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# A rational pension reform package: Hungary, 2025

## ANDRÁS SIMONOVITS

ABSTRACT

As part of the Recovery and Resilience Plan (RRP, 2023), the Hungarian government pledged to reform the pension system. The main themes are sustainability and adequacy. The pension plan is to be discussed publicly and put into law by March 2025. The last detailed official pension study was the 2016-discussion paper of the Hungarian National Bank which should be updated. The present study is a private work which may contribute to the improvement of the current pension system. The current and the projected states of the Hungarian pension system are outlined, and then simple and complex reforms are formulated. Naming just two reform steps, I start with the simplest step: the return to public discussion steered by a revitalized Fiscal Council and end with the most complex: the introduction of the flexible (variable) retirement age.

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# Egy észszerű nyugdíjreform-csomag, Magyarország, 2025

## SIMONOVITS ANDRÁS

ÖSSZEFOGLALÓ

A Helyreállítási és ellenállóképességi terv részeként a magyar kormány elvállalta, hogy megreformálja a nyugdíjrendszert. A reform fő témái a fenntarthatóság és a megfelelőség. A nyugdíjtervet nyilvánosan meg kell vitatni és 2025 márciusáig törvénybe kell iktatni. A legutolsó részletes hivatalos nyugdíjtanulmány a Magyar Nemzeti Bank műhelytanulmányában 2016-ban jelent meg, és alapos felfrissítésre szorul. A jelen tanulmány egyéni munka, amely hozzájárulhat a jelenlegi nyugdíjrendszer javításához. Vázolom a mai és a jövőbeni állapotot, majd egyszerű és bonyolult reformlépéseket javaslok. Itt csak két lépést nevezek meg: egy egyszerűt (visszatérés a megújított Költségvetési Tanács vezérelte nyilvános vitához) és egy bonyolultabbat (bevezetni a rugalmas nyugdíjkorhatárt).

# A rational pension reform package: Hungary, 2025

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## Abstract

As part of the Recovery and Resilience Plan (RRP, 2023), the Hungarian government pledged to reform the pension system. The main themes are sustainability and adequacy. The pension plan is to be discussed publicly and put into law by March 2025. The last public and detailed official pension study was the 2016-discussion paper of the Hungarian National Bank which should have been updated. The present study is a private work which may contribute to the improvement of the current pension system. The current and the projected states of the Hungarian pension system are outlined, and then simple and complex reforms are formulated. Naming just two reform steps, I start with the simplest step: the return to public discussion steered by a revitalized Fiscal Council and end with the most complex: the introduction of the flexible (variable) retirement age.

# 1. Introduction

In December 2022, the EU made it public that it expects from the Hungarian government to work out a *Reconstruction and Resilience Plan* (RRP, 2023), including the pension system. The pertinent paragraph reads as follows:

"Quality of public finances: reforms promoting the medium and long-term sustainability of the Hungarian pension system, contributing to lengthening working lives and strengthening the adequacy of pensions for lower-income pensioners, combatting aggressive tax planning, simplifying the tax system, and introducing regular spending reviews."

Within this plan, the government must discuss the current state and the future projection of the Hungarian pension system. By the agreed timetable, the government must work out an efficient and fair reform package by 2025 in a public framework. An international expert group is to publish a pension report by December 31, 2023; the Hungarian government is to prepare a reform package by June 30, 2024; and pass a law by March 31, 2025.

The pension part of the government's current draft report is very short, and by a word count, sustainability dominates over adequacy and fairness. No government agency has published any plan on pensions after 2016 (cf. Freudenberg et al., 2016) and even the Competitiveness Report of the National Bank of Hungary (2022) is quite elementary. It is doubtful that the eventual plan can deliver on its promise to include a well-funded reform proposal.

Being an independent and retired economist working in the field of pensions since 1992, I find it opportune to make my own report. (Banyár (2023) is a similar work, emphasizing the advantage of introducing a point system in Hungary.) First, I diagnose the current (and the projected) state of the Hungarian pension system, then I outline the simple and the complex reform steps which I deem desirable. I propose a package of measures, and I look for the harmony between costs and benefits, distinguishing between short- and long-term ones. I do not claim that each element of the present package should be fully incorporated, and no other elements are important. Though any important pension measure is a political issue, especially in Hungary, I try to avoid the political dimensions of the package. If I can name works which served as an inspiration, blending efficiency and fairness, I would name Diamond and Orszag (2005): *Saving [US] Social Security* and Barr and Diamond (2008) on *Reforming Pensions*.

Hungary offers a case study of pension policy that is piecemeal and frequently done for short-term political reasons and/or to address fiscal constraints. The result shows how that approach leads to a system that is (a) incoherent, (b) horizontally inequitable, (c) complex – arguably too complex for most workers and pensioners to understand, (d) not adequate for a large part of the population.

Between 1998 and 2010, the Hungarian mandatory pension system had two pillars: the public (pay-as-you-go) and the private (funded), supplemented by a small voluntary pillar. In 2011, the so-called second pillar was essentially renationalized (Simonovits, 2011). From now on, we shall confine our attention to the mandatory public pillar.

In principle, the current Hungarian system is a defined-benefit (DB) one, where any reform with restrictions should be confined to cohorts entering the system after 2024; or less strictly, considering the length of periods before and after the reforms. (For example, the latter was done in Sweden around 2000; see, Sundén, 2006.) This principle has not been followed by the subsequent Hungarian governments, and it could not be followed now: the accumulated strong tensions require quick and decisive measures.

The structure of the remainder of this paper is as follows. Section 2 outlines the current and the projected future Hungarian pension system. Section 3 formulates some simple pension reform steps. Section 4 turns to complex pension reform steps, while Section 5 concludes. The list of references is followed with a short sketch of the literature not mentioned in the main text. Since the system is so complicated, therefore its description is longer than that of its reform.
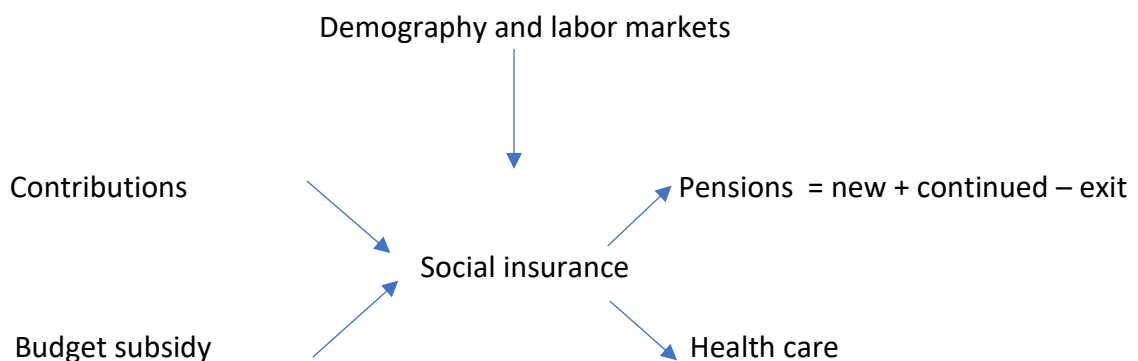
## 2. The current Hungarian pension system

### 2.1. The core of the system

The current Hungarian pension system is designed as a *pay-as-you-go* system, where every year the current workers and the government budget finance the benefits of the current pensioners. (Szikra (2018) is probably the most up-to-date and critical survey on the Hungarian pension system.) The normal retirement age (NRA, the age at which–as a rule–full benefit accrues) is equal to 65 since 2022. Nobody is allowed to retire earlier except for women who–having accumulated at least 40 years of entitlements–can retire at any age without any reduction in their benefits. To understand the dynamics of pensions, it is useful to distinguish initial benefits and benefits in progress, the former is indexed to wages and the latter indexed to prices.

Next, I present Figure 1, visualizing the flows in the social insurance system, containing the public pension system.

Figure 1. Public pensions in the economy

Demography and labor markets

Contributions

Pensions  = new + continued – exit

Social insurance

Budget subsidy

Health care

### 2.2. Macro-level outcomes and background

First, several tables are presented, concerning the sustainability of the system. Starting with demography, Table 1 displays life expectancy at age 65 between 1990 and 2020. (We shall see in Figure 5 that the effective retirement age is still lower than the normal one, 65, and we wish that life expectancy rise again.)

Table 1. Remaining life expectancy at 65, years, HU

| Year | 1990 | 2000 | 2010 | 2020* |
|------|------|------|------|-------|
| Total | 13.9 | 15.1 | 16.5 | 16.2 |
| Man | 12.1 | 13.0 | 14.1 | 14.0 |
| Women | 15.4 | 16.7 | 18.2 | 17.9 |

Source. Central Statistical Office, HU

We add that the total fertility rate in Hungary was lowest at 1.23 (2011) and was rising to 1.54 (2021). Completing the demographic timeseries, we can forecast the process of population aging. This is done in Table 2, for the period 2022–2050, the last columns displaying the rising ratio of the sizes of old- and working-age cohorts.

