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

1.3.9. - EUROPEAN BEST PRACTICES RELATED TO NOTIONAL DEFINED CONTRIBUTIONS (NDC)

Component 1

The Chinese pension system is currently composed in most cases of two pillars, one being the basic pension, PAYG, Benefits defined, linked to the average remuneration in the pooling area, and one being the individual account, where benefits are derived from contributions paid with a financing in theory derived from full funding technique of investment. It so happen however that constraints resulting from past commitments led to the use of a very significant portion of accumulated funds to be used for paying current benefits, leading to a situation where most individual accounts are void from any physical investment. The Chinese Government is therefore eager to receive further information on the approaches taken by European countries confronted to similar types of situation – one of them being the use of Notional defined contributions – NDC – schemes following upon reforms first conducted in Sweden. This Note about European NDRC schemes has been compiled my Mr. Koen Vleminckx (Belgium) on the occasion of a mission conducted under the EU-China SPRP.

Notional defined contributions NDC are seen by many experts as pragmatic choice, but still controversy. NDC advocates improved sustainability and portability of pension rights, while improving incentives for:

- Increasing coverage
- Contribution years

Some authors question the claims of NDC advocates with regard to improved sustainability and incentives, while questioning the incentive effects. Furthermore, there is no real link between NDC and improved portability and administration costs. NDC does not offer market interest rate, but a legislated rate. NDC weakens the prospect of adequate benefits.

European Experience

In recent years, mandatory funded schemes were introduced in a number of European countries: Estonia, Italy, Poland, Sweden, Norway. Italy and Poland are part of our consortium. The NDC system is strongly promoted by the World Bank, including as a reform proposal for China.

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 *mimics*[1] a Defined Contribution System in order to create room for some (automatic) adjustments and to create some incentives.

Workers contribute[2] 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

[1] This is why they are called 'notional' defined contribution systems.

'pretends' that there is an accumulation of financial assets. But, as a result, NDC exposes pensioners to less (market) risk than fully-funded individual accounts[3].

Notional interest rate: Each year the government *administratively* attributes to each worker's notional accumulation a notional interest rate (i.e. an accrual rate). In Sweden 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.

In Sweden, 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 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.

An automatic brake mechanism reduces both the accrual rate for workers and the indexation of pensioners' benefits in payment if the actuarial *balance ratio*[4] 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 advantages of NDC Systems:

- An advantage of the NDC system that the pensions are not at risk in the financial market, but an administratively set rate of return is applied to the individual accounts (under the conditions in China most authors prefer the increase in average wages as the most appropriate rate of return).
- Due to population ageing the parameters of standard DB systems need to be revised, but this is always a difficult process (politically and otherwise). The NDC rules make these required

[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)

[4] The so-called balance ratio indicates the long-run sustainability of the system :

BR = Contribution assets / Pension liabilities

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.

adjustments automatically, or to be more precise, quasi-automatically. Its main feature to this effect is that the benefits are affected by the longevity increase — the benefits are calculated using the latest available projection for longevity of the beneficiary at the moment of retirement. In principle, the same effect can be attained by modifying the rules of a more traditional DB system by introducing a longevity factor into the determination of the benefits, as has been recently done in some countries (e.g. Germany and Finland).

- The NDC system without assets is fully in financial balance in a steady state and under the conditions that the rate of return on the notional accounts is equal to the rate of growth of the covered wage bill and that this same rate is used for determining the annuity payments. If these conditions are not fulfilled the system deviates from the equilibrium and is no longer in financial balance. This happens in general also if and when the system starts from out of equilibrium or is hit by an unexpected change in its key factors, e.g. a change in longevity while the pensions in payment are not adjusted

The disadvantages of NDC Systems:

- The sustainability risk is removed from the management of the system to present and future pension beneficiaries, which do not have a guaranteed replacement rate and whose pension benefits can be reduced due to economic circumstances or expected longevity of his or her retirement cohort.
- Increased longevity leads to lower benefits. While it is expected that this will provide a strong incentive to future pensioners to delay retirement, it is not sure whether the retirement decision of citizens is entirely rationally determined (N. Barr, 2013). In part, this can be compensated by increasing the early retirement age (N. Barr , 2013) or a recommended retirement age (Swedish Commission of Inquiry, 2013[5]).
- The brake mechanism, as defined in Sweden, 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). He 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).
- The financial balance is only guaranteed in absence of external shocks. This implies that the system is not automatically balanced, but still requires policy intervention when such a shock occurs. In Sweden this was for instance the case in the wake of the financial crisis of 2008.

In a nutshell, the NDC system is a modified DB system where benefits are based on individual contributions and indexed to average wages, retirement age and expected longevity. This improves the sustainability of the PAYG system, but removes the so-called “pension promise”, the guarantee of a certain replacement rate when a person has contributed during the required number of years and retires at a legally determined age. Thus, the NDC system gives priority to sustainability over adequacy. Adequacy is at best seen as a task of a ‘o pillar’, which provides a universal or benefit-tested benefit.

