Pension Notes

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What can we learn from the Dutch and Swedish pension systems?

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Executive Summary

According to Janwillem Bouma [1], The Netherlands, which ranks second in the Global Pension Index 2021, has a system comprising a non-contributory pillar financed by general taxes; a contributory pillar comprising a PAYGO system and a collective occupational individually funded system that covers 92% of the workforce (managed by pension funds and insurers); and a voluntary savings pillar. 95% of the schemes in the occupational individually funded system are defined benefit (DB), and 5% are defined contribution (DC).

As a result of this multi-pillar system, with a strong individually funded component (with an average effective contribution rate of 25.1%[2]), the Netherlands has a high replacement rate: 69.7% of the average wage throughout working life, for a worker earning the average wage, according to the OECD.

The Dutch system had demonstrated an ability to cope with crises in the most difficult times. This was partly due to the combination of financing with individually funded and PAYGO systems. In times of economic recession, the PAYGO pension has provided a stable base amount, while individually funded pensions have been able to cope with population aging. The PAYGO system further consists of a minimum welfare-type pension, which acts as a safety net (non-contributory pillar), which helps to ensure that no retirees live in poverty.

However, as a result of lower interest rates and a longer-than-projected life expectancy, many pension funds in the individually funded occupational system began to struggle to meet their guaranteed pension commitments to their workers in DB plans. Thus, pensions have often not been adjusted for inflation, and have even been reduced when the financial situation of the fund required it. This has led to the erosion of public confidence in the system, and government and "social partners", representing employers and employees, negotiating a profound reform of the occupational pension system, over the last 10 years.

Discussion of this reform should conclude in 2022, with a law expected to be passed in 2022 (before the end of the year), and implemented in 2027. The reform establishes that all future accumulated pension rights will be governed by a new system based exclusively on collective DC, with elements of solidarity. Better pension returns, among other aspects, are expected from the reform, but there will no longer be a guaranteed result on retirement.

According to Fredrik Palm[3], Sweden's pension system, which ranks 8th in the Global Pension Index 2021, covers everyone who has worked or lived in the country, and comprises a PAYGO system with notional accounts (in which 16% of gross annual income is paid in as contributions); a pension based on contributions to a private CD system (in which 2.5 per cent of gross annual income is contributed); and a guaranteed minimum pension, financed by general taxes and subject to means testing (non-contributory

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[2] This data includes the contribution rate to the public system (18%), and the average contributions to occupational pension plans. Source: Pensions at a Glance 2021 ("Table 8.1. Mandatory pension contribution rates in 2020 (% of gross earnings"). Available at: https://stat.link/files/ca401ebd-en/h4uwj7.xlsx

[3] Fredrik Palm is a product management professional with an M.Sc. majoring in Mathematical Statistics, Actuarial Sciences and Finance, from Stockholm University, Sweden. He is currently the Product Lead at Alecta, the largest Swedish pension fund. He has a proven track record in the insurance industry and is an expert in financial risk, risk management, life insurance and pension funds.

pillar). Furthermore, most workers are covered by occupational pension plans (95% percent of the labor market is covered by these plans, with average contributions of 4.5% of annual income). This means that about 30% of total contributions to the system are individually funded and 70% correspond to the PAYGO systems.

The Swedish notional PAYGO system must also be balanced with contribution assets equal to or greater than pension liabilities. When liabilities are greater than assets, the automatic balance, commonly known as "brake", is applied. Pensions rise against wages more slowly, until the balance is restored. The "brake" was first activated in 2010 due to the 2008 financial crisis, and normal rules have been applied as of 2018.

Despite the fact that total contributions to the Swedish system amount to 23% of income (notional PAYGO + occupational system), people earning the average wage throughout their working careers in Sweden can expect replacement rates of 53.3% (41.3% attributable to the notional PAYGO system), according to the OECD. That total replacement rate is trending downward, and will be 33% by 2070.

Given this panorama of low projected replacement rates, the government introduced the so-called "target retirement age" in 2019, based on the average life expectancy at 65, which in practice enables informing people that the more they work, the better their pensions will be.

The following lessons can be drawn from the Dutch and Swedish experiences for the rest of the countries:

(i) **People's confidence in their pension system essentially depends on the gap between the level of pensions granted and pension expectations, both in PAYGO and individually funded systems.**

(ii) **The Netherlands and Sweden have non-contributory pension programs that provide a minimum base of support to avoid poverty in old age**, financed by general taxes. Modern pension systems must have such programs, and their design must be carefully thought out to avoid disincentives to formality.

(iii) **Having one of the best pension systems in the world, according to an international index, does not avert the need to introduce changes** to address demographic (greater life expectancy and reductions in the birth rate), labor (more self-employment) and financial (lower interest rate) challenges. For example, in its occupational funded system, the Netherlands has had to propose, amongst others, a reform to enable switching from "defined benefit" to "defined contribution," in order to promote the adequacy of the system. Sweden, on the other hand, has had to establish a mechanism for adjusting the retirement age that considers life expectancy increases, through the so-called "target retirement age".

(iv) **A PAYGO system with high contribution rates does not necessarily lead to good results in terms of replacement rates, and this is explained because said system is affected by the aging of the population (greater life expectancy upon retirement and lower birth rates)**. Sweden is proof that a mostly PAYGO system with notional accounts can have relatively low replacement rates, that are projected to be even lower in the long term, despite having high contribution rates.

(v) **To address the solvency problem of pension systems with a significant PAYGO component, there are at least two alternatives**:

a) Reduce the generosity of their benefits and/or toughen the requirements to

access them. For example, in the Swedish system, in order to achieve fiscal sustainability, pension promises have to be reduced by means of an automatic brake, increasing contributions, or progressively increasing the retirement age, with incentives. This must be seriously considered by other countries that are looking to implement PAYGO systems, starting from an initial situation where the system is fully funded.

b) **Link the retirement age according to the increase in life expectancy**. The Netherlands and Sweden have incorporated this feature into their PAYGO systems.

