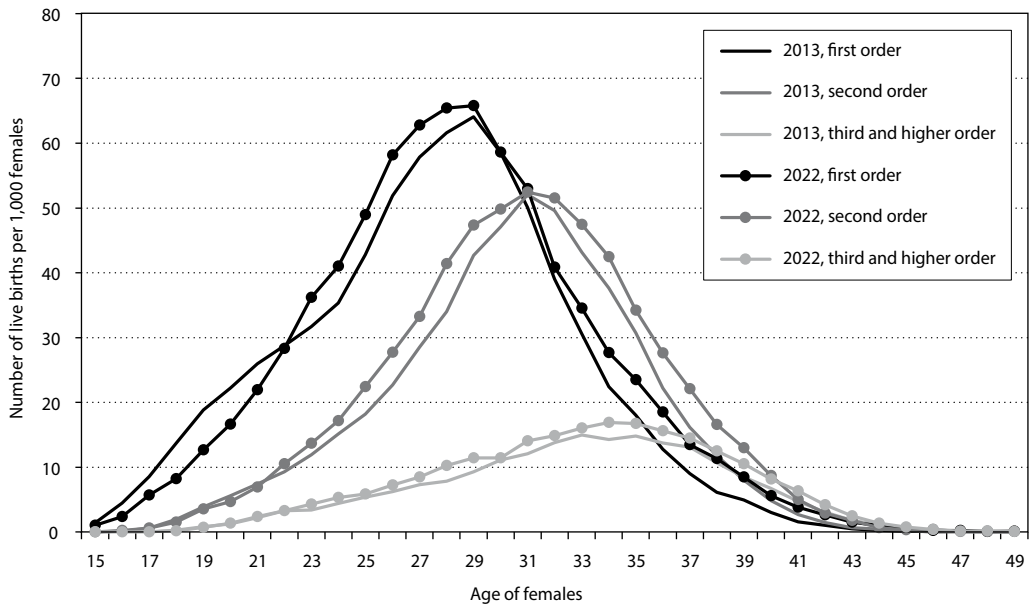
Viewed from the perspective of five-year age groups, the rate of first-order fertility is highest among women in the 25–29 age group and among other orders (second-, third-, and higher-order births) it is highest in the 30–34 age group; and this situation has not changed throughout the last decade. In a one-year detail (Figure 3), the first-order fertility rate was highest among women aged 28 or 29 (in 2022 it was

Table 9 **Fertility indicators, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Total fertility rate – total	1.46	1.69	1.71	1.71	1.71	1.83	1.62
– first order	0.73	0.86	0.86	0.85	0.85	0.88	0.78
– second order	0.53	0.60	0.62	0.62	0.62	0.69	0.61
– third and higher order	0.20	0.23	0.23	0.23	0.24	0.25	0.23
Net reproduction rate	0.71	0.82	0.83	0.83	0.83	0.89	0.78
Mean age of mother at childbirth – total	29.9	30.0	30.1	30.2	30.2	30.4	30.4
– first order	28.1	28.2	28.4	28.5	28.5	28.8	28.8
– second order	31.0	31.3	31.3	31.3	31.3	31.4	31.4
– third and higher order	33.2	33.4	33.4	33.4	33.3	33.4	33.4

Note: Total fertility rates by birth order are calculated from second category rates. Mean age at childbirth is calculated from live births.
Source: Czech Statistical Office; authors' calculations.

Figure 3 **Age-specific fertility rates of females by birth order, 2013 and 2022**



Source: Czech Statistical Office; authors' calculations.

66 first-born children per thousand women aged 29), with the only exception in 2020, when women aged 27 had the highest fertility rate. The highest level of second-order fertility was observed among women aged 31 or 32 (in 2022 there were 52 second births per thousand women aged 31), while for third- and higher-order births it was among women aged 34 or 35 (in 2022 there were 17 third- or higher-order births per thousand women aged 34), except in 2013, when it peaked at the age of 33 years. The only decrease in fertility rates between 2013 and 2022 was in the 15–19 age group (all birth orders), while first-order fertility decrease in the 20–24 age group. In the other subgroups, the fertility level has increased over the last 10 years. At the same time, the increase in fertility was relatively higher in the over-35 age group than in the 20–34 group.

MORTALITY

In 2022, 120.2 thousand inhabitants in Czech Republic died and the year-on-year decrease of 14.1% in the number of deaths after two years of significant increases was mainly the result of the decrease in mortality from COVID-19 (Table 10). Between 2013 and 2022 there was an increase in the number of deaths by 11.1 thousand (a relative increase of 10.1%); when comparing 2022 with the last pre-pandemic year, 2019, there was an increase of 7.9 thousand deaths (by 7.0%). The number of deceased under one year of age in 2022 fell for the sixth time in a row, this time to 230. However, the infant mortality rate in 2022 rose by 1‰ year-on-year to a value of 2.3‰ (corresponding to 2020), because the number of live births decreased considerably. Male deaths account for 51.1% of deaths in 2022. More than four-fifths of the deceased were seniors aged 65 and over: in 2022, 89.6% of deceased women and 79.0% of deceased men were aged 65 and over (84.2% when both sexes are combined). Seniors aged 80 and over accounted for almost half of all deaths in the last decade (42.7% – 46.2%), they were more often represented again among women – in 2022, women in this age group accounted for 57.4% of all deaths and men for 34.0% of all deaths, while both sexes accounted for 45.5% of total deaths (Table 10). People aged 90 and older make up a substantial share of total dealths and that share has risen slightly year-on-year over the last decade (exception in 2021) from 10.4% to 14.8%. In 2022, 21.5% of deceased women and 8.2% of deceased men were aged 90 and over.