Table 2. Population aging, HU, 2022–2050

| Year | 14–64, million | 65+, million | Dependency ratio, % |
|------|------|------|------|
| 2022 | 6.3 | 2.0 | 31.7 |
| 2040 | 5.3 | 2.3 | 43.4 |
| 2050 | 5.0 | 2.6 | 52.0 |

Source. Central Statistical Office, HU

Figure 2 displays three timeseries. The middle curve shows the drop of the share of pension-aged cohorts in the total population, mainly caused by the steep rise of the normal retirement age (Figure 5 below). The upper curve displays the decline of the ratio of average benefits to average net wages after 2015. (Note, however, that among others, Oblath and Simonovits (2023) demonstrated: after 2014, the actual net wages are much lower than the official data, therefore the decline is more modest than shown here.) The lower graph represents the decrease in the pension-to-GDP ratio, chiefly explained by the slower real growth of the average benefit than that of the per-capita GDP in the foregoing period (20 vs. 40%).

Figure 2. Time series, 2010–2021
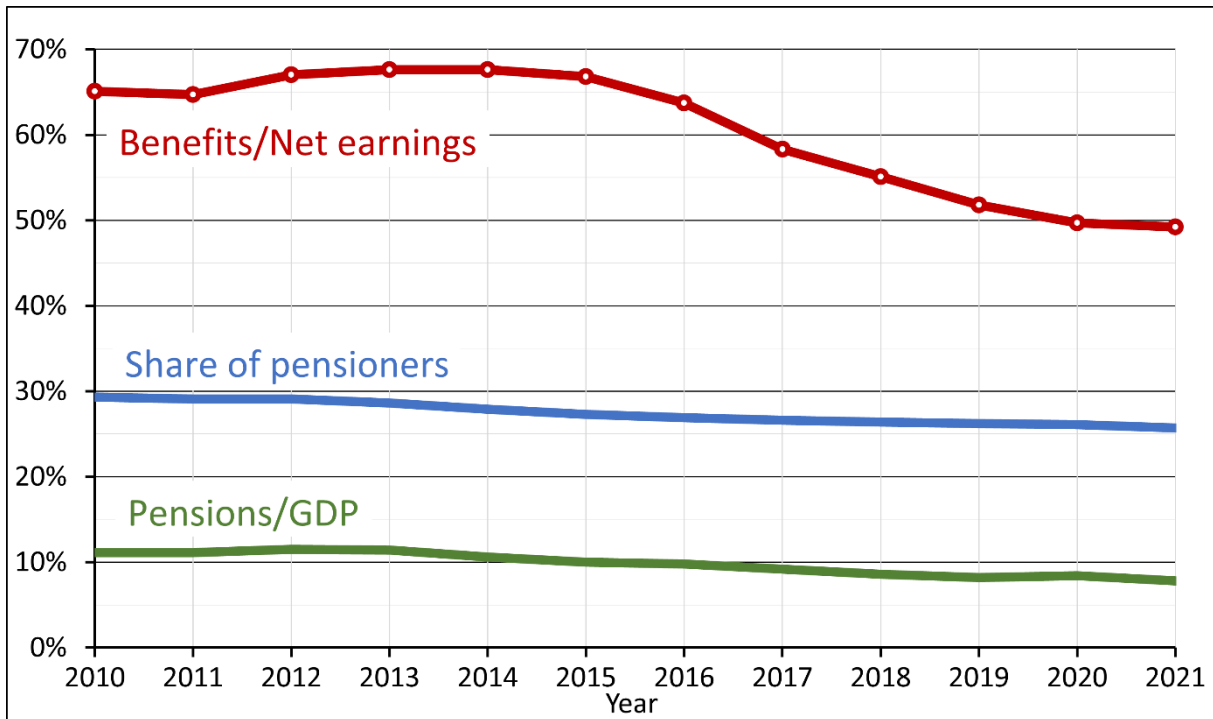


Source. Central Statistical Office, HU

Table 3 reports past and forecasted dynamics of pension expenditures between 2010 and 2060 as percentages of the GDP. Due to demographic and other factors, they will drop until 2030 and then rise.

Table 3. Pension expenditures in terms of the GDP, 2010–2060, %

| Year | 2010 | 2020 | 2030 | 2040 | 2050 | 2060 |
|---|---|---|---|---|---|---|
| Pensions | 11 | 9 | 7.5 | 9 | 11 | 12 |

Hungarian Government Report, 2023

It would be helpful to know the path of pension revenues, too. According to Freudenberg *et al*. (2016), the earmarked revenues will stay around 8% of the GDP, eventually yielding a gap 4% of GDP. But the underlying parameter values have significantly changed since 2016 (see for example, Figure 3), calling for an updated projection.

Figure 3 displays that between 2016 and 2022, the government spectacularly reduced the total employers' contribution rate from 27 to 13%. Note that the total pension rate is the sum of the employee's and the employer's pension contribution rates. The employee's contribution rates for pensions and health remained 10 and 7%, respectively. In return, the employers raised the real net wages by at least 6% per year.

Figure 3. Reductions in contribution rates, 2016–2022
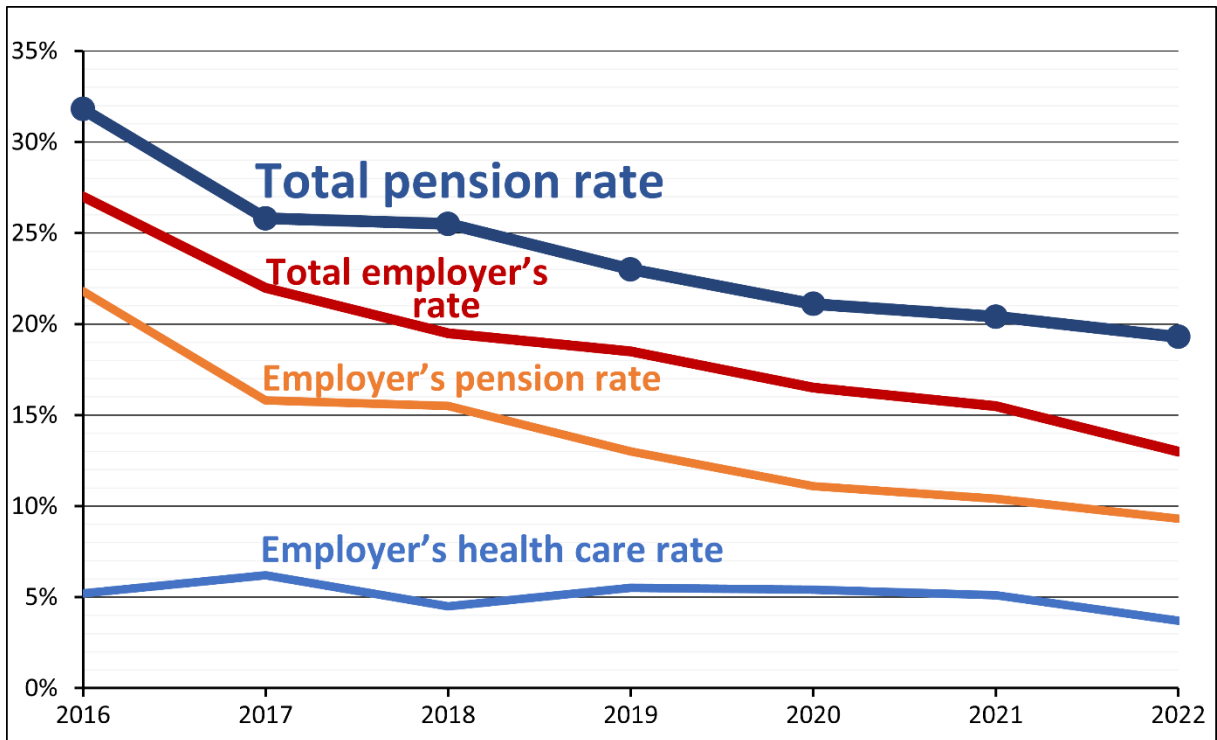


The elimination of the *cap* on pension contributions (maximum taxable earning base), the steep rise of normal and effective retirement ages, the stagnation of life expectancy also helped preserve the balance of the pension fund for a while. But by 2023, the radical reduction of the contribution rate has backfired (see below).

We can only rely on a rudimentary short-term official budgetary calculation for 2023–2024 (made in May 2023), reflecting the consequences of the radical reduction of the so-called social contribution tax rate (meaning employers' contribution rate). As can be seen from Table 4, the government plays with dramatic deficits, shifting them between the pension and the health care sectors: the budgetary pension subsidy will diminish from 1.5% (2023) to 0.7% (2024), while the health counterpart will rise from 2% (2023) to 2.7% – in terms of the GDP! As a comparison, we must mention that the revenues from the value added tax and the personal income tax are equal to around 10 and 5% of the GDP, respectively. One can argue that there is nothing wrong to finance in part the social insurance expenditures from non-labor taxes, but then the whole logic of valorization breaks down.

Table 4. The social insurance budget, 2023–2024, % of the GDP

| Year | Pension | | Health care | | Total | |
|------|---------|---------|-------------|---------|--------|---------|
| | Contri-bu-tion* | Subsidy | Contri-bu-tion* | Subsidy | Contri-bu-tion* | Subsidy |
| 2023 | 5.7 | 1.5 | 3.2 | 2.0 | 8.9 | 3.5 |
| 2024 | 6.4 | 0.7 | 2.5 | 2.7 | 9.1 | 3.4 |

*The contribution is the sum of the employee's and the employer' contributions.

