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The Market for Social Insecurity

A shady pension reform entices economic elites and clouds the future of Sweden's elderly

by Jan Hagberg and Ellis Wohlner

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An efficient national pension system that has helped to make Swedish old folks among the most economically secure in the world has now been replaced by a costly, elaborate construction which is almost certain to make the retirement years of future generations less secure.

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The pension reform that went into effect in 2001 has been presented as a necessary response to the "welfare paradox" that confronts virtually all developed countries. The paradox is that a steadily shrinking work force, working fewer hours, must support a steadily expanding population of retirees.

This is a trend that has caused widespread and frequently exaggerated alarm over the solvency of national pension schemes. The Social Security system of the United States, for example, has in recent years come under intensifying attack from those who claim, mainly on the basis of dubious assumptions, that it is on the verge of bankruptcy.

The Swedish pension reform has therefore attracted considerable attention abroad, since it is said to provide a solution to the threat of fiscal insolvency posed by the welfare paradox and other factors. Ironically, the enthusiasm appears to be greatest among interests which in the past have often heaped scorn on Sweden for its general-welfare system. These include the enemies of Social Security in the United States, and the international business press (see, for example, "Pensions: Time to Grow Up", in *The Economist*, 16-22 February 2002). Approval by such interests should signal a warning to those who are devoted to the traditional Swedish model of general welfare and social solidarity.

It turns out that there are, indeed, several

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reasons to be concerned about the likely effects of the recent reform on the well-being of Sweden's senior citizens. Among other things, the new system will almost certainly result in reduced pensions for a large majority of citizens, and promote social injustice by yielding varying retirement incomes for individuals in similar circumstances. It also implies an enormous transfer of economic power from society as a whole to special interests, and stimulates the flow of capital out of the country.

The problems and deficiencies of the new pension system become evident when compared with its abandoned predecessor.

The old system

The old pension system, which went into effect in 1960, consisted of two components: a universal basic pension ("FP") to anyone who had resided in Sweden for a total of at least three years; and a supplementary pension ("ATP") based on the number of years worked and the amount of earned income. Both components were keyed to the Standard Income Unit (SIU)*, and were automatically adjusted for changes in the Consumer Price Index.

With this two-part system, those who retired at age 65 with at least thirty years of eligible work experience received pensions averaging 60-65 percent of pre-retirement earnings. (Most people also had a collectively negotiated supplement, adding roughly ten percent.) This was among the highest pension levels in the world, and greatly improved the standard of living among the Swedish elderly.

The system was financed on a pay-as-you-go basis, with tax revenues from the current work force contributing to the pensions of the retired. Substantial buffer funds were established to minimize the effects of variations in contributions, investment returns and benefits. The funds were invested primarily in Swedish government bonds and grew steadily to the equivalent of ca. four years' total pension benefits. The size of the buffer funds was reviewed every fifth year. In addition to their function in the pension system, they provided a source of investment capital for the entire economy that was especially valuable during economic downturns. These funds grew in real terms from 1960 to the mid-1990s, when the revised pension system was agreed upon, amounting at that time to some 700 billion kronor. This contradicts the frequently made assertion that the old system was running out of money.

There were several clear advantages with

Secure retirement

An adequate national pension system based on principles of social justice would include the following elements:

* Genuine social security that ensures a decent standard of living for all
* Universality, i.e. including the entire population
* Guaranteed minimum benefit
* Financial stability
* Moderate relationship to pre-retirement earnings
* Generally percieved as fair
* Easy to understand
* Predictable benefits
* Low administration costs
* Low vulnerability to market fluctuations.

Note: Terms such as "decent. . . relationship. . . viable. . . fair. . . easy", etc., are relative, and can only be understood in comparison with other alternatives.

* Standard Income Unit (SIU) is an accounting device used in the calculation of social benefits, income levels, tax tables, etc. Roughly 85 percent of the labour force has incomes less than 7.5 SIUs. The value of an SIU in 2002 is set at SEK 37,900 (roughly US$3,800 at the end of May 2002).

the old system. It was easy for most citizens to understand, future pension benefits were predictable and the purchasing power of the elderly was maintained. It was also comparatively simple and inexpensive to operate: The cost of administration was only about 0.5 percent of total benefits.

Given these advantages and the relatively comfortable pensions it provided, the old system enjoyed wide acceptance among the general public. But due to such factors as the welfare paradox noted above, concern began to mount during the 1980s that benefits would eventually outstrip revenues. Critics pointed to a number of perceived shortcomings, including the following:

- The system was "unfunded".*
- Benefits were not linked to real economic growth or demographic changes.
- The system was financially "unstable" (whatever that means).
- The relationship between the individual's contributions and benefits was not strong enough.
- Political support for the system was unstable, it having been approved in parliament by a margin of only one vote.

Of course, there were conflicting views about the urgency and the relative importance of these deficiencies. But there was general agreement that something would have to be done in order to prevent the system from collapsing.

The obvious solution was to make adjustments to the existing system, and pension experts recommended three, in particular:

- indexing benefits to real economic growth instead of consumer prices
- raising the normal retirement age
- providing for a reduction in benefit levels in response to demographic changes, if and when it actually became necessary.

Modifications of this sort were entirely feasible. But that option was ignored in favour of the very different thing which is now being cited by fiscal conservatives as the very model of a modern pension system.

The new system

The primary goal of the pension reform is to achieve automatic, long-term financial stability. The self-evident social goal of a pension system, i.e. to maintain the living standards of the elderly, is no longer self-evident. That is a secondary concern of the new system, which will almost certainly result in reduced living standards for the majority of pensioners. Certain subgroups, such as young people who are late in entering the labour market and middle-aged women, are likely to be especially disappointed upon retirement.

The new system is based on lifetime earnings and is financed by a levy of 18.5 percent on wages. Sixteen percent is allocated to a "pay-as-you-go pension" and 2.5 percent is placed in a "premium reserve pension" which is required to be invested in mutual funds.

According to its authors, the reform has resulted in a stable system which automatically adjusts to changing demographic trends. They also claim that the system is linked to national economic performance, particularly with regard to the 2.5 percent of earned income that is required to be invested in mutual funds. Future pensioners are confronted with a choice of nearly 700 funds offered by some seventy financial institutions including banks, insurance companies and mutual-fund operators. Up to five funds may be selected at any given time, and cost-free transfers are permitted on a daily basis. The pension credits of those who do not make any active choice are placed in a state-operated fund established specifically for that purpose.

* It is very doubtful wheather any national pension system can be "funded". See *Funded" vs. "Unfunded" Programmes,* next page.

"Funded" vs. "Unfunded" Programmes

In his prize-winning essay, "Paygo Funding and Intergenerational Equity", Prof. Robert L. Brown makes a strong case for the pay-as-you-go principle in financing social security systems. He argues that a fully-funded social security scheme is no more financially secure than a paygo scheme. Both depend on the ability of the economy to create and transfer wealth. As far as social security is concerned, the funding mechanism is irrelevant.

In his essay, Brown quotes from *The Economics of the Welfare State* by Nicholas Barr: "The widely held (but false) view that funded schemes are inherently 'safer' than paygo is an example of the fallacy of composition.* For individuals, the economic function of a pension scheme is to transfer consumption over time. But, ruling out the case where current output is stored in holes in people's gardens, this is not possible for society as a whole; the consumption of pensioners as a group is produced by the next generation of workers.

"From an aggregate viewpoint, the economic function of pension schemes is to divide total production between workers and pensioners, i.e. to reduce the consumption of workers so that sufficient output remains for pensioners. Once this point is understood it becomes clear why paygo and funded schemes, which are both simply ways of dividing output between workers and pensioners, should not fare very differently in the face of demographic change."

Another interesting angle is provided in the essay, "Can the Latin American Experience Teach Us Something about Privatised Pensions with Individual Accounts?", published in early 2002 by Dr. Tapen Sinha, who writes:

"In economic terms, there is no fundamental difference between a tax transfer pay-as-you-go social security scheme and a bond transfer, pay-as-you-go social security scheme. In a bond-transfer scheme, the bond issue posits an illusion of asset-creation. But, the sole purpose of the bonds is to engineer a transfer payment to the retirees. In a practical sense, benefits of the current retirees come from the contributions of current workers.

"To understand the equivalence, it is important to remember that a government bond is simply a promise by the government to make a payment in the future. A government promise to make a payment, to pay off a bond is not fundamentally different from a government promise to make a payment for social security benefits.

"If the government requires you to buy bonds and promises you future payments to retire the bonds, then it is not doing anything essentially different from requiring you to pay taxes and promising you a future transfer payment."

* The fallacy of composition is to assume that, if something is true for an individual, it must also be true for an aggregate of individuals. For instance: If I stand on my seat in the theatre I will get a better view; but if everybody does the same, nobody will have a better view.

Sources:

Robert L. Brown, Professor of Statistics and Actuarial Science at the University of Waterloo in Canada, has been president of both the Canadian Institute of Actuaries and the Society of Actuaries. In 1994, he won the third SCOR International Actuarial Prize for his essay, "Paygo Funding and Intergenerational Equity", which was published under the same title in the *Transactions of the Society of Actuaries*, Vol. 47, 1995. It is also available on the SOA web site at: http://www.soa.org/library/tsa/1990-95/TSA95V4722.pdf

The Economics of the Welfare State by Nicholas Barr was published by Stanford University Press in 1987.

Dr. Tapen Sinha is Professor of Risk Management & Insurance at Instituto Technologico Autonomo de Mexico, Mexico City, and also a professor at the School of Business, University of Nottingham, England. The essay cited above was presented at a Society of Actuaries conference, and can be found on the SOA web site at: http://www.soa.org/SECTIONS/RIDFC/CLAETUSAPPWIA.pdf

Serious problems

Exactly what all this means for the pensions of the future is a mystery to which no one appears to have a satisfactory answer. But it is already apparent that the new system is burdened with a number of serious problems.

For one thing, it is vastly more complex and difficult to understand than its predecessor. It is also much more costly to administer: A special national agency had to be established just to handle the traffic in mutual funds. One indication of the system's complexity is that its introduction was delayed by several years due to difficulties in developing an adequate computer system. Whether that problem has been solved remains to be seen, but large sums of tax money have already been expended for that purpose.

One thing that no computer system will ever be able to do is to predict future retirement benefits. Although the amounts of contributions are clearly defined, the benefits to be paid are not. This is due especially to fluctuations in the value of the mutual funds in which citizens are required to invest. Those who choose more wisely or more luckily will receive higher pensions than those whose choices are not so fortunate – even if their circumstances are identical.

Thus far, the vast majority of those involved have been losers. Since the funds are tied to the stock market, the recent crash has resulted in widespread losses, some much greater than others. Once again, people are learning the hard way that the stock market can go down as well as up.

Defenders of the system have offered reassurance that the stock market will rise again and, with it, the value of market-related funds. What they have not done is to offer any solace to those who have exercised the poor judgement to reach retirement age at a time when the value of their pension funds has declined. They will have to live with the financial consequences of that unfortunate timing for the rest of their lives.

Even if a positive result could be guaranteed (an impossibility, as noted) the question remains as to how many Swedes really want to devote time and effort to figuring out which of nearly 700 mutual funds to invest in. The largest single category (86% in 2002) consists of those who choose not to make any choice; their credits are invested by default in the state-operated fund, which has been one of the less dreadful performers to date.

Faith in stocks

In general, the system is based on faith in the stock market's ability to generate higher investment returns than the economy as a whole. It is a faith that appears to be highly exaggerated, as indicated by the following summary of the relevant trends during the 20th century:

"Between 1920-1929, the value of stocks in the United States increased by over 400 percent. Then came the great crash of 1929, followed by a modest recovery until 1936. But from that year until 1949, stock values declined. True, the level in 1949 was twice that of 1920; but that doubling of value happened to be exactly the same amount as the U.S. Gross Domestic Product (GDP) increased during the same period.

"The stock market climbed again during the period from 1950-1960. Then followed fifteen years of slow decline. In 1979, the value of the stock market was twice that of 1950 – which was, again, the same amount that GDP had increased during the same period.

"From 1980 onward, the stock market climbed straight toward heaven for what seemed likely to be all eternity. A sobering decline has since occurred and, if history repeats itself, it is more probable that the stock market will fail to return to its previous heights than that it will experience a new long-term

Comparison: Old vs. New Pension System

	Old	*New*
What is defined	Benefits	Contributions
Predictable benefits	Yes	No
Typical pension as % of earnings	60+%	35-45%
Social security for the individual	High	Low
Ease of understanding	High	Low
Complexity	Low	Very High
Administrative costs	0.5%	Many times higher
Vulnerability to market fluctuations	Low	High
Investments primarily in	Govt. securities	Stock market
Economic power & control	Public	Private
Changes made by	Parliament	Built-in formulas
Public acceptance	High	Low

upswing." (Translated from Swedish text of Sten Ljunggren, "Veckans diagram 10" in *Etc*. magazine at: www.etc.se)

The logic of the new pension system also ignores the most fundamental rule for playing the stock market: Never invest more than you can afford to lose. For the vast majority of future pensioners, that amount is nil.

It should also be noted that not even the "guaranteed portion" of the new pension is guaranteed. It may decline in value, since the formula with which it is calculated is partially based on the performance of the mutual-fund portion.

Transfer of power

In effect, what the new system does is to transfer a large portion of economic power from society as a whole to special interests, including banks, insurance companies, mutual funds and other financial institutions.

Further, and in contrast to the old system, there has been a large transfer of capital out of Sweden as pension funds invest in foreign stocks. This hardly contributes to the stability and development of the Swedish economy, to which the entire pension system is supposed to be linked.

For a large majority of citizens, the net result will almost certainly be a lower pension than would have been the case if the old system had simply been adjusted. In addition, there is a serious problem of social justice: Individuals who have worked equally long and hard will receive widely varying pensions, depending on the luck of the mutual-fund draw.

All of this has been justified by the quest for automatic financial stability. But the fact is that all financial systems require adjustments over time. The goal of automatic long-term stability is exceedingly elusive – the pension-planning equivalent of a perpetual-motion machine. The unlikelihood of ever achieving that goal makes the subordination of the system's social function all the more indefensible.

In short, the deficiencies of the new pension system are so profound that the question arises as to why it was ever adopted. The answer is probably to be found in the secretive, undemocratic process by which it was constructed and rushed into law.

The Late, Great Institution of the Public Inquiry

A fundamental feature of the Swedish general-welfare society during its formative period was the use of thorough public inquiries, whose history dates back to pre-parliamentary days. Every reform and all proposed legislation was grounded in a lengthy public inquiry, often carried out in stages.

The first stage was often a study of practical matters, followed by a non-partisan parliamentary review, and sometimes concluding with a political commission whose task was to prepare the implementation of the proposed law or reform.

At each stage, great care was taken to solicit comments and suggestions from government agencies with the relevant expertise, political parties and all organizations with an interest in the proposal. The purpose was to ensure that all relevant issues were analysed and discussed from every possible angle prior to final decision. In this way, technical and practical matters were thoroughly illuminated in the political arena, and members of parliament could become well-informed about important matters on which they were to decide.

The ATP reform provides a good example of this procedure. The first public inquiry into pension reform was commissioned by the government in 1935. It was a one-man inquiry by the chief insurance inspector at the time, O.A. Åkesson, who submitted several proposals in the mid-1950s, which were then discussed with customary thoroughness. This was followed by a political commission, led by government official Per Eckerberg, which presented its final recommendations in 1958.

The Eckerberg commission's most significant contribution was to raise the pension ceiling, which had the effect of greatly expanding the range of eligible workers. This led to strong public support for the ATP system – support that was much broader than suggested by the narrow margin of victory in the referendum that preceded adoption of ATP in 1960.

When Sweden's economic policy was shifted in a neo-liberal direction during the 1980s,, the institution of careful public inquiries was bypassed. Examples of major decisions that were rushed through without the traditional process of review and consideration are the currency deregulation of the mid-1980s and the tax reform of 1990-91. The Social Democratic government's revolutionary decision to apply for membership in the European Union was presented as a footnote to a budget proposal in 1989. The recent pension reform is yet another case in point.

These and other far-reaching changes were implemented out of public view by a small coterie of politicians.

As with all fundamental issues in Sweden, the controlling power over pension reform was held by the Social Democratic Party (SDP) which has dominated national politics for more than sixty years. Since the assassination of Olof Palme in 1986, the SDP has undergone a transformation from a grassroots movement serving the interests of lower- and middle-income groups, to an increasingly autocratic apparatus dominated by a political elite (see "*The Price of Everything*" at www.nnn.se.

That transformation is now more or less complete, and the pension reform reflects the autocratic methods that the SDP leadership has now established as praxis.

This can be seen clearly in the fate of the "consultation process" that preceded the adoption of the new pension system. In accordance with SDP tradition, the party faithful were invited to study and debate alternative pro-

posals for pension reform. An overwhelming majority of the 15,000 active members who participated in this process recommended that the old ATP system be retained, adjusted and further developed.

That was not the right answer. So the SDP leadership chose to misinterpret it and, instead, to conduct closed-door negotiations with representatives of four other political parties. The proposal that emerged from this secretive and hasty process – lacking any significant input of available expertise – was submitted for a review that was scandalously brief by Swedish standards: The members of parliament and other interested parties were granted a mere six weeks to study and comment upon an extremely complex technical document of some 1000 pages' length.

Meanwhile, leading lights of the SDP embarked on a public relations campaign to soothe the mounting anxiety and outrage of the party faithful with an account of the proposed new system that was either remarkably misinformed or deliberately misleading.

In the ensuing bewilderment and confusion, the SDP and its centre-right collaborators were able to ram the reform through the parliament with a large majority. It is doubtful that more than a handful of the MPs who gave their consent had any real idea of what they were voting for.

Brave new democracy

That is what democracy looks like in the brave new world of Sweden, for a fundamental issue that will directly affect the life of every citizen who reaches retirement age in the decades ahead.

It is a style of democracy and an approach to pension reform that corresponds quite well with similar trends in other countries. The Social Security system of the United States, in many ways similar to the abandoned Swedish system, has long been under attack by reactionary forces that have never forgiven Franklin D. Roosevelt for introducing such an element of "socialism" into the American Way of Life.

Wild, undocumented claims of Social Security's impending collapse have been a standard feature of U.S. politics for decades, and experiments in other countries are often cited as better alternatives. The market-oriented pension system of dictator Pinochet's Chile was frequently served up as a suitable model – until it sank in the wake of the market crisis that afflicted the Orient in the late 1990s.

A similar campaign was conducted against Sweden's recently abandoned ATP system since its inception in 1960. The difference is that the Social Security system of the United States has, thus far, survived the propaganda assault by powerful special interests.

Now, it is the Swedish model of pension reform that is being touted as the best bet for the future. Some countries of Western Europe and the former Soviet bloc have been so effectively indoctrinated that they have modelled their own pension reforms on the new Swedish model. These include Latvia, Poland, Russia, Croatia and Mongolia – societies that differ in many significant respects from each other and from Sweden.

But they do have one thing in common: The new Swedish pension system is very likely to have very unpleasant consequences for all of them, and especially for their most financially vulnerable citizens.

Financial and Inter-generational Balance?

An introduction to how the new Swedish pension system manages conflicting ambitions

by Ole Settergren

> *"The most serious weakness in the scheme is that the return on the accounts reflects the return in average wages, whereas the underlying return from PAYG is the growth in the wage bill."*
>
> The Economist February 16:th-22nd 2002, commenting the new Swedish pension plan

The new Swedish pay-as-you-go pension system has been designed to be financially stable, i.e. regardless of demographic or economic development it will be able to finance its obligations with a fixed contribution rate and fixed rules for calculating benefits. This type of financial stability inevitably entails a risk that the value of pensions will vary over time. To minimise this variability, while at the same time securing the financial stability of the system, it has indexing rules that work asymmetrically.

The aim of a stable pension level is attempted by basing the indexing of the systems liability on the growth in average income. As the growth in average income normally will deviate from the systems internal rate of return this index implies that assets may grow faster than liabilities, or vice versa. If and when liabilities should exceed assets, the basis for indexation is automatically switched to an approximation of the system's internal rate of return, thus automatically adjusting pension levels as well. The pension level is automatically re-established, as is growth in average income as the basis of indexation, as soon as this is possible without undermining the financial balance of the system. Only historic transactions are used to calculate the liability and the assets.

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1 Introduction

Faced by largely the same demographic challenges as other OECD countries, Sweden opted in 1992/94 for a radical reform of its national old-age pension system.[1] Most of the legislation on the new system was passed in 1998. Parliament adopted the final legislation, providing for *the automatic balance mechanism*, in May 2001.

Financially, three key principles have guided the decade of research and decision-making on the reform:

- For every krona paid in contribution to the system by or for an individual, that individual should receive the exact same amount of pension credit – i.e., no pension credit without a corresponding contribution.
- The financing of pension payments should be *guaranteed* by a fixed contribution rate.
- The average pension in relation to average income (here referred to as the pension level) in the new system should equal the corresponding ratio in the old system if it would have been retained in the following scenario: an average working life time of 40 years, a growth in average income of 2 percent and life expectancy is the one measured 1994. The pension level in the old system is about 50 percent, while the replacement rate is about 60 percent.

This paper presents a non-technical explanation of the rules that are intended to ensure the financial stability of the system while also optimising its social-welfare effects. Section 2 briefly describes the reform. Section 3 serves as a general background to the financial and inter-generational problems that the automatic balance mechanism is designed to manage. Financial aspects of the new system are discussed in Sections 4–6. Specifically the paper aims to refute the assertion made by the Economist. The claim that the underlying return from pay-as-you-go pension schemes is the growth in the wage bill, is a widely spread misconception among economists. From an academic point of view I believe that one of the important results of the Swedish pension reform is that it has identified the (true) internal rate of return in this type of pension plans. This has made it possible to design the system so that it is automatically financially stable. Further, and perhaps more important, it has made it possible to disclose the pension scheme by means of a more or less conventional financial statement and balance sheet, calculated entirely without projections.

2 Pension generics

Traditionally old-age pension systems are categorised into four generic types according to degree of funding, and the distribution of risks between insurer and insured. The risks can be summarized to be the risk that the growth of system resources will be insufficient to meet expected benefits (economic risk) and the risk that mortality will be less than expected (mortality or actuarial risk). In theory the losses (gains) from economic and mortality development will either rest with the insurer or the insured. In the case of national pension systems the economic and actuarial risks are of such magnitude that there is no possibility of insuring against them. In these systems actuarial and economic risks are uninsurable. Their distribution will be within the insured collective, and concern when during the life cycle an insured will be exposed; when contributing to or benefiting from the system. The four generic types that follow from the criteria of funding and risk distribution are illustrated in Figure 1. The figure also indicates the directions of the Swedish reform.

Degree of Funding

Systems with funded assets equal to or greater than the pension liability can be considered fully funded. Fully funded systems are repre-

sented by quadrants II and IV in Figure 1. Pay-as-you-go systems have zero or very limited funded assets in relation to pension liability; in Figure 1 these are represented by quadrants I and III. The fund of a pay-as-you-go system can, if it is of any importance, be regarded as demographic and economic *buffer fund*. The Swedish pay-as-you-go system, both the old and the new, have a buffer fund.[2]

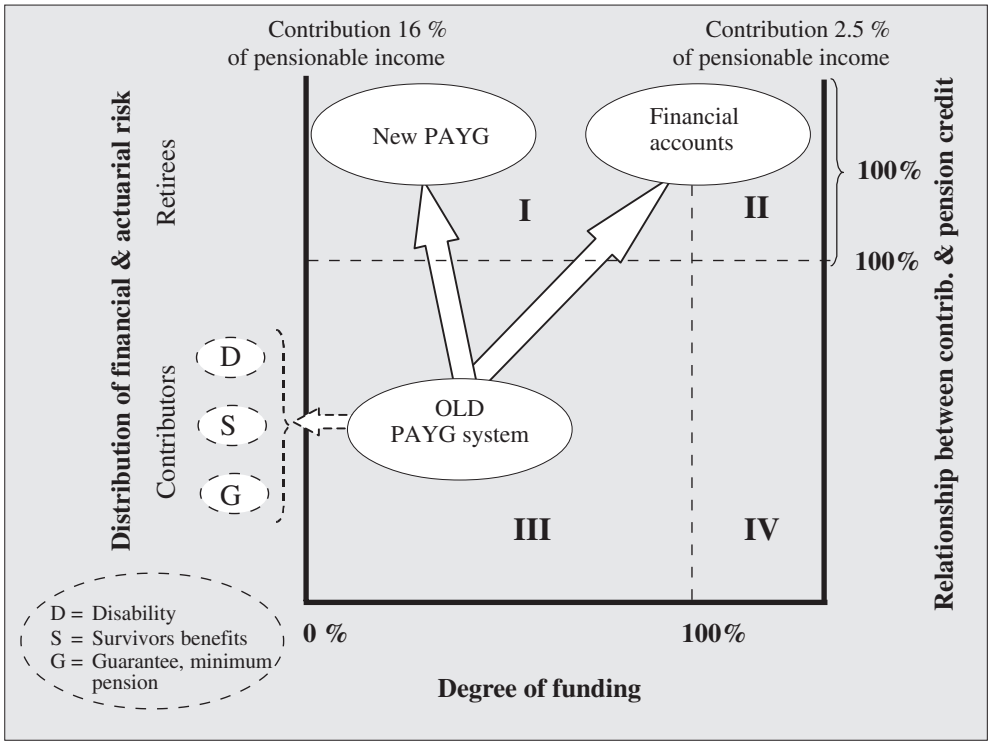
Distribution of Risks Between Insurer and Insured, Between Contributors and Retirees

In a *defined-contribution* pension plan the economic and actuarial risk is, in principle, carried by the insured, rather than the insurer. In the context of a national pension system this translates to a risk of lower than expected benefits for retirees. Note that, depending on the design of the system, this may imply also lower than expected benefits for those contributing to the system. Defined-contribution systems have traditionally been associated with fully funded schemes. In Figure 1 defined-contribution schemes are represented by quadrants I and II. It may be argued that quadrant I does not represent a genuine defined-contribution system, largely on the ground that the pension liability is not (fully) backed by funded assets and hence the return on contributions will normally differ from the market return on capital. To distinguish between defined-contribution systems that are fully funded and those that are financed on a pay-as-you-go basis, the latter are often called *Notional Defined Contribution (NDC)* systems.

In defined-benefit plans the financial and actuarial risk should, in principle, be carried by the insurer. In the case of public pension systems that means that the contributors, or taxpayers carries those risks. Typically such systems define the benefit in terms of a percentage of final or late-career salary. Defined-benefit schemes may be either pay-as-you-go (III) or fully funded (IV). In a defined-benefit scheme, the relationship between contributions and pension credit can be zero, as in a flat-rate pension system, or 100 percent as in a so-called career average scheme. National pension schemes have generally been defined-benefit and financed more or less entirely on a pay-as-you-go basis. Schemes designed in this manner are found in quadrant III of Figure 1. In principle a defined-benefit system assume uninsurable risks by altering the contribution rate. In practice, however, public defined-benefit systems have been known to manage the effects from uninsurable risks also by adjusting the value of accrued pension credits and pensions. Since financially warranted adjustments in government run defined-benefit schemes *can* be made either by changing the contribution rate or by changing the value of pensions, it is more flexible than a defined-contribution scheme.

The additional, right hand, axis in Figure 1 illustrates the meaning that the defined-contribution label has had in the Swedish pension reform debate. Defined contribution has simply meant that the for every krona paid in contribution to the system by or on behalf of an individual, that individual should receive the exact same amount of pension credit, in kronor, and no pension credit without a corresponding contribution. However such a system is not as innocent as it may sound. It must, to be logically consistent, assume uninsurable risk by adjusting the pension level, i.e. it must also comply with the stricter economic definition on the left hand axis. As the accumulation of pension credits in a defined-contribution plan is a function of contributions, varying the contribution rate is not a viable response to the financial effects from, for example, increases in life expectancy or a low return on assets. If the contribution rate were to be increased in response to such developments, and if the cause of the deficit in the first place continues, the deficit will become even larger than at the outset. [3]

Figure 1. Four Generic Types of Pension Systems and the Direction of the Swedish Reform



3 The Direction of Swedish Pension Reform

"Critics of the Swedish system say that the reform is as virtual as the accounts are notional. After all, the contributions that are supposed to go into the accounts are in practice paying for the benefits of today's pensioners."

The Economist, February 16:th-22nd 2002

As is clear from Figure 1, Sweden has moved from a defined-benefit system to two types of defined-contribution systems, a fully funded and a pay-as-you-go (NDC) complemented by a guarantee (minimum) pension benefit. The guarantee pension replaces the flat rate component of the old system and it is financed by general tax revenue. Also the disability and survivors benefits that were an integrated part of the old system have been separated from the pension system and are now financed by general taxes. These benefits will not be addressed to any extent in this paper.

In the new income related system, 14 percent of contributions (2.5/18.5) will go into individual financial accounts (fully funded), while the remaining 86 percent (16/18.5) will be channelled into the new NDC pay-as-you-go system. This paper will only discuss financial aspects of the pay-as-you-go system.

An amount corresponding to the 16 percent of annual pensionable income[4] is paid by or on behalf of the individual to the systems buffer fund. Consequently 16 percent of each individuals annual pensionable income, will be credited yearly his or hers notional account. The default "interest" credited the notional account, is the increase in average income as measured by an income index. This

indexation will be interrupted if the automatic balance mechanism is triggered. In that case the interest credited the notional account will be an approximation of the systems internal rate of return, as explained in Section 5. Also pensions receive "an interest". The default indexation of pensions is by the growth in the income index minus 1.6 percent. Pensions will thus grow by the nominal increase (or decrease) in nominal average wage minus 1.6 percent.[5] If the balance mechanism is triggered pensions will be indexed by the approximation of the systems internal rate of return minus 1.6 percent.

The reduction by 1.6 percent is explained by the fact that when the notional capital is converted to an annuity an interest rate of 1.6 percent is used. The motive for the interest rate is to achieve a more even distribution of the purchasing power of the benefit during retirement. The imputed interest rate and its subsequent reduction of the yearly indexation implies that if the nominal average income grows by exactly 1.6 percent *more* than the inflation pensions will increase in line with inflation. If nominal average income grows by more than 1.6 percent more than inflation, real pensions will grow by the margin of real income growth and 1.6 percent. If the nominal average income grows by less than 1.6 percent more than inflation real pensions will decrease by the shortfall of real income growth and 1.6 percent.

There is no formal retirement age in the new system.[6] Pension credits will always be earned and added to the notional (as well as financial) accounts if the individual has pensionable income regardless of his or her age and irrespective of weather pension has begun to be drawn. Pension can be drawn from age 61 and upward, without upper age limit. Pension benefits are paid by withdrawals from the buffer fund.

Pension from the pay-as-you-go system is calculated at the duration of retirement by dividing the notional-account balance by a so-called annuity divisor. The annuity divisor reflects remaining unisex life expectancy at retirement and the stated interests rate of 1.6 percent. A specific annuity divisor is thus determined for each annual cohort. If life expectancy increases the same notional capital will produce a successively lower yearly pension for younger cohorts, if conversion to an annuity (pension) is made at the same age. To maintain a fixed pension level when life expectancy increases, the withdrawal of pensions must on average every year be made at a slightly higher age. In table 1 the projected (2003) effects on either pension levels or pension age is presented.

Both the fully funded and the pay-as-you-go parts of the national Swedish income related pension plan follow the risk distribution that is characteristic of a defined-contribution plan. How is further explained in sections 3-6.

Guarantee pension

Persons with no or a low income related pension are entitled to a so-called guarantee pension. The guarantee level in the system is expressed in real, inflation adjusted, terms. This implies that if the economic or mortality risks force the value of the income related pension to decrease the share of guarantee pension for retirees with relatively low income related pension will increase. The design of the guarantee is such that a reduction of the real value of the income related pension by 1 percent will increase the guarantee by 1 percent for those with the lowest income related pensions and by 48 percent by those in an intermediary segment. The top segment will have their income related pension reduced by 1 percent. Thus the design of the guarantee pension shifts the distribution of risks "back" to the taxpayers and gives the low income segment a defined benefit type of old-age pension insurance. The interaction between the income related pension scheme, which

Table 1. Effect of projected increase in life expectancy on pension levels or pension age

Birth cohort born	*reaches 65 year*	*Annuitization Divisor at age 65, projection*	*Effect of changed life expectancy on pension*	*Retirement age needed to neutralize effect on pension from increase in life expectancy*	*Remaining life expectancy at age 65*
1940	2005	15.7	0 percent	(age 65)	18 years and 6 m.
1945	2010	16.1	-2 percent	+ 4 months	+ 6 months
1950	2015	16.4	-4 percent	+ 7 months	+ 11 months
1955	2020	16.7	-6 percent	+ 10 months	+ 16 months
1960	2025	17.0	-7 percent	+ 13 months	+ 20 months
1965	2030	17.2	-9 percent	+ 16 months	+ 24 months
1970	2035	17.4	-10 percent	+ 18 months	+ 28 months
1975	2040	17.7	-11 percent	+ 21 months	+ 32 months
1980	2045	17.9	-12 percent	+ 23 months	+ 35 months
1985	2050	18.0	-13 percent	+ 25 months	+ 38 months
1990	2055	18.2	-13 percent	+ 26 months	+ 41 months

Source: Riksförsäkringsverket, The Swedish Pension System, Annual Report 2002.

places all risks on the benefit, and the guaranteed pension, which places all risks on the taxpayers, implies that the more scarce the resources of the society are, relatively more will be directed towards those retirees with low income. The interaction also implies that the tax content in the contribution may increase if growth is slow or if life expectancy increases. However since the guarantee pension is price indexed its importance is expected to decline as real incomes are expected to grow.

4 Inter-generational balance – an attempted definition

Financial balance or stability can be defined as the systems ability to finance its obligation with a fixed contribution rate and with assets in the buffer fund. Inter-generational balance, or fairness is related to the ability of the system to finance its obligations with a fixed contribution rate but adds the aspect of the pension level.

One aim of an income related old-age pension insurance is to compensate individuals (or households) economically for the loss of income generating capacity due to high age. With this aim the growth in average income is the relevant discount factor when comparing how well the system performs in this task for different generations. Inter-generational balance or fairness can then be defined as having a constant ratio of present value of pension benefits over present value of contributions for all birth cohorts, using the growth in average income as discount factor. Inter-generational fairness can be expressed as the expected or ex post standard deviation in the "cohort benefit/contribution ratio". Maximum inter-generational fairness is when the benefit/contribution ratio is constant for all a birth cohorts, i.e. a zero standard deviation.

A (notional) defined contribution system, which index notional pension capital and pensions with the growth in average income, produces a very stable cohort benefit/contribution ratio, i.e. a high degree of inter-generational fairness. It will also have the potential to produce a rather stable ratio of average pension over average income; this ratio is referred to below as *the pension level*.[7] Mainly for these two reasons Swedish reformers

have decided that the default indexation of notional pension capital should be the growth in average income. The default indexation of pensions is the same measure minus the interest rate 1.6 percent used when converting the notional capital to an annuity. The reduction of 1.6 percent implies that the pensions of each cohort will grow 1.6 percent slower than average income. However, since younger cohorts will enter the group of retirees each year, the average pension for all pensioners as a collective will grow at about the same rate as average income when the growth in average income is used as the basis for indexation.

Uninsurable risks, i.e. economic[8] and actuarial risks, imply that pension systems risk to yield significant and unwarranted inter-generational transfers of income. The downside of uninsurable risks is that the contribution rate may be increased while the same pension benefit is maintained, or that the value of pensions may be reduced while the contribution rate is left unchanged. In either case the pension system risk to cause significant and unwarranted standard deviation in the cohort benefit/contribution ratio, cause inter-generational transfers of income. The down side of the main uninsurable risk in a fully funded scheme is the risk of a return on capital lower than required to keep the average pension in percent of the average income of those working fixed. In pay-as-you-go pension systems the down side of the main uninsurable risk is a development of the contribution base of the system that is slower than the growth in average income. The contribution base may grow slower than average income if the population in working ages declines or if labour force participation declines. Changes in life expectancy may also cause standard deviation in the cohort benefit contribution ratio.

The existence of uninsurable risks thus *may* make it impossible to achieve the dual goal – financial and inter-generational balance – of the Swedish pay-as-you-go system; indexing the pension liability by the growth in average income and maintaining a fixed contribution rate. In other words it may be impossible to achieve a zero standard deviation in the cohort benefit/contribution ratio.

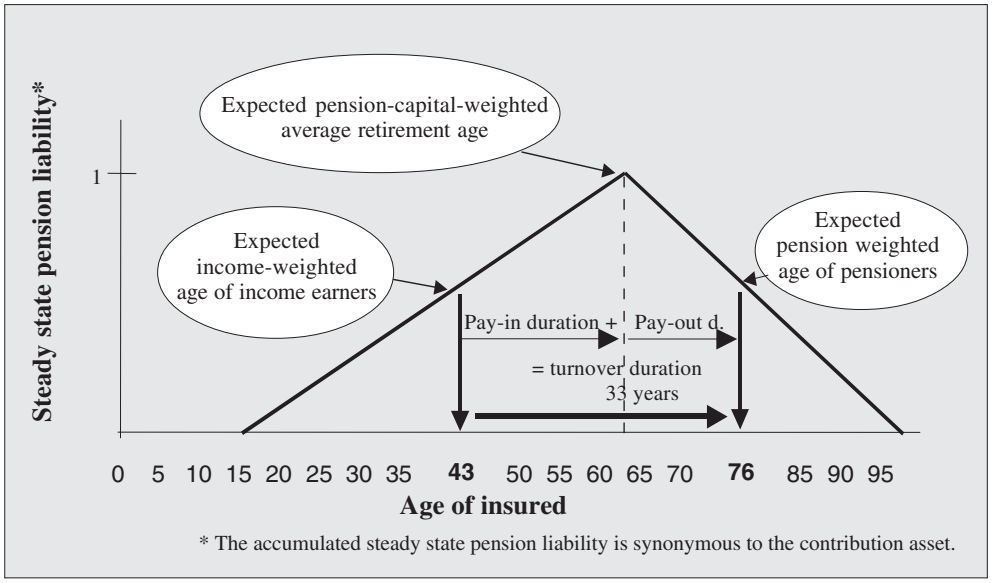
Uninsurable risks are present whether a pensioninsurance scheme is organised as a private or public system and whether it is funded or not and weather it is defined-contribution or defined-benefit. Only the sources, character, magnitude and distribution of these risks depend on the rules of the insurance and on whether it is private or public, funded or unfunded. Arguably a public pension system should be designed to reduce to a minimum the potential impact of uninsurable risks. With this perspective it should be designed to minimize unwarranted inter-generational transfers of income. This is the aim of the combined design: fixed contribution rate, buffer fund, default indexation by growth in average wage automatically interrupted by the balance mechanism if necessary to secure financial stability.

5 Assets and Liabilities

As Swedish pension reformers had set out to create a (notional) defined-contribution scheme it was necessary to make sure that the system was financially stable. Otherwise it would have been logically inconsistent.[9] The obvious way to secure the financial stability of any economic system is to make sure that its liabilities cannot exceed its assets. This is the way in which fully funded pension systems normally are designed. The main problem with applying this principle to a pay-as-you-go pension system has been the lack of an objective method of valuing its most important asset: that is, its assumed perpetual flow of contributions.

The automatic-balance mechanism incorporates a method for valuing contributions to a pay-as-you-go system. It makes it possible

Figure 2. Illustration of the Turnover Duration Concept



to compare assets and liabilities of such systems. Both the assets and the liabilities are calculated without projections. Both the calculation of the contribution asset and the pension liability follows from the Law Sec 1, Art. 5 a-c on an Earnings-related Old Age pension and the regulation (2002:780) on calculation of the balance ratio.The determinants of assets and liabilities are briefly explained below.

The Contribution Asset[10]

The value of contributions to a pay-as-you-go pension system depends on the degree to which the contributions can finance, i.e. amortise, the pension liability. The capacity of a given amount of contribution to amortize the pension liability depends in turn on the age-related income and mortality patterns of those covered by the system.[11]

Figure 2 illustrates the age-related distribution of the pension liability in the Swedish system that would accrue with the present income and mortality patterns, assuming zero population growth. The expected pension-weighted average age at which pensions are disbursed is 76. The expected income-weighted average age at which contribution is paid is 43. What can be called the *expected turnover duration* of the system is then approximately 33 years (76–43). The expected turnover duration is the sum of the *expected pay-in duration* and the *expected pay-out duration*.[12] In this particular case the turnover duration implies that contributions, in a steady state defined by the income and mortality patterns the year of measurement, would perfectly match pension payments while the pension liability is exactly 33 times contributions.

Contributions multiplied by expected turnover duration indicate how large a pension liability can be pay-as-you-go financed given the income and mortality patterns prevailing in the period measured. Accordingly, the expected turnover duration can be used in determining the value of the contribution flow to a pay-as-you-go system, or the *contribution asset*.

$$\textit{Contribution asset} = \textit{contributions} \times \textit{expected turnover duration} \quad (1)$$

The contribution asset can also be seen as the present value of a perpetual contribution flow discounted by the inverse of the expected turnover duration (referred to below as turnover duration). The turnover duration is a somewhat complex concept, but calculating it is simple. The method involved resembles that used in determining life expectancy.[13] To my knowledge there has been no previous reference in actuarial or economic literature of either the existence or the importance of expected turnover duration in analysing the financing of pay-as-you-go systems. This paper attempts no thorough explanation of the expected turnover duration measure. [14]

It follows from Eq. 1 that the asset of the pay-as-you-go system will grow with the growth of the contribution base, assuming that the contribution rate is fixed. It also follows from Eq. 1 that growth in the contribution base is not the only factor affecting the return on contributions, contrary to common assumption.[15] Asset growth is also dependent on changes in the age-related income and mortality patterns that determine the capacity of contributions to amortise the pension liability, i.e. turnover duration. Further, the rate of return on the buffer fund, if there is one, should be taken into account in determining the growth in assets of a pay-as-you-go system. The capital market provides a valuation of the buffer fund on a daily basis. Thus, the assets of the pension system are defined and computable.

$$\textit{Total assets} = \textit{contribution asset} + \textit{buffer fund} \quad (2)$$

The Pension Liability

The calculation of the pension liability is as simple as the calculation of the assets. The pension liability (*PL*) can be thought to consist of two parts, the liability to those who have not yet started to draw their pensions (PL_w) and the liability to those who are already receiving pensions (PL_r), thus the nominal pension liability

$$PL = PL_w + PL_r \quad (3)$$

where,

$$PL_w = \sum NPC_i, \textit{ for all individuals } i \quad (4)$$

$$PL_r = \sum P_a \times 12 \times G_a, \textit{ for all age groups } a \quad (5)$$

NPC_i = notional pension capital of individual *i*, (closing balance at year end)

P_a = pension payments (in December) to age group *a*

G_a = life expectancy (in years) for individuals that have reached age *a,* measured yearly[16]

Eq. 4 simply defines the pension liability to "workers" as the sum of the balance of each individual's notional account. Eq. 5 defines the pension liability to retirees as the sum of the products of the pensions payable to each age group times the life expectancy of that age group.

The valuation of the liabilities is an extreme simplification – in essence summing nominal values in the registers of RFV – relative to the normal present value calculation performed in both private and public insurance to measure pension liability. The calculation gives a correct *ex post* valuation of the liability only if the rate at which the liability is indexed coincides with the systems internal rate of return. If this condition could be assumed to prevail at every moment, the automatic balance mechanism would be superfluous.

The rational behind abstaining from making any assumption on how the future indexing of the pension liability relates to the systems internal rate of return is based on two circumstances. The first is that the automatic balance mechanism secures the financial stability of the system without making any bet on how the average income index will relate to

the systems internal rate of return. This since the automatic balance mechanism will, if necessary, switch the indexation of the pension liability to a good approximation of the internal rate of return of the pay-as-you-go system. Thus the simple valuation entails no risks that it will under estimate the size of the pension liability relative to the size of assets.

The second reason is that there are a number of good practical arguments for refraining from trying to project how the average income will relate to the internal rate of return. The accuracy of economic and demographic forecasts are in general poor. Further with projections there is the possibility that political considerations may have an impact on the forecasts. Even if we thought that we could make good long-term forecasts, it might still be rational not to use them. There is a trade-off between a higher degree of sophistication in disclosing the financial position of the system and the real or perceived increased risks of manipulation that follow from projections.[17] In the lack of forecasts and low degree of sophistication the method used for valuing the pension liability and assets resembles traditional accounting, and it has similar strengths and weaknesses.

The need for projections in estimating the present value of the pension liability is eliminated if the system is defined-contribution and if it is assumed that the indexing of the nominal liability is equal to the internal rate of return of the system. Before that assumption is discussed, the components of the internal rate of return will be summarised and commented.

The Components of the Internal Rate of Return

The internal rate of return is the rate at which the pension liability must be indexed to assure that liabilities grow at the same rate as assets. Allowing for some simplifications, the internal rate of return of the pension system is a function of the following four factors: [18]

(a)	+	growth of the contribution base
(b)	+	change in income and/or mortality patterns as measured by the turnover duration
(c)	+	return on the buffer fund
⟶		*rate of return on assets*
(d)	–	impact of changes in life expect ancy on pension liability
⟶		*internal rate of return*

(a) growth of the contribution base

The growth of the contribution base is the major determinant of the internal rate of return. This relationship is obvious, since disbursements in a pay-as-you-go system are entirely or largely financed directly by contribution revenue. If the labour force is reduced because of a decrease in the working-age population or a drop in labour-force participation, contributions will grow more slowly than average income. There will then be a danger that the indexation of the pension liability by the growth in average income will exceed the internal rate of return of the system. If so, pension disbursements will sooner or later exceed the revenues of the system and the buffer fund will risk to be depleted.

(b) change in income and mortality patterns

Changes in income and mortality patterns affect the liquidity of the system. Income pattern is in this context defined by the average income of each age over the average income of all ages, the mortality pattern is simply the life table. If, for example, income patterns change so that a larger share of incomes is earned by older workers this will have the effect of increasing pension payments when those older workers are retired. This increase in pension expenditure is, ceteris paribus, not countered by any increase in contributions. Thus the capacity of a given contribution flow to finance the pension lia-

bility has decreased by the change in income pattern. The relevant age-related income and mortality patterns are measured by the turnover duration. In the example of a larger share of total incomes earned by older workers the turnover duration is shortened. If turnover duration decreases, so does liquidity, and *vice versa*.

(c) return on the buffer fund

The return on the buffer fund naturally affects the rate of return on assets as well as the internal rate of return.[19] The higher the return on the buffer fund, the greater the growth in the assets of the system – and vice versa. In defined-benefit systems the return on buffer-fund assets may have implications for the contribution rate, but normally not for pension levels. In a defined-contribution pay-as-you-go system, the return on buffer fund assets may of course have an impact on the size of pensions, but normally not on the contribution rate. A low rate of return, in relation to the growth of the average wage, implies that the system may not be able to pay pensions that increase in step with the growth in average earnings. A high rate of return entails less such risk and may even provide coverage for "deficits" due to other uninsurable risks.

(d) impact of changes in life expectancy on pension liability

Changes in life expectancy changes the size of the pension liability. This implies that changes in life expectancy will make the internal rate of return differ from the rate of return on assets. In almost all existing public pension schemes, the persistent strong increase in life expectancy is claiming a large share of the return on assets. In defined-benefit schemes this has normally implied higher contribution rates. In a defined-contribution scheme the effect from an increase in life expectancy must in principle force a lower pension level – or a postponement of the retirement age.

The cohort-specific annuity divisors, described in Section 2, absorb about two-thirds[20] of the risk that changes in life expectancy entail for the financial stability of the system. This effect is obtained by a successively higher divisor for every age, i.e. lower pensions if retirement age is not increased. Thus, one-third of the pension liability will still be affected by changes in life expectancy. The financial exposure to changes in life expectancy results from the fact that pensions already granted are not (directly) influenced by changes in life expectancy after an individual has reached 65.

6 The Automatic Balance Mechanism

By default the pensions and the notional pension capital of the Swedish pay-as-you-go pension system is not indexed by its internal rate of return. In response to this potential source of financial instability, the so-called automatic balance mechanism has been developed. The use of the balance mechanism implies that the assets and liabilities of the pay-as-you-go system are to be calculated and disclosed annually, thus providing the pay-as-you-go system with a *balance sheet*. The formula for calculating the assets and liabilities of the system is prescribed by legislation. Aside from the buffer fund, which is valued on the basis of capital-market transactions, the calculation is based exclusively on transactions that are recorded in the pension system. There is no element of forecasting in the calculation. The relationship between assets and liabilities is to be reported annually as a *balance ratio*[21]:

$$\textit{Balance ratio} = \frac{\textit{Contribution asset} + \textit{Buffer fund}}{\textit{Pension liability}} \qquad (6)$$

The balance ratio summarises the effect of all uninsurable risk factors (a)–(d).[22] When the

balance ratio exceeds 1, the system has a surplus in the sense that it is expected to meet its obligation with a margin to spare. In that case the pension liability is less than the assets of the system, the net present value of the system is positive. If the balance ratio is less than 1, the system is in a state of financial imbalance; the pension liability exceeds the assets which are to finance it, the system has a negative net present value. If this imbalance were allowed to persist, the buffer fund would be depleted.

If the balance ratio falls below 1 the automatic balance mechanism is activated. It switches the indexation of pensions and notional pension capital to a new index series, called a *balance index*. The balance index is established by multiplying the income index by the balance ratio. The balance index henceforth increases with the growth in the income index times the balance ratio. When the balance ratio is below unity, pensions and notional pension capital will grow slower than average income.[23] If the balance ratio exceeds 1 *in a period when the balance mechanism is activated,* the indexing of pensions and notional accounts will continue at the rate of growth in average income times the balance ratio. Then the pension liability will be indexed at a rate higher than the growth in average income. No further calculation of the balance index will be made after it re-attains the same level as the income index. The pension liability will then be indexed once again at a rate equal to the change in the income index (average income).

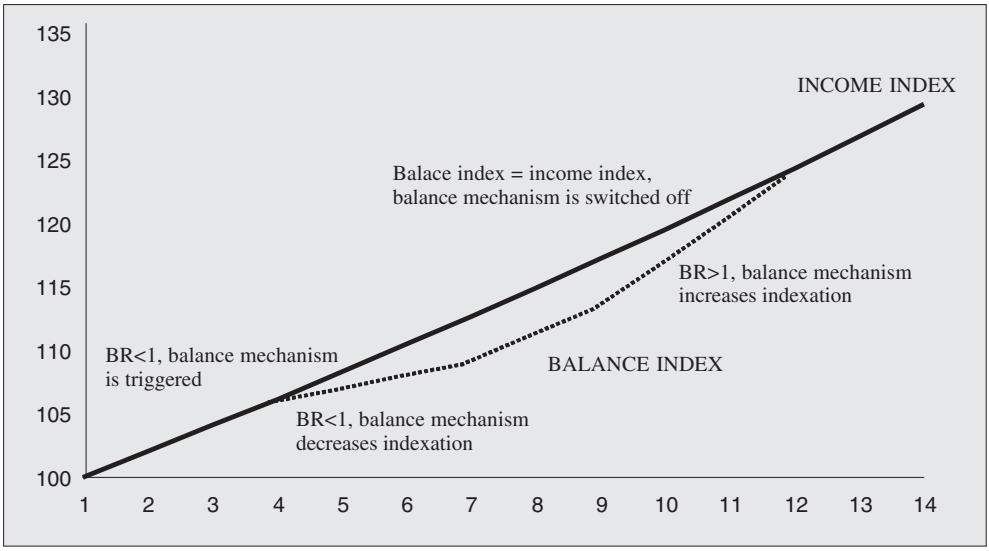
When the balance mechanism is activated and the system starts to index its liability by the balance index, the liability will be "compounded" at an approximation of the internal rate of return of the system. The rate is only approximate, since turnover duration is calculated on the assumption of zero population growth. As long as indexing is done by the balance index, the buffer fund will tend towards zero.[24] To prevent the liability from becoming more than insignificantly larger than assets, i.e. to secure a net present value of ap. zero, the system objective of keeping pensions increases in line with growth in average income is disregarded until the balance ratio permits it to be reinstated. This will cause inter-generational unfairness in the sense defined in section 3, however increased taxes would do the same but place the burden on the active rather than the retirees. As mentioned the guarantee pension system may imply that the burden, partially, is placed with the active generations, partially protecting the pension levels of the poorest retirees. Figure 3 illustrates how balancing works in a scenario where it is first activated and later discontinued.

7 Risk Aversion and Asymmetric Financial Stability

The new Swedish pension system introduces both new principles and methods in the area of public pay-as-you-go pension system. Common to most of these novelties are that they derive from the ambition to create a truly defined contribution, pay-as-you-go pension plan. This is in itself a new animal in the social insurance biotope.

The pension reform promoters have recognized the conflicting ambitions of the system: to achieve both financial and inter-generational balance. While managing its conflicting ambitions the system does not allow for uninsurable risks to be indiscriminately reflected in the indexation or calculation of pensions. These risks can only affect pension levels through their impact on the balance sheet of the system. As the system will accumulate assets in some circumstances, it will be able to sustain indexation exceeding the internal rate of return for some time without endangering the financial stability of the system. Deviations from the objective of the system –

Figure 3. Income index and the balance index



a stable pension level – are thereby reduced while it can hold on to a fixed contribution rate.[25]

The rules of the pension system allow for surpluses to accumulate, but exclude (substantial) deficits.[26] Thus the system allows for a positive net present value but excludes a negative net present value. In this sense the design is asymmetric. A symmetrically designed pension system, one that always ensures a zero net present value and a balance ratio of unity, is irrational if the insured have any degree of risk aversion as regards their pension level. The insured are risk avert if they assign a higher negative value to a decrease in their average pension, than they would assign a positive value to a corresponding increase in their pension. If the insured are risk avert, their economic well-being is enhanced by the asymmetric design that has been chosen. Considering that a large share of individuals' total assets is invested in the national pay-as-you-go pension system, the value of the risk reduction produced by the combination of average-income indexing and automatic balancing may be considerable.

The risk reduction achieved by the asymmetric design of the pay-as-you-go system has been made possible by determining the time preference of the system in regard to contributions, as measured by the *expected turnover duration*. It has thereby been possible to value contributions and to generate balance statements for the system. The balance mechanism provides for what might be called actuarial accounting, a form of double entry bookkeeping for a pay as-you-go pension system. This accounting makes the system transparent, probably more so than is the case for any other existing pay-as-you-go pension system. Please check the validity of this claim by yourself. The annual report of the Swedish pensions system is available at www.rfv.se selcect "Publications" then subtitle "In English" and in Swedish at www.rfv.se/english/index.htm

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(1999) with the assistance of Olsson, H. and Sundén, D. "Automatisk balansering av ålderspensionssystemet – regler för avsteg från inkomstindexeringen inom ålderspensionssystemet", Ds 1999:43. Socialdepartementet, Stockholm.

(1998) Kapitel 16 Inkomstindex, "Regeringens proposition 1997/98:151 Inkomstgrundad ålderspension, m.m.", Riksdagen, Stockholm.

(1997) with the assistance of Olsson, H. Kapitel 5 Inkomstindex "Inkomstgrundad ålderspension – finansiella frågor m.m.", Ds 1997:67. Socialdepartementet, Stockholm.

Notes

[1] The principal features of the new system were published in 1992. The Riksdag decided in 1994 that legislation should be drafted in accordance with the principles proposed in 1992. In 1998 the greater part of the legislation was adopted. The legislative proposals have consistently been supported by some 85 percent of the members of the Riksdag.

[2] As per 31December 2002 the Swedish buffer fund holds assets of SEK 488 billion. This represents some 20 percent of GDP, or 3.2 years of pension payments, see The Swedish Pension Annual Report 2002.