(vi) **Individually funded occupational pension systems and voluntary savings systems will play an increasingly important role in complementing the pensions granted by the PAYGO system**. In the Netherlands, 58% of the total pension comes from occupational systems, whereas in Sweden this percentage is 22%. The reduction in the generosity of PAYGO system pensions, caused by population aging, must be compensated by mandatory occupational and voluntary savings plans, in order to maintain and/or improve workers' pensions.

Introduction

This Pensions Note is prepared on the basis of presentations made by Janwillem Bouma "*Diagnosis and reforms to pension systems in Europe: The case of the Netherlands*" and Fredrik Palm "*Diagnosis and reforms to pension systems in Europe: The case of Sweden,*" both at the 18th FIAP International Seminar[4].

[4] To review the video recordings of these presentations in detail, please visit the following YouTube links: https://www.youtube.com/watch?v=awRTsqiYw80&t=1025s and https://www.youtube.com/watch?v=1z1g-KjBGMs&t=8s. You can also download the presentations in PDF at this link: : https://www.fiapinternacional.org/seminario/xviii-seminario-internacional-fiap-madrid-espana/

According to Mercer and CFA Institute's latest Global Pension Index report, both the Netherlands and Sweden rank among the best pension systems in the world. The former has long been the world leader, but has now dropped to second place because of Iceland's recent inclusion in the index. Sweden, meanwhile, is eighth in the rankings. Due to their characteristics, both countries, whose pension systems include individually funded mechanisms, offer important lessons to the rest of the countries in terms of the changes that must be made to address the increase in life expectancy, the drop in interest rates, and the reality of current labor markets, where self-employment is increasing and there are frequent changes in employment. As will be seen, having an internationally well-positioned pension system does not prevent changes for facing these challenges. In the Netherlands it was agreed to switch from mostly defined benefit (DB) to defined contribution (CD) schemes. In Sweden, although the public PAYGO pension system has an automatic adjustment mechanism to maintain its solvency, the replacement rates it grants would drop drastically in the long term, making it necessary for the State to incentivize people to retire at a more advanced age.

I. The case of the Netherlands

1. The multi-pillar pension system

The Netherlands has a pension system that ranks second in the Mercer CFA Institute Global Pension Index 2021, with a significant level of assets under management as % of GDP (213% of GDP in 2020[5]) and high scores in each subindex.

The country's pension system comprises three pillars:

i. **First non-contributory pillar.** This pillar provides a minimum welfare pension, which

[5] Source: OECD Pension Market in Focus 2021. https://www.oecd.org/pensions/pensionmarketsinfocus.htm

acts as a safety net, financed by general taxes. It is called the AIO ("*Algemene Inkomensvoorziening*"), which can be translated as "additional income or provision of supplementary income for the elderly", which ensures that there are no retirees living in poverty. Its amount complements income up to the "social minimum wage".

It should be noted that the raison d'être of the AIO is to complement the universal pension from the pay-as-you-go public system (AOW; as seen below[6]) and the self-financed pension from the funded occupational system, all in order to ensure a level of minimum income to all older people. Starting at a specific income level, people stop receiving the AIO and receive benefits only from their AOW and their self-funded pension.

ii. **Second contributory pillar, comprising two components:**

ii.1 PAYGO pillar*[7]*. Consists of the state pension AOW ("*Algemene Ouderdomswet*"), managed by the Ministry of Social Affairs and Employment. It is a pension based on a PAYGO system: workers' contributions[8] pay retirees' pensions. It must be noted that the AOW pillar is financed in part by general taxes (this is because AOW contributions fall short of AOW expenditures) and in part by the contributions made by the people who work (it is mandatory to contribute to the AOW pillar if the people work, but if people don't contribute they are still entitled to it if they are a resident). All persons who have resided or worked in the Netherlands between the ages of 15 and 65 are beneficiaries of this pension. This pension can currently be accessed at age 66 and 4 months, but this age requirement is increasing progressively in line with increases in life expectancy (scheduled to reach 67 in 2024).

This basic AOW pension is generated at the rate of 2% for each year of work or residence, between the ages of 15 and 65. Beneficiaries who have always worked or lived in the Netherlands, are entitled to 100% of the AOW.

The AOW grants a basic income equivalent to the legal minimum wage. Thus, people who are married or live together receive 50% of the minimum inter-professional wage (in 2021 the AOW pension was EUR 884 gross per person), while people who are single or living alone receive 70% of the minimum wage (in 2021 the pension was EUR 1,293 gross per month).

As a result, there are very few elderly people at risk of poverty in the Netherlands.

ii.2 Collective occupational contributory pillar (individually funded). This pillar comprises the pensions accumulated by the vast majority of workers during their working lives (hence its name, business or employment social security), which are linked to wages. Pensions are managed by pension fund managers and sometimes by insurers.

The pension funds operate on the basis of capital financing: workers and their employers accumulate pension rights through contributions (agreed predominantly in collective labor agreements) paid to a pension fund the employer is a member of, and the return obtained by the pension fund over the years through the collective investment of these contributions. The employment system pension accounts for the main part of the total pension received by workers (according

[6] People who have lived 50 years in the Netherlands and obtain full AOW are not eligible to AIO.

[7] In the Netherlands the AOW is considered to be part of the first pillar. However, in this document is used the terminology of the OECD to classify the pillars [1st pillar: non-contributory; 2nd pillar: PAYG and funded occupational pension arrangements (mandatory); 3rd pillar: voluntary pension arrangements].

[8] The old-age pension is financed with a workers' contribution rate of 17.9% of wages, and the survivor's pension with a rate of 0.1%.

to the OECD, the replacement rate granted by this pillar is approximately 58% of the total replacement rate, on average[9]).

iii. **Third voluntary savings pillar.** Comprises banking or individual insurance products for which pension contributions can be paid, with tax benefits up to a certain level. This is important mainly for people who do not save, or have not been able to enroll in a second pillar pension, because, for example, their employer is not a member of a pension fund, they do not have a permanent job, or they are self-employed.

Due to the multi-pillar system, with a strong individually funded pillar in particular, the Netherlands (with an average effective contribution rate of the order of 25.1%[10]) has a fairly high average replacement rate (the OECD calculates the total gross replacement rate at 69.7% of the average working life wage, for a worker earning the average wage).

