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# *Sustainability of the Pension System, Risks and Opportunities*

**SUMMARY:** All other things being equal by 2060 out of 10 of the working age population 6 pensioners will be accounted for. This does constitute a risk for the sustainability of pensions. Our study has analysed the most recent data on demographics, economy, employment, and its underlying factors, as well as the expected development of the figures of the pension fund. Our findings point to that the shrinking of the population of women of childbearing age will result in a constant decrease of birth rates even by a modest increase in fertility rates. Therefore, family policy measures - being indispensable - are of their own insufficient to mitigate the economic and pension risks. Due to its conjunctural nature economic growth can only temporarily mitigate the risks. On the other hand, the extension of the labour market activity of elderly people can set back the increase in pension costs with well predictable efficiency. Means to this end can include promoting activity at old ages, raising retirement ages, preserving physical and mental well-being and employability, as well as spreading the culture of self-reliance.

**KEYWORDS:** pension system, labour market, demography, sustainability

**JEL CODES:** H55, H75, J3, J11

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*“Hungary shall contribute to ensuring a life of dignity for the elderly by maintaining a general state pension system based on social solidarity and by allowing for the operation of voluntarily established social institutions.”* the Fundamental Law of Hungary (Article XIX, paragraph 4).

The population of our country will continuously decrease until 2060, while its age composition will be unfavourable. With all factors unchanged, by 2060, the old-age retirement rate will increase to over 60

per cent. This poses a long-term risk to the sustainability of the Hungarian economy and the pension fund. The aim of our study is to explore the risks of the Hungarian employment and pension system based on the available forecasts and trends, until 2060.

The analysis processed the latest demographic, economic and employment statistics, reviewed the relevant literature, and took into account the factors affecting population, emigration and immigration, employment, and the development of the income and expenditure side of the pension system. Based on the demographic projection

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of the CSO, we performed calculations and made a forecast of some of the effects of raising the retirement age.

The articles on the pension system are a recurring theme in scientific communication. Scientific articles usually approach the social security pension scheme in terms of sustainability (long-term funding, equilibrium) and equity (application of the principles of insurance and social solidarity).

The articles describing the social security pension system - primarily its sustainability - typically point out the connections of the pension system with other social and economic areas (Monostori, 2015; Gál, 2017), and formulate risks, criticisms and reform proposals accordingly.

The differences between the ideas for changing the social security pension system are typically not aimed at changing the current pay-as-you-go system (Banyár, 2020). The coronavirus epidemic also highlighted the vulnerability of funded schemes, with domestic and foreign pension funds making significant losses in the first half of 2020. From the point of view of the sustainability of the pay-as-you-go pension system, the main topic of discussion is the conditions under which, when and to what extent the state should provide benefits, and how decisive the role of self-care should be, how and to what extent should the state take into account childbearing, which is the basis of long-term sustainability among the conditions in the rules for determining pensions (Botos, Botos, 2020).

Raising the retirement age is the primary tool for improving the sustainability of the social security pension system (Simonovits, 2019). From the mid-2010s onwards, with the recovery of the labour market, unemployment fell, real wages increased and this had a positive effect on the funding of the social security pension system. The question is, can a high

employment rate and a level of income with a high contribution base be expected in the long run? The aging of the population requires a consistently high employment rate and rising real wages.

*Varga* (2014) predicts that due to demographic processes, changed household behaviour and macroeconomic effects - with an unchanged retirement age - the expenditures of the pension system will double by 2070. The sustainability of the pension system can be ensured through “complex reforms”, raising the retirement age, raising the contribution rate and changing the rules for setting and raising pensions. *Bajkó et al.* (2015) developed a pension model that took into account demographic and labour market developments and performed calculations based on it. In their model, due to demographic trends, the balance of the social security pension system will become negative in the mid-2020s, the occurrence of which may be delayed by real wage growth until the mid-2030s. Based on an estimate of expected pension expenditures, taking into account, inter alia, the gradual raising of the age limit until 2022, *Freudenberg et al.* (2016) concluded that the social security pension system can remain in balance until 2040 (the retirement of the *Ratkó* grandchildren). These models have not yet taken into account the changes in the period between 2015 and 2019, the effects of government measures.

The government is also making calculations for the sustainability of the pension system. According to the government (2020), the pension expenditures are projected to increase from 9 per cent to 11.2 per cent of GDP from 2020 to 2070, while pension insurance contribution revenues will account for 8.3 per cent in 2020, 8.5 per cent in 2070 and between 2020 and 2040, the difference between revenue and expenditure will not exceed 1 percentage point.

In our article, we analysed the development of demographic and labour market processes, wages and salaries as well as the contribution and tax revenues forming the pension base related thereto, the causes, components and expected trends of changes, using a conservative approach based on most aspects. In the course of the analysis, we classified the risks to the sustainability of the pension system and reviewed the public policy measures aimed at offsetting the risks, as well as formulated suggestions as to which measures can be used to manage and mitigate the identified risks.

The time horizon of the analysis is different for each area. We have analysed the demographic trends from 1950 to the present, and the components of the changes over the period 2000–2019, as they typically have an impact over a longer period of time. Regarding the future, we have taken into account the demographic forecasts of the CSO, used by the analysis, which have projections until 2060. The changes in the labour market and wages and salaries have been under scrutiny since 2010, a year of trend reversals in economic policy. In the case of the social security pension scheme, the period of 2012–2019 formed the basis of the analysis, as before that in 2011 the pension scheme underwent a significant structural change with the abolition of the mandatory private pension fund scheme.

The source material for the article was mainly the time series of the CSO and its publications on demography, the labour market and pensions. The source of the financial data of the social security pension system was the annual tables of the Hungarian State Treasury, Social Security Fund, as well as the laws on the central budget and their implementation. The sources of the analysis also included the previous analyses of the SAO.

The study examines the correlations of several interrelated areas. The age composition of the population determines the proportion

of active and inactive groups and labour supply. Population, labour and employment are closely related concepts, forming a multiply interconnected system. The labour income generated by active members of the population forms the basis of pensions paid to retirees (*see Figure 1*).

The study examines the development in time, tendencies and interacting processes of the six areas shown in Figure 1, as well as explores the causes and components of the changes. Based on all this, it formulates a forecast and identifies medium and long-term sustainability risks to employment and the pension system. It also reviews public policy measures aimed at offsetting the risks.

## DEMOGRAPHIC TRENDS

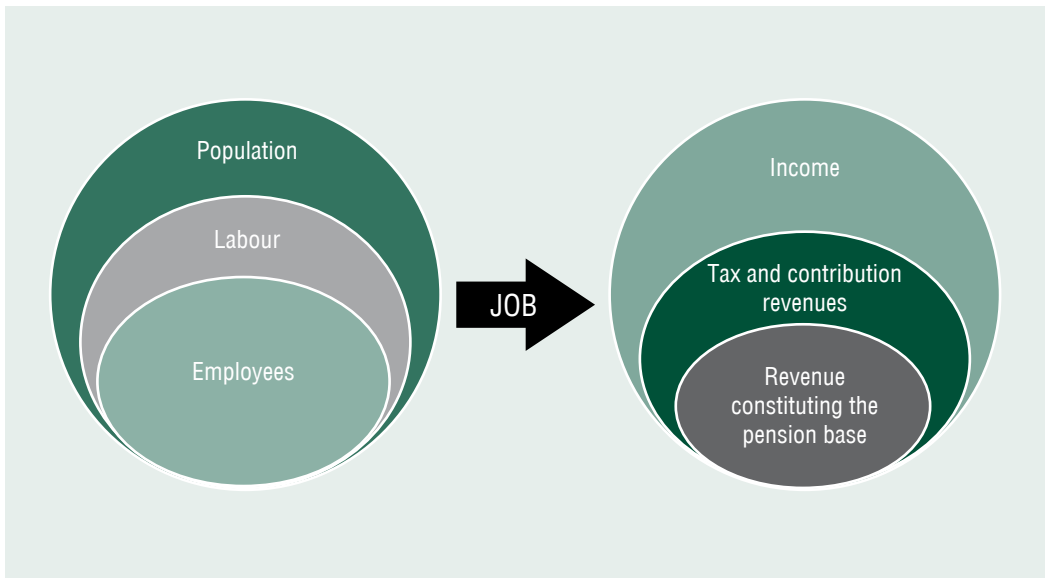
The population of a country also means human resources. Population decline and aging carry sustainability risks, declining labour supply can impair competitiveness, make it more expensive to maintain infrastructure and the social security benefit system (Kapitány, Spéder, 2017), as it results in fewer taxpayers. Between 2010 and 2019, the population of Hungary decreased by an average of 38.9 thousand per year (CSO STADAT 1.1) and, according to the forecasts, the rate of decline will increase (*Figure 2*).

### Number of births

After the Ratkó era, the number of births dropped drastically (by about 50 per cent) until the 2000s. One of the reasons for this was the spread of cultural techniques (basic writing, reading, and calculation skills) with which women could regulate their own fertility, as well as the use of contraception and abortion (Tárkányi, 2008). Between

Figure 1

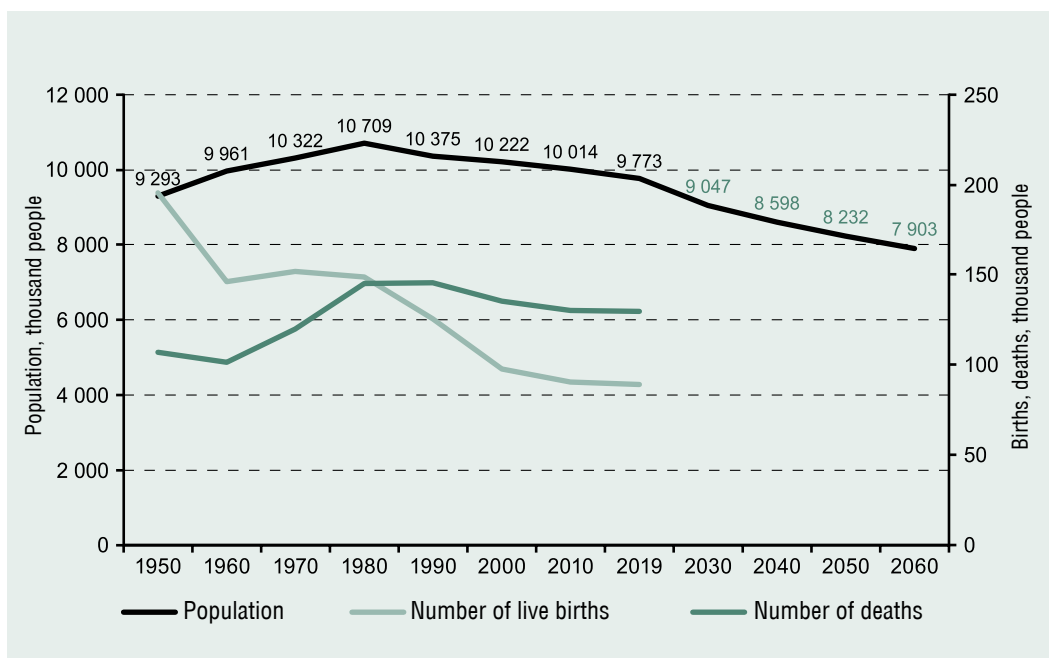
**CATEGORISATION OF ANALYSED AREAS**



Source: own edited

Figure 2

**POPULATION OF HUNGARY**



Source: CSO STADAT 1.1., Interactive population pyramid, own edited

2010 and 2019, the number of births did not change significantly. The change in the birth rate is determined by the number of women of childbearing age (15–49 years). The number of women of childbearing age has been steadily declining since 1997 (*Figure 3*).