[3] Some analysts have considered the NDC "formula" to be a redressing of a career average defined benefit formula, see for example Cichon (1999) and Disney (1999). This view fails to recognise that uninsurable risks in a defined contribution plan should be, and in the Swedish NDC system is, assumed by the pension level, rather than by the contribution rate.

[4] Pensionable income are incomes (including social insurance payments other than pensions) up to 8.07 income-related base amounts, 330 063 SEK (2003). The total contribution base to the pension system consists to about 83 percent of wages and salaries; some 17 percent is pensionable incomes from social insurance, for example unemployment or sickness insurance and non-income contribution base such as pension credits to parents of small children. Government annually finances, by general revenue, the pension credits that derive from the non-wage contribution base.

[5] "minus" is not entirely correct, pensions year *t* are indexed by: [income index(t)/income index(t-1)]/ 1.016

[6] However, guarantee pension benefit is only paid from age 65.

[7] In a NDC indexed by the growth in average wage variations in the ratio of average pension over average income are mainly attributable to variations in life expectancy. Such variations do not cause inter-generational transfers of income as defined above. Further policy makers in Sweden have considered that a higher life expectancy imply also a longer time with income generating capacity. Thus an increase in life expectancy should, in principle, lead to a longer work life and thereby keeping both the cohort benefit/contribution ratio and the "pension level" fixed.

[8] Often the value of assets is subject both to market and political risks, i.e., risks of changes in legislation that have retroactive effects, see Diamond (1997). Another risk, which in some contexts can be substantial, is that of fraud.

[9] A lively debate has been in progress at least since 1994 on the merits of so-called notional defined-contribution systems (NDC). A major criticism of NDC's has been that they would not be financially stable (Valdés-Prieto 2000, Disney 1999), contrary to the more or less explicit claims of their advocates (Palmer 2000, Fox and Palmer 1999). This criticism of NDC's is unjustified, at least in the special case of the Swedish system. The general outline of the balance mechanism was described in *The legislative history of the Automatic Balance Mechanism* (1997).

[10] The explanation here is kept very short; unfortunately there is yet no detailed explanation in English of the expected turnover duration.

[11] This capacity is also influenced by the population growth rate (labour force growth rate). In the automatic balance mechanism, turnover duration is calculated on the implicit assumption of zero population growth rate. This assumption simplifies the calculation and reduces the volatility of turnover duration and contribution assets. It implies, however, that the turnover duration and thus the contribution asset will be (slightly) overestimated if population growth is negative, and vice versa.

[12] I am indebted to Eric Steedman, an actuary at Watson Wyatt in Stockholm, for the English translation of the expressions used in the Swedish legislation.

[13] See *The legislative history of the Automatic Balance Mechanism* (2001) for the formula for calculating the turnover duration. Possible effects of the rules are described and analysed in that publication (in Swedish).

[14] The concept of turnover duration was presented in Settergren (1999), further developed in Settergren (2000), both in Swedish. Valdés-Prieto (2000) derives most of the "risk" factors of a NDC, all of which either are captured by the turnover duration or the other components of the balance ratio defined by Eq. 6 in Section 5. The article by Valdés-Prieto offers a good background to the problems managed by the automatic balance mechanism.

[15] The standard reference in this context is Paul Samuelson (1958). In the pioneering work of

Samuelson and those following him, for example Aaron (1966) and Buchanan (1968), a static demography and economy are assumed. Economists do not seem to have developed the framework needed to deal with divergence from a steady state in pay-as-you-go or partially funded systems.

[16] It is the "life expectancy" of an average pension amount that is relevant, not the life expectancy of individuals; this is acknowledged in the legislation on the automatic balance mechanism. The pension liability is measured yearly with a three-year moving average of economic "life expectancy".

[17] The disclosure and governing of a public pay-as-you-go system suffers from what economists commonly refer to as an agency problem.

[18] The description disregards the effect that the population growth rate has on turnover duration, and it also ignores inheritance gains and administrative costs.

[19] In a pay-as-you-go system, the return on the buffer fund normally has only a limited effect on the return on total assets, since the buffer fund will normally represent only a small share of total assets. In Sweden, the assets of the buffer fund are presently equivalent to somewhat more than 10 percent of the value of the contribution asset.

[20] About two-thirds of the pension liability in a mature system, in an "OECD-economy and demography" relates to persons who have not yet retired, one-third relate to pensioners.

[21] For purposes of illustration, the figures from The Swedish Pension System Annual report 2002 can be used. Contributions were SEK 163,738 billion and turnover duration was 32.325 years. The resulting contribution asset is SEK 5 293 billion (163,378 x 32.325). The buffer fund is SEK 488 billion. The pension liability is SEK 5,729 billion. This results in a balance ratio rounded of to 1.01 [(5 293 + 488)/5,728]. Thus a "surplus" of assets over liabilities of roughly 1 percent, or SEK 52 billion. The GDP of Sweden year 2002 was approximately SEK 2 300 billion.

[22] Note that fund will be increased (or decreased) by contributions net of pension payments, in a defined-contribution system which indexes with its internal rate of return this increase/decrease will be equal in amount to the increase/decrease in the pension liability from new pension credit net of amortised pension liability.

[23] The interest rate of 1.6 percent used in converting the notional capital to a pension is subtracted when indexing pensions. This implies that the pensions of each cohort will grow 1.6 percent slower than average income even when indexing is performed with the income index. However, since new cohorts will enter the group of retirees each year, the average pension for all pensioners as a collective will grow at about the same rate as average income.

[24] However, if there are long-term strains on the system, such as a long-term population decrease, long-term deficits in the buffer fund can arise. For simulations of effects on the buffer fund when the balance mechanism is activated, see *The legislative history of the Automatic Balance Mechanism* (2000).

[25] There is however an important inefficiency in the system. Pension credits that are earned after the balance mechanism is triggered and thereby entirely or partially unaffected by a slower indexation receive the same faster indexation as all other notional capital and pensions when the balance mechanism strives towards the level of the income index. Technically this inefficiency could have been avoided, at the possible cost of increased complexity of the design.

[26] The government bill 2000/01:70 suggests the possibility of imposing a ceiling on the balance ratio. A committee is at present working on a proposal that will present rules for how a surplus should be established and distributed. Since this kind of positive balancing would still allow a balance ratio above unity, it would not change the general asymmetric design of indexing in the system.

Pension Reform Based on Sound Principles

By Bo Könberg[*]

In this article the author responds to criticism of the pension reform, presented by Jan Hagberg and Ellis Wohlner in their article ”The Market for Social Insecurity”, published in NFT 4/2002. Bo Könberg claims, among other things, that: i) Resistance of the reform has decreased since its introduction and opponents, the Left Party and Green Party, have presented completely various options for the reform. ii) Lifetime earnings principle is more equitable than the old ATP-system. iii) The new scheme offers - at the same life expectancy - lower pension than ATP only if growth is lower than 2 per cent. However, at such low growth the contributions to ATP needed to be significantly increased. iv) The new pension system is based on clear principles, which was not the case with the ATP-system. This article was original written in Swedish and published in NFT, 2003/2, page 115-118.

The main principles of the reformed pension scheme

In January 1994, politicians representing 85 per cent of the electorate succeeded in reaching agreement on an extensive reform of the Swedish public pension system. The new rules have been introduced successively since 1995. The new pension earning rules apply fully to people born after 1953.
The reform does, of course, contain some compromises but is based largely on a number of principles:

* A universal system
* Distinction between old-age pensions and disability pensions
* Lifetime earnings principle (18.5% of earnings)
* Distribution policy supplements, primarily childcare years
* Taxable guarantee pension, not basic pension
* Indexation to wage development (with an advance upon retirement)
* Indexation to average life expectancy (until retirement)
* Flexible retirement from age 61
* Annual information to individuals about their pension
* Part of the contributions (2.5%) go to the premium pension
* Successive implementation
* Automatic balancing (“braking” and “accelerating”)

The reform has been implemented in stages. Most recently, the old basic pensions have been converted into taxable guarantee pensions, which replace the basic pension, the pension supplement and the

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special basic income tax deduction for pensioners.

Critique of the reform

If anything, there is now less opposition to the reform than there was in the summer of 1994 when the decision was taken. The only opponents in the Swedish Parliament today are the Left Party and the Green Party. But their alternatives to the reform are very different. The Left Party would like to see some kind of reformed ATP (national supplementary pension), rather like the system that Jan Hagberg and Ellis Wohlner (H&W) advocate in the Scandinavian Insurance Quarterly (NFT) 4/2002. The Green Party would like to see a system providing an equal basic pension for everyone. The differences between these two alternatives are greater than the differences between each of them and the pension reform.

The Swedish pension reform has, according to H&W, generated a great deal of international interest. They mention that countries like Latvia, Poland, Russia, Croatia and Mongolia are introducing pension reforms in line with the new Swedish model. They could also have included Italy which decided on a similar reform as early as 1995, albeit with very long transitional periods. The changes that have now been decided in Finland will have a similar effect to that of the Swedish reform. Last autumn, the Norwegian Pensions Commission presented two alternatives for reforming the Norwegian ATP system – a basic pension system and the new Swedish model.

The Swedish reform is given positive coverage in a couple of foreign reports presented after H&W published their critical article. The report on Member States' pension systems that was presented to the European Council at the end of March is decidedly positive. In the same month a report was presented at a conference in Brussels on how 12 industrialised countries are expected to manage demographic changes up to 2040. Of the seven countries from mainland Europe that are included, Sweden is expected to fare the best. One reason is our pension reform.

H&W's article contains much criticism of the reform. The changes they themselves say that pensions experts would like to have seen – presumably instead of the reform – are:

1) Indexing to economic growth instead of to consumer prices

2) An increase in normal retirement age

3) An opening for a reduction in pensions in response to demographic changes, as and when necessary.

Instead, H&W say it became "something very different". Is this really the case?

The new system is indexed to wages, unlike ATP which was indexed to prices. Normal retirement age will probably increase as a result of indexation to average life expectancy, thus putting into effect the reduction in the (annual) pension to which the demography development will give rise.

It would appear that the only difference that exists here between the reform and the alternative which H&W advocate is that in the reform adaptation to demography takes place automatically and successively, and not through new political decisions. Such decisions would probably be taken more seldom and therefore with a correspondingly larger adjustment at each step.

Not much of a difference, you might think. No, but the biggest differences do not relate to these changes, rather to the introduction of the premium pension component and the lifetime earnings principle instead of the so called 15- and 30-year rules. In

addition, H&W assume the new system will provide reduced pensions to the great majority, and that there is an enormous transfer of power from society to special interests.

Premium pension

H&W criticise the funding as such, as well as the possibility to invest in shares. Of the 18.5 percentage points, up to 2.5 percentage points go to individual investment in funds, usually unit trusts. This means that these portions of pensions rights are funded and that this development will depend on the growth of the funds.

There are several reasons for this. The non-socialist parties that actively pursued the issue wanted to see a funded component, wanted it in a decentralised form and thought it was a good thing that pensions were not dependent on wage growth alone. They also thought this component would raise pensions in the future as average share values would increase more rapidly than average wages. The Swedish Social Democratic Party held the same view on the latter point.

The Social Democrats also gave special support to the proposal that it should be possible for the buffer funds (the former AP funds) to invest in shares. The reason for this was the same, the assessment that this would increase the value of the funds.

Developments on the stock exchange since the spring of 2000 have of course led many people to doubt that share investment in the premium pension scheme and by the buffer funds will strengthen the pension system. It may be said, however, that three years is a very short period of time for a pension system. That the timing of both premium pension and buffer fund investments now appears extremely unfortunate is obvious.

Had the first premium pension investments taken place a year or so earlier, developments would have been different. That year, the Stockholm stock exchange rose by more than 70% including dividends. Had the investment rules for the buffer funds been changed a number of years earlier, the funds would have increased substantially in value. But it is easy to say in hindsight when the investments should have been made.

We can of course have different opinions about whether it will turn out to be wise to invest some of the pension contributions and some of the buffer funds in shares. It is somewhat paradoxical that nowadays those who are most sceptical about share values growing more rapidly than the economy are often on the left wing. They belong, after all, to a tradition that has often claimed that those fortunate enough to own shares were in a position to rapidly increase their wealth. For me – and for other non-socialists – the introduction of the premium pension scheme has been one way of ensuring that the whole population has direct economic benefit from share values increasing more rapidly than the general growth rate.

Lifetime earnings principle

In the new system, all contributions (up to the benefit ceiling of 7.5 times the wage base amount) will confer pension rights. In the ATP system, contributions paid in excess of 30 years were not included and the pension was based on the best 15 years. This meant that contributions paid into the system were transferred from people who worked for many years with a level income, to people who worked for relatively few years but whose wages rose steeply. The

latter could, in extreme cases, receive a full pension after having worked full-time for 15 years and 20 per cent of full time for 15 years, i.e. a total of 18 years full-time, which earned them a pension they received for 15–16 years.

Those who wanted to retain the ATP system, often people on the political left wing, have not been particularly clear in their argument as to why ATP was fairer than the new system. The relative silence is understandable. What is fair about people who work for many years on low incomes receiving a much lower pension per Swedish krona paid into the system than those on high incomes who have worked relatively few years?

Lower pension?

Will the (annual) pension be lower in the new system than in the ATP system? One crucial factor in this context is average life expectancy. In all probability, it will increase. Then the annual pension will decrease – all other things being equal. But could a potential reform of the ATP system have avoided similar change? H&W do not seem so sure. Consider what they say about demography above. On this point, it appears to be the automatic element of the new system they dislike, not the effect.

The answer to the question, incidentally, is probably that if the growth rate is around 2% then the average pension in both systems will be the same. If the growth rate is lower, then pensions will be lower than in the ATP system – if it had been possible to retain ATP even at lower rates of growth. This does not seem particularly likely and would, in that case, have required significantly higher pension contributions.

Power shift?

The premium pension component means great freedom of choice for the individual. There are several hundred funds to choose from. In the coming decades premium pensions will increase, whilst we can expect the buffer funds to begin to decrease after 2010. When the strain on the pension system is at its greatest, the buffer funds will of course be at their lowest if the return on shares is not high.

What H&W criticise here is that there will more money in total in the many individually-selected funds and less in the former AP funds. We can certainly have different views on this. For me as a liberal, this is not a negative development.

Clear principles

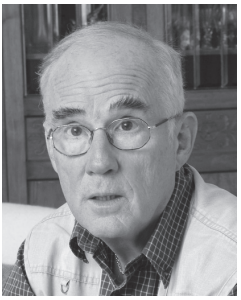
One of the many advantages of the pension reform is that it is built on clear principles which provides a good opportunity to take a position on them. If you wish, you can go back to the beginning of this article, read the main points again and ask yourself: Do I think that every krona should be counted? Do I think that pension rights and pensions should follow average wage development for wage earners? Do I think that childcare years should confer pension rights? Do I think it should be possible to invest some of the pension contributions in unit trusts?

This clarity is missing in H&W's article. That they dislike the reform in the extreme is obvious, that they are critical of the Social Democrats' support of the pension agreement is also obvious, but do they really dislike the fundamental principles of lifetime earnings and indexation?

We from the five parties that reached agreement in 1994 know what we think. The pension reform was both necessary and positive.

The Swedish pension reform: a good model for other countries?

by KG Scherman



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In this article I will discuss the Swedish Pension reform in the light of the international debate. My main point is that the core issue in a pension reform is to uphold an open and transparent generational contract, with a fair balance between active and retired today and in the future, and to maintain a political responsibility for monitoring the contract.

The new Swedish pension system has transferred all financial and demographic risks onto the individual and is meant to function automatically for an indefinite future. Hence, it does not fulfil this basic task of a public pension system and it has simply become the latest example of an attempt to avoid the realities of the dilemma facing aging societies. It is not a good model for other countries.

Introduction

The Swedish pension reform has been much observed in the international debate. Among features of the reform that have been especially praised are the financial stability of the PAYG component, the new way of "double entry accounting" for such a system and the attempts to keep individuals continuously informed about their pensions. Representatives of the European Commission have described the Swedish model as the only really sustainable approach to pension reform. The head of the European Central Bank, Mr. Duisburg, has time and again said the same. And the World Bank is also positive about the model. Following such attitudes from influential players in the field, pressure seems to be mounting on countries needing to make reform to consider the Swedish model as an option. In such a situation, it is urgent that the model is thoroughly scrutinized and that its weaknesses as well as its strengths are clearly understood.

This journal has embarked upon a promising avenue of clarification of the true nature of the Swedish pension model. In issue nr 4/2002 Mssr Hagberg&Wohlner described their view of the new system and what they had wanted to see instead. In issue nr 2/2003 Mr. Könberg, as the leading politician behind the reform,

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gave his view, and Mr. Settergren, the leading expert, explained the technicalities as well as the ideology behind the PAYG part of the new system. This article is intended to carry the discussion a bit further. It is hoped that Swedish and international experts and policy makers will follow and contribute their views.

Reform needs and the new system; a short repetition

The ***reform needs*** were similar to those prevailing in most industrializes countries, i.e.:

- A normal pension age that had been unchanged for decades, in spite of an increasing life expectancy;
- A "baby boom" generation that is approaching retirement;
- A benefit system that was overgenerous – in this case one that required only 30 years employment for a full pension and that based benefits on average earnings during the 15 best years.

Many of these problems originated from the fact that the system was designed at a time when expectations about economic growth were much more optimistic than today.

The new old age pension system contains an earnings-related part and, in addition, it offers protection to those who have no or only a low earnings-related pension.

It contains *a* ***minimum pension*****,** guaranteed by the state for all residents in Sweden. The level of that minimum pension, today, is quite high. In addition, there are various supplements available for those who have no, or only a low, pension. The guarantee is indexed according to the cost of living, regardless of the development of wages. Hence, in the long run, its relative value will diminish in the face of growth of wages. This is the stated policy of the government.

The public earnings-related scheme consists of two parts: a fully funded, premium reserve scheme and a pay-as-you-go scheme.

A core idea in the new system is to retain ***a stable contribution rate*** of 18,5% of covered earnings into the indefinite future. The contribution is split between the premium reserve scheme and the pay-as-you-go scheme. Certain periods (social security benefits, child care, military service, higher education) give pension rights for which the individual and the state pay the contributions in full. This is an important feature for creating social justice with-out overburdening the pension systems finances.

The premium reserve scheme is new**.** The contribution to that part is 2.5 percentage points and it pays for life annuities based on insurance principles. It is administered separately from the pay-as-you-go earnings-related scheme. Private and public fund managers are available. The rest of the administration and the insurance function of this sub-system is a public responsibility.

The pay-as-you-go scheme is completely redesigned**.** It has become a notional defined-contribution (NDC) scheme. This redesign has been much commented upon in the international debate. One of its principal intentions is to maintain a stable contribution rate into the indefinite future. This scheme has the following features.

- The benefit formula is tightened up and benefits are based on all earnings over an individual's full working career.
- Indexation rules are linked to average wage development:
  - o pension rights being indexed to average wage growth,
  - o pensions in payment being indexed to average wage growth reduced by 1.6 percent per year ("flexible indexation").
- Benefits are made dependent on life expectancy, meaning that a benefit drawn at a certain age by an individual belonging to one cohort will be lower than that for the preceding cohort, if life expectancy has increased.

The PAYG part is financed by a contribution of 16.0 percent.

The PAYG system contains two other important features. The first is an *automatic balancing mechanism*. New calculation methods have been established to make it possible to estimate the assets and liabilities of the PAYG scheme. If the estimated liabilities of the system exceed its assets, the yearly revaluation of pension rights and pensions in payment will be reduced enough to enable pension liabilities to grow at the same rate as the system's assets. Obviously, such a mechanism makes the system financially stable. Whatever happens, it reduces current and future pensions by as much as needed in order to restore financial equilibrium to the system.

The second special feature is *a special fund,* called *the buffer fund*. All contributions are paid into the fund and all pensions are paid out of this fund. As a consequence, the buffer fund accumulates capital in certain periods, for example if large cohorts reach working age or if labour force participation increases. The surplus generated under such periods will be used to counter financial strains on the system in other periods. Such strains will emerge when the baby boom generation reaches pension age. At the outset of the new system, most of the pension fund that had been accumulated under the old pension system was transferred to the buffer fund, where it serves as a sort of "start up capital".

The result: Work more, much more, or accept a lower pension

The whole working career is the basis for the pension and the benefit drawn at a given age becomes lower for later cohorts when life expectancy increases. Hence, a basic implication of the new system is that *people will have to work longer or save more* – considerably longer and more than many realize – or to accept a lower annual pension.

Already for those approaching retirement the benefits will be reduced as compared with the old system. Younger persons will be subject to a further reduction in pension benefits as a result of increases in life expectancy – theoretically speaking calling for postponement of retirement with around one year for those born in 1954, nearly two years for a person born around 1975 in order to restore a certain level of the pension. According to estimates made by the National Social Insurance Board, a person who extends his or her working life accordingly, the replacement rate will stabilise around 60 percent of average lifetime earnings. For a "model person" with steady earnings over more than 40 years, earnings that increase along with general wage trends, this outcome will be equivalent to 60 percent of final earnings, a fairly high replacement rate. But reality is not likely to result in such a favourable outcome as this. There are several reasons why.

In the Board's calculations, the estimates of return on investment in the funded part of the earnings-related scheme are fairly optimistic. Moreover, people rarely work with steady earnings over more than 40 years. With more conservative estimates of what the financial market can produce, and when applying the calculations to "real human beings" the outcome is rather different. It turns out that to reach a replacement rate of 60 percent a person born in the 1940s might have to work until 67; one born in the 1950s until around 68; and one born in the 1960s until around 68 and a half. Of course, following the fact that the amount of the pension is based on average lifetime earnings, the result differs considerably dependent upon the lifetime work pattern of an individual. Nevertheless, there is a substantial increase in the age at which a certain target replacement rate can be obtained.

To these calculations should be added the effect of the automatic stabilizing mechanism. According to recent estimates, the risk of this mechanism being activated sometimes in the future is around 30% by the turn of

2002/2003. According to one scenario, the result could be a reduction of the PAYG part of the pension of around 15%. In the case of the example above, such a development would add another two years work to reach a target replacement rate, whatever that target was.

Which incentive effect is the greatest –to work and/or save more or to accept a lower pension- is much debated. There are many who believe that the incentive to work longer or to save more is weak and that what will generally happen is that people will draw their pension as soon as it is possible and will accept a poor standard of living. The same will be the result if work opportunities are not available. Others think that the design of the pension in the long run will strongly affect attitudes and opportunities in society. The official language is clearly in line with the latter belief. There is neither any reference to a pension age nor to a replacement rate. The key words are "flexibility", "freedom of choice" and "abolition of the fixed retirement age". The ideology of the reform lies hidden behind these words.

A "paradigm shift" has occurred

To understand the new Swedish Model, it is necessary to realise that the new system is completely different from the old one. It is an actuarially-based system and it has thoroughly overturned the distribution of risks between the individual and the state. A "paradigm shift", to use the World Bank vocabulary, has occurred.

Consider the discussion about the merits of a PAYG versus a funded system. That discussion has been intense over more than 20 years now, beginning with the World Bank promotion of the so called Chilean Model, and taken further by the publication "Averting the Old Age Crises" by Estelle James et al[1] .

In the discussion, certain features have usually been attributed to each of the two models, although as the following discussion shows, not all of them are essential attributes. However, for the sake of understanding the Swedish model this dichotomy can help to clarify the matters at hand.

PAYG systems are often said to be characterized by the following features:

- contributions flowing into the system one year are used to finance the same year's pension payments;
- the system is defined-benefit;
- the system is publicly administered; and
- the political process is supposed to ensure that the necessary steps will be taken to ensure a balance of social goals and financial constraints, both today and in the future.

It is only the first of these bullet points that define a PAYG system in the strict sense, the rest of them are features that go together with traditional public PAYG systems.

The strength of a system with these attributes is that it takes care of some problems facing the individual when he or she wants to plan for retirement, problems that explain public involvement in pensions that goes beyond the desire to alleviate poverty. The wish to take care of poverty alleviation is a vital part of the reason for public involvement with retirement programs. By itself, however, it does not explain the scope of this involvement. The near universality of comprehensive public actions with respect to pensions suggests a general consensus that individual decisions and free markets can not be counted on to produce a desirable level or pattern of savings for retirement. There are several reasons for this. These include the wish to avoid myopic behaviour, to reward the prudent, and to protect people from insurance market failures.

Myopic behaviour means that some individuals give too little weight to the utility of future consumption, resulting in them saving too little, and realising this only when they are

already old and unable to do anything to cure their previous mistakes.

There is an obvious need to *reward the prudent* by ensuring that they are not exploited by those who do not want to take responsibility for themselves, but equally, to ensure that those who do try to look after themselves receive an adequate benefit. Most societies establish some minimum level of consumption below which they do not want their members to fall.

Insurance market failures are a reality. Among the problems that a complete reliance on private markets causes for the individual are the insurmountable difficulties in estimating:

- future economic growth rate and future returns on investments;
- future trends in average mortality;
- changes in price and wage levels after retirement; and
- his or her own longevity, relative to that of the cohort as a whole.

There are weaknesses, too, in such a PAYG system in the real world. One is that the existence of a minimum pension creates a moral hazard, in that some individuals will decide to rely on the minimum benefit instead of making their own provision for retirement. Another is that politicians have tended to promise too much, and that people tend to believe that someone else is paying for their benefits.

Funded systems are often said to be characterized by the following features:

- contributions paid in by, or on behalf of, an individual, are accumulated and the accumulated savings are used to finance pension payments;
- the system is defined-contribution;
- the system is privately managed; and
- there is no political responsibility for balancing social goals and financial constraints, either today or in the future.

Here to, it is only the first of these attributes that define the system in the strict sense, the rest of them are features that go together with a general notion of funded systems.

The debate on the potential impact of a funded pension system on the economy, and whether it should be privately managed, is intense. One line of argument concerns questions about the impact of funded pensions on savings and investments, and on growth of the economy. The debate is not conclusive, but the argument that there should be any significant impact is losing ground.

What is clear, however, is that, like Professor Barr[2] , many economists have now understood that the idea that funded systems mean "that people take care of themselves in old age", while PAYG systems mean that they "leave the responsibility to their children", contains a misunderstanding of how the aggregate economy functions. At the aggregate level, consumption goods cannot be stored; it is always today's production that is distributed between active and non active.

Another line of argument concerns the desirability of letting private entities administer pension schemes and manage the investment of funds, and of "getting the politicians out". Given the fact that the effect on aggregate economy might not be all that great, the insistence on the merits of funded solutions probably rests with mistrust in the politicians' ability to cope with long range problems. This is forcibly advocated in "Averting the Old Age Crises" and many other publications.

About all these matters, about PAYG vs. funded pension schemes, a wealth of information can be found in ISSA[3] and ILO publications, for instance in the ISSA Review[4]; in the documentation of the ISSA conference on the Future of Social Security, held in Stockholm 1998[5];in the ILO survey "*Social Security Pensions; Development and reform*"[6], and in Mr Thompsson's ground-

breaking book "Older and Wiser; The Economics of Public Pensions"[7] .

The new Swedish NDC scheme does not fit into either of these two broad types of models. Following the introduction of the automatic balancing mechanism, it has the following characteristics:

- contributions flowing in in one year are used to finance the same year's pension payments, with a buffer fund countering variations in the inflow of contributions relative to the outflow of pension payments;
- the system is strictly defined-contribution;
- the system is publicly administered; but
- there is no political responsibility to balance social goals and financial constraints, either today or in the future.

Thus, although it is a PAYG system, it lacks most of the strengths such systems traditionally have. But, still, the commitment to retain a mandatory PAYG scheme into the future is there.

Much of the confusion around the Swedish model stems from the fact that the power of traditional thinking is so great. "A PAYG system, and, of course, especially a PAYG system *in Sweden*, must retain the basic features of social responsibility traditionally associated with such systems". That is how many people think. But they are incorrect. In particular as a consequence of the automatic balancing mechanism, a truly defined-contribution system has been created – benefits become totally dependant on the contributions and on internal rules in the pensions system. Combined with the provisions whereby every amount of contribution creates corresponding pension rights, and with a pledge not to increase contributions in the future, there is no room for manoeuvre left. There is no way to monitor the generational contract and no way of adjusting the system in the face of changes in external conditions to attain a fair balance between social goals and financial constraints in the future. Hence, one of the prime aims for transferring to a funded system, to "get the politicians out" has been achieved in the new Swedish PAYG system! All risks stemming from external disturbances on the financial performance of the system are automatically transferred into reduced benefit levels. *The paradigm shift is thereby realised.*

The design of the guarantee pension is another feature in the new model that contributes to the picture of shifting of risks to the individual. The guaranteed level is price-indexed. If wages grow in real terms, and the guaranteed level is not adjusted accordingly, the level that the guarantee provides successively decreases compared to wages. The Swedish government has stated that it finds it appropriate to allow its relative importance to diminish in the face of a real average wage growth. Today the guarantee is around 80 000 SEK per year and the ceiling for a pension from the public system is around 180 000 SEK. At a growth in real wages of 2%, the ceiling will become 360 000 SEK in 35 year's time, while the guarantee level will remain the same: 80 000 SEK. This development is contrary to what usually has been considered to be the basic interest in most public pension systems. At least, this has clearly been the case in the Swedish context.

It is the sharing of risks that is the most important feature of an insurance system. This has nothing to do with whether a particular scenario has a high or a low probability of materialising in the future. And, as a matter of fact, whatever the quality of prognoses, we end up in not knowing much about such probabilities.

The automatic adjustment mechanism in the PAYG component sees to it that all risks of an imbalance in the finances of the earnings-related schemes are borne by the individual. As already mentioned, the automatic balanc-

ing mechanism, according to one scenario, could result in pensions being as much as 15% lower. The design of the guarantee pension transfers successively greater poverty risks onto the individual. Moreover, it is worth pointing out that, because the effect of a raising life expectancy is to be borne on the benefit side, all risks of not being able to find suitable work at an advanced age rest with the individual. And the social insurance schemes covering unemployment or inability to work due to sickness or disability cover only people up to the age of 65.

A consequence of these restrictive features of the new system is that people have to resort to private arrangements to a higher degree than before. This transfer of risks from the public to the individual exposes the individual to the dilemmas of myopic behaviour and insurance market failures. These are risks that traditionally are seen as to be borne collectively. Their existence was the reason for public involvement in the first place.

The paradigm shift has emerged only gradually

One reason why it has been possible to make this complete overhaul of the pension system might be that it has occurred behind closed doors. It was the result of deliberations by a group of politicians in charge of implementing a reform of which, back in 1994 only the general principles had been agreed. The paradigm shift, itself, was neither agreed in 1994 nor was it ever presented subsequently as a change of those principles.

Mr Settergren rightly draws the following conclusion from the situation that gradually emerged: "As Swedish pension reformers had set out to create a (notional) defined-contribution scheme it was necessary to make sure that the system was financially stable. Otherwise it would have been logically inconsistent".

But the content of the 1994 principles was quite different. There, it was generally accepted that keeping a balance between social goals and financial constraints was to be a leading principle.

- Goals were formulated with respect to replacement rates that reflected what was socially acceptable
- A wish for a stable contribution rate was clearly formulated, but the switch from a defined-benefit to a defined-contribution system was portrayed as the result of the introduction of a full working career as the basis for the pension rather than as an overriding principle.
- The financial constraints, or – more accurately – the absence of financial constraints, were formulated in the discussion about the buffer fund that became the backbone determining the financial performance of the system. In this context, the terms of the original documents that proposed the payment to the state budget of monies to compensate for some of the extra burdens that it would incur as a result of the reform are worth citing. After having described the proposed compensation, the text reads: "Of course these proposals affect, as has been described above, only the financial side. Neither the successive phasing in of the contributions, nor the transitional use of the buffer fund for other then old-age pension payments, affect the benefit side, that is obvious".

In 1994, those responsible for the reform thought they could guarantee that the new rules could be kept in place for the foreseeable future, even if the level of contributions was to remain constant. It was claimed that the reserves accumulated in the old pensions fund would ensure this. There would be enough left over to compensate the national treasury for the extra burdens that the reform place on the state budget. As a matter of fact, the new pension system as designed 1994 was still a traditional PAYG system, although with some

interesting new features, as Mr Chichon points out in his article of 1999[8] . This was also the way in which the reform was presented to the general public, especially by the Social Democratic party that was endeavouring to get its members to accept the reform.

Later on it was discovered that the financial situation was not as favourable as believed in 1994. Reserves were not sufficient to both cover pension obligations and compensate the national treasury. This was because it had become apparent that the demographic projections initially used were out of date. Adults were living longer, and fewer children were being born. Despite these altered conditions, large sums have been transferred from the fund to the national treasury. So far, SEK 258 billion has been transferred, which is roughly one-third of the fund's reserves. And more is intended to follow.

What happened was that the idea of the contribution rate being kept unchanged indefinitely *was allowed to become* a cornerstone of the reform, and that the wish to transfer funds to the state budget in the very same process was transformed from a result of projections showing that there was money left over in the buffer fund into one of the leading principles of the reform. Following this, the automatic balancing mechanism was invented and put in place. But this was a matter of choice. Obviously, there were alternatives to this set of leading principles. As a matter of fact, when the projections and assumptions behind the initial reform proved unsustainable, the whole project should have been reconsidered and subject to open debate.

The collapse of the projections behind the 1994 principles was never brought into the open and no public debate occurred. The result of the decisions made was, as Mr Settergren points out in his article, that social justice became the same as inter-generational balance defined as "having a constant ratio of present value of pension benefits over present value of contributions for all birth cohorts". This is the guiding principle behind the final design of the new PAYG system, with its automatic balancing mechanism. There is no room left for any other social goals or for a political monitoring of the generational contract in the future.

The impression of a gradual shift of focus, and of a gradual retreat from political responsibility for the social outcome of the pension system is aggravated by a series of other features of the present situation. Among these is the government's stated opinion that the value of the minimum pension shall diminish in the face of real wage growth. Another is the fact that the social safety net is not extended to higher age groups as the de facto pension age is increased. A third is the complete change of the funded component. In 1994, it was stated that the funded scheme should include a guaranteed minimum yield and that the wish to provide for diversity in the management of funds should not be allowed to take precedence over the wish for security. The rules governing life insurance companies were mentioned as good examples in this respect. Ultimately a completely different model was designed, with 700 funds for the individual to choose between and with no minimum guarantee. This complete overhaul was presented neither to the parliament nor to the general public as a change of principle.

The paradigm shift has created great confusion

Those advocating a "paradigm shift" often say that a complete overhaul of the vocabulary should make it easier for the general public to understand and accept necessary changes in the pension system. Most probably, this is a false hope. Instead what happens, or at least, has happened in Sweden, is that people do not understand anything at all. Even among experts, the debate has become confused.

The changes necessary to make the system financially sustainable are mixed up in the changes of principles, and the reform leaves the general public behind. Four examples may illustrate this situation.

- *the increase in the pension age* that is brought about by introducing a factor dependent on remaining life expectancy in the pension calculation formula and by changing the rules for flexible retirement. On the basis of this, it is claimed that there is "free choice" and "flexibility", when, in fact, what is happening is that the retirement age, as that concept is conceived today, will be gradually raised. Should the regular measures built into the system prove insufficient, the automatic balancing mechanism will take care of the need for an extra reduction in benefits, forcing people to try and postpone retirement yet further.
- *the reduction in the replacement rate* that is brought about by not merely increasing the number of years taken into account in calculating the benefit, but also by switching to a lifetime perspective, introducing a couple of non-contributory periods into the basis for the pension, and changing the indexation method from the price index to the wage index. A comparison of the new and the old system show "winners" as well as "losers" instead of only "losers". This obscures the fact that an important result of the reform is the requirement for people to work longer under the new than under the old system to obtain a pension of a given level.
- *the lack of clarity surrounding the worth of the funded component of the pension* that is brought about by the design of the funded component with its confusing range of funds and with pensions solely dependent on whichever market return on investments that the individual can obtain. Every discussion on the merits of this component unavoidably ends up in complete uncertainty, since no one knows what the development will be in the future. A good illustration can be found by comparing what Mr Könberg and Mssr Hagberg&Wohlner wrote in this respect.
- *the fundamental change in welfare policy in the long run* that is implied by some elements of the reform. Particular mention should be made of the effective cut in the level of the minimum pension, since its level is indexed to prices and, relative to wages it will fall if there is an increase in average real wages. This change in welfare policy has never been discussed openly.

A consequence of this approach is that the "losers" only gradually realize what has happened and this hampers the political process. No one knows what part of the public response is caused by ignorance and what part is caused by acceptance.

The true nature of the new system is poorly understood. Mssr Hagberg&Wohlner advocate successive reforms, with political responsibility retained in order that the generational contract can be monitored. This is the approach applied by Germany, France and the US – countries that, to date have introduced "mere parametric reforms". Mr Könberg comments upon Mssr Hagberg&Wohlner's argument by stating that there is no major difference between their proposal and the system that has been implemented. But this is incorrect. In the world of "parametric reforms", the traditional focus on balancing social goals and financial constrains is retained. In Mr Könberg's world, politicians have withdrawn from taking on such a responsibility. Mr Könberg also makes the point that his various opponents (there are more critics than Mssr Hagberg&Wohlner) have differing views about what the best alternative should be. But all his opponents set social goals at the centre. In that respect, they have much in common, and they all differ from Mr Könberg. There is no room

for an automatic balancing mechanism of any sort in their alternatives. It is also worth observing that none of the other countries that have reformed their pension system in a fashion that is said to resemble the Swedish NDC model (for example, Latvia, Poland and Italy) have included a component like the automatic balancing mechanism.

The outcome of the system is not known. When a traditional PAYG system is said to be financially sustainable, this is normally taken to mean that it is sustainable over all. But, as a consequence of the design of the balancing mechanism, the emphasis must switch to the benefit side and the social consequences of the new system.

Traditionally, when reforming a mature public pension system, it is projections showing a need for an increase in the contribution rate that causes alarm. It is important to realise that this follows from the design of a defined-benefit system as such. As, by definition, the benefit rules are established in advance, every disturbance in the system emerges as a disturbance of its financial sustainability. In the new, earnings-related Swedish system, it is the financial rules that are defined in advance. These rules establish the financial scope for the total amount of benefits. Individual rights and pensions are adjusted accordingly. If the wish is still that the system should offer a fair balance between financial and social goals, the "alarm system" has to be redesigned. Instead of it registering the need to reset contributions, since such resetting is not permitted, there is a need for it to register well-being and its future development. This requires the establishment of social indicators and the development of means to make projections of these into the future. Among such indicators are likely to be those showing the relationship between pensions and wages and income disparities among pensioners – in each case illustrating how these would stand given differing economic and demographic assumptions. No such indicators are available.

Even Mr Könberg is subject to misinterpreting the outcome of the new system. He states that, given 2% economic growth and certain other conditions, pensions under the new system will, on average, be the same as under the old one. In one scenario, already described above, the automatic balancing mechanism could lower pensions by as much as 15 %. This is a significant difference.

Confusion also affects the information to the general public. In Sweden, the National Social Insurance Board provides an individual report on a yearly basis, indicating the amount of the benefits that can be envisaged under different scenarios. Surprisingly enough, the information does not contain any calculation of replacement rates, in spite of the widespread knowledge that individuals have great difficulties in making comparisons between absolute amounts, one based on the present value of money and real wage level, another reflecting some future situation. It is also worth pointing out that the assumptions about returns on investment used in these individual reports seem to be rather optimistic, giving the individual an impression that the pension will be quite high. A more conservative assumption would have produced a considerably lower pension.

Another part of the endeavour to make the pension system as transparent as possible is the annual reports on the system's assets and liabilities. The first of these annual reports was compiled and presented in 2002. It is very likely that this attempt to present the financial balance of the PAYG system needs further analysis, by actuaries and other experts, before any conclusions can be drawn about how well it describes the real situation. It is also to be noted that the annual report contains no indicators of the adequacy of pensions in the future for "real life people" or, as a matter of fact, not even for "model persons".

The arrangements for old age contain much more than pensions, and employment is the key factor

The potential consequences of the operation of what is a mechanistic pension system raise a number of further questions about the future well-being of older people. These questions relate to the availability of various kinds of services and whether those services are subsidized or not. It is worth asking whether a pension system can function automatically and offer an adequate level of well-being without reference to what happens in these fields. They also relate to the labour market. It is worth asking whether there will be sufficient employment opportunities for people, not only when they are older but at all stages of their life, given that the whole working career is the basis for the individual pension.

A table may summarise the state of knowledge. See below.

As can be seen, the only thing we do know about the future is that the finances of the new Swedish earnings-related pension scheme are secured. But we do not know anything about the adequacy of the pensions that are offered. We know very little about the replacement rates that can be obtained, and we know even less what the environment in which the pensions' adequacy should be measured will be. The pension system is meant to function automatically, but, not only do we not know what this means for pensions, we also do not know how a large number of factors that determine the ability to accumulate a pension or to have a satisfactory level of well-being in old age are going to look. This simply adds to risk.

	Item	*Present situation*	*Future situation*
Pensions	Finances of earnings-related pensions	Stable	Stable
	Contributions from the state budget for social security benefits	High	??
	Amount of minimum pension	Fairly high	Successively lower in the face of economic growth
	Costs of minimum pension	Modest	Diminishing
	Adequacy of pensions with respect to the full set of services and benefits available for older people	Acceptable	??
	Availability of means tested supplements (especially housing allowance)	Good	??
	Income disparities among pensioners and between them and the active population	Small	Most probably increasing
Work	Employment opportunities for people aged 55-67	Comparatively good but much too low to meet the need	Probably improving
	Employment opportunities for people aged 67-75	Non existent	??
Other	Availability of in-kind benefits	Comprehensive	??
	Cost-sharing for in-kind benefits	Low	??
	Public costs of in-kind benefits	High	??
	Availability of adequate health care	Good	??
	Cost-sharing for health care	Low	??
Over-all	Situation for the elderly	Good	??

The dilemma just described cannot be solved by trying to formulate policies and make forecasts of costs and social outcomes in all dimensions. Instead, this analysis makes it abundantly clear that the future is uncertain and will remain so. The present can not prescribe what the future will be. Consequently, a totally automatic public pension system cannot, realistically, prevail.

The de facto increase in pension age places the ***focus on employment opportunities*** for older people. It is necessary to make it possible to continue working after age 65; otherwise the reform becomes merely a new way of reducing pensions. That requires laws or collective agreements that prohibit mandatory retirement (or at least mandatory retirement before at least the age of 70). However, not even such provisions can guarantee longer working lives. Work environments and employment conditions must be adapted for older workers, and there must be a change in attitude regarding their rights, and those of all employees, to develop their occupational skills and knowledge. There must also be a change in attitudes in the labour market, among employers, labour unions and older workers, themselves, regarding older people's ability and potential.

Even that would not be sufficient. Those who would like to work a few years past age 65, but who, due to illness or lack of employment, cannot work must have access to the general welfare system as well as social insurance under the same terms as younger people.

These are the most pressing needs in every aging society and they can not be avoided simply by reforming the pension system.

The reform needs to be reformed

The point of departure for the Swedish reform is a realistic one. In the face of growing life expectancy, there is no viable alternative to raising retirement ages and encouraging people to work longer. The general principles approved by the Swedish parliament in 1994 were supposed to satisfy the need to lower costs and also to provide for greater flexibility in response to future changes in the population and the economy. The level of political agreement was regarded as especially significant, as were the unequivocal assurances that the new system would be financed in such a way that it could be sustained without any restrictions on pension levels, beyond those specified in the general principles that were set down then.

Many years have passed since 1994 and the system that has emerged differs in many respects from that originally envisaged. Moreover, even the original reform plan was characterised by a lack of concern for the social goals that should be taken into account in the design of a pension system. Hence, a whole range of measures are needed in order for it to be possible to say that the Swedish pension policy offers benefits that are secure, adequate and equitable.

Action is needed too *make it possible to continue working after age 65*. Moreover, people aged over 65 needs to have *access to the general-welfare system as well as social insurance under the same terms as younger people*. Otherwise, all the talk about "flexibility" and "people being allowed to decide for themselves when to retire" will lead merely to further reductions of pension benefits in the future. "Freedom of choice" will exist only in theory, not in reality.

Steps must be taken to *revise the policy governing the minimum pension*. The size of the guaranteed level for the pension is tied to inflation. If earnings increase at a faster rate than inflation, the guarantee will become less and less important with the passage of time. Such a development is not acceptable and it lacks fairness and political credibility. The relationship of the minimum pension to aver-

age income must be reviewed and adjusted from time to time.

The system must be changed so that *the automatic balancing mechanism in the PAYG earnings-related scheme is rescinded.* This mechanism is unacceptable. Social goals and the basic concept of social insurance imply a political responsibility to monitor the pension system and take necessary measures if its financial and/or social stability is threatened. This was the case under the old system, but it must also be the case under any new system. Most probably, the consequence of this observation is that *the NDC-concept, as it operates at present, does not work properly*. In an NDC-scheme, it is the contributions that constitute the pension rights. Hence financial imbalances can not be remedied by raising contributions, as this would give rise to additional pension rights, causing new financial strains in the future. It is not possible to foresee what will happen in the future, hence it is not possible to foresee which measures need to be taken in order to arrive at a proper balance between social goals and financial constrains. Therefore, *it is not advisable to rule out the possibility of raising contributions in order to restore the financial balance in a way that does not, automatically, add pension obligations to the system.*

It is essential that *the monies that have been transferred to the state budget be returned to the buffer fund.* To date, these transfers have totalled SEK 258 billion. Such a depletion of the buffer fund will have unacceptable consequences for pensioners. It increases the risk that the automatic balancing mechanism will be activated and, consequently, leads to further decreases in the level of pensions.

Turning to the *premium pension*, changes should be made so that *a minimum guaranteed yield on investment is introduced*. Such a redesign would provide for a risk sharing among the participants in the scheme. It would also offer a realistic basis for the information that is provided annually to the individuals about the pension they have accumulated to date.

Last, but by no means least, *the actual results of the new pension system for real-life people must be evaluated in relation to the goals* declared in 1994. Simulations for a "model person" are not adequate. Assumptions about the economy, demography and investment returns must be safe, simple and explicit. Only in this way will it be possible to provide the population with *clear and transparent* information that will assist them in decision making and in their appraisal of the reform.

The Swedish pension reform was characterised by an ambition to achieve *a broad political consensus* about the design of the pension system. It is likely that this broad consensus was a prerequisite for breaking the deadlock that had prevailed in the political system for more than 10 years. More problematic is the fact that this consensus is still there, eight years after the decision on the principles for the reform. In the long run, this could have a perverse effect. If the political system and the other representatives of the individual citizens, notably the unions, fail in their task of examining, questioning and proposing alternatives, it is perfectly possible that people will become frustrated and disappointed. Ultimately, it is a question of what the Swedish people as a whole want from a pension system. We are still waiting to see what will happen once the political debate on these issues is revived, as it surely will be when some of the results become apparent. It is to be hoped that people will start to call for a greater element of solidarity, "solidarity" in the traditional sense of the word, to be instated into the system.

A model for other countries?

As to whether or not the Swedish reform could be a model for other countries the answer is inherent in the conclusions drawn above. The new Swedish pension system is not a good model for other countries. Instead, it has simply become the latest example of an attempt to avoid the realities of the dilemma facing aging societies. These realities can be enumerated in the following way, with obvious conclusions attached to each of them:

We know very little about the future

- Hence, forget about the automatic pension system, which means
  - o do not introduce an ”automatic adjustment mechanism”
  - o do not preclude the need to raise contributions without granting new pension rights, i.e. avoid an NDC model that excludes such a possibility.

There is no way to avoid the fact that it is the active population that provides for the inactive

- Hence, in the face of a growing life expectancy, the alternatives are:
  - o to increase the pension age
  - o to increase contributions
  - o to decrease pensions, or
  - o to do some combination of these three
- Do what has to be done openly, frankly and transparently.

The baby boom “problem” needs special attention

- Remember that the liabilities are already there, so
  - o the problem of societal ageing is too complex to solve merely by manipulating the pension system.
- Recognise that action must be taken now if a collapse of the pension system is to be avoided, and therefore
  - o most probably it is wise to begin to build up a substantial fund
  - o but other measures are also needed to strengthen the economy.

Core issues are

- Improve employment opportunities and conditions for all, including the elderly.
- Face the realities of a raising life expectancy, and make necessary changes openly, including raising the pension age.
- Strengthen the national economy in order to make it possible for fewer active people to provide for the baby boom generation when this retires.
- Uphold an open and transparent generational contract, with a fair balance between active and retired today and in the future.

Sweden has gradually, and without an open debate, designed a pension system that rests on the false presumption that it is possible to avoid political responsibility for upholding an implicit intergenerational contract or for monitoring and evaluating that contract. The model that has been constructed is profoundly undemocratic, and, for this reason, if no other, it will ultimately fail. So, too, will any other model that denies the basic prerequisites for a solution to the demographic dilemma that faces most countries in the world today.

Notes

[1] World Bank; *Averting the Old-Age Crises: Policies to protect the old and promote growth,* published by Oxford university Press, Oxford, in 1994

[2] See Nicholas Barr; *The Economics of the Welfare State,* published by Stanford University Press in 1987, and many subsequent publications, for instance *Reforming pensions: Myths, truths, and policy choices*, International Social Security Review, vol. 55, 2/2002, pp3–36.

[3] ISSA (the International Social Security Association) is a non-governmental organisation (NGO) with the status of consultative member of *the Economic and Social Council of the United Na-*

tions. Members are institutions administering Social Security benefits or working in related areas. For the moment, the ISSA consists of nearly 400 member organisations from 150 countries.

[4] See in the International Social Security Review, published in English, French, German and Spanish (in order of appearance to reflect the development of the debate)

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Ross, S.G.; *Doctrine and practice in social security pension reforms* vol. 53 2/2000, pp 3–29.

Quisser, M; *Pension reform and international organisations* vol. 53 2/2000, pp 31-45.

[5] The conference proceedings are published in English, French, German and Spanish. See the publication *The future of social security,* published in Stockholm by the Federation of Social Insurance Offices, in 1998 in English and in 1999 in French, German and Spanish.

[6] ILO*; Social Security Pensions; Development and reform*, published by the International Labour office (ILO), Geneva, in 2000.

[7] Lawrence Thompsson; *Older and wiser: The economics of public pensions* published in English by Urban Institute Press, Washington, DC, 1998, in Spanish by CISS, the Inter-American Conference on Social Security, 1999 and in Portuguese by the Brazilian Ministry of Social Security, 1999.

[8] Michael Cichon; *Notional defined-contribution schemes: Old wine in new bottles*?, International Social Security Review, vol. 52 4/1999, pp. 87–105.

The New Swedish Pension System – a Fair and Sustainable Model

by Bo Könberg

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In this article I comment on some of the many critical comments that KG Scherman made in his article (NFT 4/2003). I try to concentrate on points that I have not commented in my reply (NFT 2/2003) to Hagberg's and Wohlner's article (NFT 4/2002).

I notice that Scherman agree with me that a reform was necessary, that in the future people will have to work longer or save more as life expectancy increases if they want the same relation of income and annual pension and that it is very important to improve employment opportunities, especially for older persons.

I criticize him for presenting a misleading picture of many parts of the 1994 reform, for being very vague on what financing of his implied improvements would cost the active population, for advocating a system of recurrent negotiations between the political parties which most probable would lead to more abrupt and unpredictable changes than the system of rules that are an essential part of the new Swedish pension system.

Introduction

In 1992 the Swedish parliamentary Working Group on Pensions presented ideas for a comprehensive reform of the pension system that had existed since the beginning of the sixties. In the sketch[1] two main principles were argued for. Those were *the life-income principle,* that is that the fees paid should determine the pension, and *the adjustment principle,* that is that pension rights and the pensions should follow the development of the economy and the life expectancy.

Those principles became central parts of the agreement in the beginning of 1994 between five parties representing some 85 % of the electorate. The new system consists of two parts, both are defined contributions (DC). The major part is a non-financial or notional system and the minor part is a financial or funded part. The former part is considered by many pension experts as an innovation and the first that has been approved in a legislative

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body and implemented in any country.

Some experts[2] have argued that the new Swedish model rather than being a completely new model can be seen as "a thoroughly reformed defined benefit scheme". I will in this article not comment on that particular debate, but I am inclined to see it as a new model. Much more important than that is of course whether it is a good model or not.

I mentioned in an earlier article in NFT[3] that several countries since 1994 have enacted versions of the NDC (Notional Defined Contribution) model. Mr. Scherman confirms in his article[4] this development and also adds that international experts from institutions like the European Commission, the European Central Bank and the World Bank are positive about the new Swedish model.

More recently the government of the Czech Republic has announced that they intend to propose a NDC model and a large majority of the parliamentary Norwegian Commission on Pensions has proposed a similar model for their country.

Among the many experts that has been positive about the model was as late as 1999 Mr. Scherman himself. He then concluded a report for ILO[5] with "My concluding opinion is that Sweden is in the process of building a new pension system that is *sustainable* and, generally speaking, *fair*." (Italics added here).

Mr. Scherman played an important role in the eighties in arguing for the need of a reform and as head of Swedish National Social Insurance Board he supported the agreement of 1994. As the reader of his very critical article can see something drastic has happened since then. The question is whether this change has occurred with the pension system as such or with Mr. Scherman himself. I hope that I in this article will throw some light on the answer to that question by commenting on what changes that really have been made in the reform since Mr. Scherman wrote his paper five years after the 1994 agreement.

I will start this reply with just mention some important questions on which we – still – agree. It was necessary to reform the old Swedish system. It is very important for Sweden and most other developed countries to improve the employment opportunities especially for elder people. (He does not mention that an important part of the Swedish reform is that the right to stay in work now has been raised from 65 to 67 years and that the pension system itself has no ceiling at all.) It is necessary to work longer or save more when the life expectancy increases *if* you want the same replacement rate for your *annual* pension as before the increase.

His main criticisms in the 15 pages long article seem to be that

- the system is too much governed by rules instead of political negotiations when needs of changes arise, examples of this are the automatic balancing mechanism and the price-indexing of the guarantee pension; the political consensus of 1994 has been upheld too long and the system is "profoundly undemocratic",
- the transfer of an important part of the funds in the former system to the state budget ,
- too much of the risks have been transferred from the state to the individuals,
- the replacement ratio is too low,
- the price-indexing of the Guarantee Pension lacks in the long run fairness and credibility and
- the possibility to raise contributions without granting new pension rights should not be precluded.

Is broad political consensus undemocratic?

This is Mr. Scherman's most important objection, which arose with the introduction of the automatic balancing mechanism.

The reform was reached through an agreement between five political parties representing today more than 85 % of the voters. All changes have been made with the same majority. The two parties who disagree with the reform also disagree more with each other on their alternative solutions than with the reform. When Mr. Scherman describes the new Swedish system as "undemocratic", he is inventing a new theory in the political science.

What Mr. Scherman seems to mean is that it is time for the five parties to terminate the agreement that changes in the new pensions system can be made only when the five parties agree to do that. The idea seems to be that it is more democratic with political fights and maybe new temporary agreements than the decision to stick to the agreement of 1994 and make necessary changes in agreement. That position can of course be argued, but to describe what a large majority in Parliament has agreed upon as "undemocratic" is of course extreme.

Many countries including Sweden have tried – and still try – Mr. Scherman's model for decision-making in this field. The old Swedish model, the ATP-system, was introduced in 1960 after the most dramatic political battle after the Second World War. That fight included one referendum, the only extra parliamentary election since the victory of democracy and a final decision in Parliament by the slim majority of one abstained vote.

