ISSUES IN SOCIAL PROTECTION

Discussion paper

7

The Swedish pension reform

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INTERNATIONAL LABOUR OFFICE GENEVA

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Foreword

This discussion paper series was conceived as a market place of ideas where social protection professionals could air their views on specific issues in their field. Topics may range from highly technical aspects of quantitative analysis to aspects of social protection planning, governance and politics. Authors may come from within the ILO or be independent experts, as long as they have "something to tell" concerning social protection and are not afraid to speak their mind. All of them contribute to this series in a personal capacity – not as representatives of the organisations they belong to. The views expressed here are thus entirely personal, they do not necessarily reflect the views of the ILO or other organisations. The only quality requirements are that the papers either fill a gap in our understanding of the functioning of national social protection or add an interesting aspect to the policy debates.

The ILO believes that a worldwide search for a better design and management of social protection is a permanent process that can only be advanced by a frank exchange of ideas. This series is thought to be a contribution to that process and to the publicizing of new ideas or new objectives. It thus contributes to the promotion of social security which is one of the ILO's core mandates.

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1. Introduction

1.1 Background

The social insurance systems are under debate and questioned in many countries. In the case of Sweden, the debate emerged gradually during the 1980s. When the country entered a deep economic crisis in the beginning of the 1990s the social insurance system came into focus and the debate converted into action. Changes and adaptations of some of the most important social insurance schemes have been implemented and other changes are pending, the most essential one being the implementation of a reform of the pension system. Starting from January 1, 1999 new rules have been implemented. After a long transitional period a completely new system will be in force. During the transitional period rules of the old system and the new one will be applied in parallel.

The old Swedish public pension system comprises of a minimum protection scheme and an earnings related pension scheme. Minimum protection under that scheme is provided in the form of a flat rate basic pension for all citizens and various supplements to those who have no or only a low earnings related pension. The minimum protection is financed by contributions from employers and from the State budget. The earnings related pension is provided for by a pay-as-you-go scheme. This scheme covers earnings up to a certain ceiling. Up until two years ago it was financed mainly by contributions from employers. They paid contributions on their total wage bill without any ceiling.

The old public pension system faced severe problems of financial sustainability. The benefit formula under the old pay-as-you-go-system implies that the pension is raised in accordance with inflation, regardless of growth in the economy. In such a system, when there is low growth in the economy the pension cost as a percentage of GDP is higher than in a situation where there is high growth. Moreover, the baby-boom generation will reach pensionable age early in the next century, and that would aggravate the financial strain on the system, as would the fact that women, who during the 60s and later took up gainful activity and paid contributions, begin to reach pensionable age and draw pensions.

1.2 Pension reform

On June 8, 1998 the Swedish parliament passed a law on a new old-age pension system in Sweden. This decision was a significant step in a very long process. As a matter of fact it started already in the beginning of the 1980s. In the mid 80s the life long widows pension was abolished and replaced with a temporary adjustment pension for both widows and widowers and an improved child pension. In 1994 parliament decided on the basic principles of a new system, principles that have governed the formulation of the new law. Five out of the seven political parties in parliament - today representing about 80 per cent of the electorate - voted in favour of the reform. The new system is being introduced gradually, beginning on January 1, 1999. The first year in which new

pensions will be calculated partly under the new scheme will be 2001. It is not before 2014 that new pensions - for a person born in 1954 and drawing a pension at age 61 - will be calculated based entirely on the new provisions.

The reform is far reaching. The old-age pension system is separated from that for disability pensions. The rules which will govern a new disability pension system are still largely unknown. Only some general principles have been decided upon by parliament.

The new old-age pension system contains an earnings related part and in addition it offers a protection to those who have no or only a low earnings related pension. There is a minimum pension, guaranteed by the State for all residents in Sweden, which is fairly high and in addition there will be various supplements available to those who have no or only a low pension.

The public earnings related scheme will consist of two parts: a pay-as-you-go scheme and a fully funded scheme. The “fully funded” scheme is completely new. The contribution to the premium reserve scheme will be 2.5 per cent of covered earnings and it will offer life annuities based on insurance principles. The pay-as-you-go scheme will be financed by a contribution of 16 per cent of covered earnings.