The fertility rate developed more favourably between 2016 and 2019: it was 1.49, which is about 19 per cent higher than the 2010 low. The EU average fertility rate in 2017 was 1.59 (CSO SDI, 2019). The 2.1 fertility rate equals the rate of reproduction (CSO SDI, 2019), at which the population does not decrease if the number of women of childbearing age does not change. In 2019, reaching the fertility rate of 2.1 would have required the birth of about 26,000 more children.

The persistent lag in the fertility rate from

the reproductive rate of 2.1, as well as the fact that there are fewer and fewer women of childbearing age, suggests fewer tax and contribution payers and projects a decline in social security pension system revenues.

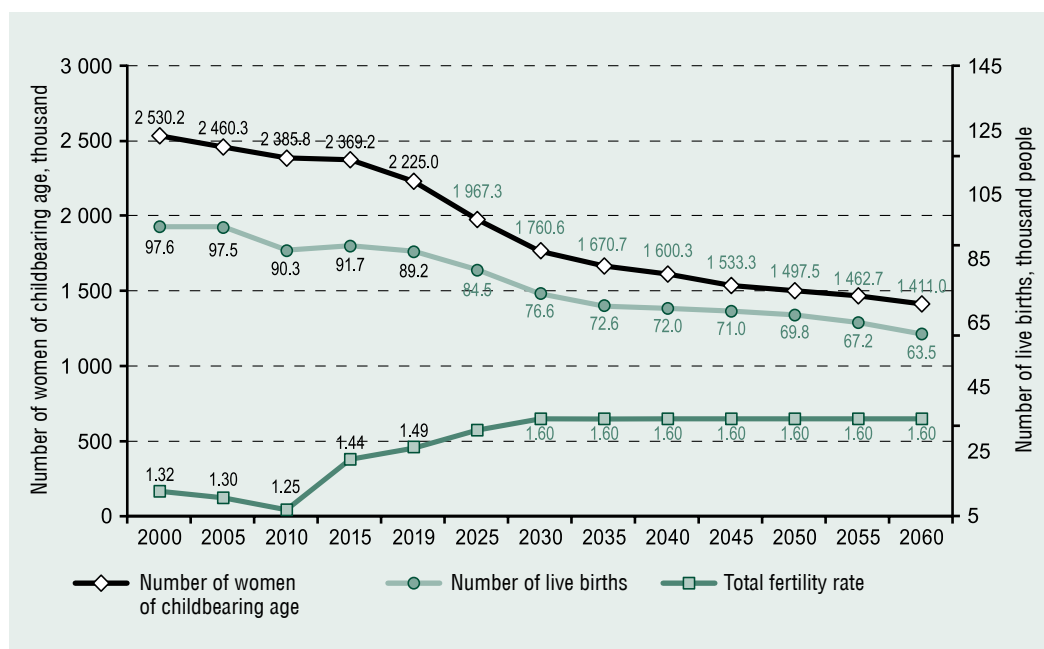
### Factors influencing the number of births

#### *Time of having children*

It is a biological fact that as women age (over 30 years slowly, over 35 years at an ever-accelerating rate) women’s fertility declines. Deferred births also play a role in the low level of fertility (CSO SDI, 2019). Between 1990 and 2009, the most fertile women aged 20-24 had more than two-thirds fewer children. They were replaced by women in their second half

Figure 3

### NUMBER OF WOMEN OF CHILDBEARING AGE, NUMBER OF LIVE BIRTHS AND TOTAL FERTILITY RATE



Source: CSO STADAT 1.1., Interactive population pyramid, demographic projection, own edited (In the case of 2025, the analysis took into account the actual data of 2019 and the number of the forecast for 2030).

of the 1920s and early 1930s, with moderately rising fertility (CSO, 2011).

In Hungary, about 20–25 per cent of couples intending to have a child have infertility problems. The number of children born as a result of infertility treatment is about 4 per cent of the annual birth rate. Approximately two thousand test-tube babies are born each year, and according to experts, this number can be as high as three thousand five hundred depending on budget contribution (Kaáli, 2017).

#### *Education, value structure, desire to have children*

An important component of the decline in the birth rate since the 1960s was the increase in the level of education and the emergence of tools by which women could regulate their own fertility (Murray et al., 2018; Tárkányi, 2008).

In addition to the fertility rate, various components of lifestyle are also determining factors, such as changes in family formation habits, increase in the number of years spent in school, family models, transformation of life philosophies, job insecurity of young people and difficulties in creating a home (Horváth, Vida, 2019).

The Ministry of Human Capacities has set up a special research institute (Mária Kopp Institute) to study the complex lifestyle and set of values factors of the demographic problem. According to their survey, the ideal number of children is 2.4, while the planned number is 2.12. The reasons for the difference between the plans and the actual number of children are complex, the lack or insufficiency of a lasting partner relationship is just as much a reason as the lack of financial conditions (KINCS, 2019-1).

#### *Marriage, divorce, abortion*

In addition to the number of births, the number of marriages, divorces, and abortions also has an impact on fertility (*Figure 4*).

Between 2010 and 2019, all three indicators were favourable. The number of abortions has dropped by about 60 per cent. As a possible complication, abortion increases the risk of secondary infertility and premature birth (Kozinszky et al., 2006), so a decrease in the number of abortions may also mean an increase in fertility. The higher increase in the number of marriages may have been due to the fact that from 2015 the couples in their first marriage were eligible for a tax credit (HUF 5,000 per month) for 24 months, and from the second half of 2019 the “young” married couples can apply for a baby expecting loan (HUF 10 million).

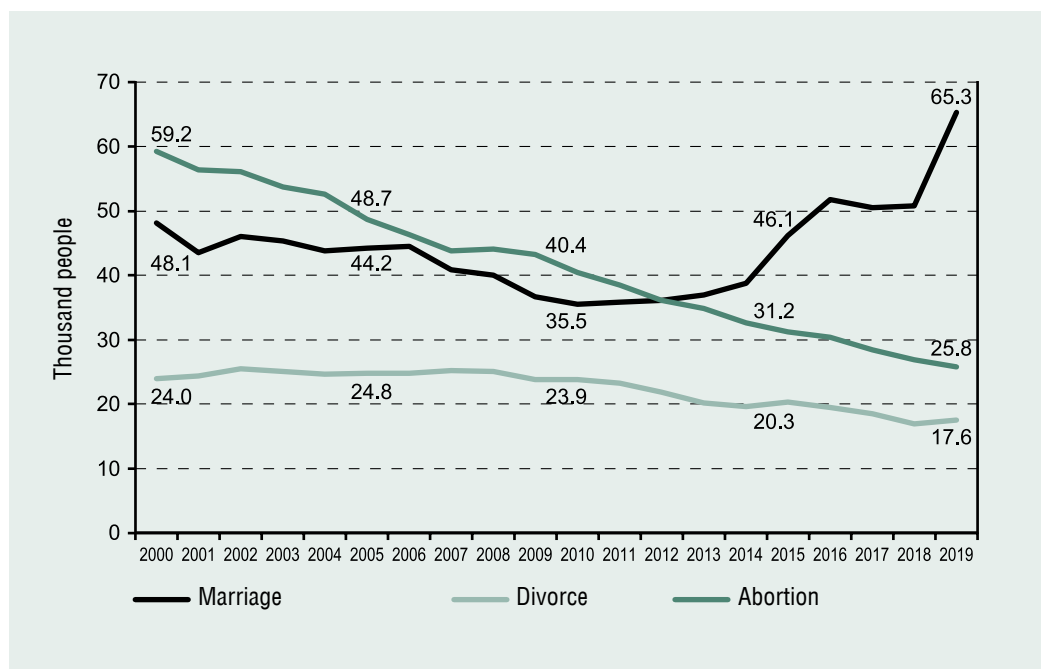
#### *State aid*

Women participate in economic and social processes directly as part of the workforce and as mothers and “reproducers” of the future labour force. As the goal is for the woman to reproduce the future workforce as well as to participate in the operation of the economy as a part of the workforce, the role of the state is an important factor. In order to support the dual role of women, there is a need for state substitutes that can, on the one hand, replace women’s reproductive and child raising work (nursery, kindergarten care) and, on the other hand, compensate for temporary withdrawal from the labour market [baby-care allowance (CSED), childcare allowance (GYES) or childcare benefit (GYED)]. In child raising the parent can also be replaced by resources organised from informal networks (grandparents), which can also be encouraged by the state [grandparent childcare benefit (GYED and childcare allowance (GYES)].

The Hungarian family support system helps the birth of the desired children by easing the burden of having children (Horváth, Vida, 2019). From 2010 onwards, Hungary has significantly strengthened some elements of its family support system (including cash

Figure 4

**MARRIAGES, DIVORCES, ABORTIONS**



Source: CSO STADAT 1.1., own edited

benefits, tax and contribution benefits and family support services). Within cash benefits and tax and contribution benefits, primarily work-based benefits (linked to a fixed-term insurance relationship) increased by almost 75 per cent between 2010 and 2018. From 2019, new elements were added to the family support system, including an interest-free baby expecting loan and a family car discount. In the 2020 budget, some elements of the family support system represent about HUF 2,228 billion (government, 2019). The Hungarian family support system is outstanding among European countries both in terms of its share of GDP (Makay, 2018) and complexity (KINCS, 2019-2).

The strengthening of the family support system has had an impact on births, as shown mainly in the increase in the fertility rate

between 2011 and 2016. The positive effects expected from the large-scale family and home support system are slowly unfolding, also based on international experience (ÖGYCSM, 2018).