Source. parliament.hu/irom42/04 181, May 30, 2023.

## 2.3. Initial benefits

Having surveyed the macro situation of the social insurance especially of the pension system in Hungary, we turn to the issue of *initial pensions.* They have a relatively small weight, but their significance is strong: every benefit started as an initial benefit. An initial benefit is the product of three factors: (1) the total accrual rate (being an increasing function of the years of contributions), (2) except for Women40, the actuarial adjustment due to delayed or early retirement; and (3) the reference wage (depending on the lifetime average indexed net earnings). Note that in Hungary, no pensioner pays personal income tax.

*Total accrual rate*

In most countries, where not the whole earning period is taken into account, there exists the total accrual rate, which is the product of the annual (marginal) accrual rate and of the years of contributions. For historical reasons, however, in Hungary, the marginal accrual rates change erratically with the length of contributions: being 3.3% until 10 years, 2% between 11 and 25 years, then dropping to 1% between 26 and 35 years, rising to 1.5% between 36 and 39 years, continued at 2% between 40 and 50 years and ending at 0 beyond. Moreover, there is a quite high minimum value of contribution years, amounting 15 (or 20) years. These complications have lost all their rationales. Figure 4 displays the zigzagged line and its rectified version with a uniform marginal accrual rate of 2% (planned in 1997 to be effective from 2013 but finally abolished).

Figure 4. Zigzagged and rectified accrual curves
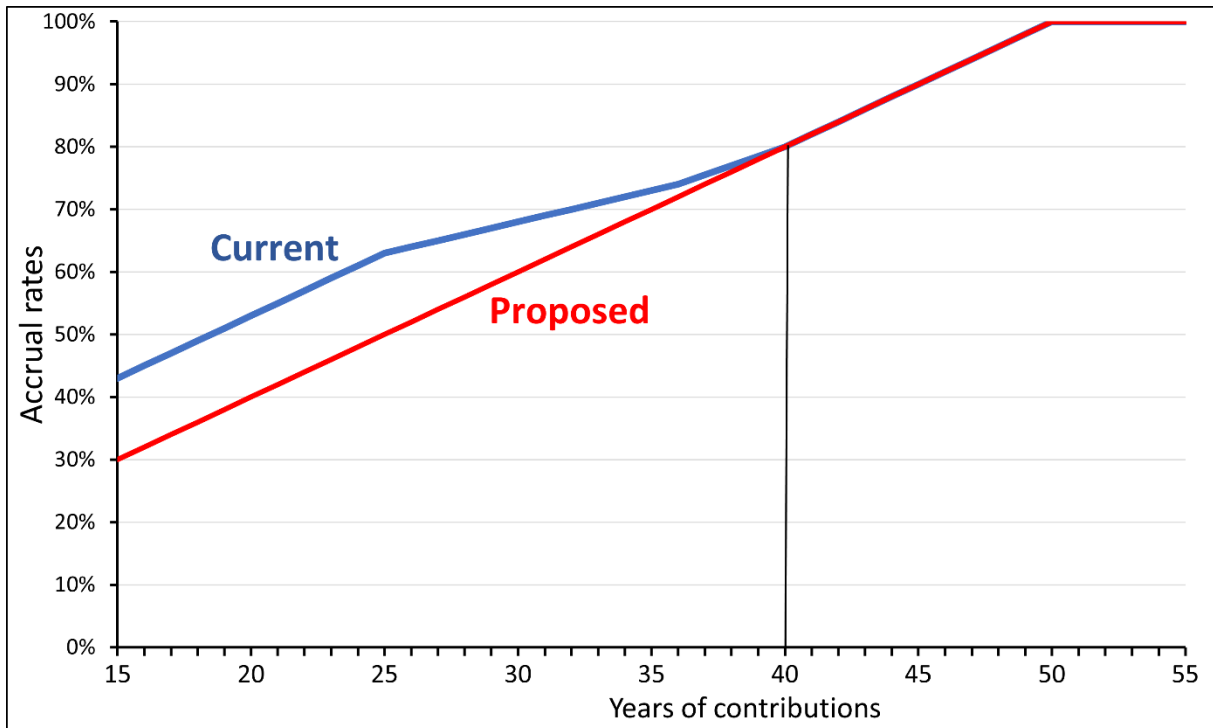


Source. Public domain

*Actuarial adjustment*

In most of the developed countries, the retirement age is *flexible* (a.k.a. variable): everybody can retire below the *normal* (or statutory or full benefit) *retirement age* after reaching the *earliest* retirement age, being 2-4 years below the normal retirement age. Any early retiree has to accept, however, that her benefit will be 4-6% lower for every early year, forever. For example, if she wants to retire 2 years before reaching the normal retirement age, her benefit is reduced by 8-12%. Or she can delay retirement above the normal retirement age, rewarded with an extra benefit of a similar size (delayed retirement credit).

As most flexible systems, flexible retirement is also advantageous: the would-be retiree can choose between early retirement with a lower annual benefit or late retirement with a higher annual benefit, without significantly changing the balance of the system. Of course, flexibility has its own problems: (i) A sizable share of the early retirees only realizes after retirement that it would have been better to retire later; and (ii) those with higher life expectancy tend to retire later and benefit disproportionally (cf. Simonovits, 2018,Table F1 on p. 252). (iii) In Hungary, there are extra complications. The great majority of the would-be Hungarian retirees do

not know about the significant delayed retirement credit of 6%/year. (The insufficient knowledge of the pension rule is a general problem, see e.g., Barr and Diamond, 2008, Section 4.2.) Moreover, since 2021, those pensioners who keep working, need not pay any social insurance contribution, making delay suboptimal. Note that in Hungary, the pensioner does not pay any personal income tax! Moreover, just retiring at 66 rather than 65, her benefit only increases by 8.7% (1.06x1.025=1.0865) but she (or her employer) forsakes 18.5+13 = 31.5% of her gross wage for a whole year!

In several countries, early retirement has strict additional conditions. For example, in Germany and Czechia, one needs minimum 35 years of contributions to use early retirement. In Slovakia, early retirement requires that the reduced benefit must reach a minimum; excluding those with lower benefits, although presumably they have worse health and probably die earlier than the rest of the population.

Recall that in Hungary, the normal retirement age rose quite steeply between 1995 and 2009, especially for women: from 55 (1995) to 62 (2009); for men, this age only grew from 60 to 62 (by 2001). Partly to counterbalance this rise but also make it acceptable, the deduction for early retirement was quite modest (including no deduction) until 2008. Between 2009 and 2010, a sensible flexible system was operating but in 2011/2012, a new government replaced it by a rigid system in 2012: with a notable exception (see below), nobody was allowed to retire below the normal retirement age, otherwise steeply rising from 62 (2013) to 65 (2022), see Figure 5.

Table 5 shows the currently valid system of upward flexible retirement system. (As mentioned above, if somebody retires at age 65 with 40 years of contribution, she will receive 80% of the reference wage. If somebody retires at age 66 with 41 years of contribution, she will receive 87%.) Making the calculation independent of the years of contribution, full benefit is taken 100, which depends on other factors, see below. Finally, the typically rising average real wages also contribute to the rise of the delayed benefits even if the retiree's individual real wage does not grow.

Table 5. Relative benefits with upward flexible retirement age with NRA = 65 years

| Retirement age, yr. | 65 | 66 | 67 | 68 |
|---|---|---|---|---|
| Raised benefit, % | 100 | 106 | 112 | 118 |

*Women40*

A special early retirement system called Women40 was, however, introduced in 2011: every woman, who accumulated at least 40 years of entitlements (related but not identical to years of contributions), can retire without any actuarial reduction due to early retirement. The program is very popular; for example, among those retired in 2020, 37% used this route, and this accounted for 63% of newly retired women.

Figure 5 also displays the group-specific average retirement ages between 2012 and 2020. Due to the rising normal retirement age without downward flexibility, the men's average rose from 62.2 years (2012) to 64.5 years (2020), the corresponding women average only grew from 59 to 61.6; and the Women40, only rose from 57.8 to 59.8 years.

