



Social Protection Reform Project
中国欧盟社会保护改革项目

1.3.9 - IS NDC SELF-FINANCING

IN CONTRAST TO OTHER PAYG SYSTEMS ?

Component 1

Whereas “classical” pay-as-you-go systems are seen as vulnerable to demographic ageing, in the sense that that would put an increasing burden on smaller, newer generations to honour commitments made towards growing cohorts of retirees, Notional Defined Contributions schemes are seen by some authors as immune from such defect, in the sense that they may include built in mechanisms to limit the magnitude of charges incumbent upon the active population. Since the Chinese pension system is confronted with a situation where existing commitments towards former generations are heavy, thus depleting the investment possibilities on individual accounts, PAYG type approaches with built-in sustainability mechanisms are positively viewed. The present Note therefor describes the European approach and analysis concerning the sustainability advantages that NDC may – or may not – have over more traditional systems. The Note was prepared by Mr Koen Vleminckx (Belgium) while on mission for the EU-China Social protection reform project.

Summary

NDC Systems are Pay As You Go Systems (PAYG). However, fiscal sustainability is built into the strategic design of the NDC system, by shifting the economic and demographic risk to (future and current) pension beneficiaries. Thus, fiscal sustainability of the NDC-Pension has priority over adequacy. The traditional “pension promise” of a PAYG system is weakened by making it conditional on the economic (wages) and demographic (longevity) evolution, as well as the payment of mandatory contributions. Solidarity (both intergenerationally and between social groups) is limited to the guaranteed pension.

However, Professor Nicholas Barr made some suggestions in a recent report on the Swedish pension system that could reduce the vulnerability of pensioners in a NDC system, without losing the built-in fiscal sustainability of its NDC system (N. Barr, 2013). Taking his recommendations into account would allow for an improved NDC system.

Traditional PAYG retirement insurance systems are defined benefit systems, which promise a certain pension benefit (usually replacement rates linked to previous wages) in exchange for the payment of mandatory contributions. Pensions benefits vary usually by the height of the wages earned and the number of years contributions were paid. These systems often include socially motivated correction mechanisms, which give additional rights to certain social categories.

In recent years some countries with a PAYG DB System have also weakened their “pension promise “ by introducing correction mechanisms. Germany has introduced a point system, mimicking to some extent NDC adjustment mechanisms, while Belgium’s Commission for pension reform has also proposed the introduction of a point system, with specifically designed adjustment mechanisms.

Furthermore, traditional PAYG DB systems can politically introduce ‘ad hoc’ adjustments to correct for economic and demographic trends to achieve sustainability, but these adjustments are more uncertain, less predictable for citizens, and less transparent in general, than the built-in adjustments of NDC or point systems.

NDC Systems

NDC systems are mandatory Pay as You Go (PAYG) System. The pension benefits of current workers are financed by contributions made by current workers.

However, the NDC System mimics¹ a Defined Contribution System in order to create room for some (automatic) adjustments and to create some incentives.

Workers contribute² and their contributions are notionally accumulated. Thus, the accrual is based on a political decision, a rule, rather than the actual returns on any assets. In other words, the state ‘pretends’ that there is an accumulation of financial assets. But, as a result, NDC exposes pensioners to less (market) risk than fully-funded individual accounts³.

Notional interest rate: Each year the government attributes to each worker’s notional accumulation a notional interest rate (i.e. an accrual rate). The notional interest rate (called the Income Index) is calculated as a 3-year moving average of nominal earnings adjusted for inflation plus one year of price inflation. Thus contributions during working life are indexed to long-run average earnings, but with faster adjustment to changes in inflation.

However, from the perspective of the worker his or her benefits are strictly related to his or her contributions. Their notionally accumulated contributions are used to determine a balance which at the time of retirement is converted into an annuity. When a person first draws pension, his notional accumulation is converted into an annuity in a way that mimics actuarial principles, inasmuch as the present value of the person’s benefits, given (a) his age when he first draws pension and (b) the estimated remaining life expectancy of his birth cohort, is equal to the value of his notional accumulation, using a discount rate of 1.6 per cent. The resulting calculation is described in terms of

¹ This is why they are called ‘notional’ defined contribution systems.