Mr. Scherman himself writes in his article that the original agreement of 1994 probably was necessary to break the deadlock that he himself criticized heavily during the eighties.

The new system with agreed rules including the automatic balancing mechanism ("brake and gas pedals") instead of ad hoc decisions is more likely to result in smooth rather than abrupt changes when changes are needed. What is now happening in many European countries when they belatedly decide on changes in their pension systems illustrate this.

The recent history of Sweden also points in the same direction. Even if Sweden was earlier than almost all other developed countries in changing the pension system, the decision of 1994 should of course have been taken much earlier.

A pension system that gives a smooth adjustment to significant economic fluctuations means far less of risks for unnecessarily provoking conflicts between generations. This is of no small value for a democratic society that, in a quickly changing world, needs to simultaneously handle many complicated and controversial issues. With traditional pension systems a great risk is that adjustments that are necessary are made too late and made under conflict.

Is it unfair to transfer money from the pension funds to the state budget?

In the public debate and in his article Mr. Scherman has heavily criticized the transfer of some 30 % of the old funds and the discussion of transferring a further 10 % to the budget.

He is of course right when he claims that any transfer from the buffer funds weakens the economic basis of the system, but he usually "forgets" to mention that the ATP-funds were built up *both* for the old age pensions *and* for the disability pensions. And that the reform of 1994 as one of its features had the separation of the two systems.

The economic responsibility for the invalidity pensions has since some years been transferred to the general budget. That budget also has the financial responsibility to pay fees for non-contributory pension rights for child care, military service and higher education. The institutions for sickness and unemployment insurance are also responsible for financing pension rights for insured time for sickness absenteeism and unemployment.

The transfer of money that has been made so far is less than the transfer of economic responsibility. This will continue to be the case, even if a further – and final – transfer will be made as of the first of January next year.

This is one of the two most important objections Mr. Scherman has against the new system. If the two systems had not been separated – which was a good but not a necessary thing – would he then have argued in favour of transferring up to some 15 % of the Swedish GDP from the taxpayers to the pension funds? This is the economic equivalent of what Mr. Scherman argues.

Are the risks unfairly divided between the state and the individuals?

There are very many risks in the always uncertain future. And, I hope, many chances and opportunities. The idea of an insurance system is to spread the cost of risks among those insured.

The risks in a mandatory system is of course much more widely spread that in voluntary systems. In the Swedish system all income-earners and all pensioners are included. The pension rights and the pensions in the PAYG are indexed by the change in the average wage, with the exception of the Guarantee Pension. (See further down.) A (minor) part of the fees are funded and can be used to buy equities, thereby spreading the risks with a system completely tied to what happens with the wages. The level of new annual pensions is "indexed" to changes in longevity.

The automatic balancing mechanism takes into account all changes in society that affects the capacity to pay pensions. In sum, it can be argued that as the system has been implemented and designed it spreads the risks very broadly among a very big part of the Swedish population.

But what Mr. Scherman says that he wants is to have a different sharing of the risks between the insured and the state. But what is the state? Has the state different sources of income than the mandatory pension system has?

Is the replacement ratio too low?

The new pension system is a defined contribution (DC) system. The higher the fees, the higher the replacement ratio. Mr. Scherman has – as far as I know – not demanded an increase of the fees from the present 18,5 %, but in his article his tone is critical about the replacement ratio.

In a comment on calculations from the National Social Insurance Board he points to "one scenario" in which a reduction of around 15 % of the PAYG-pension could happen.. He forgets to mention that this scenario is the most pessimistic of the 72 (!) that was calculated.

Some objections can also be made to his way of describing the replacement ratio. Firstly he assumes that the income of an individual will increase all the way to retirement. That is not so for the average individual. The increase of wages between 55 and 65 years is lower than the average increase.

Secondly he claims that the assumptions on the return on investments in the funded part of the system are "fairly optimistic". He does not mention what they really are: 3,25 % in real terms. I would guess that the large majority of international experts would consider this assumption to be fairly pessimistic rather than fairly optimistic.

More important than these rather technical points is whether the pension reform should have included higher fees and thereby a higher replacement ratio. First the facts about the contribution rate. The mandatory fee is 18,5 %. On top of that some 90 % of all Swedish wage-earners have an occupational pension that gives some 10 percentage points of the wage

on top of the public pension. The average fee of that pension is at least 4 %. That means that the large majority of Swedish wage-earners pay 22-23% of their wage in order to get pensions when they stop working.

The main costs of pensions are covered by those fairly high fees, but on top of them also come what is paid by general taxation, especially for the guarantee pension and for pension rights for child care years. That cost is equal to an additional amount comparable to a contribution rate of 2 percentage points. It can also be argued that the old age pension fees for the sickness insurance, the unemployment insurance and the sickness pension should be considered as pension fees rather than as a part of the cost of those insurances.

Summing up, an ordinary Swede pays every year some 25 % of his or her wage in order to get a pension. It is possible to argue that a political majority in Parliament ought to increase that level further, by taking money from the active years when people build families, raise their children and in most cases buy their own homes, to the years when they are retired.

The calculation is rather easy to make. If we want to increase the replacement ratio by some 10 percentage points, the mandatory contribution rate has to be increased by some 3 percentage points every year of active life. That will mean that the level of mandatory or quasi-mandatory pension fees would increase to nearly 30 % of the wage. It can be done, but is it advisable?

For the debate between Mr. Scherman and me, it would be important to hear whether Mr. Scherman proposes higher mandatory fees or just feel satisfied with criticizing the level of pensions. The latter is maybe acceptable for a pensioner who considers his or her pension too low, but maybe not for an Honorary President of the International Social Security Association (ISSA).

Is price-indexing the right method for the Guarantee Pension?

Mr. Scherman points correctly to the fact that the new Swedish system is wage-indexed with the exception of the Guarantee Pension. He argues also correctly that the general wage-level and the level of Income Pension ("inkomstpension") with a yearly increase of 2 % will be doubled in 35 years. And thereby will the relative value of the Guarantee Pension be considerably lowered.

His own conclusion is that the level must be reviewed and adjusted from time to time. I agree with that, but he does not mention that the price-indexing is also a shelter for those pensioners with lower pensions during periods of economic problems and lowered real wage levels, such as the first half of the nineties in Sweden. Through price indexation pensioners with the lowest pensions are guaranteed that the real value of their pension will not be lowered. Would Mr. Scherman like to change that?

Should it be possible to raise fees without giving new pension rights?

There are some misunderstandings about the NDC model. Among these are that it is inherent in the model that the contribution rate can never be changed. That is not so. What is inherent is that fees paid always must result in pension rights.

Most of the debate on this point, including Mr Scherman's present remarks, has touched on the fact that financial lack of balance cannot be remedied by raising the fees, as they will result in an increase of the pension rights, that is of the liabilities of the system. This is correct even if it will be a rather long period before the increased pension is paid out.

If there is a widespread feeling that the future replacement ratio will be too low – and that many people are too myopic or too poor

to save more themselves – it is of course possible for Parliament to raise the contribution rate from 18,5 % to – say – 20 %. For new entrants into the labour force this will increase the replacement ratio by some five percentage points.

It is always possible for Parliament to increase the value of the Guarantee Pension or, for example, the value of pension rights for years of child care. Changes of this nature are entirely within the framework of the NDC system, and all Parliament has to do is pay for them with budget revenues. The advantage of the NDC framework is that these decisions are made explicit and transparent, and can be weighted against other needs.

Mr. Scherman advocates that it should be possible to increase the fees without any increase of the pension rights, supposedly to remedy a lack of financial balance. Such a possibility would change the system from a NDC model to something different, maybe to a "reformed defined benefit scheme". I am against that.

The aim of Mr. Sherman on this point is obviously to create a possibility to increase the pensions. History is perhaps a guide. During the almost 40 years when Sweden had the old system the real value of the ATP-pensions was never raised by political decisions. During the short period when the new system has been in place, the real value has increased by 2,4 %.

Concluding remark

The main aims of the 1994 reform were to make the mandatory pension system, more sustainable, more fair – and to improve the incentives to work. I think that has been done.

Many developed countries need to reform their pension systems. Some of them have used some ideas from the Swedish Pension Reform. Several others discuss features of that reform. The pronounced intention of Mr. Scherman's article is to warn them from doing this. Among his reasons for that is that he considers the Swedish replacement ratio low and want Sweden to transfer large responsibilities to the state without any adequate financial compensation. I doubt whether he is doing the countries now discussing pension reform a service.

Notes

1 Pensionsarbetsgruppen: Ett reformerat pensionssystem – Bakgrund, principer och skiss. Ds 1992:89. (Only in Swedish).

2 E.g. Michael Cichon: Notional defined-contribution schemes: Old wine in new bottles? ISSA Review, 4/1999.

3 NFT 2/2003 Könberg, B: Pensionsreform med sunda principer. (In Swedish. An English translation can be ordered from the author.)

4 NFT 4/2003 Scherman, KG: The Swedish pension reform: a good model for other countries?

5 Scherman, KG: The Swedish pension reform. ILO Discussion paper 7 (1999).

Pension reform in New Zealand and Sweden
– *A comparative analysis of path dependent reform processes*

by Lars Harrysson and Michael A O'Brien

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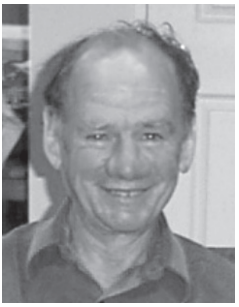
The social right of a secured income enough for subsistence in old age is an important aspect of social policy.

Our objective has been to discuss public pension reform in New Zealand and Sweden. Through comparison we have revealed inherent forces fuelling as well as restricting pension reform. To better understand the political differences and counter forces an approach of "path dependency" derived from historical sociology, political science and new economic history was applied.



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Over the past 25 years most industrialised countries have had an ongoing debate on public pension reform. Major reasons for this have been the visible pressure on existing solutions of retirement provision from their maturation, the slackening economic growth and the large population cohort born in the 1940s. It has been argued that the proportion of elderly living on retirement incomes would burden the working population severely for a number of years and that overall costs are rising.[1] However, this is not the only reason for pension reform that has been argued for. Some scholars mean that pension reform was needed due to existent systems' unjust distribution of both burdens and outcomes.[2] Others have seen the globalisation of capital flows and labour markets as a threat to citizenship based "pay-as-you-go" systems.[3] To many, not least economists, a more individual, contributions based and insurance like system has been promoted, that will, it is said, increase the transparency of the system[4] or not distort the functioning of the labour market.[5] All of these, however, are presented by economists and from their perspective are seen as efforts and ideas to reach a sustainable system for the future.

Several signs in the recent political econo-

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my of retirement in New Zealand and Sweden, whatever the strength of the arguments above, show a diverse picture of how neo-liberal economics has held certain solutions before others. We are also presented with a development wherein these solutions have been brought forward as "the single way" to confront the identified threats. In this process a very successful act of ideological enactment has passed by without much notice, namely a circular self-evident reasoning of problem definition and political action[6] that can at least partly be described as myths.[7] Following Adam Jamrozik it can be viewed in terms of how a professional group was allowed space to move the political question into a technical one for administrative attention.[8] That allowed a focus of social equality to be replaced by one of efficiency. The particular professional group, neo-liberal economists, applied their economic analysis as a scientific judgement, thus legitimating increased individualism and market orientation. In other words: One solution to a social question of the greatest concern was allowed to be presented as an officially approved objective reality, even though it was no more than an assumed reality embarked from, in its promoters' view, a desirable model. The speed and depth of change in the two countries discussed here, New Zealand and Sweden, varies considerably despite similar arguments behind the necessity of change. So does the outcome. In this context our objective when studying public pension programs in New Zealand and Sweden is to discuss traits of development and their possible impact on social inequality.

Our approach

By using a comparison we have had the opportunity to reveal inherent forces fuelling as well as restricting pension reform. Comparison between New Zealand and Sweden is motivated by the fact that the two nations are small open economies, with small populations and a long history of public social welfare. Both countries have experienced powerful pressure for reform from several sources, although the outcomes are not the same. Even though passing comparative references are often made between the two countries, extensive comparisons, apart from official statistical surveys, are not common. Some exceptions are Alexander Davidson's[9] welfare history and a few articles by Herman Schwartz[10] on the changes in economic and labour market policy in the 1980s and 1990s.

Comparative research on a few cases, "small-N",[11] is a feasible way of generating understanding of welfare change in contemporary society.[12] The main disadvantage of this approach is that with only a few cases it is difficult to provide any conclusive explanations. Many factors require consideration and in the short term they cannot be fully empirically tested. As is clear from the welfare state retrenchment literature, there are a series of questions and hypotheses that require further research, preferably produced on an inter-disciplinary basis.[13]

The welfare setting

New Zealand has been widely touted as one of a number of countries making substantial changes to welfare state and social policy under the neo-liberal umbrella. The changes of the 1980s and 1990s in New Zealand were pursued across the board in the core welfare state areas of health, education, housing, personal social services and income support. The extent of the changes, their effect and the political and ideological underpinnings on which they were built are well set out in the literature.[14] Alongside and as a result of the policy changes pursued by the Labour government of the 1980s and its National (Conservative) successor during the following decade, the welfare state changes generated both

significant widening of inequalities and political and ideological challenges to the assumptions on which the welfare state in New Zealand has been built. Indeed, it is argued by a number of commentators that the income inequality gaps grew wider in New Zealand during the neo-liberal regime than in any other country.[15] However, the gap itself in New Zealand was still not as wide as in a number of other countries.

The growth in unemployment, the cuts in income support in 1991 and the taxation changes throughout the 1980s and 1990s were the major factors in creating this wider inequality. Along with the introduction of market rentals for public housing (known as state housing) they were the major factors in creating and sustaining the substantial growth in poverty.[16] These policy changes were built on arguments, assertions and assumptions that the welfare state was creating dependence, was too large and consuming too much in the way of resources and needed to be substantially reduced. While economic considerations were given a high priority as the rationale for the change, it was the ideological and political arguments, which provided the most persistent and substantial rationale and the legitimisation for the new directions, particularly the directions proposed in 1991 by the newly elected National Party.

Sweden, too, has experienced an increasing income inequality during this period of time.[17] This is particularly visible between insiders and outsiders in the regular labour market, but also among those inside the social insurance system and those not eligible for such benefits.[18] As in New Zealand tax reform has had an impact on the distribution of consumption possibilities.[19] Along with increasing unemployment in numbers and duration, changes in the benefit systems have occurred, i.e. in the unemployment insurance and the social assistance system.[20] These changes have primarily been directed towards compensation levels and harsher terms for the unemployed, groups marginalised or excluded.[21] The main structure of the welfare system is still intact apart from the earnings related public pension system that has been restructured.

Our perspective

The choice of whether welfare reform should be based around equality of treatment (formal/procedural – fixed) or of outcome (social – relative) is a value decision. Many of the changes, as well as proposed ones from the 1980s and onwards, have been based on a political encounter between these opposite beliefs. Several arguments used to promote a diversion from the universal welfare state model to a more individualistic and targeted approach could be considered as myths.[22] These myths include arguments that the universal welfare state does not redistribute wealth but only causes bureaucratic roundabouts[23] or that strong arguments against the welfare state have been presented by making cleavages between exposed – unexposed, traded – non-traded sectors when discussing welfare state development.[24]

The neo-liberal agenda, as political paradigm, provides us with an important background to the analysis of the pension reform process. To better understand the political differences and counter forces, however, we apply an approach of "path dependency" derived from historical sociology, political science and new economic history.[25] By focusing on the asymmetry in power resources as an aspect backing the dependency culture[26] we are partly leaving the more technical "path dependency" arguments aside. We argue that it is not plausible to view the political action only as effects of earlier political decisions, and without notice of a corresponding evolution in material wealth, welfare institutions and the ideological base of political action over time. The level of restraints to change,

presented by existing institutions is not an objective phenomenon, but open to evaluation.

Practically this call for an approach where a technical focus on political action is accompanied by a clear reference back to past and present social relations, ethos and myths, as well as corresponding ideology.[27]

Pension reform processes and outcomes

The New Zealand Labour government, which was elected in 1984, introduced a surtax on the earned income of pensioners. That is, in addition to their ordinary tax rates older people earning above a given figure were required to pay an additional tax on their other income. This surtax impacted on the incomes of approximately 35% of elderly who had a private after tax income of $7,072 for an individual and $12,012 for a married couple. The tax was set at 20%. It was the source of enormous political debate but remained in place throughout the period of the Labour government.

While the introduction of the surtax serves as the first significant policy change in relation to pensions, the National government's changes of 1991 constitute the second. The major change proposed was to move pensions to an income tested benefit. This involved three parts: a universal component starting at the age of 70, increasing age of eligibility to 65 occurring at a quicker rate than had been the case with the previous Labour government, and freezing the level of benefit for two years. However, faced with sustained pressure from older voters (particularly those who were more affluent and articulate), their proposal to move to a means-tested benefit was subsequently abandoned. Furthermore, the National government increased the level of the surtax which had been introduced by its predecessor. This increase was completely contrary to what had been promised during the 1990 election campaign. The increased surtax remained in place until 1998.

A significant initiative of the 1990s was the referendum on the introduction and development of a scheme, which would create individual pension plans similar to those used in many European countries. These proposals received support from less than 10 per cent of the population at the referendum. The referendum proposal followed a series of Task Forces and working groups throughout the 1980s and 1990s focusing around the long-term viability of public pension provision. One of the central considerations that led to both the establishment of the Task Forces and was reflected in their reports was the notion that New Zealand could not sustain public pension payments at the current level. The various Task Forces and Working Groups had initially been established by the Labour government. They were continued by the National government often with the same personnel as previously.

While there have been some policy changes, these changes have not fundamentally altered the scope and coverage of public pensions for the elderly. The age of eligibility has increased, the surtax has come and gone, there have been changes to the formula used to calculate the rate and the relationship of the rates to existing wages, changes to the floor below which provision cannot fall. Nevertheless, it remains a universal payment to all those who reach the age of 65, with a regular review process which keeps the rate of payment linked by a formula to existing living standards in the community. It is paid at a much higher rate than any other social security benefit. At the same time, the proportion of the population who are eligible continues to grow and National Pension draws on a substantial proportion of government expenditure and of gross national product. That pro-

portion is likely to increase over the next two decades. The Task Forces, Ministerial arguments and arguments from the financial sector pushed heavily for a move to some form of individual provision. These efforts to individualise and privatise pensions were spectacularly unsuccessful. For the purposes of this discussion, the core question becomes: why, despite all the activity, did the changes of the 1980s and 1990s produce so little difference in pension policy?

Why, then, did change occur in Sweden? Slackening growth, demographic awareness and political rhetoric opened the system for restructuring in the 1990's. The public pension system makes without doubt a large share of total public expenditures. In 1965 it was 4,3 % of GDP but in 1992 it was 12,2 % of GDP. It makes it a welcome target for financial cuts in times of public budgetary pressure. During the period of economic crisis 1991 – 1995 several cuts were made to save public spending. This was despite the budget crisis being mainly an income crisis due to lowering of direct income taxation.[28] During this period a parliamentary group of members from all major parties worked to form a proposal for an entirely new system. A preliminary decision on the direction was taken by the Parliament in 1994. Since then several parliamentary groups have worked with the technical development and implementing process of the new system.[29] That process was completed by the end of year 2000, even though some aspects still had not found their final form. The restructuring of the system was called for as a measure to reach future system sustainability. It was triggered by the fact that the former system had not covered its own costs since 1981 despite a favourable demographical situation.[30] The economic problems at the end of 1992 emphasised this problem. Combined with the threat from forecasts of the future demographical development, attention to the pension system was demanded.

The adapted solution went along with sharp cuts for existing retirees. This is summarised by Karen M Anderson as: "These changes entail a significant decrease in nominal benefits for current pensioners, and future pensioners will be subject to a radically different set of rules governing finance, eligibility, and benefit indexing. As a result, the revamped system will lose much of its redistributive character and will play a much smaller role in generating publicly controlled savings."[31] The debate leading up to the decision was set by the identification of four major weaknesses. These were: the sensitivity of the former system to economic swings and slackening growth, the drainage of the reserve funds, the weak link between contributions and benefits, and the rising costs of the basic pensions.[32]

Benefiting from the turbulent economic times, groups with more explicit neo-liberal ideas of restructuring gained space in the reform process. The employers' organisation (SAF) and its loyal ideologically driven "think-tanks" produced several attacks on the existing system. Many of the arguments can be found among the ones that later have considered at least as partial myths, some in favour of the design of the new system, some as arguments against the old. The opportunity for the Conservative government in office 1991-1994 to restructure from previously unacceptable ideas formed a base for its stand in the debate, while the Social Democrats searched for a reform strategy that would trim the weaknesses from the old system.[33] The design work was, unlike earlier efforts, processed without the major labour market interest groups represented, although they were consulted. To define questions or problems for discussion these groups therefore had to put pressure on the process in other arenas.The new system has some distinct differences from the former one. First, benefit levels are based on lifetime earnings instead of the former 15/30 rule (15 best years out of 30). It contains a

move from a defined benefit system to a defined contribution system. This is pronounced in particular by the premium reserve part, discussed more fully below. The change was underpinned by arguments of a need for a tighter connection between contributions and benefits. Second, it was emphasised that the public should become more aware of the costs of their pensions. Splitting the contribution payments between employee (payroll) fees and employer payroll taxes was the solution. Earlier the payroll taxes were not visible to the employee. Third, taking up the argument that one of the main weaknesses of the former system was its sensitivity to economic swings and by its consumer price indexing producing strange distributive effects between the active labour force and retirees, a new indexation system was introduced. This new index is linked to the development of wages and real economic growth, but also to more long-term changes in average life expectancy. It is expected that the system will be less affected by swings in the economy and in governmental finances.

Fourth, pension rights are acquired through paid employment (labouring or self-employment), but also child rearing, military service and tertiary education (with restrictions on duration). The rights may be moved between spouses on a yearly basis. However, they are not retrospective. Fifth, the new system contains a premium reserve module. While 16 % of the payroll goes to the PAYG system, 2,5 % of the payroll (total pensions contribution is 18,5 % of payroll) goes to the individual accounts based premium reserve system. Individuals are free to place these into accredited funds, approximately 100 funds divided between 40 companies, domestic and international. Finally, the former basic pension is replaced by a raised guaranteed pension for those who have not earned or those who do not have enough earnings related pension. The guaranteed pension is paid from general revenue. The transition will take 20 years and people born between 1937 and 1954 are insured by both systems. A person born before 1937 continues in the old system and those born in 1955 and later are only in the new system.

Discussion

This paper pursues its argument using the framework developed by Paul Pierson.[34] In his discussion of the dismantling of the welfare state, Pierson suggests that there are two important dimensions to the welfare state changes to examine. He distinguishes between programme retrenchment and systemic retrenchment. The former refers to cuts in programmes, services or benefits. The latter includes three key dimensions, obfuscation, division and compensation.

The first, obfuscation, refers to the ways in which proponents of change deliberately set out to create confusion and uncertainty among beneficiaries of services and the public generally. We suggest in the following discussion that this dimension is not limited to the actions of policy makers and legislators, but is part of the practice of other policy actors attempting to shape the direction of change, or proposed change. The argument can be elaborated with help of Walter Korpi's concept of an "augmented rational actor".[35] The second dimension, division, refers to the ways in which the processes of change in themselves create differences and competing interests among those affected – in many ways it has elements of classical divide and conquer. The third dimension, compensation, relates to the ways in which welfare state changes provide recompense for some of those affected thereby compensating for losses, even if the compensation is some distance into the future. Pierson states: "A common dynamic of retrenchment involves competing efforts of governments to

play one group off against another while programme supporters attempt to 'circle the wagons.'"[36]

The focus in Pierson's work is on what he calls "new institutional politics", that is the way in which existing policy creates politics as a result of welfare state development (in contrast to the initial stages of welfare state development where politics creates policy). The welfare state creates its own sets of interest groups. It is an argument, which emphasises state centred approaches to politics and policy.

Pierson argues that the approach to welfare state development cannot be replicated in examining the process of "dismantling" the welfare state. In essence the reason for this is that by its very life and development and its provisions the welfare state has created particular sets of alliances and interests, the influence and actions of which have to be considered in any work which focuses on the "dismantling" of the welfare state. By their very nature, these alliances and interests were not operational during the development stage.

He also refers to what he calls "de facto privatisation" which incorporates two elements. First, states may act to reduce the available revenue through tax cuts thereby implicitly and/or explicitly encouraging people to pursue private provision. Second, public provision may be reduced by such measures as changing or breaking the rules for benefit uprating thereby reducing the real value of those benefits. Again, citizens are pushed towards privatisation.

While the aim of welfare state "dismantling" has been to reduce public support for state services, the critical question is whether the level of support has actually fallen and if public opinion has changed. Pierson argues in fact that retrenchment has actually not been particularly successful, an argument that is supported by the thesis in this paper concerning pensions in New Zealand. Sweden, however, show some different results that do not entirely support that hypothesis. A significant element in his argument is that historical features associated with the initial development of the welfare state have an important impact on subsequent efforts to re-commodify it. Castles has argued in a similar vein that the early origin sets the base for much of the subsequent policy development because of the way in which it creates boundaries.[37] The significance of the historical issues in shaping subsequent policies is even more clearly articulated by Pierson: "One simply cannot make sense of the contemporary politics of the welfare state without considering how the consequences of pre-existing policies structure struggles over social policy reform.... Scholars working on a range of empirical issues have begun to emphasise that "policies produce politics. The massive twentieth century expansion of the public sector has clearly contributed to this new orientation. Increasing government activity made it harder to deny that public policies were not only the result of but important contributors to the political process, often dramatically reshaping social, economic, and political conditions."[38]

Many of the changes made in Sweden alter the redistributive features of the system. The shift from defined benefits to defined contributions, the introduction of lifetime earnings and the premium reserve module, as well as the lifted ceiling of maximum benefits minimise horizontal distribution. This has been one important aspect to many promoters of change since it enhances individualism. To achieve this politically a "carrot" is needed. Therefore, following social justice logic from John Rawls,[39] a formula where the worst off would get it better was formulated. The process is well formulated by Pierson's second argument, division, above. The guaranteed pension, financed from general revenue (the former basic system had payroll financing with a general revenue guarantee), was in-

creased and employers let off the hook. However, the guaranteed pension is targeted towards lower income groups, not, as earlier, a social right as such. If an increasing share of the population fall into the group that need guaranteed pension, either fully or as topping up, redistribution will take place. But the level of redistribution is also dependent on the organisation of the tax system, especially the balance between direct and indirect taxation. Lower income households spend a larger share of their income on consumption[40] and thus pay more tax, relative to high income households, if indirect taxation is used. Further, it is shown in studies made by the National Insurance Board (RFV) that about two thirds of the studied population will lose in the new system, mainly lower level salaried employees and women working part-time and less than 40 years. To receive the same benefits in the new system as in the old it requires 40 years, i.e. 10 years more. The loss among large groups is enhanced by the new indexation rules. About 80% of the population will lose 7-8 % in pension value due to this.[41] The indexation rules are devices to balance "unfair" redistribution between generations. The reliance on an actuarial fairness argument, i.e. the basis for individually contracted rights, stating a strict connection between contributions and outcomes increase the tensions between generations. All earnings-related systems have this tendency, funded or not, since individuals can, based on property right logic, produce obligations on the not yet born collective. The argument is opposite to the commonly used critique of PAYG systems. It can be described as what Elchardus[42] refers to as the "divorce of solidarity and self-interest of well understood". The important aspect here is basically that the argument is a technical one, while the subsistence of the elderly to which pensions are aimed[43] is real. Since the early days of social insurance, the problem in modern societies of providing subsistence individually after a long working life has been positioned politically in an administrative/technical arena (see the discussion in relation to Jamrozik and others above). That arena has not, however, been independent from augmented rational actors who have been able to put pressure on the process of design of earlier as well as existent pension programs. Expertise, such as that of actuaries, statisticians, economists and others, forms a strong force in de-politicising and removing matters from the political arena.[44] This has not least been the case concerning pensions on several occasions.

It is obvious that in the Swedish case the path followed has produced some clear dependency characteristics, such as the pay-as-you-go basis of the new system and a clear publicly controlled system.[45] However, as a result of a policy reform process during an era of quite clear influence of neo-liberal economic thought, aspects of change in the new system in Sweden are not motivated by the clear need of a sustainable pension system for the future, but were rather ideologically driven changes. In this respect the individual accounts and the premium reserve might serve as examples. They are, to use the perspective adopted here, outside the path dependency pattern.

In the New Zealand example on the other hand and particularly from 1986 onwards, the state's social, economic, ideological and political framework was built around notions of limiting state involvement and maximising individual responsibility. State provision had been widely identified as bad, private provision as good, an argument that was canvassed extensively during the 1980s and 1990s. Moreover, over recent years particularly, there has been a very powerful rhetoric focused on benefit groups, other than superannuitants, around the notion of dependency. Benefit receipt has been ipso facto seen as dependent and therefore bad by definition.[46] Here we

see what has been characterised elsewhere as "a failed marketization"[47] , failed in the sense that the efforts that have been made to establish marketization have been unsuccessful in moving from a state provided, taxpayer funded pension scheme to an insurance based scheme connected to lifetime earnings. As we noted above, promises of compensation were unacceptable. There have at various times been powerful employer, financial and political voices which have argued that the current National Pension scheme is financially unsustainable for both fiscal and demographic reasons,[48] but many of these voices were opposed to the scheme proposed in the 1997 referendum because that scheme was considered to be unsatisfactory. Nevertheless, these voices have been unsuccessful in shifting the ideological parameters of the debate; there is much stronger public support for a pension than there is for other social assistance programmes. For example, in the 1988 Royal Commission on Social Policy study, there was significantly stronger support for government use of taxation for income support for the elderly than for any other social assistance groups, with the exception of the sick.[49]

The historical framework of provision through the state remains the dominant expectation. Ideology has been unsuccessful thus far in producing significant policy change, other than to increase the age of eligibility and to reduce the relative level of benefits. However, even the latter has been increased since the election of the Labour government in 1999 and the current Parliamentary Opposition has indicated that it does not intend to change the relationship between pension level and the average wage. In their study of New Zealand politics at the turn of the century, Perry and Webster demonstrate that there has been an increase in the levels of support for government spending on pensions over the last decade of the 20th century, the period of the most significant efforts to contain and review expenditure on government pension. In their survey in 1989, 52% said they should either be some increase or a great increase in spending on pensions. In the subsequent survey nine years later, this had risen to 59,6%.[50] It is a picture similar to that identified by Pierson who notes that popular support for social provision is more solid than a decade ago. His argument that "far from introducing a self reinforcing dynamic of retrenchment leading to greater political alienation from social programmes and further retrenchment, the conservative assault generated a backlash in support of the welfare state"[51] is equally applicable here.

The outcome of this 'failed marketization' thus far has been that pensioners with limited additional income have been protected, albeit with a weakened floor. That is, a consensus remains about the right to a pension on retirement and on the role of the state in providing that pension. However, the strength of that consensus has not been tested by significant economic or political opposition and it remains to be seen how strong that consensus will be when such opposition develops. An emphasis on personal provision and on the superiority of the market over the state as a form of social organization is likely to place the poorest elderly under some financial pressure as increasing proportions of the most powerful and affluent make their own voluntary provisions for pension. There has been much less attention to the adequacy of the level of national pensions for those older people who have little or no additional income in New Zealand. In Sweden on the other hand a new income support system (äldreförsörjningsstöd) for those not eligible for a full pension has been introduced. The system makes it possible for elderly persons not to be dependent on means tested social assistance. This is to be considered a political realisation that subsistence is not a sole question of individually pre-funded social or private insurance.

Concluding remarks

Pierson's argument about changes to the welfare state have considerable merit when considering pension changes in New Zealand since the late 1990s, somewhat less in Sweden. In particular, the creation and articulation of "the problem" of pensions and the range of measures proposed and taken to deal with that "problem" reflect a range of dimensions which Pierson's descriptions of division particularly, and compensation to a lesser extent, provide adequate description and characterisation of. Alongside these processes, including the process of obfuscation, must be placed a consideration of the ways in which the actual "politics of pension reform" operated and reflected the historical development of pension. In line with Pierson's general thesis, it can be argued that they reflected and represented the sets of interests which had been created as a result of the historical and policy decisions and processes throughout the preceding years. The sustained efforts to move to a model of privatisation proved unsuccessful in New Zealand but partially successful in Sweden with its emphasis on a process of individualisation and increased reliance on pre-funding. In this sense they both contrast with[52] recent discussion of pension's policy in Latin America in which they emphasised the role of private financial interests. It should be noted, however, that at the same time they identified the importance of attending to local dimensions of policy change, a focus which is reinforced by the New Zealand experience. Certainly too their emphasis on the role of privileged groups is reinforced by any analysis of the processes of change. Pierson's overall assessment of the forces of change is reflected in this case study when he argues: "Social forces are important, because advocates of retrenchment are unlikely to succeed in the face of substantial political opposition. Nevertheless, institutional factors – including the structure of formal institutions, but especially the consequences of previous policy initiatives – are central in determining whether this political opposition actually emerges."[53]

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KOMMENTAREN

The pension reform debate

by KG Scherman

Over the last decade an intense debate has been going on about pension reform. Following political problems in reforming traditional DB systems, but also for a variety of other reasons, new models have been introduced and intensely advocated by their respective proponents. After a reform in Chile in the early 1980s, the "Chilean model", a funded system based upon mandatory individual accounts, became the centre of the debate. Now, the recent reform in Sweden is subject to much comment, and the "Swedish model" is being recommended by the World Bank, the European Commission and numerous finance ministries. Swedes are saying: "With so much international praise, it must be a good reform we have implemented".

We must sort out what this new "Swedish model" really is. After all, the Swedish reform is a complete overhaul of most of the basic features of the former public pension system with a switch from the traditionally accepted solidarity concept to what the Swedish Government calls "actuarial solidarity" which is the guiding principle behind the reform. What do the proponents of the Swedish model really mean when they refer to it? There is a wide range of possible elements to consider.

From a pension system point of view, there are the following features:

- The introduction of a funded pension component alongside the PAYG part;
- A completely changed PAYG scheme, ending up in the "notional defined contribution" (NDC) model;
- A successive phasing out of the minimum pension in the face of economic growth.

From the point of view of outcomes, the following are particularly relevant:

- Life-time earnings as the basis for the level of retirement pension;
- Abolishing the "normal pension age";
- Taking increasing life expectancy into account in the calculation of pensions, thereby steadily raising the age when a person can retire with an adequate pension.

From the point of view of pension politics, yet other features come to the fore:

- There was a broad political consensus behind a reform that effectively reduces pensions and pension expenditure;
- There was no public opposition despite reductions in future pensions.
- Sweden's reputation as an advanced welfare state makes it useful for politicians elsewhere to refer to their reform proposals as following the Swedish model.

Given the above aspects of the Swedish reform, it is clear why it is claimed that many reforms follow the Swedish model. Indeed, this can be claimed for every successful reform which reduces pension expenditure. Second, it can be claimed for every reform that, in

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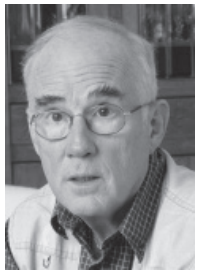

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the face of raising life expectancy, increases retirement ages and/or accomplishes a corresponding result by reducing benefits drawn at a certain age (such as has happened in Finland and is proposed in Germany and Norway). Third, such a resemblance can be claimed following the introduction of a funded component in the public pension arrangements (for example, in Poland, Hungary and in the voluntary scheme in Germany). Finally, it can be claimed whenever an NDC approach is adopted (such as in Latvia, Poland and Italy)

Clearly there is a need to know what a reference to "the Swedish model" really means. To which of all the features enumerated above does a reference to "the Swedish model" refer? This is needed in order to avoid confusion that otherwise might arise from an association of various features of the new Swedish model with what Swedish welfare arrangements have traditionally stood for, but which does not apply to this pension model. And such a clarification it is needed for Swedes better to understand the reasons for the international praise of our reform.

It is also worth phrasing a question based on a concern shared by many international experts, when considering the distribution of risks in different pension models: Is there any truth to the allegation that in choosing among pension models, the NDC model is popular, not necessarily because it is a good system, but because it is not possible for the general public to properly understand the implications of the system, and hence it can be introduced without public opposition?

I am happy to note that many outstanding international experts have accepted the invitation to come forward and help to investigate these matters. In this issue, Bernard Casey of the London School of Economics and the Pensions Institute, Cass Business School, brings to us his views. He writes about the need to take a whole range of policy areas into account when making a full assessment of a pension system, discusses terms such as security, equity, effectiveness and solidarity, provides a framework for assessing how vulnerable pensions systems might be, and analyses the reform processes, including the why and how governments might try to avoid political responsibility for making unpopular change.

In subsequent issues we will have the opportunity to read articles addressing topics including:

- the economics of public pensions and their social objectives, and how well the NDC model can create an appropriate balance between social goals and financial constraints;
- a need for a closer coordination of European pension systems and for them to adopt a more actuarial approach - an approach where a NDC system would be a good alternative;
- retirement ages and the consequences for individual retirement decisions and the national economy of an actuarial approach to retirement age, as well as the political implications of such an approach;
- a German perspective on the Swedish pension reform;
- whether the NDC model is really new or a variation of the traditional DB model;
- an overview of the pension debate where the NDC model is put into perspective along with other approaches to public pension reform.

From this series of articles, and the preceding articles in the series, beginning with Messrs Hagberg and Wohlner in no. 2/2002, and followed by articles by Messrs Settergren, Könberg and Scherman, it is planned to further clarify matters and to make Swedes aware what the Swedish pension reform really is all about. As a part of this information dissemination, an international seminar may be held during 2005, and other events will also be held.

Evaluating Pension Reform

by Bernard H Casey

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The intention of this article is not – pace Shakespeare – to praise the new Swedish pension system – but also it is not to bury it. Rather it is to lay out some of the basic premises on which retirement income systems are predicated. It tries to make explicit notions that are often implicit and sometimes not addressed at all. Discussion of the relative merits of "NDC-type" systems, or of pension reform more generally, cannot take place without this being done. It is necessary to consider not merely public pension systems, and as importantly, private pensions systems that interact with them, but also employment systems that provide work for older people and social service systems that provide care to those unable to help themselves. It is also necessary to make clear what objectives particular reforms are trying to achieve. Normally, these are multiple and, in so far as they are, there are ordered. The hierarchy in question need to be made clear as much as do the objectives themselves. The article argues that only if reform is sufficiently encompassing, and only if it is sufficiently transparent, will it be sustainable.

Introduction

Recognition of the "demographic time bomb" is relatively new. With the exception of the Greenspan Commission in the USA at the start of the 1980s, until the end of the 1980s few economists or social policy analysts considered demographic change. Interestingly, some of the earlier discussion of what such change might imply looked not at old people but at young people – how the passing through of the baby-boom cohort would mean a dramatic reduction in the number of young people entering the labour market, and what the consequences of this might be for employers in sectors that had made extensive use of young workers (NEDO, 1998).[1]

The World Bank's "Averting the Old-Age Crisis" publication was important as much for being a first contribution to a debate about what an increase in the share of the population that was old would mean as for the appropriateness of its analysis or its recommendations. It provoked a series of emulations from international organisations such as the ILO, the OECD and the European Commission, each of which coloured its analysis and prescription with its own philosophy and understanding of the needs of its particular constituency.

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Pensions policy and policy for older people

What is interesting about the debate that has been provoked is how fragmented it has been. Much of the discussion has centred upon pensions, some of it has been about health and long term care and some of it has been about employment. The few attempts to integrate these themes have been presented under the umbrella of analyses of fiscal costs of societal ageing – and in constructing these, the European Commission and the OECD took the lead (OECD, 2001). However, these attempts were highly restricted. The principal concern was government expenditure, of which pension expenditure was the most easily identifiable and least problematic to project. Much uncertainty surrounded projections of health and care expenditure, partly because costs were less easy to identify, partly because assumptions about future morbidity were fraught with difficulty, and partly because technological developments were highly uncertain. Employment entered into the analysis in a yet more subsidiary fashion. Employees were considered in terms of being contributors and, subsequently beneficiaries of pensions. Pension systems were seen as being potentially more sustainable if fewer people retired early and more people retired late.

If pension reform – the subject of this series of articles – is to be understood seriously, the first step must be to cease studying pensions by themselves. It has been shown that, were the incidence of early retirement to be reduced and the effective retirement age were to rise by one or two years, a not inconsiderable share of the "pensions crisis" might be alleviated (OECD, 2003). However, other than by proposing that early pension opportunities be cut back or made less generous, those who conduct such simulations give little thought to how this raising of the effective retirement age might be realised. In many countries, the workforce is going to grow more slowly than in the past, and in some, it is even going to shrink. Even this does not mean that there will be an increase in demand for older workers. Institutions, practices and attitudes toward the latter, amongst labour unions as much as amongst employers, have been developed over a time when early retirement provided a convenient and socially acceptable way of downsizing and of restructuring to enhance competitiveness and flexibility, and this led to the development of attitudes and expectations amongst employees themselves. None of these practices and attitudes will be easy to change in the medium term. Moreover, there might be no need for them to change. Europe is enlarging. There are reserves of what are recognised as well qualified labour waiting on the borders of "old Europe". For employers, their availability might provide a solution to the shortage of labour as satisfactory as one that involved the reorganisation of work for older employees.

Ageing societies do not produce only a greater share of the population that is, potentially, financially dependent, it also tends to produce a greater share of those who are physically dependent – the "very old". How much physical dependency (and included here should also be "mental dependency" as generated by senile dementia) will increase depends upon whether ageing goes hand-in-hand with an extension or compression of morbidity. Here the realm of uncertainty is large. However, if there is an increased need for care services, this has its own implications. Care provision for the very old might be given informally, but, if it is, this is likely to have employment implications. The care givers – who often fall into the same age group as older workers, early retirees or even slightly delayed retirees – are likely to require some kind of adaptation of their working schedules analogous to the changes that have been demanded, and to some extent achieved, by younger workers who have responsibilities

caring for children. This has its own work-organisation consequences. If such reorganisation is not forthcoming, the requirement of the pension system for more contributors in amongst one of the groups where labour force participation is currently relatively low is likely to be frustrated. Of course, the alternative would be to rely upon formal care provision. Yet if this is provided by the state, it has its own fiscal implications, offsetting some of the gains that the increase in activity rates is supposed to generate (Casey, 2003a). Were, instead, the costs of formal care to be met privately, this would have its own consequences. If costs were to be met by the otherwise informal care givers, this might discourage them from going out to work, since the care costs thus incurred could dig heavily into their incomes. If the costs were to be met by those who receive the care, this would raise distributional questions – who would obtain what care and of what quality – and adequacy questions – would the sharp reduction in disposable income be tolerable.

The discussion of who pays raises a further dimension that has to be taken into account in analysing pension reform. The preoccupation of many policy makers has been with reducing the state's involvement in providing pensions because this reduces both the share of public expenditure in GDP – with its implications for interest rates and currency stability – and the "tax wedge" – with its negative impact on labour demand and labour supply. There are calls for a greater role for personal responsibility and for people to save to make provisions for old age. However, if privatisation merely takes the form of mandatory savings, it is unclear whether the tax wedge is reduced. Moreover, although contributions to mandatory private insurance systems are not normally taken into account when disposable income is being assessed, they need to be taken into account when pre- and post-reform well-being is measured. Equally, whatever protestations might be offered to the contrary, governments might find themselves under political, if not judicial, pressure to meet liabilities of any scheme that has mandatory membership and is subject to standards and rules of behaviour that the government has approved (Casey, 1998).

The fact that pension policy does not exist in isolation from other areas of social policy – broadly defined – makes evaluation of reform a complex process. It is clearly insufficient to concentrate solely upon a single measure. Reform is only sustainable if it can be shown to be backed by appropriate, complementary policies, and if it can be shown that negative spill-overs have been foreseen and minimised.

Whether reform is indeed "successful", however, depends upon who is measuring the outcome. Those who do the measuring either tend to use their own yardsticks, or, when they use a common yardstick, they often fail to agree on what the individual unit of measurement means. This can be seen when the terms "security", "equity" and "efficiency" – the traditional calibrators employed in debate – are analysed more closely.

Understanding "security", "equity", "efficiency" and "solidarity"

Discussions with academics, policy makers and practitioners from a large number of countries have made clear in how many ways these terms can be used. The table below summarises the interpretations of the first three advanced at the most recent conference of ISSA's European section.[2] Here, there were participants from central and eastern Europe as well as from western Europe, functionaries of public schemes of "partitarian" schemes and of intergovernmental and international organisations, as well as academics and representatives of NGOs. The individuals offering definitions came from countries with widely differing pension systems, they had greater or

lesser experience of pension reform and/or often deeply opposing views of how pension systems should be constructed and what their role was. Accordingly, the heterogeneity of responses, if illuminating, was scarcely surprising.

Table 1: With respect to pensions, what was meant by….		
Security	*Effectiveness*	*Equity*
adequacy of benefit assured minimum level of benefit assured benefit level kept stable costs kept under control ability to pay "promised" benefits assured	benefit doing as intended benefits well targeted well and economically administered	vulnerable groups protected inequality reduced poverty alleviated solidarity maintained proportionality ensured actuarial neutrality assured

The table does not show the frequency or intensity of any response merely whether a particular definition was advanced at all. Perhaps because the audience was European, the notion of "solidarity" was frequently advanced, but even then, more than one meaning was placed upon it.[3] Thus, solidarity could be used in each of the following situations.

Table 2: Types of solidarity			
	Benefactor	*Beneficiary*	*Exemplified by…*
Traditional	adult child	elderly parent	family-based support
Narrow egalitarian	active workers	retired workers	statutory employees insurance
Broad egalitarian	younger generation	older generation	citizens insurance
Mixed	earlier/current cohort	current/later cohort	public NDC-type system
Actuarial	individual	individual	individual accounts

Again, applying each type of solidarity has its own implications. Traditional solidarity tends to mean that children support their parents, whereas egalitarian solidarity means either that current workers support current retirees or that citizens support one another. But it could also be applied to describe a situation where current cohorts should respect later cohorts. Moreover, however much one is told one ought to be solidaristic, there is always room for debate about how solidaristic one should be. It is not only a question of whether one should support but at what level. Associated with this is the question of the extent to which one should redistribute. A solidaristic system may contain a more or less substantial element of redistribution. Continental European, public pension systems, which emphasise proportionality, are *per se* less redistributive than Bevridgian ones, but both would claim to be solidaristic.

Given that there are such questions to answer, it follows that there is also much scope to discuss the trade-offs between the other

objectives of security, efficiency and equity. Indeed, it is precisely because "solidarity" is not a neutral term that the *prima facie* unusual equation of "equity" and "actuarial neutrality" could be made and the new term "actuarial solidarity" could be introduced.[4] That this was done by some of the advocates of NDC-type systems shows that concepts are not immutable and that, in subtle ways, it is possible to recast the debate.

A concept that is implicit in the definitions of security, efficiency and equity is the notion of risk. A key objective of a pension scheme, and one to which almost all commentators would subscribe, is to assist people to minimise the "risks" associated with old age. However, in discussion of pensions it is not unusual to find the term "risk" being used as s synonym for "uncertainty". This is not correct. For example, societal ageing is not a risk. Within the reliability of current population projections, it is a certainty. Individual ageing is not a certainty; it is an aspiration. However, whilst an individual can aspire to live long, and can plan for a period of retirement, he or has little information on how long he or she will be old. He or she is faced with a longevity risk.[5] Only an efficient annuity market, which scarcely exists, or a public pension scheme would allow this risk to be managed.

Individuals face risks of sickness and "risks" of maternity, care giving and studying. Private markets almost always fail to cover these risks, which explains why most countries make some provision for them in their social protection systems. Moreover, some of these "risks" – child rearing and studying – are usually considered to be to the benefit of the collectivity, and this, too, explains why most public pension systems provide some form of "credits" for time out of the labour market.

Over and above these individual risks, there are risks that affect all people simultaneously. Unemployment is one of these, since it is not randomly experienced but, at any one time, experienced by more, or by fewer, people. The unemployment risk is uninsurable for this reason – not only because it is difficult for a private company to control morally hazardous behaviour – and thus it is covered by "social" insurance or its equivalent. Equally, inflation is experienced by all people simultaneously, so it, too, is a risk that cannot be met, or cannot be met well, by private insurance contracts – index-linked annuities are available only at a very high cost. Public, pay-as-you-go pension schemes are better able to adjust benefits to cope with price rises.

When assessing any one form of pension provision, account should be taken less of the extent to which it enables actors to manage risk and more of the extent to which it as a whole is vulnerable. By "vulnerable" is meant the extent to which its performance, relative to expectations, is damaged by events that have an impact either upon the individual or upon the collectivity. Vulnerability, thus, refers to exposure to risks and to changes in the environment. Whilst no pension system is invulnerable, particular systems might be more vulnerable than others. For instance, they might leave the participant less exposed on some sides to factors they cannot control, or they might contain mechanisms whereby unanticipated outcomes can be mitigated and whereby the impact of collective risk is smoothed if not eliminated. However, systems that are less vulnerable in certain dimensions might be more vulnerable in others. Indeed, it is perfectly possible that the price of reducing exposure in one area increases exposure in another. Table 3 (next page) summarises the vulnerability of different systems.

The analysis in this table is, however, at best indicative. With respect to certain risks, it indicates that different systems place this risk on different actors. With respect to certainties, it makes clear that all systems are vulnerable to societal ageing. There is an implication that it is better not to have all eggs in one basket –

Table 3: Vulnerability, by type of pension system					
	DB private	DB public	DC private	NDC public	Multi-pillar
Societal ageing	Exposed *become too expensive to fund, so pensions cut*	Exposed *PAYGO contribution rate becomes too high, so pensions cut*	Exposed *more shares to be sold to fewer buyers, so pension capital falls*	Less exposed *but pension levels fall for any given retirement age*	Exposed *cannot escape demography*
Macro-economic slowdown	Exposed	Exposed	Exposed	Exposed	Exposed
Financial market risk	Exposed *borne, in first instance, by employer and share holders*	Unexposed *except in extremis*	Exposed *borne, in first instance, by employee/retiree*	Unexposed *except in extremis*	Less exposed
Moral hazard	Exposed *actuarial non-neutrality, "back-loading", vesting*	Heavily exposed *actuarial non-neutrality, especially with respect to early pensions and their equivalents*	Unexposed	Unexposed	Less exposed
Political risk	Exposed *tax privileges can make them vulnerable*	Heavily exposed	Exposed *tax privileges can make them vulnerable*	Less exposed *but can be reformed (e.g., Italy)*	Exposed
Life-time/ life-course risks (including low income) and longevity risk	Exposed *seldom credits for time not worked, at best disability component*	Less exposed *credits for time unemployed, studying, maternity, caring, usually a disability component, usually minimum pension (i.e. redistributive)*	Exposed *disability separate, longevity only if annuity market perfect*	Less exposed *credits for time unemployed, studying, maternity, caring, also depends if separate minimum pension operates*	Less exposed, but depends on mix

and thus the "multi-pillar" approach appears to be preferable. However, exactly what the mix should be is not particularly clear. The World Bank, in some of its more thoughtful writings (for example, James, 1998), has been able to classify a large number of countries as having such a system – it could be applied to that of Canada, Switzerland, the UK and the USA but also Japan (with a state pension, extensive company pensions and extensive private/personal schemes), Denmark, Finland, the Netherlands and pre-reform, as well as post-reform, Sweden (with a state system and extensive, collectively-agreed industry or occupational pensions). With respect to company provision, this might be mandatory, as in Switzerland, or voluntary, as in the UK. The same might apply with respect to collectively-agreed schemes. Moreover, the "public-private mix" varies. For example, the public component is much higher in Sweden than in Denmark. And the argument can be taken further. If it is a mixed portfolio that is to be recommended, a system that "invests" in land, labour and capital might be preferred to one that "invests" only in capital. *Prima facie*, a classic, public, defined-benefit system does the former and a private, funded, defined-contribution system does the latter.

The question, then, becomes one of how the components of vulnerability are appraised. Which is more important, and which system best allows responses to be made when the system is subject to challenge?

Reforming pension systems

Pension reforms that involve substantial cuts in benefits or entitlements are scarcely likely to be popular; indeed they can excite enormous passion. One has only to observe the events in Italy and France, but also in Austria, in the past year to recognise this. This has led governments to tread the road of reform with care. The first major attempt to trim back the German pension system – announced on the day the Berlin Wall was breached in 1989, but referred to as the "1992 Reform" – was preceded by the deliberations, over many years, of a special commission that had sought to involve all relevant interests (particularly "the social partners") and had taken extensive scientific advice. The feeling was that only with consensus could acceptable and lasting reform be made. However, this approach went out of fashion in Germany. By the mid-1990s, the German government reformed again, effectively by fiat and in what was described as a most "un-German" fashion. Non-consensual reform, admittedly justified by a commission of "experts", has been perpetuated by the succeeding government.[6]

Acceptability of reform, even potentially painful reform, can be enhanced simply by giving adequate notice. Thus, when the American government decided to rise the "normal" retirement age from 65 to 67, it phased the change so that it did not start until 20 years later and would not be completed until 2027. Acquiescence can also be achieved by hiding changes as changes in technical detail that are so complex and esoteric that few notice their implications. A good example of this was the UK where changes to the calculation formula of the complementary public pension (SERPs) in 1995 effectively cut its value in half by lowering the accumulation rate and redefining the earnings to which this applied.

Swedish social democratic tradition has meant that pension reform is the subject of "politics" rather than "social partnership". Responsibility was in the hands of political parties and, having accepted the need for action, these sanctioned the basic principles on which the reform of the last decade was made. The principle of linking benefit levels more closely to contributions, to retirement age and to expected length of retirement was attractive. What is more, whether or not this was a conscious part of the strategy at the

time, those who advanced the NDC solution were able to take advantage of what is now a widely recognised fact. It might be easier to overcome political blocks to retrenchment by engaging in "paradigmatic reform" – thoroughly recasting the system and introducing new principles such as the express link between contributions and benefits and benefits and longevity – than by proposing major "parametric reform" – changing parameters of the system such as accumulation rates, benefit levels or retirement ages.[7]

Paradigmatic reform that involved the establishment of an NDC system is not peculiar to Sweden. The Dini reform in Italy had many common features but was conceived entirely independently – there was no "policy learning". However, despite suggestions made in both countries at the time, and whatever the other attractions the approach has, one of the things that an NDC system does not do is remove uncertainty. Even if the pension calculation formulae, or the basic pension parameters, were set in stone, the extent to which any one individual or cohort can asses his, her or its pension rights *ex ante* is limited. The benefit that will be received depends upon developments, economic and demographic, collective and individual, that cannot be foreseen (Disney, 1999). This conclusion is scarcely surprising. This is not to say that the uncertainties associated with an NDC system are "worse" than those associated with a traditional, public, defined-benefit system, merely to say that they are different. What is false is to propose that adoption of such an approach abolishes uncertainty.

Even in the Swedish case, this has been acknowledged. The "balancing mechanism", the impact of which might be profound, was introduced as a component of the reformed system only at a late stage. It is a highly sophisticated device, and it does the job that was set for it. But it is a highly technical instrument. It was not publicly debated and, indeed, it is doubtful if it could have been debated, had it been presented as what it was. Indeed, if NDC-like systems have the political advantage that they "obfuscate … reality" (Williamson, 2004, p.54), the "balancing mechanism" takes the process of obfuscation to new heights. Moreover, the contrast between what happened in Sweden and what happened in Italy is remarkable. In the latter country, it became clear that the initial reforms were insufficient to reduce expected future costs, or to reduce them sufficiently fast. Reform became a "never ending process" (Franco, 2002) in which successive governments sought to bring forward implementation dates, to increase the minimum number of contributions necessary to achieve a full pension, or to raise the minimum age at which that pension could be drawn.