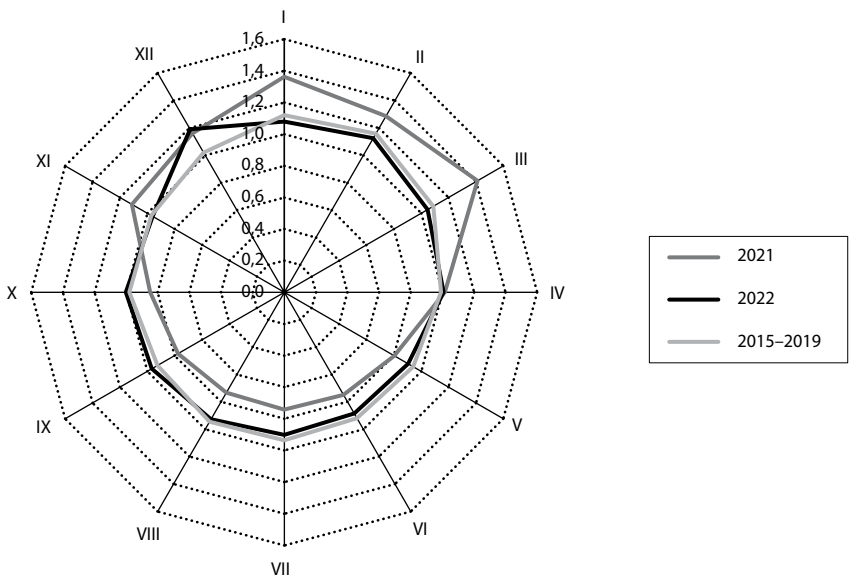
Table 10 **Deaths, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Deaths	109,160	111,443	112,920	112,362	129,289	139,891	120,219
– males	55,098	56,442	57,273	57,339	66,599	73,522	61,404
– females	54,062	55,001	55,647	55,023	62,690	66,369	58,815
Deaths at age: 0–14	419	465	454	463	397	406	397
15–64	22,141	19,481	19,280	18,793	19,648	22,493	18,567
65 and over	86,600	91,494	93,186	93,106	109,244	116,992	101,255
Percentage of deaths at the age 80 and over – males	27.1	33.1	32.7	33.1	34.6	31.9	34.0
– females	52.3	58.1	57.8	57.2	58.4	54.8	57.4
Percentage of deaths at the age 90 and over – males	3.9	7.3	7.2	7.7	8.0	7.4	8.2
– females	11.9	19.7	20.1	20.5	21.3	19.5	21.5
Deaths under 1 year of age	360	304	292	288	249	246	230
Infant mortality rate (‰)	3.1	2.7	2.6	2.6	2.3	2.2	2.3

Source: Czech Statistical Office; authors' calculations.

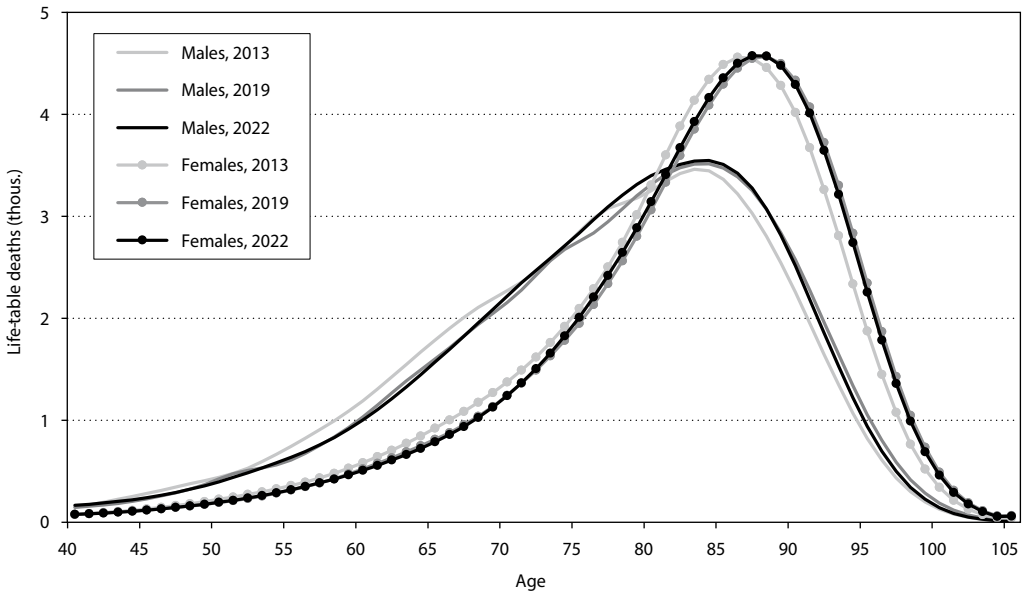
The number of deaths in individual months of the year in the Czech Republic is linked to the seasons, with the highest number of deaths occurring in the winter months of the year and in March and the fewest occurring between May and September (Figure 4). The number of deaths in the months of 2022 followed this same basic pattern, but with an earlier and more drastic increase in the number of deaths in autumn starting already from the month of September (13.1% more deaths than the average of 2015–2019,

Figure 4 **Deaths – monthly indexes, averages for the periods 2015–2019, 2021, 2022**



Source: Czech Statistical Office; authors' calculations.