[5] Åtgärder för ett längre arbetsliv. Slutbetänkande av Pensionsåldersutredningen, Stockholm 2013

The impact of the NDC design on the timing of retirement

As Song Xiaowu indicates, the NDC system is often believed to provide an incentive for longer working careers.

The Swedish version of NDC contains a number of characteristics that are supposed to provide an incentive for longer working careers and later retirement:

- The principle of neutrality with respect the individual's choice of retirement age. There is no upper age limit for starting the DC Pension and no upper age limit for continuing to work and make contributions. Thus, the system removes all implicit taxation on continued working after the earliest retirement age.

- The actuarial adjustment of retirement benefits. 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 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.

- The automatic adjustment to changes in life-expectancy. 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.

All these elements together are supposed to provide an incentive for longer working careers and later retirement.

Yet, there is a lot of uncertainty about the strength of these behavioural responses. Economists generally believe that mere actuarial adjustments are not sufficient to provide a strong incentive for individuals to postpone their age of retirement (Barr, 2013). Furthermore, elements outside the pension system also have an influence on the strength of this behavioural response, for instance the labour market situation for elderly workers, a worker's health etc., etc.. Formal and informal barriers to continued working in the labour market might also cause a weaker response, for instance provisions in the labour law, occupational pension schemes, etc.. Cultural beliefs also pay a role, for instance the belief that older people become healthier, happier and live longer if they stop working early. As a result there is considerable divergence between what economic theory predicts and what we observe in practice.

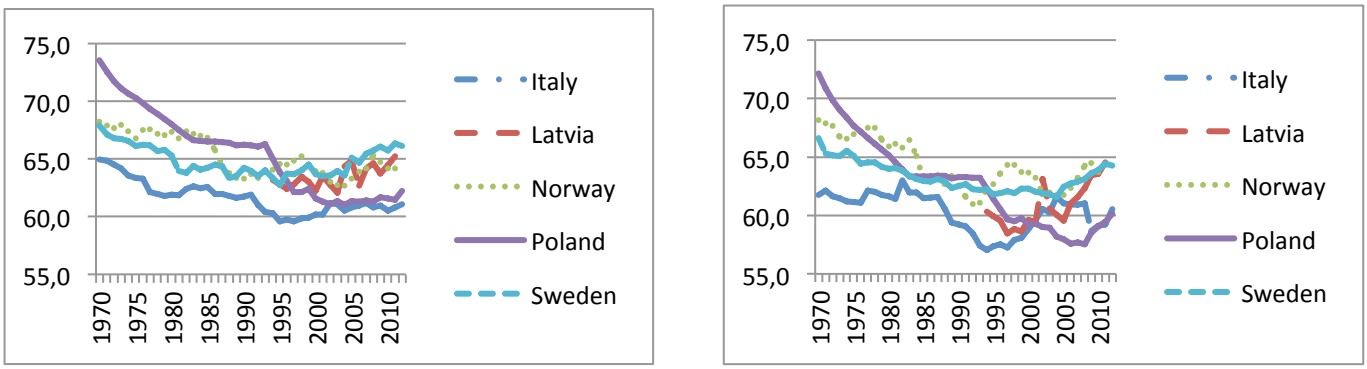
So far, overall changes in the timing of retirement in Sweden have been relatively modest.

In Sweden, where the NDC system is fully operational, most people still retire at 65 (men: 66.1, women: 64.2), which is below expectations. Part of the explanation is probably that labour market regulations and clauses in collective wage agreements that stipulate retirement at age 65 have not been changed. However, an increasing share are drawing benefits at the earliest age of 61.

Because the effect of the NDC reform remained below target, the Swedish government instructed a Commission of Inquiry to look into the matter. In 2013 this Government 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.

Figure 1. Average effective age of retirement in NDC countries: men (a), women (b)1970-2012.