Figure 5. Retirement ages, years
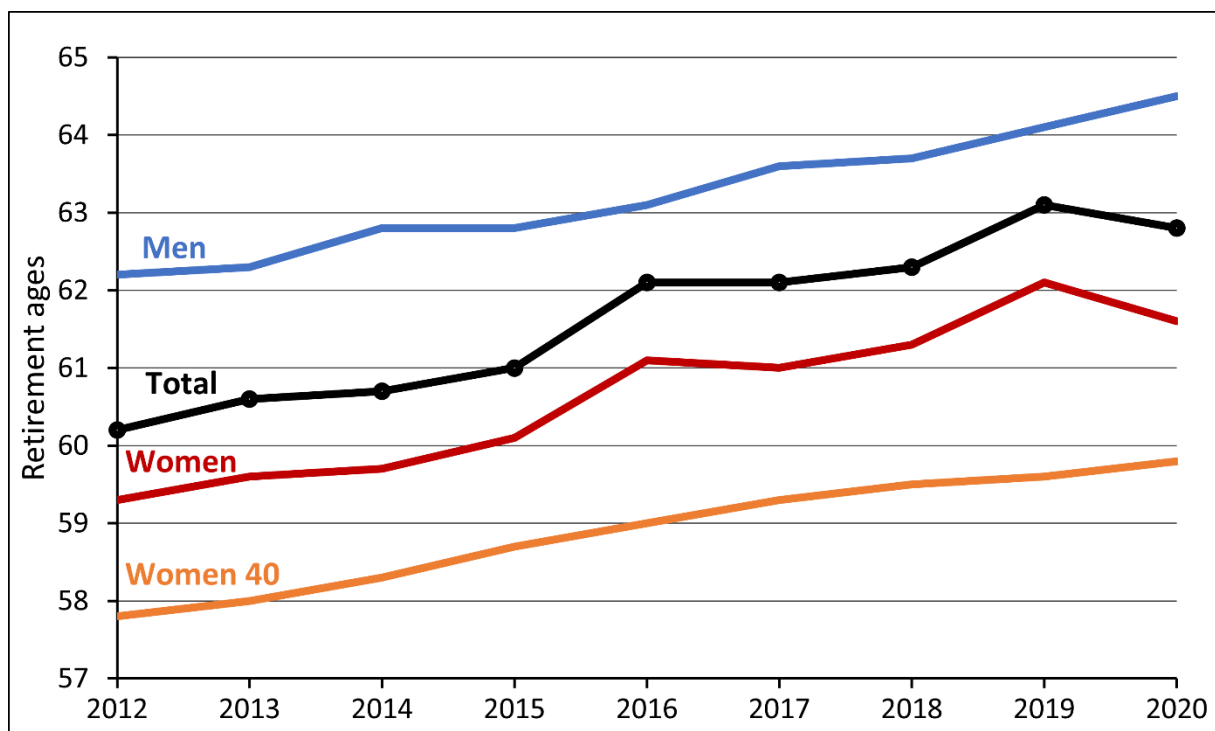


Source: Yearbook of Central Statistical Office, Hungary.

Surprisingly, the government as well as the other participants of public life have been over-looking two other negative impacts of the Women40 (Czeglédi *et al.*, 2017): (i) A number of cohorts participating in Women40 *suffered* losses. In fact, consider a 60-year-old woman with 40 years of contributions who had delayed her retirement by 3 years, from 2016 to 2019. Due to the real wage explosion, her annual benefit would have risen by approximately 35%. More-over, her undiscounted lifetime benefit would have risen by approximately 17%, due to the expected shortening of time spent in retirement from 20 to 17 years (for details, see Simono-vits, 2019). (ii) Women40 is *unfair*: while it allows a 60-year-old woman to retire without any deduction, it forbids a 64-year-old woman with 39 years of contributions to retire, even with a properly reduced benefit. Though the supporters of Women40 defend this discontinuity by claiming that every system has jumps, this defense is erroneous: the jump is a consequence of bad design.

*Calculation of the reference wages*

This topic is rather technical, and I shall only present a simplified variant (for details, see Si-monovits, 2003, Chapter 4, and 2020). Consider a worker who retires in the beginning of year 2023. Her *reference wage* is calculated as an arithmetic average of the indexed annual earn-ings between 1988 and 2022. Note, however, that each annual earning is only taken into ac-count up to a *cap* varying in nominal as well as relative terms, and valorized by multiplying it by the gross nationwide wage index from the corresponding year until her retirement year minus one year. (Furthermore, the resulting average is compressed by an increasing concave transformation called *progressive benefit function,* see next subsection.) This indexation pro-cedure is like having a nonfinancial account where each year's contributions are increased by the virtual interest, whose rate is equaling to the current year's growth rate of the per-capita nationwide wages. This only makes sense if the contribution rates and the demographic pro-portions are time-invariant. In Hungary, the equivalent of the employers' contribution rate was radically reduced (see Figure 3 above), which should have been but was not taken into account.

The current annual indexation is quite crude. For example, if somebody delays her retirement from December 31 to January 1, then her presumed initial benefit is multiplied by the index for nominal wage of the previous year and divided by the index of inflation of the current year. For example, in case of 2021/2022, the expected reward was equal to 1.087/1.05 = 1.035, i.e.,

3.5%. Due to accelerated inflation, however, the actual modification was a reduction: 1.087/1.14 = 0.953, –4.7%. It is to be emphasized that by overlooking the employees of firms having less than 5 persons or employees working in part time, cc. 1/3 of the total working force), the nominal wage increases have been significantly overestimated by the Hungarian Central Statistical Office (cf. Oblath and Simonovits, 2023, Figure 2). This statistical negligence actually raised the initial benefits much more than should have been.

*Capped vs. uncapped contributions*

In most public pension schemes, there is a *cap* on the contribution base—called shortly the *contribution cap* (officially, maximum taxable earnings base, see Valdés-Prieto and Schwarzhaupt, 2011). For example, in terms of average gross earnings, the cap is equal to 120% in Sweden, 180% in Germany and cc. 250% in the USA. In Hungary, the cap was 300% in 2012 before it was eliminated. As is evident, the worker does not pay any contribution for the possible earnings above the cap; and she does not earn any additional rights for that part. The cap's advantages are as follows: (i) the existence of a cap relieves those, who earn above the cap, from fully assisting in the system, while making room for a further rise of the contribution rate; (ii) it diminishes the unwanted redistribution due to longevity gap and (iii) it weakens the envy of lower-paid beneficiaries. The elimination of the cap from 2013 opened the door for rising real initial benefits, while it replaced the loss arising from the elimination of the higher marginal personal income tax rate.

*Progressive benefits*

A pension system is called *progressive* if the rise of the reference wage $W$ is taken into account in a decreasing proportion in the pension base $C$. The Hungarian system had 10 progression brackets around 1998, with a progression coefficient declining from 100 to 10%. Since the employers' contributions were capless, earnings above the cap had progression coefficient 0 (Simonovits, 2003, Chapter 4). Progressive systems may weaken the incentives to fully pay contributions, but they have the advantage of counterbalancing the longevity gap (Liebman, 2002, see also Simonovits, 2018, Appendix F, several chapters of Holzmann *et al*., eds., 2020, and Simonovits and Lackó, 2023).

To harmonize the public pension system with the private one (carved out in 1998 and re-nationalized in 2011), these `progressive' brackets were phased out in Hungary, and only the

two highest ones, with attribution of 90 and 80% remained, with nominally fixed bending points $W_1$ and $W_2$ since 2012. The general formula $C(W)$ is as follows:

$C(W) = W$,                                     for        $W \leq W_1$,

$C(W) = W_1 + 0.9(W - W_1)$,                     for        $W_1 < W \leq W_2$.

$C(W) = W_1 + 0.9(W_2 - W_1) + 0.8(W - W_2)$,    for        $W > W_2$.

Having multiplied the pension base by the aggregate accrual rate $d_S$ ($S$ being the years of contributions, Figure 4 above) and the actuarial factor $A_t(R)$ (Table 5) results in an initial benefit: $B = d_S A_t(R)C(W)$, ($t$ being the year relevant for the new cohort). For the sake of simplicity, we unify the two brackets and choose a single floor $\underline{W}$ separating the nonprogressive and the progressive domains. At this point we recall index $t$ for calendar year. The approximate reference base is now $C(W) = W$ for $W \leq \underline{W}$ and $C(W) = \underline{W} + 0.8(W - \underline{W})$ for $W > \underline{W}$.

To highlight the impact of inflation, we turn to real values, denoted by the corresponding lowercase variables $c_t = w_t$ for $w \leq \underline{w}$ and $c_t = \underline{w}_t + 0.8(w_t - \underline{w}_t)$.

Figure 6 depicts three progressive formulas with a common floor of 1.5 times of the average wage and progressivity coefficients 1, 0.8 and 0.6, respectively. Of course, its introduction should be smooth in time: a worker, who retires in year $t+1$ should have higher benefits in real terms than if he retired already in year $t$.