It is not the intention, here, to comment upon the appropriateness of the Italian NDC system, rather to point out that the public in Italy are deeply aware of the fact that more changes are being made, that these will impact upon pension age and pension level, and that some groups will be more affected than others. That there are general strikes, and that the government is resorting to somewhat non-conventional routes in taking the legislation through parliament, is symptomatic of the fact that major reform is a highly political issue. It is not to be expected that political actors in Sweden behave exactly as their Italian counterparts. However, if the implications of a technical mechanism such as the "balancing mechanism", which has potentially as far-reaching consequences as some of the components of the bill currently before the Italian parliament, were appreciated, one might expect some response.

Proposals to reform pensions led to the fall of the Juppé government in France in 1997and contributed to the demise of the first Berlusconi government in Italy in 1994. The unwillingness of governments to enter into debate,

and to rely upon disguising reform as technical adjustment, is understandable. And on this basis, it is also understandable why European governments might be interested in ceding some responsibility for decisions elsewhere. Although social protection is a national competence, in recent years there have been attempts, via the Open Method of Coordination (OMC) and the Basic Economic Policy Guidelines, to give reform a European dimension. Mutual target-setting, benchmarking, and implicit, if not explicit, "naming and shaming" are ways to nudge governments of member states to take actions that they might otherwise have sought to avoid. Moreover, in taking these actions, they are able to hide behind the argument that "Brussels expects" or "Brussels requires". There is nothing new in this. The establishment, at Maastricht in 1992, of "convergence criteria" that would smooth the way toward monetary union facilitated governments taking, and "selling", possibly painful fiscal decisions and enabled them to reinforce demands for wage moderation.

However, the OMC itself is highly undemocratic. The intention at Lisbon, where it was launched, whilst not intended to subvert any conventional political processes in member states, was that the process would involve, as actively as possible, a wide range of interests and actors – social partners and NGOs.[8] In practice, something very different happened. The National Strategy Reports on pensions were, to all intents and purposes, bureaucratic exercises carried out by national civil servants. Although most of the reports, in their introduction, refer to some sort of exchange between those drafting the document and civil society, this overstates what often happened – a draft was passed for information and, possibly, for comment, but with no commitment to integrate the latter. However, two countries – Sweden and Greece – stand out as mentioning no involvement of outsiders at all, whilst some countries do no more than refer to the involvement of social partners in system administration – Denmark and Portugal, for example. In the case of Sweden, the absence of any meaningful dialogue with outside interests might explain how the concept of "actuarial solidarity" could be invented, and then used, without being questioned.

And yet the OMC process could also show the way forward. One of the objectives contained in the pension strategy guidelines is that governments should:

- *make pension systems more transparent and adaptable to changing circumstances, so that citizens can continue to have confidence in them;*
- *develop reliable and easy-to-understand information on the long-term perspectives of pension systems, notably with regard to the likely evolution of benefit levels and contribution rates;*
- *promote the broadest possible consensus regarding pension policies and reforms;*
- *improve the methodological basis for efficient monitoring of pension reforms and policies;* and
- *promote the broadest possible consensus regarding pension policies and reforms*.

In other words, the guidelines invite governments to make the reform processes as open as possible and, implicitly, they concede that reform will be possible only if governments do heed this recommendation. The guidelines encourage debate about security, efficiency and equity, and about the meaning of solidarity: Only if policy makers are prepared to engage in such discussions will reform be sustainable.

Nevertheless, the OMC concept has a wider lesson than this. The OMC with respect to pensions is but one of several OMC and OMC-like processes. In the past year or so,

those who have been discussing the way forward for pensions policy have come to recognise that the latter cannot be treated in isolation. The Commission, itself, proposed the "streamlining" of the three OMCs for social protection – for pensions, for health and long-term care and for social exclusion. *Inter alia*, this is an acknowledgement that, as far as issues of societal ageing are concerned, there is a need to consider questions not only of financial dependency (pensions) but also of physical dependency (care) and to recognise that elderly people might suffer from poverty (exclusion).

Standing back further, however, it is possible to see that the OMC-like process of the European Employment Strategy (EES) is relevant. The strategy does not merely set overall employment targets; it sets targets for the employment of people in their late 50s and early sixties. It also contains guidelines that encourage the development of policies and practices that will maintain the skills and the working abilities of older people, and improve the quality of jobs so that older people can stay in work. Logically, the streamlining process should seek to integrate the EES with the social protection OMCs (Casey, 2003b). If it were to, it would underline the importance of taking a comprehensive view of what was involved in reform, and it would leave all better able to evaluate what that reform brought and how successful it was.

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Notes

[1] Related to this had been an earlier discussion, conducted mainly in the USA, of the implications of the baby-boom itself, whether this would lead to a reduction in the relative earnings of members of the baby-boom cohorts, and whether the reduction would be a temporary or a permanent one (Freeman and Wise, 1981).

[2] This was the 2002 regional conference held in Budapest in November 2002 where the theme was "Security, equity and efficiency in social protection". The author was "rapporteur". See, Casey 2004.

[3] However vague the notion of a "European social model" is, and however much "accession" might contribute to its redefinition (for example, Scharpf, 2002), almost all definitions recognise that "solidarity" is one of its essential components.

[4] The term occurs in the Swedish National Strategy Report submitted under the pensions OMC process where it is contrasted with "egalitarian solidarity" (see Ministry, 2002).

[5] Settergren (2003) refers to "uninsurable risk" of longevity – which he calls "actuarial risk". However, this is a case of conflation of terms – since the way in which an individual experiences longevity may not be the same as the way in which society does.

[6] On the day this text was being completed (02-04-04), there were half a million people protesting on the streets of Köln, Stuttgart and Berlin against the "dismantling" of the German welfare state – including proposed changes to pensions.

[7] That this is an "advantage" of paradigmatic change is noted in writings emanating from, on the one hand, the World Bank and, on the other, the International Labour Organisation. The situation is summed up well by one of the advocates of a shift towards funding, privatisation and increased use of actuarial principles who argues: *NDC systems also create a new set of "parameters", another aspect of the new rhetoric, which may make reform more palatable. It permits redefinitions and readjustments and changes the focus of debate from parametric reform to the introduction of "a new system" (while this is not the case with respect to economic substance), thus enabling parameter change. This point is not without some irony, and even more so, because we claimed that NDC systems strengthen credibility through transparency, while we now use it as a device to deflect emotional opposition by using a new rhetoric*. (Börsch-Supan, 2004, p26)

[8] Thus paragraph 38 of the Lisbon Council Conclusions read: *A fully decentralised approach will be applied in line with the principle of subsidiarity in which the Union, the Member States, the regional and local levels, as well as the social partners and civil society, will be actively involved, using variable forms of partnership. A method of benchmarking best practices on managing change will be devised by the European Commission networking with different providers and users, namely the social partners, companies and NGOs*.

Notional defined contribution pensions: What they can do, and what they can't*

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The paper assesses notional defined-contribution (NDC) pensions from the perspective of welfare economics in terms of three set of questions: is the particular feature an advantage; if so, is the advantage specific to NDC or could it be achieved by other arrangements; and is the advantage one of policy design or of political reality? The paper offers a number of conclusions: many of the claimed advantages are not the sole property of NDCs, but could be achieved by other designs; second, NDC is not a theoretically dominant policy, and hence cannot be asserted as innately *superior to other approaches; third, the approach does not address the fundamental problem of pension finance – the fact that earliest pensionable age is not related to life expectancy.*

1. The backdrop

This paper assesses notional defined-contribution (NDC) pensions from the perspective of welfare economics. It seeks to abstract from the specifics of national systems, concentrating instead on generic advantages and disadvantages.

The proper starting point – too often overlooked – is to consider the objectives of pensions. The second part of the paper then establishes the simple economics of pensions and develops criteria in terms of which to assess NDCs. The third part assesses NDC pensions in terms of policy design. The final section offers some conclusions.

The objectives of pension schemes

From the viewpoint of the individual, pensions have two purposes:

- *Consumption smoothing* over the life cycle, and
- *Insurance*, notably in respect of the longevity risk.

Government policy can have additional objectives.

- *Poverty relief* is necessary for a person who is poor over his or her lifetime as a whole and, in practice, also for someone who is temporarily poor.

* This paper is a revised version of my chapter in Holzmann and Palmer (forthcoming).

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- *Distributional objectives*. Government may also have broader distributional objectives. It may wish to protect the pension rights of people with caring responsibilities; and it may wish to subsidise the consumption smoothing of people whose earnings are only slightly above the poverty line.

The four functions listed above are the primary objectives of pensions. There is also an important constraint – *sustainability* – which recurs in the discussion below.

NDC and the design of state pensions

THE CORE IDEA OF NDC PENSIONS is to separate the state Pay-As-You-Go (PAYG) scheme into two elements: a strictly actuarial element (NDC), operating on a PAYG basis, but mimicking a funded defined-contribution scheme, and a redistributive element financed from general taxation.[1]

The actuarial element is calculated generically as follows.

- A contribution of x% of a person's earnings is credited to a notional individual account, i.e. the state 'pretends' that there is an accumulation of financial assets.
- The cumulative contents of the account are credited periodically with a notional interest rate.
- At retirement the notional account is converted into an annuity.

Thus NDC pensions mimic conventional (i.e. funded) defined-contribution schemes by paying an income stream whose present value over the person's expected remaining lifetime equals his/her accumulation at retirement.

QUESTIONS ABOUT THE DESIGN OF STATE PENSIONS. Policy makers face three strategic questions about the design of any state pension: how large should it be; how redistributive from richer to poorer; and should benefits be defined-contribution or defined-benefit, and if the latter of which variety (a topic taken up shortly)?

Policy makers also face questions specific to the design of NDC pensions.

Question 1: the minimum pension. Is any minimum pension (*a*) paid in addition to the NDC pension, or does it take the form of a guarantee which comes into play only if the NDC pension falls below a pre-determined minimum level. If the former, is the guarantee (*b*) flat-rate or with an earnings-related element, (*c*) is it minimal or larger, and (*d*) is the minimum indexed to changes in prices (in which case the replacement rate offered by the minimum will fall over time), or to changes in earnings?[2]

Question 2: is there a maximum pension?

Question 3: minimum pensionable age. Is the lowest pensionable age (*a*) unconstrained (i.e. a person can retire whenever he or she wishes), with full actuarial adjustment of the pension to a person's age at retirement, or is there (*b*) a legally-defined minimum age (i.e. the state pension will not be paid until a person reaches a specified age), with actuarial adjustment for retirement at a later age, and/or (*c*) a minimum age that rises according to some explicit relationship with life expectancy?

Question 4: the accrual rate. Is the accrual rate during working life based on (*a*) earnings growth per worker (in which case the accrual rate is unaffected by unemployment), or (*b*) earnings growth in aggregate, hence lower in years when unemployment is higher? Separately is the pension formula adjusted for (*c*) life expectancy? Several NDC schemes have an accrual rate equal to

rate of growth of the contributions base =
= productivity growth + employment growth

Most schemes include adjustment for life expectancy.

Question 5: indexation. Is the annuity, once in payment, adjusted annually in line with changes in (*a*) prices, or (*b*) wages?

Question 6: the past. How are the rights of earlier generations of pensioners dealt with? Since NDCs are organised on a PAYG basis, in a formal sense today's contributions still pay for the pensions of today's pensioners. However, policy makers should be clear that the claim that well-designed NDC pensions automatically balance, does not apply to previous pension claims.

Question 7: the future. How are imbalances dealt with? Is there (*a*) an automatic mechanism, motivated by a desire to protect the system from discretionary changes, or (*b*) is there no such mechanism, leaving adjustments to decisions by politicians as events unfold?[3]

DEFINED-CONTRIBUTION AND DEFINED-BENEFIT PENSIONS: A BRIEF COMPARISON. In a defined contribution (DC) scheme, a person's pension is an annuity whose size, given life expectancy, etc., is determined only by the size of his lifetime pension accumulation, thus facing the individual with the risk that his pension portfolio might perform badly. Under a defined benefit (DB) scheme, often run at an occupational level, a person's pension is based on his wage and length of service. Thus his annuity is, in effect, wage indexed until retirement, and the risk of varying rates of return to pension assets falls on the employer, and hence on some combination of the industry's current workers (through effects on wage rates), its shareholders and the taxpayer (through effects on profits), its customers (through effects on prices) and/or its past or future workers, if the company uses surpluses from some periods to boost pensions in others.

DC and DB schemes are usually characterised as polar extremes, a strictly actuarial DC scheme being compared with a final salary DB scheme. The reality, as Diamond (2002, pp. 55-7) points out, is more subtle. Suppose a person's earnings in a particular year are 70 per cent of average earnings in that year; call that variable x. Call the average value of x over n years, $\overline{X}$, which is thus a measure of the person's earnings each year, indexed by the rate of wage growth. $\overline{X}$ is the earnings base on which a person's pension in a DB scheme is determined. If n relates to earnings in a person's last year before retirement, we have a final-salary scheme, whereas if n spans an entire working life, we have a DB scheme with pensions based on lifetime contributions, compounded each year by the rate of wage growth. In a funded DC scheme, annual contributions are compounded by the return on assets (for short, the interest rate) over a person's working life. If the rate of interest and the rate of wage growth are similar, the difference between DC and a DB scheme with a long averaging period is minor; and the difference is even smaller if the comparison is between a lifetime DB scheme and an NDC scheme with an accrual rate equal to wage growth.

2. Assessment criteria

THE SIMPLE ECONOMICS OF PENSIONS. The economics of pensions can be confusing because it tends to focus on financial aspects such as analysis of portfolios of financial assets. I shall try to simplify matters by concentrating on the essential economic issues, i.e. the production and consumption of goods and services.

There are two (and only two) ways of seeking security in old age (Barr, 2001, Ch. 6). It is possible, first, to *store current production* by storing part of current output for future use. Though this is the only way Robinson Crusoe could guarantee consumption in retirement, the method in practice has major inefficiencies: it is costly; it does not deal with uncertainty, e.g. about how one's tastes or constraints might change; and it cannot be applied

to services deriving from human capital, medical services being a particularly important example. With few exceptions, organising pensions by storing current production on a large scale is therefore a non-starter.

The alternative is for individuals to exchange current production for a *claim on future production*. There are two generic ways I could do this: by saving part of my wages each week I could build up a pile of *money* which I would exchange for goods produced by younger people after my retirement; or I could obtain a *promise* – from my children, or from government – that I would be given goods produced by others after my retirement. The two most common ways of organising pensions broadly parallel these two sorts of claim on future output. Funded schemes are based on accumulations of financial assets, PAYG schemes on promises.

Given the deficiencies of storing current production, the *only* way forward is though claims on future production. Thus the central variable is the level of output after I have retired. The point is central: pensioners are not interested in money (i.e. coloured bits of paper with portraits of national heroes on them), but in consumption – food, clothing, heating, medical services, seats at football matches and the opera, and so on. Money is irrelevant unless the production is there for pensioners to buy.

THE RESULTING PROPOSITIONS. The discussion thus far suggests a series of propositions against which an NDC (or any other) pension scheme should be assessed.

Proposition 1: from the point of view of sustainability, the central variable is the level of national output, not the specific method by which pensions are financed.

Proposition 2: the design of the state scheme matters; if the state scheme is unsustainable, the *only* solution is to fix the state scheme.

Proposition 3: insurance, consumption smoothing and poverty relief are all important.

3. Assessing NDC pensions

In assessing the NDC approach, it is helpful to distinguish different questions.

- Is the particular feature an advantage?
- Is the advantage inherent in NDC or could it be achieved by other arrangements?
- Is the advantage one of policy design or of political reality?

This section asks these questions in considering in turn the claimed advantages of the NDC approach, equivocal aspects, and disadvantages.

Advantages

A number of advantages are claimed for NDC schemes.

THEY FACILITATE DESIRABLE DESIGN FEATURES. The first, a flexible retirement age, is welfare-improving because it increases individual choice over consumption smoothing. This advantage, however, is not exclusive to NDC. In terms of the retirement decision, what is needed is an actuarial relationship between contributions and pensions at the margin, but not necessarily across the entire contributions record.[4] Thus flexibility does not rule out the possibility of establishing a minimum pensionable age, the desirability of which is discussed in the concluding section.

A flexible combination of work and retirement, a second advantage, also increases individual choice, both between work and leisure and over income in retirement (since a person can increase his/her pension by working longer). Again, however, this is possible with other pension arrangements, for example a state scheme offering defined benefits from the age of 65 but with actuarial adjustment for

delayed retirement and options for combining work with pension.

A third desirable design feature is automatic adjustment to rising life expectancy. Given the pleasing increase in life expectancy, this feature is essential for long-run sustainability. But it could equally be a feature of other pension arrangements, for example if the age at which full pension is first payable rises with life expectancy. If NDC pensions have an advantage in this respect it is that the politics of adjustment might be easier, rather than something that is possible only with NDCs.

ENHANCE THE ABILITY TO COPE WITH RISK AND UNCERTAINTY. Risk and uncertainty lower the welfare of risk-averse individuals (proof: the amount that people spend voluntarily on insurance). Thus consumption smoothing is more efficient if people can protect themselves from excessive risk and uncertainty. The distinction is important: with risk, the probability of the insured event is known, with uncertainty, it is not. Risks can be covered by actuarial insurance; with uncertainty, in contrast, ignorance of the underlying probability distribution makes it difficult or impossible to assess an actuarial premium, hence uncertainties are generally covered badly, if at all, by actuarial insurance.[5] In the case of pensions, estimates of life expectancy have a sufficiently small variance to make annuities possible; with inflation, in contrast, the variance of future rates is so high that fully inflation-proofed private pensions are hard to come by and expensive. In short, it is no accident that it is possible to buy life insurance but not inflation insurance (for fuller discussion, see Barr, 2004, Ch. 9).

What risks and uncertainties face pensioners? All pension schemes face macroeconomic shocks, demographic shocks, and political risks. Private, funded schemes face further risks:

- Management risk can arise through incompetence or fraud, which imperfectly-informed consumers generally cannot monitor effectively.
- Investment risk: pension accumulations held in the stock market are vulnerable to stock-market fluctuations. In the extreme, if a person is required to retire on his or her sixty-fifth birthday, there is a lottery element in the value of his or her pension accumulation.
- Annuities market risk: for a given accumulation, the value of an annuity depends on remaining life expectancy and on the rate of return the insurance company can expect over those years. Both variables face both risk and significant uncertainty.

NDC pensions reduce the risks facing pensioners, first, by avoiding some of the risks that private pensions face. They reduce management risk, though they do not eliminate it: NDCs are administratively demanding because every cent of every contribution counts towards a person's pension, hence not a cent should be lost. NDCs also avoid investment risk. They may also reduce annuities market risk, not least because, with a single, nationwide annuities pool, the law of large numbers will reduce the variance facing the insurer (i.e. the state). These reductions in risk are unambiguous advantages. However, the advantage is generic to state-run PAYG schemes generally, rather than to NDC schemes specifically.

The NDC approach can reduce risk, second, because it makes less stringent demands on private-sector capacity. Private pensions make considerable institutional capacity demands on both public and private sectors. The latter will be absent in poorer countries; and even where it is present, private pensions may not be the most welfare-enhancing use for scarce private-sector skills, which might better be used in building up productive capacity. As noted, NDC pensions make significant de-

mands on public-sector capacity; however, they make no demands on the private sector. Once more, however, that advantage belongs to all state pensions, and is not exclusive to NDC.

A third advantage is that NDCs can cope with uncertainty, not just risk. With social insurance, the contract is not fully specified and, precisely for that reason, social insurance can adjust to changing conditions and unforeseen contingencies. Atkinson (1995, p. 210) points out that 'the set of contingencies over which people formed probabilities years ago may have excluded the breakdown of the extended family, or the development of modern medicine, simply because they were inconceivable'. Thus social insurance, in sharp contrast with actuarial insurance, can address not only *risk* but also *uncertainty*.

NDC pensions thus have the potential to ameliorate uncertainty in ways that private schemes do not: the ability to pay fully indexed pensions once a person has retired is one example; another is the capacity to protect the pension rights of people with caring responsibilities (which is not an insurable risk). This is a highly significant advantage. Again, however, it is an advantage that resides in social insurance generally, rather than NDC in particular. Indeed, it can be argued that in this respect NDC pensions do less well than defined-benefit PAYG pensions: the fact that NDC pensions have a tightly-defined benefit formula eliminates, or at least reduces, the ability to pool risks, both across cohorts and between pensioners and non-pensioners. This question is taken up below.

ASSIST SUSTAINABILITY. If an NDC scheme is genuinely actuarial, then future expenditure is by definition equal to revenues, so that the scheme – again by definition – is sustainable. This feature, however, is not exclusive to NDC. Consider a balanced PAYG scheme, where:

$$sWL = PN \quad (1)$$

where

s = the PAYG social security contribution rate

W = the average real wage

L = the number of workers

P = the average real pension

N = the number of pensioners.

If the Social Security Act specifies a pension formula in which

$$P = sWL/N$$

again expenditure = revenue by definition.

In principle, therefore, sustainability is not specific to the NDC mechanism, though it may be that the politics are easier with NDC.

ENHANCE TRANSPARENCY. The argument is that NDC pensions have explicit rules and therefore that the system is transparent in two ways: individuals know the basis on which their pension will be calculated; and any attempts by government to alter the scheme are visible. These features are important, but not exclusive to NDC. The UK system prior to 1975, was highly transparent, with a flat-rate contribution for all workers giving entitlement to a flat-rate benefit. Another example of transparency is a PAYG scheme with defined benefits, but with retirement age explicitly related to life expectancy, greatly reducing the need for other parametric change. Thirdly a final salary scheme is also transparent to the recipient, and attempts by government to change the benefit *very* visible.

REDUCE INCENTIVES TO FRAUD. In an NDC scheme, like all PAYG schemes, the only pot of money is the current year's contributions, i.e. the *flow* of contributions, not the stock. Thus there are few assets that either the state or private actors can pillage. Separately, if the state wants to increase the taxation of pen-

sions, it can do so only on benefits in payment, not on the fund, since there is no fund. Both features, once more, are inherent in PAYG rather than in NDC.

In conclusion, the advantages of the NDC approach are more often generic to social insurance than exclusive to the specific design of NDCs.

Equivocal aspects

This section discusses features of NDC which are advantages or disadvantages, depending on a person's views about theory, about empirical facts, or about values.

NON-DISTORTIONARY. Labour market distortions can (*a*) affect retirement decisions and (*b*) influence labour supply decisions earlier in life. On the former, key questions are whether pensions are related to individual contributions *at the margin* and whether contributors and beneficiaries perceive this to be so. The argument is important. An alternative is a pension formula which is redistributive in that worker A, with twice the earnings of worker B over his working life, gets a pension which is higher than B's, but less than twice as high. However, if either A or B retires early, his pension would be actuarially reduced relative to the pension he would have received at age 65.

In contrast, earlier labour market decisions depend not only on the marginal relationship between contributions and benefits, but also on the effect of an increase in earnings on the total pensions package. In this case, labour market distortions may be reduced where contributions bear a *fully* actuarial relationship to benefits.

Thus on the face of it NDC schemes, being fully actuarial, minimise labour-market distortions both during working life and over the retirement decision, and in this respect appear to be superior to defined-benefit schemes. Two questions follow: do fully actuarial benefits indeed minimise labour market distortions; and, if so, is the result optimal, i.e. in a second-best world, is minimising (as opposed to limiting) distortions the correct aim?

On the first, the non-distortionary nature of actuarial benefits should not be overstated. It is true that badly-designed state pensions cause major distortions (see Gruber and Wise 2002); however, state schemes, whether NDC or DB, avoid one important distortion – the labour-immobility problem caused by private DB schemes. Secondly, a DB scheme with a long averaging period is less distortionary than one with a short period. As discussed earlier, a DB scheme with averaging over a full career and an NDC scheme with an accrual rate equal to the rate of wage growth are very similar.

On the second question, though reducing distortions is desirable, it is only part of the story. The argument implicitly assumes that all that matters is labour supply – whereas what really matters is economic welfare. It may be that a defined-benefit scheme reduces labour supply at the margin; but if the loss of utility from lower output is more than offset by the utility gain from greater certainty, then defined-benefit arrangements may be welfare improving despite reduced labour supply. At a minimum, the welfare gains from greater certainly should be set against any costs of reduced labour supply. For these and other reasons, discussed shortly, fully actuarial benefits are not optimal in a second-best world.

Thus the argument that NDC pensions reduce distortions is far from definitive. If the argument is true, secondly, it is true also of other schemes in which contributions bear an actuarial relationship to contributions, for example a scheme with flat-rate contributions and flat-rate benefits, as in the UK between 1948 and 1975. The desirability, or otherwise, of actuarial benefits is taken up in the next section.

EQUITABLE. The argument that actuarial benefits are equitable rests on the belief that redistribution should apply only to poverty relief and to credits in specific instances such as caring for small children. A contrary view is that the state pension should include redistributive assistance to consumption smoothing as well as for poverty relief. Thus NDC pensions do not have a unique claim to equity. They are inequitable if policy makers or the electorate believe that social insurance has a redistributive role broader than poverty relief.

TIE THE HANDS OF GOVERNMENT. The proposition is that NDC pensions, being actuarially based, constrain the government's freedom of action. The point is fundamental. In a defined-benefit scheme an imbalance can be addressed by (*a*) raising contributions, (*b*) raising pensionable age, (*c*) reducing pensions, or any combination. In an NDC scheme, because benefits are actuarial, raising contributions increases pension rights, and thus cannot address the imbalance; for the same reason, raising pensionable age does nothing to address the imbalance. Policy options are therefore severely constrained, raising two sets of questions.

Issue 1: does NDC really tie the government's hands? In theory the contract is fixed; but government could change the contract.

Issue 2: is tying the government's hands welfare-improving? At its core, this is an empirical question about the competence and motivation of government, about which people may take different views, and about which conclusions might be different for different countries. Some writers are sceptical about government, arguing that in defined-benefit PAYG state schemes, politicians will trade long-run sustainability for short-run political gain. Such writers argue that the inflexibility of NDC is deliberate and one of the great advantages of the approach. The counter-argument is that a *disadvantage* of NDC is that it reduces policy flexibility by adopting a fully-specified contract, and thus forgoes options for enhancing consumption smoothing by reducing the uncertainty faced by the individual.

If tying the hands of government is an advantage, is it possible only with NDC pensions? In principle the answer is no: NDC schemes are based on a Social Security Law just like other PAYG schemes. It is true, however, that it might be harder politically to change NDC.

Disadvantages

INEFFICIENT. A central objective of pensions is to offer people a mechanism which allows them to make efficient choices about the time path of their consumption. Such a system should minimise distortions.

On the face of it, this suggests that a strictly actuarial system would be efficient. As Gora and Palmer (2003) write:

> 'In the NDC and FDC [funded defined-contribution] framework there is no redistributive ambition, other than redistribution over the individual's own lifecycle from working years to years of retirement. Instead, the government's redistributive policy … is financed through explicit taxes from general revenues.' (p.15)
>
> 'In this way, insurance and its source of financing and social policy and its means of financing are kept separate, enhancing transparency.' (*ibid*., p. 16).

A number of questions arise. First, why would it be efficient to have both first- and second-tier pensions organised on a DC basis?

More fundamentally, though a strictly actuarial scheme may be efficient in a first-best world, policy design needs to cope with a series of technical problems.

People can be myopic and/or imperfectly

informed, giving a justification for compulsion. The problem is a major one. New (1999) makes the useful distinction between an information problem and an information-processing problem. An information problem is best resolved by providing the necessary information (for example, car magazines), after which individuals make their own choices. With an information-processing problem, in contrast, the problem is too complex for people to make efficient choices even if the relevant information is provided. The problem can arise (*a*) where the time horizon is long, as with pensions, (*b*) where the good or service involves complex probabilities, including, for example, life expectancy, or (*c*) where the information is inherently complex, as with complicated pension products.

A second problem is missing markets. For example, the market for indexed contracts is, to say the least, thin. It can be argued that this results from a different information problem – the unknowability of future rates of inflation.

A third deviation from first-best are distortions such as progressive taxation. Peter Diamond argues that in the comparison between defined contribution and defined benefit schemes, 'there is no simple dominance of one over the other in the presence of other labor market distortions' (2002, p. 57). Assuming that the rate of interest exceeds the rate of wage growth over the longer term, he goes on:

> 'Indeed, with a progressive annual income tax and age-earnings profiles that are generally increasing in real terms, the marginal income tax rate is rising with age, on average. Thus, a well-designed DB system may well have better labor market outcomes since the overall tax burden, income tax plus net tax from social security, will vary less over the lifecycle. That is, income taxes are lower on the young and net social security taxes are higher. Therefore, without a detailed calculation, one cannot reach an efficiency conclusion. In any case the difference is likely to be much smaller than the difference between DB systems with long and short averaging periods' (*ibid*.).

Formulating the issue as an optimal taxation problem would make it clear that in a second-best world a strictly actuarial scheme is not, in general, optimal.

SUB-OPTIMAL IN WELFARE TERMS. Consumption smoothing is only one objective of pensions; others include reducing the risk people face (implicit in both the consumption smoothing and insurance objectives), poverty relief, and distributional objectives (which may include subsidising the consumption smoothing activities of people only slightly above the poverty line). A strict adherence to actuarial benefits may provide consumption smoothing, but ignores the other objectives. It is true that non-actuarial schemes such as defined-benefit pensions may also create distortions, but these should be weighed against the possible advantages of such schemes; these include (*a*) greater certainty for the worker (a *major* goal of consumption smoothing), (*b*) policy flexibility and (*c*) equity advantages, though recognising that people will take very different views about the latter two.

Proponents of NDC pensions counter by arguing that the NDC pension provides consumption smoothing and that other instruments provide poverty relief and promote distributional goals. But going back to a point I learned many years ago as a graduate student, if we have three targets we need three instruments, but in a second-best world the optimal solution is normally *not* a one:one relationship between each instrument and a particular target. The NDC argument is tidy in this respect and, on that account, rather appealing. But that does not make it right. Indeed, the optimal tax formulation of the problem makes it clear that it is generally wrong.

4. Conclusions

THE HISTORY OF IDEAS. Góra and Palmer (2003) talk about the need to 'create new concepts' (p. 2) and about the 'design of a new vehicle for efficient accumulation over the life cycle' (p. 27). Palmer's work has mapped out the idea – in terms both of policy and implementation – much more fully than previously. This is a considerable advance. NDC reminds us that state PAYG pensions can be as much or as little actuarial as we want, in other words, that social insurance is not *necessarily* redistributive. Thus NDC reminds us of an important but often forgotten truth, but is not itself new. As I wrote in 1987 (and others had doubtless written before), '[Redistribution] is not *inevitable*, since a PAYG scheme could be organised to pay actuarial benefits' (Barr, 1987, p. 222, emphasis in original).

CONCLUSION 1: NDC IS NOT A THEORETICALLY DOMINANT POLICY. NDC is *a* design, not *the* design. A strictly actuarial scheme is a theoretical optimum only in a world that (*a*) is first-best *and* (*b*) where policy makers are indifferent about distributional matters.

It is, of course, entirely coherent and defensible to advocate NDC pensions. But since they are not a theoretically dominant policy, there are other coherent and defensible policies – for example a pension design that includes redistribution not just for poverty relief but also for consumption smoothing. In short, there is room for different views about preferred pension design.

On what basis should different policies be assessed? To a great extent, policy design will depend on the answers to the following questions:

- *Question 1.* Is policy flexibility an advantage or disadvantage? Answers will clearly differ from person to person and by country, depending on views about the effectiveness and probity of government.
- *Question 2.* Is a wholly actuarial system (e.g. NDC first tier + funded DC second tier) efficient? As discussed earlier, the answer is generally no; but the extent of welfare loss will depend, inter alia, on the extent of risk aversion in the population (the welfare gains from greater certainty being higher the greater the degree of risk aversion).
- *Question 3.* Are actuarial benefits equitable? The answer depends on a value judgement about whether redistribution should be more extensive than poverty relief.
- *Question 4.* Would NDC be more sustainable than a defined-benefit scheme? This is a practical question. It should not be answered by comparing current defined-benefit schemes, with accumulated imperfections, with a perfect, pristine NDC scheme. The answer is probably more political than economic.

CONCLUSION 2: IT DEPENDS WHAT YOU MEAN BY NDC. NDC can take many guises. Two polar cases are particularly relevant.

Case 1. The pension system is NDC plus a minimal guarantee. Such a system comes close to being strictly actuarial, and thus provides insurance in respect of the longevity risk and consumption smoothing, but only minimal poverty relief and vertical redistribution. This approach can be criticised as inefficient and, depending on viewpoint, inequitable.

Case 2. The pension system has two elements: a tax-funded element, either flat rate or with an earnings-related component, and an NDC element. The latter may include tax-funded credits, e.g. to recognise caring activities. This arrangement offers poverty relief, insurance and consumption smoothing. If the tax-funded element has an earnings-related component there is a redistributive element in consumption smoothing. This latter construct

contains a richer array of policy options. But in this case the NDC pension is not the first tier, but the second – we have a pension system with a tax-funded first tier and an NDC second tier. NDC is no longer *the* pension, but an element in a wider system. It is perhaps here that its true potential role is most apparent, not as a single, dominant policy, but as an important element in a portfolio of policies.

CONCLUSION 3: NDC PENSIONS DO NOT ADDRESS THE CENTRAL FUNDING ISSUE. NDC per se does nothing to solve long-term unsustainability. All pension schemes in all countries currently face the root problem of a retirement age of 60 or 65 which remains largely fixed as life expectancy rises. Rising life expectancy is a great joy – the problem is the fixed retirement age. NDC addresses the problem in a formal sense by reducing the accrual rate, but unless people retire later this approach on its own risks pensioner poverty – that is, sustainability is in conflict with sound social policy. In the absence of any constraints, the endogenous variable is not the minimum permissible age of retirement but the size of the pension. In a world of rationality and perfect information this would not be a problem; but if people have a personal discount rate higher than the discount rate used for actuarial adjustment of the pension, they will tend to retire as soon as possible, with progressively larger actuarial adjustments. In the limit, this pulls everyone down to the minimum pension. A pensionable age that rises over time is an important element in any reform package, whether or not it includes a move to NDC pensions.

A more fully-fledged solution has five elements:

- An initial pensionable age that makes it fiscally feasible to provide a genuinely adequate state pension. In the absence of a normative theory, a pragmatic approach would be to work out (*a*) the maximum fiscal envelope for pensions, and (*b*) the minimum genuinely adequate pension. Together, these determine (*c*) the maximum number of pensioners that can be supported. That figure combined with the age distribution determines the initial pensionable age.
- Deviations from that pensionable age should be roughly actuarial.
- Over time, the initial pensionable age should increase in line with rising life expectancy in a way that is rational and transparent, so that people know a long time in advance when (in broad terms) they will be able to retire.
- A flexible labour market that allows people to move from full-time work towards full retirement along a phased path of their choosing.
- Public understanding of the simple economics of pensions.

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Notes

[1] Pay-As-You-Go pensions are paid (usually by the state) out of current tax revenues. With funded schemes, pensions are paid from a fund built over a period of years from the contributions of their members.

[2] In Sweden, the minimum guarantee has an earnings-related element to give low earners an incentive to make contributions; since it is indexed to changes in prices, the relative size of the minimum will decline over time.

[3] The Swedish system incorporates both a method for adjusting liabilities so that they match assets and a buffer fund to cushion against short-run fluctuations (see Scherman 2003, Settergren 2003).

[4] The question of whether pensions should be actuarial at the margin or across a person's entire contributions record is taken up in more detail in the discussion of equivocal aspects of NDC, below.

[5] This is not a criticism of actuarial insurance, but of expecting more of the actuarial mechanism than – for technical reasons – it is able to deliver.

A German perspective of the new Swedish public pension system

by Peggy Letzner and Ortrun Tippelmann

Sweden recently reformed its public pension system by replacing the former defined-benefit system with a "notional defined-contribution system "(NDC). The new system has a strong focus on financial sustainability. It emphasizes the principle of equivalence, includes the increasing life expectancy of the Swedish population into the calculation of pensions and establishes a so-called "automatic balancing mechanism". Hence political agreements concerning possible adjustment measures in the future will become unnecessary. However, all financial risks are approached at the expense of the level of pension benefits. The comparatively high pension level projected for future decades is above all due to the existence of large buffer funds. Taken together, whatever the systematic choices of each retirement system may be, there is no golden path out of the dependency from economic and demographic developments.

1. Sweden's NDC system

a. Pension reform 1999

Sweden's pension system has undergone a fundamental transformation with its 1999 pension reform. The public earnings related old-age pension scheme is now built on two separate parts: a pay-as-you-go scheme (PAYG), the so-called "Inkomstpension" and a fully funded so-called "premium pension" scheme. The contribution rate altogether amounts to 18,5 percent of covered earnings whereby 2,5 percent are directly paid into the new funded system which offers life annuities based on insurance principles. One main goal of the 1999 pension reform was to maintain a fixed contribution rate of 16 percent for the PAYG system in the future. Pension contributions paid in each year by and on behalf of an

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insured are recorded in his or her "pension account" even though the payments in the PAYG branch of the system are effectively used for paying out the current pensions. In this regard this PAYG branch is in fact mimicking a funded defined-contribution scheme with "notional" return rate. The pension from the Inkomstpension is calculated by dividing the pension account balance (the sum of contributions paid in and the return of indexation) by an "annuitization divisor". This divisor takes into account the increasing average life span for men and women. So effectively, Sweden with its 1999 reform shifted from a defined-benefit system to a strictly contribution-defined system.

Redistributive elements such as pension credits for the unemployed or for parents whilst bringing-up their child in its first four years as well as the minimum pension level "guaranteed pension" are financed out of the general tax-budget. Disability benefits belong now to the health care system. Certain survivors benefits are as well paid out of the general tax-budget. The political choice to give overall priority to a fixed contribution rate consequently has great impact on the respective individual pension benefits. Several instruments have therefore been provided in the new Swedish pension system to ensure an automatic adjustment, so that the contribution rate does not rise above the fixed maximum percentage.

b. Evaluation by the European Commission

The European Commission has assessed the new Swedish public pension system within the Open Method of Coordination (OMC). It thereby pointed out that the Swedish pension system currently meets the challenge of long-term financial sustainability and added: "Actuarial neutrality will allow individuals to plan their working life in such a way as to obtain an adequate pension and, thus, offers strong incentives for increased labour-market participation of older workers."[1] So, the European Commission in its evaluation featured the reformed public pension system as a "best practice" in the comparative process of OMC between the European Member States.

2. The features to achieve financial sustainability in PAYG systems

a. Equivalence of contributions and pension benefits

In the old Swedish public pension system – separated into universal basic pension and an earning-related ATP pension and still partly in force for a long transition period – the individual pension benefit was only weakly connected to the contribution payments made over working-life time. The ATP pension was particularly generous to people who worked only up to a maximum of 30 years before retirement. Pensions were calculated based on "the 15 best years" of income within a total period of 30 years. The new Swedish old-age pension system now is based on life time contributions. Contribution are accumulated on individual accounts while redistributive elements were either eliminated or shifted into general tax-budget. Hence, old-age pension provisions now follow a strictly actuarial calculation. Equivalence of contributions and pension benefits were strengthened by introducing the pension calculation method of dividing the pension account balances by the annuitization divisor (specific for each cohort).

The German statutory pension scheme covers all three biometrical risks, such as old-age, invalidity and death (survivors). Therefore not all parts of the contributions create individual old-age pension rights. Germany followed the principle of equivalence between contributions and pension benefits since 1957. The so-called "Adenauer'sche pension reform" introduced the direct link between the

amount of available income earned during working life, representing the acquired standard of living, and the subsequent amount of pension. However, because of the inherent flexibility of the contribution rate with a clear tendency towards rising overall payment levels, there is no direct equivalence such as in the NDC system but only a so-called "participation-equivalence".

In one year of contributions each insured person receives pension credits depending only on the individual income position in relation to the average earning income in the same year. Someone who earns exactly the average income therefore receives one "earning point" for his contributions, regardless to the level of the contribution rate.[2] The number of earning points and the value of one point at the time of retirement then determine the amount of the individual pension. Therefore the amount of pension benefits only depends on the individuals relative income position in each year of his working life but not on the absolute amount of contributions paid into the system. In this respect "participation equivalence" means that only the members of one birth cohort are treated equally. Besides the principle of equivalence there are also redistributive elements such as pension benefits for periods of unemployment, sickness, bringing-up children and other specific benefits, e.g. transfers because of the German reunification. As in Sweden, tax-paid federal subsidies pay for benefits not covered by contributions.

b. Indexation of pension credits and pension benefits

In Sweden, pension credits during the accumulation phase are indexed by the "income index". The income index measures the growth in average income as a three year moving average. Changes in consumer prices during the three year period is deducted from the change in average income and the change in inflation the last year added. The indexation of pension benefits in principle works in a similar manner. But in the calculation of the pension a real growth rate of wages of 1,6 percent is included which increases the initial pension. The pensions then are indexed to the nominal growth rate of wages minus 1,6 percent. So, if real average income increases by exactly 1,6 percent, the real value of pensions will be maintained.[3]

The aim to maintain a fixed contribution rate can conflict with the regular indexation of pension credits and pension benefits which follows the growth in average income. In case of certain demographic and economic developments a situation could arise where the indexation of pension liabilities could only be achieved by raising the contribution rate. In the pessimistic scenario of the Swedish National Social Insurance Board's (RFV) projection of 2002, this could be the case from the beginning of 2012.[4] In that case, the fixed contribution rate has been given priority over indexation. In order to keep the annual reduction in pension levels relative to the growth in average income very modest, the so-called "automatic balancing mechanism" would then be initiated 26 years before the buffer fund would be exhausted. Activation of balance mechanism means, that pension liabilities are then indexed according to the change in the balance index instead of the change in the income index. Indexation of pension credits and pension benefits will be then reduced. In the basic scenario however, the balancing mechanism will not be activated because of sufficient buffer funds assets.[5] So Sweden does not count on this control mechanism with regard to the obvious future problems caused by the retirement of large birth cohorts. The existence of the buffer funds sets Sweden in the position to cope with it.

In Germany the benefit indexation formula is used each year to recalculate the current pension value which defines the value of one "earning point". This pension value adjusts

benefits over time equally for all pensioners. After the introduction of the PAYG system in 1957 the adjustment followed the increase in average earnings of all employees. So at that time the contribution rate was the subordinated factor. However, since 1989 it is the overall aim of various pension reforms to stabilize public pension finances. With the 2001 pension reform, the government made a firm commitment to maintain the contribution rate to the statutory pension scheme at an appropriate level (20 percent until 2020 and 22 percent until 2030). The aim was to reduce pensions levels by a changed benefit indexation formula in order to limit the contribution rate which was legally fixed. In order to compensate for the reduction in pension levels, generous government-subsidises for voluntary private and company pension plans were introduced.

To ensure the stability of future contribution rates the 2004 pension reform added a so-called "sustainability factor" to the benefit indexation formula which now links benefits to economic and demographic developments. This sustainability factor has the effect of reducing the annual pension adjustment if the ratio of pensioners to contributors rises. Changes in this ratio reflect changes in life expectancy, in the evolution of the birth rate, the net balance of immigration and emigration and changes in the labour force participation rate.[6] The effect of the ratio is weighted by a factor alpha. If alpha equals 1,0 every deterioration in the ratio between pensioners and contributors would fully curb the indexation. If it was 0,0 the ratio would have no influence on the indexation. In practice it has been fixed at 0,25 in order to keep the contribution rate below 20 percent until 2020 and 22 percent until 2030. Taken together, the 2004 pension reform has reinforced the shift in paradigm of the 2001 reform as the new benefit indexation formula describes German pension policy increasingly in a income-oriented manner.

c. Dealing with increasing life expectancy

In Germany as well as in Sweden the increase of life expectancy is one of the factors determining benefit calculations. This is done in a characteristic way for both respective systems. Sweden chose an individual approach by introducing the annuitization divisor in the pension calculation. So the calculation of an individual pension depends directly on the estimated life expectancy of the cohort the individual belongs to. If estimated life expectancy rises, members of successive cohorts will receive lower monthly pensions if they don't work longer. Whether they do this or not is a matter of individual choice as the way of calculating the pensions allows for a flexible beginning of the retirement (minimum 61 years). So the construction of the NDC system helps to avoid political controversies as there is no need for rising any "standard retirement age". Once pensions are calculated at the age of 65 they will not be subject to recalculation due to unexpected increases in longevity. So the risk of an underestimated life expectancy of a cohort is not borne by this cohort but by the contributors. This effect may cause problems for financial sustainability of the Swedish system.

On the contrary the collective approach in the German system spreads the costs of longevity among the pensioners and the contributors. Because the increasing life expectancy is one factor which determines the value of earning points increasing longevity affects both pensioners and contributors. Other than Sweden, Germany already includes its current pensioners in bearing the burden of longevity because of the influence of the sustainability factor. This approach takes into account, that the average life span already started to increase significantly during the last decades.

In both pension systems it will be necessary

to work longer in order to compensate for the losses in individual pension benefits. Compared to Germany, Sweden has the highest employment rate of older workers between 55 – 64 years old within the old European Member States reaching up to around 67 percent. Germany in this group has a rate of around 37 percent.[7] It is still an open question whether or not the older employees will have the opportunity to work longer. If the labour market does not provide appropriate working possibilities for elderly persons they will not be able to compensate for evident cuts in pension benefits.

Last year in Germany there was a big public and political discussion concerning the question on whether to raise the standard retirement age from 65 to 67 years.[8] Different pension experts voted for such a measure by introducing small graduations of one month per year. The full increase would thus have been staggered e.g. over 24 years from the beginning of 2011. However, the government in Germany did not decide in favour of this proposal but has postponed the decision to the year 2010. The political decision makers feared for the whole reform-package. Because of the current critical situation for older workers on the labour market the unions and the employers were strictly against this proposal. Moreover, the majority of the German population only saw this proposal as a fundamental cut in the individual pension benefits. But international comparisons especially with the Scandinavian countries show that the employment rate of older employees can indeed be altered, given suitable underlying conditions and corresponding policies such as lifelong learning and changing working conditions.[9] One can say that this political discussion was a very good example for showing the practical problems of democratic decision making processes in contrast to automatic adjustment measures.

d. The partial replacement by funded private pension schemes

While Sweden implemented the premium pension into the obligatory public pension scheme, Germany strengthened the role of voluntary supplementary private and company pension plans with the 2001 pension reform. The new possibility of government-subsidised investment in private and company pension plans ("Riester-pension") shall motivate the insured to engage in private savings for retirement on a voluntary basis. In Sweden and in Germany the pensions levels in the PAYG systems were cut in favour of additional funded pension schemes. So funded pensions shall replace PAYG pension to a certain extend in order to place the old-age provision on a more sustainable financial footing. The overall volumes are comparable: 2,5 percent of contribution base in Sweden and 1 percent in 2002 up to 4 percent maximum from the beginning of 2008 in Germany.

One important difference besides the feature of obligatory participation is the fact, that there is no nominal or real guaranteed rate of return in the premium pension system. In Germany however, at least the pay-out of the accumulated contributions in "Riester-pensions" have to be guaranteed.[10]

3. Some reflections on differences in the Swedish and German approaches

a. Sustainability and pension levels

a.a. Sustainability and NDC systems

One of the main advantages that are claimed for NDC systems is their financial sustainability. Financial sustainability is interpreted in a much broader sense than just a situation where future expenditure is equal to the revenues. This could be done by any PAYG system, e.g. by raising the contribution rate if the relation of pensioners to contributors rises. But here

sustainability implies more: "Sustainable refers to the financial soundness of a pension system and its capacity to be maintained over a foreseeable horizon under a broad set of reasonable assumptions."[11] If a NDC system uses the growth rate of the contribution bill as notional interest rate and includes the expected length of retirement in the benefit calculation it will automatically respond to changes in longevity, fertility and employment by automatically providing lower benefits and therefore can keep the contribution rate constant.

Traditional PAYG systems do not meet this claim insofar as they can adapt their benefit according to the rate of wage growth. This was also the case for the German system prior to the last reforms. Discretionary interventions (e.g. establishing a new benefit indexation formula) were needed to balance the system due to a missing direct link between the calculation of benefits and the changes in employment and the demographic situation. The German statutory pension system after the 2004 pension reform took up some of the elements typical for NDC systems but still kept some of the elements of traditional PAYG systems. The contribution rate is not fixed but intended to rise to a maximum limit of 20 percent until 2020 and 22 percent until 2030. It is allowed to rise in order to spread the burden among pensioners and contributors. In order not to exceed these contribution rates, a direct link has now been introduced between the adjustment of benefits and the changes in demographic and economic conditions through the introduction of the sustainability factor into the benefit indexation. On the other hand these changes will not entirely determine the adjustment since they are weighted with the factor alpha (0,25). In the case that the economic and demographic conditions develop differently than presumed there has to be a discretionary adaptation of the factor alpha. In addition, although there is an indexation formula the yearly adjustment of pensions according to this formula still has to pass parliament.

b.b. The practice of NDC in Sweden

The Swedish pension system fulfils the demands of financial sustainability in the above described way for the most part. Sweden chose the rate of wage growth per capita as notional rate of interest. When the work force decreases the average income growth can be higher than the growth rate of the total wage bill. Then benefits and pension rights will grow faster than the contribution base from which benefits are paid. The system will be balanced by using the buffer funds or in the worst case the automatic balancing mechanism will rebalance the system. There will not be any need for a political decision to be taken prior to activating the automatic balancing mechanism because its activation follows predefined rules. An imbalance might nevertheless occur since the calculation of the pensions takes into account the life expectancy of the cohort. But if the longevity of the cohort later turns out to be higher than expected pensions will not be recalculated. In such a case the pension level would be too high so that the buffer funds or the balancing mechanism would to rebalance the system.

If financial sustainability of a PAYG system is defined as an automatic response to changes in demographic and economic developments while maintaining a fixed contribution rate, the Swedish system as a carefully designed NDC system surely meets these demands. But still a NDC system is a PAYG system. That means that automatic adaptations to deterioration in demographic and employment conditions while keeping a fixed contribution rate must automatically result in lower benefits if there are no buffer funds. Consequently NDC systems do not define any level of pensions. The question is whether the meaning of financial sustainability of a pension system can be defined without the main

objectives of a pension system: providing adequate pension level? Leaving the future pension level out of consideration would mean to ignore the main goal of each pension system. What adequacy means needs to be answered by each society.

c.c. The projected pension levels in Sweden

Projections of the RFV base scenario in 2002[12] show that the comparatively high average pension level of the Inkomstpension (and ATP pensions) at 65 years of age will decline, from currently 69 percent for the birth cohort born in 1938 to 50 percent for the one born in 1965 down to around 45 percent for the cohort born after 1975.[13] Thereby, the average pension level is defined as the ratio of the average pension at 65 after 30 or more years of earning pension credits in percentage of average income in Sweden (excluding the income of individuals with less than 30 years of earnings). A good third of the reduction of the average pension level for the earnings related pensions (retire in 2030) will be due to the expected increase of the average life span. The cohort born in 1965 will therefore need for instance to work until the age of 66 and 4 months (instead of 65) in order to neutralize the effect on pension from increasing in life expectancy.[14]

With the foreseen return rate in the premium pension system (3,25 percent after costs of administration assumed), the pension level of the whole public pension system could reach a maximum of 58 percent for those cohorts born in 1965 and around 55 percent for the ones after 1975. However it has to be emphasised that it is quite uncertain whether the development of capital market will in the end manage to fulfil these expectations. In this respect especially the recent developments in 2002 and 2003 lead to a rather pessimistic view for the overall return rate.[15] The design of the guaranteed pension being built on a price-related indexation leads to some further doubts concerning the future development of an adequate pension level. In case of a positive growth of the average earnings income, the guaranteed pension as a partition of the total pension will decrease due to the price indexation. So in effect, the lowest pensions will decrease relative to the average income. For this reason the European Commission warned, a rising income gap between on the one hand wage earners and pensioners with earning-related pensions above the guaranteed level and on the other hand pensioners who are only entitled to the guaranteed pension could lead to increased relative poverty risks particularly for women, who on average still earn less than men and in the future will not be covered anymore through survivor's benefits.[16]

d.d. The index of adequate pension levels in Germany

In Germany, the legislation and the pension experts were aware of the risk concerning pensions levels due to a strict contribution rate policy. The aim of the pension reforms since 2001 was to balance the goals for the contribution rate development with a minimum so-called "standard pension level".[17] The index of an adequate pension level – so-called "Rentenniveausicherungsklausel" – was enacted with the 2001 pension reform in 2002 (§ 154 (3) SBG VI). It established an obligation for political action to be taken in case that the standard pension level in a 15-years-precalculation falls below 67 percent. Due to intervention mainly by the unions and the German pension insurance institutes this control mechanism was maintained even after introducing the new reform measures in 2004.[18] Starting from a newly defined gross standard pension level[19] of 52 percent in 2005 the government now has to propose measures in case that projections preview a standard pension level of below 46 percent in 2020 and below 43 percent in 2030. These figures show

the serious cuts in pensions. The government is hence obliged by law to stabilize at least these pension levels. In addition, from the beginning of 2008 the government is requested to explain to parliament regularly, which reform measures would be feasible in order to keep the average pension level at 46 percent even after 2020. In fact the law points out that all reform measures except raising the contribution rate are to be named (§ 154 (4) SGB VI). Especially raising the legal pension age will then need to be discussed again.

b. Different meanings of "generational fairness"

It is difficult to characterise the idea of "generational fairness" that is underlying a model of old-age pension systems as it usually represents only one part of a total social security system and therefore should be viewed in this context. However there seem to be different views on what generational fairness should comprise for the underlying models of the Swedish and the German pension systems. In the Swedish system in principle "fair" is interpreted as "same rates of return for all generations", so that generational fairness would mean "having a constant ratio of present value of pension benefits over present value of contributions for all birth cohorts".[20]

The fixed contribution rate in the Swedish pension system means that the part of the wage bill that is available for the consumption of the pensioners will remain constant over time. That means there will be a smaller part of the wage bill for each pensioner by a relatively growing number of pensioners. An increase in the relative number of pensioners can be due to increasing life expectancy, which is not totally balanced by an increase in the length of working life. Then the lower benefits in one period are compensated by a longer duration of benefits being received. An increase in the relative number of pensioners can also be due to variations in the size of the birth cohorts. This will typically be the case once the baby boom generation will retire. In this case also the wage bill that is available for the consumption of the pensioners will remain constant over time for an increased relative number of pensioners.

In the first case when the increased number of pensioners results from higher life expectancy, fairness of generations in the sense of equivalence of the relation of contributions and benefits for all generations will be maintained. The lower benefits in one period are compensated for by a longer duration of benefit receiving. In the second case, however, it will depend on the buffer fund sufficing to bridge the situation. Then contributions would be complemented by payments of the buffer fund to allow for unabridged benefit payments. If the buffer funds will not suffice the automatic balancing mechanism will be activated.[21] This would mean a recalculation of benefits and pension rights. Succeeding smaller birth cohorts may later return onto the old path of indexation. Therefore the burden has to be borne mainly by the larger birth cohorts. It is doubtable whether this still can be qualified as "fair" in the sense of the underlying concept.