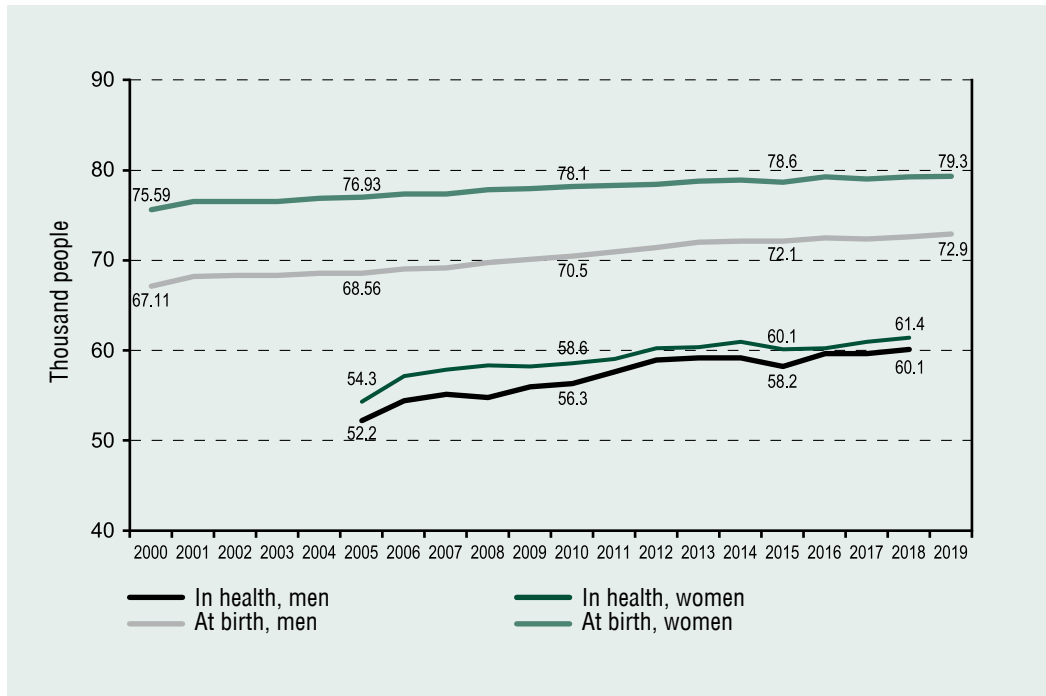
**Life expectancy**

*Life expectancy at birth and life expectancy in health*

Life expectancy shows the life chances of the children born; it is one of the most important indicators of the level of development and civilization of the society (CSO Facts and Data<sup>1</sup>), which also determines how long the elderly are entitled to a pension. Although life expectancy is steadily increasing (Figure 5), it is about 5 years below the EU average (CSO SDI, 2019).

Figure 5

**LIFE EXPECTANCY AT BIRTH AND LIFE EXPECTANCY IN HEALTH  
IN HUNGARY**



Source: CSO, Statat 1.1., Kaiser, 2018, own edited

In the baseline hypothesis of its demographic forecast, the Hungarian Demographic Research Institute of the CSO projects life expectancy at birth as 82.4 years for women, 76.7 years for men by 2030 and, 88.7 years for women and 84.8 years for men by 2060. The expected rate of increase in life expectancy at birth is not clearly supported by the facts of the recent period (15-20 years). This means that the increase in life expectancy in health may be slower than projected by the CSO, which poses an additional risk to the long-term sustainability of the social security pension system in addition to the declining population.

If life expectancy in health is significantly lower than life expectancy, it indicates

significant health social costs. In Hungary, there is a significant difference (12.5 years for men and 17.8 years for women) between life expectancy at birth and life expectancy in health.

In Hungary, the life expectancy in health was 60.1 years for men and 61.4 years for women in 2018. These data are about 3 years lower than the EU average (CSO SDI, 2019). There is an improvement in life expectancy mainly for men, although their life expectancy is still 6.6 years lower than for women. Women have a higher life expectancy around the world, due to genetic, hormonal and lifestyle reasons.

Life expectancy in health also determines the latest date for retirement. With an aging and shrinking population, an increase in the



number of active years in the labour market, voluntary work in addition to retirement, and the extension of the retirement age are means of maintaining the balance of the pension system. From this point of view, it indicates a risk that, while life expectancy in health in Hungary is rising at a slow pace, it does not reach even the retirement age of 65. This limits any possible further increase of the retirement age.

In Hungary, despite showing a declining trend the standard mortality rate per 100,000 inhabitants related to smoking (387.3) and alcohol consumption (83.8) was still well above the EU average in 2014 (smoking: 171.7; alcohol: 52.8; CSO SDI, 2019). These figures indicate that there is still plenty of room for manoeuvre and responsibility for both the state and the citizens of the state in developing a healthy lifestyle for the population.

The state has a number of tools at its disposal to improve the health of the population. The state can encourage a healthier lifestyle not only through means of communication, but also by setting excise tax rates on alcohol and tobacco products. With the development of medicine, the readiness of the health care system plays a role in the development of life expectancy and life expectancy in health (Good State and Governance Report, 2018).

Prolonging the healthy life expectancy of citizens is an essential condition for the sustainability of the domestic pension system.

### Emigration and immigration

By 2016, about 4 per cent of our compatriots took advantage of the free movement of labour within the EU (CSO, 2016). Due to the free movement of labour within the EU, the measurement of international

migration is difficult not only in Hungary; the questionnaire data are not accurate (Kaiser, 2018).

As *Figure 6* shows, the migration gap between 2000 and 2019 has always been positive. The number of Hungarian emigrants increased significantly from 2012 until 2015. The annual composition and number of emigrants and immigrants suggest that a significant proportion of immigrant foreign nationals do not stay in the country in the long run but migrate further forming a trend that has intensified since 2016.

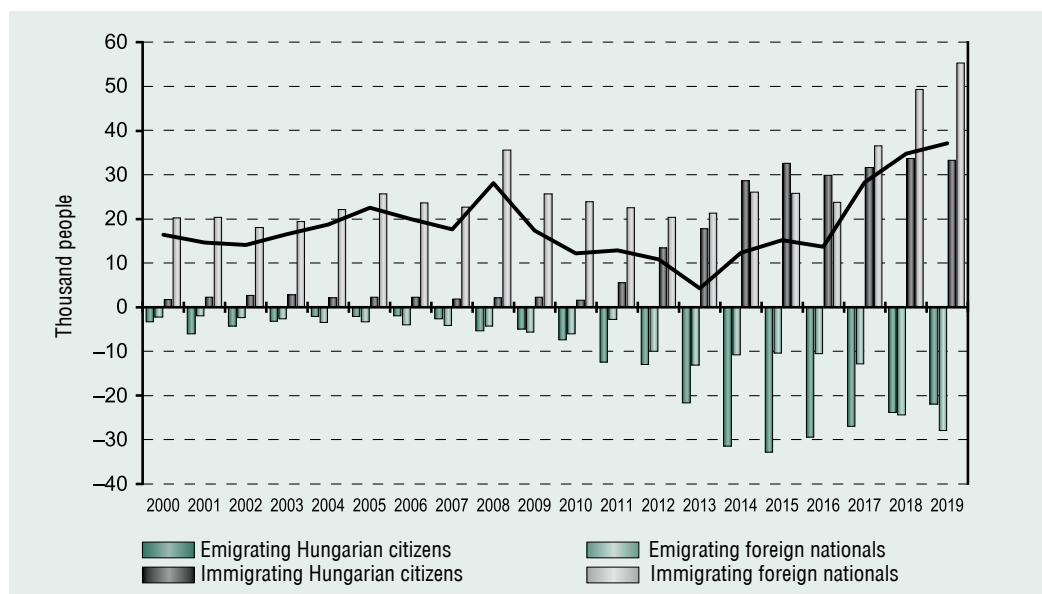
The reason for emigration is most often more favourable income opportunities in the target countries (CSO, 2016). At the same time, there are no current and detailed research data based on empirical data on the individual-level drivers and structural determinants of both emigration and return migration. Primarily those who are about to start a family and have children leave Hungary temporarily or permanently, so this also has an adverse effect on the birth rate. Further curbing emigration and the repatriation of our emigrated compatriots is also a key issue in terms of the sustainability of the population and the favourable development of the number of tax- and contribution-paying employees.

In 2018, 65 per cent of those who returned were younger than 40 (CSO, 2018). Among the complex reasons for the return of emigrants, the improvement of domestic income opportunities and the strengthening of the domestic family support system may also play a role.

In 2011, 3.9 per cent, in 2019 5.8 per cent of the Hungarian population was born abroad. (CSO SDI, 2019). From 2010, Hungary has granted dual citizenship to those who profess Hungarian nationality abroad, which will also help them settle in the motherland and find a job on the labour market.

Figure 6

**NUMBER OF HUNGARIAN AND FOREIGN CITIZENS EMIGRATING AND IMMIGRATING FROM AND TO HUNGARY AND THE DEVELOPMENT OF THE IMMIGRATION GAP**



Source: CSO STADAT 1.10., 1.11., 1.12., 7.1.6., CSO, (2017), own edited

**LABOUR FORCE AND EMPLOYMENT TRENDS**

**Economic activity**

Social security pensions are paid from the tax and contribution payments of employees present in the labour market. The quantitative composition of the supply side of the labour market (potential workers) is primarily shaped by demographic processes, and the demand side (employers looking for labour) is shaped by economic processes (*Table 1*).

**Labour market activity**

Between 2010 and 2019, favourable developments took place in the labour market. The number of active people increased by 11

per cent and the number of employed by 20 percent, while the number of unemployed fell by two-thirds. The activity and employment rates increased in all age groups and the unemployment rate decreased in all age groups.