Figure 6. Three benefit—reference wage links
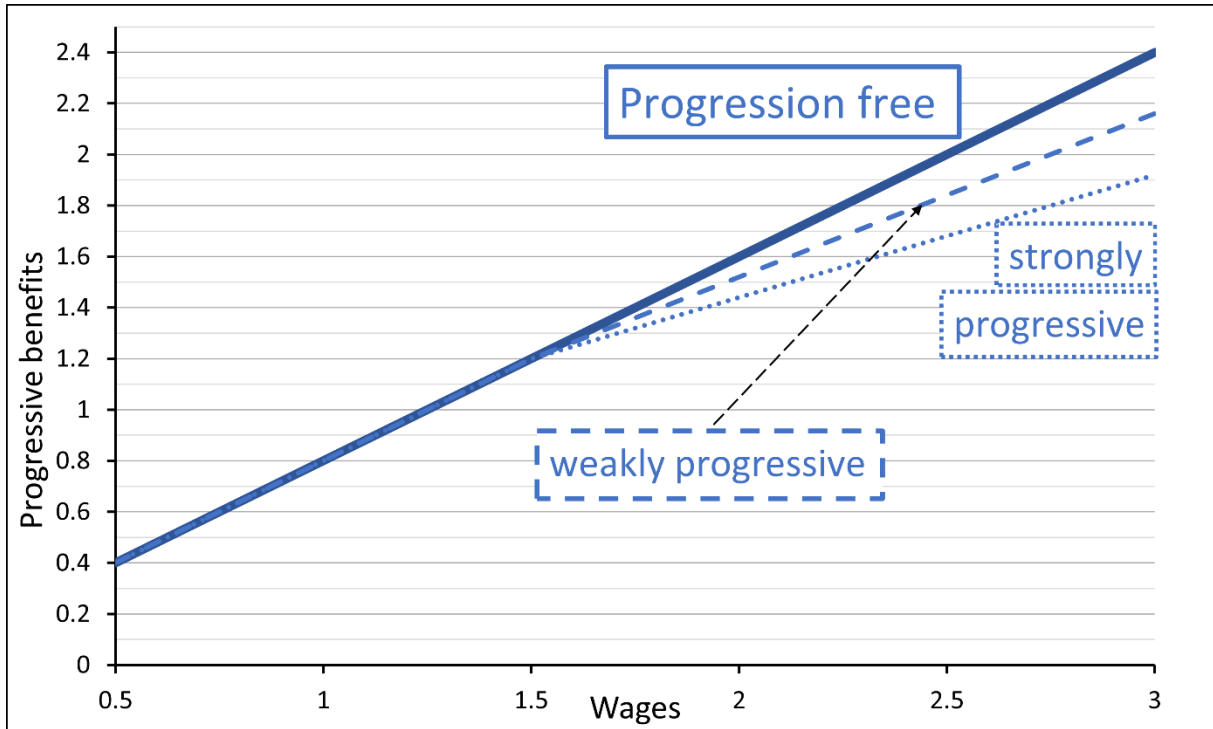


Figure 7 displays the stylized historic changes between 2013 and 2023. Note the rise of the average real wage path, the price level and the so-called average estimated initial benefit, corresponding to a career always equal to the average wage. Due to the (partly statistical) real wage explosion and the accelerating inflation, the relative and the real values of the floor decrease, respectively. For example, a nominally fixed reference wage of 3 times the average net wage of 2013 is only 130% of the average wage in 2023. But even in real terms, its value dropped to 186%. It is not surprising that if we calculate the *corresponding* "triple benefit" theoretically belonging to the triple average wage, its real value reached its maximum in 2021 and then declining.

Figure 7. Inflation and strengthened progressivity
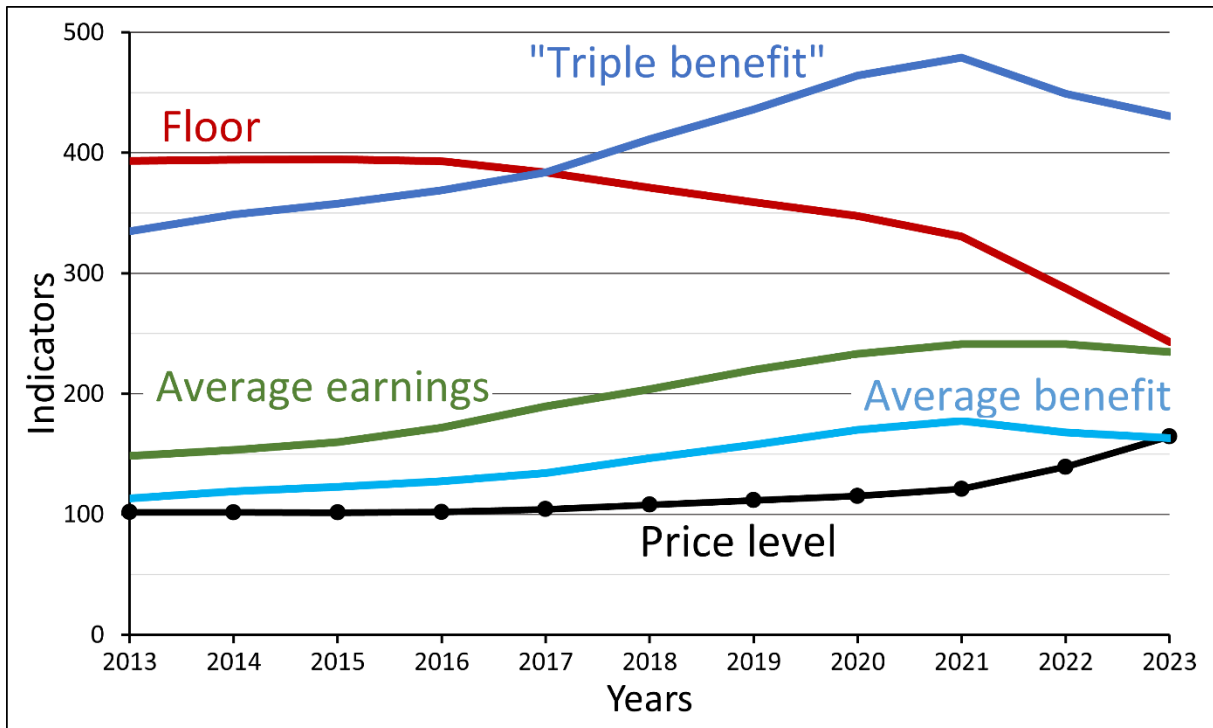
Source. Partly Hungarian Statistical Office, partly own calculations

It is obvious that for given rates of contributions and of benefits, there is a trade-off between the rates of personal income tax and of the progression plus the real value of the floor. To ensure invariant initial real benefits, then an otherwise desirable higher marginal income tax rate justifies a lower progressive coefficient and a higher floor.

Similarly, the radical reduction of the employer's contribution rate upset the delicate balance between the net wage, gross wage and the full compensation. To make the impact of this change more visible, we recalculate the path in terms of full compensation in Table 6. We must introduce the following notations: in year $t$, the net wage $w_t^n$, and full compensation $w_t^f$, both for average and in real terms. Note that though the standard PIT rate is constant at 15%, in terms of full compensation, it rises from 11.8 to 13.3%. The total contribution rate drops from 35.9 to 27.9%. Moreover, the ratio $w_t^n/w_t^f$ rises from 52.2 to 58.8%. It is understandable that in real terms, the full compensation rises much more slowly than the net wage does, and the total contributions rise much more slowly than the initial benefits do.

Table 6. Paths of contribution rates (CR) in terms of full compensation

| Year $t$ | Employee CR | | | Employer CR | | | Cor-rected personal income tax rate $\theta'$ | Net/ full compen-sation $w^n / w^f$ |
|---|---|---|---|---|---|---|---|---|
| | Total $\tau_1'$ | Pension $\tau_{1.P}'$ | Health $\tau_{1.H}'$ | Total $\tau_2'$ | Pension $\tau_{1.P}'$ | Health $\tau_{1.H}'$ | | |
| 2016 | 14.6 | 7.9 | 6.7 | 21.3 | 17.2 | 4.1 | 11.8 | 52.4 |
| 2017 | 15.2 | 8.2 | 7.0 | 18.0 | 13.0 | 5.1 | 12.3 | 54.5 |
| 2018 | 15.4 | 8.3 | 7.1 | 16.7 | 12.9 | 3.7 | 12.5 | 55.4 |
| 2019 | 15.6 | 8.4 | 7.2 | 15.6 | 11.0 | 4.6 | 12.7 | 56.1 |
| 2020 | 15.9 | 8.6 | 7.3 | 14.2 | 9.5 | 4.6 | 12.9 | 57.1 |
| 2021 | 16.0 | 8.7 | 7.4 | 13.4 | 9.0 | 4.4 | 13.0 | 57.6 |
| 2022 | 16.4 | 8.8 | 7.5 | 11.5 | 8.2 | 3.3 | 13.3 | 58.8 |

## 2.4. Benefits in progress

Having analyzed the initial benefits, now we turn to the *benefits in progress*. The latter form the bulk of the pensions, their dynamics influence the paths of contribution rate and of the budgetary subsidies.

*Indexation of benefits in progress*

This is perhaps the most visible part of the pension policy for the general public. Internation-ally, benefits in progress are raised proportionally to prices, wages or their combination. The intention behind indexation is twofold: to stabilize the purchasing power of pensions and the relative position of pensioners. Judging from the press, most Hungarian citizens, however, do not understand why benefits are raised proportionally to the consumer price index and would prefer progressive raises; for example, every year giving every pensioner the same lump sum as compensation for inflationary losses.

Indexation to prices has the following advantages: (i) the balanced initial benefits are higher than would be for indexation to wages, (ii) it saves pensioners from the impact of occasional real wage drops and (iii) it diminishes the reversed income redistribution due to longevity gap (the difference between life expectancies of higher and lower beneficiaries). In contrast, in-dexation to wages preserves the income position of the pensioners relative to the wage

earners. The higher the share of wages in the indexation, the lower should be the initial benefits, for example, by downsizing the accrual rates (transforming the reference wages into benefits).