² Workers pay contributions (7%) up to a ceiling of 8.07 times the income-related base amount. The worker receives a tax credit equal to the 7 per cent contribution for the public pension contributions. Thus, the worker’s contribution is in fact financed out of general revenues. Employers pay contributions (10.21%) without limit, but contributions on income above the ceiling do not entitle the worker to any additional pension and are not attributed to the worker’s notional account nor included in the income of the pension system, but instead are treated as general government revenue. A self-employed person pays both contributions.

³ Nicholas Barr says that in Sweden pensions after the economic crisis showed much less volatility than was the case in fully-funded defined-contribution arrangements for people retiring around 2008 (Barr, p. 48)

an annuity divisor, D, such that the benefit is equal to the accumulation in the account divided by D. There is a specific divisor for each birth cohort and each age.

Method of indexation: NDC Pension benefits in payment grow at the notional interest rate minus 1.6 per cent.

Pension benefits in payment are subject to income tax. Where a person draws his or her NDC Pension but continues to work, there is no clawback of the NDC Pension. These earnings are subject to pension contributions and add to the person's pension entitlement.

Fiscal sustainability is built into the strategic design of the NDC system, by shifting the economic and demographic risk to (future and current) pension beneficiaries. Thus, fiscal sustainability of the NDC-Pension has priority over adequacy.

The main instrument for this is the so-called balance ratio, which indicates the long-run sustainability of the system :

$$BR = \text{Contribution assets} / \text{Pension liabilities}^4$$

The value of a 'contribution asset': is estimated on the basis of the present value of the flow of contributions, based on recent data. The measure of 'pension liabilities' is also based on recent data.

Thus, the balance ratio reflects the actual balance in the PAYG System on a regular basis.

Employment growth is a key driver of this balance ratio since it affects the growth of wages and thus contribution assets.

The rules specify that the system should aim to preserve a Balance Ratio not below 1, with automatic correction via the brake mechanism if it falls below one.

An automatic brake mechanism reduces both the accrual rate for workers and the indexation of pensioners' benefits in payment if the actuarial balance of the system falls below the threshold level (1). These lower rates of accrual and indexation continue until financial balance is restored.

This situation which can arise for various reasons, notably if contributions grow more slowly than average earnings as measured by the income index.

The brake mechanism could provoke sharp reductions in pension benefits: According to Nicholas Barr, a combination of slow wage growth and a balance ratio below one would have reduced the Swedish NDC Pension by 4.6 per cent in 2010 (Barr, 2013: 33).

Nicholas Barr suggests different ways to improve the operation of the brake, in order to share the risks of macroeconomic fluctuations among existing participants more fairly (N. Barr, 2013: 114-115).

⁴ As the Swedish system is partially funded, the balance ratio also incorporates the value of the buffer funds (i.e. partial funding) of the system.