2. Some relevant features of the occupational pension system

i. Obligation to establish and participate in pension plans

In the Netherlands, in principle, it is not mandatory to enroll in an occupational pension scheme. However, if employers and trade unions agree to offer a pension scheme to the workers of a specific sector, the Government may make it mandatory for all workers in that sector or group of professionals. Mandatory enrollment provides good coverage for all workers. In the case of sectoral schemes, it also enables workers to easily change jobs within their sector without affecting their occupational pensions.

In practice, occupational pensions are mandatory for the vast majority of workers (more than 92% of workers are enrolled in a pension scheme under this system). However, these pension plans are not easily accessible to the self-employed and others with non-traditional employment contracts.

ii. Types of pension commitments: most are Defined Benefit (DB), evolving towards Defined Contribution (DC)

Until now, the collective occupational contributory pillar has been mostly Defined Benefit (DB), i.e., in which the employer's commitment is to guarantee an old-age pension to the worker, linked to his salary. According to the assets under management, 95% of pension plans in this pillar are currently DB, while 5% are Defined Contribution (DC).

New pension plans have been mostly DB in the last years, but they consider the average working life salary (i.e., the guaranteed pension is linked to the average salary obtained during the professional career). They were previously DB plans considering the final salary (i.e., the guaranteed pension was linked to the last salary received before retirement). Thus, there has been a transition from DB plans based on the final salary to BD plans based on the average career salary, in order to reduce the costs of the system and make it more sustainable (when considering the average salary, the guaranteed pension is lower and therefore the cost to the system decreases).

It is worth mentioning that although they are officially labeled as DB contracts, the "pension" of the contract is "not defined" in any way. In most

[9] This data refers to the gross replacement rate (before taxes) received by a worker earning the average salary. The OECD uses the average full career salary to calculate these replacement rates. Source: [Pensions at a Glance 2021](), OECD. The table used for calculating the data is available at: https://stat.link/files/ca401ebd-en/uwc8nt.xlsx

[10] This data includes the contribution rate to the public system (18%), and the average contributions to occupational pension plans. Source: Pensions at a Glance 2021 ("Table 8.1. Mandatory pension contribution rates in 2020 (% of gross earnings"). Available at: https://stat.link/files/ca401ebd-en/h4uwj7.xlsx

cases, indexation or adjustment of pensions against inflation occurs only if the financial circumstances of the pension fund are considered good enough. Furthermore, some pension funds enforce stable contribution rate policies in their DB contracts[11].

Between 2022 and 2026, as mentioned below, there will be a transformation of the current pension system, involving the modernization of pension contracts in order to guarantee their adequacy, moving from mostly DB to DC instruments.

iii. Contributions

In DC plans: Both the company and the workers contribute to these plans, and contribution amounts are defined as follows:

- First contribution tranche: the contributions of workers are fixed and equal for all workers. In sectoral pension plans, each worker pays an equal amount (percentage of salary or fixed amount).
- The employer's contribution is variable (usually around 2/3 of the total contribution).

In DB plans: The pension amount depends on the number of years worked and the salary. The interest rates used for calculating the net present value of accrued entitlements and pension commitments (contributions) are calculated by the Central Bank of the Netherlands (regulator) and are called “risk free rates”.

3. Why was it necessary to reform the pension system to guarantee its adequacy?

The pension system in the Netherlands has worked successfully in its present state for many decades, and has demonstrated its ability to cope with crises in the most difficult times. This success is largely due to the unique combination of financing with individually funded and PAYGO elements. In times of economic recession, the PAYGO pension (AOW) has provided a stable base amount, while individually funded pensions (collective occupational contributory pillar) have been able to cope with demographic changes.

However, problems have arisen over the past decade, for which solutions must be found:

(i) The Dutch, on average, live longer and therefore also need a pension for a longer period of time.

(ii) In relative terms, the number of young people who contribute is continuously decreasing.

(iii) The aforementioned "risk free rates", which are interest rates used to calculate the reserves of pension funds, have fallen in recent years (even to negative levels[12]), which has generated an increase in the present value of future pension liabilities, making the guaranteed nominal pensions provided in the DB plans (which are the majority in the second occupational pillar) more expensive. In this context, pension funds, in accordance with accounting rules and buffer requirements, have had to maintain high levels of capital to meet their current and future obligations. These events have put so much pressure on the system that many pension funds have been unable to achieve their aim of adjusting pensions against inflation for many years, and some funds have even had to reduce the pensions they provide.

(iv) Hence, as a result of financial and demographic pressures (lower interest rates and longer-than-projected life expectancy), many pension funds began to struggle to meet their pension commitments to their

[11] This is why the literature often states that the term "Collective Defined Contribution" (CDC) would be a more appropriate name for this type of DB contract.

[12] The interest rate on the Dutch 10-year government bond has fallen from almost 2.5% in 2008 to negative rates in 2020.

workers in DB plans (the commitments were not guaranteed and could be cut in cases of underfunding; nevertheless they were perceived as guaranteed by the population). Finally, what happened is that the system began to lack sufficient reserves to meet their pension commitments.

In addition to these problems, there was another problem, namely that the **accrual of pension rights is the same for everyone,** regardless of the age at which contributions are paid. All workers, regardless of their age, currently accrue 1.657% of their base salary[13] for their pensions, per year in the case of final salary DB plans, and 1.875% of the base salary for full career average salary DB plans. The premium, or contribution paid to the pension plan, is associated with the aforementioned percentages. The age-independent accrual of DB rights means that the system does not take account of the fact that the contribution paid by a younger worker can be expected to remain invested much longer and generate much higher investment returns. Hence, the accumulation of pension rights is too low for young workers and too high for older workers (who have accumulated rights throughout their lives). However, this financing mechanism is actuarially fair if everyone holds the same job throughout their working life-cycle, so that workers remain in the system until retirement (this is what is called "average accrual" or "*doorsneepremie*"). That would be the only way in which the accumulation of pension rights by older workers would be effectively subsidized by young workers (a characteristic that constitutes a PAYGO element). However, given the reality of today's labor markets, with young people changing jobs frequently or spending long periods of time in informality, self-employment, or new forms of work (uberization of the economy), the accumulation of contributions by the youngest is no longer sufficient to finance the pension rights of retirees, so this funding mechanism is no longer actuarially fair.