The activity and employment rates increased the most - by more than 30 percentage points - in the 60-64 age group, which is clearly due to the gradual increase of the retirement age to 65 years. There is also a significant increase in the employment of people over 65. It is also due to the fact that from 2019 pensioners are exempt from paying contributions and the employer is exempted from paying the social contribution tax on the pensioner employees (Act LXXX of 1997). For the other age groups, the expansion can be explained on the one hand by the expansion of public employment, the increase in employment and higher incomes (Kádár et al., 2019). On the other

Table 1

**INDICATORS OF THE LABOUR MARKET IN Q4 2019 BY AGE GROUP AND THEIR CHANGE SINCE Q4 2010**

Age groups (years)	Population (thousand people)	Change in population 2010–2019 (%)	Active workers (thousand people)	Change in active workers 2010–2019 (%)	Activity rate (%)	Activity rate 2010-2019 (percentage points)	Employees (thousand people)	Change in employees 2010–2019 (%)	Employment rate (%)	Employment rate 2010-2019 (percentage points)	Unemployed (thousand people)	Change in unemployed 2010–2019 (%)	Unemployment rate (%)	Change in unemployment rate 2010–2019 (percentage points)
15–19	475.4	-18	37.7	+53	7.9	3.7	28.2	+102	5.9	3.5	9.6	-11	25.3	-18.2
20–24	529.1	-14	288.3	+5	54.5	9.5	258.0	+23	48.8	14.4	30.3	-53	10.5	-13.0
25–29	614.3	-3	500.5	+2	81.5	4.4	478.1	+12	77.8	10.7	22.4	-65	4.5	-8.5
30–34	607.6	-20	499.2	-17	82.1	2.9	485.6	-11	79.9	8.6	13.6	-78	2.7	-7.3
35–39	648.8	-18	557.2	-15	85.9	3.1	542.5	-9	83.6	8.4	14.7	-75	2.6	-6.4
40–44	832.7	+19	748.0	+26	89.8	5.1	728.5	+36	87.5	10.8	19.6	-65	2.6	-6.9
45–49	737.2	+19	674.7	+30	91.5	7.8	657.4	+40	89.2	13.6	17.4	-65	2.6	-7.1
50–54	651.1	0	573.5	+16	88.1	11.7	559.1	+24	85.9	16.7	14.4	-69	2.5	-6.9
55–59	564.2	-25	428.3	-2	75.9	18.2	421.2	+6	74.7	22.1	7.1	-82	1.7	-7.2
60–64	650.0	+3	284.5	+238	43.8	30.4	279.2	+249	43.0	30.2	5.3		1.9	
65–69	632.0	+23	62.1	+148	9.8	4.9	61.3	+146	9.7	4.8	0.8			
70–74	472.8	+14	20.8	+233	4.4	2.9	20.7	+247	4.4	2.9	0.1			
Összesen	7 415.0	-3	4674.8	+11	63.0	8.1	4519.6	+20	61.0	12.0	155.2	-66	3.3	-7.5

Source: CSO STADAT. 2.1.4., Own edited and calculation

hand, as part of social policy, the restrictions on early retirement, the transformation of the care system and rehabilitation for the disabled, and the tightening of income replacement benefits for those of active age are also among the reasons.

In the case of women in childcare, the average length of time off due to having a child has decreased as a result of measures to encourage them to return to the labour market as soon as possible. In the case of the 15–19 age group, the lowered age limit for compulsory schooling can be mentioned as a reason (Kádár et al., 2019). Unemployment is higher than average in the 14-29 age group, with the largest decline between 2010 and 2019.

The development of labour market indicators is a favourable process for the social security pension system. In the longer term, however, demographic trends with low birth rates, low average ages and poor mortality rates

are not favourable in meeting labour demand. In addition, as the health and economic crisis caused by the Covid-19 virus has highlighted, favourable developments will not last forever as they are exposed to cyclical processes in the national economy.

*Labour reserve*

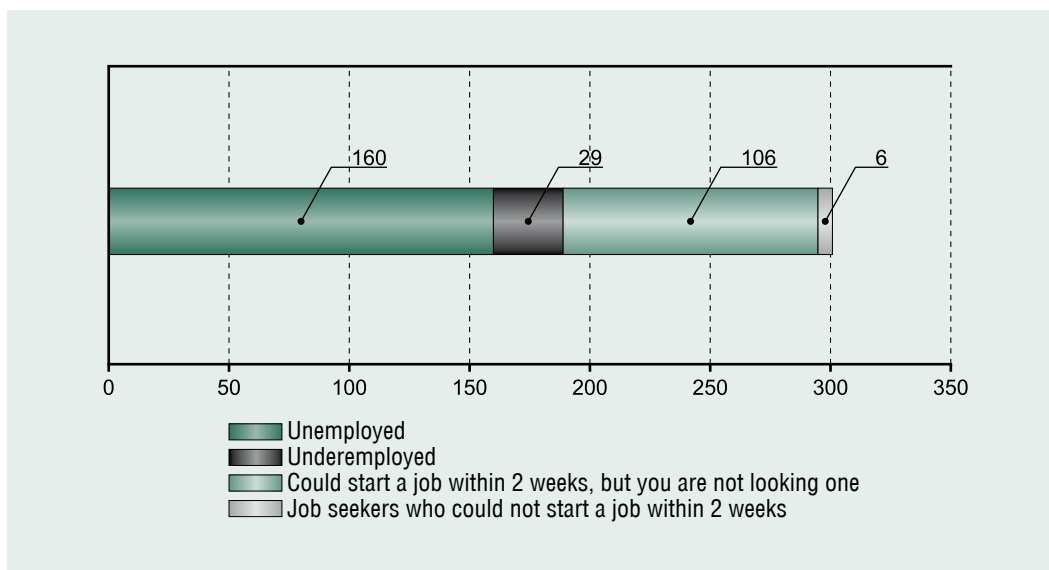
Employment can be further increases primarily by promoting the employment of the labour reserve, and secondarily by increasing the participation of the inactive in the labour market.

In determining the potential labour reserve, the CSO takes into account the underemployed and the unemployed among the economically active within the population aged 15–74 (Figure 7).

Within the labour reserve, the unemployed represented the highest share. Their number decreased to 155.2 thousand by Q4 2019 (Table 1). Unemployment below 3.3 per

Figure 7

**COMPOSITION OF THE LABOUR RESERVE IN Q1-Q4 2019 (THOUSAND PEOPLE)**



Source: CSO, 2020, own edited

cent, measured in Q4 2019, occurs in some geographical areas: Northern Great Plain 5.7 per cent, Southern Transdanubia 5.4 per cent, Southern Great Plain 3.7 per cent (CSO STADAT 6.2.1.11.).

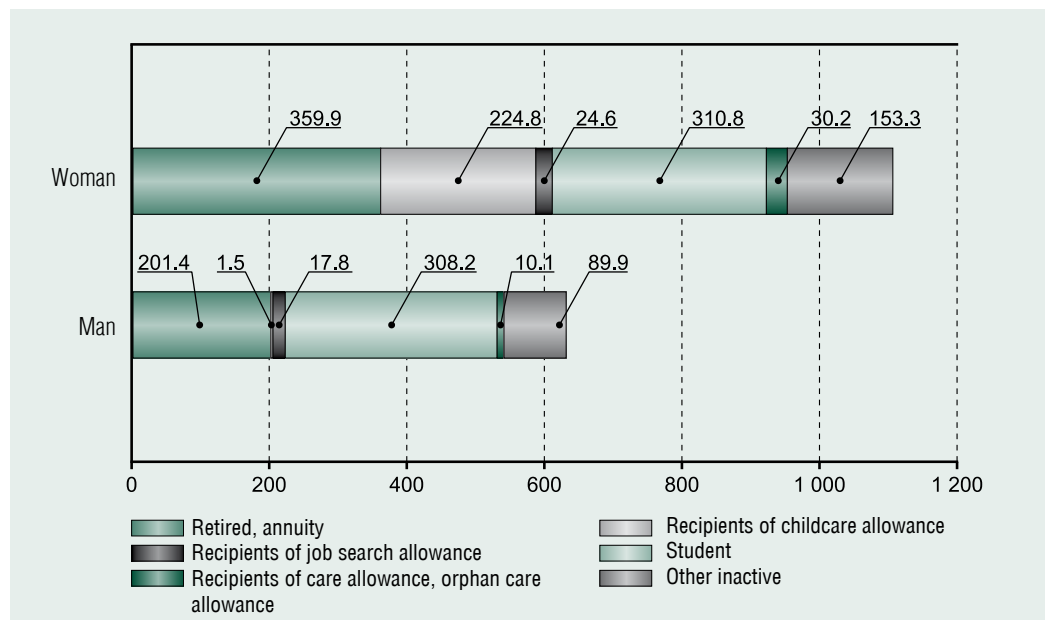
It follows from the low number of the unemployed that there is more and more room for the economically inactive to increase the number of the employed. In its government bulletin on public employment, the goal of public employment is the successful return and entry of public employees into the primary labour market (government, 2020-2). The number of public employees cannot be fully taken into account as a reserve in the primary labour market, as mobility, inadequate qualifications (Ministry of Interior, 2016) and health status are significant disadvantages for many. The composition of the number of economically inactive is shown in *Figure 8*.

Women’s economic activity lags significantly behind that of men. One reason for this is that women typically stay at home after giving birth, and another reason is the higher number of retired women living on annuity. Before reaching the retirement age, women can also receive an old-age pension in their own right on the basis of an entitlement period of 40 years. In 2019, about 159 thousand women opted for such pension (CSO, 2019). The women’s preferential pension benefit seeks to make it easier for them to take on family and work responsibilities. However, the higher life expectancy of women than that of men does not justify maintaining this type of benefit.

The other category included a total of 243,200 people. There are almost twice as many women in the other category, which may be due their staying at home as dependents, “housewives”. Some of the economically

*Figure 8*

**NUMBER OF ECONOMICALLY INACTIVE PERSONS AGED 15–64 BY REASON OF THEIR ABSENCE FROM THE LABOUR MARKET IN 2019 (THOUSAND PEOPLE)**



Source: CSO, 2020, own edited

inactive work in the black or hidden economy. This is also detrimental to the social security pension system, as those involved do not pay taxes and contributions, but may be entitled to the amount of the minimum pension or other benefits.

Unconventional (or flexible, atypical) forms of employment, such as teleworking, home office, flexi time, part-time work, can be a means of integrating several previously inactive groups with special life situations (mothers with small children, the elderly, home care workers) into the labour market.

On the labour supply side, part-time work makes it easier to reconcile childcare, home care i.e., housework in general, and market work. Part-time work can help mothers with young children to be mothers and work at the same time. This tool can have a positive effect on both employment and having children. Between 2010 and 2019, the number of part-time employees in Hungary fluctuated between 219,800 thousand and 233,400. Within the number of part-time employees, the ratio of women decreased from 64.1 per cent to 60.9 per cent between 2010 and 2015, then increased to 65.4 per cent by 2019 (CSO STADAT 2.1.11.).

The part-time employment of mothers with small children is facilitated by the provision of the Labour Code introduced in 2012 and providing additional benefits in 2019, according to which employers must amend the employment contract based on the employee's proposition to part-time work covering half of the regular daily working time until the child reaches the age of four, or the age of six e in the case of parents with three or more children.<sup>2</sup> This provision essentially makes the use of part-time work conditional on the mother's unilateral decision.

Both home and telework can help with employment. In the EU, the proportion of workers regularly working from home was

5.2 per cent among workers aged 15–64 in 2018, in the case of Hungary the same ratio is only about 2.3 per cent (Eurostat, 2020), i.e., there is room for manoeuvre in the spread of working from home in Hungary, which may even manifest itself in an increase in employment. The spread of flexible working at home, may contribute not only to the employment of women raising children but also to the increase in the birth rate.

The government also promotes the spread of atypical forms of employment with a number of financial incentives. In 2018, GINOP wanted to encourage the expansion of flexible employment, including part-time and telework, by announcing an EU call for proposals under code number 5.3.2-16 for HUF 8.4 billion. Under the *gyed-extra* (childcare benefit extra) introduced in 2014, the full amount of *gyed* can be paid also to women in part-time jobs.