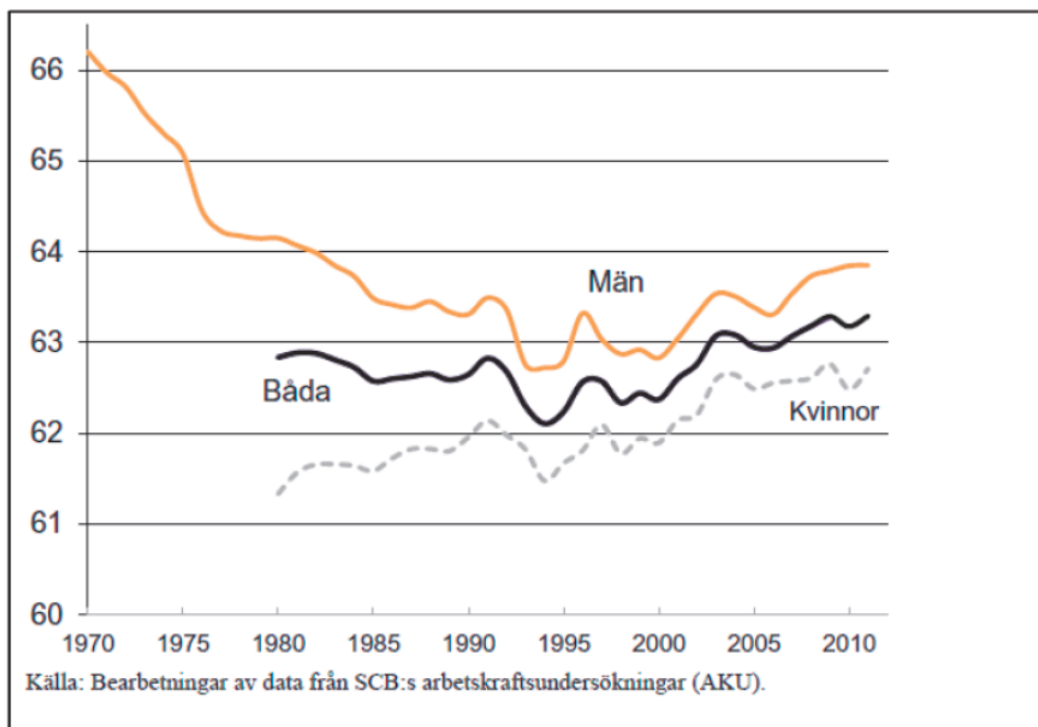
An automatic adjustment to changes in life expectancy by reducing monthly benefits actuarially via the longevity coefficient:

When a person first draws pension, his or her accumulation is multiplied by a life expectancy coefficient, based on the remaining life expectancy at the age of withdrawal of the person's birth cohort. The intention is that if life expectancy increases, the monthly pension at a given age will be actuarially reduced, i.e. adjustment is via the level of pension, not the earliest eligibility age. The estimate of the cohort's remaining life expectancy is based on historic mortality data, rather than projected mortality rates.

In Sweden pensions are adjusted at the age of retirement to rising life expectancy. Thus, it is believed that would provide an incentive for people to postpone their retirement. However, if people continue to retire at broadly the same age as at present, benefits will over time become less adequate. Therefore, Nicholas Barr suggests to introduce an additional correction for life-expectancy into the Swedish NDC Pensionsystem: In addition to a reduction of the monthly pension by the life expectancy coefficient at the moment a person retires, the minimum age for pension eligibility would over time. This in the interest of both sustainability and adequacy.

Although the decline of retirement age in Sweden seems to have been arrested, with a slow increase in recent years, the adjustment of retirement age in Sweden remained below the expectancy of the Swedish government. Therefore, they asked a Commission of inquiry to look into the matter.

Figure 7.1 Average age of expected exit from labour force (individuals who were in the labour force at age 50)



Source: Compilation of data from the Labor Force Survey, Statistics Sweden. The orange line is men, the dotted line women and the black line all.

In 2013, this Commission for Longer Working Life and Retirement Age stated that “The pension reform, generous tax rules and major information initiatives, etc. are expected to lead to older people working for longer in pace with an increasing average life expectancy. However, despite some positive tendencies in older people’s employment, the changes have been modest. Sweden still has a de facto normal retirement age of 65 years. The number of hours worked is increasing among older people, but far too slowly.” (Åtgärder för ett längre arbetsliv. Slutbetänkande av Pensionsåldersutredningen, Stockholm 2013).

The Commission of Inquiry therefore proposes a package of measures that includes initiatives to improve the working environment, to strengthen opportunities for older people to preserve and develop their skills, increase information, strengthen the financial incentives, combat age discrimination, etc. These initiatives will help to ensure a higher, actual retirement age. “*However, several initiatives will only take effect in the long term and others should be expected to have a modest impact.*”

The Commission proposes the introduction of a *recommended retirement age*, which follows the development of average life expectancy. This recommended retirement age is a clear, non-choice alternative for the retirement of older people who wish to achieve an acceptable pension level. The age limits of the public pension system and related systems will be linked to the recommended retirement age. The proposals mean, *inter alia*, the following:

- The 61-year age limit for the earliest age at which people are entitled to draw their old-age pension will be raised to 62 years in 2015, and according to current forecasts, to 63 years in 2019.
- The 65-year age limit for the guarantee pension, sickness compensation and other benefits will be raised to 66 years in 2019, according to current forecasts.
- The age limit referred to in the Employment Protection Act will be raised from 67 to 69 in 2016.
- The 55-year age limit for occupational and private pensions will be raised in 2017 to 62 years.