Trust in the system has been affected

The fact that pensions were better several years ago than they are today, has led to a decline in confidence in the pension system and, in particular, public support for the second occupational pillar has been affected. This led the social partners, supported by the government, to negotiate a far-reaching reform of the occupational pension system over the past 10 years, aimed at modernizing the system and making it resistant to future changes. Two important principles in the discussion were:

(i) That pensions should move more in line with general economic developments, rising faster in "good times" and declining earlier in "hard times".
(ii) That it was necessary to draw up two alternative pension contracts, while maintaining the strong characteristics of the system, such as collective risk-sharing and mandatory participation.

The intention to reform the system was announced by social partners in February 2019, and in June of that year a framework agreement was reached with all social stakeholders. Since then the government has been working with the social partners and the pension fund sector to provide for the necessary legislation. Discussion of this reform in parliament should conclude in 2022, with a law expected to be passed by 1st January 2023, with a transition period until the end of 2026, and operation as of January 1, 2027.

4. What are the terms of the new pension reform?

The reform establishes that all future accruals of pension rights will be governed by a new system based exclusively on collective DC, with elements of solidarity. There are basically two types of contracts in the new system: (i) Solidarity Contract; and (ii) Flexible Contract. Social partners have to agree on which of the two

[13] The base salary consists of the maximum retirement pension minus the state PAYGO pension (AOW). The maximum base salary amounts to EUR 100,000, indexed annually.

contracts they are going to use, and the pension fund's Board needs to accept the new mandate explicitly.

With the new reform:

(i) There will no longer be a guaranteed outcome[14] at the time of retirement.

(ii) Contributions are maintained at a percentage of the worker's basic salary, regardless of age, but the accrual or accumulation of pension rights will be made in an **actuarially fair manner**.

(iii) Contracts remain collective **in terms of risk sharing and investments**.

(iv) **The results will be smoothed out** to avoid generations with good or bad luck.

(v) **Mandatory enrollment** is maintained.

(vi) Investment strategies will be based on the **average risk appetite** of all participants. Pension funds will choose a **life cycle approach**, so young people bear more risk for a higher expected return and older people less risk for a lower expected return.

(vii) The pension payment phase will be based on the **expected returns on investment** (which are therefore higher than the risk-free interest rate), but with the risk of subsequent corrections.

Advantages/disadvantages

With these changes, greater adequacy and better returns are expected. Pension fund managers will have lower capital requirements, making the system cheaper or more likely to adjust pensions against inflation.

The system is also expected to be better adapted to a more flexible labor market.

Nonetheless, there will also be less certainty, especially regarding replacement rates for workers.

Transition problems

Switching to a new system in which future pensions are based exclusively on contributions, is complex. The biggest problem is the intention to change existing contracts to new contracts. If transfers are not correctly performed, it could cause a huge financial disadvantage for middle-aged workers who have paid relatively high contributions for several decades, in exchange for relatively low pension rights. The idea is to prevent a generation from receiving more than it is due from existing defined benefits. How can this be achieved? As part of the pension agreement, the current accumulation system (based on the so-called "average accrual") will be replaced by a decreasing accumulation system, in which an older worker will accumulate fewer pension rights for the same contribution as a younger colleague. The elimination of the "average contribution" system will affect all existing pension contracts and all workers who are currently saving for a pension. The government has stated that a balanced transition to a new pension contract will only be possible if adequate compensation is offered to participants who are affected.

[14] It must be noted that never was a real guarantee. There was a nominal fixed lifelong pension promise, but it could be cut in case of underfunding.

II. The case of Sweden

1. The multi-pillar pension system

Sweden ranks among the 10 countries with the best pension systems globally (it ranked 8th in the Mercer Global Pension Index 2021). A reform that encourages the postponement of the retirement age (through a "target retirement age"), among other measures, is currently underway. The system has significant assets under management as a % of GDP (109% in 2020 according to the OECD[15]).

Figure 1 shows the multi-pillar structure of the country's pension system, which has a pyramidal shape. At the base of the pyramid is Pillar 1, comprising the public pension. This pillar contributes a total of 18.5% of gross annual taxable income[16] up to a cap, which is subdivided as follows: 16 percentage points (pp) go to an individual account "notional or non-financial defined contribution" (NDC); and 2.5 pp are posted to an individual "financial defined contribution" (CDF) account; this is what is commonly called the "individually funded system", a component that was implemented in 1999). Then there is Pillar 2, comprising occupational pension plans based on collective agreements between unions and employers' confederations, which cover about 95% of the workforce, which, on average, are financed with 4.5% of the annual taxable income (most of these plans are switching from DB to DC). I.e., in total, the overall contribution rate to the system (adding pillar 1 and 2) is 23% of annual income, on average. Of that percentage, approximately 7 pp are capitalized and 16 pp are part of the notional accounting. This means that about 30% of total contributions to the system are capitalized. Finally, as can be seen, there is a small Pillar 3 at the top of the pyramid, consisting of the voluntary private pension.

In addition to these pillars, there is a non-contributory pillar not shown in this figure, that offers a guaranteed minimum pension, financed with general taxes, for people with low incomes and at least 40 years of residence in the country, which is paid after the age of 65. It is worth mentioning that in 2021 a new pension supplement was approved, which will be financed by the central government budget, to increase low pensions by up to about 7% and help to further reduce income inequality in old age.

2. How does the Public Pension work?

On the one hand, there is the so-called "Income-related pension" (*Income Pension*), based on "notional defined contribution accounts" (NDCs), which are fed by workers' contributions throughout their working lives, with their respective returns. Thus, on retirement, workers receive a pension based on the balance of their notional accounts, the return on their contributions, and life expectancy. They are called "notional accounts" because they do not contain real money, but are only accounting records. The return on notional accounts is the average wage increase of the entire population, which is why it depends on productivity growth.