## The role of the state

### *Job creation, investment policy*

The increase in employment is primarily due to the growth of the economy, and the state has also helped to expand employment by supporting job-creating investments. In the period between 2010 and 2017, the state supported job-creating investments with approximately HUF 255.5 billion, thanks to which nearly 35,000 new jobs could be created. (Kádár, Kerekes, Tóth, 2019).

Transport that enables workers to reach their workplace has a greater role to play within each specific geographical area (region). The state also indirectly supports the expansion of employment by developing the road network or public transport. Internal migration, as an opportunity to respond to unemployment, is weakened by the fact that the costs of living, including primarily real

estate prices, are significantly higher in the settlements providing (more favourable) job opportunities, especially in Budapest.

### *Job search support, training*

The reform of the system of assistance and job-search benefits from 2010 onwards contributed to the increase in activity. Based on the measures, the employment of the long-term unemployed and the low-skilled and disadvantaged, who were excluded from benefits, primarily strengthened the number of public employees (Kádár et al., 2019). The combined decline in the number of public employees and unemployed people indicates that those who were previously inactive are able to enter the primary labour market with the mediation of the state.

The state can also actively influence labour demand through tax incentives for enterprises, which have improved the situation of employees with small children and older workers (Kádár et al., 2019). These benefits, in turn, mean a loss of taxes and contributions to the state, and the revenues of the social security pension system decrease with the amount of the benefits. The employment of pensioners was supported by tax and contribution reductions granted to them from 2019 onwards. In their case, the limiting factor is mainly their previously discussed state of health. Various trainings are an active employment policy tool for increasing the level of economic activity and employment. Based on the summary of the PES, 31,000 people received training to promote employment in 2015, and 23,000 in 2016 (PES, 2016). In a broader sense, the entire state-funded education system is also part of employment policy. Maintaining and developing the current level of employment and further promoting the appearance of the inactive on the labour market justify the strengthening of the role of training subsidies and the education system.

## INCOME, PRODUCTIVITY, ROBOTISATION

### Income

In addition to the population and the number of employees, the size of incomes is decisive in the operation and sustainability of the social security pension system.

The size of incomes is mainly determined by the processes of the economy, including the demand-supply relations of the labour market (*Table 2*).

The average monthly gross earnings of employees increased in all sectors of the economy. The increase in incomes is mainly due to the increase in demand for labour. The expansion of employment and investment by the growing stock of capital leads to an expansion of production and, through it, incomes (Major, 2020).

At the end of 2019, domestic employers struggled with a labour shortage of about 200–250 thousand people (MGYOSZ, 2019). Due to the declining population, a further increase in labour shortages is a real risk even for the unemployed, as the qualifications and geographical location of the unemployed do not necessarily correspond to the demand for workforce.

### Labour productivity

Increasing labour productivity can be the basis for higher incomes. Labour productivity is measured by a number of indicators. Actual labour productivity equals the GDP divided by the number of employees. In the case of Hungary, this increased by 5.5 per cent between 2010 and 2018, which is lower than the 6.5 per cent increase of the EU average (CSO SDI, 2019). The wage-adjusted productivity indicator also takes into account the labour costs at which value added is produced in a

Table 2

**NUMBER OF EMPLOYEES, AVERAGE GROSS MONTHLY WAGES BY INDUSTRY IN 2019, THEIR CHANGE COMPARED TO 2010, AND AUTOMATION POTENTIAL FOR SECTORS**

Sector	Number of employee		Average monthly gross wages of full-time employees		Automation potential (%)
	in 2019 (thousand persons)	Change 2010–2019 (%)	in 2019 (thousand HUF)	Change 2010–2019 (%)	
Agriculture, forestry, fishing	73.3	–4	293.2	+104	56
Mining and quarrying	4.1	+1	433.7	+85	62
Manufacturing	714.1	+19	391.9	+95	64
Electricity, gas, steam supply and air conditioning	23.7	–6	603.0	+66	52
Water management, waste management	43.9	–1	343.6	+77	52
Construction industry	156.7	+32	287.9	+88	47
Trade, car repair	399.2	+16	342.8	+85	53
Transportation, storage	220.0	+19	345.1	+72	59,0
Accommodation services, hospitality	115.2	+37	239.6	+95	55
Information, communication	91.2	+37	623.5	+69	35
Financial and insurance activities	63.5	–6	665.4	+54	35
Real estate transactions	30.7	+5	312.4	+71	43
Professional, scientific and technical activities	127.1	+69	507.7	+71	41
Administrative and support service activities	191.8	+43	306.2	+110	54
Administration, defence; compulsory social security	270.6	+3	442.4	+82	37
Education	290.6	+9	334.9	+71	23
Human health and social care	302.9	+16	247.2	+74	35
Arts, entertainment, leisure	43.1	+19	366.8	+104	39
Other services	23.9	+12	305.8	+104	43
National economy	3 185.7	+18	367.8	+82	49

Source: CSO STADAT 2.1.35., 2.1.38 .; David et al., 2018; SAO calculation and editing



given country. The growth of this indicator in Hungary was significantly higher than the EU average (Good State and Governance Report, 2018). This is mainly due to the fact that the average wages in Hungary reach one third of the average wages of the EU average (Eurostat, 2018).

However, measuring productivity is complicated by the transfer pricing phenomenon. Global companies optimise their taxation in their cross-border activities through artificial pricing between their individual companies. For this reason, their results in individual countries, and ultimately GDP, may be distorted (Csath, 2019), so the counter, output, does not reflect reality in the calculation of labour productivity.

Actual labour productivity is mostly determined by the technological modernity of jobs and work equipment (level of digitisation), the education of employees, the length of value chains, the management of companies, and the economic structure (Kaiser, 2018). Further wage growth may be hampered by the fact that real labour productivity growth is lagging behind the growth rate of wages.

### Automation, robotisation

Technological development is expected to play an increasing role in productivity, employment and income developments. According to a study by McKinsey & Company (David et al., 2018) on the effects of automation, automation will fundamentally transform the world economy and labour markets. Hungary is one of the countries in the EU with the largest potential for automation due to the sectoral composition of the economy.

The last column of Table 2 shows the automation potential of certain sectors of the Hungarian economy. Using the existing technologies, about 49 per cent of the working hours in Hungary could be automated. Automation

can increase GDP while simultaneously increasing productivity and reducing labour shortages (David et al., 2018). Many domestic organisations, including the SAO and the MNB, regularly draw attention to the possibilities of automating operational processes, including in the field of public administration or capital markets (MNB, 2019).

In the case of automation and robotisation, a decline in employment can be a risk if the acquisition of new technologies is difficult for domestic workers. As a result, the role of training and education institutions will be increasingly decisive for the future.

### State involvement

#### *Income and wage policy*

The role of the state in shaping labour income is limited in an economy based on market competition. The state can have a direct effect by setting a minimum wage as well as public sector wages (Telegdy, 2014). Between 2010 and 2019, wages in the private sector increased more than in the public sector, so it was more the private sector that ‘drove up’ public sector wages.

Indirectly, reducing taxes and contributions, in addition to raising incomes, also has a whitening effect on the economy, as it increases the willingness to pay taxes. However, the possibility of reducing tax and contribution rates is severely limited, as the collected tax and contribution revenues cover public expenditures, including the social security fund, so it is important that tax and contribution reductions take place in a sustainable way (Domokos, 2016).

#### *Government revenue, economic whitening*

The hidden or black and grey economy means a loss of tax and contribution revenue for the central budget, and also for the social security

pension system. Measures to improve the efficiency of controls included online cash registers and the EKAER system (Electronic Public Road Trade Control System) which, in addition to corporate tax, value added tax, also increased personal income tax and employee contributions and social contribution tax revenues.

On 3 March 2020, 5,097 employers were included in the list of employers employing people without notification, published by NAV and 402 in the list of taxpayers with irregular employment relationships. The number of inactive people classified in other categories was 243,200 in 2019, which makes it probable that the number of people earning income in the hidden economy may be much higher than in the detected cases.

## DEVELOPMENT OF REVENUES AND EXPENDITURES OF THE SOCIAL SECURITY PENSION SYSTEM

### Revenues of the social security pension system

The Hungarian social security pension system has undergone a number of significant changes in recent decades. The last major change, which affected not only the tax and contribution rates determining the amount of its revenue, but also the system, took place in 2011, when compulsory contributions to private pension funds were terminated. From 1 January 2012, the mandatory social security pension system has been a purely pay-as-you-go system. It is financed from employees' contributions and the part of employers' social contribution tax specified in the laws on the annual central budget. The rate of social contribution tax paid by the employer has been gradually reduced from 2017 (*Table 3*).

The annual change in the portion of the social contribution tax due to the Pension Insurance Fund has shaped the Pension Insurance Fund's wage contribution revenues and revenues from other contributions. There was no deficit at the Pension Insurance Fund in the period between 2013 and 2016 as well as in 2018. Between 2012 and 2013 and 2017 and 2019, the Pension Insurance Fund also received a budget contribution entitled 'Guarantee and contribution to benefits'.

The rate of the social contribution tax, its part due to the Pension Insurance Fund and the budget contribution received under the title Guarantee and contribution to benefits have a decisive influence on the development of the revenues of the Pension Insurance Fund.

In terms of the three main factors, the fund's revenues developed favourably in 2019, with contribution revenues and other contributions increasing due to a rise in the number of employees and the income on which the contributions are based. Contrasting revenues with pension expenditures, in 2019 the Pension Insurance Fund closed with a deficit of HUF 127 billion. The deficit of the fund in 2019, which is significantly higher than a year earlier, can be attributed to planning reasons. The deficit was also adversely affected by an increase in pension expenditure of about 4.7 per cent compared to the previous year, which was 1.3 percentage points higher than the inflation-adjusted pension increase. The deficit of the Pension Insurance Fund increases public debt.