Figure 5 **Life-table deaths by sex and age, 2013, 2019, and 2022**



Source: Czech Statistical Office. Based on life tables.

with a total increase of 8.2%), which then peaked in December with a wave of respiratory diseases (which usually peak in February or March), when the number of deaths increased by 26.3% compared to the 2015–2019 average (i.e. by 2.5 thousand deaths). When adjusted for the same number of days in each month of the year, most deaths were in December (a monthly index of 1.19), but the second highest number was in February (1.13) and the third in January (1.08). The lowest monthly index was recorded in June (0.88).

The effect of the age structure of the population on the number of deaths is eliminated (for example) by the indicators of mortality tables. Between 2013 and 2019, there was a relatively smooth shift in the curve of life table deaths towards an increase in life table deaths in old and very old age and a decrease in earlier and middle senior age (Figure 5). The pandemic situation in 2020 and changes in the probability of death caused a different development trend between 2019 and 2020. The improvement in mortality conditions in 2022 led to a return to the trend seen before 2020. The curve of the life table deaths of women in 2022 moved very close to the state of 2019 and the modal age (the age with the highest number of deaths), 87, remaining a year lower so far. For men, the development between 2019 and 2022 was similar to the development for women, except in the case of men aged 76 to 79 years (below the modal age), where the number of deaths in 2022 was significantly (than in 2019). The modal age of men in 2022 reached a value of 84 years, similar to what it was in 2019.

Life expectancy at birth in 2022 reached 76.1 years for men and 82.0 years for women (Table 11). Compared to the previous year, 2021, this is a significant increase in life expectancy at birth, by 2.1 years for men and 1.5 years for women. Even in the case of the life expectancy indicator, the positive development of mortality conditions in 2022 compensated for the negative impact of the COVID-19 years, 2020 and 2021; life expectancy at birth in 2022 reached the level of 2018 in the case of men and the level previously observed between 2018 and 2019 in the case of women. Between 2013 and 2022 life expectancy at birth increased by almost 1 year (from 75.2 years to 76.1 years) for men and by 0.7 years (from 81.2 years to 82.0) for women, while the only time the indicator for both sexes was higher than it was in 2022 was in 2019.

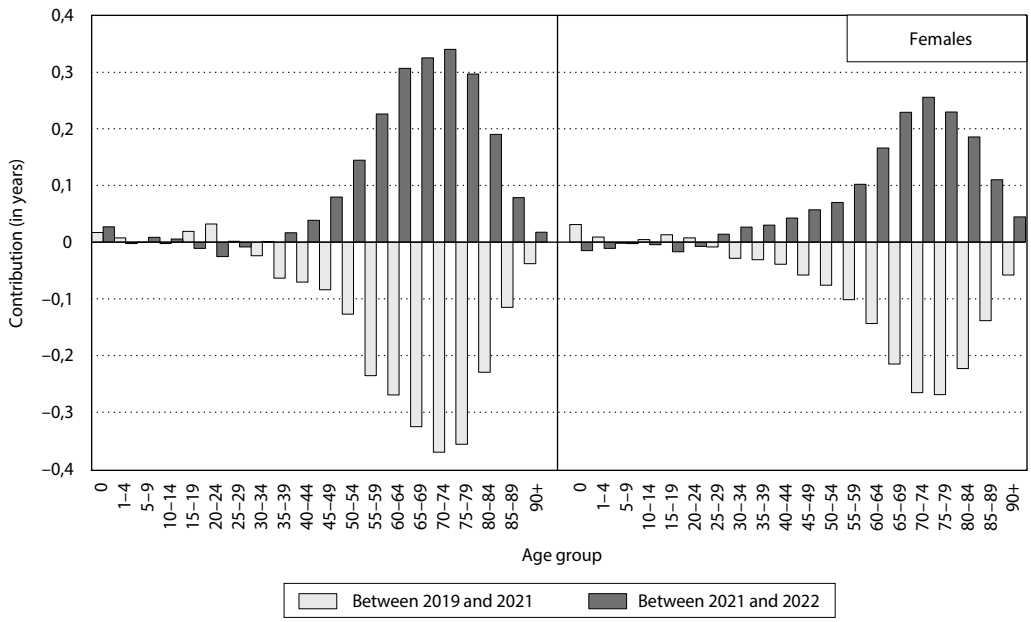
Table 11 **Life expectancy by sex and age, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Life expectancy of males at age: 0	75.2	76.0	76.1	76.3	75.3	74.1	76.1
65	15.6	16.1	16.1	16.3	15.2	14.5	16.1
80	7.0	7.3	7.4	7.4	6.6	6.5	7.2
Life expectancy of females at age: 0	81.2	81.8	81.9	82.1	81.4	80.5	82.0
65	19.1	19.6	19.7	19.9	19.2	18.6	19.8
80	8.2	8.6	8.6	8.8	8.2	8.2	8.7

Note: The indicator is based on life tables calculated according to a unified methodology used by the CZSO since 2018.
Source: Czech Statistical Office.

The age group 70–74 contributed the most to the increase in life expectancy at birth between 2021 and 2022 (Figure 6) for both men and women (by 0.34 years for men and 0.26 years for women). For men, the wider age range of 60 to 79 years then included an increase in life expectancy by 1.27 years, i. e. 62% of its total year-on-year increase of 2.0 years. For women, the older age group between 65 and 84 years contributed to the increase in life expectancy at birth by 0.9 years, i. e. 60% of the year-on-year increase of 1.5 years. Thus, for both sexes, between 2021 and 2022, the age groups that contributed most significantly to the increase in life expectancy at birth were the same ones that contributed most significantly to the decrease in life expectancy at birth in the previous two pandemic years (in 2019 and 2020).

Figure 6 **Contributions of age groups to the difference in life expectancy by sex, 2019, 2021, and 2022**



Note: Method of calculating according to Pressat (1985).
Source: Czech Statistical Office.