The second part of the public system, on the other hand, consists of a State managed financial defined contribution program [FDC, also called "*Premium Pension*" or PPM]. In this system, participants have "individual financial accounts" and choose their own investment portfolios from a large number of funds (about 450). As already noted, this scheme is financed with a contribution rate of 2.5% of the worker's gross annual pensionable income. The rate of return on these individual accounts is determined by the return on the funds the individual has chosen. In practice, however, very few workers now make any active fund choice (contrary to what happened at the beginning of the system) and most of the money is automatically invested in

[15] Source: OECD Pension Market in Focus 2021.

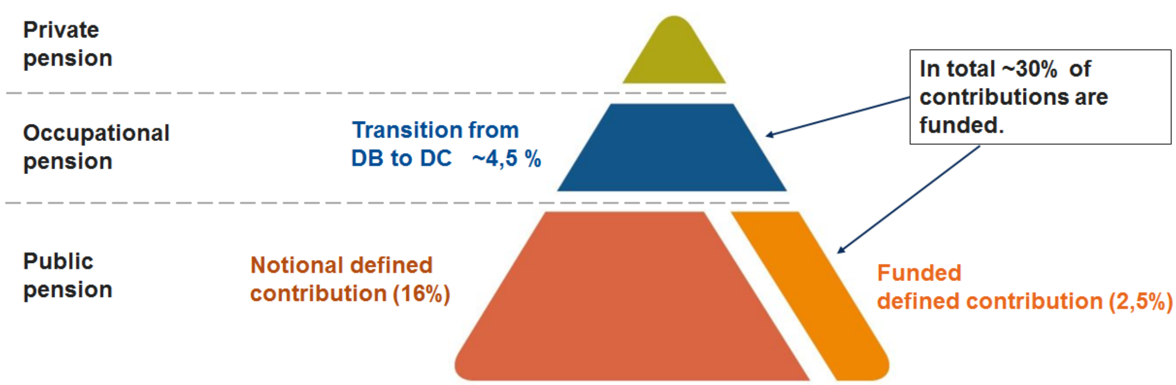
[16] The insured pays a pension contribution amounting to 7% of the annual gross taxable income, and the employer 10.21%.

the Premium Savings Fund managed by the Seventh Swedish National Pension Fund (AP7 SAFA), which has had good returns. There was a lot of marketing to encourage people to choose, and also issues with funds that were disrupting the system. To address those difficulties, it has already been decided that the number of eligible funds will be reduced and that they will be put out to tender, which will have a lower cost.

In both the NDC and FDC schemes, a life annuity (fixed or variable, full or partial) is provided once the worker retires (the pension age is flexible and people can apply for pensions from the age of 62 without any limit), based on the values recorded in the accounts and life expectancy on retirement. In the FDC scheme in particular, a survivor protection component can be included, and in this case, the pension will be reduced to reflect the expected payment to the survivor(s).

The decision to retire does not mean that the worker should stop working, i.e., he/she can continue to work and obtain new pension rights. If people continue to work, they also continue to pay contributions on new income, resulting in a further increase in individual accounts, and finally in their annuity, when claimed.

Figure 1
Multi-Pillar Pension System in Sweden
Contributions on earned income for the average worker (*)



*78% of men and 88% of women aged 20 to 64 have incomes below 8 times the so called "*Income Base Amount"* (IBA).
Source: Palm, Fredrick (2021).

3. How the Notional Accounts Scheme (NDC) Works

a. Contributions

In the NDC scheme, the 16% contributions are transferred to buffer funds that are independent of the national budget: the First, Second, Third and Fourth AP funds (AP1-AP4). These funds have no formal obligations regarding future pension payments, but are withdrawn by the Swedish Pension Agency to make payments to current retirees. Each month, a quarter of the contributions are deposited in each of the funds and a quarter of the pension payments due are paid from each fund. Any excess contributions relative to payments remain in the funds, and any shortfalls reduce these funds.

b. Calculation of the life annuity

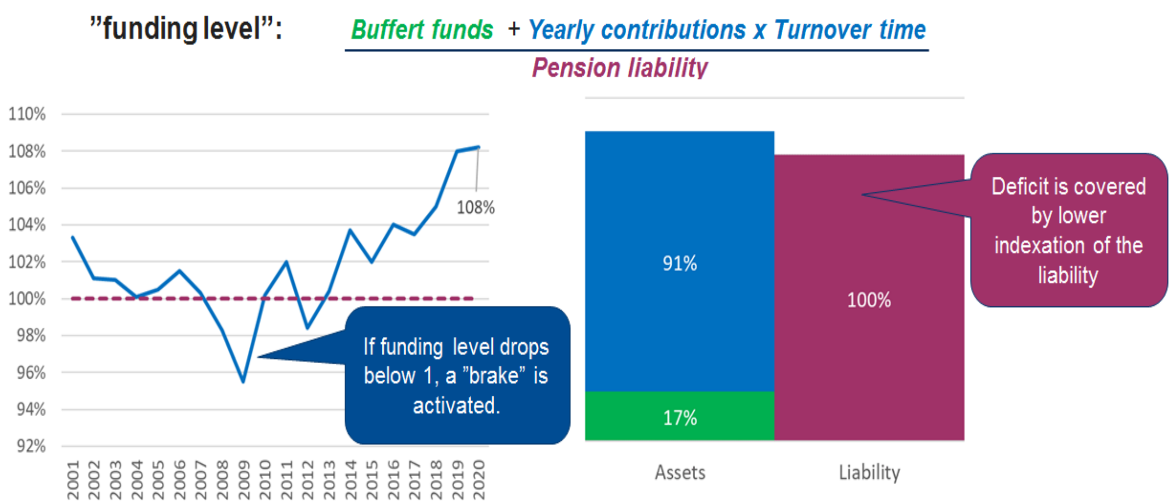
The life annuity is calculated by dividing the accumulated assets of the account by a divisor that reflects the life expectancy at the date of retirement. Individuals can counteract the negative effect on the annuity caused by the increase in life expectancy, by postponing their retirement. Thus, there are strong incentives for prolonging working life, which increases pensions.

c. Financial stability

The main rule is that savings in the notional individual account are indexed or adjusted to the average rate of wage growth. However, for pensions to be fully adjusted to the average wage increase, the system must be balanced, which implies that pension assets must be equal to or greater than pension liabilities. The combined contribution and reserve assets of the funds must be at least equal to the accrued pension liability.