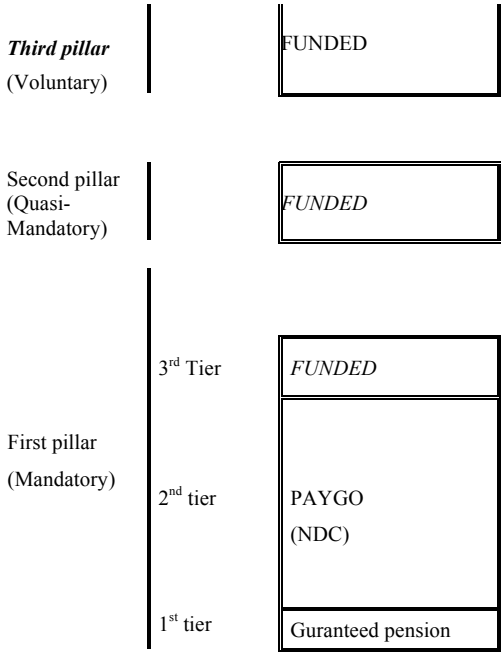
Source: OECD

Related best practices

Sweden

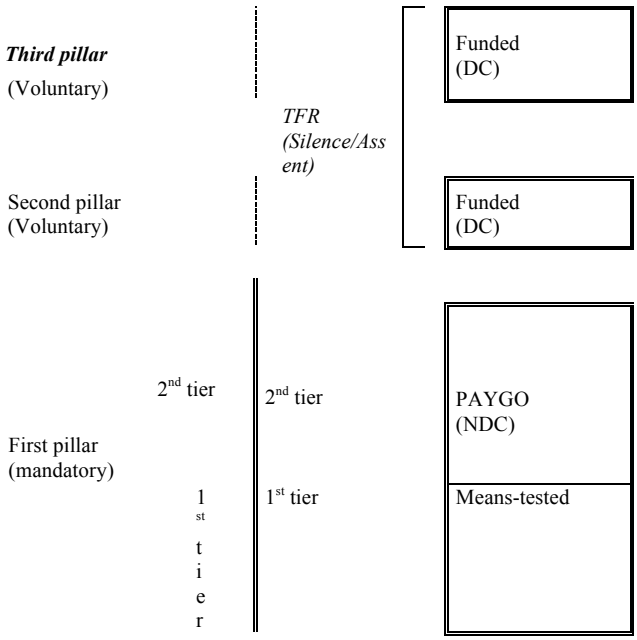
The Swedish NDC was regulated in 1944. Thus, Sweden was the first European country to introduce NDC and, as a result, has had the opportunity to accumulate more experience with this system design. In 2008 the Swedish NDC system had to absorb the consequences of the financial crisis. In 2013 a Commission of inquiry was asked to look into the perceived problem of disappointing increases in retirement age and formulated suggestions for policy adaptation.

In Sweden total contributions are at the level of 18.5% of earnings. While 16% is used to finance the PAYGO tier (2nd tier), 2.5% finances funded schemes managed by private fund managers (the co-called Premium Pension or 3rd tier). A first tier (or'0 pillar') is the Guaranteed Pension is state funded (general revenue). On top of this, Sweden has quasi-mandatory second pillar schemes, and third pillar pension saving and life-insurance plans.



Italy

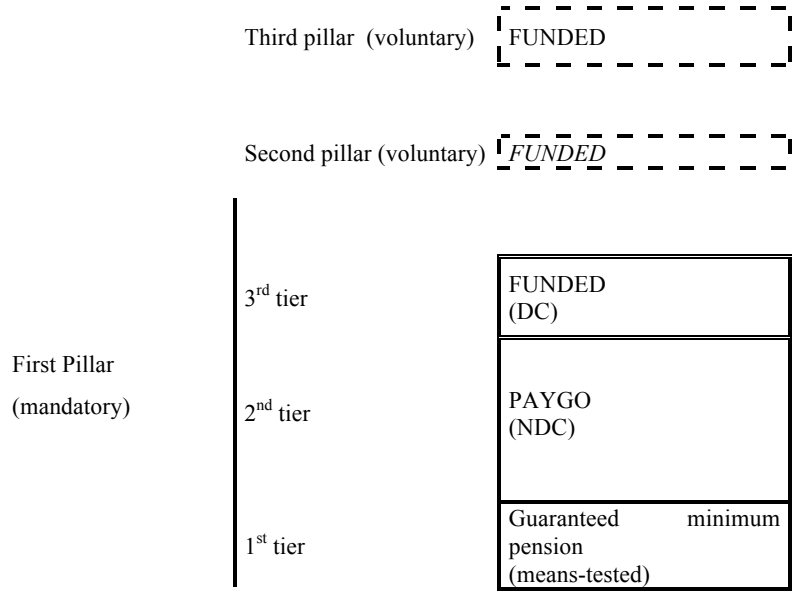
Italy, which is a member of the consortium, also introduced NDC in its first pillar. Benefits for future pensioners are entirely determined by the total contributions paid to social insurance schemes (with reduced risk-pooling). Indexation has also changed, linking benefits to prices rather than to wages.



Poland

In Poland, which is also a consortium member, the 1st tier is the guaranteed minimum pension that tops up first pillar benefits in case the total pension amount is below the legal minimum old-age pension (Figure 4.1). It is conditional on 25 years of contributions for men and 20 years for women. The 2nd tier provides earnings-related benefits consistent with the PAYGO mechanism but with a '

notional defined-contribution' (NDC) logic as in Italy and Sweden. The level of pension is based on the contributions paid by employees and employers, and average life expectancy at retirement age.



Koen Vleminckx,

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