In 2022, the most common causes of death were, as is traditionally the case, diseases of the circulatory system, which were the causes of 46.3 thousand deaths (38.5% of all deaths). Of these, most inhabitants died from chronic ischemic heart disease (19.8 thousand, 16.5%), followed by heart failure (6.1%) and cerebrovascular disease (5.7%). The second most common cause of death was neoplasms (28.2 thousand deaths, 23.4%). The third most common cause of death was diseases of the respiratory system (8.5 thousand deaths, 7.1%). COVID-19 was the fourth most common cause of death in 2022 (6.0 thousand, 5.0%).

Based on standardizsd mortality rates (Table 12) the groups of causes of death in 2022 in both men's and women's populations ranked the same in both the male and female populations as the ranking for absolute numbers of deaths by these causes, with two exceptions in the male population. COVID-19 was the fourth most common cause of death according to standardised mortality rates for men (in absolute numbers it was fifth) and it thus switched places with external causes of death. Endocrine, nutritional, and metabolic diseases were the sixth most common cause of death according to standardised mortality

Table 12 **Standardised mortality rates*) by selected causes of death (per 100,000), 2013 and 2022**

Underlying cause of death (code according ICD-10)	Males		Females	
	2013	2022	2013	2022
Total	1,647.3	1,569.4	1,074.9	997.8
Neoplasms (C00–D48)	394.2	349.7	227.0	207.9
Malignant neoplasm of colon. rectum and anus (C18–C21)	56.5	46.6	27.7	22.8
Malignant neoplasm of pancreas (C25)	25.1	25.0	17.9	18.6
Malignant neoplasm of trachea. bronchus and lung (C33–C34)	90.2	66.3	30.5	29.7
Malignant neoplasm of prostate (C61)	44.7	39.1	31.8	28.0
Endocrine, nutritional and metabolic diseases (E00–E90)	59.0	69.6	46.7	51.6
Diabetes mellitus (E10–E14)	51.3	59.1	40.2	42.6
Mental and behavioural disorders (F00–F99)	16.8	22.4	15.0	20.1
Diseases of the nervous system (G00–G99)	34.9	46.5	27.5	42.1
Alzheimer disease (G30)	16.3	24.8	16.4	29.6
Diseases of the circulatory system (I00–I99)	798.3	610.1	577.7	426.6
Ischaemic heart diseases (I20–I25)	453.8	283.2	302.1	171.2
Acute myocardial infarction (I21–I22)**)	104.4	41.2	54.6	19.5
Heart failure (I50)	48.8	92.7	35.3	71.5
Cerebrovascular diseases (I60–I69)	148.7	82.6	123.8	65.9
Atherosclerosis (I70)	31.1	19.2	23.4	14.1
Diseases of the respiratory system (J00–J99)	120.3	120.6	58.9	64.2
Diseases of the digestive system (K00–K93)	63.6	66.4	38.2	38.6
External causes of morbidity and mortality (V01–Y98)	90.4	81.4	34.1	30.1
Transport accidents (V01–V99, Y85)	12.0	9.1	3.2	2.5
Intentional self-harm (X60–X84, Y870)	26.7	20.7	5.3	4.9
COVID-19 (U07)	-	92.1	-	46.6
Other	69.9	110.6	49.9	70.1

Note: *) The European population standard issued by Eurostat (2013) was used for standardisation. **) Since 2018, subsequent myocardial infarction I22 has used the acute form I21 instead as the underlying cause of death.
Source: Czech Statistical Office; authors' calculations.

rates (where in absolute numbers of deaths they were seventh), while diseases of the digestive system ranked seventh.

When the standardised mortality rates of men and women are compared, the mortality rates of men are higher in all the most common causes of death. The groups of causes of death characterised by the highest male mortality rate are mainly external causes (male mortality rate index to female mortality rate was 2.71 in 2022) and COVID-19 (1.98) and diseases of the respiratory system (1.88); the higher male mortality rate from these diseases has existed for a long time (in the case of COVID-19, for all three years of the pandemic). A low male mortality index is registered by diseases of the nervous system (with an index of only 1.11 in 2022) and by the category of Alzheimer disease and other dementias, for which women had a higher mortality rate in the last two years (and in the long term the mortality rate from this disease in this category is balanced between the sexes).

INTERNATIONAL MIGRATION

In 2022 migration statistics[2] were strongly influenced by the war in Ukraine: the Czech Republic became one of the countries to which refugees most often migrated. A total of 349.5 thousand persons immigrated to the Czech Republic from abroad in 2022 (the number of immigrants recorded in the population statistics), the highest ever number in the entire post-war history of the Czech Republic and five times more than there were in the preceding year (69.2 thousand in 2021, which was the highest number since 2009) (Table 13). The majority of immigrants were war refugees (out of a total of 349.5 thousand immigrants, 292.5 thousand of those recorded in CIS data at the end of 2022 had the residence status 'temporary protection of a refugee'). The number of emigrants, or persons whose registered stay in the Czech Republic ended, was 19.8 thousand in 2022 (i.e. 574 more than in 2021), which was no significant year-on-year change. It was at a similar level in the years 2014–2019. In 2013 and 2020, the number of registered emigrants was temporarily higher (30.9 thousand and 28.7 thousand.[3]

Men predominate in both migration flows. In the years 2013–2021, men made up 54.5–60.9% of immigrants and 54.0–67.8% of emigrants (Table 13). However, in 2022 the structure of people who immigrated to the Czech Republic differed from the usual pattern because of refugees. Men represented only 41.9% of immigrants, while 58.1% were women.