The pay-as-you-go scheme displays some important new features:

- the benefit formula has been “tightened up” and benefits are based on all earnings over an individual´s career, hence, there is a close link on an individual basis between benefits and contributions;
- indexation rules are linked to wage growth in order to make pensions reflect the development of the contribution base;
- benefits are made dependent on life expectancy, the result being that a benefit drawn at a certain age by an individual belonging to one cohort will be lower than for preceding cohorts if life expectancy has increased;
- a reserve fund will function as a buffer for fluctuation of the age distribution of the population;
- the whole system is designed so as to be financially in permanent balance in order to make it possible to have the same contribution rate indefinitely.

One part of the Swedish reform has been much observed in the international debate. That is the redesigning of the earnings related pay-as-you-go system, the new system being less generous than the old one and containing special features designed to make it possible to have a stable contribution rate indefinitely [1]. At the outset of this report it is important to point out, that the reform of the pay-as-you-go system is only one part of the overall reform. The social consequences of the new old-age pension system as a whole depend to a certain extent on how the new pay-as-you-go scheme

[1] In the international debate the new system is referred to as the ”Notional Defined Contributions” (NDC) concept. Similar systems have been enacted in Latvia and Poland and the new system in Italy resembles this approach. It is for the time being discussed as an option in Russia and in other Central and Eastern European countries.

is arranged but also to a large extent those consequences depend on how other parts of the pension system are designed.

Looking at the new pay-as-you-go scheme in isolation, it could seem as if Sweden has left its traditional focus of supporting those who are not able to support themselves. Looking at the totality of the new system, including the State guarantee, one realizes that is not the case. The effect of a less generous earnings related scheme will be that the protection for those with a low earnings related pension will play a more significant role than it does in the old system. Hence, it is incorrect to refer to the new earnings related pay-as-you-go-system as representing a radically new Swedish Welfare Model[2].

1.3 The aim of this report

The aim of this report is to describe the old pension system and the problems it faced, to describe the new system and to compare both. This latter task is not easy since there are still some parts of the new system which are under consideration. Still pending are proposals about the final design of the indexation mechanism, about the way in which the financial phase-in between the old and the new system shall be accomplished, about the division of contributions between employers and employees and details about how non-contributory periods of higher education shall count towards pension rights. Moreover, both pensions for survivors and the housing supplements need to be adjusted to the new system and, as already pointed out, the new disability pension system has not yet been designed.

The differences between the old and the new systems are so great and so fundamental that comparisons are complicated even from a theoretical point of view.

By describing the new system as it stands, highlighting problems and pointing out what is still missing and what is unclear in the reform itself, it will be possible to contribute to the international debate about the Swedish reform, to inform reform debates in other countries and perhaps also to stimulate some further studies on the new design of an earnings related pay-as-you-go system which comprises the Swedish reform.

Whether or not the features of the new earnings related pay-as-you-go scheme make it a defined contribution system or a "Notional Defined Contribution" system or if it is still basically a defined benefit system is much debated. Perhaps the debate on this point is an illustration of the fact that the terms "defined benefit" and "defined contribution" tend to be outmoded when completely new models emerge. Whichever the "true" definition is, the approach chosen for this report is to use the conventional

[2] There is a difference in the indexation method between the protection for those with a low earnings related pension and the earnings related pension which in the long run might change this conclusion.

pay-as-you-go defined benefit vocabulary in describing the new pay-as-you-go earnings related scheme.

Before going into the details of the new system, a closer look at the old system and its problems sheds light on why reform was necessary. This is of interest also because the old system will influence pensions and the financial behaviour of the old-age pension system during a long transitional period.

2. The old pension system

2.1 Basic features

2.1.1 Benefits

The old public pension system consists primarily of two parts, a flat rate basic pension and an earnings related supplementary pension. Included in this system are also additional benefits and housing supplements for those who have no or a very small supplementary pension.

Under the old system everyone who has lived in Sweden for at least 40 years, or has worked for at least 30 years, is entitled to an unreduced basic pension. The basic pension provides a single person with a yearly pension equivalent to 96 per cent of a base amount. Married persons receive each 78.5 per cent of the base amount. The base amount in 1998 was 36400 SKR [3]. The average earnings of a full-time worker is approximately five base amounts which corresponds to 182000 SKR. The base amount is indexed according to the changes in the cost of living index.

A person who has worked for at least 30 years is under the old system entitled to an unreduced supplementary pension. The annual pension is calculated as 60 per cent of the average earnings, less one base amount [4], during the 15 best years. The earnings that are covered are subject to a ceiling of 7.5 base amounts, which is 273000 SKR. Pension credits earned and pensions paid out are indexed according to the increase in the cost of living.