An "automatic balance" mechanism is employed to comply with the above. Financial stability is maintained through the degree of indexation of pension liabilities, based on the growth of the average wage of the economy, depending on how the "capitalization ratio" or “funding level” evolves. This ratio is defined as pension assets divided by pension liabilities. A capitalization ratio below unit (1) causes a negative adjustment in the system's liabilities ("brake"). Values of the ratio greater than or equal to unit, do not produce an adjustment. In other words, when liabilities are greater than assets, the automatic equilibrium, or brake, is applied. This means that pension increases vs. wage increases slow down, until equilibrium is restored in the system (assets = liabilities).

Figure 2
Sweden: Financial stability of the defined notional contribution scheme



Source: Pensionsmyndigheten (Swedish Pension Agency).

Figure 2 shows the evolution in the funding level of the NDC scheme, according to the data published by the Swedish Pension Agency. On the asset side, we have, on the one hand, the "reserve funds" (the green part of the figure). The rest (blue part of the figure) are the expected notional future contributions multiplied by the number of years that workers are supposed to contribute to the system (the so-called “*Turnover time*"). As can be seen, the capitalization ratio fluctuates considerably over time. It dropped below 100% between 2008 and 2010 (i.e., under unit). The "brake" was activated for the first time in 2010 due to the financial crisis of 2008, which led to a slower increase or adjustment of pensions against wage increases. The brake stopped operating in 2017, and normal indexing rules have been applied as of 2018.

By 2020 the level of capitalization had risen to 108%, so there has been an improvement in the financial status of the system. With these positive figures, people think that this extra money could be used to pay better pensions, but that is prohibited by the solvency rules of the system[17]. In fact, only 17% of this 108% corresponds to reserve funds (i.e., only 17% of future profits are effectively funded) and 91 points correspond to expected future contributions.

4. The Occupational Pension

About 95% of the Swedish labor market is covered by occupational pension schemes that supplement the public pension. Usually, 4.5% of annual pensionable income is contributed on salaries up to 7.5 Income Base Amounts (IBA) [the ceiling of the public pension system]. On salaries above 7.5 IBA, the contributions are usually 30%. As a result of the reform of the mandatory public system towards a defined financial contribution (FDC) system in 1999, the main occupational pension schemes in the country[18], which were previously defined benefit (DB), have become FDC or transfer to become FDC plans at different speed, in which workers choose their investment company and can also choose from a number of funds in the investment market. Figure 3 shows the main products, selection centers, agreements and collective parties in the country's occupational pension system. For example, the "ITP" agreement is the pension plan for professional workers in the private sector and is managed by the "Collectum" selection center. Another example is Alecta, which is the insurance company correspond ding to the "default" option if the worker does not actively choose, which explains why it is the largest.

5. Theoretical replacement rates

As can be seen in Graph 1, there was a defined benefits (DB) system in which the replacement rate at 65 years of age was 60% (70% with the help of the occupational pension) for those born in 1930, and those who were born in 2015 would have obtained a replacement rate of less than 40% of the public system (55% with the help of the occupational pension). This is generally used as proof that pensions are too low in the Swedish pension system, after the transfer from DB to NDC/FDC. More contributions or a higher retirement age will be needed to increase the replacement rates.

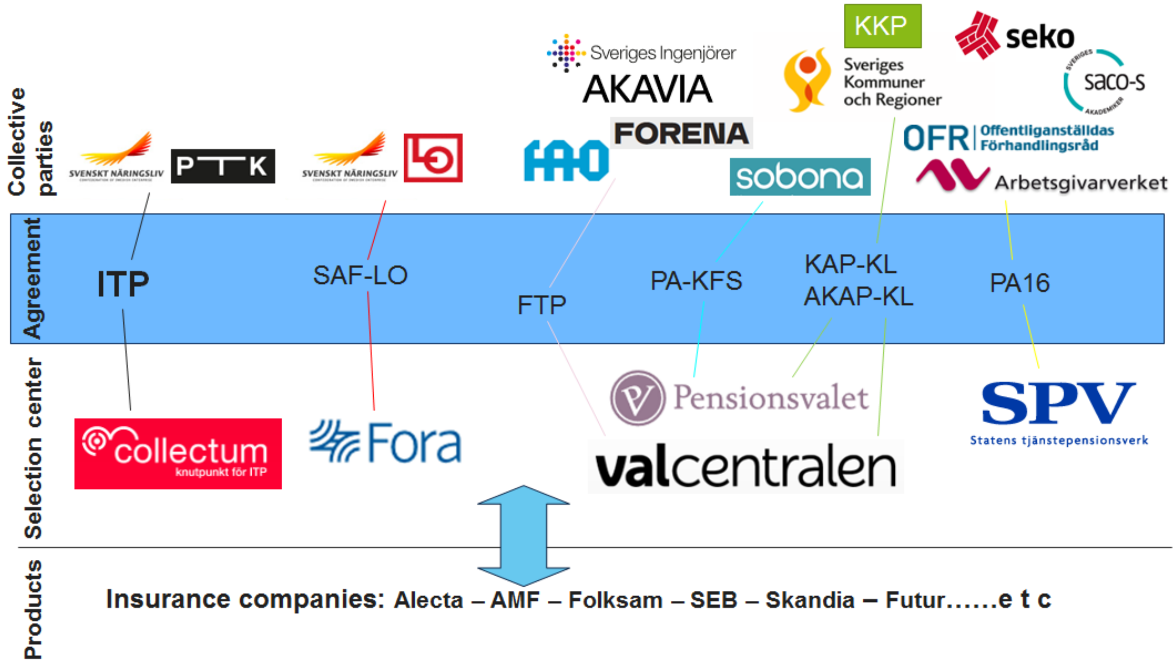
The replacement rates mentioned above are in line with OECD calculations. According to the agency, the gross replacement rate provided by the public system (NDC + FDC scheme) for a worker who earns the average salary, is of the order of 41.3%, while the rate provided by the occupational system is of the order of 12%, thus totaling a replacement rate of 53.3%. This means that the public system grants 78% of the total pension and that 22% is provided by the occupational system. Existing projections show that the total replacement rate will continue to decline to 33% by 2070[19].