### Development of pension expenditure

By population of retirement age, we basically mean the population entitled to social security benefits or a pension, based on age. In addition to meeting the required retirement age, the existence of the required length of service

Table 3

**REVENUES (%) AND MAIN REVENUES AND EXPENDITURES OF THE PENSION INSURANCE FUND (HUF BILLION)**

Title	2012	2013	2014	2015	2016	2017	2018	2019
Social contribution tax rate (%)	27	27	27	27	27	22	19.5	Until 30 June 19.5%; From 1 July: 17.5%
Part of the social contribution tax due to the Pension Fund (%)	88.9	100.0	96.3	85.5	79.4	71.6	79.5	70.2
Contribution revenues, contributions (HUF billion)	2,649.2	2,978.1	3,119.0	3,074.6	3,079.5	2,982.2	3,286.4	3,346.3
Guarantee and contribution to benefits	101.5	24.7	0.0	0.0	0.0	208.0	60.6	29.7
Budget contributions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other revenues	12.1	10.0	2.8	6.4	7.6	6.0	6.6	7.1
Asset management income	0.002	0.002	0.005	0.007	0.011	0.01	0.018	0.04
Revenues of pension budgetary agencies	2.7	2.4	2.7	2.9	4.4	4.6	0.0	0.0
Pension Insurance Fund budget revenue total	2,765.5	3,015.2	3,124.5	3,084.0	3,091.5	3,200.9	3,353.7	3,383.2
Pension Insurance Fund budget expenditure total	2,836.3	3,015.2	3,118.9	3,078.9	3,077.4	3,205.6	3,353.7	3,510.7
Of which pension expenditure	2,643.2	2,839.5	2,916.3	2,989.0	3,054.5	3,172.1	3,347.4	3,503.3
Budget balance of the Pension Insurance Fund	-70.8	0.0	5.7	5.1	14.1	-4.8	0.0	-127.6

Source: Act LII of 2018, budget laws, balance sheets of Treasury Social Security Funds, own calculation and editing

is also a condition for the old-age pension in its own right. As of 1 January 2012, not only the revenue side of the social security pension system was transformed, but also the expenditure side. From 2012, an old-age pension in own right can only be established or paid to persons of retirement age. An exception to this is pensions for women based on 40 years of entitlement. The various early old-age pensions established before 2012 for

persons below the retirement age have been transformed into pre-retirement benefits, which are further received as old-age pensions when the retirement age is reached. The reform of the benefit system has increased the transparency, predictability and sustainability of the Pension Insurance Fund in terms of expenditures.

The change in the number of retired people is that the retirement age will increase gradually

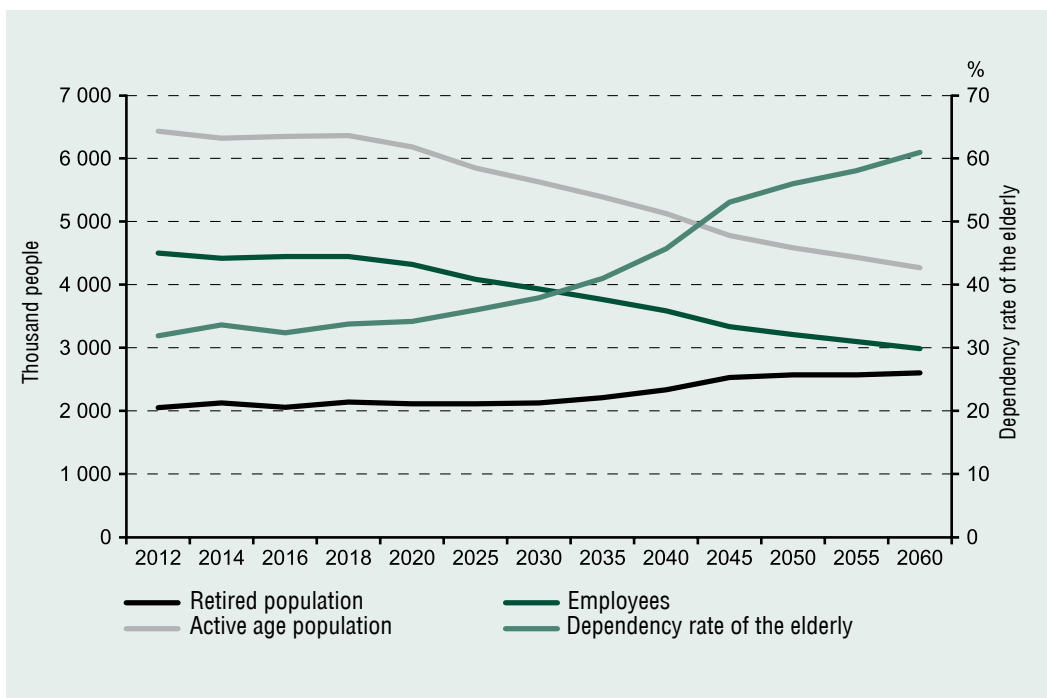
from 62 to 65 between 2014 and 2021. As a result, the economic activity of the affected age group - those born between 1952 and 1958 (mostly Ratkó children) - is prolonged with their subsequent retirement. In January 2019, the number of recipients of old-age pension in its own right was 2,032,000 (CSO, 2019). Entitlement to pension can be acquired not only in one's own right, but also in the event of the death of a relative (spouse, child or parent). In January 2019, about 66,000 people received widow's and parental pensions, and 59,000 received orphan's benefits (CSO, 2019).

Figure 9 shows that the number of retired people is not expected to change significantly between 2020 and 2030, mainly due to the

fact that fewer people were born between 1956 and 1974 after the Ratkó era. After 2030, the number of people of retirement age is expected to increase gradually by 20 per cent, by 2060, with a retirement age of 65 years. Figure 9 also shows that the working age population is expected to decline more sharply after 2018, due to the retirement of Ratkó children and the order of magnitude lower birth rate after 1956. A larger decrease in the number of active people is expected between 2040 and 2050 when the Ratkó grandchildren retire. The dependency rate of the elderly is rising: while in 2020 there will be 34 people of retirement age per 100 people of working age, by 2060 the figure will go up to 61.

Figure 9

**DEVELOPMENT AND EXPECTED DEVELOPMENT OF THE NUMBER OF PENSIONERS, PEOPLE OF ACTIVE AGE, THE EMPLOYED AND THE DEPENDENCY RATE OF THE ELDERLY (CALCULATED WITH THE CURRENT RETIREMENT AGE)**



Source: CSO STADAT 2.5.21., 2.1.6., 2.1.13., Interactive population pyramid, own calculation and editing

## Other factors influencing the development of pension expenditure

### *Increasing the number of active years*

Increasing the number of active years, including raising the retirement age in proportion to life expectancy, but most importantly to life expectancy in health, is a counterbalancing tool that can be planned independently of economic developments. According to the CSO's forecast, life expectancy will increase by 3.2 years for women and by 4.1 years for men between 2018 and 2030, and by 6.3 years for women and by 8.1 years for men between 2030 and 2060. The CSO has no forecasts for the future development of life expectancy in

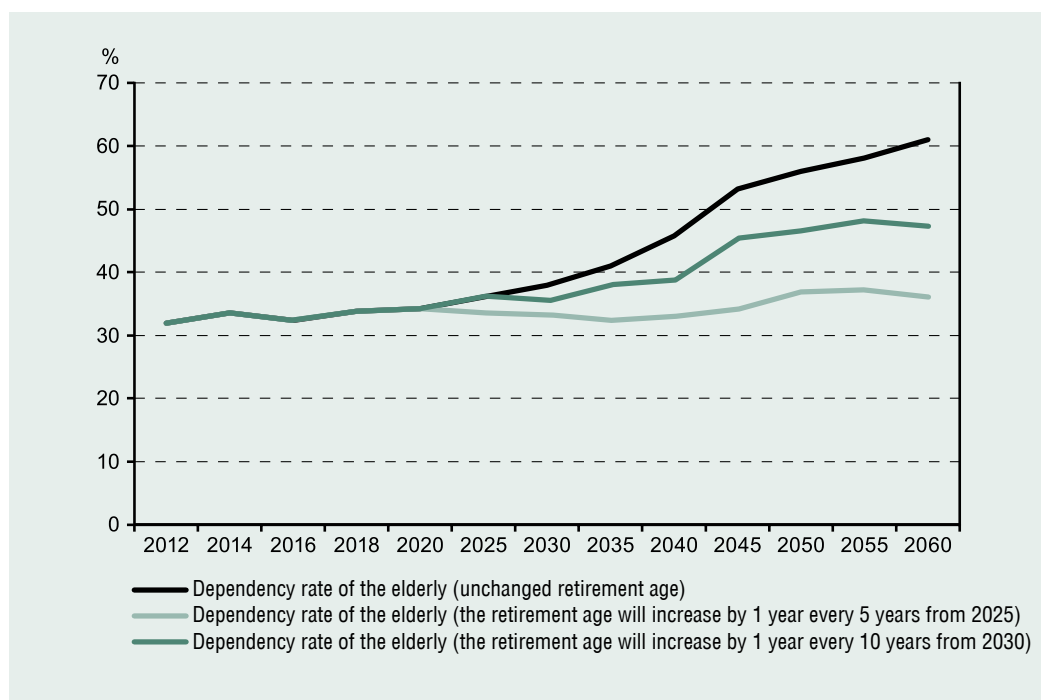
health, taking into account the trends in the parallel development of life expectancy and healthy life expectancy, an increase similar to the future life expectancy can be forecast.

Figure 10 shows the expected evolution of the dependency rate of the elderly, if the retirement age were to increase approximately in proportion to life expectancy, by one year every five years from 2025 and, by one year every ten years from 2030.

Gradually raising the retirement age will reduce the dependency rate of the elderly, while the number of retired age people will decrease and the number of active people will increase. Raising the retirement age properly planned in advance can even result in a 'horizontal' dependency rate for the elderly. It should be

Figure 10

### DEVELOPMENT OF THE DEPENDENCY RATE OF THE ELDERLY WITH POSSIBLE INCREASES IN THE RETIREMENT AGE (%)



Source: CSO STADAT 2.5.21., 2.1.6., 2.1.13., Interactive population pyramid, own calculation and editing

emphasized in particular that it is important to take into account the development of life expectancy, but especially life expectancy in health, when raising the retirement age.

#### *Life expectancy, incomes*

As the life expectancy of pensioners increases, pension expenditures will grow at a similar rate. The increase in income is accompanied by an increase in subsequent pension expenditure, as pensions are normally determined on the basis of income in accordance with the provisions of Act LXXXI of 1997. Those with low earnings and thus lower pensions are expected to live for less time than those with higher earnings and thus higher pensions (Marosi, Molnár, 2018). Thus, the size of incomes not only influences pension expenditure through the determination of the amount of the pension, but also plays a role in increasing life expectancy. The resulting risks can be offset by a proportionate consideration of the amount of income in the rules for determining and increasing pensions.

#### *Rate of pensions*

In Hungary, the purchase value of pensions is ensured by inflation-adjusted indexation. In the recent period of economic prosperity, when wages grew better than inflation, the inflation-following rise in pensions lagged behind real wage growth. As a result, the replacement rate in Hungary, expressed as the ratio of the average pension to the net average wage, fell from 67 per cent in 2015 to 53 percent in 2019. To offset this, the government has introduced a pension premium that goes to retirees when GDP growth exceeds 3.5 per cent. Between 2017 and 2019, pension premiums accounted for 0.9 percent, 1.2 percent, and 1.4 percent of total retirement benefits, respectively. In addition, pensioners receive ad hoc benefits (food and housing expense vouchers); these represented an annual pension increase of 0.7 per cent in 2018 and

2019 (EU Commission, 2020). Pension benefits related to the reduction of income inequalities further increase pension expenditure, which, in addition to their important social role, makes it more difficult for the sustainability of the social security pension system.