Certain supplements under the old scheme are paid to those who have no or only a small earnings related pension. Those supplements come in the form of a cash supplement to the pension and a housing supplement:

S the *cash supplement* is 55.5 per cent of the base amount. It is reduced by 100 per cent of the earnings related pension that the person is entitled to;

[3] At the end of 1998, 100 SKR was equivalent to 20.50 DM, £7.30, 10.60 Euro and $12.20 respectively.

[4] The reason for the reduction by “the first” base amount is that the corresponding pension is intended to be the basic pension.

S the *housing supplement* per month is 85 per cent of the housing costs between SKR 100 - 4000. It is subject to an income and assets test [5]. Additional supplements can be granted, depending upon a test of the needs of an individual pensioner.

2.1.2 Financial arrangements

The different parts of the old system have each their own financial arrangements. The *basic pension* is financed partly out of general revenue and partly out of contributions from employers. The same financial rules apply to the cash supplements that are granted to those who have no or only a low supplementary pension. *Housing supplements* are financed out of general revenue. The *supplementary pension* is partly financed by contributions from employers and partly by contributions from employees [6].

The old supplementary pension system is based on the pay-as-you-go financial system, although over the years a reserve fund, equivalent to 5.5 years of supplementary pension payments has been built up. The investment of the reserve fund is the responsibility of four special State fund administrations. The total investments are divided between assets as shown in table 1.

Table 1: Pension Fund Assets at the end of 1997

Type of Asset	*Share of total Fund (%)*
Nominal fixed income bonds	75
Indexed Bonds	9
Equities	13
Real Estate	3

Note: 2 per cent of total investments are in foreign currencies. Around 30 per cent are in government bonds.
Source: Government communication to Parliament 1997/98:163 page 15 (Available only in Swedish)

[5] Basically the reduction is done by 40 per cent of an income between 1.5 base amounts and 3 base amounts and 45 per cent of any exceeding income. As income is also counted 10 per cent of all assets above a very low level, except for a person´s own home.

[6] Up until a few years ago the system was totally financed by contributions from employers based on the total wage bill, without any ceiling. The changes made in these arrangements over the last few years are to be seen as an advance implementation of some of the guiding principles of the overall reform.

2.1.3 Replacement rates

Supplementary pension

As mentioned, the supplementary pension under the old system is calculated as 60 per cent of the average earnings of the 15 best years, less one base amount, provided there is at least 30 years of gainful employment. In the calculation of the pension the registered earnings for each year are indexed according to the increases of the cost of living index.

Since the annual earnings during the reference period of 15 years are not adjusted in line with wages, the real replacement rate compared to the last wage depends on the growth of real wages during the reference period.

The dependence of the supplementary pension replacement rate on the rate of growth of real wages is illustrated in table 2.

Table 2: Replacement rate for an individual as a function of the growth in that persons real wages

Rate of growth	*0 %*	*1%*	*2%*	*3%*
Pension as percentage of the last year's salary	60%	55%	51%	47%
Pension as percentage of the average of the 15 last years	60%	60%	60%	60%

Source: RFV anser 1993:1 page 56. (available only in Swedish)

Calculations in the table are based on the assumption for an individual that there is stable growth in his/her real wages over the last 15 years of his/her working career and that these 15 years coincide with the years with the highest earnings.

The table shows that the replacement rate in the income related scheme as a percentage of the salary of the last year decreases substantially when there is growth in real wages compared to the percentage calculated as a fraction of the average of the 15 best years. The reason for this dependence is obvious. As the earnings from earlier years are indexed according to prices, not to wages, the last year's earnings become higher compared to earnings during earlier years, if real wages increase. The rate of decrease in the replacement rate depends on how much real wages increase for the person.

The influence of the basic pension

Taking into account the basic pension, which is meant to be the pension based on the first base amount of a persons earnings, it is said that the "target replacement rate" for the combined basic and earnings related pension is 65 per cent of income. As described above, the replacement rate for the supplementary pension is dependent on

growth in a persons real wages. The combined replacement rate is dependent on a series of other factors too, the most important ones being:

- as the pension for "the first base amount" is the basic pension with a replacement rate higher than 60 per cent, the total replacement rate is dependent on the total amount of the public pension;
- at low earnings levels the "replacement rate" exceeds 100 per cent, as the basic pension is paid out to every citizen regardless of previous earnings and various supplements are paid out in order to bring the total pension up to a certain minimum level.