[17] During 2022 there has been quite much discussion in media about introducing a "gas" in the system. This is because the funding level increased further during 2021 (according to preliminary figures from the Swedish Pensions Agency, the funding level is now 112%).

[18] These four main systems are as follows: workers in the private sector; dependent professional workers in the private sector; central government workers; and local government workers.

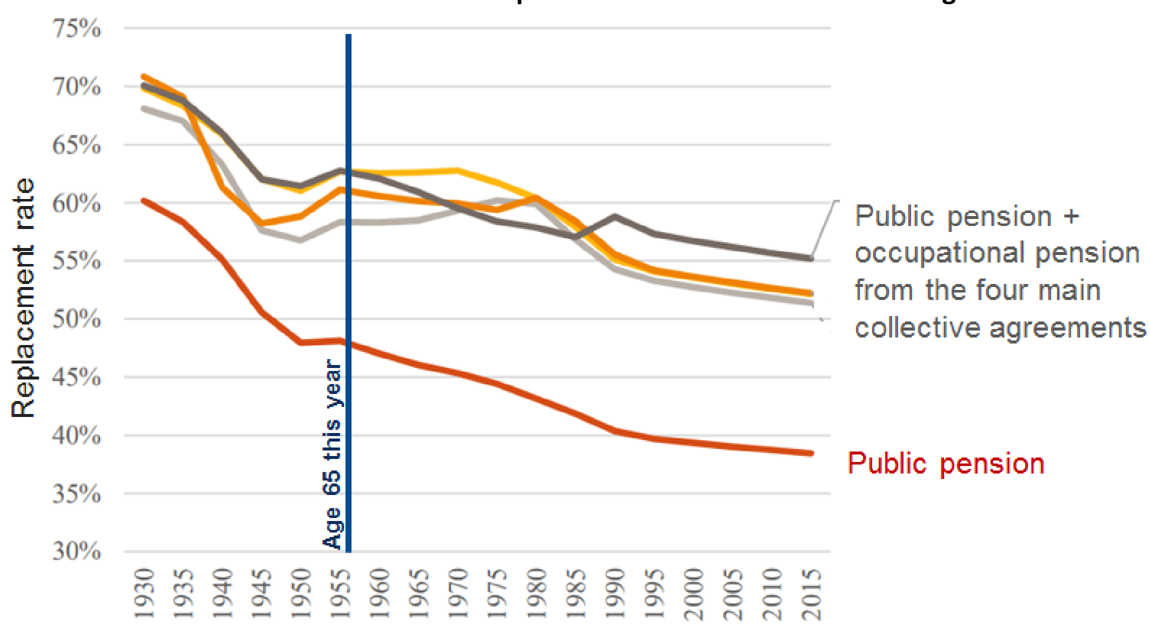
[19] Source: "The Swedish pension system and pension projections until 2070 (February 15, 2018) https://ec.europa.eu/info/sites/info/files/economy-finance/final_country_fiche_se.pdf (p. 22)

Figure 3
Sweden: Interconnection of stakeholders in the occupational pension system



Source: Palm, Fredrik (2021).

Graph 1
Sweden: Theoretical replacement rates on retirement at age 65



Source: Pensionsmyndigheten (Swedish Pension Agency).

6. A new feature: The target retirement age

So, given this outlook of low projected replacement rates, the government introduced a new concept in the system as of 2019, the so-called "target retirement age," based on the average life expectancy at 65. This "target age" is intended to serve as a benchmark for deciding when to retire, replacing the standard retirement age at 65 with a retirement age that considers the increasing life expectancy in the country, thus keeping the ratio between work and retirement time constant. The target age was set at 67, and will come into effect as of 2026. Based on these plans, the earliest age for accessing public system pensions and the "target retirement age" will increase by adding two-thirds of the increase in life expectancy to the retirement age as of 2027. According to Swedish demographic projections, the implementation of this link will increase the retirement age by two years by 2050, similarly to Finland, the Netherlands and Portugal, which have a two-thirds link.

The above therefore implies that the effective average retirement age will increase. This is positive, because the longer one works, the higher the applicable replacement rate. What happens in the theoretical model in Figure 1 if the target age is used instead of 65 years of age? The answer is seen in Figure 2, where it can be seen that theoretical replacement rates increase: those who retired by 2015 would have obtained a replacement rate greater than the 55% of the public system (approx. 80% with the help of the occupational pension). I.e., with the help of the "target age", the replacement rate of the public system increases by more than 15 percentage points, while the total replacement rate (adding the occupational system) increases by more than 25 percentage points. Increasing longevity has been a problem since the mid-90s, and the government had taken no action until now. However, according to public opinion, the government is now taking measures to meet this challenge too quickly.