Table 13 **International migration by sex and age, 2013 and 2017–2022**

Indicator	2013	2017	2018	2019	2020	2021	2022
Immigrants	29,579	45,957	58,148	65,571	55,661	69,201	349,548
– percentage of males	55.7	58.4	59.5	60.9	59.1	59.8	41.9
Emigrants	30,876	17,684	19,519	21,301	28,734	19,232	19,806
– percentage of males	58.4	56.3	57.4	58.0	67.8	63.4	62.2
Volume of migration	60,455	63,641	77,667	86,872	84,395	88,433	369,354
Net migration	–1,297	28,273	38,629	44,270	26,927	49,969	329,742
aged: 0–14	1,190	3,328	3,684	4,241	3,498	4,547	75,862
15–64	–2,492	24,748	34,758	39,805	24,166	45,036	243,340
65+	5	197	187	224	–737	386	10,540

Source: Czech Statistical Office.

2) Data were obtained from the Central Population Register Record (ISEO), administered by the Ministry of the Interior of the Czech Republic, and the Foreigners' Information System (CIS), administered by the Directorate of the Alien Police Service of the Czech Republic.

3) In both years, the statistics of emigrants were affected by the administrative interventions of the CIS terminating the validity of a foreign national's residence permit.

In the case of emigrants, men still predominated, as 62.2% of emigrants were men and 37.8% were women. The age structure of net migration in 2022 was strongly influenced by the age structure of the immigrants. While in previous years the 25–29 age group, followed by the 30–34 and 20–24 age groups, usually contributed the most to the increase, in 2022 the highest increases were in the 15–19 (34.8 thousand) and 35–39 age groups (34.0 thousand). Compared to 2021, net migration in all age groups at least tripled year-on-year and increased more than tenfold in all children's age groups and from the age of 55.

The structure of migrants according to their citizenship did not change significantly over time. Citizens of Ukraine, Slovakia, Russia, the Czech Republic, or Vietnam regularly formed the most numerous groups of immigrants or emigrants in the last decade. The migration balance was the highest among Ukrainian citizens in 2022. Their migration balance of almost 305,000 made up 92% of the total increase in net migration. The second highest migration balance in 2022 was among citizens of Slovakia, which reached 5.6 thousand, and the third highest – 1.9 thousand – was among citizens of Russia.

INTERNAL MIGRATION

The total volume of registered internal migration (changes of municipality of residence) in 2022 decreased year-on-year by 4.0 thousand to 244.1 thousand persons changing their municipality of residence (Table 14). The total volume in 2022 was still slightly (by 1%) higher than the ten-year average for 2013–2022. In the last decade, the volume of internal migration was the smallest in 2020 (232.0 thousand), when the possibility of moving was limited in part of the year by legislation as part of anti-pandemic measures, while, conversely, the highest was in 2016 (250.7 thousand). In contrast to international migration, in internal migration women slightly predominate over men. The share of women in the volume of internal migration in the last decade ranged from 51.4% to 53.8%, with the lowest share observed in 2022.

From the perspective of age distribution, in the past decade until 2020 people aged 25–29 made up the largest number of internal migrants; since 2021 it has been people aged 30–34. In 2022, a total of 32.4 thousand residents aged 30–34 changed their place of residence within the Czech Republic. From the perspective of basic age groups (0–14, 15–64, and 65+), 23–25% of internal migration was stably shared by children under 15 years of age, 69–71% by persons of working age, and 6–7% by seniors aged 65 and over (Table 14). The average age of migrants in 2013–2022 varied within the narrow age range of 30.6 to 31.5 years.

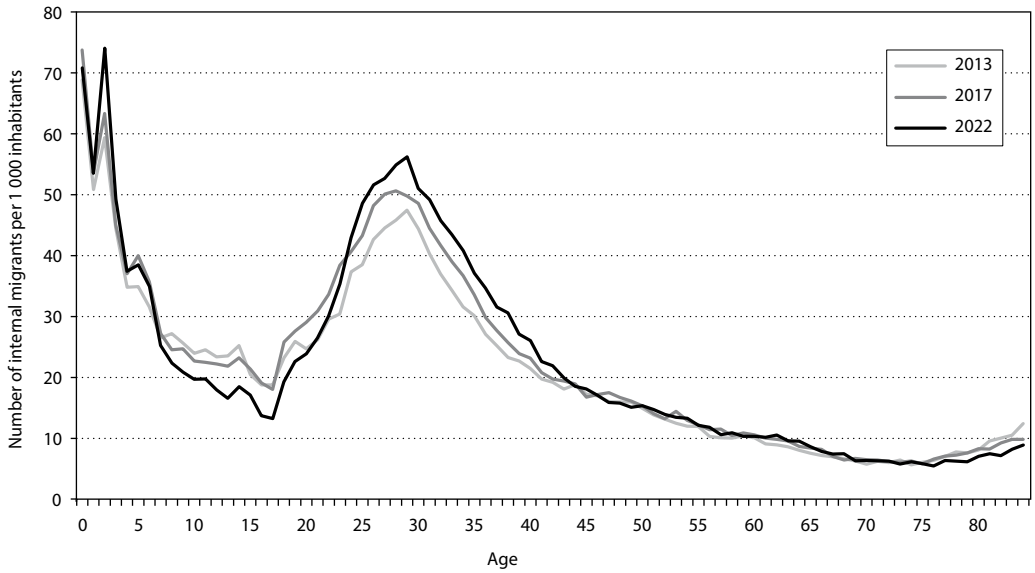
The age profile of migration intensity in the Czech Republic has been relatively stable over time (Figure 7). Moving is most common among the youngest children aged 0–2 years (on average, in 2022) or, viewed from the perspective of five-year age groups, for 0–4 year old children (57‰ in 2022). After that the intensity of migration decreases until around the age of 16–17 years (in 2022, less than 14‰ inhabitants) of this age changed their place of residence) and then increases again towards a second peak between 25 and 30 years of age. In 2022, the most cases of internal migration