The total replacement rate

From the short description above it follows, that the total replacement rate, measured as the first year's total pension with respect to the last year's earnings in the old system depends both on the growth in a person´s real wages over the years prior to attaining the pensionable age and on the size of the pension. In any case, the total replacement rates after a full career were relatively generous compared to pension provisions in other European countries.

One of the declared aims of the reform has been to reduce the replacement rates when there are low rates of growth in real wages for the active part of the population.

2.2 Problems in the old system

2.2.1 Main problems

There are many problems in the old system. The main ones are:

- the dependence between financial performance and economic growth that is inherent in a pay-as-you-go system where revenues are dependent on total wages paid in the economy and the volume of pensions to be paid is dependent on prices and legal provisions, regardless of current economic performance;
- the design of the earnings ceiling for the calculation of pensions, and
- the effects of demographic fluctuations.

These issues are elaborated in the following sections. Some other problems are also mentioned.

2.2.2 Financial dependence on a high level of economic growth

One problem in the design of the old system is that there is an imbalance between the developments in revenues and in outlays. Pension payments are financed out of contributions, based on wages. Pension payments are indexed according to the consumer price index. If the total amount of earnings increase in real terms, then the relative cost of the pension scheme would be lower than if they do not. The increase in

real wages has significantly slackened since the 1950s and the 1960s. As a consequence, the burden on the active population to finance the pension system has become heavier than in earlier decades.

Table 3 illustrates a 1992 calculation, before any changes were made in the old system. It shows that the contribution rate needed to cover the pension costs in the old scheme varies strongly according to growth in real wages [7].

Table 3[8]: Future old-age, disability and survivors' pension costs as a percentage of the contribution base at different growth rates of total real wages [9]

	0 %	*1 %*	*2 %*	*3 %*
1990	22.5	22.5	22.5	22.5
2005	34.3	29.1	25.7	26.9
2025	49.2	33.6	23.8	17.4

Source:RFV anser 1993:1 page 41. (Available only in Swedish.)

With a stable 1 per cent growth in real wages, a contribution rate - or other sources of financing up to the same level- of roughly 34 per cent would have been necessary in 2025 to finance all old-age, disability and survivors' benefits. In the case with a stable growth in real wages of 2 per cent, the costs could be maintained at approximately the 1990 level of 23 per cent of the contribution base.

The other side of the coin is the fact that the replacement rates would become much higher at low rates of growth than at high rates [10]. As a matter of fact the replacement rates became much higher than originally intended when the real growth of wages slackened during the 1970s and the 1980s.

We cannot know today what the growth rates will be in the future. What was established, however, was that the old system could afford the future costs with around 2 per cent real growth of the wage base, since the cost profile at 2 per cent growth does not rise significantly in the long run. This observation is one reason for the design of the new indexation method for pensions [11].

[7] A reason for the big difference between future contributions under different growth scenarios, displayed in the table, is that contributions in the old system were paid by the employer on his total wage bill without any ceiling.

[8] This table illustrates contribution needs for the whole old pension system including disability and survivors pensions. It is inserted in order to illustrate the problems as they appeared at the beginning of the reform process. Therefore, the figures here cannot be compared to the figures in chapter 4.

[9] These are gross costs. Pension income is taxable income in Sweden. The average top rate for pensioners is about 30 per cent of total income.

[10] See 2.1.3.

[11] See 3.3.6.

2.2.3 The earnings ceiling

Another problem in the old system concerns the portion of earnings that are to be covered in the future. The earnings ceiling in the old system is price-indexed, and as a result, if real wages increase, the ceiling for pensionable earnings decreases in relation to wages.

With continued growth in real wages, the earnings of most people will eventually be above the ceiling in the old pension system. With a yearly growth of 2 per cent, a man born in 1980, who during his working life earns an average income, will have reached an earnings level equivalent to an average of 12.7 base amounts during his 15 best years before retirement. A woman born in 1980 can under the same assumptions expect to reach an earnings level of 9.1 base amounts. Thus, if the ceiling of the system continues to be indexed to prices and not to the growth of real wages, a normal supplementary pension would be a fixed amount, based on an income of 7.5 base amounts.