In contrast, the German system emphasises the necessity of spreading these burdens between the generations by allowing a moderate increase of the contribution rate in the future. The concept of fairness does not count on an entirely equal treatment of all successive generations to come. It is seen as fair to divide the burden of sizable birth cohorts that enter retirement between pensioners and contributors insofar as the succeeding generations are born into a wealthier society and this compensates for a decrease in the rates of return. To say it with Schmähl: "Would anyone of the younger generation like to live in the future with higher rates of return but on the income level of say the year 1960?"[22] Insofar it is fair if the younger generation has to pass on a larger part

of their income to pensioners so that pensioners can participate from the overall increased wealth. On the other hand it should be acceptable that a generation of pensioners cannot expect the same level of pension as the preceding generation of pensioners while economic and demographic determinants seriously deteriorate. To view generational fairness only from a perspective of the contribution rate and the rate of return would mean not to take into account changes in society and societal values.[23] A moderate increase in contribution rates therefore is sensed as justifiable in order to meet the aim of the statutory pension insurance system to generate adequate pensions.

c. Information campaign

Neither the current Swedish public pension system nor the German statutory pension scheme provides foreseeable individual pension benefits. Individual pensions benefit depends on the individual life course and labour participation. In addition, each PAYG system as any funded pension system fights with uncertainties concerning the future economic and demographic developments and resulting uncertainties in indexation and the rate of return. Indexation is the main factor for future pensions levels because of the very long period of contribution payments and pensions disbursements. In order to give the insured at least an idea of their projected future pensions benefits, regular information is needed. Especially because of the cuts in pensions levels in the PAYG systems, individual supplement old-age provision will be necessary in order to reach a living standard after retirement close to the one acquired during working life. These developments thus place an increasing responsibility on the individuals to plan for their retirement themselves.

The difference between both systems is that Sweden partly replaced its PAYG system by a mandatory funded system, while Germany chose the way of subsidised voluntary private and company pension provisions. In Sweden an exemplary information campaign acquainted the insured with their account balances the rate of return and other benefit projections in the public pension scheme – premium pension included. These information are sent out yearly. The Swedish insured received in addition explanations about the way the new pension system works. Information about occupational pension schemes are given out by the providers of these pension schemes. There is an initiative that wants to combine the information of all providers in one hand.[24]

In Germany the insured receives information concerning the statutory, the private and company pension schemes separately by each scheme. As in Sweden, however, a joint information initiative of the pension insurance institutes and providers of private and company pension plans has is in discussion in order to provide comparable information. The aim is at least to streamline the information of the providers with the ones in the so-called "pension information" of the statutory pension scheme.[25] This is specifically done so that the insured can evaluate their need for a voluntarily additional private and company pension provision.

4. Concluding remarks

The new Swedish public pension system is characterised by a remarkable political stability because of its inherent political consensus. This consensus was prolonged into the future decades by introducing automatic adjustment measures such as the annuitization divisor and the automatic balance mechanism. The effect of these automatisms is that adaptation of pension benefits will be done without any further political discussions. With regard to possible short term imbalances of the system, e.g. cyclical fluctuations, it may well be reasonable to avoid principle political debates. In

the German context, for this purpose it would be helpful to replenish the so-called fluctuation reserves ("Schwankungsreserve"). In the long run however, cultural changes and changes in societal values can not be taken into account by an automatic adjustment mechanism.

Considering the demographic development, without any buffer funds a fixed contribution rate necessarily leads to serious cuts for the level of future pension benefits. The political priority of a fixed contribution rate is due to the debate of curbing the growth of non-wage labour costs. But should we not ask for adequate pensions today and in the future? Assuming a real economic growth in the long run, a wealthier society could bear a moderately increasing contribution rate. This would allow to distribute the costs of aging between economically active persons and pensioners. At the same time the real income level of the active persons would still be superior to the one of preceding generations. The idea of "once and for all" cutting off the pension debate by introducing automatic adjustment measures is more than tempting. However, in our view the political discussion process should all the more still be an essential tool in order to adapt the public pension system to a changing society.

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Notes

[1] Council of the European Union (2003), p. 175

[2] Ruland (2003 b), p. 973.

[3] RFV (2001), p. 36.

[4] RFV (2002), p. 41.

[5] RFV (2002), p. 39.

[6] BMGS (2003), summary, p. 7.

[7] Council of the European Union (2003), p. 46.

[8] Germany has a standard retirement age of 65. Benefits are reduced by 3,6 percent for each year of earlier retirement minimum 63 years) which is regarded as actuarially correct by the German statutory pension system. Benefits are increased by 6 percent for each year of later retirement.

[9] BMGS (2003), summary, p. 5.

[10] The latest developments in "Riester-pensions" see Bruno-Latocha/Tippelmann (2004).

[11] Holzmann (2003), p.12.

[12] RFV (2002), p.43.

[13] Projections in the annual report of RFV 2001 were even more pessimistic. Projected average pension level declined to 45 percent for cohort born in 1985 down to around 40 percent for the cohort born after 1975. Differences between the years 2001 and 2002 were explained by RFV by a new calculation model with an somewhat different base for the income simulation for the future.

[14] See table RFV (2002), p. 42.

[15] PPM-Annual statistic 2003 shows that from the beginning in 2000 until the end of 2002 the losses in the premium pension accounts amounted to 37 percent on average. Until 2003 the losses were reduced to 31 percent on average.

[16] Council of the European Union (2003), p. 174.

[17] An insured person who earned 45 years long exactly average income ("standard pensioner") will receive the so-called "standard pension". The "standard pension level" is the relation of net standard pension and net average income of all insured.

[18] Reimann (2004), p. 323.

[19] Because of the new legislation of pension taxation enacted in 2005 the index needed to be changed from net calculation into a kind of gross calculation. In focus is now the standard pension level without taxation but taking into account the contributions in social insurance as health care and social long-term care insurance.

[20] See Scherman (2003), p. 311.

[21] According to Scherman (2003) p.306 the risk of this mechanism being activated in the future was estimated around 30 percent by the turn of 2002/2003.

[22] Schmähl (2004), p. 78; translated by the authors.

[23] Ruland (2003 a), p. 234.

[24] Sundén (2003), p.10.

[25] Until now, the German statutory pension system has sent out "pension information"-letters about the accumulated earning points and about benefit projections to certain age groups. From the beginning of 2005 each insured older than 27 and insured for at least 5 years will receive this yearly information letter.

Balanced Notional Defined Contribution Schemes: A new "geist" in old bottles?

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NDC schemes are not in automatic financial equilibrium without a balancing mechanism, since they can cope with increasing longevity but not shrinking workforces resulting from decreasing fertility. The need for additional mechanisms to keep the schemes in balance is resulting in the adoption of new regulatory mechanisms. This paper tries to trace the principal effects of such balancing mechanisms on a typical European country called Demoland. *The analysis heavily draws on the Swedish method of balancing NDCs to analyse the principal effects of a balanced NDC approach in a stylized typical European demographic and economic context. The paper argues that the balanced NDC approach limits the policy space policy makers to find a fair sharing of the financial burden associated with demographic developments between generations. The limitation of the policy space leads to the fact that the financial consolidation of the NDC pension schemes will be done at a high cost to pensioners in a typical European context. It also symbolizes a fundamental shift in the way PAYG pension schemes are functioning, away from a solidarity-based way of coping with emerging new demographic, economic, social and resulting financial burdens to an individualistic approach with uncertain long-term consequences for the future standard of living of pensioners.*

1. Introduction

Social policies like all other fields of policy are subject to fashion. Fashion cycles in social policy are much longer than in the garment industry but they are a manifestation of the prevalent *zeitgeist*. Less than a decade ago a new fashion appeared in pension policy: Notional Defined Contribution (NDC) schemes. Invented in Sweden and Italy, first applied in Latvia and later introduced in Poland, Italy and Sweden, they have meanwhile been heralded by the World Bank[2] as a cornerstone of a possible long-term pan-European pension model.

When analysing the NDC method (as it was then known) of calculating pensions the author concluded in 1999[3] that

a) the schemes are not in automatic financial equilibrium without a balancing mechanism, since they can cope with increasing longevity but not shrinking workforces resulting from decreasing fertility,

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b) the NDC formula itself was new wine in old bottles as similar financial effects could be obtained by a PAYG Defined Benefit (DB) scheme with a career average pension formula and actuarial reductions and increments to compensate for early respectively late retirements.

Due to the fact that they are not in automatic financial equilibrium the *NDC* schemes are now turning into *balanced NDC* schemes. The need for additional mechanisms to keep the schemes in balance is resulting in the adoption of new regulatory mechanisms. Consequently the principal effects of NDC reforms on pensioners and contributors have changed. This paper tries to trace the principal effects of such balancing mechanisms on a typical European country called *Demoland*. The analysis heavily draws on the Swedish method of balancing NDCs – but does not set out to criticize the specific Swedish pension reform. It cannot and does not set out to replicate the numerous and more sophisticated model calculations that were prepared by the Swedish authorities in recent years. It simply uses the defining elements of the Swedish balancing mechanism – which is the first fully developed and fully documented mechanism – to analyse the principal effects of a balanced NDC approach in a stylized typical European demographic and economic context.

The paper argues that the balanced NDC approach, which aims at consolidating the finances of PAYG pensions, may do so at high cost to pensioners in a typical European context. It also symbolizes a fundamental shift in the way PAYG pension schemes are functioning, away from a solidarity- based way of coping with emerging new demographic, economic, social and resulting financial burdens to an individualistic approach. That approach also limits the policy space for politicians to distribute future financial burdens triggered by old age security systems between the active and inactive generations. Balanced NDC schemes reflect a new "zeitgeist".

2. Conceptual and definitional basics

Pension schemes are basically a set of rules that determine the share of total consumption that a society allocates to the elderly.

On the surface one can finance that share of national consumption either – as we have traditionally done Europe – from the current income of active workers or – alternatively – by forcing each generation to accumulate financial or tangible assets and to sell them to the next generation (i.e. saving and dis-saving). By now, however, it should be common knowledge that nations cannot – or only to a very limited extent – stockpile (or save) goods for future consumption[4]. Even if generations save for their retirement, the consumption of the elderly has to be financed from the income generated by the active population. The proceeds that future pensioners need to derive from their savings to finance their day-to-day consumption depends critically on what share of their income the next generation wants to use to buy assets from the pensioner generation, i.e. what share of GDP future generations of actives want to share with the elderly. If the number of actives decreases in an ageing society, the rate of return on capital stocks are likely to diminish and asset prices are also likely to fall as the demand for assets will most likely decline. Pension levels can be expected to fall likewise. Even the World Bank in its recent pension policy paper adheres to this thinking[5] . Nonetheless, a greater reliance on fully funded components in national pension systems is widely recommended by the World Bank an others. However, a complete changeover from a PAYG pension scheme to a fully funded one would create substantial transitional financing problems for governments.

In this context Notional Defined Contribution (NDC) schemes were invented as a close proxy to "real" fully funded defined contribution (DC) schemes. The basic philosophy of

NDC schemes is simple. They mimic (Barr 2004) the principle of fully funded defined contribution schemes without requiring actual resources to finance transition cost. The contributions of individuals are credited to a fictitious account. That "account" is actually nothing more than a record of contributions paid and fictitiously credited interest on these contributions. At retirement pension amounts are determined by dividing the fictitious or "notional" balance of the "account" by an annuity factor (or "divisor"). That factor or divisor is actuarially calculated –like in any private pension insurance scheme – based on the remaining life expectancy and an assumed interest rate as well as the assumed rate of future pension indexation. If the interest rate used for credits to the accounts and the rate used for the calculation of the annuity factor were equal[6] then such NDC schemes can be defined as "*pure* " NDC schemes. They fully simulate real DC schemes with respect to the pension calculation[7]. Pensions of different cohorts would thus under *ceteris paribus* conditions automatically vary in line with their expected average life expectancy at the time of pension award. The contribution rate would be more stable than in a classical PAYG scheme.

From the first appearance of the NDC models governments have diverged from the pure emulation of real DC schemes – necessary, in order to "balance the books". Existing NDC schemes vary according to the interest rates they apply to the fictitious savings and the interest rate used when calculating the annuity factor. If one assumes that the interest rate to calculate the annuity factor is equal to the future rate of pension indexation, then the annuity factor is equal to life expectancy at retirement age. This is the case in Poland, for example. Poland adjusts pensions in payment with the rate of inflation plus 20% of real wage growth. Because of this numerical equivalence between life expectancy and the annuity factor, that rate (inflation plus 20% of real wage growth) is implicitly equal to the assumed interest rate for the calculation of the annuity factor. Savings, on the other hand, are credited with an interest rate that is equal to 75% of the total wage sum.[8] The effect is that initial pensions are held down and the average replacement rate of pensions in payment drops over time. In Sweden, the interest rate applied to savings "in normal times" is equal to the increase in average wages. Pensions in payment are indexed with average wage increase minus 1.6%-points. The latter means that the implicit effective interest rate applied to savings is equal to 1.6%[9,10] . This is generally lower than the rate of change of wages which means that (due to the smaller denominator in the present value calculations) initial pensions are relatively high but would then face a declining replacement rate during an individual's pension life.

A crucial difference between real DC and notional DC concepts remains. Real DC schemes are – if all goes according to plan (and according to actuarial calculations) – in automatic financial equilibrium since the present value of all pensions to be received by an individual would – at least in theory and on average – match the amount of his/her fictitious savings. Collectively this would mean that at any given point in time the present value of all liabilities (i.e. the present value of all pensions in payment and all pension rights earned by still-active insured persons) would be equal to the total value of all balances in the individual pension accounts. This allows for substantial flexibility with respect to retirement ages. People would just get out what they put in – regardless of when they retire. Pure NDC schemes on the other hand are not in automatic equilibrium. It is obvious that the actuarial pension formula alone only isolates NDC schemes against the risk of longevity. It does not isolate NDC schemes against the risk of shrinking contribution cohorts due *inter alia* to decreasing fertility rates. Achieving an auto-

matic equilibrium – which is here equated with maintaining a constant contribution rate – systematically requires an additional balancing mechanism –a "crutch" to substitute the *expenditure and income balancing power of money* – of which there is none or relatively little (in form of contingency buffer funds) in the NDC scheme. The need for additional balancing between income and expenditures turns *pure NDC* schemes into *balanced NDC schemes*.

In Sweden this is achieved through additional corrections to the interest rates credited to savings and the adjustment of rates of pension in payment as introduced in 2001. In some cases the indexing of savings or pensions to the rate of change of the wage sum is regarded as a perfect balancing mechanism. This would go some way towards balancing income and expenditure but is not always mathematically correct (and counter examples exist[11]) and does not generally abolish the need for an additional balancing mechanism.

3. The effects of maintaining financial equilibrium in balanced NDC schemes

3.1 Financial equilibrium and policy spaces in PAYG schemes

NDC schemes remain PAYG or partially funded pension schemes – which determines the nature of their financial equilibrium. If one abstracts from the possible existence of a contingency buffer fund (thus leaving the "pure" Swedish case) and ignores administrative cost, they have to comply with the basic formula:

$$(1)\ CR_t * AW_t * CONS_t = AP_t * PENS_t$$

i.e. the product of the average wage (AW), the contribution rate (CR) and the number of contributors (CONS) has to be equal with the product of the number of pensioners (PENS) and the average amount of pensions (AP) in any given period t. This can conveniently be written as:

$$(2)\ CR_t = (AP_r/AW_t) * (PENS_t/CONS_t)$$

meaning that the PAYG contribution rate is the product of the *financial ratio* (the ratio of the average pension to the average wage AP/AW) and the *demographic ratio* (the ratio of the number of pensioners to the number of contributors PENS/CONS).

An emerging financial dis-equilibrium would be signalled in this "pure" PAYG world by increasing deviations of necessary contribution rates from actually charged contribution rates. A standard DB PAYG pension scheme as an institution can use at least three policy instruments to react to that situation: i.e. modifying pension levels, pension age and contribution rate. The pure NDC scheme gives up one or two of those (i.e. the pension level, and with some limitation the pension age) but leaves the contribution rates – even if this is not always explicitly admitted (see Palmer (2003)) – to accommodate financial pressures that results from factors other than longevity. A balanced scheme changes that situation.

If – as in the case of a balanced NDC scheme – the contribution rate is fixed and the demographic ratio is outside the direct control of policy makers, the number of contributors is determined by the economy and the size of the cohorts in active age by the demographic environment, and the number of the pensioners is determined by people's retirement preferences (with some limitation through the setting of a minimum retirement age), then logically the schemes can only be kept in financial balance if the financial ratio can be modified. With the exception of a ceiling on contributors' earnings, the average insurable wage can also not be influenced by policy decision, thus – in principle – the only policy instrument that can be used in an NDC scheme to maintain its financial equilibrium and to bring a deviating scheme back into equilibrium is to modify the

level of pensions. In the prevailing demographic situation in Europe, this will mean in most cases reducing the level of pensions[12]. The balanced NDC scheme thus deliberately and severely limits the policy space for policymakers[13].

3.2 Maintaining financial equilibrium in pure NDC schemes

If a financial imbalance is due to increasing longevity then the pure NDC mechanism copes with it through the reduction of new pensions at each single retirement age – except possibly for some time lag problems. Individuals can counter this by retiring later – if they have the freedom to do so. Alternatively they can choose other means of individual social risk management. They can choose to retire at the time planned but draw a pension later. They might bridge the time gap by using other transfer payments – if accessible – or "buy" additional periods of leisure out of private savings – if they have the means to do so. There are various ways of individually managing the longevity risk. However, these options generally favour the better off and the better informed. Less well off people might prefer to take pension later and yet might be subject to pressures to retire earlier than planned. What is meant as an incentive for change in retirement behaviour might just turn into a straight reduction of current income for the less fortunate.

If, however, the financial imbalance occurs due to a contracting volume of contribution income, then a pure NDC scheme would have to resort to increasing retirement age or increasing contribution rates, although the latter measure has it's own disadvantages. Each increase of the contribution rate to balance *current* accounts, creates new future pension rights that may very well cause new disequilibria problems in the future (Scherman 2003). The only way to avoid this would be to split the contribution into a share that is credited to the individual accounts and one that is credited to the contingency buffer fund without affecting pension amounts. In any case, raising retirement age or increasing the contribution rate are measures that could be applied in any other PAYG scheme – without the special disadvantages that are associated with increasing contributions in an NDC scheme.

3.3 Maintaining financial equilibrium in balanced NDC schemes and its likely effects

If the scheme were to maintain automatic financial equilibrium with a constant contribution rate, other measures would be needed to cope with the financial imbalance from a contracting contribution base, for example, by introducing a balancing mechanism. This section establishes the possible effects of such a balancing mechanism. Indeed, the politically tenable options for the actual design of such balancing mechanisms are limited. Rather than reducing the value of actual savings and pensions in payment, the rate of increase of both would probably be slowed down, i.e. the annual adjustments of pensions and the interest rate credited to pension savings would be reduced by applying a certain reduction factor to the "normally" applicable rates of increase and interest. Such is the example of Sweden, and this mechanism is used here as a concrete example to analyse the potential effects of such a balancing mechanism on the long-term replacement rates of pensions. A brief introduction of the mechanism is therefore in order. Other NDC countries such as Latvia, Poland and Italy have not yet introduced such explicit automatic stabilisers[14] although the necessity is acknowledged.[15] Interestingly two of the older classical PAYG DB schemes (i.e. the statutory pension scheme in Germany and the earnings related pension component in Japan) have introduced so-called explicit demographic factors[16] or sustainability factors[17] that aim explicitly at the financial stabilization of the schemes.

A prominent example: The mechanics of the Swedish balancing mechanism

The Swedish method to determine the balancing factor is new. Its full mathematical description can be found in *The Social Insurance Office* (2004, pp. 71-73). Essentially, the balancing formula is a rule-of-thumb simplification of an actuarial present value calculation. Instead of calculating the ratio of the expected present value of all pension liabilities (acquired pension rights and pensions in payment) and the sum of the present value of all future contribution income plus the value of the initial reserve, the formula used here estimates pension liabilities and contribution assets by using rules of thumb that do not require any projections.[18] The ratio of assets and liabilities provides a balancing factor. If that factor is smaller than unity, interest rates credited to the retirement savings in the individual accounts and the rate of adjustment of pension have to be reduced compared to the normal rates of interest and adjustment of pensions by multiplying the normal rate with the balancing factor.

The balancing factor (which we assume in a normal stylized European case will be smaller than 1, i.e. the ratio of the contribution assets and the pension liability is smaller than unity due to the above mentioned upward trend of the demographic ratio in Europe during the next decades) will be applied to the normal rate of pensions and savings indexation. In Sweden this would mean that if the balancing factor is, for example, 0.99 (i.e. that the contribution assets – including the value of the buffer fund if any – are 1% smaller than the pension liabilities) and if the normal wage increase shows a value of 3%, then savings are only credited with an interest rate of 1.97% (.99*1.03=1.097) and pensions are adjusted only by 0.4% (0.99 * (1.03/1.016) = 1.004)[19] instead of the normal rate of 1.4% (1.03/1.016=1.0138). The new rate of 1.97% is called the "internal rate" of return of the pension scheme[20]. If the balancing ratio recovers, pensions and balances are adjusted at a higher rate than the normal until they regain the index level they would have had reached without the temporary reductions due to the activation of the balance level in the first place.

Effects of the balancing mechanism on pension levels

In the latter case pension levels are restored but annual losses during the years with less than normal adjustment are not compensated. The present value of pensions in payment will thus always be reduced whenever the balancing mechanism is activated. By contrast, and depending on when during the contribution life of an insured person reduced interest rates for account balances are triggered through the balancing mechanism and the consequential recovery is activated – he/she might actually benefit from the balancing procedure if the same "recovery rates of adjustment" are applied to the account balances and pensions. This is an obvious effect of the asymmetric adjustment of pensions and balances[21]. While bringing pensions back onto the normal indexing track, the value of the accounts might be overcompensated for the loss. The following Box 1 illustrates this effect by an example. The "cost" of short-term shocks in the system is thus most likely entirely borne by pensioner generations.

The worrying fact is that the overcompensation of the active generation's savings balances might trigger another activation of the balancing mechanism which could then hit the loosing pension generation again. If the period of below unity balancing factors is not followed by a recovery period of positive factors due to a systemic deterioration of the demographic situation or a general contraction of the economy then future generations of pensions will also lose pension income but to a lesser extent than the pensioner generation during whose pension period the necessary down-

Box 1: The Swedish-type balancing mechanism, pension levels and retirement savings under short-term shock conditions.

The following graphs describe a simple example. Cohort II is starting to contribute in year one an amount of 10 currency units (CUs). It contributes for forty years. Contributions are increasing by 3% per annum. Cohort I starts to receive a pension in the same year when cohort II starts contributing. It receives a pension of 70 CU. In the base case in a normal situation annual retirement savings are credited with an interest of 3% and pensions by 1.4% (i.e. 3.0 – 1.6% =1.4%) which would simulate the Swedish case. In a second scenario the internal rate of return is reduced due to a triggering of the balancing mechanism to 1.97% for a duration of 10 years. This simulates a period of a limited economic shock, which could be triggered by increased unemployment, for example. Retirement savings are thus credited with an interest rate of 1.97% while pensions are increasing in nominal value only by 0.4% p.a. The loss in pension level is subsequently recovered through a faster adjustment of pensions (which automatically also benefit the balances on the savings accounts) for seven years.

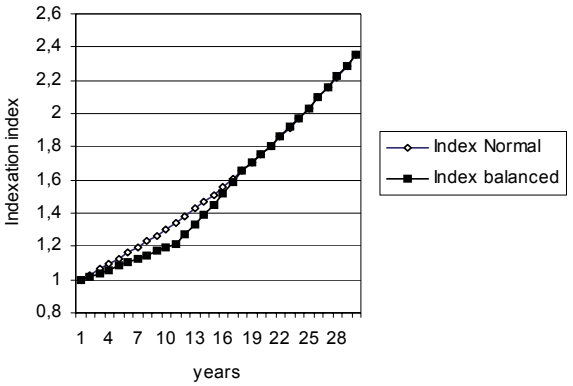
Box Figure 1 shows how the adjustment index recovers over the years.

Box Figure 2 shows the parallel picture for recovering pension levels.

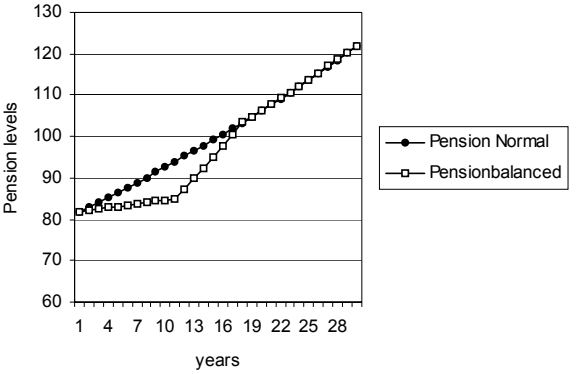
Box Figure 3 shows that retirement savings under the recovery scenario are overcompensated, if the systematic difference between savings and pension indexation is maintained.

The differential effect of the situation on pension levels and retirement savings is obvious. The pensions of *cohort I* lose about 3.1% of their present value while the retirement savings of *cohort II* will gain about 2.3%. If no further balancing periods are triggered then even in this relatively unspectacular example the pensions of *cohort II* are about 5.5% higher that those of *cohort I*.

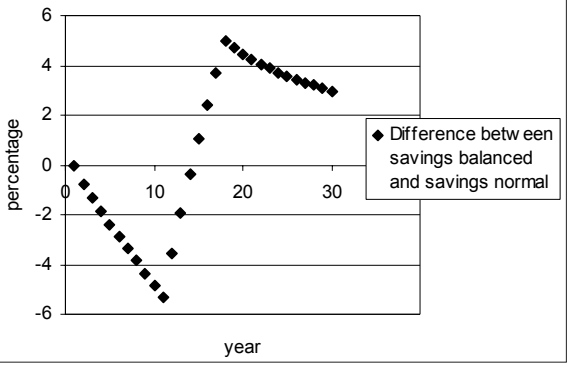
Box Figure 1: An example of the effect of a balancing mechanism on the pension indexation index.



Box Figure 2: An example of the effect of a balancing mechanism on pension levels.



Box Figure 3: An example of the effect of a balancing mechanism on the level of retirement savings.



ward adjustment of pension levels occurs.[22]

If there is a long sequence of consecutive below unity balancing ratios without recovery over long periods or even decades then retirement savings will suffer (and hence future pension levels) a greater loss than pensions in payment. This, in a European context, is the much more likely scenario.

A mental exercise helps to understand the potential dimension of the cumulative effect of successive balancing on pension levels. In 2005 a country – that we may call *Demoland* – has a contribution rate of 16% and a demographic ratio of 0.33 (i.e. there would be 33 old age pensioners for 100 contributors). This demographic ratio of 0.33 could be typical in any ageing European country[23] if all people were retiring at age 65 and 90% of the people in active age groups were employed and contributing. According to our formula (2) this would then yield a financial ratio (or an average replacement rate of pensions) of 0.485 (i.e. the average pension would amount to 48.5% of the average insurable wage). If the demographic situation in the model country were to develop as the UN projections forecast for our model country *Demoland* indicate, then the demographic ratio (without a change of retirement age) would increase to 0.57 in 2050. To keep the contribution rate stable we would need to bring the average replacement rate down to 28.1%.[24, 25]

The automatic downward adjustment of the level of new pensions in line with increasing life expectancy (due to the annual adjustment of the annuity factor or divisor) would go some way towards achieving that "objective". But it would fall far short of target. In 2005, all (old age) pensioners have been born before 1940. The pensioners of 2050 will have been borne roughly between 1960 and 1985. According to Settergren (2003, table on page 104) in Sweden the latter group would experience on average a reduction of their pension by about 10% due to increased longevity compared to the cohorts born before 1960. Due to the identity of the demographic structure and development of Sweden and *Demoland*, we can use these factors here. The order of magnitude of the reduction is most likely not atypical for other European countries. Meaning that the average replacement rate would decrease to 43.7%. This is the effect of the pure NDC automatism triggered through increases of the NDC divisor (or annuity factor). If *Demoland* were to follow a strict balancing policy (i.e. maintaining a constant contribution rate), then pension levels would be forced down over time through the balancing mechanism by another 36%. This roughly means that only about 24% of the total consolidation need would come from the longevity effect on the pension levels and 76% through the balancing mechanism. This is roughly equivalent to the permanent use of a balancing ratio of 0.99 for about 45 years. Using the jargon of the World Bank, roughly three quarters of the "implicit pension debt" that the system is incurring at a constant contribution rate of 16% would be cancelled by reductions in pension levels while one quarter could be cancelled by the increase of retirement age (if retirees prefer later retirement to an equivalent reduction of pensions).

If a contingency buffer fund is available (which in Sweden at the end of 2003 stood at 370% of annual expenditure), it could be used to mitigate against the fall in replacement rates over the decades. However, one has to note that – in our example – in the year 2050 alone the income from the buffer fund needed to fully stabilize the replacement rate would amount to 12% of the total wage or about 43% of annual expenditure. Much more exact actuarial calculations and projections are needed to confirm this order of magnitude but there is reason enough to believe that even the existence of a sizeable buffer fund could not prevent a dramatic drop in replacement rates in balanced NDC schemes operating in a typical European demographic environment. The problem of

declining replacement rates would, of course, be much bigger and surface much earlier in countries without such buffer funds that might currently be contemplating an NDC-type reform.

But back to our case without a buffer fund. If people were far-sighted enough and were compensating prospective reductions of the replacement rate by higher retirement ages they would have to increase the average rate of retirement age from 65 to about 73 years in 2050[26]. Many more people than today would never experience retirement. In addition, prospective later retirement is highly unlikely as there is no way that people would be able to forecast the long-term decline of replacement rates years or even a decade before they plan to retire.

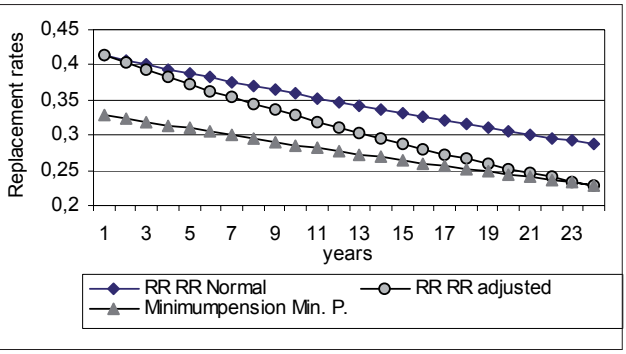
The effect on individual cohorts would be rather dramatic. The following graph shows the effect of the continuous application of a balancing factor of 0.99 on the average replacement rate of a cohort of pensioners in *Demoland* that starts out with a replacement rate of 41% (earned after 40 years of pension savings at a rate of 16% of an average income which has increased by a nominal rate of 3% throughout the savings period)[27,28]. The top line describes the "normal" decline of the replacement rate due to the asymmetric adjustment of pensions vis-à-vis the interest earned on the fictitious retirement savings. The second line describes the effects of a continuously applied balancing ratio of 0.99, and the last line describes the development of the replacement rate of a minimum pension which was set at 33% of the average wage in the start year and is consequently only adjusted for inflation.[29,30] That amount could be interpreted as a relative poverty line. The figure shows that at a contribution rate of 16% and an average nominal wage increase of 3% and a sequence of balancing ratios triggered by a demographic development, the application of the balancing ratio would bring the pension level of the standard beneficiaries in this cohort down to the poverty level[31] . Most of the drop in replacement rates would occur after retirement, so that pensioners would no longer have the option to compensate replacement rate losses through increasing retirement age.

Incidentally, the replacement rate in the above example – after 30 years of contributions – would only be in the order of 31%[32] . Even if that were to be increased by proceeds from the real DC component which the reformed systems have also introduced as second pillar the overall replacement rates would most likely fall short of 40%. This raises the interesting question if – and for how long – some of the European NDC schemes will be able to meet the standards of the ILO convention (No. 102 of 1952) on minimum standards in Social Security or the European code of Social Security (1964). Actual replacement rates depend, of course, critically on the level of the contribution rates. As long as these are locked in at the present levels, some of the present European NDC schemes might be heading for legal complications. The issue justifies an in-depth actuarial analysis which is far beyond the scope of this short paper.

In Sweden, the existence of a buffer fund and liabilities stemming from the old ATP system provide for temporary deviations from the principal development.[33] Without the buffer fund (in 2003 equal to 10.6% of contribution assets[34]) the balancing ratio would already be smaller than one and the decline of the replacement rates would be accelerated due to the application of the balancing factor. In addition, pension liabilities are still dominated by the old ATP burden which are based on generally higher pension levels that will be reached under the new system, thus the transition to lower replacement rate rates is slowed down.

However, the above figures show the principal trends that balanced NDC schemes are most likely to face. The balancing of the books will be at the cost of dramatic reductions in

Figure 1: Simulation of the effect of the balancing mechanism on the pension replacement rate of a standard pension recipient during the period of pension receipt in Demoland.



pension levels. As it looks, pensioners can only compensate about one quarter of such losses through postponing retirement in line with longevity gains. Three quarters of these losses would most likely occur after they have retired, unless they (i.e. the generation of the 20 to 45 year-olds of today) would be wise and healthy enough – with little advance information on post retirement reductions in pension levels to push retirement far beyond the age of 70 and beyond longevity gains.

Possible system side effects

Balanced NDC reforms set out to keep the contribution rate to the NDC tier of the overall national pension system constant. With the help of a balancing mechanism that objective can be achieved. However, the NDC scheme generally is only the first tier in the pension system. The second tier in all recent European reforms is a real DC scheme. According to the calculations of the Swedish Social Insurance Office[35] the overall replacement rates for an average pensioner at age 65 are expected to drop from roughly 65% for those born in the early 1940s to about 51% in the medium variant and to 47.5% in the pessimistic variant. In order to avoid such drops in the replacement rate present contributors would have to increase their savings in the second tier schemes or in a voluntary third tier by 150% to 200%. Similar orders of magnitude would apply to our Demoland case. This means that overall contributions to the pension system as a whole would have to go up in order to maintain present replacement rate levels. Governments might need to legislate hikes in the second pillar if too many people fall under the guaranteed minimum pension levels (which are an integral part of most pension reforms). This means that while the NDC scheme might be able to maintain a constant contribution rate, the pension system as a whole might not.

Possible social budget side effects

As Hagemejer (2004) points out, the reduction of pension levels will most likely trigger in turn compensation strategies of future pensioners. They will delay the date of pension application to recoup some of the losses inflicted on them by the NDC pension formula and the balancing mechanism. However, that does not mean that they will delay actual retirement from the labour market, they may well try to use other transfer payments as a substitute for pensions to bridge the gap between desired and affordable retirement age, such as social assistance, unemployment benefits and disability benefits. This option could at least defer the age of entry into pension receipt until the age of 65 (after that age, in most countries no alternative transfers are payable). Part of the retirement cost might thus be shifted to alternative transfer mechanisms. If the benefits under these schemes are relatively generous and pension contributions are paid by the state during the receipt of these benefits the incentives for behavioural adjustments of this sort are sub-

stantial. If average levels are still declining then the state may have to "remedy" some of the effects through the financing of an over-proportional share of total pension expenditure through the guaranteed minimum pension. The NDC scheme and the balancing mechanism might thus consolidate the finances of the old age pension schemes without necessarily achieving a consolidation of the overall level of social transfers. In other words, while the pension scheme might be in financial equilibrium the social budget of the nation as a whole might not.

In view of the above principal problems of the "balanced NDC" one might query why policy makers chose a relatively complex and new system to consolidate pension systems. One possible reason is that it was the only way to consolidate these systems. The following section rejects that hypothesis.

4. Are NDC reforms necessary?

Let us assume, contrary to the previous examples, that there exists a simplified PAYG pension scheme in *Demoland*. People retire at age 60 with an average replacement rate of 50% of average earnings. We assume that all people presently making use of de-facto early retirement through the use of alternative transfer benefits such as social assistance, unemployment benefits and invalidity pensions are included in the old age system. Society ages rapidly. The objective of the consolidation mechanism is to keep the contribution rate constant or in a narrow range around the present starting rate of 23.5% (which is the product of a financial ratio of 0.5 and a demographic ratio of 0.47) in the start year 2000. According to experience a contribution rate of between 20% and 25% seems to be a realistic order of magnitude for a PAYG pension scheme operating in a typical European demographic environment[36].

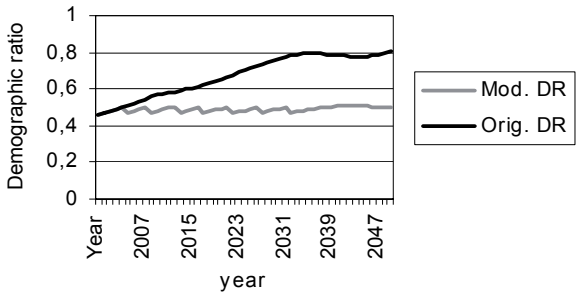
There are various ways to keep the contribution rate in check. One is described by a simple modification of formula (2), i.e.:

(3) $0.235 = (PENS_r / CONS_t * 0.5$

This means that we would want to keep the contribution rate and the replacement rate constant implying that we have decided not to burden the active generation further. We also do not want to reduce the relative standard of living of the pensioner generation (symbolized through keeping the replacement rate constant at 50%).

This can only be done by increasing retirement age. In *Demoland* we do this in steps of one year. To roughly maintain therefore the equilibrium of formula (3) we must raise retirement age seven times between 2000 and 2035, which means that the effective retirement age will increase by about 7 years. The model triggers an increase of the retirement age by one year each time the demographic ratio (DR) exceeds 0.5. The effect of the measure on the development of the demographic ratio is demonstrated in Figure 2.

Figure 2: The development of the demographic ratio of Demoland *2000-2050 with and without successive increases of retirement ages*



However, the increase of the *de facto* retirement age over 3.5 decades by seven years may not be feasible politically. There is another option. One could simply abolish the automatic adjustment of pensions in line with wages (i.e. waving the condition that the replacement rate stays constant). It is assumed here that wages will increase by 3% p.a. and pensions by 1.6% less – simulating an annual indexation of pensions in line with prices. The following figure shows the PAYG contribution rates from the year 2000 onwards

a) under status quo conditions without consolidation (curve PAYG-status quo),

b) under consolidation exclusively through the increase of retirement ages (curve PAYG CR –RA) and

c) under consolidation by replacing wage indexation by price indexation (curve PAYGCR-MODIN).

What the graph shows is that both consolidation measures could have "balanced the books". However, a mono-dimensional approach using just one of these tools would most likely not be acceptable (for example, an exclusive consolidation through pension adjustments would lead to a dramatic halving of the initial average replacement rate). A pragmatic combination of the two consolidation measures and a moderate increase of the contribution rate could help to broker a fairer sharing of the consolidation burden between actives and pensioners.

So the answer to the above question as to whether a balanced NDC reform (probably with a second-tier DC scheme) would be necessary to maintain the relative stability of contribution rates from a financial and technical point of view? Clearly not. There is enough reason to believe that classical instruments could have achieved the same effect.

A careful balance of the use of the three main policy instruments: reducing pension levels, increasing pension age and increasing the contribution rate would have

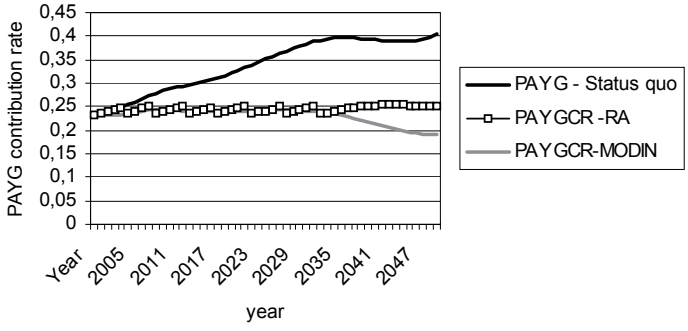
a) balanced "the books",

b) probably created a different inter-generational sharing of the consolidation burden, and

c) also probably created positive economic side effects.

With respect to the latter point, it should be noted that the financing of pension schemes is only one problem that the ageing of European societies will have to cope with. The more central problem will be the negative or low economic growth rates that could potentially be triggered by a contraction of the labour force. European economies might need a much steeper and/or earlier increase of retirement ages – once some of them will have come out of the present unemployment trough – than can possibly be triggered through the longevity-based decreases in pension levels. A further exploration of the subject is outside the scope

Figure 3: Projected PAYG contribution rates in Demoland *under status quo, increasing retirement ages and a modified pension adjustment, 2000-2050.*



of this paper but has been done elsewhere.[37]

It is obvious that the traditional bundle of policy measures opens a much wider and more flexible policy space for decision-makers than the balanced NDC approach. So the question remains why this approach was chosen in some countries and why is it promoted by institutions like the World Bank? The following sections tries to find an explanation.

5. Why then NDC reforms?

On the surface of national and international policy debates the prevailing objective of pension reforms these days seems to be the maintenance of financial equilibrium or – better – guaranteeing long-term financial sustainability and stability. However, there may also be hidden political agendas which may have to do with the huge amounts of monies that will be passing through financial institutions (banks, pension funds and insurance companies) when public social security schemes are wholly or partially privatized.[38] This again – fascinating as the topic may be – is not the subject of this paper, but the observations may help to make the case that there may be non-apparent explanations for some pension and social policy reforms.

Financial consolidation generally means in the context of an ageing society that expenditure or prospective expenditure has to be brought in line with prospective income. In a genuinely fully funded DC scheme this is automatically the case. The scheme simply does not pay out more than what has been saved on an individual cohort basis and if the management of the reserves is functioning properly and the actuarial annuity calculations are sufficiently risk averse then the schemes should be in automatic equilibrium. It is perceived to give "people their money back" which in turn is increasingly being seen as fair from an intergenerational and inter-personal point of view. NDC schemes suggest to the general public that they operate in the same fashion as real DC schemes, i.e. that people "will get out what they put in".[39] And if that should not be the case (as it will most likely not, as we have seen) then what they will get out is at least as closely related to their personal inputs as possible.

This is an essentially individualistic consolidation approach – which appears to constitute one part of the paradigmatic foundation of the approach.[40] The overall financial consolidation of the combined NDC and DC two-tier systems forces individuals to develop individual retirement strategies. If future pensioners want to safeguard their pension levels they have to adjust their individual retirement age upwards or must begin to increase their DC savings from an early age on. The development of the right individual strategy is subject to substantial uncertainty about future demographic and economic developments all compounded by information uncertainties (e.g. about the potential size of the future reduction of NDC pension levels). The old PAYG DB approach was based on collective societal responsibility which guaranteed an adequate level of consumption for the elderly and a collective shouldering of risks and uncertainties. These responsibilities are now being delegated from societies to the individual. That reflects a new *Zeitgeist*.

6. By way of conclusion: New "geist" in new bottles?

When analysing the mechanics of a balanced NDC reform some technical findings stand out:

1) The system can – in theory – most likely put a pension system into long-term financial, equilibrium – provided the downward pension adjustments will be tolerated by the population in future.

2) While the pension system might be in financial equilibrium the social budget of the country as a whole might not. The size of the potential shifting of expenditure from the pension system to other social transfer schemes is unknown, but – if present practice of early retirement through other transfer schemes in Europe is anything to go by – then the risk is substantial.

3) The burden of the financial consolidation under balanced NDC schemes will be overwhelmingly borne by pensioners during the next three decades. Losses of pension levels through a balancing mechanism in first-tier NDC schemes are not likely to be compensated through pension earned in second-tier real DC schemes – without substantial increases in their contribution rates.

4) The balanced NDC approach needlessly limits the policy space. The balanced NDC reforms are not necessary to consolidate the financial equilibrium of the national pension system. Financial equilibrium can be maintained by classical means using a combination of the policy instruments: raising retirement age, reducing pension levels and increasing contribution rates.

5) Policy space can be regained in NDC schemes if a certain increase of the contribution rate were permitted without triggering benefit longer-term increases. This could be done by splitting the contribution rate into an individual component (that would determine the amounts "saved" in individual accounts) and an solidarity component (that would be paid into a general buffer fund to help cope with a part of the increasing demographic burden). The individual component could be kept constant and the solidarity component could be allowed to fluctuate within limits. A new balancing mechanism could try to distribute inevitable consolidation burdens fairly between active contributors and pensioners.[41]

The obvious reason to use the NDC approach or better the combined NDC/DC approach was to achieve a fundamental paradigm change in the method of consolidation. The consolidation is perceived as being "fair" in the sense that contributors perceive that they "get out" what they "pay in". Individual equity reigns over societal responsibility.

In that respect I have to revise my findings of 1999 referring to the unbalanced NDC approach. If one includes a balancing mechanism – prescribing constant contribution rates for the active population – NDC reform embodies a fundamental shift in the meaning of solidarity. In that sense, there is a new spirit (a new *Zeitgeist*) in the old PAYG bottle. In German the word for ghost and spirit is identical (i.e. *geist)*. It appears likely, that once uncorked, the new "zeitgeist" of the brave new balanced pension world will haunt us all – during our retirement.

Notes

[1] The author is grateful for the detailed review of the text by *Karuna Pal, Karl Gustaf Scherman* and *Diane Vergnaud* and constructive comments received from *Warren McGillivray, Florian Léger* and *Robert L. Brown*. Factual errors and errors of judgment, however, remain the responsibility of the author. Views expressed in this paper are private and those of the author and do not commit the International Labour Office.

[2] Holzmann (2003), p. 15.

[3] See Cichon (1999).

[4] See inter alia Barr (2000) and Brown (2002).

[5] See Holzmann and Hinz (World bank, 2005), p. 70.

[6] Except for annual deviations of interest rates (used to credit interest to the accounts of actives) from assumed long-term average interest rates (needed to calculate annuities).

[7] This definition is independent of the annual indexation of pensions as long as the indexation follows an established rule.

[8] See ILO(Fultz, 2002), pp. 124 and 125.

[9] See Scherman (1999), p. 21.

[10] Also The Social Insurance Office, p.36.

[11] Palmer (2003), p.13 claims that "the NDC scheme is in principle stable, if the figure for life expectancy used in computing the NDC annuities is on average correctly estimated, and if the rate of return in the account scheme follows the rate of growth of the contribution base. In addition, reserves in the demographic buffer fund would need to earn a rate of return also equivalent to the rate of growth of the contribution base. These conditions are both necessary and sufficient ...". Indeed they are not, as the following example shows – the example refers to a case with buffer fund zero, but could easily be generalized. Take, for example, a cohort that experiences an atypical increase in their savings, say, 10 years before their retirement due to an atypical increase in employment (causing the wage sum to increase). At that time pensions in payment are increasing in line with the wage sum keeping the contribution rate constant. When the cohort with the high employment phase retires total expenditure will increase faster than the sum of wages due to the higher pension level of the entering cohort, causing at least a temporary increase in the contribution rate even though savings and pensions in payment continue to increase in parallel with the rate of change of the wage sum.

[12] This can only be avoided if people postpone retirement fast enough to counteract the emerging imbalance. However, that can be regarded as rather unlikely as long as pensions do not decline. According to the NDC formula, initial pensions at time of award are immune to shrinking active populations as long as retirement savings are not indexed by wage sums. Even in times of shrinking workforces pensioners would thus not have any incentive to retire later than the individually preferred time. Retirement behaviour could actually be pro-cyclical. In times when employment shrinks for economic reasons, older workers may be forced to retire earlier rather than later, to contribute to the clearance of the labour market.

[13] Brooks and Weaver (2005) describe this state of affairs as being "lashed to the Mast" (i.e. a stable contribution rate) to avoid following the siren's call (i.e. political calls for more leniency when combating old age poverty or a different distribution of future financial burdens between contributors and pensioners).

[14] Lequiller (2004), p.11.

[15] Franco and Sartor (2003) state for Italy: " Stability of the equilibrium contribution rate therefore requires either the presence of built-in stabilisers, such as those incorporated into the Swedish system … or periodic ad hoc adjustments to the changed scenario." (p. 9)

[16] In the case of Japan there are two explicit demographic factors. One reduces pension levels to take account shrinking active contributor cohorts, the second corrects pension levels for increased life expectancy. Both factors take the form of constant average long term reduction factors applied till 2023/2025 (Takayama 2004).

[17] In Germany a so-called *Nachhaltigkeitsfaktor* was introduced and is to be applied as of 1 July 2005. It corrects annual pension indexation by a factor that reflects the change in the relationship between "full" pensioners and "full" contributors thus incorporating the effect of shrinking contributor cohorts and am increasing longevity. The factor also incorporates a parameter that allows for consolidation burdens to be shared between pensioners and contributors (von Broekel, 2005).

[18] This means that the procedure is applied without the longer-term view into the future. The necessity to apply the factor annually embodies a further limitation of policy space for decisionsmakers. If a classical actuarial procedure for the determination of the balancing factor were used then one would calculate the ratio between the present value of all future pension expenditure and the present value of all future contribution income. If – in case of a temporary contraction of the contribution base – the long-term equilibrium is expected to return to normal or one could stretch policy measures over a certain time period this might make adjustments more acceptable to the pensioners and contributors. Of corse, the actuarial approach would require a set of assumptions on future demographic and economic developments which might make the system vulnerable to political interference. However, the actual number and nature of assumptions that enter implicitly into the asset and liability approach that is used by the Swedish system is actually similar to those which are explicitly employed by the actuarial approach. The implicit approach, for example, assumes stable demographic development. A no less stringent assumption than any other actuarial assumption.

[19] See also *The National Social Insurance Board* (2004), p.35.

[20] For an interesting analysis of the nature of the internal rate of return one might wish to consult Settergren and Mikula (2005)

[21] The asymmetry stems from two effects. First, the rates of indexing of savings and pension are different by definition; secondly these different rates are applied to mathematically different aggregates, i.e. a flow variable (the pensions) on the one hand and a stock variable (savings) on the other hand.

[22] Aware of this situation, the designers of the balancing mechanism hesitate to remedy it for fear – understandably – of overcomplicating the mechanism (O. Settergren, in personal communication, 1 February 2005).

[23] For the purpose of these calculations, the demographic structure and development as given and forecasted by the UN population projections (median variant) for Sweden were used.

[24] According to formula (2): 0.16/0.57 =0.2807.

[25] This may seem to be exaggerated, but in the Swedish case (in the pessimistic scenario) PAYG pension replacement rate for new pensioners at age 65 would fall roughly from 65% to 40% from today until 2055, i.e. a drop of 38% in relative terms, whereas the rough calculations here envisage a fall of 42%. In the base scenario of the Swedish calculations the drop in the replacement rates would only be in the order of 35% (figures were estimated from graphs and have thus some margin of uncertainty), see The Social Insurance Office (2004), pp.47 and 48. The fact that initial replacement rates are higher stems from the levels inherited from the old system. The fact that the drop in replacement rates is slightly less than the ones predicted here is probably due to a more optimistic demographic scenario but is also certainly due to the fact that the Swedish rate applies to new pension awards (rather than all pensions in payment) whose replacement rates tend to fall throughout the individual periods of pension receipt.

[26] This is probably a conservative estimate as it is based on a simple extension of Settergren's table (2003, p 104). The extension ignores the effect of increased mortality between age 65 and 73.

[27] The assumptions describing the example are identical with those assumed for the example in box 1.

[28] The replacement rate may appear low but that is as shown by the actuarial calculations. In Sweden, a standard member of the cohort may earn another 5 to 7% replacement rate from the funded tier.

[29] This is the case in Sweden (see Scherman 2004, p. 309)

[30] The 33% roughly reflects the present level of the minimum pension guarantee in Sweden.

[31] Even at – in relative terms – a declining poverty line.

[32] At a value of 15.7 for the annuity factor, i.e. the 2005 rate.

[33] Again, the existence of the buffer fund will delay the violation of the 40% level but it will – most likely – given demographic developments not postpone it forever.

[34] See *The Social Insurance Office* (2004), p.8.

[35] See *The Social Insurance Office* (2004), p.47/48, average replacement rate calculations for the base scenario and pessimistic scenario displayed in graphs.

[36] To maintain a replacement rate of 50% and a retirement age of 60 the Swedish pension system would also require an overall contribution rate of over 20%.

[37] For a more detailed analysis of the potential effects see Cichon et al. (2003)

[38] All of these institutions will take a "cut" for handling the savings of individuals and turning them into annuities. These "cuts" can be substantial and reach easily up to more than 25% of contributions and hence savings (Thompson 1998, pp 106,107).

[39] See Takayama (2005, p.10).

[40] Another part may be that dropping replacement rates under the NDC tier might force up the voluntary levels of savings in real DC pillars.

[41] The new German *Nachhaltigkeitsfaktor* envisages a sharing of the burden between contributors and pensioners. The exact numerical sharing of that burden can be corrected in future. The effects of the factor is discussed in some detail by Borsch-Supan et al. (2003), pp. 15 -18.

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Reflections on Notional Defined Contributions Public Pension Schemes[1]

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In the mid-1990s, the Notional Defined Contribution (NDC) system, an innovative approach to public pensions, was adopted as the principal component of a fundamental reform of the social security pension system in Sweden. At almost the same time, privately managed individual accounts defined contribution (DC) schemes were being strenuously promoted. (World Bank: 1994). The NDC system seemed to embody some of the advantages claimed for funded DC schemes while avoiding the risks sceptics foresaw in the funded DC approach. The NDC system is seen by some as an appropriate basis for reform of public pension schemes (European Commission: 2003; Holzmann: 2004).

Sweden's reputation as a caring welfare state ensured that wide attention has been devoted to the Swedish reform.[2] The *Scandinavian Insurance Quarterly* has contributed to the extensive literature which has built-up on the NDC system with a series of articles by Hagberg and Wohlner (4/2002), Settergren (2/2003), Scherman (4/2003), Könberg (1/2004), Casey (2/2004), Barr (3/2004), Lezner and Tipperman (4/2004), Cichon (2/2005). In this essay I draw on these articles and other sources, and set out some personal observations on selected aspects of the Swedish NDC system and on public pension reform in general.

Notional Defined Contribution schemes

During the accumulation period a NDC scheme is like a funded DC scheme. Contributions are credited to individual accounts, called 'notional accounts', and accumulated. Unlike funded DC schemes, the accounts are not credited with interest; rather they are revalued annually in accordance with an index (in Sweden, the rate of increase in average earnings). At retirement, a formula is not applied to the contributor's earnings to calculate a pension as in a typical defined benefit (DB) scheme where average earnings are often used. Instead, when a pension is payable, the notional balance in an individual's NDC accumulation is converted

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into periodic payments by applying an annuity factor which takes into account the expected mortality of the cohort retiring at that time (in Sweden a unisex mortality table is applied). Unlike funded DC schemes, contributions are used to pay current pensions on a pay-as-you-go (PAYG) basis; hence participants' accounts are 'empty', and their accumulations are 'notional'. Since 'defined contributions' appears in the NDC title, the rectitude attributed to *funded* defined contribution schemes, no doubt conferred additional merit to the NDC concept.[3] The NDC system avoids the transition cost of paying current (and accrued) pensions which arises if an existing PAYG DB scheme were replaced by a funded DC scheme, since the NDC scheme contributions are used to finance benefits payable under the previous scheme.

The NDC system embodies some advantages proponents attribute to funded DC schemes: a strong link between contributions and benefits; transparency; greater individual responsibility and choice; no redistribution within the scheme.

Public pension scheme reform

Reforms of social security pension schemes are undertaken:

- to ensure that the schemes meet their objectives for their participants which include:
  - income replacement throughout retirement through consumption smoothing over the life cycle,
  - poverty avoidance,[4]
  - income maintenance for disabled persons and dependant survivors,
- to remove perverse incentives and abuses which:
  - have undesirable labour market and/or social implications,
  - increase the cost of the schemes, and
- to ensure the financial sustainability of the schemes.