Table 14 **Internal migration by sex and age, 2013 and 2017–2022**

Volume of migration	2013	2017	2018	2019	2020	2021	2022
Total	234,094	246,070	247,414	242,679	231,989	248,149	244,125
– percentage of males	46.5	46.5	47.1	47.1	47.9	48.3	48.6
Percentage of age group: 0–14	24.0	24.3	24.5	25.0	24.6	24.0	24.4
15–64	70.0	69.4	69.4	69.1	69.7	69.5	69.1
65 and over	6.0	6.3	6.1	5.9	5.7	6.6	6.5
Average age of migrants	30.7	31.0	30.8	30.6	30.7	31.5	31.4

Note: The average age of migrants is calculated from the absolute numbers of migrants by age.
Source: Czech Statistical Office.

Figure 7 **Internal migration rate by age, 2013, 2017, and 2022**



Source: Czech Statistical Office; author's calculations.

occurred among residents aged 28 and 29, who accounted for 55 or 56 out of every thousand moves, and, when viewed as five-year age groups, in the 25–29 age group (53‰). The high migration activity in this age group is probably related to people moving for work after finishing school or starting their own household. For people in their thirties and older, the rates of internal migration show a decreasing trend with age, with the lowest rate of migration observed among people around the age of 75 or in the group aged 75–79 years (6‰). For older seniors, on the other hand, the intensity of the change of residence increases slightly again, which may be related to their moving to live with a family member, or moving into a smaller dwelling.

CONCLUSION

The year 2022 was marked by a massive wave of immigration in connection with the armed conflict in Ukraine and a partial return to pre-pandemic demographic trends. The wave of immigration from Ukraine, which mainly included children and women of working age, was reflected in the year-on-year increase in the number of children (0–14 years) and in the size of the working-age population (15–64 years), which had the effect of slowing down the pace of population ageing and affected international migration statistics. The decline in mortality from COVID-19 had an impact on the year-on-year 14% decrease in the number of deaths, but the number of deaths did not return to its pre-pandemic level – the higher number of deaths compared to the pre-pandemic period is partly the result of changes in the age composition. In 2022, COVID-19 no longer had an impact on the seasonal mortality profile. A substantial part of the year 2022 was no longer affected by epidemiological measures, so the total number of marriages (a 17% year-on-year increase) almost returned to its pre-pandemic level in 2019. In contrast, the divorce rate did not return to the pre-pandemic level: the decreasing trend in the number of divorces and in the divorce rate, which accelerated in the years of the COVID-19 pandemic, continued in 2022.

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Population and vital statistics of the Czech Republic: 2022, cohesion regions and regions

Cohesion region (NUTS 2), region (NUTS 3)	Population 1 July	Population 31 December	Marriages	Divorces	Live births	Abortions	Deaths			Increase (decrease)			Marriages	Divorces	Live births	Deaths	Total increase
							Total	Within 1 year	Within 28 days	Natural	Net migration	Total	per 1,000 inhabitants				
Czech Republic	10,759,525	10,827,529	54,820	19,846	101,299	27,598	120,219	230	125	–18,920	329,742	310,822	5.1	1.8	9.4	11.2	28.9
Praha	1,338,530	1,357,326	6,983	2,370	13,528	3,259	12,810	19	12	718	81,202	81,920	5.2	1.8	10.1	9.6	61.2
Střední Čechy	1,427,394	1,439,391	6,904	3,048	13,467	3,624	14,351	24	14	–884	53,451	52,567	4.8	2.1	9.4	10.1	36.8
Jihozápad	1,247,713	1,257,691	6,300	2,191	11,596	3,153	14,114	29	15	–2,518	44,455	41,937	5.0	1.8	9.3	11.3	33.6
Severozápad	1,101,505	1,105,932	5,808	2,317	9,627	3,636	13,406	37	15	–3,779	27,603	23,824	5.3	2.1	8.7	12.2	21.6
Severovýchod	1,525,437	1,533,205	7,740	2,610	13,908	3,852	17,238	33	24	–3,330	41,864	38,534	5.1	1.7	9.1	11.3	25.3
Jihovýchod	1,722,082	1,731,977	8,587	2,990	17,057	3,864	19,205	33	17	–2,148	45,532	43,384	5.0	1.7	9.9	11.2	25.2
Střední Morava	1,209,088	1,212,333	6,143	2,106	11,346	3,125	14,176	27	17	–2,830	19,801	16,971	5.1	1.7	9.4	11.7	14.0
Moravskoslezsko	1,187,776	1,189,674	6,355	2,214	10,770	3,085	14,919	28	11	–4,149	15,834	11,685	5.4	1.9	9.1	12.6	9.8
Hlavní město Praha	1,338,530	1,357,326	6,983	2,370	13,528	3,259	12,810	19	12	718	81,202	81,920	5.2	1.8	10.1	9.6	61.2
Středočeský kraj	1,427,394	1,439,391	6,904	3,048	13,467	3,624	14,351	24	14	–884	53,451	52,567	4.8	2.1	9.4	10.1	36.8
Jihočeský kraj	649,455	652,303	3,313	1,148	6,087	1,783	7,416	14	8	–1,329	16,585	15,256	5.1	1.8	9.4	11.4	23.5
Plzeňský kraj	598,258	605,388	2,987	1,043	5,509	1,370	6,698	15	7	–1,189	27,870	26,681	5.0	1.7	9.2	11.2	44.6
Karlovarský kraj	291,398	293,595	1,527	577	2,370	781	3,527	7	3	–1,157	11,542	10,385	5.2	2.0	8.1	12.1	35.6
Ústecký kraj	810,107	812,337	4,281	1,740	7,257	2,855	9,879	30	12	–2,622	16,061	13,439	5.3	2.1	9.0	12.2	16.6
Liberecký kraj	446,850	449,177	2,257	826	3,921	1,349	5,013	8	4	–1,092	12,699	11,607	5.1	1.8	8.8	11.2	26.0
Královéhradecký k.	552,724	555,267	2,836	955	5,058	1,296	6,176	13	11	–1,118	13,802	12,684	5.1	1.7	9.2	11.2	22.9
Pardubický kraj	525,863	528,761	2,647	829	4,929	1,207	6,049	12	9	–1,120	15,363	14,243	5.0	1.6	9.4	11.5	27.1
Kraj Vysočina	512,701	514,777	2,416	813	4,979	1,101	5,861	12	5	–882	11,634	10,752	4.7	1.6	9.7	11.4	21.0
Jihomoravský kraj	1,209,381	1,217,200	6,171	2,177	12,078	2,763	13,344	21	12	–1,266	33,898	32,632	5.1	1.8	10.0	11.0	27.0
Olomoucký kraj	629,823	631,802	3,242	1,104	5,985	1,642	7,481	12	9	–1,496	10,368	8,872	5.1	1.8	9.5	11.9	14.1
Zlínský kraj	579,265	580,531	2,901	1,002	5,361	1,483	6,695	15	8	–1,334	9,433	8,099	5.0	1.7	9.3	11.6	14.0
Moravskoslezský k.	1,187,776	1,189,674	6,355	2,214	10,770	3,085	14,919	28	11	–4,149	15,834	11,685	5.4	1.9	9.1	12.6	9.8