Hungary has already tried out the three most important variants: between 1992 and 1999 indexation to wages, then a mixed indexation and since 2010, indexation to prices. (In fact, in 2010 and 2011, the law admitted mixed indexation for high nationwide real wage growth, but the conditions were not met. In addition, any asymmetric indexation, which only follows real wage growth but not its drop, is erroneous, see Barr and Diamond, 2008, Box 5.8.) The impact of indexation is more complex to assess when the type of indexation changes: for example, those who retired before 2000 and survived 2010, have experienced in indexation to wages, to wages and prices and to prices subsequently.

Of course, no system is optimal in all circumstances. Between 2021 and 2023, the accelerating inflation, with particularly fast rises of food and household energy prices, made the proportional indexation *temporarily* unfair, since in the baskets of those with lower benefits, the foregoing items have above-average shares. These grievances probably can only be treated by special temporary income support (Simonovits, 2022).

*The 13th month pension and the pension reward*

Between 2003 and 2006, the government phased in a *13th month pension,* which was equal to her monthly pension for every pensioner. As a response to the Great Recession, which hit Hungary particularly strongly, the same coalition first limited and then abolished the extra benefit. In 2021, another government announced a phase-in of the 13th month pension, again equaling to the individual monthly pensions.

The government, which abolished the 13th month pension, introduced the so-called *pension reward* in 2010 as a compensation. Since the reward only enters at annual GDP growth rate of 3.5% and reaches its maximum at 7.5%, at a nominally fixed value of the average benefits in 2009, due to inflation and wage rise, it has become negligible and basically flat payment by 2023.

## 2.5. Evaluation

According to Freudenberg *et al*. (2016), the Hungarian pension system with the parameter values of 2015 would be sustainable until 2035 and then, this was accepted by the population. Since 2016, however, the parameter values of the Hungarian pension system have been changing substantially. It is a pity that currently no Hungarian institution wants or can up-date a similar pension model. I have to be satisfied with some rudimentary calculations.

Figure 8 displays the time series of average net wages, of initial and average pensions, in real terms. The explosion of real wages, and the subsequent rise of initial benefits and the relative decline of the average benefits between 2016 and 2022 are all visible. The tension between younger (newer) pensioners with higher benefits and older pensioners with lower benefits has been growing; for example, the ratio of initial to average pensions rose from an estimated 87% (2012) to 129% (2021).

Figure 8. Average net wage (2013=100), average benefits and initial benefits, real terms
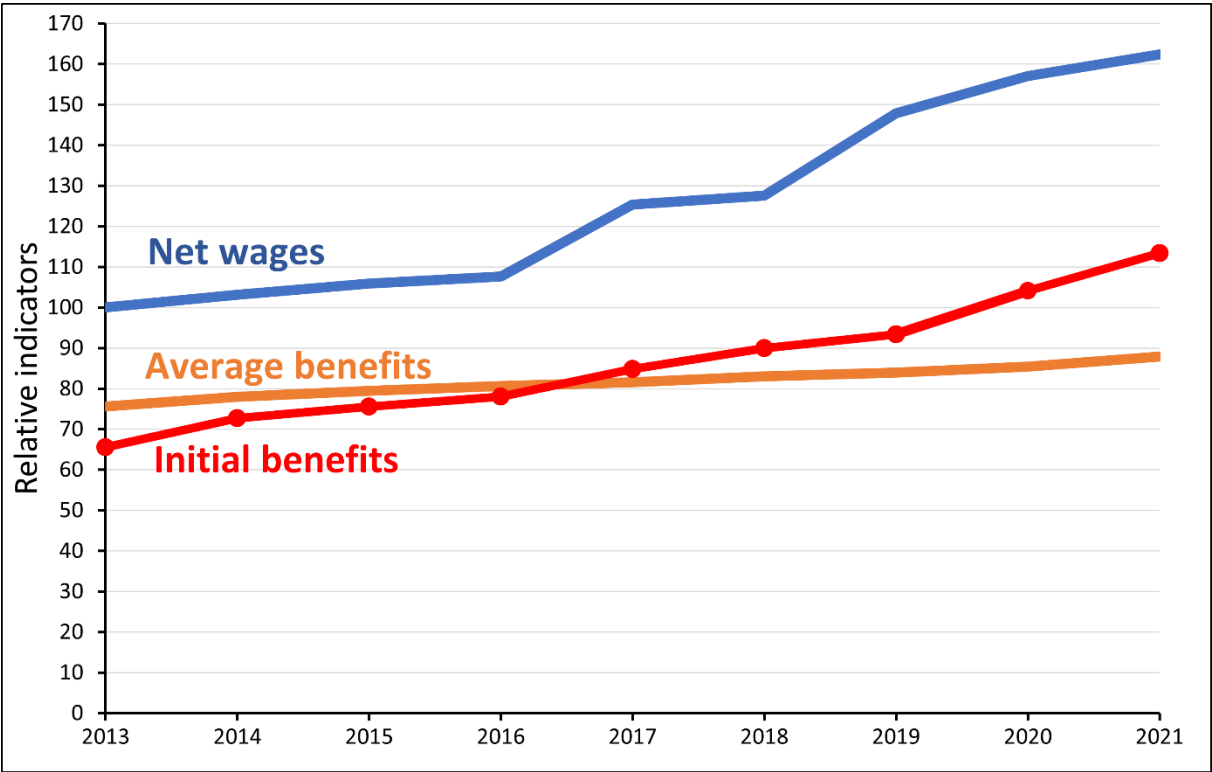


Finally, Table 7 compares men and women's real average benefits of 2013 to 2022, fueled by overindexation between 2013 and 2016, and the subsequent phase-in of rising initial benefits,

taking man pensions to be 100 in 2013. The table also shows a steep rise of relative standard deviations (SD) of men and women benefits (estimated by Ádám Reiff).

Table 7. Real term pensions and their relative standard deviations (SD), %

| Year | Men | | Women | |
|---|---|---|---|---|
| | Average bene-fits | Relative SD | Average bene-fits | Relative SD |
| 2013 | 100.0 | 41.4 | 86.7 | 32.1 |
| 2022 | 121.6 | 48.2 | 105.4 | 38.9 |

Source: Calculations by Ádám Reiff.

To help understand the meaning of the relative SDs, we make two remarks concerning Hungary: (a) the relative SDs of net wages rose from 111 (2007) to 146 (2015) and 157% (2021), estimated by Judit Krekó; and (b) if the proposed flattening of the 13th month benefits were accepted (step 3.5 below), then the relative SDs would diminish by 7.7%. (For example, the men's relative SD in 2022 would have been reduced to 48.2x0.923 = 43.5%.)

We have already seen in Table 4 that due to the radical reduction of the contribution rates (depicted in Figure 3) and the emerging economic crisis, the deficits in the Hungarian social insurance budget are quite large, and they may put a pressure on public pensions. Something must be done.

To formulate the reform steps, we must state the objectives of a reform. (a) The pension system must be *sustainable*, i.e., its financing should be tolerable. (b) The pension system should be *adequate*, i.e., together with other social services, the benefits should ensure an acceptable standard of living for the pensioners. (c) The pension system should be *fair*, i.e., the relative burden and the relative benefits of each cohort should be time-invariant. I shall start the presentation with simple reforms to be followed by complex ones.

### 3. Simple pension reform steps

Here is the list of our simple reform steps: (1) return to openness; (2) rectifying the accrual curve; (3) reestablishing the contribution base cap; (4) fixing of the progressivity; (5) flattening the 13th month benefits.

### 3.1. Return to openness

Until 2016, the Central Administration of National Pension Insurance had published a high-quality Statistical Yearbook in every year. This practice has been abolished and even data of

public interest, like the average of the initial benefits, cannot be obtained. (That is the reason why we have frequently had to resort to estimations.) Moreover, the presentation of the government budget is inadequate (see source of Table 4). For example, in the balance of the central block for 2023/2024, the ratio of the maximal and the minimal items is equal to 900, and both are given with excessive precision (250 euros). Such lack of information impedes scrutiny of the pension system and should therefore be rectified. Openly accessible data should be provided on key indicators of the pension system, both regarding its outcomes and key parameters, including its budget.

Between 2008 and 2010, a Fiscal Council was functioning in Hungary, modelled on international practice, whose Secretariat had a staff to analyze the economic impacts of budgetary policy, including pensions. This council was essentially closed down by a new government in 2010, its functioning has become formal. As part of providing adequate information, a genuine council should be reestablished, and the concerned political parties could order the council to work out planned reform packages with cost-benefit analyses. At the same time, its veto power should be deleted from the 2012 constitution (called fundamental law). Finally, the pension system should be made comprehensible. This would make easier to supply the citizens with suitable information on the pension system. The experience with these councils is discussed in Jankovics and Sherwood (2017) and Jankovics (2020).

### 3.2. The rectification of the accrual curve

Figure 4 has already displayed the zigzagged accrual curve and its potential rectification. Such change would make the impact of contribution years uniform, simplify the pension formula and make room for the introduction of flexible retirement with shorter contribution periods (see step 4.1 below). It would only slightly reduce the benefits of pensioners with contribution periods between 30 and 36 but would require additional support for pensioners with lower benefits (step 4.3 below) typically with shorter contribution period. It is a minor issue but deserves mentioning: the practice of rounding-off total years of contributions should be abolished, as its motivation is unclear and thus adds an unnecessary complication.