The legacy cost:

In Sweden the legacy defined-benefit ATP pension, which was replaced by the NDC Pension, continues to be paid to older workers.

Traditional PAYG

Traditionally, PAYG Pension retirement insurance systems are defined benefit systems that promise a certain replacement rate in old-age, conditional upon the number of years a person has contributed to the system. Just like NDC Systems pension benefits of current workers are financed by contributions made by current workers.

Pensions benefits vary usually by the height of the wages earned and the number of years contributions were paid. These systems often include socially motivated correction mechanisms, which give additional rights to certain social categories.

As population ageing ('papy boom' + longevity) increases the dependency ratio, PAYG systems are immediately affected because fewer workers will have to finance the benefits of more recipients.

As a result, some countries have opted to reduce the so-called 'pension promise' (the relative certainty that you will get a certain replacement rate x if you contribute y -years). They no longer guarantee a certain pension benefit, but stress that benefits will be adjusted according to economic and demographic (longevity) circumstances. The main objective of these reforms were to increase the fiscal sustainability of these systems. Some countries have introduced NDC or NDC like corrections measures.

In Germany, the Riester reform in 2001 introduced a multipillar system with subsidized or tax-privileged private pensions in individual accounts or as occupational pensions. It gave the right to employees to require employers putting a share of gross earnings (tax- and contribution-free) into occupational schemes. However, due to revenue losses this is phased out in 2009.

In 2004, following the advice of the Rurüp Commission, future pension liabilities were reduced by introducing an automatic fiscal stabilizer, linking future benefits to a system dependency ratio, similar to the balance ratio used in the Swedish NDC system.

In 2007, Germany decided to gradually increase the mandatory retirement age from 65 to 67 between 2012 to 2023. Thus, the mandatory retirement age for people born after 1963 is 67⁵.

Germany's renumeration point system

The benefit calculation formula is a canonical point system, which brings the defined-benefit nature of German public pensions very close to a defined contributions system.

$$\text{Pension} = \text{APV} * \text{PP} * \text{PF}$$

APV = Actual Pension Value (its amount differs in the western and eastern Länder)

PP = Personal Points.

PF = Pension Factor.

A Personal Point indicates *the proportion of an individual's wage relative to the national average wage*, and the average takes into account the whole working life.

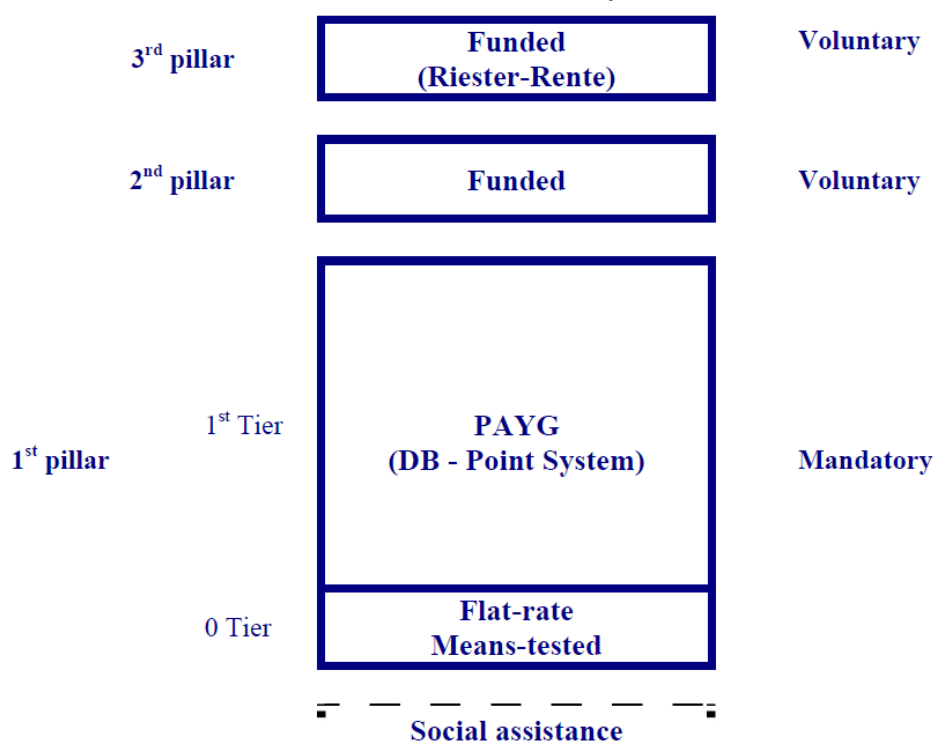
The German pension insurance agency publishes the value of each year's contribution (remuneration point). This is then multiplied by the number of years contributed and the % of the average salary earned during the person's lifetime.