7. At what age do Swedes retire today and what is their real income?

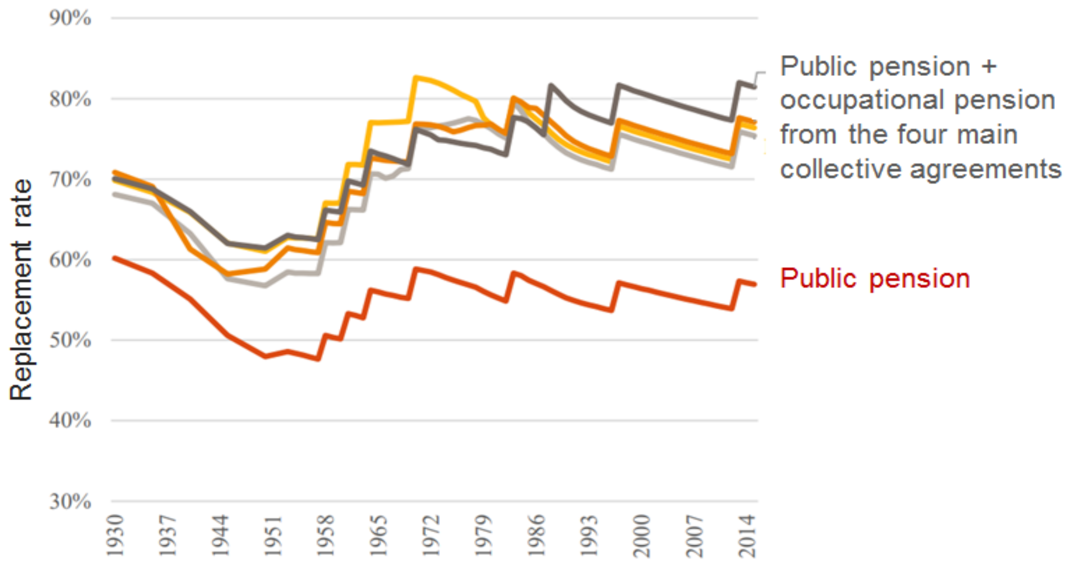
If one looks at how people actually retire (Graph 3), one can see that about 75% of them used to retire at age 65. But today, about 40% retire at age 65, and more and more people are retiring beyond that threshold, raising the average retirement age.

This is partly explained by the fact that workers can retire at any time from the age of 62, knowing that their annual pension will be the result of dividing their account balance by the estimated life expectancy at that time. This makes the relationship between contributions and pensions very direct, resulting in the transparency of the system and workers realizing that the sooner they retire, the lower their pensions will be. This transparency has resulted in 1 in 3 pensioners working at age 68, according to official statistics. Hence, the reality is that Swedes have become "job seekers" when they reach old age.

If one looks at the income of an average worker compared to what they would earn at age 62, for different generations (see Graph 3), it can be seen that those who are younger today have higher real incomes than older generations. I.e., although theoretical replacement rates show that workers' income has decreased, in fact it has not, because people actually work more, so work continues to contribute a percentage to the construction of total wealth (13% at age 67 and 5% at age 72; see Figure 4). The observed results are maintained when analyzing the lowest-income workers.

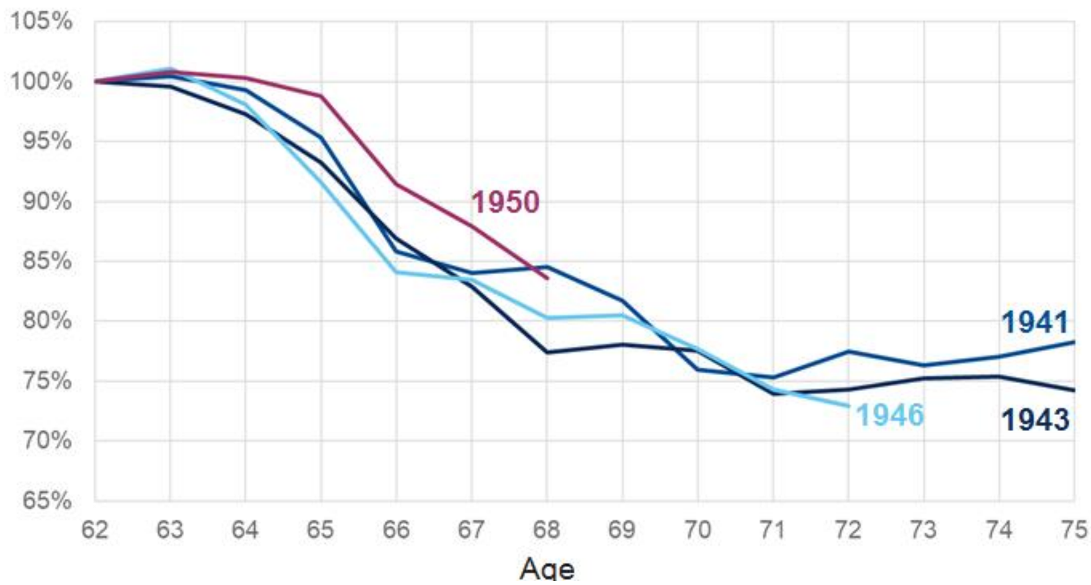
As a corollary, people have changed their behavior, they work longer and the government does not necessarily have to do that much.

Graph 2
Sweden: Theoretical replacement rates with the "target retirement age"



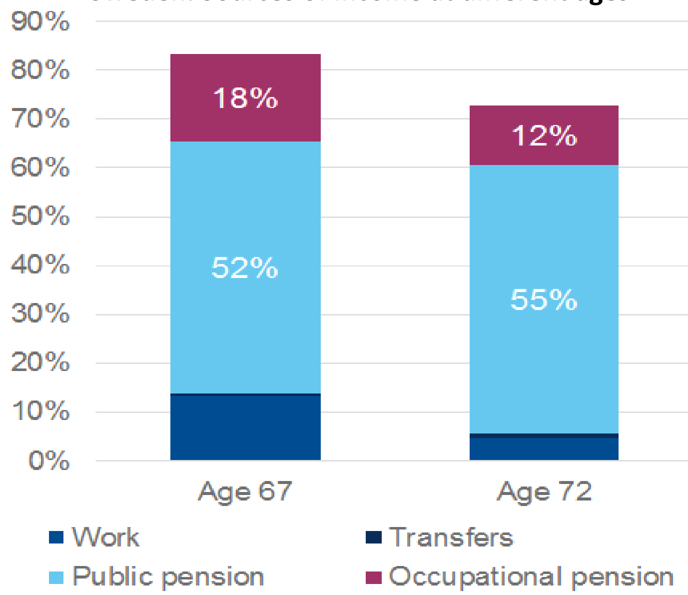
Source: Pensionsmyndigheten (Swedish Pension Agency).

Graph 3
Sweden: The income of an average worker as a percentage of income at 62 years of age, different generations



Note: Returns on capital and private pensions are excluded.
Source: Statistics Sweden.

Graph 4
Sweden: Sources of income at different ages



Note: Returns on capital and private pensions are excluded.
Source: SCB (Statistics Sweden).

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