Radek Havel

Population and vital statistics of the Czech Republic in towns with population above 50 thousands: 2022

Town	Population 1 July	Population 31 December	Marriages	Divorces	Live births	Abortions	Deaths	Increase (decrease)			Marriages	Divorces	Live births	Deaths	Total increase
								Natural	Net migration	Total	per 1,000 inhabitants				
Praha	1,338,530	1,357,326	6,983	2,370	13,528	3,259	12,810	718	81,202	81,920	5.2	1.8	10.1	9.6	61.2
Brno	392,025	396,101	2,043	659	4,120	1,025	4,436	–316	16,951	16,635	5.2	1.7	10.5	11.3	42.4
Ostrava	282,854	283,504	1,516	495	2,659	1,049	3,679	–1,020	4,733	3,713	5.4	1.8	9.4	13.0	13.1
Plzeň	178,407	181,240	895	298	1,659	490	1,971	–312	12,819	12,507	5.0	1.7	9.3	11.0	70.1
Liberec	106,601	107,389	535	190	930	297	1,149	–219	4,657	4,438	5.0	1.8	8.7	10.8	41.6
Olomouc	101,176	101,825	541	171	1,069	277	1,153	–84	2,413	2,329	5.3	1.7	10.6	11.4	23.0
České Budějovice	95,888	96,417	528	182	976	287	1,146	–170	3,161	2,991	5.5	1.9	10.2	12.0	31.2
Hradec Králové	92,903	93,506	438	157	902	164	1,025	–123	3,033	2,910	4.7	1.7	9.7	11.0	31.3
Pardubice	91,655	92,149	458	162	855	250	1,027	–172	3,801	3,629	5.0	1.8	9.3	11.2	39.6
Ústí nad Labem	91,744	91,963	505	193	781	349	1,138	–357	1,942	1,585	5.5	2.1	8.5	12.4	17.3
Zlín	73,946	74,191	351	132	652	175	854	–202	1,420	1,218	4.7	1.8	8.8	11.5	16.5
Havířov	70,090	70,245	415	154	603	191	980	–377	1,538	1,161	5.9	2.2	8.6	14.0	16.6
Kladno	68,272	68,436	322	147	592	238	778	–186	1,719	1,533	4.7	2.2	8.7	11.4	22.5
Most	63,790	63,856	329	123	568	217	808	–240	1,230	990	5.2	1.9	8.9	12.7	15.5
Opava	55,461	55,512	298	97	531	151	680	–149	821	672	5.4	1.7	9.6	12.3	12.1
Frýdek-Místek	54,207	54,188	268	103	466	83	689	–223	512	289	4.9	1.9	8.6	12.7	5.3
Jihlava	52,108	52,548	215	93	450	160	523	–73	2,513	2,440	4.1	1.8	8.6	10.0	46.8
Teplice	50,471	50,843	261	101	480	197	586	–106	2,183	2,077	5.2	2.0	9.5	11.6	41.2
Karviná	50,079	50,172	240	82	426	111	839	–413	704	291	4.8	1.6	8.5	16.8	5.8

Radek Havel

Abstracts of Articles Published in the Journal Demografie in 2023 (Nos. 1–3)

Anna Šťastná

RODIČOVSTVÍ A PÉČE O DĚTI V DOBĚ PANDEMIE COVID-19 V OBDOBÍ 2020 A 2021 V ČESKU

This paper examines how couples with children aged 14 or under provided full-time childcare during three major Covid-19 lockdowns in Czechia. The analyses are based on the most recent data from the Czech GGS Covid pilot collected between December 2020 and February 2021, with a follow-up in April 2021. The results show that in all three lockdown periods, women were significantly more likely to be the ones left solely responsible for providing all-day childcare in the couple, even they were working as well as their partner. The odds of the woman being the sole provider of childcare increased with decreasing age and education, but also with the inability to flexibly adjust working hours.