### 3.3. Reestablishing the contribution base cap

Since the contribution base cap is useful, I suggest its reestablishment. Depending on whether it only concerns the contributions paid by the employees (as was done between 1992 and

2012) or also extends to the contributions paid by the employers, with fixed contribution rates its introduction would reduce the annual revenues by 5-10%. But in the long-run, the eventual reduction of the high benefits would more than compensate for this temporary loss, because–through longevity gap–the reduction of high benefits would be greater than the above-cap contributions.

If it were possible to return to a progressive personal income tax, then a second tier, with a 25% tax rate would neutralize the lost revenue. It is quite difficult to estimate the socially desirable value of the cap; therefore, we accept the former value, say 300% of the average gross wage. Diamond and Orszag (2005) gave a careful analysis on the interactions among wage and pension inequalities in the US Social Security.)

### 3.4. One rather than two progressivity brackets and indexation of the floor

We have already seen the reemergence of the progressivity (Figure 7). To simplify the unnecessary complexities, it would be worth replacing the two-part progressivity by a one-part solution and retain the progressivity coefficient of 80% or choose even a lower one. The remaining difficult issue is how to choose a proper floor, probably it is around 1.5–2 times the average wage.

### 3.5. Transformation of the 13th month benefits and the abolishment of the pension reward

We have seen in Table 7 above that the relative differences between pensions have recently grown spectacularly and we presume that this tension is becoming less and less acceptable for the majority. (The drastic reduction of pension information may be a tool to 'ease' this and other tensions.) As a simple short cut, the excessive inequality could be slightly weakened by replacing the `proportional' by uniform benefits for the 13th month. If the uniform value were equal to the average, then it would be budgetary neutral. If the budget needs a cut, the uniform value could be reduced below average (like in Poland) or even could be made progressive (like in Slovakia).

Because of the reintroduction of the 13th month pensions, the pension reward has become superfluous. Furthermore, it was poorly designed and lost much of its relevance, it could be abolished without any problem.

# 4. Complex reform steps

Having discussed the simpler reform steps, we now turn to the complex ones. They need more careful design, and their introduction may be politically more sensitive. We enlist six steps: (1) introduce a flexible (variable) retirement age; (2) phasing-out Women40; (3) eventually raising the lowest benefits; (4) improving the indexation of initial benefits; (5) reforming the indexation of benefits in progress and (6) raising the contribution rates or reducing the accrual rate.

## 4.1. Introduction of a flexible (variable) retirement age

To make sense to upward flexibility, the exemption of pensioners from paying contributions should be abolished. (It is of interest that NBH (2022) only suggests raising the delayed retirement credit further.) The extension of flexible retirement age from upward to downward seems to be desirable. The outcome is depicted in Figure 9 obtained by mirroring Table 5.

Figure 9. Benefits for early and delayed retirement, NRA=65
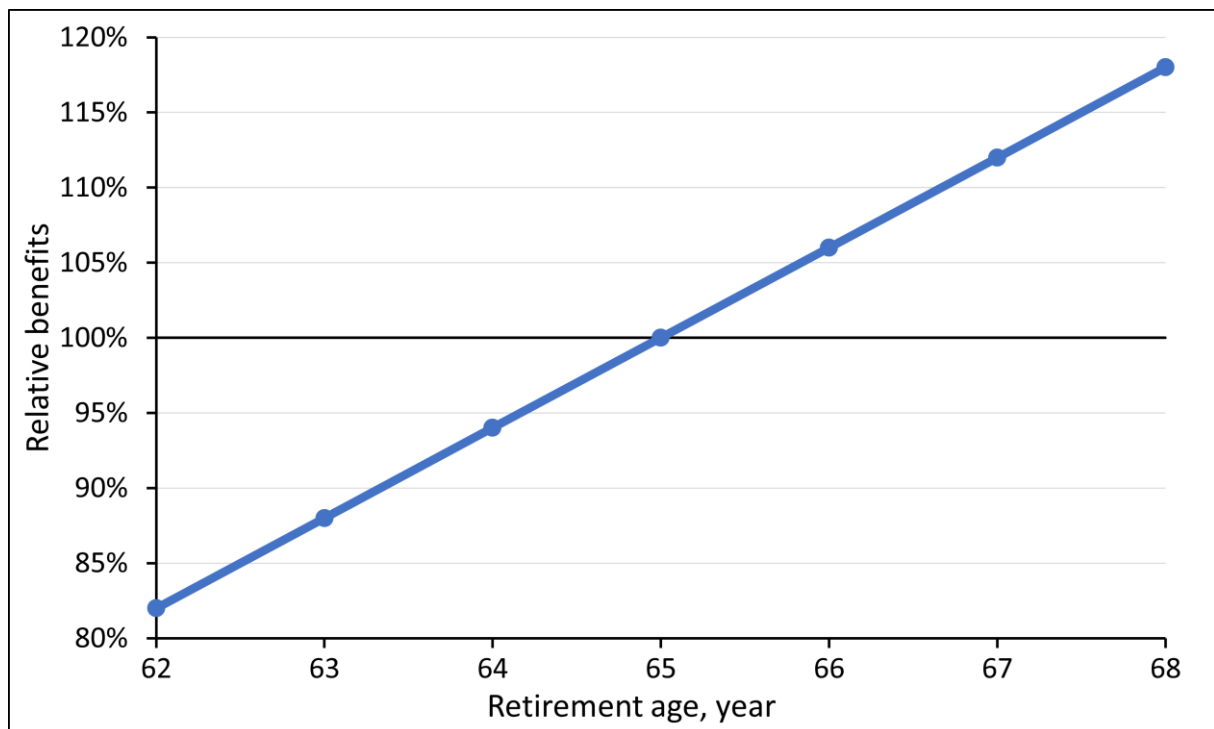


Due to sustainability and fairness, the introduction of flexibility can only be achieved step-by-step. Indeed, an instantaneous introduction would create a huge hole in the budget and be unfair with those who have recently retired at age 64-65 (Simonovits, 2021).

Table 8 displays a possible timetable of phase-in, diminishing the minimal (earliest) retirement age by one year in every second year and decreasing the minimal years of contributions. The annual reduction can start from 8% and only reach 6% by 2030. For odd years, the averages of the neighbors could be used.

Table 8. The step-by-step introduction of the flexible retirement age

| Year | Minimum retire-ment age | Minimum years of contribution | Annual reduction % |
|------|------|------|------|
| 2024 | 65 | – | - |
| 2026 | 64 | 35 | 8 |
| 2028 | 63 | 30 | 7 |
| 2030 | 62 | 25 | 6 |

The idea of *partial retirement* (also called flexible retirement) can obviously be helpful: before the *full* retirement age there is a *partial* retirement age. Between the two ages, the citizen works only x% of her full time and draws 100–x% of full benefits, where the benefits are properly calculated.

**4.2. Phasing-out Women40**

The introduction of Women40 did not take into account the eventual raise in the normal retirement age from 62 (2013) to 65 (2022). This error had side effects analyzed in Subsection 2.3, especially in Figure 5. The program could be rectified now as follows: raise the floor to 41 years (2026), 42 years (2028) and 43 years (2030), using half years in the odd years.

In order to preserve fairness, the simple raises in the age floor need to be complemented by phasing-in appropriate reduction rates. Table 9 makes the `actuarial' reduction dependent on the calendar year, the current value of the floor and the age at retirement: later retirement year and shorter contribution period imply greater reduction. For example, even at the end of the process, in 2030, the annual reduction rate depends on the years of contributions: starting with 6% (40 years) and ending with 3% (43 years). At age 62, the corresponding benefits are 65.6% and 78.3%, respectively. Note the preservation of monotonicity: if a pensioner delays retirement by 2 years and retires in 2030 at age 64 with 42 years of contributions rather than in 2028 at age 62 with 40 years of contributions, then the limited rule still gives her at least

82.3% rather than 70.4%. (To avoid this problem, the reform could also distinguish various cohorts as was done with the phasing-in the rising normal retirement age between 1996 and 2022, but this would further complicate the design.)