In recent years public pension reform has often been precipitated by the third objective, financial sustainability. In some countries the reform has been driven solely by it. Ideally, pension reform should take into account the gamut of a nation's social protection system and ensure that the components are integrated and mutually supportive. This rarely happens, and reforms of public pension schemes can simply shift responsibility and the cost of providing certain elements of social protection to other components of the national system. The current focus is principally on public pension schemes since they constitute massive intergenerational transfers and reliable demographic and financial projections can be made. In the context of population ageing, the future cost of health care can have potentially greater financial implications than public pensions, but health care has not generally received the same attention since cost projections cannot be made with sufficient confidence.

Pensions are transfers of resources from active workers to inactive retired persons at the time the pensions are paid. Amounts paid in pensions, which pensioners then convert into goods and services that they consume, are equal to consumption (and investment) which workers forego. The goods and services which workers and pensioners share must be produced by workers at the time pensions are paid. Under the PAYG system the transfer is direct through taxes or contributions paid by workers. Under a funded system, pensioners liquidate assets which they have accumulated by selling their assets to workers. In both cases workers' consumption is reduced.

Thompson (1998) disaggregates the retirement burden and identifies three basic parametric changes to public DB schemes which can be made in order to maintain the financial sustainability of the schemes.[5]

- increasing the contribution rate,
- cutting pensions (e.g. by reducing the benefit accrual rate, the earnings base for calculating pensions or adjustments to pensions to take into account inflation), and
- reducing the number of pensioners (e.g. by increasing retirement age or modifying conditions for receiving a pension).

The alternatives for straightforward (parametric) modifications to DB schemes are limited. Moreover, simple modifications produce obvious winners and losers, and can lead to 'reform deadlock', the inability to achieve a consensus on acceptable reforms.[6] Increasing the contribution rate is not often an acceptable approach – at least not to the levels expected to be required in the future.[7]

The reform in Sweden

From 1960 until the NDC scheme was implemented in 1999, the Swedish universal basic and the supplementary DB public pension system (ATP) provided for replacement rates of 60 to 65% of pre-retirement earnings for persons retiring at age 65 after 30 years of service covered by the schemes. The basic pension was payable to persons residing in Sweden for a minimum number of years. For those without any or with a very low earnings related pension, a supplement was paid. The schemes were PAYG financed with a buffer fund to smooth short-term variations in income and expenditure.[8]

By the mid-1980s, in the face of the rapidly ageing Swedish population and the prospect that future economic growth would not be as robust as in the past, concerns arose over the level of contributions which would be required to sustain the ATP scheme in the future. Other features of the ATP scheme were also considered to be undesirable, for example, the system of indexation and a weak relationship between contributions and benefits. (see Scherman:1999)

The recession in the early 1990s gave impetus to reform of the public pension system and a Parliamentary Working Group comprising representatives of all parties then in the Parliament was appointed. This Group rejected parametric changes, and in 1994 after receiving submissions from various stakeholders, it presented a compromise programme outlining the reform which after refinement was enacted into law in 1998.

The Swedish pension reform seeks to automatically relate benefits under the public pension scheme to changes in life expectancy and the development of the Swedish economy. The intention was to 'cap' the contribution rate indefinitely. By specifying automatic procedures (e.g. for indexation, for annuitization and (in 2001) a mechanism to correct financial imbalances), the reform was designed to avoid the need for future public pension legislation and thereby remove the risk of political interference or manipulation.

Retirement age

Among other reform possibilities, raising the retirement age has the greatest potential for reducing the cost of public pension schemes as well as achieving other national social and labour market objectives. In the decade following 1960 when the ATP scheme was established with a normal retirement age of 65, the expectation of life for Swedish females at age 65 was 16.1 years while for males it was 13.9 years. By the late 1990s, the expectation of life at age 65 had increased by about four years for females and by nearly three years for males. By 2030, further increases of two years for females and three years for males are estimated. (Statistics Sweden: 2005) Clearly, if retirement means ceasing gainful economic activity, by the 1990s a normal retirement age of 65 was no longer appropriate and would become increasingly inappropriate in the fu-

ture. With 30 years of service required to qualify for a full pension, persons retiring in the 1960s could look forward to a period of retirement equal to about one-half their service requirement. By 2000 this proportion was approaching two-thirds. Clearly people should work longer, and the normal retirement age of 65 was considered by some to be an inducement to withdraw from the labour market. A broader retirement age issue is whether and how future contracting labour forces will be able to produce the goods and services which are required to maintain living standards for the entire population.

From a purely technical point of view, an increase, or more likely a series of increases, in the normal retirement age could be enacted. Alternatively, retirement age could be related to the expectation of life. Strict actuarial reductions or increases could be applied to ensure that retirement before normal retirement age was (financially) penalized and deferrals of retirement were rewarded. But the winners and losers from such changes are obvious, and in order to be accepted an increase in retirement age must be implemented over a long period.[9] Instead, the Swedish reform masks the winners and losers and indirectly achieves the desired increase in retirement age.

Clearly, as life expectancy increases, successive cohorts of participants will have to work longer in order to have adequate pensions. At the same time, the reformed system is presented as being less prescriptive by giving participants the choice to retire whenever they choose after age 61. This is somewhat disingenuous since no matter how much one might wish to retire, the choice obviously depends on whether the retirement pension at the chosen time will be adequate. A participant's retirement planning is complicated since the pension depends on the uncertain balance in his/her NDC account at retirement (plus an uncertain pension from the funded DC scheme and probably a benefit from an occupational pension). Thus, while the NDC system permits persons to retire when they wish after age 61, in order to have adequate pensions they will have to contribute to the scheme for increasingly long periods. Contributions which they continue to make to the scheme will increase their pensions, they will have employment income and the expected retirement period during which they must rely on their pensions will be reduced thereby resulting in larger pensions.

This reform approach achieves the objective of strengthening older workers' participation in the labour force – provided they are able to work and can find employment. This is a desirable result, particularly in countries where dramatic reductions in the labour force are projected. But it requires a change in attitudes and practices and possibly legislation pertaining to the employment of older workers. Perhaps these changes are inevitable in countries where labour forces are projected to contract in the future.

The contribution period

The previous DB scheme's replacement rate of 60 to 65% of pre-retirement earnings after 30 years of service was relatively high. The basis for the calculation of pensions, average earnings during the best 15 years, was considered to lead to inequities, notably between blue-collar workers (whose earnings tend to be more level and often decline late in their careers) and white-collar workers. In DB schemes where the retirement pension is calculated according to a formula which relates an individual's earnings near retirement and the period during which the individual contributed to the scheme, there is also a potential moral hazard since participants may seek to manipulate the timing of their contributions and the earnings used to calculate their pensions in order to reduce their contributions and inflate their pensions.

As in the case of retirement age, from a purely technical point of view, straightforward parametric modifications to the existing scheme could be made. The average earnings over a worker's entire career, adjusted annually by an earnings adjustment factor, could be applied to calculate the pension, and the benefit accrual rate per year of service could be reduced. But, just as in the case of an increase of retirement age, the winners and losers from such changes would immediately be obvious, and there would be resistance to the changes.

In DC schemes the periodic payments depend on the accumulated amount in an individual's account at retirement. It is held that this close link between contributions and benefits treats different segments of the population equitably and should eliminate any moral hazard. In Sweden, lifetime contributions to the NDC scheme are accumulated annually at the rate of increase in average earnings, and at retirement the accumulation in a participant's individual NDC account is converted into a pension. This eliminates both the 30 years of service and the best 15 years average earnings features of the ATP scheme.

Participants face the risk that their NDC account balances will be insufficient to provide them with adequate retirement incomes. Various estimates of individual account balances can be constructed, but there are no generally accepted standards or principles regarding the assumptions which must be made concerning rates of earnings growth and inflation during the contribution period. Projections can be made over contributory working periods of 40 years or so, but few participants will have a full 40 years of contributions. Some participants' contributions will be intermittent, for example, due to periods of non-contributory unemployment. Hence projections of NDC account balances can be deceptive. Even if pension projections demonstrate adequate pensions for a group, they are unlikely to apply to an individual member of the group. While the NDC approach may indeed be more transparent and fairer, it introduces uncertainty, since unlike in a typical DB scheme participants have no reliable basis for estimating how the pensions they will receive will compare to their pre-retirement earnings.[10]

Automatic balancing mechanism

A future increase in the contribution rate was not seen as an option by the Swedish pension reformers; rather their intention was to create a system whereby the total contribution rate, 18.5%, would apply indefinitely. The part of the former ATP scheme buffer fund that was transferred to the NDC scheme will help to maintain the stable contribution rate, as will the reduction in average pensions resulting from the gradual phasing out of ATP scheme pensions. In addition, income of the NDC scheme is increased by transfers from the state.[11]

The new system, which will gradually come into effect, applies a lifetime approach to the accumulation of pension entitlements and effectively raises the retirement age as longevity increases. But it is a fundamental truth about contributory pension schemes that one can set either contributions or benefits, but not both. If the contribution rate is fixed, then no matter how strict the rules that are applied may be, to maintain financial stability pensions must be susceptible to reduction.

The means whereby the Swedish reform is expected to guarantee financial stability with a constant contribution rate was not part of the original NDC scheme, but through an Automatic Balancing Mechanism that was enacted in 2001.

Provided the life expectancies of successive cohorts of retired persons are estimated with sufficient accuracy, at the times they retire the risk of pensioners' longevity does not affect the stability of the NDC system. The life

expectancy applied to a cohort of pensioners is based on the mortality applicable to the cohort at age 65. Post-retirement gains in life expectancy by pensioners are not taken into account and can affect the financial stability of the scheme.

Both contributions accumulated in notional individual accounts and pensions are indexed annually according to the increase in average earnings (with 1.6% of expected annual pension indexation taken into account in advance in the calculation of the retirement annuity). Since an important factor in estimating the equilibrium internal rate of return in a mature PAYG scheme is the annual increase in the contributory earnings base, the financial stability of a NDC scheme can be affected by a decrease in the number of contributors.

While the buffer fund constituted from reserves of the former DB scheme will moderate some deviations, after the long transition period the principal means of maintaining financial stability is the Automatic Balancing Mechanism which defines a ratio of contribution assets to pension liabilities. Contributors and pensioners both participate in the adjustment which is made if the balancing ratio is less than one, as the indexation of contributions and pensions is reduced until the ratio recovers to one.

The effect on contributors' NDC accumulations depends on when in a contributor's career and for how long the reduced indexation is applied. Unlike traditional DB schemes where pensions are adjusted by increases in wages or prices (or a combination of both), under the Automatic Balancing Mechanism pensioners are directly affected whenever the balancing ratio is less than one. They lose the amount by which the indexation of their pensions is reduced whenever this ratio is less than one. Given the future expected contraction of the labour force, it is possible that pensioners will suffer decreases in their standard of living compared to the rest of the population. The financial risks due to longevity and a decreasing contributions base are thus borne by NDC scheme participants in their capacities as current and future pensioners.

Aspects of public pension reform

Social security reforms are unpopular. Parametric modifications to public DB schemes are contentious, and it is difficult to reach a consensus on acceptable changes. It is desirable that social security reforms be simple, but few reforms (especially parametric reforms of public pension schemes) meet this criterion. A complicated reform may be socially and economically superior, but it will not be well understood and it will be suspected by those it is designed to benefit. One author has suggested that parametric reforms can be 'social policy by stealth' whereby arcane and complex technical changes are made which few participants recognize or understand. (Battle: 2003)

In a traditional DB scheme contributions are pooled. A participant does not have an individual account, but acquires rights to a pension by virtue of contributions. In most DB schemes, at any time the participant can estimate his/her pension at retirement as a percentage of pre-retirement earnings based on rights which have been acquired and those which are expected to be acquired from future contributions. Much merit is attributed to the transparency of DC schemes where each participant has a (notional or financial) individual account which he/she owns. But while a DC scheme participant knows the balance in the account at any time, he/she cannot confidently estimate the retirement pension as a proportion of his/her pre-retirement earnings.

In the world of public pension reform, it is remarkable that parametric reforms which reduce DB scheme pensions are rejected, while a structural (paradigm) reform which is also

motivated by the need to reduce the cost of the public pensions and consequently also reduces pensions, albeit by uncertain amounts, is accepted. The public may be more readily persuaded to accept a major structural reform such as the introduction of a NDC or funded DC scheme if the reform is simple and the proposed scheme is portrayed as providing uncertain but possibly superior pensions than would result from a complex parametric reform of an existing DB scheme.

Major structural reforms to public pension schemes are phased in over long periods so that the generation approaching retirement is little affected. In Sweden only persons born after 1954 will participate solely in the reformed system, and it will be 2040 before all pensions are based on it (Sunden: 2004). Perhaps the delay in full implementation and the myopic attitude to their retirement pensions which pertains until they near retirement also results in persons generally being unaware of the nature and possible implications of a public pension reform. Alternatively, perhaps they trust the reformers to act in their best interest, and expect the government to remedy the situation should this ultimately prove not to be the case. According to Sunden, the NDC pension reform in Sweden is not widely understood. Anecdotal evidence indicates that this applies to structural public pension reforms elsewhere.

Much is made of the resistance of a NDC scheme to future changes. For example, it is intended that the contribution rate be fixed. Even if it were raised, the increased NDC accumulations would ultimately produce increased pensions.[12] The system of calculating pensions taking into account cohort life expectancy and the indexation of pensions and contributions accumulated in notional individual accounts are well-defined, thereby also apparently insulating the scheme from future legislative action or politically motivated tampering.

But the possibility of adapting public pension schemes to changing circumstances is a strength of the schemes. In countries where civil society has a strong influence on public policy, political risk is not necessarily malign. While reforms of public pension schemes have largely focused on reducing or stabilizing future expenditures in order to make the schemes financially sustainable, the distributional consequences of reforms are important as are the objectives of benefit adequacy and equity and the overall economic well-being of retired persons. If, after a public pension reform it turns out that retirement pensions are generally inadequate, governments will be called upon to supplement pensions from general tax revenues and they will reconsider the reform. Political survival provides strong encouragement for governments to respond to the demands of their increasing aged populations. Indeed, no public pension schemes have remained unchanged for long periods.

There is an extensive literature on how the public pension reform process proceeds through proposals, dissemination, promotion, discussion and finally implementation. (See for example, Müller: 1999.) Involving all stakeholders in public pension reform negotiations runs the risk that despite a manifest need for reform of a public DB scheme, since individual losses are readily identified and resisted, the stakeholders will be unable to reach a consensus on an acceptable reform, thereby resulting in a 'reform deadlock'. Alternatively, a consensus can involve such complicated parametric modifications to a DB scheme that the scheme becomes incomprehensible. In Sweden under strong political leadership, stakeholders made their inputs, and the reform was decided at the political level.

It is a question for political scientists whether in democracies a major national issue such as public pension reform should be decided by responsible and visionary political leaders

who rise above partisan and ideological issues and reach a compromise consensus on the basis of sound technical advice and inputs from stakeholders, or whether a reform should (or can) be framed by stakeholders who are inevitably constrained by parochial perspectives. Clearly, the answer depends on the culture and established political processes in a country.

NDC schemes elsewhere

NDC schemes have been introduced in Italy (1995)[13] , Latvia (1996), Kyrgzstan (1997), Poland (1999) and Mongolia (2000) and are being considered elsewhere. (See Williamson: 2004) In countries where the existing DB scheme is not susceptible to parametric reforms for political or technical reasons, a NDC scheme is a reasonable and viable alternative. Both NDC and funded DC schemes shift risks to participants, but the volatility and uncertainty of the amount of the initial retirement pension would normally be less in a NDC scheme. Clearly, a NDC scheme is preferable to a funded DC scheme in countries where the prerequisites for a funded scheme are lacking (e.g laws governing the ownership and transfer of property, a domestic capital market, a reliable banking system, a functioning securities exchange and effective regulation of financial institutions).

A NDC scheme requires the national statistical service to develop and maintain reliable earnings statistics and estimates of cohort mortality rates at the higher ages must be made. The Swedish reform, which took nearly a decade from conception to implementation, demonstrates that public pension reform is a long process.

Conclusion

The success of the labour market improvement and benefit abuse prevention measures which are normally part of a public pension reform will gradually become apparent in the years following the reform. Whether the fundamental objectives of a public pension system – adequate and financially sustainable pensions and an acceptable sharing of goods and services between active workers and retired persons – will not be known until several generations have passed.

Public pension scheme reforms are designed to take into account current and expected future social, economic and demographic conditions. Like any pension reform, a reform which implements the innovative NDC system will inevitably be modified if the system does not perform as intended or if future social, economic and demographic conditions do not unfold as expected.

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Notes

[1] All views expressed in this article are those of the author, and do not necessarily reflect those of the Caledon Institute of Social Policy, the International Social Security Association or the International Labour Office.

[2] The Swedish pension reform also provided for a funded DC Premium Pension to which 2.5% of the total 18.5% of earnings contributions is allocated. The total pension is thus made up of benefits from the public NDC and funded DC schemes plus, for most Swedes, a benefit from an occupational scheme. There is a ceiling on contributory earnings for employees. For persons with no or only a small public pension a state supplement is paid. This note deals only with the NDC scheme.

[3] The title has created considerable confusion. Alternatives such as 'non-financial DC', 'notional accounts' or 'virtual accounts' have been suggested.

[4] Poverty avoidance refers to ensuring that potentially vulnerable groups (e.g. elderly women, persons with low lifetime wages) do not fall into poverty during their retirement. Poverty alleviation refers to support for the lifetime poor. Contributory pension schemes can assist in alleviating poverty, but other public measures and resources are normally necessary.

[5] From Thompson (1998), if
Y = total income,
C = aggregate consumption,
C_p = aggregate consumption of retired persons,
n = total population, and
p = number of retired persons (pensioners),
then,
$\frac{\text{Number of retirement pensioners}}{\text{Total population}} = p/n$;
Average consumption of retired persons $= C_p/p$,
Average consumption of total population $= C/n$, and
Retired persons living standards ratio
$= \frac{\text{Average retiree consumption}}{\text{Average total consumption}}$
$= (C_p/p) / (C/n)$.
Hence the Retirement Burden
$= C_p/Y = C/Y * p/n * [(C_p/p) / (C/n)]$.

[6] In Japan, since 1980 demographic and economic circumstances have led to reforms to the public DB pension schemes which apply all three basic types of parametric changes. In 1994 retirement age was gradually raised from 60 to 65, and indexation of pensions was based on net wage increases. In 2004, reforms enacted after acrimonious debate gradually increase the contribution rate to Employees' Pension Insurance from 13.58 per cent of covered wages to 18.3 per cent in 2017, and raise the State subsidy to the National Pension Programme which covers resi-

dents from one-third to one-half of the cost in 2009. Demographic factors which take into account declining numbers of contributors and increasing longevity of pensioners will reduce the current replacement rate (from both schemes) of about 60% of net income for a full-career contributor to around 50 per cent by 2023. During this period the real value of pensions in payment will be reduced by applying a demographic factor which lowers the indexation of pensions.

[7] In Canada a consensus was achieved to raise the contribution rate to the Canada Pension Plan which replaces about 25 per cent of the wages of a full-career average-wage contributor from 5.85 to 9.9% of contributory earnings over six years from 1998.

[8] An additional function of the buffer fund was to hold the net savings which were created during the first decades of the ATP scheme since contributions were higher then required on a PAYG basis. These public savings were created in order to offset a possible decrease in private savings that might result from the contributions to the public scheme.

[9] In 1983 the retirement age in the USA was increased from 65 to 67. Persons born in 1937 or earlier maintained the retirement age of 65. Gradual increases were stipulated so that the full increase in the retirement age first applies in 2027 to persons born in 1960 and later. Hence, in 1983 those persons aged 46 or older were unaffected by the change, and those persons who would be fully affected were age 23 or younger.

[10] The uncertainty of a NDC accumulation based on average earnings increases (or a similar index) is less than the investment risk faced by participants in funded DC schemes who face the possibility of unfortunate timings of their contributions and investment returns, and especially the possibility that at the time of their retirement the values of their accounts will be depressed. For the cohort born in 1990, at age 65 the estimated pension from the DC Premium Pension contribution ranges from 7.6 to 13.1% of average income while the NDC range is 40 to 45% of average income. (National Social Insurance Board: 2002)

[11] For periods during which social insurance benefits are payable and certain other periods (e.g. child care), contributions are paid to the NDC scheme and the funded DC Premier Pension scheme by the Central Government and the beneficiary or by the Central Government alone. (See National Social Insurance Board: (2002), pp. 13-14) Social insurance benefits also gave rise to pension entitlements in the ATP scheme, but no contributions were paid.

[12] The AARCO and AGIRC contributory compulsory complementary pension schemes in France apply a 'system of points' which is related to the NDC approach. Each year contributions are used to purchase points which are converted into pensions at retirement according to the value of a point at that time. In order to finance the PAYG system, the actual contribution (taux d'appel) is currently 125% of the contractual contribution (taux contractuel) which is applied to purchase points.

[13] In Italy there is a long lead time until the NDC scheme becomes operative.

How Large Will the National Pension Be?

(the short version)

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This article summarizes results of different methods of projecting the average replacement level in Sweden's national pension system. The results of the estimates are compared with the pension levels indicated in the Annual Report of the Pension System. The conclusion is that the projected pension level is heavily dependent on the method of calculation used. It is also shown that the lower pensions expected in the new system are explainable largely by the increase in average life span forecast by Statistics Sweden, as well as by the fact that the tax reduction for the individual pension contribution has increased the income with which pensions are compared. The reduction in pension levels due to the increase in average life span could be avoided if the retirement age were raised by 3-4 weeks for each annual birth cohort.

1. Introduction

In each year's Annual Report of the Swedish Pension System *Försäkringskassan*, the Swedish Social Insurance Agency, presents an estimate of what is referred to there as the pension level in the national pension system. The report also indicates that if the retirement age is postponed by roughly two thirds of the increase in life span assumed in the calculations, the pension level will stabilize at around 60 percent.[1]

The method of calculating the pension level, as well as the view that its declining tendency is due primarily to the increase in life span while retirement age is assumed fixed at 65, have both been challenged. Flood [1] presents calculations showing that the average *compensation rate* for the national pension system will be 46 percent of the average income at ages 60-64 for individuals born in 1950 with incomes in an intermediate interval, i. e. in the 25th-75th percentile. The *pension level* shown in the annual report for this birth cohort is 63 percent. In a report commissioned by Länsförsäkringar Göran Normann calculates the national pension for several typical cases in birth cohort 1957. Normann's calculations show that *compensation rates* in the national pension system are around 40 percent of final income for normal wage earners. According to the calculations in the annual report, the average *pension level* for the national pension is 58 percent for individuals born in 1957.

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This article is a highly abridged version of a longer article that can be read at
http://www.sff.a.se/?avd=forlag&sida=pension.lasso

Table 1 Compensation Rates in Different Reports
Average pension at age 65, calculated by different methods, in percent of incomes variously defined

Birth Cohort	Report					
	Cichon[2]	Norman	EU	Scherman	Flood	Annual Report 05
1940	Toward a compensation rate of 30	40	53.0	Substantially lower pensions than in the annual report	54	68
1945			49.6			67
1950					46	63
1955						59
1957						
1960					44	58
1965			42.6		-	57
1970					-	56
1975						54
1980						54
1985			40.4			54
1990						53

Sweden's National Strategy Report to the EU notes that the compensation rate in the national pension system is 53 percent for persons born in 1940, and 50, 43 and 40 percent, respectively, of final earnings for birth cohorts 1945, 1965 and 1985. Scherman [1, 2, 3] provides calculations for different types of individuals and arrives at similar compensation rates. Table 1 summarizes certain results from the reports.

The methods use different distributions of lifetime income, as well as different definitions of the income with which the estimated pension is compared, to obtain a measure of the proportion of income replaced by the pension insurance system. Moreover, there are differences among the samples of individuals for whom the calculations are performed. In addition to these differences, there are somewhat varied assumptions about the future development of the return on premium pension capital and the question whether balancing will affect the pension level.[3] Finally, there are both minor and major differences in the way that the rules of the pension system itself are reflected in the respective analyses.[4]

The choice of the most correct – or least incorrect – projection of the average pension level is thus largely a determination of which method is best. As an aid in such a determination, some of the various principles used in the reports are briefly described here. Thereafter, a couple of these principles are used to calculate the compensation rate in the national pension system, and the results are compared with the pension levels reported in the annual report 2005.

2. Some Choices of Method – a Summary

Lifetime income, and the size of income at various ages, can be described in various ways. For retired individuals actual income can be used. To describe how incomes will develop in the future, the calculation can be based either on fully fictitious incomes, in so-called typical cases, for example, or on the actual incomes registered for a selection of individuals, with the addition of fictitious incomes for the years remaining until retirement. In Table 1, these two main alternatives for the development of income are given the respective designations of *fully fictitious* and *actual + fictitious*. Moreover, there are two main alternatives within each of these methods. In one case, it is assumed that the income for all ages represented in the labor force

Table 2. Income Profiles and Comparison Incomes in Different Reports

Comparison Income	Income Profile			
	Fully Fictitious		Actual + Fictitious	
	Straight-Line	Concave	Actual + Straight-Line	Actual + Concave
The insured's income in the final year (age 64)	EU Scherman OECD *	*	Normann *	
The insured's average income (ages 60-64)	*	*	*	Flood [1]
Current average, (16-64)	*	*	*	Annual Report

* Method used for calculations in this article.

increases at the same rate as incomes in general up to the time of retirement, a so-called *straight-line* income profile. In the other case, a decreasing, or *concave*, income profile is assumed. The straight-line profile implies that the development of incomes up to retirement is assumed to be the same for all persons each year. If a concave income profile is assumed, the development of incomes up to retirement will be age-specific for each year until retirement; this will mean that incomes either increase only slightly in the final years, or even decrease in the years immediately before retirement.

The fully fictitious and straight-line income profile is easy to describe and understand. Therefore, it is often used in calculations of the size of pensions in various types of pension systems. One of the measures of the size of pensions presented in the National Strategy Report on Reasonable and Sustainable Pensions is calculated according to this principle, which has been jointly adopted by the EU member countries.

One problem with a straight-line income profile is that it is so unlike a typical income pattern and results in higher final-year income than what is, and has been, the case in Sweden at least. If average final earning is overestimated, relative to some "true figure", the average compensation rate of the pension system will be underestimated.

A more realistic but still fully fictitious income profile would be to assume the in Sweden since long observed concave income profile when making an assumption on the average individual's life earnings. In Sweden yearly average earnings increase more rapidly in ages 16 to around 30, inline with the average earnings from 30 to about 57 and slower than the average from 57 to 65.

An alternative to the fictitious income profiles is to use the information on each insured individual's actual pension credit earned, and to limit the assumptions on incomes to the years remaining until the individual's concerned reach retirement age. If the assumed future development of income for each person is set to coincide with the general development of incomes, the result is a calculation like the one in Table 2, which is designated *actual + straight-line*. In such a calculation, the initial value of pension credit is the same as in the calculation of the pension level in the annual report. However, in the annual report the development of income for the years remaining until retirement is *concave*.

2.1 Comparison income

Which income is appropriate for comparison with pensions in order to provide a measure of their size? The answer depends on the income

profile used in the calculation. Where the income profile is straight-line, it is natural to compare the size of the pension with the individual's income in the year before retirement. But since the average income for all birth cohorts is the same in the case of a purely straight-line income profile, the same results are obtained if the pension is instead divided by the average income for all economically active persons. With a straight-line income profile, there will be no significant problems in choosing an appropriate income for comparison.

Among the assumptions in the National Strategy Report are a straight-line income profile for ages 25-64 and real growth in incomes of 1.8 percent per year. Under these assumptions, income at age 64 will be 140 percent of the individual's lifetime average annual income.

If a concave income profile is used in the calculation, the question which income to compare with is more difficult. If the compensation rate is calculated by comparing the pension with final-year earnings, the calculation may yield a compensation rate that is considered misleadingly high. One reason why incomes decrease beginning around age 57 is that work hours tend to be reduced at these ages, a step that may be regarded as preparation for the transition to retirement. It may then be wrong, or at least questionable, for such a change in behavior to be fully reflected in the compensation rate. One more or less satisfactory way to deal with the problem is to compare the pension with the average income for several years before retirement. It is quite common, for example, to choose the average income for ages 60-64, as in the procedure used in Flood [1].

In the annual report, the question of the income for comparison with pensions at age 65 is managed differently. In the annual report the pension is compared with the average income for all persons in the calculation aged 16-64, provided that the individuals at the time of retirement meet the requirement of 30 years' income of at least one income-related base amount that applies for the calculations in annual report.[5] One reason to compare pensions with this income is that doing so reduces the sensitivity of the pension level to assumptions about the shape of the income profile. Furthermore, the comparison income thus defined is insensitive to variations in the general growth of incomes, which is not the case with a comparison income determined as each insured's own income at ages 60-64. The comparison income used in the annual report, by contrast, has the obvious shortcoming that the pension level calculated provides basically no information about the change in income that can be expected with the transition to retirement. In the annual report, therefore, the concept of the pension level is used as an indication that compensation rates are not what is described.

Although in principle the *pension level* measured in the annual report provides no information about the change in income with the transition to retirement, it may nonetheless yield such information as a practical matter. The reason is that the average pension-qualifying income of persons aged 16-64 is close to that for persons aged 60-64. This means that if the compensation rate is calculated as the average pension for all new retirees divided by their average incomes when they were 60-64 years old, the result is an average compensation rate that is largely the same (slightly higher with current income patterns) as the pension levels shown in the annual report. It makes no significant difference for the result which definition of comparison income is used. Thus, the pension level calculated in the annual report coincides closely with the compensation rate that would have resulted if the average income of each individual at ages 60-64 had been used as the comparison income.

3. Compensation Rates

In this section follows an abridged description of how compensation rates according to different methods can be calculated.

3.1 Fully Fictitious Straight-Line Income Profile

If a straight-line income profile is assumed it is very easy to calculate the compensation rate in the Swedish pension system. As the "interest" in the *inkomstpension* system is the same as the average rate of growth in income, the average compensation rate for the inkomstpension is unaffected by the growth rate. The replacement rate from the so-called inkomstpension is calculated by multiplying the contribution rate, 0.16, by number of years worked, here 40. This figure is subsequently multiplied by the effect that survivors bonus have, estimated at 1.06 and by the negative effect that administrative costs have on the size of the notional capital, here estimated at 0.99. This results in a notional pension capital of 6.72 final years earnings. How large yearly pension this notional pension capital will result in depends on the estimated life expectancy of the birth cohort, as this is reflected by the annuity divisor. The projected annuity divisor for birth cohort born in 1955 at age 65 is 16.76. Thus the inkomstpension is 0.40 (6.72 / 16.72) of final-year earnings, a compensation rate of 40 percent.

The public earnings-related pension also consists of the fully funded *premium pension*. Its size is almost as easy to estimate. The contribution rate is multiplied by the assumed number of years worked, and with the assumed excess return on capital relative to income growth, and with the effect that survivor bonuses and administrative costs are expected to have. In the baseline scenario in the annual report the excess return is assumed to be 1.45 percentage units and the assumed capital-weighted number of years premium pension earns a return is 21. Thus the size of the premium pension capital before retirement can be estimated to be 1.42 final years' earnings. The annuity divisor of the premium pension is a little bit differently calculated and for birth cohort born in 1955 it is projected to be 15.88, resulting in a premium pension 0.09 final years' earnings, a compensation rate of 9 percent.

However, a troublesome effect arises from the tax reduction for the individual pension contribution that has been phased in gradually and is in full effect as from 2006. This tax reduction has increased the relevant comparison income 7 percent, reducing the compensation rate to 0.46 times final-year earnings (0.49 / 1.07).

In Tables 3 and 4 the estimated compensation rate with a fully fictitious straight-line income profile for birth cohort 1955 is only 44 percent. The difference is explained by the fact that in Tables 3 and 4 the assumed excess return on the premium pension has had less impact than the 40 years assumed in the simple standard calculation. Since the premium pension only came into effect in 1995, and then only partially, persons born in 1955 will not have a fully developed premium pension.

3.2 Fully fictitious Concave Income Profile

Estimating the compensation rate with a *fully fictitious concave income profile* requires an assumption on the size of the income at every age pensionable income can be earned. Traditionally in Sweden this has meant from age 16 to 64, since a couple of years there is no lower nor upper age limit. In the calculations made for Tables 3 and 4 the size of the income at each age used has been the one observed in 2003. Notional and premium pension capital at age 64 has been estimated by using this income for each age. For birth cohort born in 1955 this income profile produces combined *pension level* of 54 percent of the average

pensionable income for all persons aged 16-64.

One reason for the higher replacement rate is that the income profile estimated from the pensionable incomes in 2003 implies that 6 percent of all income was earned by persons younger than 25 years. In terms of the straight line profile this amounts roughly to assuming that earnings begin at age 23 rather than at age 25. Generating 42 years of income rather than 40. The excess return of 1.45 percentage units implies that the early incomes increase the pension by some 7, rather than 6 per cent. Thus using the same comparison income as in the straight-line case the compensation rate would increase to 47 percent (44 x 1.07).

Another reason for the higher replacement rate is that the average income at age 16-64 with which the pension is compared is lower, roughly 0.87 of the final year income in the straight-line income profile. This results in a *pension level* of 54 percent of the average income for all aged 16-64 (54 = 47 / 0.87).

It is important to note that, in 2003, the average income at age 64 was only 0.9 of the average income for ages 16-64 and the average income at age 60-64 was 0.98 of the same average. This means that if this concave income profile is assumed both of the two alternative comparison incomes in Table 2 would generate higher replacement rates than the chosen comparison income.

3.3 Actual + Straight-Line Income Profile

The "Orange Envelope" contains a statement with pension projections for each individual based on her/his actual earned pension credit. When the envelope is mailed in February and March, income data are available through the calendar year two years prior to the year of mailing. Thus, envelopes mailed 2005 were based on all incomes that each individual had earned through 2003.[6] However, income indexation, the return on the premium pension, inheritance gains and costs of administration were updated to their values as of December 31, 2004. The projection is based on the pension balances of each individual's inkomstpension and premium pension account, respectively, on December 31 of the year preceding the one when the Orange Envelope is sent out.

The Orange Envelope contains projections for the total amount in Swedish currency of the ATP-pension, the inkomstpension, and the premium and guaranteed pensions. The projection is not expressed as a percentage of some income; percentages have not been considered appropriate for this type of information. Projections are calculated for three different retirement ages: 61, 65, and 70. For each retirement age, a projection is provided with two different pairs of assumptions for income growth and for the rate of return, net of the costs of fund management, on premium pension capital. The assumptions are 0 percent annual growth in income and a 3.5 percent annual return on the premium pension for one pair, and 2 and 5.5 percent, respectively, for the other. All assumptions are in real terms, projected pensions are thus in fixed prices.

The reason for providing a projection with an assumption of zero-percent growth in income is that it enables the individual to compare the projected pension with her/his most recent known income. The zero-growth assumption is a way of indirectly furnishing information on the projected compensation rate, assuming a future straight-line income profile. With an assumption of positive growth in incomes – two percent in the Orange Envelope – the projected pension of many younger people, the age limit being roughly 45, will equal or exceed their current income. At the same time, the pension projection in relation to final income, given the assumptions in the projection, is largely identical in the two pairs of income growth and return.

The higher growth and return will lead to a larger pension in terms of absolute purchasing power, but not relative purchasing power. This constitutes a pedagogical problem with the projection, and Försäkringskassan and the Premium Pension Authority are endeavoring to alleviate it.

As the income of the insured is assumed until retirement to be the same in every year as the income most recently recorded, there is an assumption of a straight-line income profile for all years of each insured's remaining working life up to retirement In the zero-growth alternative of the projection, as previously noted, it is assumed that the premium pension funds earn an annual return of 3.5 percent after deduction of fund management fees.[7] Thus, the real net return on capital exceeds growth in incomes by 3.5 percentage points.[8] Whether this return is high in relation to zero growth in incomes can be and has been debated. An extreme condensation of these discussions is that the assumption in the Orange Envelope is roughly in line with the historical relationship between the average yield on the stock market and income growth in Sweden. At the same time, it is clear that the historical tendency during this period and in this geographic region is by no means necessarily a good "forecast".[9] The current review of the design of the projection will also include the assumption about the size of the excess return.

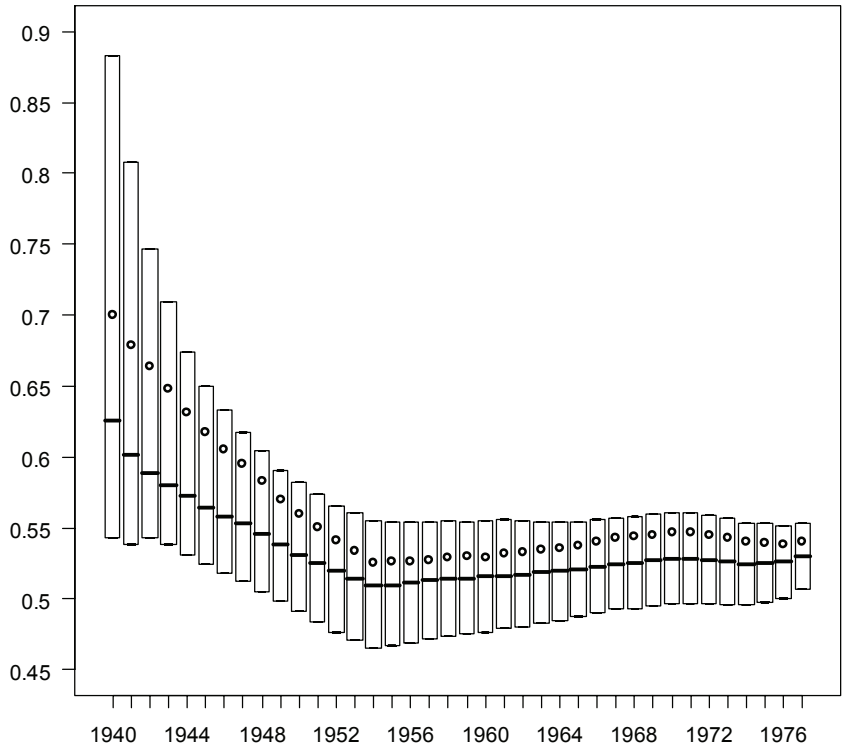
In Diagram 1. the compensation rate that follows from the projections in the Orange Envelope has been summarized. Here the projected pension of each individual, excluding any guaranteed pension, at the retirement age of 65 and with 0 income growth and a return of 3.5 percent, has been divided by the pension-qualifying income of that individual in 2003. For persons with no income in 2003, no compensation rate can be calculated, and they are excluded from the calculation. Persons with a compensation rate above 150 percent have also been excluded. The reason is that such high compensation rates are usually due to an income so low that it is normally temporary. An average for each age/birth cohort has then been calculated by adding up all compensation rates and dividing by the number of individuals.

The compensation rates in Diagram 1 are based on the 3 953 456 projections remaining after this sample. Among the reasons why there are so few projections in the calculation compared to the nearly 6 million Orange Envelopes sent out are that no projections are made for individuals below age 26 and that individuals with no pension-qualifying income have been excluded.

Both the assumptions underlying this calculation and the method used in Diagram 1 differ in significant respects from those used in the annual report and in the simplified calculations with a fully *fictitious straight-line* and a *concave income profile*. In the annual report and the method with a *fictitious + concave* income profile, the comparison income is the average income for persons aged 16-64 who meet the income requirement. In Diagram 1 the comparison income is the respective individual's income below the ceiling in 2003.[10] For young people with few years of pension credit, this means that the compensation rate has been calculated with a virtually straight-line earnings profile. For persons relatively close to the retirement age their historic incomes are concave on average, but straight-line from 2003 until the year of retirement.

The high compensation rates for the oldest birth cohorts are explainable in part by the fact that their own incomes, which have been used as comparison income, have begun to decrease –resulting in a higher compensation rate with the method used here. Another explanation is that the ATP portions of the pensions of older birth cohorts have not been adjusted downward by the increase in average life span according to the method in the new

Diagram 1. The Orange Envelope – Compensation Rates: Average, Median, and Distribution for Different Years of Birth. The circles denote averages, the bold-face lines denote medians, and the rectangle indicates 50 percent of the values. The guaranteed pension is not included in the pension benefit.



Source: 3 953 456 projections in the Orange Envelope for 2005.

system. The reason why the variation in compensation rates decreases with each younger birth cohort is that the younger the birth cohort, the more fictitious and straight-line the calculation. The modest increase in compensation rates beginning with the cohorts born in the mid-1950's is explainable by the greater importance of the premium pension to these cohorts. With the assumptions of an excess return of 3.5 percent and a more gradual increase in life span, the compensation rate shows a slight upturn beginning with birth cohort 1955.

Diagram 1 shows a skewed distribution of compensation rates – the average is higher than the median, and the distance from the median is greater for the 75th percentile than for the 25th percentile. One reason for the skewed distribution is that the compensation rate is high for persons whose previous incomes have been relatively high but whose recent income is low when the projection is made. Such cases are more frequent than instances of sudden similarly large increases in pension-qualifying income – particularly since only incomes up to the income ceiling are considered. If compensation rate used is the median instead of the average, it is about 7 percentage points less for the oldest individuals and 2-3 percentage points less for younger persons.

3.4 Actual + Concave Income Profile

The pension levels projected in the annual report are calculated with the last of the income profiles in Table 1. As the method has been partly described above and is also described in the report, the results of the projection in the annual report are presented in Tables 3 and 4 without further explanation, together with the results of the other approaches.

4. How Large Will Pensions Be?

The results of using the methods of calculating compensation rates/pension levels are compiled in Tables 3 and 4. Table 3 concerns only the calculations for birth cohort 1955. The results in parentheses are calculated with a comparison income that is inappropriate or at least unusual given the assumed income profile. The results in bold-face type indicate the calculation methods used for more birth cohorts in Table 4.

Comparison between the methods is especially difficult for birth cohorts 1940, 1945 and 1950 since, in the cases which use *actual + assumed incomes*, 70, 45 and 20 percent of their income, respectively, grant pension rights according to the old rules. The falling tendency of the compensation rate is largely explained by the assumed increase in longevity in combination with a fixed retirement age and the subsequent growth of each birth cohort annuity divisor. The downward trend due to these assumptions is somewhat alleviated by the increased importance of the excess return of the premium pension for younger cohorts.

The compensation rate calculated from the projections in the Orange Envelope, i.e. *actual + straight-line income profiles*, averages about 4 percent less than the pension level in the annual report. However, if the same excess return were assumed in the projection in the Orange Envelope as in the annual report baseline scenario, the compensation ratio for younger birth cohorts with a fully developed share of premium pension, persons born in 1970 or later, would decrease by about 4 percentage points compared to the figures in Table 4. The older the birth cohort, the less important the assumed rate of return.

One factor contributing to the differences in results is that in the compensation rate calculated with the projection in the Orange Envelope there is no requirement of a minimum

Table 3. Summary of Results for Birth Cohort 1955.
Compensation rates / pension levels, percent. See Table 4 for calculation assumptions.

Comparison Income	Income Profile			
	Fully Fictitious		Actual + Fictitious	
	Straight-Line	Concave	Actual + Straight-Line **Envelope 05**	Actual + Concave **Annual Report 05**
The insured's income in final year (age 64)	**44**	(66)	**52**	(NA)
The insured's average income (ages 60-64)	(45)*	54*	(NA)*	NA*
Current average, (16-64)	44	**53**	NA	**59**

* The results of this method depend on the growth in income. Here growth is assumed to be 1.8 percent per year.

number of years with earned income. The calculation includes people with only one or a few years of income. These are generally older persons whose first year of income was 2003. But everyone at least 36 years old in 2003 – that is, the birth cohorts of 1967 and earlier years – who earned their first pension-qualifying income in 2003 will have fewer than 30 years of pension credit in the calculation of the average compensation rate of the system. Unfortunately, the significance of the absence of an income requirement has not yet

Table 4. Compensation Rates Calculated by Different Methods and with Different Assumptions

Birth Cohort	Method, etc.			
	Fully Fictitious Incomes		Actual + Assumed Incomes	
	Straight-Line Profile*	Concave Profile*	Actual + Straight-Line **Envelope 05***	Actual + Concave, **Annual Report 05**
1940	46	56	70	68
1945	45	55	62	67
1950	45	54	56	63
1955	44	54	52	59
1960	44	53	52	58
1965	44	53	53	57
1970	44	53	54	56
1975	44	53	53	54
1980	43	53	-	54
1985	43	52	-	54
1990	43	52	-	53
Rules for Earning Pension Credit	100 percent rules of new system†	100 percent rules of new system†	Actual transitional rules	Actual transitional rules
Comparison Income	Income at age 64	Average income, ages 16-64	Income at age 64	Average income, ages 16-64
Earned-Income Requirement	40 years of earnings between ages 25-64	42 years of earnings between ages 23-64	No requirement of a certain number of years of earnings.	30 years of PQI of at least one income-related base amount
Rate of Return	1.45 percent more than growth in income	1.45 percent more than growth in income	3.5 percent more than growth in income	1.45 percent more than growth in income

Source: Annual Report 2005 and own calculations. No method includes incomes over the income ceiling in comparison income. The effect of including incomes over the ceiling can be estimated by dividing the compensation rates in the table by 1.09.

* Pension credit earned for child-care years, study, and compulsory national service is not included in the calculation. If such pension credit were considered, the compensation rate would increase by about 3 percent, equivalent to 1-2 percentage points. As for the Orange Envelope, such pension credit is included to the extent that it has already been earned, but is not considered in the projected future pensionable income.

† The calculation is performed under the rules of the new system, but the proportions of inkomstpension and premium pension follow the phase-in of the new system. Beginning with birth cohort 1970, whose members were 25 years old when allocations to the premium pension began, the system can be said to be fully functioning.

been analyzed. An additional explanation for the results is that pension-qualifying amounts for child-care years, study and compulsory national service are treated differently in ways that are described in the Table.

As already stated, with current income patterns and income growth, the average income of newly retired persons at ages 60-64 years old is somewhat lower than the current average income for ages 16-64. Thus if the *pension level* measure currently used were to be changed to a *compensation rate* measure, thus defined, average compensation rate is expected to be slightly higher than the *pension level*.

The answer to the question in the section heading is that those wanting to know their own pension should read the projection in their Orange Envelopes, or – even better – obtain a projection at the website *www.minpension.se.* The latter projection includes negotiated pensions.

As may be apparent, the answer for the national pension system as a whole is not clear. Different methods yield different answers. As for representativeness and accuracy, it is better to begin the calculation with the history of the insured individual's actual income, and it is better to assume a concave income profile than a straight-line profile for the individual's remaining years of income. Using average income for persons aged 16-64 with pension-qualifying income to compare the pension benefit with makes the measure more robust, but this measure has the drawback that in principle no information is provided on how the income is expected to change at the transition to retirement. As described above, however, such a measure of the compensation rate is not expected to bring about major changes of pension levels in annual report.

5. Does the Rhetoric of the Pension Reform Stand Up to Scrutiny?

One basic assumption about the pension reform from the very start was that the new system would generally provide pensions as high as the ATP and folkpension, provided a number of conditions were met. These were the same life expectancy at age 65 as in 1994, 2-percent real income growth[11] and an average number of working years of at least 40. If the rhetoric of the pension reform is to be taken seriously, the lower pension levels provided by the new system with a fixed retirement age should be explainable primarily by the development of life expectancy at 65.

In Scherman [1] it is held that the lower pensions expected in the new system with a fixed retirement age of 65 cannot be explained by the anticipated increase in life span.

In the ATP system, a person with a straight-line income profile, who retired after constant real annual growth in income with earnings of SEK 244 454 in 2003,[12] would receive a total ATP and folkpension of SEK 134 289 as a married pensioner – given that these systems remained unchanged. Thus the compensation rate is 55 percent of final-year earnings.

In section 3.1 it was shown that the same person at age 65, if he or she had worked for 40 years in the new system, would have an inkomstpension "capital" of 6.72 and premium pension capital of 1.42 times final-year earnings.

The basic design of the pension reform was adopted by the Swedish Parliament in 1994. An annuity divisor for birth cohort 1930 at age 65 has been calculated at 14.84 based on life-tables at that time[13]. With the average life span in 1994, a pension balance of 6.72 times final annual earnings would provide an inkomstpension of 0.45 times final annual earnings (6.72/14.84). No annuity divisor for the premium pension has been calculated for birth cohort 1930. Very simplified, however,

such a divisor can be estimated on the assumption that the size relationships of the annuity divisors are independent of life span. Then an approximate value of a divisor for the premium pension for birth cohort 1930, retirement age 65, can be estimated at 14.1.[14] The premium pension will then be 0.1 times final annual earnings, and the total national pension will thus be 0.55 times final annual earnings. A compensation rate of 55 percent. However, as explained in section 3.1 the tax reduction has increased the relevant comparison income by 7 percent. This has reduced the compensation rate to 0.51 times final-year earnings (55/ 1.07)

With the assumption of a straight-line earnings profile, it is thus true that the new system – at least before the effect of the tax reduction for the individual pension contribution – can be expected to provide roughly the same pensions as the old system, given the more detailed assumptions indicated for the reform. If one disregards the decrease of 3-4 percentage points in the pension level that results from the tax reduction, a change difficult to attribute to the pension reform, there are consequently good reasons to claim that the new system, with a requirement of 40 years' employment and growth of two percent, would provide roughly the same pensions on average as the old system if the average life span were the same as when the reform was enacted.[15] In the new system, if life span increases, the period of working life must be extended, and retirement postponed, for the pension level to be constant. This is one of the messages that the pension reformers have sought to convey.

Acknowledgements

I am grateful for valuable assistance provided by Boguslaw D. Mikula and Carmen Boado Penas.

Notes

[1] See the The Swedish Pension System Annual Report 2005.

[2] Cichon's estimates of pension levels in the reformed system apply only to the inkomstpension system; the contribution is therefore just 16 percent.

[3] Only the calculations in Cichon and Sherman have been affected by the assumption that balancing is activated. Differences between various reports regarding the size of the assumed return on capital in relation to the assumed rate of income growth explain only a very small portion of the differences in the results.

[4] For example, Normann does not consider the inheritance gains distributed in both the inkomstpension and the premium pension systems.

[5] In addition, Flood [1] uses the average pension at ages 65-69, not at age 65.

[6] Prior to the mailing of the Orange Envelopes for 2005, information was compiled for 6 532 074 individuals, whereas information was addressed to 5 927 028 of them. Most of the difference consists of persons who are not located in Sweden and whose address is unknown to Försäkringskassan.

[7] The average deduction for fund management fees in 2005 was 0.42 percent of the capital. In addition to the fees deducted by fund management firms, there are costs in the form of broker's commissions, etc.; in 2005 these were equivalent to a fee of approximately 0.30 percent of premium pension capital; see the annual report 2005, page 38. If these costs are also taken into account, the assumption of a net return of 3.5 percent requires a gross return of 4.22 percent. However, since fund management costs are anticipated to decrease sharply with the growth in premium pension capital, the gross return required for a net return of 3.5 percent is expected to go down as well.

[8] In the Orange Envelope alternative of 2 percent real annual growth in incomes, the real rate of return for the premium pension is assumed to be 5.5 percent per year. Thus the return exceeds growth in income by 3.5 percentage units in this alternative as well.

[9] In *Socialförsäkringsboken* for 2001, page 89, Hans Olsson estimates that the average real annual return on shares of stock for the years 1918-1998 was seven percent; real GDP growth

in the same period was 3.1 percent per year, for an approximate excess return of 3.9 percentage points. The result is highly dependent on the period chosen. In the period 1918-1978, for example, the real annual return on shares was 4.2 percent, while GDP growth was 3.6 percent, for an approximate excess return of only 0.6 percentage point. In Olsson's projections, the author assumes an excess return of 1.3 percent in the baseline alternative; in the *low* alternative, it is 0 percentage point, and in the *high* alternative it is 2.6 percentage points.

[10] In 2003 the ceiling was an annual income of SEK 306 750.

[11] Since pension credit earned in the ATP system was price-indexed, growth in income mattered for the compensation rate of that system. The ceiling on earnings and the folkpension were also price-indexed, meaning that the pensions provided by the system decreased over time in relation to the average income.

[12] The income determined in the National Strategy Report for an average full-time employee (average production worker) in industry.

[13] See annual report 2005 page 50.

[14] 15.88/16.76*14.84 = 14.06.

[15] It can be argued that the new system will almost surely provide much higher pensions than an unreformed ATP system would have. The reason is that the ceiling on pension-qualifying income in the ATP system was price-indexed, whereas the ceiling in the new system is income-indexed. The Ministry of Finance expressed this view from time to time in the preparation of the pension reform and contended that the "expansion in expenditure" should be financed. While in substance correct, this view can be considered somewhat rhetorical.

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Pension reform in Norway and Sweden

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In the 1990s, Sweden reformed the pension system[1] , and payments from the new system started in 2003, while Norway is in the middle of a pension reform that will come into effect from year 2010. The Norwegian reform is similar to the Swedish in certain respects, both in process and outcome. On the other hand, there are also some striking differences between the two countries, although they traditionally have followed each other closely in the development of Social Insurance schemes. I will describe and discuss some important similarities and differences between the two countries, with the ongoing Norwegian process as my starting point.

The main driving force behind pension reform: Economic sustainability

In this article, an important point of view is that the Norwegian and Swedish Pension reforms differ from each other in certain aspects. This is contrary to a historical tradition that can be traced back to the end of World War Two, where Norway for decades more or less blueprinted Swedish social policy solutions. The main driving force behind the reforms is, however, the same in both countries: Major concerns about the economic sustainability of the pension system.

The "old" public pension schemes in both countries were designed and implemented in a period that some economic historians has labelled "The long Sixties" (1958-1973). At this time, all curves pointed to the sky: Unemployment was low, economic growth and birth rates were high. Global climate changes as well as other serious environmental issues were still only a concern found among some pessimistic researchers, who were generally viewed as some sort of doomsday prophets by the vast majority of politicians and scientists. At the same time, the memories of the horrors

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of World War Two were still very much alive. Together, these factors provided fertile soil for various welfare reforms in many Western societies, and the old age pension for all citizens – regardless of former income – became one of the most prominent issues. The universal old age pension was probably the most expensive of all welfare reforms, but the result was outstanding: Mass poverty among elderly was eradicated in many countries for the first time in history. As old age actually was the most important cause of poverty in Europe before the 1950's, the introduction of (more or less) universal old age pensions also reduced the general level of poverty in society. In another article, I therefore named the universal old-age pension "The greatest success story of the 20th century".[2]

The public pension schemes that were introduced in many European countries in these years – among them Norway and Sweden – were all Pay-as-you-go[3] (PAYG) schemes. In Norway, an attempt to build a Social Security fund ("Folketrygdfondet") was made in a short period from 1967, but nothing has been paid into this fund since early 1970s.[4] The idea behind the fund was originally to finance the income-related part of the public pension scheme, but after payments to the fund stopped, it has been viewed as any general state-owned fund with no connection to Social security except for the fund's name. The fund has, however, made favourable investments, and thus it has grown substantially through the years. In Sweden, a fund called the AP-fund was established. This fund was, however, established in order to counter an expected decline in private savings, and thus there was no intention to finance part of the pension system through this fund. The AP-fund was later on transferred to the new buffer fund after the Swedish pension reform.

One important reason for choosing PAYG instead of funding was that pension payments from the schemes could start immediately. In a fully funded scheme, the countries would have to wait a full generation (25-30 years) before adequate pensions could be paid out. Politically, this would have been impossible.