Keywords: childcare, gendered division of care, fathers' involvement, lockdown, Covid-19, Czechia, GGS
Demografie, 2023, **65: 3–22**
DOI: https://doi.org/10.54694/dem.0314

Branislav Šprocha

TRI DESAŤROČIA TRANSFORMÁCIE PLODNOSTI V ČESKU A NA SLOVENSKU V PRIEREZOVOM A GENERAČNOM POHĽADE

Since the beginning of the 1990s, there have been significant changes in fertility quantum and tempo in Czechia and Slovakia. We are also witnessing significant age pluralization of reproduction. These and other transformational changes can be observed not only in a cross-sectional view but also in a cohort perspective. The main goal of the article is to analyse the main changes in the fertility process in Czechia and Slovakia after 1989. We focus on changes in the intensity and timing of childbirth and the age distribution of fertility. We identify the development trajectories of the two countries and the similarities and differences between them brought about by the transformation period. By analysing the process of the postponement and recuperation of cohort fertility, we also try to point out the future development of completed cohort fertility and the parity structure of women born in the second half of the 1970s and 1980s.

Keywords: fertility, transformation, fertility quantum and tempo, postponement, recuperation, parity structure, Czechia, Slovakia
Demografie, 2023, **65: 65–83**
DOI: https://doi.org/10.54694/dem.0317

Marie Kuklová – Michala Lustigová

VLIV SOCIOEKONOMICKÉHO STATUSU NA VÝSKYT DEPRESIVNÍCH SYMPTOMŮ V POPULACI ČESKA – VÝSLEDKY EHIS 2019

This paper examines the effect of socioeconomic factors (including achieved level of educational attainment, economic activity, and income) on the occurrence of depressive symptoms in the Czech population. The analyses are based on the cross-sectional European Health Interview Survey (EHIS) from 2019. The results of these analyses show the individual and also combined effect of education, economic activity, and income. The odds ratio of depressive symptoms is the highest among respondents with primary education, those who are unemployed, and those with lower income. Socioeconomic status is significantly associated with depressive symptoms.

Keywords: depressive symptoms; prevalence of depressive symptoms; socioeconomic status; PHQ-8; Czechia; EHIS
Demografie, 2023, **65: 84–93**
DOI: https://doi.org/10.54694/dem.0318

Tereza Havelková

SOUČASNÝ STAV A PERSPEKTIVY VÝVOJE KAPACIT POBYTOVÝCH SOCIÁLNÍCH SLUŽEB PRO SENIORY V SO ORP KRAJE VYSOČINA

Demographic ageing brings with it many challenges for contemporary society. One of them includes an increase in the demand for social services. This article evaluates the current capacity of residential social services for seniors in the administrative districts of municipalities with extended powers (AD MEP) in the Vysočina Region and an outline of their possible future development. Based on a population projection we compiled and the current capacity of residential social services, we calculated model estimates of the capacity of these facilities in the administrative districts of the Vysočina Region. We found that in order to maintain the current availability of accommodation services, capacity needs to be increased on average by more than one-third by 2050. The highest relative increase in capacity should occur in AD MEP Velké Meziříčí and AD MEP Jihlava, because these are the districts that are expected to see the biggest increase in the number of senior citizens.

Keywords: demographic ageing; residential social services for seniors; Vysočina Region; projection
Demografie, 2023, **65: 103–119**
DOI: https://doi.org/10.54694/dem.0320

Robert Šanda

VYUŽITÍ ADMINISTRATIVNÍCH ZDROJŮ DAT PŘI VYMEZENÍ OBYVATELSTVA VE SČÍTÁNÍ LIDU 2021 V ČESKU

The article presents the administrative data sources used in the 2021 population census in Czechia and describes the main steps in data processing leading from raw input data to the final census population. Special attention is paid to signs-of-life analysis, which deals with the issue of overcoverage in the population register. The article ties in with a previous article (published in 2022) that discussed the use of registers in European population censuses and explained the process of combining data sources in the previous 2011 Czech population census.

Keywords: population and housing census, Czechia, administrative data sources, data quality, signs-of-life analysis
DOI: https://doi.org/10.54694/dem.0323

Demografie, 2023, **65: 120–135**

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- Roubíček, V. 1997. *Úvod do demografie*. Prague: Codex Bohemia.
- Hantrais, L. (ed.). 2000. *Gendered Policies in Europe. Reconciling Employment and Family Life*. London: Macmillan Press.
- *Potraty*. 2005. Prague: Ústav zdravotnických informací a statistiky.

Articles in periodicals

- Bakalář, E. and Kovařík, J. 2000. 'Fathers, Fatherhood in the Czech Republic.' *Demografie*, 42, pp. 266–272.

For periodicals that use consecutive page numbering within a volume it is not necessary to indicate the issue number.

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Syrovátka, A. 1962a. 'Injuries in the Household.' *Czech Paediatrics*, 17, pp. 750–753.

Syrovátka, A. 1962b. 'Child Mortality from Automobile Accidents in the Czech Lands.' *Czech Medical Journal*, 101, pp. 1513–1517.

In-text references

(*Srb*, 2004); (*Srb*, 2004: pp. 36–37); (*Syrovátka et al.*, 1984).

Table and figure headings

Table 1: Population and vital statistics, 1990–2010

Figure 1: Relative age distribution of foreigners and total population of CR, 31 Dec 2009

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