Table 9. Smooth phasing-out Women40

| Years | Contribution period | Annual reduction, % | Retirement age, years | | | |
|-------|-------|-------|-------|-------|-------|-------|
| t | S | $a_{t,s}$ | 62 | 63 | 64 | 65 |
| 2024 | 40 | 0 | 80.0 | 80.0 | 80.0 | 80.0 |
|  | 41 | 0 | 82.0 | 82.0 | 82.0 | 82.0 |
|  | 42 | 0 | 84.0 | 84.0 | 84.0 | 84.0 |
|  | 43 | 0 | 86.0 | 86.0 | 86.0 | 86.0 |
| 2026 | 40 | 2 | 75.2 | 76.8 | 78.4 | 80.0 |
|  | 41 | 1 | 79.5 | 80.4 | 81.2 | 82.0 |
|  | 42 | 0 | 84.0 | 84.0 | 84.0 | 84.0 |
|  | 43 | 0 | 86.0 | 86.0 | 86.0 | 86.0 |
| 2028 | 40 | 4 | 70.4 | 73.6 | 76.8 | 80.0 |
|  | 41 | 3 | 74.6 | 77.1 | 79.5 | 82.0 |
|  | 42 | 2 | 79.0 | 80.6 | 82.3 | 84.0 |
|  | 43 | 1 | 83.4 | 84.3 | 85.1 | 86.0 |
| 2030 | 40 | 6 | 65.6 | 70.4 | 75.2 | 80.0 |
|  | 41 | 5 | 69.7 | 73.8 | 77.9 | 82.0 |
|  | 42 | 4 | 73.9 | 77.3 | 80.6 | 84.0 |
|  | 43 | 3 | 78.3 | 80.8 | 83.4 | 86.0 |

## 4.3. Eventual rise of the lowest benefits

Though the Hungarian pension system is DB, since the reforms of 1997, it approximates a DC system. Therefore, low benefits are the results of low lifetime reported earnings including short contribution period), and at first sight, they should be accepted. There is another function of the system, however, namely, to eliminate old-age poverty. There is a widespread consensus in Hungary that a significant part of the pensioners, who have the lowest benefits, live in very difficult circumstances (reflected in the rising relative standard deviation of benefits in Table 6) and this should be changed. It is quite difficult to determine, however, how much and how these benefits should be raised. The details of this reform, however, depend on the other branches of social insurance and support. International experience (especially in Sweden and Great Britain) suggests that the lower the benefit, the more it should be raised but it would be wrong to raise them to a common ceiling. Rather, *tapering* should be used: this combines efficiency and fairness. Table 10 shows such a scheme in terms of the average benefits.

Table 10. Lowest benefits before and after the raise, as a share of average benefits, %

| Benefit before | 20 | 30 | 40 | 50 |
|---|---|---|---|---|
| Benefit after | 35 | 40 | 45 | 50 |

If we chose a higher ceiling or stronger raises, then the budgetary cost would be higher; moreover, there would be weaker incentives to report full earnings and work more. Of course, when the raises are widespread, they influence the average benefit itself, therefore the calculation should be made cautiously.

**4.4. Improving the indexation of initial benefits**

(i) If the indexation of the initial benefits and of the benefits in progress were done in every quarter rather than annually, then for fast inflation (like occurring in 2022 and 2023), the intra-year changes would be smaller in real terms (Simonovits, 2022). (ii) If the nationwide net wages used in indexation were more reliable (less inflated), then the gap between older and newer benefits would be smaller (Oblath and Simonovits, 2023). (iii) The radical reduction of the total contribution rate upset the previous ratios of net wage to full compensation, discussed already at Table 6. The calculation method could be improved, but its past unfair consequences can be hardly rectified.

**4.5. Reforming the indexation of benefits in progress**

We have already discussed the *pros* and *cons* of indexation of benefits in progress to prices. It is not surprising that there are many critiques which demand the return to the mixed indexation of years 2000–2009, with some retrospective raises. The return to mixed indexation would halve the gap between wages and benefits but under the currently falling real wages its introduction would not be welcome.

What we have written on the deficiency of the *annual* indexation of initial benefits during fast inflation also applies to that of benefits in progress. But contrary to the public opinion, the main problem with this method is not that the government extracts credit from pensioners but rather the great drop of intra-year monthly real benefits. This can only be compensated by intra-year raises. Banyár (2023) suggests the introduction of the German point system as a

harmonization of steps 4.4 and 4.5. While I agree with this idea, I find its realization so difficult that I avoid its analysis.

**4.6. Raising the contribution rates or reducing the accrual rate**

In an ideal system, pension contributions fully finance pension expenditures and health care contributions fully finance health care expenditures. Or introducing other taxes like green taxes or property taxes, the needed sources of the Hungarian social insurance can be established.

Due to the special circumstances outlined above, the government has chosen a third road: the radical reduction of the employer's contribution rate in Hungary (depicted in Figure 3 above). This has worked for a while: the rise of the gross wages compensated for the reduction of the total contribution rate, but eventually it backfired: the arising budget deficits are menacing.

Until now we have only touched the impact of the personal income tax system on the pension system (in Table 6 above), though the connection is obvious: the worker pays her contributions on the gross wage, while the benefit is paid according to her previous net wage path. Therefore, even with a single rate personal income tax, its rate should be harmonized with the contribution rate and the accrual rate (Cseres-Gergely and Simonovits, 2011). Calculating with total wage cost rather than with gross wage, we get rid of the arbitrary break down of the contribution between employees' and employers' (Table 6 above). The resulting balanced accrual rate is much lower than what is used now. Though the exact value is uncertain, the balanced accrual rate is sensitive to the contribution and the tax rates (and to demography).

It is especially important to consider the negative side effect of the suggested raising of the contribution rates: it decreases the unsustainable dynamics of net wages and hinders the creation of new jobs. It is a much more complex question how to finance the social insurance system efficiently and fairly.

Similar relations exist between two important reform steps: introducing the flexible retirement age (step 4.1) and indexation of pensions in progress (step 4.5). We repeat that maintaining indexation to prices punishes early retirement and supports delayed retirement with respect to indexation to wages.

There is a further temporary complication: the world-wide acceleration of inflation, due to the pandemic in 2021 and the Russian aggression in 2022. In Hungary, the special extraordinary budgetary measures on increasing the popularity of the government before the election in 2022 resulted in much higher inflation rates than prevailing in other EU countries. Due to the collapse of consumption in 2023, the main source of tax revenues, namely VAT also decreased in real terms. The budgetary balance is menaced. Note also that while real wages and real contributions sink, pensions retain their purchasing power, therefore the social insurance budgetary deficit will rise further.

We cannot avoid mentioning the issue of fertility-related pension benefits. This is *the* pension problem whose discussion the government does not only tolerate but supports. The radical supporters believe that introducing such a system, fertility would significantly rise. The moderate supporters are satisfied with the feeling that in such a system, the costs of raising children are partly or fully compensated. I agree that raising fertility is important in Hungary as well as in other developed countries, too, but there are other, more efficient tools to do it. Anyway, the government has potentially a very simple means to make the benefits depend on the number of children, especially children of high-earning parents: to modify the definition of the net wage, by considering the so-called family tax allowance (cf. NBH, 2022) but it avoided its use.

## 5. Conclusions

The Hungarian government has an obligation to work-out and put into law a detailed pension reform package by March 2025. Not seeing any preparation, I have doubts if any serious reform steps will be done or even formulated.

My reform plan outlined above is a private enterprise. Having worked in the field for longer than three decades, I could not resist the temptation to formulate one plan now. Of course, to begin with, I had to make a diagnosis of the current state of the Hungarian pension system. I have emphasized strengthening tensions between older and younger pensioners, between pensioners of higher and lower benefits and between pensioners and workers. Formulating the reform measures, I tried to balance between sustainability and adequacy. Lower benefits

mean better sustainability, higher benefits mean more adequacy. Fairness also needs to be taken into account.

For technical reasons I divided my proposals into simple and complex ones. Simple reforms include (1) return to openness; (2) rectifying the accrual curve; (3) the reestablishment of the contribution base cap; (4) fixing progressivity; (5) flattening the 13th month benefits. Complex reforms include (1) introducing a flexible (variable) retirement age; (2) phasing-out Women40; (3) eventually raising the lowest benefits; (4) improving the indexation of initial benefits; (5) reforming the indexation of benefits in progress and (6) raising the contribution rates or reducing the accrual rate.

I had no space to discuss every important issue. Furthermore, to calculate the costs and benefits of the reforms proposed, partially or fully achieved, the country needs good statistics and good experts using reliable models. Without this simple reform (mentioned in Subsection 3.1), one cannot consider reforms in a meaningful way.

Last but not least, two important issues were left out: (i) Disability benefits should be reintegrated into the pension system. (ii) Though the citizen understands pensions much better than health and social care, the latter are even more important than the former, and a benevolent government does not neglect them, either (Szikra, 2014).

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## Appendix: Additional sources on pension reforms

There are a few sources of pension reforms in general and on Hungarian pension reforms in particular. Skipping theoretical contributions (cf. Simonovits, 2003; Auerbach and Lee, 2011), we mention the following general contributions: Holzmann and Stiglitz, eds. (2001), Casey *et al*. (2003), Barr and Diamond (2008), Holzmann *et al*., eds. (2020). Though it started from a Hungarian problem, Granseth *et al*. (2019) studied a dysfunctional negative correlation between retirement and length of contribution present in old and new EU members.

Turning to ex-communist countries, the bulk of the reform papers focuses on the carving-out of the mandatory private pillar: Domonkos and Drahokupil (2012), Fultz and Hirose (2019), Casey (2023). We mention several studies considering other dimensions of the pension reforms in this geographic area: Fultz, ed. (2002), Vanhuysse (2006), Hirose ed. (2011), Domonkos and Simonovits, (2017) and Simonovits and Reiff (2022). Focusing on the Hungarian pension system and its reforms, we highlight the following contributions: Augusztinovics *et al*. (2002), Holtzer ed. (2010), Ádám and Simonovits (2019).