After the first petrol crisis in 1973-74 and the following period of "stagflation"[5], many of the economic preconditions from "the long Sixties" changed, and there were growing concerns over the economic sustainability of pension schemes across the western world. Birth rates declined dramatically from the mid-1970s, and they have continued to stay low. At the same time the number of years in retirement increases, while the number of working years decreases. There are three main trends influencing this development, and they all pull in the same direction:

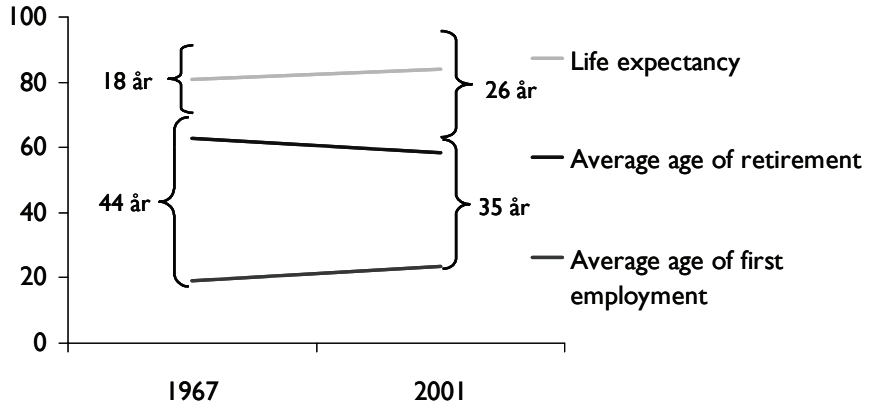
- Young people enter the work-force at a higher age than before
- Elderly people retire at an earlier age than before
- People live longer than before

In Norway, this development means that the average number of working years has been reduced from 44 to 35 years in less than 40 years.[6] In the same period, the average number of years in retirement has increased about 8 years. The chart below shows how the combined trends work.

This development inevitably causes economic pressure on the pension system, and thus political concern. We should therefore ask ourselves: Can any of these trends be altered through measures?

Let us start with life expectancy. Will political initiatives reverse this trend? The answer is "no", for quite obvious reasons. How about the other end of the life cycle – average age of full employment? The answer is most likely "perhaps, to a certain degree". Since the 1960s, we have witnessed an educational revolution. Most jobs today require formal competence as well as advanced skills, and it is hard to imagine a return to an age when many young-

Chart: Number of years in the labour force and in retirement – Norway, 1967 – 2001
Source: The Norwegian Ministry of Finances, 2004



sters started working at the age of 15. Even if they wanted to, they would not have the necessary skills and knowledge to fill almost all positions. On the other hand, new political measures are introduced to curb further increase in the age of entrance into the workforce. In Norway, reforms in higher education have been introduced in order to speed up study progress and also reduce the average number of years in higher education.[7] Still, it is neither possible nor desirable to reverse this trend completely. The most likely scenario is that the increase will stop.

What remains, then, are basically two types of measures: Measures to increase retirement age, and measures to reduce the value of pensions in payment. Pension reforms in both Sweden and Norway as well as in other wealthy countries deal to a large degree with these two types of measures. However, before comparing the actual *measures* taken in Norway vs. Sweden, I will present the main features of the reform *process* in the two countries.

Reform Process

At a superficial glance, the reform process in Sweden and Norway looks almost identical. In both countries, "Pension Commissions" were appointed. Both commissions were composed of leading politicians and independent experts, and their mandate was to advice their respective Governments and Parliaments on the design of the future pension system. Major stakeholders in both countries – like the labour market partners and the social security administrations – were not invited to participate in the Commissions' work. Both Commissions recommended substantial changes in the respective countries' pension systems, and recommended measures to curb future pension expenditure growth.

Here, however, ends most similarities in process between the two neighbours. In Sweden, the Pension Commission was appointed in 1991, and delivered its report in 1994. The reform was adopted by Parliament the same year after a short but intense political process. The implementation of the reform became the responsibility for a group of representatives

from the political parties. This group would also secure necessary political support, and agree on important features of the reform. In this way, the implementation process was swift and efficient, but it has also been criticised for being more or less closed to public debate and to various interest groups and stakeholders.

In Norway, on the other hand, the process so far has been slower and far more incremental. The Pension Commission was established in 2001 and delivered its report in 2004. The report was then submitted to a broad hearing, including both various stakeholders and the administration in the process. In December 2004, the centre-right Government presented a White Paper. [8] This White Paper presented only the recommended principles for a pension reform, no figures or numbers at all. The paper was sent to Parliament in May 2005, and the Parliament adopted a set of principles for the new pension system. The decision in May 2005 still held no figures or numbers. Instead, the detailed features will be decided through further political process. In October 2006, the Government presented a second White Paper [9] on a reformed public pension scheme, and it will be followed by new legislation in 2007. For parts of the reform, e.g. the future of the disability pension, a decision cannot be expected until 2008.

In addition to a more incremental political process, the *administrative* implementation of the Norwegian reform is kept more separate from the political process than the case was in Sweden. In Norway, a Pension Program was established in November 2005, under the auspices of the National Insurance Administration.[10] The scope of this program is purely administrative: The program will develop new ICT-solutions, along with new administrative structures for the future pension administration. The program will also be responsible for public information on the contents of the reform. The program, however, plays no significant role in the ongoing political process.

As we see, the political process will continue far into 2007, maybe even into 2008. Yet, certain important decisions have already been made, so it is possible to compare some of the results of the reform processes in the two neighbouring countries.

Reform results

As Norway is still in the middle of a pension reform that will be in effect from 2010, it is not possible to compare the two reforms in full for a number of years still. In particular, it is impossible to compare macro as well as micro *economic* impacts of the reforms. Furthermore, we cannot compare all aspects of flexible retirement. Norway will have flexible retirement, but the details remain to be decided. I will therefore concentrate on three important structural elements in both the Swedish and Norwegian reforms:

- The PAYG financed public old age pension schemes.
- *Mandatory* supplements to the PAYG financed public old age pension schemes.
- Measures to secure economic sustainabil ity.

The PAYG public old age schemes

In Norway, a new model for the public old age scheme will be introduced from year 2010. The Government's white paper suggests that this model will have many features in common with the PAYG part of the new Swedish old age scheme. The Norwegian scheme will have two tiers: An income related benefit and basic security for everyone.

The new Norwegian scheme, like the Swedish, is based on the principle that work should pay. An important tool is strengthening the

connection between contributions and benefits in the income related benefit. The most important change from the present system is that all earnings will be taken into account when the benefit is calculated. Today, the upper age limit for earning pension credits is 70 years. This age limit will be abolished. There is also a lower limit of 17 years. The lower limit may be kept or it may be abolished together with the upper age limit, but the practical impacts of the lower limit are small, as almost no one has substantial income from work at the age of 16 or younger.

In the present scheme, an average of the 20 best years of income is used to calculate the income related pension. In the new scheme, various credits will partly compensate for years with low or no earnings. The existing pension credits for care work [11] will be improved. There will also be credits for mandatory military service. Furthermore, it is suggested that unemployment benefits will be credited on the basis of income before unemployment, not on the basis of the benefits (that are substantially lower). Sickness and disability benefits will on the other hand be regarded as pension earning income at face value. In general, this credit system resembles the present Swedish pension credits, though there are some differences.

In the Norwegian scheme, basic security will be provided by the Guarantee pension, like in Sweden. The level of the Guarantee pension will, according to Parliament, be "the same level" as the present minimum pension. There is, however, one very important change from today: The Guarantee pension will not be fully reduced against the earned income pension. Instead, it will be reduced at a certain rate.[12] This change has an important positive effect for low-income earners: In the present scheme, many low-income earners actually retire on a minimum pension at the age of 67. This is especially the case for long-term part-time workers.[13] At the same time, a person with no work record at all receives the same amount, i.e. the minimum pension. This effect occurs because the present scheme is composed of a basic pension plus an income related pension or a special supplement. If a pensioner is entitled to an income related pension *below* the level of the special supplement, she will receive the income related benefit plus *part* of the special supplement – meaning the special supplement consumes her entire income related pension.

In the political language, this effect is called "The Minimum Pension Trap", and it seems to be political consensus on removing it. With the model put forward in the White Paper of October 2006, low-income earners will always receive a pension above the minimum level.[14]

In the new scheme, it will be possible to draw an income related pension from the age of 62 at a reduced rate. The Guarantee pension will be payable from the age of 67, the same as the present pension age. In Sweden, these age limits are 61, respectively 65 years. This means that in both Norway and Sweden "pension age" as a defined concept has been abolished, except for the Guarantee pension (i.e. basic old age security). In Sweden, the former pension age of 65 still remains the upper age limit for social security benefits like unemployment benefits and disability benefits. The reason for this upper limit is that the individual at this age will be entitled to an old age pension. In Norway, this upper limit is logically 67. The Government is aware that flexible retirement may have consequences for the transfer from disability and unemployment benefits to old age pension, but the detailed solutions will probably not be decided until 2008.

Thus, we see that many of the principles and main features of the new public old age scheme in Norway are similar to the "new" Swedish scheme, although the schemes will differ from each other in some aspects. The Norwegian

and the Swedish reformers have, however, chosen different paths regarding the two other structural elements discussed in this article: Measures to secure economic sustainability, and mandatory supplements to the PAYG financed public old age schemes.

Mandatory supplements to the PAYG financed public old age pension schemes

Both countries have introduced *mandatory* schemes that supplement the public PAYG old age schemes. The Swedish solution is that the Premium Pension is a mandatory contribution defined scheme that is funded, with individual investment choices for the contributors. In addition, more than 90 % of Swedish employees are covered by voluntary occupational schemes.[15]

In Norway, the question of mandatory supplementary schemes turned out to be one of the major debates within the Pension Commission. The Commission actually split into three fractions, none of them able to win support from the majority of the Commission. One fraction opted for a solution similar to the Swedish Premium Pension, one fraction wanted mandatory occupational schemes, and one fraction wanted no mandatory supplementary schemes at all. In its White Paper in December 2004, the Government suggested mandatory supplementary schemes, but proposed two alternatives (either individual accounts, like the Premium Pension, or schemes), but gave no real recommendation on either alternative

In spring 2005, it became evident that most important actors in the pension field wanted mandatory occupational schemes, and the Parliament adopted this solution in its decision on future principles May 26 2005. An Act on mandatory occupational pensions came into effect on January 1 2006. Norway had modernised its legal framework on voluntary occupational pension plans as late as 2001,[16] and the new legislation is built on the 2001 Acts. In addition, the agreements on occupational pension plans for municipality employees also became mandatory, with no changes in existing schemes. It therefore seems reasonable to say that the new mandatory occupational scheme is an extension of existing schemes, but no clear break with the past. The most important change is that from 2006 on, 100 per cent of the employees are covered by supplementary schemes, while between 60 and 70 per cent were covered under the voluntary regime.

The Act on mandatory occupational pensions has not solved all questions related to occupational pension plans. The Act defines minimum requirements for the schemes, but many schemes provide a far higher benefit level than these minimum standards. This is especially visible in the public sector schemes. The parliamentary decision of May 26 means that the public sector schemes will continue to be defined benefit schemes, with benefits that equal 2/3 of the employee's final salary. However, the longevity coefficient will also be introduced in the public sector occupational schemes from year 2010. The pension plan is legally a part of public sector employee's work contract, and the details of the future schemes will therefore partly be subject to wage negotiations.

Sweden and Norway have thus adopted different solutions for mandatory supplementary schemes. Both solutions mean that the volume of services and capital for private financial institutions increase as a result of public pension policies, but in all other aspects the solutions differ from each other. In Sweden, politicians chose to introduce a principle of mandatory individual accounts, with a complete new regime (The Premium Pension Authority) to monitor both the contributors and the more than 700 investment funds available to the Swedish people. In Norway, the solution was to extend the existing ar-

rangements by making them mandatory. Now new authorities have been created – The Banking, Financial and Insurance Registry (Kredittilsynet) monitors the institutions that provide mandatory occupational schemes, just as they did when the schemes were voluntary.

It would be interesting to see a comparative analysis on the Norwegian and Swedish mandatory supplementary schemes, but the Norwegian solution will need to function for some time before it is possible to make such an analysis.

Measures to secure economic sustainability

The main driving force behind the reforms in Norway and Sweden is the same: Major concerns about the economic sustainability of the pension system. Measures to secure sustainability have therefore been crucial in both reform processes. Some of the measures are similar in both countries, but the two reforms differ on at least one crucial point.

Let us, as a starting point, look at the types of measures taken to reduce costs in a pension scheme. Two main types of measures are available: Measures to make people work longer (meaning both increased productivity and fewer years in retirement), and measures to reduce the total amount of money paid out to the pensioners. The alternative to reducing costs is of course to increase the schemes' gross income. This means higher contributions, which does not seem to be a real option in either country. Measures taken are thus measures to reduce costs.

In the Norwegian reform, there are primarily two measures that will bring better economic sustainability to the scheme: The introduction of a longevity coefficient, together with changed indexation formulas. The other elements of the reform will hardly reduce costs at all, compared to the existing old age scheme.

The longevity coefficient means that benefits are adjusted as life expectancy changes. If a person e.g. retires at the age of 67 in 2030, and life expectancy has grown two years since 2010, he will have to work about 1,5 years longer to receive the same benefit as a 67-year-old person retiring in 2010 (all other things being equal). The individual can therefore counteract the effect of the longevity coefficient by working longer before he or she retires. On the other hand, if he or she retires at an earlier age, the benefit is reduced because of this coefficient.

The other measure to secure economic sustainability is changing the indexation rules for pension benefits. Today, Norway has quite favourable indexation of benefits (at the same rate or higher than wage increase). In the future, benefits will be indexed 50 % wage and 50 % price, while the Guarantee pension will be indexed at a more favourable rate than the Income pension. This change is expected to reduce the growth in future costs substantially. Contributions will still be indexed by wage growth

The same measures (the longevity coefficient and changes in indexation) have been introduced in Sweden, although indexation of pension benefits in Sweden has a different profile, as the indexation of the income pension is more favourable than for the Guarantee pension. The former is adjusted annually by wage growth minus 1,6 %, while the latter is indexed annually by growth in prices.

In addition to these two measures, Sweden has also introduced a third measure, which will not be paralleled in Norway: The Automatic Balancing Mechanism, or "The Brake".

The Automatic Balancing Mechanism is designed as a means to maintain contributions at the same level in all future. When contributions exceed pension payments, the surplus amount is transferred to a buffer fund. The basis of this buffer fund was the assets from the AP-fund. These were transferred into a

pension buffer fund when the reform came into effect in 1999. At present, the fund's assets are about SEK 700 billions (EUR 80 billions). When the number of pensioners increases, it is, however, expected that the annual contributions will no longer be sufficient to cover the benefits. If, then, the value of the annual contributions plus the value of the buffer fund is lower than the actual pensions paid out, the "brakes" are put on, so that the payments to each individual pensioner is reduced according to a formula. The Automatic Balancing Mechanism actually transfers the risk of financial imbalance in the pension scheme from the State – which carries all financial risk in a pure PAYG system (through the taxpayers) – to the individual pensioner.

In the Norwegian reform, there will not be an automatic balancing mechanism similar to the Swedish solution. Instead, Parliament in December 2005 decided to transform the two major state-owned funds (The National Insurance Fund, and its "bigger brother", the Petrol Fund) into a public pension fund. The decision was put in effect from 1 January 2006. The new fund will be split into two parts. One will be invested abroad, and one will be invested in domestic industries. This decision means that the financial governance of the fund will continue more or less as before 2006. What is novel is that the Pension Fund now, like Ulysses, is firmly tied to the mast of future pensions, thus escaping from the deceptive song of the Sirens, who sing about a multitude of good ways to spend this fortune.[17]

The new Pension Fund will be a buffer fund. This means that Norwegian citizens cannot claim an individual right to his or her share of the fund. The fund today has a value of approximately NOK 1700 (almost EUR 200 billions), making it the world's second largest fund.[18] The fund will play a different role from the Swedish buffer fund. The detailed mechanisms for transferring means from the fund into the pension schemes have not yet been decided, what is clear, however, is that there will be no automatic balancing mechanism like in Sweden. Here, we find the most important difference between the principles adopted in the two neighbouring countries. The Norwegian reform also transfers part of the risk from the State and the taxpayers to the individual through the introduction of the longevity coefficient[19], but the individual can still (at least to a certain degree) control this risk by working longer before retirement. The financial risk of the old age pension scheme is still carried in full by the State in Norway. In Sweden, this risk has in principle been shifted to the individual.

Conclusion

The pension reform processes in Sweden and Norway may look almost identical at a superficial glance. On closer inspection, however, important differences emerge. Even though the Norwegian process is far from complete, a preliminary conclusion is that the Norwegian pension system will remain a traditional social insurance system even after the reform, while the reformed Swedish system has more in common with a traditionally funded system. Even if the reformed Swedish system is a pay-as-you- system, part of the financial risk is transferred from the State to the individual. This is not the case with the Norwegian reform. This difference in outcome of the two countries' reform processes is probably best explained by different perceptions on future "crisis" in the old age pension system, and of course, the different national economic position of the two countries. By transforming the petrol fortune into a pension fund, Norway has secured a financial buffer for future pension payments that is already six times as high per capita than the Swedish financial buffer.

Notes

[1] In this article, I mostly discuss the pension *systems* in both countries, as both reforms have a scope that is broader than the public schemes. When the term "scheme" is used, it always refers to a specific scheme, e.g. "The Norwegian public old-age scheme".

[2] "Adresseavisen" 7.7.2002

[3] Pay-as-you-go means that contributions levied one (fiscal) year are used to pay benefits the same year. The alternative to PAYG is a funded system.

[4] The fund still exists, and from January 1 2006 it is part of the new public pension fund.

[5] "Stagflation" is a term that was coined in the 1970's. It describes a situation where economic stagnation and high inflation occurs simultaneously. Stagflation posed a major challenge to the Keynesian economic theories that prevailed in Scandinavia in the post-war area.

[6] It should, however, be noted that the chart omits one important aspect: The number of people in the work force, and thus the total number of hours worked has increased substantially since 1967, mainly because of increased female employment. This makes the picture look better. On the other hand, employment rates in Norway (and even more in Sweden) are high (almost 80 % for women and men combined), so that the labour reserve is low in both countries. This means that the increasing number of years outside the work force (at both old and young age) is still a matter of concern.

[7] On average, academic studies in Norway used to last longer than in most other countries (4 1/2 years for lower degrees, 6 years for higher degrees in traditional university education). A reform two years ago put Norwegian universities in line with the rest of Europe.

[8] Stortingsmelding nr. 12 2004–2005: "Trygghet for pensjonene"

[9] Stortingsmelding nr. 5 2006–2007: "Opptjening og uttak av alderspensjon i folketrygden"

[10] The NIA is presently undergoing major changes, as it was merged with the Labour Market authorities from 1 July 2006. I will not go into details about this change in this article.

[11] Both care for children and for adults (sick/and or elderly people) is credited.

[12] The Government suggests an 80 % reduction rate. The rate has not yet been decided.

[13] It should be well known that this segment of the work force is almost exclusively female.

[14] The "Minimum Pension Trap" has (at least) two dimensions. The first is benefits (= distribution among groups of pensioners). The second, not so often debated, is contributions (= distribution within the workforce): It can be argued that the present system, where contributions are levied on all income from work, means a rather strong element of regressive taxation.

[15] OECD 2005: "Pensions at a glance".

[16] Lov om foretakspensjon (= The Act on Corporate pension plans) and Lov om innskuddspensjon (= the Act on contribution defined occupational pension plans).

[17] Not all North Sea oil and gas revenues are put into the Pension Fund. Between NOK 70 and 80 billions (EUR 9 to 10 billions) are spent in the annual State budgets.

[18] The value of the Norwegian Pension Fund is almost six times the value of the Swedish Pension Fund *per capita,* and it grows at a much higher pace than the Swedish fund. It is expected that the value of the Norwegian Pension Fund will exceed NOK 2 100 billions (EUR 250 billions) by the end of 2007.

[19] "Pensionable age" (67 years in Norway, 65 in Sweden for the Guarantee pension) was originally set based on life expectancy. In the first social insurance scheme (Germany, 1881), Bismarck set the pensionable age at 65 years. This scheme covered only industrial workers and the average life expectancy for this group in 1880 was 58 years. Following the same logic, pensionable age in Norway and Sweden today would be 85+ (!). 65, however, quickly became the norm in most social insurance schemes based on contributions from work, while 70 (later 67) was the norm in universal old age schemes. Pensionable age has not been changed in accordance with increasing life expectancy, and today holds no connection to life expectancy figures.

* * *

This article is one in a series about the Swedish pension reform. Earlier articles published in the NFT are written by Hagberg and Wohlner (4/2002), Könberg (1/2004), Casey (2/2004), Barr (3/2004), Lezner and Tipperman (4/2004), McGillivray (3/2005), Scherman (2/2006), Settergren (3/2006), Rasmussen and Skjødt (4/2006).

These articles can all be found at www.sff.a.se/?avd=forlag&sida= pension. lasso

Replacement rates in the new Swedish pension system – a Danish perspective

by Per Bremer Rasmussen and Peter Skjødt

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The authors comment on the article in NFT 2/2006 on replacement rates in the Swedish pension system. The authors are not surprised by the financing problems arising in Sweden, and they claim that the organization of the Swedish pension system as a tax financed pay-as-you-go system makes it vulnerable to budgetary considerations, even though the system is a notional defined contribution scheme.

In Denmark the responsibility for topping up social pensions lies with the private sector. This gives rise to different risk sharing features than in Sweden.

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The editor has asked us to provide a comment on the article" Replacement rates in the new Swedish pension system" by KG Scherman in NFT 2/2006[1]. We are certainly inclined to meet the demand of the editor. However, we must stress that we are not experts in the Swedish pension reform. Moreover, any pension system and its division of responsibility between the tax payers, the government, private individuals saving for the future and the social partners is the result of a political process, and, not least, of considerations on income distribution. We have no intention – directly or indirectly – to become part of a Swedish political debate and our comments below must be seen in this perspective.

However, we have experience with the establishment of the Danish pension system which gives rise to some qualitative comments on the Swedish system.

The Swedish challenge

It is clear from KG Scherman's article that the Swedish pension system faces some important challenges. Like in many other countries, life expectancy is increasing and this puts strain on the pension system – either replace-

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ment rates will be significantly lower than projected, or people must spend more years on the labour market, as clearly analyzed in the article.

For an outsider, the financing or replacement rate issues facing the Swedish pension system are not that surprising. The reform, decided upon in 1994 and phased in over a number of years, basically replaced one publicly (taxpayer) financed pay-as-you-go (PAYG) pension system with another publicly financed PAYG pension system. One of the important changes was that pension rights would no longer be calculated on the basis of the 15 years with the highest wages (out of 30 years) but would rather be based on contributions and with the establishment of a balancing mechanism to secure future pension rights.

As KG Scherman states in his article, the political expectation was that the reform would not in itself necessitate a reduction in the future pension level compared to the former system. However, it seems that concern about the ability to service the former ATP pension system with taxpayers money was a clear rationale behind the reform. In other words, there was a need to cut the costs to taxpayers of the former pension system. All else equal, this would imply that acquired pension rights under the new system had to be lower than under the old system. The problems now documented by KG Scherman must be seen against this background.

Hence, it is no big surprise that the replacement rates and relative pension levels do not reach the target levels which were formulated in 1994. It seems to us that the statement in the bill introducing the system in 1994 – "there are no reasons why the pension levels in general should need to be reduced" (Scherman in NFT 2/2006, page 101) is more based on wishful thinking than economic analysis.

As mentioned, the public Swedish pension system is a tax financed PAYG system, except for the funded Premium Pension, which plays a minor role in the overall picture. The ability of the Swedish pension system to honour the expectations of the future pensioner's therefore rests only to a marginal extent on the stipulated contribution rate in the Premium Pension (which is to be held constant), and primarily on the development in the Swedish tax base over time, life expectancy and the average time spent on the labor market.

According to KG Scherman, the reformed Swedish system was "completely rearranged" compared to conventional PAYG schemes because it is a notional defined contribution (NDC scheme). It is to be financially balanced over time through the buffer mechanism. However, in our view, even an NDC scheme can not be viewed in isolation from the general public budget.

If the general budget is under strain with (structural) deficits increasing, there will be a tendency to look to areas outside the official budget for financing. In respect to the NDC scheme this would probably imply a pressure for lower benefits without lowering contributions, hence alleviating the general budgetary problems. .

In Denmark, there have been examples of financing certain public expenditures by way of an "earmarked" tax where the tax rate was to be lowered in case of expenditures being lower than projected. Politically, however, the "surplus" tax proceeds found other expenditures to meet and rates were not lowered. In our view, this political problem could be a challenge facing the Swedish NDC scheme together with the longevity issue as described by KG Scherman.

The Danish pension system

KG Scherman does not comment in detail upon the role played by private (pillar II and III) pension schemes in Sweden. It is our impression, however, that they play a less significant role in Sweden than in Denmark.

The Danish pension system relies to a lesser extent than in Sweden on tax financing and more on funded savings. Like in many other OECD countries, the Danish pension system has a multi-pillar structure.

Pillar I consists of the social pensions, which are unfunded and financed from general tax revenues (i.e. a PAYG system). At the core of the public pillar, and of the whole system, the social pension scheme pays benefits to people over 65. It consists of two parts: a flat universal pension that is subject to a residency test and proportionality rule as well as an employment earnings test and a supplement that is paid to qualifying people subject to an income test.

The public pillar also has a smaller component that is fully funded, is financed from employee and employer contributions (or the tax payers for unemployed workers and those on parental leave etc.), and operates as a defined contribution plan. This is known as ATP (Labor Market Supplementary Pension). Despite being fully funded and based on individual accounts, ATP is classified as a first pillar scheme because it was established by law and entails social security features.

The second pillar comprises occupational pension plans that are quasi-mandatory and nearly universal. Most have been established by collective agreements between employer organizations and labor unions. They are managed by life insurance companies and multi-employer pension funds as well as – on a small scale – company pension funds and banks. The vast majority of these operate as defined contribution plans.

The third pillar comprises voluntary personal pension plans. These are created by life insurance and pension companies as well as banking institutions. The latter are not permitted to offer annuity products.

In general – but subject to certain regulations – premiums paid to pension savings are income tax deductible while benefits are subject to income taxation. Yields on the assets invested are taxed at a flat rate of 15 per cent. This system provides some tax incentive to save for retirement, yet does not leave a door wide open for tax evasion.

Coverage of the three pillars is very high. It is universal or nearly universal in the public pillar components, almost 80 percent of wage earners under occupational schemes (outside the mandated supplementary schemes), and 40 percent of wage earners in the third pillar. Overall, more than 90 percent of wage earners participate in at least one occupational pension scheme or individual scheme.

Another characteristic of the Danish pension system is the extensive use of guaranteed minimum benefits in the second and third pillars. Plans operated by insurance companies and multi-employer pension funds both offer guaranteed minimum investment returns (in the sense that future benefits are guaranteed), while banks do not have permission to offer guaranteed minimum investment returns.

The use of guaranteed benefits in occupational pension plans has been promoted by the active involvement of labor unions in collective bargaining and a strong emphasis on risk sharing arrangements that aim to protect retiring workers from large fluctuations in investment returns. In recent years, demand for more individualized products, with no or a low guarantee attached to the benefits, has been increasing fast. Hence, unit link products and specialized products tailored to the life cycle of the pension savers, are being developed and brought to the market with great success, in both pillar II and pillar III schemes.

Contributions to occupational pension plans increased steadily over the past ten years or so. Their annual growth rate was remarkably stable, ranging between 10 and 12 percent in nominal terms while during the same period (1995-2004) inflation averaged 2 percent per year.

The increase in contributed amounts are partly due to expanding coverage and partly to a gradually rising contribution rate. While contribution rates vary among different schemes, the upward trend in contribution rates is illustrated by the following figure, which represents the evolution of the average contribution rate for schemes covered by the labor market agreement between the Danish Confederation of Trade Unions (LO) and the Danish Employers' Confederation (DA). The contribution rate has crept upwards from 1 percent in 1993 to over 10 percent in 2006 (Figure 1).

Replacement ratios

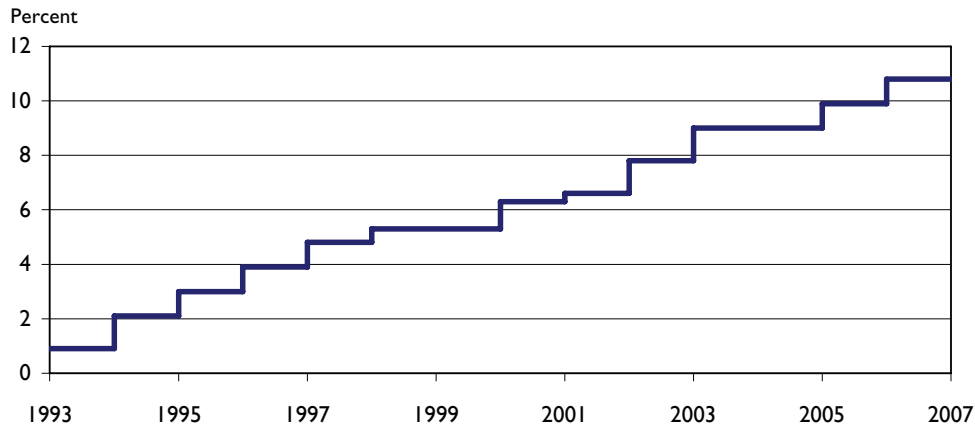
Projections of current and future replacement ratios are based on assumptions about future performance and bonus payments and take into account all types of pension benefits and allow for tax payments. A report from the Ministry of Economic and Business Affairs[2] provides some details of current and expected replacement ratios.

The average replacement ratio is expected to increase in the future irrespective of education (and income). For persons with a shorter education, the replacement ratio will increase from 80 per cent in 2000, reaching almost 100 per cent in 2045 (figure 2). For highly educated persons it is foreseen to reach a little less than 90 per cent in 2045. The reason for the shift in replacement ratios is the widening coverage of occupational pensions, which will affect in particular the lower income groups. For all groups, private pensions will play a more important role in the future, but the social pension will still represent the major source of income for pensioners with a modest income even in 2045.

Risk sharing in the Danish pension system

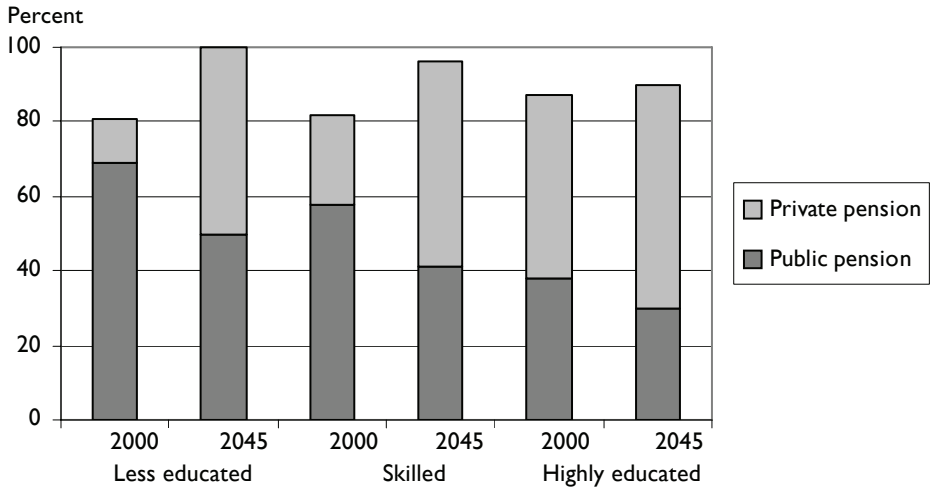
The Danish pension system faces to some extent the problems which the Swedish system is exposed to. The social, tax financed pensions are set to increase significantly over

Figure 1: Evolution of Contribution Rate



Source: The Danish Insurance Association

Figure 2: Average expected replacement ratios for different groups of education in 2000 and 2045



Source: Ministry of Economic and Business Affairs (2003).

the decades to come because of demographic changes. Fewer people will be active on the labor market, while the number of retirees will increase – and the retirees will live longer, adding to the public financing pressure.

However, in the Swedish case this will to a very large extent be a political problem. Hard political decisions will have to be made on how to pay the bill – more reliance on tax payers money may be inevitable, or future pensioners expectations will not be fulfilled.

In the Danish case, a public financing dilemma also arises in the context of the social pensions. However, when it comes to the funded schemes of pillars II and III, the problem lies not in the first place with politicians. It lies with the pension savers and shareholders of the pension institutions. Annuity insurance is quite widespread, and where guarantees of future benefits have been provided as part of annuity insurance, these guarantees must be met – in the end by shareholders of the pension companies paying the bill. For lump sum benefits (benefits are paid out at one time as a lump sum) and phased withdrawals (benefits are paid out over a specified period) the pensioner bears the risk of increased longevity.

In pillar II and III schemes the market risk (financial risk) is split between pension savers and the shareholders – in the sense that they share losses or yields that are considered inadequate. However, in relation to products based on guaranteed benefits the shareholders solely bear the risk that the long term yield can be lower than the guarantees, while for unit link products the market risk is (primarily) borne by the pension saver.

Basically, then, the Danish system has broader risk sharing features than the Swedish one. In particular, the risk that political promises to both tax payers and pensioners can not be kept is probably somewhat lower in the Danish than in the Swedish system. Of course there are political risks to the Danish pillar II and III schemes, however, of a different nature than in the Swedish system. We shall not elaborate in detail on this.

Tax wedges

The Danish pillar II and III schemes are defined contribution plans. Since they do not rely on tax financing, there is no problem of introducing tax wedges – which would reduce economic efficiency – associated with the financing of these two pillars.

The need to avoid tax induced efficiency problems may be one reason why the Swedish system has been reformed into one based on a NDC scheme. If the system is credible and pension savers believe that their future pension income reflect their tax contributions and some "interests earned", this system may succeed in reducing efficiency problems usually associated with tax financing. However, if it is not credible – which KG Scherman leads one to presume – this system may distort economic decisionmaking because of distortions introduced by the tax financing.

Conclusion

The Danish and the Swedish pension systems are quite different. In both pension systems the public pension system plays a key role, aiming at avoiding poverty in old age. However, it seems to us that the further role of not only avoiding poverty, but also securing decent incomes upon retirement, is to a greater extent a public task in Sweden than in Denmark. The reliance on tax payer financing is greater in Sweden, hence calling upon politicians to make difficult choices when the system comes under strain as documented by KG Scherman.

The Danish pension system as a whole must meet some of the same objectives as the Swedish system. But the task of providing adequate incomes for pensioners and for bearing the associated risk lies more with the future pensioners and shareholders of pension institutions than in Sweden.

In any way, if the problems highlighted by KG Scherman are real, serious and difficult political choices must be made. And politicians are not keen to make those choices. In Denmark, a reform of the public early retirement system has just been passed in parliament alongside with an increase of the retirement age, which is set to increase in line with longevity.

Such changes are warranted and needed. But in order to gain political support, they are introduced with a long time horizon – the increase in the retirement age will only have effect starting in 2024 and all changes will only affect people under 48 years at the end of 2006.

Hopefully Swedish politicians are better at making tough decisions and introducing real welfare reforms than the Danish ones!

Notes

[1] This article is one in a series about the Swedish pension reform. Earlier articles published in the NFT are written by Hagberg and Wohlner (4/2002), Könberg (1/2004), Casey (2/2004), Barr (3/2004), Lezner and Tipperman (4/2004), McGillivray (3/2005), Scherman (2/2006), Settergren (3/2006) and Andresen (4/2006).

These articles can all be found at www.sff.a.se/?avd=forlag&sida= pension. lasso

[2] "Increased freedom of choice in the pension saving", May 2003.

Security for Social Security: Is Pre-Funding the Answer?

by Robert L. Brown

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With the re-election of George Bush, the debate around privatization of Social Security in the United States has been rekindled. The Republicans favor separating a part of OASDI to be moved into Individual Retirement Accounts. Some have suggested more radical reforms such as moving OASDI entirely from a Defined Benefit (DB) scheme to a Defined Contribution (DC) plan based on the Chilean model.

Canada has moved to a system of greater pre-funding for the Canada/Quebec Pension Plans (C/QPP) in order to cap contribution rates at 9.9 percent. These proposals have the goal of creating higher investment returns, to make social security benefits more affordable.

The important public policy issues inherent in such proposals are numerous: is pre-funded social security demographically immune; does pre-funding social security increase gross national savings and worker productivity; are there better ways to create a healthy economy; is social security best offered as a DB or DC plan? This paper reviews these important issues in the context of recent social security policy initiatives in Canada and the U.S.

After extensive review, the paper concludes that greater pre-funding of social security will not, of and by itself, create a more secure system.

I. Introduction

This paper discusses the issues surrounding the financing of social security in Canada and the U.S., but the discussion has public policy implications around the world. The paper critiques moves toward greater pre-funding of social security. There are numerous authors who speak in favor of greater pre-funding (e.g., Robson, 1995, World Bank, 1994, Taverne, 1995, Pesando, 1997, and Ferrara and Tanner 1998). The purpose of this paper is to pose important questions that need to be answered by policymakers before any further moves are made toward greater pre-funding of social security.

Actuaries and economists, by their training, have a natural pre-disposal to favor pre-funding. As stated by Miles Dawson (1917):

> ... actuaries approach it as if it were settled in advance that there ought to be a reserve and after a good deal of study and investigation are not so certain they are right.

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The reason for this is that actuaries tend to work with private sector pension plans which must be fully funded. This is because, no matter who is the sponsor, any company can cease to exist at any time which could leave an under-funded pension with future promised benefits that cannot be paid. This is not true of social security, however. By definition, the government will always be there to see that future promised benefits are, in fact, met with actual benefits. If your government ceases to exist, you have bigger problems than the financial health of your social security system. Thus, it is misleading to create analogies between private pensions and social security. They are remarkably different.

Proposition 1: *Social Security is not a large private sector pension. It is instead, a macro-economic means of wealth transfer, where workers transfer wealth to the elderly through their social security contributions. This is true whether the plan is pre-funded or pay-as-you-go.*

The meaning of the words *pay-as-you-go* (paygo) and *funded* need to be carefully understood. Neither word is taken at its absolute. For example, paygo funding does not mean no contingency fund at all. A system carrying a small contingency fund is considered paygo. Similarly, funded does not mean absolutely fully funded. A partially funded scheme that has investable funds measurably larger than a small contingency reserve is included in the category of "pre-funded" .

Until recently, both the Old Age, Survivors and Disability Insurance (OASDI) system in the U.S. and the Canada/Quebec Pension Plans (C/QPP) in Canada were paygo. However, that is not true today. In Canada, 1996 government amendments raised the C/QPP contribution rate from 6.0 percent to 9.9 percent to create a fund worth five years of benefit expenditures. In the U.S., the maximum value of the OASDI 'fund' will be $2.4 trillion in 2016 (Intermediate Projection, OASDI Trustees Report, 2005). Thus, neither OASDI nor the amended C/QPP would be referred to as purely paygo today.

Any social security system will have mandatory worker contributions and a set of promised benefits. To determine the key variables in setting the required contribution rate, we outline two equations.

First, we have the equation necessary for an Individual Account system where each worker provides for his/her benefits and benefits are indexed to the cost of living (e.g. Consumer Price Index). For every dollar of benefit expected at age 65, the required contribution is:

$$C = \frac{\int_{65}^{\infty} e^{-\delta x} l_x \, dx}{\int_{20}^{65} e^{-\delta x} l_x \, dx}$$

assuming contributions start at age 20

where: δ is the real rate of interest earned on the invested funds, after inflation (both before and after retirement) and l_x is the life table survivorship probability.

Normally, mortality is relatively easy to predict on a macro-economic basis (although it is not for any individual). Thus, for the contribution rate for an Individual Account system one variable is life expectancy, but the most important variable is the rate of return on invested assets.

The parallel equation for a pure paygo system where no investment income is earned is:

$$C = \frac{\int_{65}^{\infty} e^{-rx} L_x \, dx}{\int_{20}^{65} e^{-rx} L_x \, dx}$$

where: r is the rate of increase of national wages on which contributions are made and L_x is the actual number of people in the system aged x.

Thus, we can see that a paygo system is very dependent of the ratio of retirees to workers, and on the rate of increase in covered wages.

Covered wages are, in turn, very dependent on the growth rate of the recognized labor force (i.e. there may be an underground or cash economy) and the productivity of workers. A cash economy can create significant difficulties for social security, especially if such a system guarantees minimum benefits for very little in contributions which is true in many developing countries.

Assume the ratio of retirees to workers doubles in one generation (say 35 years). This would create a problem for the associated social security system. But assume that workers were to become more productive by 2.0 percent per annum. Then, in theory, workers could support this doubling of the Dependency Ratio with the same total contribution and tax rate (all else equal) since, at 2.0 percent per annum, productivity would exactly double in 35 years.

Proposition 2: *The contribution rate required for fully-funded social security is highly dependent on the real rates of return earned on invested assets. The contribution rate required for paygo social security is highly dependent on the ratio of dependents to workers and the rate of increase in covered wages. The latter, in turn, is dependent on the growth rate of the labor force and the growth rate of worker productivity.*

One argument often used to support fuller funding is the stability of contribution rates. As discussed, the contribution rates for a fully funded scheme are a function of the real rates of return earned by the funds. Thus, a truly fully funded scheme does not create stable contribution rates. Contribution rates rise and fall inversely to real interest rates.

On the other hand, a pure paygo system has contribution rates that rise and fall with the ratio of retirees to workers and the rate of increase of (contributory) national income. Thus, a pure paygo system also cannot expect long-term stable contribution rates.

Proposition 3: *There is nothing inherent in the mechanisms of fully-funded social security to make it any more stable than a paygo system.*

Both financing extremes would require immediate attention if any variable evolves other than the modeled expectations. However, both a paygo system with a small contingency fund or a partially funded system that does not have to be exactly fully funded can achieve stable contribution rates for long periods.

One must also be concerned about the political stability of the sponsoring government. In countries like Canada and the U.S., this is not a problem, but in countries with corrupt governments, it is.

Proposition 4: *In a country with a corrupt government, the only thing riskier to workers than a paygo social security is a funded system.*

In a paygo system, the corrupt government officials can only abscond with the social security liabilities in the middle of the night. However, if the system is fully funded, they can abscond with the assets. It is one thing if retirees suddenly find that they are not going to get the benefits they were promised. However, it is worse to lose real assets.

II Advantages of Paygo Financing

While paygo financing has the disadvantage of being demographically sensitive, there are several advantages of such schemes.

1. The entire working population can be covered relatively easily and immediately.
2. Because contribution income immediately becomes benefit payout, benefits can be indexed to wages. In fact, there exists a source of 'actuarial discounting' for years with real productivity gains if benefits are indexed to cost of living and contributions

are indexed to average wages (the norm). Indexation is not feasible for Individual Accounts.

3. Administrative costs are usually very low per unit of cash flow, much lower than for private plans. Plus, Individual Account expenses are always larger for smaller balances leading to a regressive system.

III. Why the Interest in Greater pre-funding of Social Security?

After a half century of relative stability in the financing design of social security, why the apparent sudden interest in fuller funding?

One of the driving forces for reform is the impending dramatic shift in demographics. First, life expectancy has improved substantially and is continuing to improve. Statistics for the U.S. are given in Table 1.

Table 1: Life Expectancy in the United States

Year	At Birth		At Age 65	
	Male	Female	Male	Female
1920	55.6	57.6	12.2	12.7
1960	66.8	73.2	12.9	15.8
1990	71.8	78.8	15.1	19.0
2004*	74.6	79.6	16.2	19.0

**OASDI Trustees Annual Report, 2005, Table V.A.3. Source:U. S. Life Tables.*

More important are the well known impending dependency shifts as the baby boom moves out of the labor force and into retirement to be replaced by the baby-bust.

Those who favor pre-funding of social security argue that the resultant large asset pools can be invested to aid in overcoming the impact of these demographic shifts. Through enhanced economic growth, faster wealth creation makes larger wealth transfers possible. For example, assume that the cost of social security today is 10% of all wages. That means that a worker has to allocate all of his/her production on Monday morning to the dependent elderly. Assume that over the next 35 years the ratio of elderly to workers doubles. With no change in worker productivity, each worker would have to contribute 20% of wages, or work one whole day, to fund the benefits for the dependent elderly. However, if every worker becomes twice as productive (a 2% per annum improvement), then each worker would produce enough to meet the needs of the elderly in the same half day.

If pre-funding social security results in faster wealth creation, then why wasn't social security established on a fully funded basis? There are several reasons. First, paygo financing allows for significant benefits to citizens already retired at the inception of the plan (or soon to retire). Full benefits under a fully-funded system can take up to 40 years to accrue. Second, with no assets, there is no danger of the government influencing the economy inappropriately through the use of the social security funds. ("socialism" through the back door).

If social security is financed on a paygo basis, then the 'rate of return' is the rate of increase of covered employment earnings. Fully-funded schemes have a discount rate equivalent to the real rate of interest (real rates because benefits are indexed to inflation).

According to the Canadian Institute of Actuaries (CIA, 1996, p.3), in the 1960s, long-term demographic and economic variables favored paygo financing. In particular, in the 1960s in Canada, reasonable actuarial assumptions would have been (*ibid.*):

Senior dependency ratio*	0.33
Annual increase in real wages	2.0%
Real rates of return	2.0%

* The Senior dependency ratio is the ratio of Canadians aged 65+ to the number in the Labor Force.

These underlying assumptions would have led to the following projected costs for Canadian social security as a percentage of payroll.

Funding Arrangement	*Projected Cost as Percentage of Payroll*
Pay-as-you-go (mature plan)	11.0%
Fully funded	16.5%

But times changed. By the mid 1990's, long-term assumptions in Canada would have been closer to the following (CIA 1996):

Senior dependency ratio	0.40
Annual increase in real wages	1.0%
Real rates of return	4.0%

These factors lead to the following projected costs (*ibid.*):

Funding Arrangement	*Projected Cost as Percentage of Payroll*
Pay-as-you-go (mature plan)	14.5%
Fully funded	7.2%

Thus as Keith Ambachtsheer stated (1995):

> Just as pay-go financing makes sense when real interest rates are lower than real GDP growth prospects (i.e. the mid-1960's), so a conversion to pre-funding makes sense when real interest rates are higher than real GDP growth prospects (i.e. the mid-1990's).

Proposition 5: *The fact that both of the major North American social security systems were started as paygo was not a mistake. Further, just as funded systems may make more sense today, it is entirely possible that economic variables could shift and once again favor paygo financing.*

As the CIA report "Troubled Tomorrows'' (CIA, 1995, p. 23) wisely concluded:

> Should Canada abandon the pay-as-you-go approach? We think not. No retirement income system—funded or unfunded, public or private—is free from risk. Any attempt to fund or replace Canada's public pension plans will be expensive in the short term, with no guarantee of a commensurate reduction in long-term cost. Today's environment favours funded retirement savings plans, but tomorrow's environment, like the environment of the 1960's might not.

But is a pre-funded scheme more secure? How long will factors favoring pre-funding last? Can productivity rates be increased by pre-funding social security? Are pre-funded plans demographically immune (i.e. could fully-funded plans provide promised retirement benefits to the baby boom purely from the funds on hand regardless of the size of the labor force in the next generation)? We now explore these issues.

IV. Is a Funded Scheme Demographically Immune?

The most serious challenge for paygo financing is the rapidly shifting ratio of retirees to workers. Would a fully-funded system be demographically immune?

One of the problems that exists with any discussion around optimal financing is confusion between what is true micro-economically (i.e. for one person) versus macro-economically (e.g. in an economy as large as the U.S.). This is sometimes referred to as the *Fallacy of Composition.* [see Barr (1993) and Krugman (1996)]. For example, if I stand at a concert, I can see better, but if everyone stands, then no one has an improved view. For an individual to save for retirement, consumption must be foregone during one's working life, with money set aside in savings. These assets are then sold post-retirement and the money used to buy goods and services. This system appears to be workable regardless of the ratio of retirees to workers since every worker funds his/her own benefits in full. Can this logic be projected to a fully-funded social security scheme?

Francisco Bayo (1988, 178) Deputy Chief Actuary of OASDI says "no":

> For Social Security, you cannot accumulate assets; that is, claims from somebody else's production. If we have a large amount of money in the Social Security trust funds, we have a claim on ourselves, which does not have much meaning. The truth is, whatever is going to be consumed—be it a product that you can get a physical hold of, or services that are very difficult to hold—those products cannot be stockpiled. They have to be provided at the time of consumption. No matter what kind of financing we are going to have in our Social Security program, you will find that the benefits that will be obtained by the beneficiary in the year 2050 will have to be produced by the workers in the year 2050, or just a few years earlier.

Nicholas Barr (1993, 220) says it even more strongly:

> The widely held (but false) view that funded schemes are inherently 'safer' than PAY-AS-YOU-GO is an example of the fallacy of composition. For *individuals* the economic function of a pension scheme is to transfer consumption over time. But (ruling out the case where current output is stored in holes in people's gardens) this is not possible for society as a whole; the consumption of pensioners as a group is produced by the next generation of workers. From an *aggregate* viewpoint, the economic function of pension schemes is to divide total production between workers and pensioners, *i.e*. to reduce the consumption of workers so that sufficient output remains for pensioners. Once this point is understood it becomes clear why PAY-AS-YOU-GO and funded schemes, which are simply ways of dividing output between workers and pensioners, should not fare very differently in the face of demographic change.

Thus, pre-funded systems do not overcome the impact of demographic shifts. (The paper discusses the countervailing impact of foreign investment later). The pension income of any decade must come out of the national income of that decade.

Proposition 6: *A fully-funded social security system is not demographically immune. A fully-funded system is as dependent on the next generation of workers and their productivity as a paygo system.*

However, there may be other reasons to consider a pre-funded scheme as advantageous.

V. Does Pre-funding Social Security Increase Savings and/or Productivity?

Barr (1993, p.223) admits that declines in the working aged population can be offset by increased productivity amongst the remaining workers or by increased labor force participation rates (e.g., among women), so long as output is maintained. It is also possible to maintain the consumption of both workers and pensioners with goods produced abroad, provided the country has sufficient overseas assets to do so.

> The crucial variable is output. A decline in the labor force causes problems for any pension scheme only if it causes a fall in output; the problem is solved to the extent that this can be prevented. The choice between PAYGO and funding in the face of demographic change is therefore relevant only to the extent that funding (as is sometimes argued) systematically causes output to be higher (*ibid.*).

Thus, we have two important truths. First, no pension plan, private or public, funded or paygo, is demographically immune (see Schieber and Shoven 1996). Second, the real security behind any pension plan is a healthy economy. Wealth cannot be transferred until it is created. And the more wealth that is created, the easier it is to transfer some to the retired elderly.

Proposition 7: *For pre-funding to have any impact on the security of social security, three requirements must be satisfied (all three); namely:*

- *Pre-funding must increase gross national savings.*
- *Those increased savings must be invested so as to increase worker productivity.*
- *The pre-funding must be the best way to achieve the first two requirements.*

If there is an alternative policy that can increase savings and productivity more effectively, then it should be the preferred method. Is pre-funding the preferred route?

Does the pre-funding of social security increase gross national savings (versus, for example, increased hoarding or increased surplus on the current accounts)? There is an abundance of literature on this topic [for example, see Ricardo (1817), Daly (1981), Aaron (1982), Barr (1993), Burbidge (1987), Atkinson (1995), Hughes (1996), Feldstein (1996)], but no clear conclusion. This turns out to be a very difficult question if you allow for behavioral response (or Ricardian equivalence).

Of importance here is the replacement ratio provided by social security. In both Canada and the U.S., a worker consistently earning the average industrial wage will realize a replacement ratio of about 40% from social security. Poorer workers get more, wealthier workers less. Hence social security does not provide full retirement income security—far from it. Thus, other forms of savings are essential. In these systems, fuller funding of social security may cause workers to reduce their personal savings and lead to a zero-sum game.

In Chile, in 1980, when social security was financed on a paygo basis, the gross national savings rate was 21.0%. In 1981, Chile introduced mandatory Individual Accounts with 10% contributions. The Chilean gross national savings rate dipped substantially in the early 1980s, and stood at 18.8% until 1991 (Uthoff 1993). Holzmann (1997) finds empirical evidence of both increased national savings and enhanced worker productivity in Chile after the 1981 social security reforms. However, he concludes that:

> The direct impact of the (social security) reform on private saving was low, or perhaps even negative.

According to Holzmann, the increase in savings and productivity were because of higher

Table 3: Growth in Private Pension Assets Relative to Gross National Savings 1980-1991

Country	Gross Saving (% of GDP)		Pension Assets (% of GDP)		Change
	1980	1988	1980	1991	1991-1980
Canada	23.1	20.3	18.7	35.0	16.3
Denmark	20.3	15.0	26.3	60.0	33.7
France	25.4	19.8	1.0	3.0	2.0
Germany	23.7	22.2	2.6	4.0	1.4
Japan	34.4	31.2	3.2	8.0	4.8
Netherlands	23.9	22.3	46.0	76.0	30.0
Switzerland	28.0	28.4	51.0	70.0	19.0
U.K.	17.7	16.8	28.1	73.0	44.9
U.S.	19.5	16.1	40.7	66.0	25.3

Source: International Social Security Association, 1998, p21

growth rates in the economy not social security reform.

Hughes (1999, p51) lists "Pension Assets/GNP" versus "National Savings/GNP" for sixteen countries, and finds that there is no correlation between pension assets and Net National Savings at all. This is supported by work done by the International Social Security Association (1998, p21) in Table 3.

Further, if there are tax incentives for funded pension plans, any increase in national savings may be offset by a drop in tax revenues (Hughes, 1999, p58).

Even if gross national savings are increased, are these savings invested in a manner that increases worker productivity?

Again, the literature is inconclusive. For every plan that seems to create a healthier economy, there are examples where funds are used for purely political purposes, to reward political friends, to prop up failing industries, or even straight fraud.

Finally, even if the answers to our first two questions were positive, should greater pre-funding of social security be the preferred policy option? Aaron (1982), after lengthy analysis of the U.S. savings rates and labor force participation rates from 1930 to the late 1980s, says no.

> If our objective is to increase the rate of capital accumulation, we should ask which instruments are best for achieving that end. Prominent on the list would be direct assaults on the federal deficit, incentives to business investment, and the withdrawal of incentives that promote inefficient investments...I conclude also that if we wish to increase capital formation, the proper objective is the total saving rate, and that raising social security payroll taxes or cutting social security benefits is a poor device for achieving that objective unless we favor them on other grounds. (Aaron 1982, p. 51-52)

Proposition 8: *There exists no evidence that the best way to increase national savings is to move to fully-funded social security. A better first step would be to pay down the national debt.*

VI. Other Design Issues

A wide variety of proposals for pre-funding social security exist. We now review some of these and outline their advantages and disadvantages.

A. *Keep a Defined-Benefit (DB) Design, but with Greater Pre-funding*

Keeping a DB design has the advantage that all workers share in the risks, including inflation, mortality, investment rates, and interest rate risk at the time of buying an annuity. Further, one can easily include ancillary benefits such as disability income and survivor income benefits.

However, the establishment of larger pre-funding creates associated problems. First, to the extent that the assets are invested in government bonds, has anything changed versus paygo? Workers are both social security contributors and taxpayers, and it is doubtful that they care about the use of their payroll deductions, only the total. As social security buys government bonds, governments can use these funds to finance expenditures and allow lower tax rates. Thus, higher social security contributions are balanced by lower tax rates. The total, however, has not changed as to size or timing.

Similarly, when the baby boomers start to retire, social security must sell its bonds. While social security contribution rates may not have to rise, taxes will have to be raised to pay off the redeemed bonds. Again, the total burden is exactly the same, in both size and timing, as under paygo financing.

Proposition 9: *Macro-economically, there is very little difference between paygo social security and a funded system where all assets are government bonds.*

In reality, the financing is still paygo. In fact, pre-funding with bonds may work against creating a more productive economy if these funds are merely used by the government to finance deficits based on consumption-targeted spending (e.g., welfare payments). This may be especially true in the U.S. where the OASDI annual surplus is included in the unified federal budget and can be used to mask deficits.