The replacement rate indicates that retirement after a period of active life means a lower income. The average pension in 2019 was HUF 135,000 (CSO, 2019). Pensions that provide a modest living call attention to the importance of various forms of self-care. The state supports various forms of savings for pension purposes (voluntary pension fund, retirement savings account, pension insurance) with tax benefits. In addition, it is important to encourage saving and raise awareness of the importance of self-care as a complementary tool. This savings can offset the expenses during retirement years in proportion to the amount saved.

#### Government planning of pension expenditures

The Pension Insurance Fund, which forms Chapter LXXI of the central budget, was established with the aim of directly comparing the expenditures to be spent on pension insurance benefits and the revenues specifically intended to cover them (ONYF (Central Administration of National Pension Insurance), 2016). In order to have well-founded calculations of planned pension expenditures in the medium and long term, it is essential not only to know the number and expected age of projected pensioners, but also the entitlement data (length of service and earnings) of future pensioners managed by the Hungarian State Treasury.

Demographic projections, as well as risks to the economy and, in particular, to the labour market, justify the availability of detailed and

thorough forecasts of how the expenditure of the Pension Insurance Fund is expected to develop.

In the publication entitled ‘Macroeconomic and Budget Forecast 2019–2023’, in the case of the Pension Insurance Fund, the Ministry of Finance plans a balance of 0 for the period between 2020 and 2023, after a pension expenditure of HUF 3,510.1 billion and a deficit of HUF 127 billion for 2019. On the other hand, the Ministry of Finance calculates increasing amounts for the support of social security funds from year to year: By 2020 HUF 628 billion, by 2021 HUF 973 billion, by 2022 HUF 1,171.8 billion, by 2023 HUF 1,305.6 billion. The forecast does not detail the figures for the Pension Insurance Fund and the Health Insurance Fund within the social security funds.

Comprehensive long-term planning with human, economic and social resources affecting the sustainability of the pension system is taking place at the strategic level in the 2013 National Sustainable Development Framework Strategy. The risks identified by the analysis are presented in detail in the context of the framework strategy. The framework strategy for risk management also sets out the goals and objectives of central and local government measures, in addition to the goals and objectives related to families and the individuals, businesses, and small communities, civil society organisations and religious communities.

## SUMMARY, CONCLUSIONS

The results of the analysis show that the population of Hungary will continuously decrease until 2060, and its age composition will also be unfavourable: while fewer people will be born year by year, life expectancy will increase, and there will be more and more elderly people in the population. The ratio

of those active in the labour market to those entitled to pensions i.e., the dependency rate will deteriorate. This poses a risk to the sustainability of domestic economic growth, the balance of the pension fund and, indirectly, imposes increasing burdens on the budget. The negative economic consequences of the deterioration in the ratio of active to inactive people can be mitigated by conscious and well-planned measures, and its consequences can be mitigated.

The analysis identified the following demographic, economic and pension risks, as well as the following priorities and intervention options.

### Births

An important component of the deterioration in the dependency rate is the reduction in the number of births. Due to the decrease in the number of women of childbearing age, the population of Hungary will continue to decline, even with a moderate increase in fertility. A significant increase in the fertility rate and the achievement of a sustainable fertility rate of 2.1 are unlikely according to recent fertility data. However, even such an increase in fertility would be accompanied by a declining population. In order to mitigate the population decline and to avoid further deterioration, it is essential to maintain and, if possible, increase the current fertility rate. State efforts in this respect are justified. It follows that a family policy aimed at increasing fertility is absolutely necessary, but not in itself a sufficient element in reducing economic and pension risks.

### Supporting the dual role of women

Women participate in economic and social processes in two ways. Directly as part of the labour force on the one hand, and as a producer

of labour on the other. It is a joint aim for women to be involved in the labour market by giving birth and raising children (reproductive work) in order to have active young people in the labour market and, to appear directly in the labour market at present. State support for this dual role is therefore essential. There is a need for forms of support that can, on the one hand, partially replace reproductive work and on the other compensate for temporary withdrawal from the labour market. Such state subsidies are the provision of crèche and kindergarten care and the compensation of the mother's lost wage income for the time during which she performs reproductive work. The quality of state substitutes, as well as the extent and conditions of financial compensations and incentives, significantly influence the extent to which the desire to have children can be fulfilled, to which women are able to have children, raise them and also participate in the labour market. The conditions of Hungarian family support are based on work-related incentives.

### Employment and productivity reserves

It improves the balance of the pension fund if there are several contributors in the system. We identified employment expansion and economic whitening as essential components of this. At the same time, the employment rate cannot be expected to expand to the same extent as in previous years, and Hungary's employment reserves are depleting. Reducing regional employment disparities can offer an opportunity to move forward: the development of transport and housing infrastructure, the conscious management of investments, are important tools for this. In addition, there is a large number of women in the labour force who wish to enter the active labour market. The analysis identified the whitening of the economy as a positive

process, which means the expansion of legal incomes and the contribution base, and the steps to strengthen this will also improve the balance of the pension system. The decline in the working age population over time will lead to a decline in the number of employees in all age groups, even with an improving employment rate. This is a significant risk for both the national economy and the pay-as-you-go pension system, as taxes and contributions paid by active workers may also decrease, meaning that pension expenditure will have to be financed from less income.

### *Wage growth*

Recently, economic and wage growth has also had a positive effect on the pension fund balance. At the same time, the relationship is complex, as the increase in income and the rules for determining pensions also lead to an increase in initial pensions. The economic background to the recent wage growth has been driven primarily by rising labour demand. Pension fund revenues must be based on a healthy structured wage increase that relies primarily on productivity growth.

At the same time, it should be seen that the economic factors supporting the functioning of the pension system can only mitigate the risks to a limited extent. On the one hand, the economic effects are strongly exposed to cyclical processes, and, on the other hand, their influence through economic policy measures shapes the balance of the pension fund only indirectly, with uncertain results. However, the impact of some economic policy measures is limited, the ceiling effect occurs: beyond one point, no further expansion of employment or whitening of the economy is expected.

### *Increasing activity in old age*

The pension risk resulting from the deterioration of the dependency rate and the higher life expectancy can be offset by



the increase in the activity of the elderly, possibly by the increase of the retirement age. An increase in life expectancy and the deterioration of the dependency rate of the elderly raise pension expenditures, and therefore pose a risk on the sustainability of the pension system. A means of mitigating this risk is when contributors work for longer periods of time. Our study identified a single type of measure that can deliver predictable efficiencies to both labour market supply and curb pension expenditure growth; encouraging old-age activity in addition to, or instead of retirement, and raising the retirement age in a phased manner in line with life expectancy and health life expectancy. A possible example of this is the analysis based on the CSO's forward calculation. If the retirement age is raised by one year every five years from 2025, it will be able to reduce the dependency rate to 36 per cent by 2060, and if the retirement age is raised by one year every ten years from 2030, it will be able to reduce the dependency rate to 47 per cent by 2060. A two-rate gradual increase by the end of the period would mean a retirement age of 69 and 73, respectively.

#### *Health promotion*

The most important boundary condition for maintaining activity, ability to work and work ethic in old age is not the increase in life expectancy alone, but the increase in the number of healthy life years and the maintenance of biological, psychological and social well-being. Although healthy life expectancy has recently increased in Hungary, it is a warning sign that life expectancy in health is 12-19 years lower than the total life expectancy, and the life expectancy of men in health is four years lower than the current retirement age. According to the CSO forecast, life expectancy could increase to 84-88 years by 2060. It is important that the number of healthy life years also shows a proportional increase.

Improving the mental and physical health of the population should be a high priority in domestic health care. Due to the composition of life-reducing factors, the promotion of healthy lifestyles and prevention are key tools for health promotion. In this respect, the introduction of measures to curb smoking has been an important and effective endeavour.

#### *Research, statistics*

It is of paramount importance to have credible information on which to base public policy decisions. It is a good idea to examine the subjective factors affecting childbearing in research with government background. At the same time, we do not aware of any research based on empirical data on the background, causes and individual drivers of the emigration and re-emigration of the Hungarian population. In addition, demographic projections, as well as risks to the economy and, in particular, to the labour market, justify the availability of detailed and thorough forecasts of how the expenditure of the Pension Insurance Fund is likely to develop. It is important that, in accordance with the strategic importance of the demographic and labour market topic, further research be performed that can also support the planning of government interventions.

#### *The need for self-care*

A deterioration in the maintenance rate, a possible increase in the retirement age and contributions, even in the face of economic growth, could jeopardize the real value of future pensions. An adequate standard of living in old age for the individual can only be maintained, if they are prepared for it in time and have sufficient reserves in their active age. It is therefore necessary to raise awareness of the need for reserve and accumulation in active generations.

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NOTES

- <sup>1</sup> <http://demografia.hu/hu/tudastar/fogalomtar/62-varhato-atlagos-elettartam>
- <sup>2</sup> Section 61 (3) of the Labour Code.