The Actual Pension Value is valorized/indexed to gross wages, but it also depends on two other factors that are meant to keep the contribution rate under check:

⁵ People with an insurance record of at least 45 years of mandatory contributions from employment or care or child-raising periods up to the child's 10th year will still be eligible to claim a pension aged 65.

- 1) changes of the contribution rates to the statutory pension scheme and to subsidized voluntary occupational and personal pension schemes are taken into account (an increase of contribution rates will reduce the adjustment);
- 2) sustainability factor, which links the adjustments to changes in the system dependency ratio.

Figure 1 The Main Pillars in the German Pension System



Belgium's remuneration point system

In 2014, Belgium's Commission on Pension Reform 2020-2040 also proposed to introduce a point system into Belgium's pension schemes. Traditionally, Belgium has PAYG defined benefit schemes (social insurance), but they are also under strain because of population ageing and budgetary constraints.

Via value determination of a point a clear link would be provided between the pension calculation at the time of retirement and the average work income of all people active at that time. The point system allows pension system administrators to constantly monitor various objectives, such as: the objective that the average ratio between the incomes of the retired and the incomes of the active are situated within a desirable bandwidth; the objective that the contributions to the work incomes remain within a set bandwidth; the objective that the financial balance must be ensured.

During their active life, people collect points. At the time of their retirement, the points are converted into euros. The number of points a person collects depends on the work income and

duration of the career. Everyone can follow the development of their pension over the years via their individual point totals. A point system is considered to be more transparent than the current calculation method, it also creates a greater feeling of ownership than the current system, while people know that certain calculation parameters will evolve over time.

If a worker earns as much in a given year as the average earned by a worker during that year, he or she will get one point on their account for that year. If they earn more than the average, they will receive more, if they earn less, they will receive less: the amount of points earned is the same as the relationship between their earnings and the average earnings during that year. Points are thus not collected based on the social contributions or taxes one has paid, but on the basis of the amount of declared work income.

The connection between the amount of points one has collected and the amount of their pension is determined by various factors:

- i. the value of the point at the time of retirement, which is set each year, and guarantees a certain replacement rate for a theoretical reference person, while allowing for adjustments;
- ii. actuarial corrections in function of the actual retirement age (a 'normal age' is defined, which is dependent on one's career);
- iii. later adjustments to the price index and to the increase in welfare;

If the reference career is 45 years, the theoretical reference employee would then have collected 45 points. The reference pension for new retirees in a certain starting year is equal to 45 times the value of one point for that starting year.

- Pension benefit = (point) x (value of point)
- Value of a point in the year T \approx f(average income of active persons in year T)
- Corrections

The Commission also suggests to build corrections or adjustment mechanisms into the system to assure the fiscal sustainability of the Belgian pension system:

- the definition of a *reference career* which can be adjusted in function of life expectancy (longer reference careers would be required if longevity increases, thus increasing the actual retirement age);
- changes with regard to the balance between contributions and pension payments.

According to the Commission objectives and rules of play must be determined in advance, and the automatic adjustment systems must be built into the pension system.

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