B. What if the Funds are invested in Private-Sector Assets?

First, we may end up in a zero-sum game. If social security buys corporate debt and equities, but the private sector commensurately decreases its purchase of corporate debt and equities and substitutes (say) government bonds, then nothing may have changed in total.

If the result is not a zero-sum game, then presumably governments have to find new financing for their debt. One would thus expect higher bond interest rates to result. Ultimately, these higher interest charges fall back onto workers as increased taxes.

Other issues need to be addressed. Who will decide how these assets are invested? Could the funds be used for political purposes, for lemon-aid (e.g., to prop up ailing industries), or will they improve productivity? Can avoidance of political influence be guaranteed? Should the investment of these assets be restricted to the domestic market? If so, will that not mean that the government will have an undue influence over domestic capital markets?

What if the investing is done passively, to achieve an index rate of return? Can the capital markets remain efficient if the majority of investment funds are passively invested? Such funds follow the market rather than leading it. Private capitalism works because management is forced by stockholders to excel. How do purely passive funds cause such excellence?

Are there enough high-quality assets available to invest wisely the trillions of dollars that will become available? The assets of funded social security will build up rapidly as the baby boom pre-funds it benefits. However, the same baby-boomers will also be saving on their own for the remainder of their retirement needs. Thus, it could be argued that the social security system will be buying when asset values are high.

Then, when the baby boom retires, it will force the liquidation of the social security funds at the same time as they are liquidating their other retirement plan assets. As stated by Schieber and Shoven (1996):

> This could depress asset prices, particularly since the demographic structure of the United States does not differ that greatly from Japan and Europe, which also will have large elderly populations at the time.

Thus, a pre-funded system may be doomed by buying high and selling low. At the very least, the high rates of return now projected by supporters of privatization may not accrue and their costing projections may prove unachievable. The move to pre-funding is grounded on the assumption that real rates of return will continue to exceed the growth rate in real wages. If that weren't true, then paygo financing would be preferred. However, can we continue to expect the current high real rates if we create trillions of dollars of new gross national savings that are then liquidated over time as the baby boom retires?

Offshore investment might be preferable for at least three reasons. First, the domestic market may not be large enough for the prudent investment of such large funds. Second,

diversification of risk in any portfolio is generally advised. Third, by investing in countries that do not share the same aging populations (e.g., developing nations), it might be possible to dampen the impact of our shifting demographics. This could be viewed as demographic profile diversification.

However, this is not without some significant investment risk, currency exchange risk and political risk. One could expect heated debate if social security were to build up large investable funds, and then invest them heavily offshore.

There are other problems associated with pre-funded systems. First, pre-funded schemes are exposed to the risk of unforeseen inflation (if it decreases real rates of return) because of the length of time between contribution and payment of retirement income. In this regard, inflation nearly destroyed several funded schemes in Europe earlier in the 20th century (e.g., France and Germany). This may be one reason that these schemes now use close to paygo financing. Pre-funded provident funds also have experienced problems with inflation.

Second, with the creation of large investment funds, there will be strong and continuous pressure to expand social security benefits just when such expansion would be misguided. The history of the C/QPP provides strong evidence for this. Because of low early contribution rates and a healthy contingency fund, politicians steadily increased the benefits of the C/QPP during its first 25 years.

Finally, the creation of funds to invest requires that social security contribution rates must be set higher, in the short run, than those required under pure paygo. Is this optimal public policy? Perhaps not.

First, there is evidence that social security contributions hurt job creation.

> [In Canada] These [social security contribution rate] increases have had and will continue to have a negative impact on the labor force. By [between 1986 and] 1993, the rise in contributions by employers and employees had reduced employment and the participation rate by nearly 26,000 jobs and 0.12 percentage points, respectively. By the year 2016, the increase in C/QPP contributions will have reduced the participation rate by approximately 0.5 percentage points (Italianno 1996).

This effect is especially pronounced if social security taxes are levied on only part of the worker's income (e.g., in Canada, C/QPP contributions are levied only up to the Average Industrial Wage). Raising contribution rates could have the effect of providing an incentive to pay for overtime instead of hiring new staff. Would it not be preferable to assist job creation now, even if it means higher potential contributions when the baby boom retires, but also when there could easily be labor shortages?

Second, social security contributions are a part of total government taxation. There must be a maximum rate of taxation beyond which actual tax receipts decline. Prior to this, resistance to increased taxation will be evident in the proportion of the economy that evades taxation (i.e., the underground or cash economy). So long as there exists government debt, is it optimal policy to increase social security funds or rather to increase some other form of tax and decrease the debt?

Mandating employer-sponsored private pensions or even creating stronger incentives (or weaker disincentives) for private pensions and individual savings could have the same effect on savings and productivity. Is it not better to concentrate on the economic goals directly, rather than attempt to achieve them as a by-product of social security financing?

The pre-funding of social security might create a higher moral claim for the generation that paid for the full cost of benefits. This argument is stronger if these new assets are invested in the private sector, versus govern-

ment bonds. Through the social security system, workers would become owners of capital and could expect to receive a fair rate of return on the capital after they retire. Although this is a strong argument, it still depends entirely on this capital being new and additional and on the capital being used to enhance worker productivity. These basic truths have not changed.

C. Change Social Security to a Defined-Contribution (DC) Plan

Another possibility is to turn DB systems into DC schemes in which participants decide how their individual funds are invested. This was done in Chile in 1981 and emulated by many Latin American countries.

As to advantages, the scheme allows for universal coverage of workers, immediate vesting, and full portability. It would also, in theory, provide billions of dollars of investable funds, the potential impact of which has been discussed in detail previously. The supporters of Individual Accounts (IA) replacing DB Social Security are many (e.g., World Bank, 1994, Robson, 1995 and Ferrara and Tanner, 1998), and their arguments will not be repeated here.

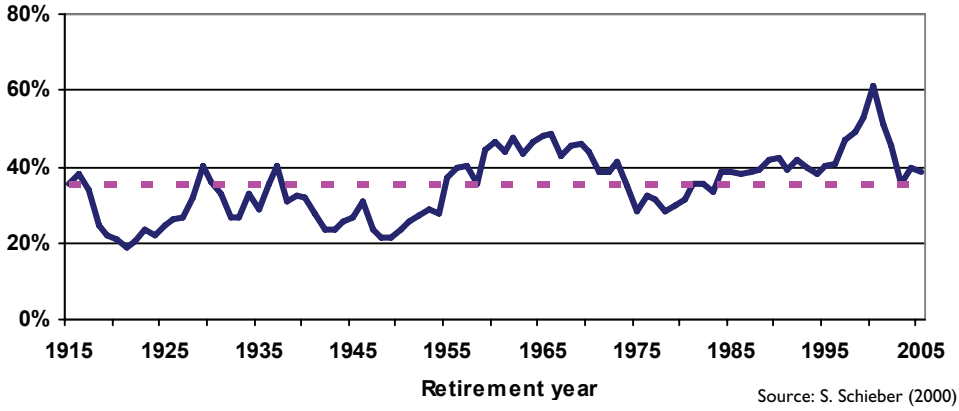
There are, however, several disadvantages to DC IAs. First, where paygo schemes can create immediate benefits for the elderly, a DC scheme cannot do so for a very long time (at least thirty years).

Second, all of the risks of a DC plan, including the investment risk, the inflation risk, and the longevity risk fall on the shoulders of the individual worker instead of being shared across the entire working population. As a result one should expect workers to invest in relatively low risk investments resulting in lower long-term rates of return than modeled by proponents of these reforms. This is extremely important since every 1 percent of extra return over the lifetime of a worker results in a pension that is about 24 percent larger (Adams, 1967). Schieber (2000) illustrates the risk-bearing element well in Figure 4 where he shows the replacement ratio that a worker would realize if s/he had saved 6 percent of pay each year over a forty-year working lifetime (shown by year of retirement at age 65).

Obviously, rates of interest at the time of retirement are of critical importance if the worker is forced to annuitize, as is often the case.

Third, the ancillary benefits of a DB plan (e.g., Disability Income benefits, Orphans benefits) would be lost or have to be replaced. These ancillary benefits are about one-third of

Figure 4: Variation in Benefits due to Market Variations in Stock Values (Assumes a 6% Contribution Rate)



Source: S. Schieber (2000)

total coverage in Canada and the US. Reformers suggest that participants buy private insurance to replace these benefits. These costs are not immaterial (e.g., one-third of the existing contribution rate). Also, solutions are needed for those who cannot get private coverage.

Fourth, administrative expenses for such a scheme can be expected to run at 12 to 15 percent of cash flow (as in Chile) versus the 0.8 percent expense ratio for OASDI. Thus much of the anticipated higher gross rates of return would be lost to higher expenses. Also, these expenses can be expected to be regressive since smaller account balances will experience larger percentage expenses than larger balances. This isn't just true in developing nations as can be seen from the following Australian data.

Table 4: Administrative Costs in Australian Individual Account Plans in 1997

Average Balance	*Administrative Costs as a Percent of Assets*
$ 1,000	14.820 %
$ 5,000	2.964
$10,000	1.482
$20,000	0.741
$30,000	0.494

Source: Schieber (2000)

Fifth, there may not be enough high quality assets to match the new investable funds. In periods of poor investment returns (which are inevitable) the government may be blamed, and may be asked to provide minimum guarantees (which lead to economic distortions and possible worker selection against the system). In particular, a switch to a DC system at this time may curse workers with 'buying high' and 'selling low' as discussed earlier.

Sixth, there is no wealth redistribution in these schemes. A worker who is poor throughout his/her working lifetime is guaranteed poverty in retirement. Wealthy workers are guaranteed a wealthy retirement, aided by the significant tax advantages provided by the scheme.

Seventh, without special legislation, women would retire with lower retirement income than men of identical contribution records, because of their higher life expectancy.

Eighth, the transition generation will have to pay twice: first to fund the new DC scheme and second to pay for the accrued liability of the present paygo scheme. In this regard, remember that it will be 30 to 40 years before the new DC scheme can pay out full benefits.

This will probably result in some guarantees of minimum benefits and/or minimum investment performance under the new system (which, unless designed skillfully, can be open to abuse and anti-selection).

Proposition 10: *There is nothing in the history of any country's social security system or in the literature that supports the view that more funding of social security leads to either:*

- *higher national savings rates, or*
- *improved worker productivity.*

Thus, one cannot conclude that reform of social security to a more funded system is the best way to achieve these laudable goals.

VII. Portfolio Diversification

Any introductory course in risk management will preach that a primary step toward investment risk management is portfolio diversification. No investment counselor would advise putting all of one's eggs in one basket. As stated, there are times when paygo financing can be advantageous and times when fuller funding should be preferred. There are individuals for whom DC plans are best, but also individuals who gain from DB systems. If we privatize social security, how does that fit with a goal of a diversified portfolio?

Using the U.S. as our example, we compare the diversity of their financial security systems at two times. In 1983, the U.S. had a mix

of DB and DC plans plus a mix of paygo and full funding. Clearly, this is a diversified system.

Retirement Income Security United States 1983		
Tier	***Plan Type***	***Financing***
Social Security (OASDI)	Defined Benefit	Paygo
Employer Qualified Plans	Defined Benefit	Fully Funded
Individual Savings	Defined Contribution	Fully Funded

Since 1983, many U.S. Employer-sponsored DB Pension Plans have switched to DC. Today, the majority of workers are in a DC plan. If one were to classify Cash Balance Plans as DC (their classification is not easy) then that percentage would be even higher.

There is also discussion about changing the Social Security system from DB plan to DC (Individual Accounts). Depending on the outcome of the debate, as early as 2010, the U.S. Retirement Income Security System could be as follows:

Retirement Income Security United States 2010		
Tier	***Plan Type***	***Financing***
Social Security (OASDI)	Defined Contribution	Fully Funded
Employer Qualified Plans	Defined Contribution	Fully Funded
Individual Savings	Defined Contribution	Fully Funded

Clearly, there is no diversification in this portfolio. If one believes that there are times that favor DB plans versus DC plans, and times that favor paygo financing over full funding, then this system, with "all of the eggs in one basket", is ill advised.

VIII. Conclusion

This paper has explored issues with respect to greater pre-funding of social security. The thesis is that any public policy designed to enhance the security of social security must satisfy (all) three criteria:

- It must increase gross national savings.
- Those savings must be used in a manner that increases worker productivity.
- There cannot exist a better method of achieving the first two stated goals.

The paper reviewed a variety of proposals for financing of social security and found many unanswered questions and unsatisfied concerns. In fact, there is no conclusive evidence in the literature that greater pre-funding of social security will solve the problems created by rapid population aging.

Proposition 11: *In short, proposed moves to higher levels of pre-funding of social security in both Canada and the U.S. require further public policy debate. Society should not rely on fuller funding of social security to solve the problems inherent in providing retirement income security to an aging population.*

And in conclusion:

Proposition 12: *The four attributes that will provide security for social security are:*

1. *Contribution and Benefit rates that are sustainable long term.*
2. *A healthy and growing national economy.*
3. *An efficient and accurate records administration system.*
4. *An honest government.*

These are not a function of how you finance social security, In fact, the method of financing social security may be close to irrelevant to its future security.

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Toward a Pan-European Pension Reform Approach:

The promises and perspectives of unfunded individual account systems*

by Robert Holzmann

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The need for a rapid and comprehensive reform of the pension systems in most old and new member countries of the European Union is increasingly acknowledged by pension scholars and politicians. While a few countries have recently undertaken major reforms to make their pension systems financially sustainable, in the majority of European countries the reform efforts are still insufficient. While national efforts can now draw support from intensified EU cooperation based on the Open Method for Coordination, this method takes the diversity of European pension design as a given, and much of the reform debate is still limited to fiscal issues at national levels. There is little discussion about a reform need beyond fiscal consideration. There is no discussion (anymore) about a reform move toward a more coordinated pension system within the European Union, and how such a system may look and come about. That is the topic of this policy note.

The note argues that a pension system with an unfunded individual account system (also known as non-financial or notional defined contribution system – NDCs) at its core, supported by social pensions and funded pensions at its wings is a reform approach that would allow Europe to address the multiple reform requests inside and outside pension systems: First, NDCs are able to handle the different reform needs of public retirement schemes that go well beyond fiscal considerations such as socio-economic changes and the challenges of globalization. Second, it is an approach able to comply with the generic and specific objectives of a Pan-European pension reform. Last, but not least, it is a reform approach capable to be implemented within a short period in most EU countries.

The structure of this short note is as follows: The next section outlines the main characteristics of an NDC system, including key design and implementation elements to be respected. This is followed by a review of the central reform needs of European pension systems and how NDCs would be able to deliver on

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* This policy note draws on Holzmann (2006) that presents the arguments in detail. The full range of pros and cons of NDCs is assessed by 24 papers published in Holzmann and Palmer (2006).

system objectives and reform needs. The last section outlines how a pan-European NDC scheme with social and funded pension wings would operate.

Key characteristics of an NDC system

An individual account system on PAYG basis operates like an illiquid life-time cash balance plan. Individuals (and their employers) pay contributions on earnings during their whole career. These contributions are recorded on an individual account that grows with the contributions as well as with a rate of return credited to them. At retirement the notional capital is converted into an annuity that takes account of the remaining life-expectancy as well as the expected future rate of return. The pension in payment can be price or wage indexed with the initial pension adjusted accordingly in order to comply with (inter-temporal) budget constraint

The structure of an NDC system is extremely simple and transparent – what you pay in (or is paid in on your behalf) you get out in quasi-actuarial terms, but not more. As a result, the commitments at individual or macroeconomic level can be easily calculated. However, as the system remains essentially unfunded it needs to respect a few basic rules to deliver on fiscal sustainability, and the three key components are the following. First is the selection of the system-consistent "notional" interest rate that can be credited in an unfunded system. Such an interest rate is broadly equivalent to the growth rate of the contribution basis (equal to wage and GDP growth in steady state) but some adjustments do apply. The remaining life expectancy must be cohort specific and take account of expected changes throughout the remaining lifetime of the cohort. Second, a politically acceptable system requires a reserve fund and a balancing mechanism to deal with demographic or economic shocks. Otherwise individual benefits in each period would exhibit quite likely main fluctuations in real and nominal terms that would be difficult to sustain in political terms. Last but not least, this reform approach requires a financing mechanism that makes it possible to finance the legacy costs when moving toward the new system, in particular when the new contribution rate is lower than under the old system that is being transformed.

Reform needs of existing systems – promises of NDC approach

The need for reform of pension systems in Europe is essentially threefold:

(i) The current and future budgetary pressure resulting from population aging in addition to too generous pensions provided at a too early age;

(ii) the ongoing socio-economic changes that render most current system designs inadequate; and

(iii) the challenges and opportunities of globalization that require portability of pension benefits across professions, countries, and regions.

Against such reform needs, further outlined below, the reform options of typical European pension systems are quite limited due to

(a) high implicit pension debt of the mostly unfunded schemes that would not allow a full or even major shift toward defined benefit or contribution schemes on a funded basis;

(b) the low credibility and limited success of parametric reforms tinkering with accrual factors, indexation or retirement age; and

(c) doubts about the ability of financial markets to deliver adequate rates of return (net of costs) on a sustained basis at acceptable risks in an aging world.

Against this background of reform needs and reform options, the NDC approach offers many promises.

Dealing with fiscal sustainability: An NDC system establishes long-term financial sustainability by enforcing the financing rules that applies to any (unfunded or funded) pension systems: The present value of liabilities cannot exceed that of assets. While the actual mechanism how to do this (or how it is proposed to do this) may, at times, be complicated, the underlying principle is easy: With a fixed contribution rate, the balancing variable to deal with economic or demographic shocks is the benefit variable through the interest rate credited to the individual account and the indexation of pensions in payment. Individual adjustments to the benefit level require changes in retirement behavior and/or saving efforts in the funded pillar to compensate for the lower unfunded benefit level. Any reserve fund smoothes the impact of shocks across cohorts and generations but does not eliminate the need of a well designed balancing mechanism working through the notional interest rate and indexing mechanism.

Dealing with short-run fiscal pressures requires short-run instruments best in the form of key parametric changes, such as decreases in annual accrual rates, increases in the retirement age, or changes in indexation. They should be done before the full conversion toward NDC scheme takes place as this serves to reduce the magnitude of the legacy costs. For example moving from wage to price indexation can reduce the implicit pension debt by some 20 percent and possibly eliminate any legacy costs even if real wage growth is as moderate as 2 percent p.a.

Dealing with socio-economic changes: Since the original pension systems have been designed toward the end of the 19th or early 20th century a number of socio-economic changes have taken place to which the current design of most pension systems is not yet adjusted. And three changes stand out: Increase in life-expectancy, increase in female labor force participation, and increasing divorce rates. These changes would require a major overhaul of any Bismarckian-type pension system independently of fiscal considerations.

The increase in life expectancy, in particular the more then doubling of the life expectancy of an adult during the last century requires major changes for individuals and society, in particular longer labor force participation which will be facilitated if individuals remain healthy and well trained. The imperative of life-long learning requires a pension system that abolishes any artificial separation between education, work, and (retirement) leisure and allows for distortion-free individual movement between these states. An NDC system is able to deliver as it does not punish sabbaticals or return to work after drawing a pension.

The stark increase in life expectancy strengthens the need to separate old-age from disability benefits. The initial old-age pensions could be considered as a generalized disability pension as only a small share of insured reached retirement age. The others died before this age or became eligible for a disability pension. Nowadays the vast majority survives to retirement in good health and the risks covered are fully dis-linked: Uncertainty of age of death and incapacity to work. If risks are separated and can be separately priced it is efficient to do so. An NDC system strengthen this logic and allows to do so in an incentive oriented manner. E.g. for a disabled who receives disability benefits, the latter include continued contributions to the NDC account till disability benefits are discontinued (and people re-start work and earn contributions) or a stipulated retirement age is reached.

The original old-age benefit design is based on a working husband and a housekeeping spouse taking care of the children. In case of death of the breadwinner prior or after retirement, the spouse receives a survivor's pen-

sion typically till her own death (and children till adulthood). Two key changes have taken place since: Female labor force participation has increased and rivals in a number of countries for key age cohorts with that of men. And divorces have increased reaching in a number of countries already 50 percent and more for every marriage. This requires changes in survivors pensions in order to avoid issue of double pensions (including also for men), or benefit shortfalls as in the case of multiple surviving divorcees. NDC offers a very simple and incentive-oriented solution as it allows for establishing own pension rights for all based on own contributions when single and split contributions accounts at time of separation. If in case of a divorce the house, car and dog can be split, why not the accumulated NDC account during the period of marriage? For young surviving spouses with children, a generous but time-bound benefit can be disbursed to ease re-integration into the labor market.

Dealing with globalization: In order to reap the benefits of globalization but also to deal with challenges that include profound shocks resulting from technical innovations and shift in the demand and supply of goods and factors, more flexibility across labor markets, improved financial markets, and life-long learning are essential. The more flexible and adjustable an economy is in reacting to such shocks, the better it will fare. Such flexibility comprises mobility of individuals across professions, countries and regions. At professional level and within countries, mobility continues to be severely hampered due to different schemes, in particular between the public and private sector. While the mobility between European member states is, in principle, eased for the general private sector schemes, the reality is often different as individuals cannot assess the future pension benefit that they are entitled to. Furthermore, within the Euro area labor mobility gained importance in order to deal with asymmetric shocks as country-specific monetary and exchange rate policy have been lost while the scope for fiscal policy is restricted by the Maastricht criteria. NDCs offers to establish such mobility between professions and across countries in a simple manner. Different sector schemes, including that of civil servants can be easily converted into a common NDC scheme by calculating the accumulated individual pension rights and assigning the amount to the individual account. In case of moving between member countries, the accumulated amount can be easily transferred.

Demands on a reformed and coordinated Pan-European pension system

What objectives should such a reformed system fulfill? Two sets of objectives are suggested: generic objectives that all modern pension systems worldwide should fulfill, and specific objectives that result from the EU background.

The primary goal of a pension system should be to provide adequate, affordable, sustainable, and robust old-age income, while seeking to implement welfare optimizing schemes in a manner appropriate to the individual country. The secondary goal of mandated pension provisions (and their reform) is to create positive output effects by minimizing negative impacts, such as on labor markets, while leveraging positive impacts, such as on financial market development (Holzmann and Hinz 2005).

The suggested specific objectives of a Pan-European pension system, to be used as criteria for selection and choice, are: mobility, national preferences, solidarity, and feasible transition.

- First, the system should allow for *easy, even better unrestricted mobility* between pro-

fessions, sectors, and regions and also between stages of the life cycle (school, work, and leisure) and family structures.

- Second, the system should be consistent with the (European) concept of *solidarity*, understood as a mechanism of risk sharing among and between generations, redistribution of income from the life-time rich to life-time poor, and open risk coverage.
- Third, the system should allow for *national preferences* of target levels of (mandated) benefits or contributions, and the redistributive allocation of resources toward the poor or specific groups or activities.
- Finally, the proposed future system should involve a *feasible system transition* from the current national systems for the largest possible number of member-countries.

An NDC system, supplemented with a social pension plus a funded pension is well suited to deliver on both the general as well as Europe-specific requests. To achieve the latter does not require a harmonized system but a coordinated approach similar to the valued added tax that Europe spear-headed. As sketched, an NDC system can deliver essentially unrestricted mobility across Europe. The country-wide notional rate of return and annuity calculation supplemented by the reserve fund and balancing mechanism allows for risk sharing among and between generations. Matching contributions for low income groups and contributions for periods of maternity or unemployment financed by budget transfers give ample room for distributive purposes. Contribution rates can differ across countries, as the level of social pension and the level of contributions towards funded pillars. Last but not least, the approach allows for an easy transition for most countries in the European Union: Italy, Latvia, Poland and Sweden have already introduced. The French and German point systems are similar to NDCs. The Bismarckian systems of Austria, Belgium, Czech Republic, Portugal or Spain can be easily converted. Only countries such as Denmark, Ireland, the Netherlands, and UK, with their specific basic provisions and funded pillars are likely to escape a full coordination. But even in their case would the suggested approach of unfunded individual accounts in combination with social and funded pillars facilitate the coordination across member countries. What is left is to find a political mechanism to make it happen.

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The Swedish Model for Pension – New Wine in New Bottles

by Bo Könberg

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The Swedish parliament´s decision in 1994 on the new pension reform was the first parliamentary decision on what is nowadays called a Non-Financial (or Notional) Defined Contribution (NDC) system. It has since then been at the centre of the international debate on pensions. It has been introduced in several other countries, among these Latvia, Italy and Poland. In this article comments are made on the long and valuable debate in NFT that started at the end of 2002 and which consists of some 20 articles. Among the objections commented are that the aims of NDC could have been achieved without changing to a DC system, that the Swedish pension system will give very low pensions in the future and that the creation of the Automatic Balancing Mechanism will place the whole burden on retired generations.*

In June 1994 the Swedish Parliament approved a proposal for a new system for pensions. It was the result of an agreement between five parties representing some 85 % of Parliament. The reform consisted of two parts. The major part was a Non-Financial (or Notional) Defined Contribution (NDC), the minor part was a Financial Defined Contribution (FDC) part.

This was the first time that a parliament decided on a pension system that included a NDC part. It seems that something similar was proposed in 1992 to the parliament of Uruguay, but the proposal was rejected by the Parliament.[1]

The Swedish political agreement to introduce NDC was reached in January 1994 while the main features had been presented by the parliamentary Pensions Working Group in a "sketch"[2] presented to the public in August 1992.

The implementation started already in 1995, the first year in which contributions were paid for the FDC scheme. These earned a bond rate of return until individual accounts had been

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* The articles can be found on
www.forsakringsforeningen.se/nft
(International and Swedish experts on Swedish Pension Reform and related matters).

created in 1999 and the first individual fund investment choices were made in 2000.

The implementation of the new system of the FDC and NDC parts continued up to year 2003. There is a transition process. Those who were 56 years of age at the time of the decision were partly influenced by the new rules. Those who were 50 years at the time would get half of their pension determined by the new rules and half by the old rules; and those who were 40 years and younger would receive their whole pension according to the new rules.

That means that – if people retire at 65 – those who retire next year will have half of their pensions calculated by the new rules and that from the year 2019 all new pensions granted will be calculated by the new DC rules.[3]

International interest

After the Swedish decision in June 1994 several parliaments have taken similar decisions on NDC. In 1995 both Latvia and Italy did it and Poland followed with legislation in 1998. Russia in 2002 introduced reforms that aim to emulate key features of the new Swedish system. The Kyrguz Republic has introduced a form of NDC for new entrants and Mongolia is reputed to have taken decisions on introduction of a NDC system.[4] Norway has decided to change its public system in the year 2010 from a DB system to a NDC system. Note also that recently, the United Kingdom has decided to introduce a FDC system similar to the Swedish PPM system.

Several authorities now propose that many countries ought to introduce NDC systems or similar systems. One of them is the World Bank's Director of Social Protection, Robert Holzmann. He has proposed that pension systems with NDC at its core ought to be established in the European Union[5] and also in Japan[6].

The name NDC was not in use in the year 1994. It came first some years later. We often described the plan *as following a Lifetime Income Principle* and it was (almost) unfunded.

The idea to apply the design principles from a DC plan to a pay-as-you-go pension plan was not completely new, but had by most pension experts not been thought possible. Pension systems can be Defined Benefit system or Defined Contribution. They can be unfunded (Pay-As-You-Go, PAYG) or funded. By combining this you can have four systems. But only three were really thought possible. The two main combinations were public unfunded DB-system and private funded DC-system. Funded DB-systems exist, of course, mainly as occupational pensions.

But the point is that unfunded DC-system did not exist in the real world and almost not in the pension debate. There were some exceptions to this. Note that the latter have come to light well after the Swedish decisions became known in 1992-94. Perhaps the earliest mentioned in the actual debate is Buchanan in 1968.[7] In the middle and the end of the eighties and also in the beginning of the nineties the idea was proposed by some Swedish economists.[8] It was also mentioned by Barr in the end of the eighties.[9]

It can also be argued that the basic idea of what is now named NDC was presented already in 1950 by a Swedish Royal Commision led by General Director Åkesson[10]. Some may object that the proposals were more like the French points system that were created in the end of the forties than real NDC system.

The Swedish Model is nowadays much in the centre of the international pension debate. It has even been called a Revolution.[11] In NFT a debate started in the end of the year 2002 with an article[12] that was very critical against the Swedish reform. Ole Settergren described the reform[13] and I replied to the criticism in the first article[14]. After that KG Scherman[15] has criticised the reform and I

have replied also to that[16].

Since then NFT has been generous enough to publish – I think – 15 more articles on NDC. The latest two by Robert L. Brown[17] and Robert Holzmann in the beginning of 2007[18]. Now it is high time to comment on this long and valuable debate. I will try to do so in this article and I will try to concentrate on important points and mostly on aspects that I have not commented on in my two earlier articles. In this article my comments will almost only regard the NDC component although I consider the FDC component of the Swedish reform also to be very important.

I am specially happy that so many distinguished international specialists have taken this opportunity to comment on the Swedish model. In some cases I will also refer to what has been mentioned in the important book on NDC from the year 2006, which was edited by Holzmann and Palmer[19].

The most important critique

In my opinion the most important critique points are

- The same social and economic properties could have been achieved without the complete change of system, i.e. without inventing and introducing the NDC design,
- it will give very low pensions or an extreme retirement age in the future and
- it takes away all future power from the politicians and more specifically
- the introduction of The Automatic Balance Mechanism (ABM)[20] which is said to have transformed the NDC system and placed the burden of future negative adjustments on the retired generation.

Another way to do it?

It is here probably necessary to comment on what the difference is between a Defined Benefit (DB) system and a Defined Contribution (DC) system. Especially as all public mandatory pension systems up to 1994 were DB systems.

The DB-system can vary rather much in how extreme or modest they are. The most extreme – and probably non-existent – version is that the pension is calculated on the basis of the final salary and that it is enough with one year of participation to have a full pension. It would probably be very expensive and would of course need a tremendous redistribution from those who worked many years and with a low salary to those who worked few years – or only one year – with a high salary. So all known DB systems are less extreme.

One example was the old Swedish system which was decided in 1959 (ATP). The benefit calculation was made on the 15 best income years and it was enough with 30 years of contributions to get a full pension. Norway which made a similar reform some years later choose a little less generous rules to those worked few years and had a steep income profile – the 20 best years and enough with 40 years for a full pension. In many countries the rules were even more generous to those with few working years and a steep salary than the old Swedish rules.

The Swedish rules meant that it was enough to work part-time, say a fourth of the year, in 15 years (that is less than 4 full-time years) and then fulltime in another 15 years and then get a pension calculated on the 15 fulltime years. When the retirement age in the middle of the seventies was lowered from 67 years of age to 65 this meant that you could work less than 19 full-time years and then when you retired in the year 1995 get a so-called full-time pension for almost 17,5 years of retirement.

It does not need to be said that this was expensive, but it must be said that it meant a big redistribution from people with low in-

comes to people with high incomes. It was less of Robin Hood and more of the Sheriff of Nottingham. It also meant that the contribution paid to the system included a high tax wedge as many contributions paid did not increase the pension, for example for those years worked beyond the 30 years needed.

What is then a Defined Contribution system? That is a system where all contributions paid are used for calculating the yearly pension – at least for those who live till they retire.

Perhaps it seems that the two systems are very different. And mostly they are. But consider what happen if you increase the number of years needed for a "full pension" and the number of "best years" calculated. It is obvious that the Norwegian rules were, all other things equal, a little closer to a DC-system that the Swedish rules were.

And what happen if we increase the Norwegian rules from 20 to 40 "best years" and the full-benefit number of years from 40 to 45 years? Or from 20 to 50 "best years" and the number of years required for a full benefit from 40 to 50 years? Well, it will then have been changed – almost – from a DB-system to a DC-system.

The ancients discussed at what point a man with hair becomes bald. Is that when he has just 100 hairs left, 10 hairs left or no hair? At what point does a traditional DB system become a DC system?

At least when the whole *lifetime income* is counted it has the central feature of a DC-system albeit not all the features required for NDC (see Palmer 2006). And a system where the tax wedges has disappeared with the important exception that the system is mandatory.

The redistribution from those with many years at work to those with few years has then disappeared or – better – been changed and transparent and paid by general taxes. For example by introducing a *guarantee pension* and by giving *pension rights for care of small children*, financed with general taxes.

By this change we have created a system that both is more fair and more efficient. And it is also more transparent for media and, I would claim, for the general public. Often in politics there is a conflict between fairness and efficiency. If you increase one of them you *too* often have to diminish the other. To replace an existing DB system with a DC system with tax financed social rights is – in my opinion – a clear exception.

According to Michael Cichon[21, 22] this can be arranged in another "mathematical" way than introducing NDC. Disney has also made similar claims.[23] They are probably right, but what would be the point if it is the same? Just for the pleasure of not having to use brand DC? The "only" real difference would be less transparency and therefore less influence on positive behaviour like willingness to work and to work longer.

It is always better to call a cat a cat than call it a dog – even if you happen to like dogs more.

Lower pensions with NDC?

Several of the critics, among them KG Scherman and Michael Cichon, claim that the pensions in the Swedish pension will be very low.

I and the other reformers claimed in 1994 (and onwards) that the pensions as percentage of income would not decrease in the new Swedish system compared with the old ATP system for those who worked a little longer than 40 years *if* the wage increase was around 2 % *and* the life expectancy was the same. Of course we thought it very likely that the life expectancy happily enough would continue to increase in the future.

And our message was very clear: If you live longer than your father and want the same percentage in pension relative to your wage as he had, you have to work longer and retire

later than he did. It would not be necessary to work as many months later as you live longer. It would be enough with some 2/3 of the increase.

So the message to our generation and to our children is: You will probably earn almost double as much as your father did, you will live at least two years longer after 65 than he did and it is only necessary for you to work 1.5 years later than he did in order to get the same replacement rate as he did. In purchasing power your pension will almost be double that of his. Is this a bad offer?

No, of course not, but will it become true? Not according to KG Scherman and Michael Cichon.

The 2007 Annual Report

Of course, none of us know the future. What we can do in this discussion is to look to what has happened up to now and what the experts think about the future. Ole Settergren has in his reply to KG Scherman in detail discussed these questions[24]. So let me here only summarize the result of the last annual report for the Swedish pension system, that was published last month[25] That report is two years more recent that the one used by Ole Settergren.

Has the average Swedish pension been lowered since the decision? No, it has not. It has been raised. The change from the old price indexation to wage indexation minus 1.6 % (new pensioners have received an imputed wage increase of 1.6 % in advance) has meant that the average earnings-related pension in payment since 2002 has increased with 5 % in real value. In the old ATP system pensions never increased in real terms. In fact, many countries that previously have had some form of wage indexation have now moved solely to price indexation. And they have done this in order to save money for their pension systems.

In the Base Scenario in the Annual Report there are *no signs of lowered pension as long as you work later.* The so-called Automatic Balancing Mechanism (ABM) ("brake") is not applied during the 75 year period calculated, up to the year 2082. The buffer funds which now have a ratio of almost five years of annual pension payments will in this scenario not fall below the level of three years (the lowest ratio will be 3.4 years in the middle of the thirties).

This can be compared with what was discussed in the Pensions Working Group about trying to avoid the buffer-fund strength to fall under 1 year and in the proposal presented to Parliament in 1994, with an absolute floor of 0.5 years. When the ABM was introduced it was considered superfluous to set a floor.

In the base-line scenario in the Annual Report there is even a financial possibility to use some of the buffer funds to increase the real value of pensions and that at the time when the pressure on the buffer fund is great, that is during the many years when the baby-boomers are retired.

Can "excess" funds be identified and used to increase pensions in Swedish NDC? In 2004 a government committee proposed rules for when the buffer funds could be used to increase the pensions. The proposal was that it should be done when the so-called balance ratio (a form of solvency ratio for a pay-as-you plan*)* was higher than 1,1, that is when real and "notional" assets exceed pension liabilities by 10 %. In the current Base Scenario that will happen in the year 2037. If this proposed rule is not implemented, the ratio can exceed 1.2 within half a century from now, given present growth and demographic assumptions.

The development of the FDC part has also been positive. It started in 1995 and in the first years the contributions were placed at the National Debt Office at a rather low rate of interest compared with the rate of return on equities. In spite of that and the turbulent years in the stock markets in the years 2001–2003

and last autumn, the average yearly yield has been higher than the 3.25 % in real terms that is the assumption in the yearly information to all those who are covered by the system.

The Annual Report 2007 has several positive messages, but – again – none of us know the future. The good figures are the result of a strong economic development in Sweden since the economic crisis in the beginning of the nineties, a bigger work-force, a good birth-rate (last year more than 1.85 per woman) and a good projected birth-rate together with a high net immigration rate, both experienced and projected.

The critics who claim that the replacement rate will be lowered significantly may be proven right, but the current figures are not on their side. And the statements the reformers made – that the replacement rates could be kept if the resources yearly increased by at least 2 % in real value, worked more than 40 years and retired later as life expectancy increased – do seem to turn out correct.

In fact the NDC reserves are higher now than we thought and – as mentioned – in the future predicted to be much higher than we then thought possible. The year when current contributions will be lower than current pension payments has also been somewhat postponed.

Future Politicians without Power?

Many critics, among them KG Scherman, claim that the NDC system, especially after the introduction of ABM, has deprived the politicians of their power in the field of pensions and thereby stopped them from letting the burden of future strains be shared between the active population and the pensioners. From now on the whole burden will be carried by the retired generation.

In a formal sense, those critics are of course wrong. Any day, including tomorrow, the Swedish parliament can change the new rules. The NDC system can be changed back to a DB system. The FDC system can be closed to future contributions. The contribution rate can be raised and that can be done without increasing the pension rights. Parliament can raise taxes and redistribute the proceeds to pensioners. Almost anything can be done. The sky is the limit!

But that was certainly not the intention of the reformers. Our intention was to establish more fair and efficient rules than before and making them as economically *and* politically stable as possible.

Rules that are peripheral like the construction of the system for pension rights for caring of children, the level of the guarantee pension, the way in which spouses are allowed to share pension rights, how many funds to choose between in the FDC system and rules like that can of course be changed without disturbing fundamental principles. Rules that are central to the system ought to be kept.

Of course enormous things can happen in our world. The Large Comet can appear next year. The fertility rate can drop to 1.0 during a long period instead of the necessary 2.1 to maintain the necessary population in the absence of offsetting net immigration and the politicians can show themselves incapable of such changes in family policy that will change the trend. Medical scientists can invent something that lets us live much longer but without a compensating increase in working capacity. And so on.

But is the fact that the future is unknown reason enough to leave wide-open the decisions on pension policy given the opposite interest to have so stable rules as possible?

Is 25 % too Little to Pay for Pensions?

Most of the critics seem to leave open the possibility to increase the contribution rate and preferably in such a way that the increase

not at all or only partially will increase the pension rights.

If we look at the current contribution rates in Sweden they are rather high. The public earnings-related system claim 18.5 % of the wage. Some 90 % of wage earners have also occupational pensions, which cost some 4.5 %. So today most Swedes pay some 23 % of gross earnings for their future pension.

The public system is also financed by general taxes. The cost for the guarantee pension and for the rules regulating pension rights for caring of small children, military service and university studies is more than 2 % of the total wage sum. So before we take into account the cost for occupational pensions for higher wage-earners and the private pension insurance, both of which are common in Sweden, we find that some 25 % on top of the wages are paid for the future pensions. Should not that be enough?

The answer to that question differs of course between individuals. Some want a replacement rate that is higher than the 23 % plus pension rights for years caring for small children etc. will produce. They are – hopefully – themselves willing to pay more in contributions during their active life in order to get a higher pension when the retire. That does not necessarily mean that the *mandatory* contribution rate ought to be raised for everyone.

But it can be an argument for having a possibility, for those who want to buy private pension insurance, to deduct the contributions from tax now and be taxed when the pension payments are received.

What about the Balancing Mechanism?

The one major novelty in the Swedish model that was not introduced already in the 1992 sketch was the Automatic Balancing Mechanism. The problem that the mechanism manages was explicitly discussed in the Government Bill in 1994. The balance mechanism was described in the Government Bill in 1998 when the indexation was legislated, however, it was considered to need further investigation and its legislation was delayed until 2001.

The design was proposed in 1997 and it was subsequently developed by Ole Settergren together with Hans Olsson and Boguslaw Mikula.

It seems that the mechanism, sometimes called the brake, is an invention. It intends to give early notice that the financial stability of the system is threatened and then automatically start a diminished indexation both of pensions paid and of notional pension capital. By de-indexing early and re-indexing early it attempts to minimize the financially necessary corrections of current and future payments.

The reason that the mechanism was invented was due to the desire of the reformers to give the system better social properties than a system with a ”perfect” annual balance between contributions and rights. One cause for such imbalances was the transition rules which was decided on instead of introducing the NDC system immediately.

Secondly, the wage index was based on the changes in the average wage and not in the total wage sum. That is good since it ties the benefit to the development of the per capita income level, but potentially financially dangerous if the size of the work-force declines. It could be a gain for the system as such, but it was then seen as more probable that it was a loss, that is that *the average wage index* would be more expensive than the contributions could finance.

Thirdly, the link to life expectancy increases was only made until retirement with the value becoming fixed at age 65. That covered perhaps two thirds of the cost created by the increased life expectancy over the entire life. The reasons for this decision were two.

One was that it that it was thought better not to rely on projections, which of course could

be questioned. The other was that the possibility for retired persons and especially older such to combat decreasing pensions by returning to work is very large. Working people on the other hand would normally have the possibility to work some months or a year later when they every year hear that the life expectancy increases and that the replacement ratio thereby is lowered.

As a part of the reform, the right to continue working in year 2003 was raised from 65 years to 67 years. That increase of the freedom of the wage-earners was later condemned by the ILO! Not easy to be a social reformer in such a world.

Fourthly, the return of the buffer funds could be both higher and lower than the income growth, and thus be a source of financial instability. In principle the return is expected to be higher than the income growth.

The first three exceptions from *strict* rules were all thought to be more expensive for the system than the alternatives. If the exceptions had not been made, the need for a mechanism to balance the system would have been much smaller. And the ABM would maybe not have invented. Which would have been a pity – at least for those of us who like new ideas.

Many of the critics of NDC are especially negative to the mechanism, both because it is automatic and because they think it will be used very often and step by step will press the outgoing pensions to lower and lower levels.

An alternative to the ABM would have been to give the government the duty to go parliament with proposals to increase the contributions or to lower the payments. In Sweden and probably many other countries a lesson has been that such a method will increase the risk that the changes when they must happen will be larger than the probably small steps that the ABM will give. In the autumn of 1992 the government and opposition agreed on lowering the pensions by 2 % in one swoop.

A parallel is the automatic effect on pensions of the changes in life expectancy. In the Italian version of NDC this effect is also a part of the system, but there the effect was planned to be used ever ten years. The first decision should have been taken a couple of years ago, but was postponed and no decision has yet been taken.

As I mentioned earlier the ABM has not yet been used. A couple of times it has been close, mainly due to small technical design issues. It has to do with *c*hanges that ought to have been taken into account when the balance ratio was calculated, which they were not. The recently constituted Pension Group with representatives for the five parties that support the reform will discuss how to rectify this problem in the future.

If the ABM at some time will decrease the real value of benefits the pensioners with the lowest pensions will be compensated by higher guaranteed pension. Those with benefits in the immediate segment above that will get 48 % of the reduction replaced by the guaranteed pension.

In the current Base Scenario the ABM will, as mentioned, not be used under the period of 75 years that is now covered in the scenario. In the Pessimistic Scenario it will be used very often. Taken into account that reality probably will vary more year by year than predictions usually are allowed to be, it seems probable that the ABM will be used sometimes. But at present it seems to be a rather small risk that it will continuously lower future pensions.

Some other criticism

Among the other articles I would like to comment on those of Nicholas Barr[26] and Robert L Brown[27, 28].

Barr claims that NDC is *a* design, not *the* design. Maybe so, but for a reformer it is more important if it is better than the alternatives

and if it is rather easy to complete the original model or not. In my opinion NDC is better than the three alternatives, at least if you include in the assessment the enormous difficulty to go from an un-funded system to a wholly-funded system. Has Barr another opinion about this than I have?

As to the question if you can better the Swedish model – without changing the basic components that make it a NDC system – let us take one of his three conclusions in the article. That "the NDC pensions do not address the central funding issue." That sounds like a rather severe point of criticism for a pension system.

What he claims is that the system (and all other pension schemes) currently face the root problem of retirement ages which remain largely fixed as life expectancy rises. He admits that the NDC system faces the problem in a formal sense and that by reducing the accrual rate. To this I may add that the old Swedish system and many current systems do not even do that

But what – he wonders – if people in spite of that are stubborn enough to retire as early as is allowed? To that his answer is that they will get very low pensions. And in this he is of course right.

The question about how to handle the economic consequences of the great joy of rising life expectancy was by the Swedish reformers considered to be one of the most important they felt obliged to handle. The changes we proposed and got accepted were

- introduction of the strict connection between contributions and benefits,
- increasing the earliest age of retirement from 60 to 61 years,
- increasing the earliest age for (reduced) guarantee pension from 60 to 65 years,
- abolition of the ceiling of 70 years for increasing the yearly pension by working longer,
- yearly information to all wage-earners about the anticipated level of the annual pensions at different retirement ages (63, 65 and 67 years) and, as mentioned,
- raising the age to continue employment with the present employer from 65 to 67 years of age.

Of course – someone may say – the reformers ought to have done more. They might for example have indexed some of these age rules to further increases in life expectancy.

The de facto retirement age in Sweden had – like in many countries – dropped during many years before the middle of the nineties. Since then and up to a couple of years ago it has increased with about one year. That valuable change has certainly had many different causes, but it seems that the changes in the public pension system have contributed. Personally I feel confident that pension rules are important if you want to raise the factual retirement age.

Personally I also agree with Barr that the initial pension age ought to be increased (preferably indexed, say with a quarter at each time) with rising life expectancy. And I also very much agree with his wish for a more flexible labour market. The first is easy done within the pension system without changing its character of an NDC system. The second cannot be arranged by change in pension systems, but wise changes in them can stimulate it.

Brown has in his two articles not so much commented on the unfunded DC system as such, but more argued against funded schemes. In his recent article[28] he in his conclusions proposes seven, as he says, important principles for a social security pension system. He says that they often are in conflict among themselves.

Given the seven principles he has chosen I am not so pessimistic as he is. Almost all of them could be present in a good pension system and most of them are in the new

Swedish system. The main exception is the perennial question of large effective marginal rates, which also exist in the new Swedish system. Here the iron-hard laws of mathematics rule.

I am little surprised that Brown has not noticed that most of his seven important principles has been taken care of in the new Swedish system. Maybe the explanation is that – to judge by his bibliography – he has not used the important book on NDC from 2006 and that of the several articles in NFT he has chosen only those three Swedish articles that are critical of the new system and none of the four other.

Conclusions

The NDC system, which can be described as an un-funded Lifetime Income Principle without the right to a lumps sum when you retire and with a balancing mechanism is an important new system to treat perennial pension questions. If it is arranged together with a good guarantee level it can handle the problem of old age poverty and at the same time be more fair and having more positive incentives than a traditional DB system.

Those effects can probably be arranged in a more complex and less transparent way than by NDC and the adherents of that will like to call even that system for a DB system. But it will be misleading as a system where all contributions are counted is a DC system. Why do things in a more complicated and less transparent way than possible?

The Swedish NDC model is not as has been claimed Old Wine in New Bottles but New Wine in New Bottles.

For those countries and experts who consider a DC system better than a traditional DB system, the NDC model has the important advantage that it can be created without having to fund a new system parallel with paying pensions for the pension rights in the old system. It is – as everyone will find – not easy to find a generation that is willing to both pay the pensions for their parents and for themselves.

*

The author is grateful for valuable comments on the text and for many years of co-operation and many years of discussions with *Edward Palmer* and *Ole Settergren.* Remaining errors in the text are of course the author's responsibility.

Notes

[1] Brooks and Weaver in Holzmann and Palmer (eds) 2006, ch 14.

[2] Pensionsarbetsgruppen (Pension Working Group) (1992).

[3] For a description of the new Swedish system, see Palmer 2000, Settergren 2001, Palmer 2002, Könberg, Palmer & Sundén 2006 in Holzmann and Palmer (eds) 2006, for a shorter version, see pages 14-19 of Annual Report of the Swedish Pension System 2006, available at www.fk.se).

[4] Williamson (2004).

[5] Holzmann and Palmer, ch 11.

[6] Holzmann in NFT 1/2007.

[7] Buchanan (1968).

[8] Most used by the Working Group were Bröms (the autumn of 1990) and Ackerby (the spring of 1992).

[9] Barr (1987).

[10] Åkesson (1950).

[11] Holzmann and Palmer (eds) (2007), the German version.

[12] Hagberg and Wohlner in NFT 4/2002.

[13] Settergren in NFT 2/2003.

[14] Könberg in NFT 2/2003.

[15] Scherman in NFT 4/2003.

[16] Könberg NFT 1/2004.

[17] Brown in NFT 1/2007.

[18] Holzmann in NFT 1/2007.

[19] Holzmann and Palmer (eds) (2006).

[20] For a description of ABM, see Settergren (2002) and Settergren and Mikula (2005).

[21] Cichon in ISSA review 4/1999.

[22] Cichon in NFT 2/2005.

[23] Disney (1999).

[24] Settergren in NFT 3/2006.

[25] Orange Report, Annual Report for 2007, (at present only in Swedish, but soon also in English).

[26] Settergren in NFT 3/2006.

[27] Barr in NFT 3/2004.

[28] Brown in NFT 1/2007.

[29] Brown in ISSA review 1/2008.

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Revisiting the Market for Social Insecurity

by Jan Hagberg och Ellis Wohlner

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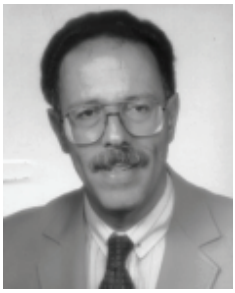

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The Swedish national pension system has been thoroughly revised. The new old age pension system is basically ***earnings-related,*** *but contains a guaranteed* ***minimum pension*** *for those who have no or only a low earnings-related pension. The level of that minimum pension was fairly high when introduced in 1994, though its relative value has already diminished and will continue to gradually, but significantly, do so in the future due to its being indexed according to the cost of living rather than to wage development. The* ***earnings-related*** *scheme consists of two parts, a pay-as-you-go NDC (notional defined contribution) part and a fully funded FDC (funded defined contribution) premium reserve part. We wrote an article on the revised national pension system which was published in the Scandinavian Insurance Quarterly in December 2002 (NFT 2002:4). Many articles written by Swedish and international experts have followed.*

Our original article, "The Market for Social Insecurity", was actually written for and first published on the web site of Nordic News Network (www.nnn.se). This past winter, in light of the subsequent series of articles in NFT and the six years that have gone by, the editor of NNN asked if we would review our article and perhaps write an updated version. After a careful review, we found that the judgements we made in the original article were still valid and that no new version was required, only a follow-up on developments since 2002.

In late April of 2008 we briefly described the evolution of the system *(then vs now):*

- Total administrative costs in percent of total benefits: 0.55 % in 1999 vs **2.18** % in 2006 (0.8 billion SEK in 1999 vs **3.9 billion** SEK in 2006).
- Number of funds in the premium reserve scheme: 700 funds (in 2002) vs **780 funds** (in 2006).

Jan Hagberg and *Ellis Wohlner* are both retired from senior management positions at large Swedish insurance companies. Both are members of the Swedish Society of Actuaries, where Hagberg has served as Chairman, and of the International Actuarial Association. Wohlner is also a member of the (American) Society of Actuaries and of the American Academy of Actuaries.

- Percentage of new savers actively choosing funds other than the "default" fund: 14.1 % (in 2002) vs **8.0** % (in 2006).
- Only **2.7** % of savers changed funds more than once in 2006.
- As foreseen, there is little understanding of the complex new system; a recent public survey reported that only **22** % of the 5.6 million participants even ***claimed*** to understand their individual annual statements.
- Public debate has focused on ways to
  (1) reduce the number of funds in the system,
  (2) improve the pedagogics of the individual statements, and
  (3) introduce mandatory "personal economics" courses in the schools;
  rather than on important basic changes.
- While the "automatic braking mechanism" has not actually hit the system any year, it has been very close to doing so and has only been avoided thanks to a booming economy the past few years. What the reaction will be to reduced pensions when the "brake" inevitably does hit is unknown. The Minister of social insurance when the "brake" was added to the system claimed that it was a tool for almost unimaginable circumstances, such as a war close to Sweden with large numbers of refugees or an extreme global economic crisis, and was only added for the sake of completeness.
- The new system's defined contribution nature makes comparisons very difficult, but various studies have confirmed that pension benefits under the new system are gradually reducing relative to the old system; according to the Swedish Social Insurance Agency, a **drop** of about **10** % in the first 12 years, with further reductions expected.

Also important to note is that the new system was designed for a labor market with "full employment as a political objective", as Sweden had had from the end of World War II until 1990 (unemployment was usually under 2 %), and not for the labor market that Sweden has had since then. The unemployment levels which Sweden has since had, particularly during the 1990's, are permanently reducing future pension levels from the national system for many who will receive pensions calculated only according to the new rules. This is especially so for many younger persons who have had difficulty in getting established on the labor market during these years of much higher unemployment rates (up to 8 % in general, with rates in some years of up to 18 % for those under 25 years of age). These younger people will never be able to work enough to compensate for their early losses of pension rights. A societal problem has been tranformed into an individual problem. Talk of "incentives" is meaningless for those affected, since all they can hope for is the guarantee minimum pension. Scarcely a fair system between generations.

Supporters of the new pension system allege that there is great international interest in the Swedish system, for both the NDC and FDC parts. We can however observe:

1. That there are hardly any economically well-developed countries that have copied the Swedish system. Italy and Germany are usually referred to as examples but they are not really comparable with Sweden. Italy has such a long transitional period that politicians will have time to reassess their positions before anything definite can be said. In Germany, the politicians are forced to make a separate decision on the consequences of the braking mechanism before pension levels can eventually be affected.
2. That major international marketing efforts are being made through the national development assistance agency Sida (Swedish International Development Cooperation

Agency) even to countries that lack the financial infrastructure and/or the overall system structures which would be needed to copy the Swedish system.

Early on in the investigations preceeding introduction of the new system, supporters used wholly unrealistic yields for the FDC-part in order to arrive at acceptable overall pension levels. Unembarassed, they assumed yield levels that over time, and on average, clearly exceed expected growth in the economy as a whole.

A reason for the creation of the national pension system in the United States – Social Security – was that due to the stock market crash in 1929 it was wished to make pensions independent of stock market fluctuations. In today's Sweden, the designers of the new system have instead attempted to make every citizen into a market speculator. But the response has been very negative. Every day can be regarded as a massive gallup poll in which the answer is: "We don't want to!" And the only response from the system's supporters is to reproach the nay-sayers for not taking responsibility for their own pensions! Not surprisingly, the powerful economic interests involved that benefit so greatly from the FDC-part and seriously inflate administrative costs – banks, insurance companies, mutual fund companies, etc – continue to seek an even greater role and strongly resist any reforms that would instead actually benefit the people whose pensions are involved.

The Swedish Insurance Society

The Debate on the Swedish Pension Reform

In 1994 the Swedish Parliament decided on a reformed pension system. The new system gained international attention as a way of creating a viable universal pension scheme. In the wake of the reform an intensive debate commenced about the system in the journal Scandinavian Insurance Quarterly. A debate that is reprinted in this volume.

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