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REFERENCES

- A. BAJKÓ, A. MAKNICS, K. TÓTH, P. VÉKÁS (2015). On the Sustainability of the Hungarian Pension System. *Economic Review*, Vol. LXII, December 2015, pp. 1229–1257, [www.kszemle.hu ›content/download](http://www.kszemle.hu/content/download)
- K. BOTOS, J. BOTOS (2020). Pension System in the Changing Society. *Public Finance Quarterly*, 2020/1, pp. 7–23, [https://doi.org/10.35551/PFQ\\_2020\\_1\\_1](https://doi.org/10.35551/PFQ_2020_1_1)
- M. CSATH (2019). Middle-Income Trap or Development Trap and its Budgetary Effects. *Public Finance Quarterly*, 2019/1, pp. 30–50, downloaded: 19 February 2020) 19 February 2020, <https://www.penzugyiszemle.hu/pfq/public-finance-quarterly-archive-articles/middle-income-trap-or-development-trap-and-its-budgetary-effects>
- DAVID F., A. HAVAS, SOLVEIGH H., L. JÁNOSKUTI, A. KADOCSA, P. PUSKÁS (2018). Transforming Our Jobs: Automation in Hungary. McKinsey&Company. [www.mckinsey.com ›Automation-report-on-Hungary-HU-May24](http://www.mckinsey.com ›Automation-report-on-Hungary-HU-May24), downloaded: 19 February 2020)
- L. DOMOKOS (2016). This is How the Positive Spiral of Sustainable Whitening Can Begin. *Public Finance Quarterly* online, <https://www.penzugyiszemle.hu/fokuszban/igy-indulhat-be-a-fenntarthato-kifeherites-pozitiv-spiralja>, (downloaded: 19 February 2020)
- FREUDENBERG, CH., T. BERKI, Á. REIFF (2016). A Long-Term Evaluation of Recent Hungarian Pension Reforms. Working Paper 2., Magyar Nemzeti Bank. Budapest, [www.mnb.hu ›mnb-wp-2016-2-final-1](http://www.mnb.hu ›mnb-wp-2016-2-final-1)
- R. GÁL (2017). *With Brought Bacon Creating a Sustainable Pension System*. In Hegyemenet, Osiris, pp. 192–213
- M. HORVÁTH, C. VIDA (2019). The System of Family Benefits in Hungary. SAO analysis, <https://asz.hu/hu/publikaciok/tanulmanyok-2019-ev>, (downloaded: 24 February 2020)
- B., KAPITÁNY, Zs. SPÉDER (2017). Beliefs, Misconceptions and Facts about Halting Population Decline, <https://www.socialreflection.org> (downloaded: 19 February 2020)
- Z., KOZINSZKY, S. CSATORDAI, G. SZ. CSEPINÉ, S. RABI, M. LADÁNYI, A. PÁL (2006). Analysis of the Number of Abortions in Hungary. *Journal of Hungarian Gynaecologists*, 69(6), pp. 501–514, <https://www.doki.net>, (downloaded: 19 February 2020)
- Zs. MAKAY (2018). Family Support, Female Employment. Demographic Portrait. <https://www.demografia.hu>, (downloaded: 19 February 2020)
- J. MAROSI, D. L. MOLNÁR (2018). Mortality of Old-Age Pensioners in 2015. *Statistical Review*, 96(1), pp. 5–26, [www.ksh.hu ›statszemle\\_archive](http://www.ksh.hu ›statszemle_archive), (downloaded: 19 February 2020)
- J. MONOSTORI (2015). Aging and Retirement. J. Monostori, P. Őri, Zs. Spéder (ed.), Demographic Portrait, pp. 115–134
- MURRAY, C. J., CALLENDER, C. S., KULIKOFF, X. R., SRINIVASAN, V., ABATE, D., ABATE, K. H.,

ABDELALIM, A. (2018): Population and fertility by age and sex for 195 countries and territories, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, 392 (10159), pp. 1995–2051, [https://doi.org/10.1016/S0140-6736\(18\)32278-5](https://doi.org/10.1016/S0140-6736(18)32278-5)

E. NÉMETH, K. KÁDÁR, G. KEREKES, L. TÓTH (2019). Public Investment Promotion and Job Creation Measures. <https://asz.hu/hu/publikaciok/kolcsönmanyok-2019-ev>, (downloaded: 24 February 2020)

GY. PULAY, K. KÁDÁR, A. LUKSANDER, N. FÜLÖP (2019). Analysis of the Development of the Activity Rate, SAO-analysis, <https://asz.hu/hu/publikaciok/kolcsönmanyok-2019-ev>, (downloaded: 24 February 2020)

Á. TÁRKÁNYI (2008). Some of the Main Factors of the Second Demographic Transition in the Developed World and in Hungary. *Demography*, 51(4), pp. 406–440

Á. TELEGDY (2014). The Spread Effect between Public Sector and Corporate Wages in Hungary. *Economic Review*, Vol LX, May 2013, pp. 555-578, [www.kszemle.hu](http://www.kszemle.hu) (downloaded from: 19 February 2020)

G. VARGA (2014). Demographic Transition, Economic Growth and the Sustainability of the Pension System. *Economic Review*, Vol LXI, November 2014, pp. 1279–1318, [epa.niif.hu/pdf/EPA00017\\_kozgazdasagi\\_szemle\\_2](http://epa.niif.hu/pdf/EPA00017_kozgazdasagi_szemle_2)

Mária Kopp Institute for Demography and Families (2019-1). Changes in the Number of Planned Children in the 2010s, <https://www.koppmariaintezet.hu/hu/elemzeseink> (downloaded: 19 February 2020)

Mária Kopp Institute for Demography and Families (2019-2), “KINCS” European Family

Policy Ranking, <https://www.koppmariaintezet.hu/hu/elemzeseink> (downloaded: 19 February 2020)

Collaboration for the Child and Family-Friendly Hungary Expert Workshop (2018): Our Future is the Child. Additives to the Social Programme of Population Growth I, [https://www.academia.edu/39004545/\\_J%C3%B6v%C5%91nk\\_a\\_gyermek\\_Adal%C3%A9kok\\_a\\_n%C3%A9pess%C3%A9ggyarapod%C3%A1s\\_t%C3%A1rsadalmi\\_programj%C3%A1hoz\\_I\\_Kivonat\\_a\\_tanulm%C3%A1nyk%C3%B6tet%C5%91l](https://www.academia.edu/39004545/_J%C3%B6v%C5%91nk_a_gyermek_Adal%C3%A9kok_a_n%C3%A9pess%C3%A9ggyarapod%C3%A1s_t%C3%A1rsadalmi_programj%C3%A1hoz_I_Kivonat_a_tanulm%C3%A1nyk%C3%B6tet%C5%91l), (downloaded: 1 October 2020)

Central Administration of National Pension Insurance (2016). Portrait of the Hungarian Social Security Pension System, <https://docplayer.hu/9575263-Portre-a-magyar-tarsadalombiztositاسnyugdijrendszerrol-> (downloaded: 19 February 2020)

## LEGISLATION

FUNDAMENTAL LAW of Hungary (25 April 2011)

ACT LXXX of 1997 on the Eligibility for Social Security Benefits and Private Pensions and the Funding for These Services

ACT LXXXI of 1997 on Social Security Pensions

ACT I of 2012 on the Labour Code

ACT LII of 2018 on Social Security Contributions

ACT CXXII of 2019 on Entitlements to Social Security Benefits and on Funding These Services

GOVERNMENT DECREE 1798/2019 (23 December) on certain health issues

## STRATEGIES, REPORTS, GUIDES

Ministry of Interior (2016). Judging Public Employment Among Companies Based on Short-term Labour Market Forecast Data. (downloaded, 12 March 2020)

T. KAISER (2018). Good State and Governance Report, 2018, <https://joallamjelentes.uni-nke.hu/joallam-mutatok-jelentesenkent/>

Government (2020). Hungary Convergence Programme 2020–2024, [ec.europa.eu › info › sites › info › files › 2020-europea](https://ec.europa.eu/info/sites/info/files/2020-europea)

Magyar Nemzeti Bank (Central Bank of Hungary) (2019). Competitiveness Programme in 330 Points, <https://www.mnb.hu/kiadvanyok/jelentesek/versenykepessegi-program-330-pontban/versenykepessegi-program-330-pontban>

MGYOSZ (Confederation of Hungarian Employers and Industrialists) (2019). MGYOSZ Journal LVIII, 2019. No. 8, Joint Package of Proposals to Address Labour Shortages, <https://mgyosz.hu>, (downloaded, February 24, 2020)

National Council for Sustainable Development (2013). National Framework Strategy for Sustainable Development, 2013 [www.nfft.hu/documents/1238941/.../Nemzeti+Fenntartható+Fejlesztési+Keretstratégia](http://www.nfft.hu/documents/1238941/.../Nemzeti+Fenntartható+Fejlesztési+Keretstratégia) (downloaded: 25 March, 2019)

Ministry of Finance (2019). Macroeconomic and Budgetary Forecast 2019-2023. (downloaded: 24 February 2020)

#### STATISTICAL STATEMENTS

EUROSTAT (2018). Wages and Labour Costs, <https://ec.europa.eu/eurostat/statistics-explained/>, (downloaded: 24 February 2020)

EUROSTAT (2020). How Usual Is It to Work from Home? <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200206-1>, (downloaded, 24 February 2020)

CSO (2011). Childbearing and Parenting, 2011 (downloaded, 24 February 2020)

CSO (2018). Mirror Statistics, Population and Vital Events 2018 (downloaded: February 2020)

CSO (2019). Sustainable Development Indicators in Hungary (CSO SDI), 2019. [www.ksh.hu/docs/eng/xftp/idoszaki/fenntartfejl/fenntartfejl18.pdf](http://www.ksh.hu/docs/eng/xftp/idoszaki/fenntartfejl/fenntartfejl18.pdf) (downloaded: 25 March, 2019)

CSO (2020). Labour Market Processes, 2019 1st-4th Quarter, <http://www.ksh.hu/docs/eng/xftp/idoszaki/mpf/mpf194/index.html>

CSO (2020). Interactive Population Pyramid (IAK), <https://www.ksh.hu/interaktiv/korfak/orszag.html>, (downloaded: February 2020)

CSO (2020). Micro-census 2016, 10th International Migration (downloaded: 24 February 2020)

CSO (2020). Pensions and Other Benefits, 2019 (downloaded: 12 March 2020)

CSO Hungarian Demographic Research Institute (2015). Population Projections, <https://www.demografia.hu/hu/tudastar/nepesseg-eloreszamitas> (downloaded: 19 February 2020)

NAV (2020). List of Employers Without Notification, List of Taxpayers with Unorganized Labour Relations, <https://www.nav.gov.hu/nav/adatbazisok/benemellentett>, (downloaded, March 3, 2020)

Public Employment Service (PES) (2020). Key Headcount Figures for Active Employment Policy Instruments in 2016. (downloaded: 24 February 2020)

#### OTHER INTERNET SOURCES

Government (2019). Protecting Children is Paramount, <https://www.kormany.hu/hu/emberi-eroforrasok-miniszteriuma>, (downloaded: 24 February 2020)

Government (2020-2). What Do You Need to Know About Public Employment? <https://public-employment.kormany.hu/tajekoztato-akozfoglalkoztatasi-rendszerrol>, (downloaded: 24 February 2020)

MAJOR K. (2017). Factors of Long-Term Growth, Összkép, <http://osszkep.hu/2017/05/a-hosszu-tavu-novekedes-tenyezoi/> (downloaded: 24 March 2020)

MAJOR K. (2017). Factors of Long-Term Growth, Összkép, <http://osszkep.hu/2017/05/a-hosszu-tavu-novekedes-tenyezoi/> (downloaded: 24 March 2020)

N. G. KAÁLI (2017). Open Letter to Dr. Viktor Orbán, Prime Minister (OTS). [http://ots.hu/hirek/127039/nyilt\\_level\\_dr\\_orban\\_viktor\\_miniszterelnok\\_urhoz](http://ots.hu/hirek/127039/nyilt_level_dr_orban_viktor_miniszterelnok_urhoz) (downloaded: 19 February 2020)