The earnings ceiling would have strongly affected the financial pattern in the future if the old system where to have been retained. With such a ceiling and an annual growth in the economy of 2 per cent or more, the contribution rate needed to cover the expenses for pension purposes would have decreased in the long run. This is due to the fact that an increasing part of the earnings of the working population would not give rise to pension rights, while contributions would be paid on their entire earnings, i.e. including the part of the earnings above the ceiling. Such "excess incomes" for the pension scheme would have offset the cost increases stemming from other sources. A corresponding extra burden would have hit those pension schemes on the labour market that cover earnings above the earnings ceiling in the public scheme.

In the new system, the ceiling will be indexed to the growth of average earnings, and the system will provide the same relative benefit for tomorrow's generation as for today's[12].

2.2.4 Effect of demographic fluctuations

The third key problem in the old system originates from an ageing population and demographic fluctuations. In the year 2000 there will be 30 old-age pensioners for every 100 economically active persons. Twenty five years later this number will have increased to 41. In an unchanged system, this would automatically require an increase of the contribution rate. Contributions must be raised further if average life expectancy increases, but also when cohorts of new pensioners grow for other reasons, for instance as a consequence of fluctuations around a general trend. The latter is the "baby-boom problem".

To cope with a general trend towards higher life expectancies, is quite simple; for

[12] See 3.2.

the same level of benefits either higher contributions or an increase in the retirement age is needed. The new system "solves" this problem by taking increased life expectancy into account in the benefit calculation [13]. This could be expressed as an automatic adjustment of the age at which a "full" pension can be drawn to life expectancy.

In order to handle the second fluctuation problem, reserves (that have been built up over the years in the old system) will be used as a demographic buffer. This will be accomplished by letting the reserves fluctuate [14]. The fluctuations in the size of the reserves are expected, consequently, to be quite significant.

2.2.5 Other Problems

In addition to these key problems there are also other problems in the old system:

- A high unemployment rate eroded the contribution base. As an example, during the period 1990 - 1993 the cost of old-age, disability and survivors' pensions rose dramatically, from 24.5 per cent to about 30 per cent of the contribution base, due to a reduction in the employment level. In the new system, this problem is partly met by a responsibility for the State to pay contributions on unemployment benefits[15]. To cope with employment reduction due to reasons other than unemployment (persons to whom unemployment benefits are paid) an additional indexation feature will be designed [16].
- The link between an individual's earnings, contributions and benefits is weak
  - firstly as the old earnings related pension scheme favours those who have an uneven flow of income, or who have worked a limited period during their active years,
  - and secondly as, various basic pension supplements for those who have not accrued pension credits for an earnings related pension results in many people receiving only a small increase in their total pension as a result of their work in comparison to what they would obtain even if they had not been formally employed at all or had been for very short periods.

Of these two problems [17], the first one is solved in the new system by incorporating all earnings over an individual´s lifetime in the benefit formula. The second one is not addressed, as a matter of fact it seems to be "aggravated" in the new system[18].

[13] See 3.3.6.

[14] See 4.4.3.

[15] See 3.3.3.

[16] See 4.4.4.

[17] It is obvious that labeling these two characteristics of the old system as ”problems” is a value judgement.

[18] See 3.5.1.

2.3 Non public pension schemes

The pension reform does not deal with private or occupational pension schemes. Still, as a description of the background to the reform and the environment in which the new system shall operate, it is interesting to see which non-public pension arrangements exist.

2.3.1 Occupational pensions

There are two main types of non public pensions in Sweden: occupational pension schemes based on collective agreements and individual pension plans.

The occupational pensions are set up by employers or by employers' and employees' organisations together, without any form of State compulsion. In Sweden, practically all employees are covered by an occupational pension scheme. Some are of the defined benefit type, others are of the defined contribution type. Roughly 90 percent of the gainfully employed are members of one of the four major schemes. Apart from those there are a couple of smaller schemes and a few large companies administering their own pension plans.

The ceiling in the public supplementary pension scheme results in a lower compensation rate for high-income earners - the occupational pension schemes fill this gap. They serve as "top-up pensions" for medium- and high-income earners and they will play the same role in the new system.

The occupational pension schemes are voluntary in the sense that they are freely negotiated between the employers' and the employees' organisations, without any interference by the State. On the other hand, employers are bound by collective agreements to pay contributions for all regularly employed persons, regardless of their membership in an employees' organization. From the employees' point of view, the affiliation to the occupational pension scheme is obligatory.

2.3.2 Individual pension plans

In individual pension plans, the customer binds himself to pay an annual contribution for a number of years, or in some plans a single lump sum contribution. Up to a certain limit, today fairly low, the premiums are deductible from taxable income. After reaching pensionable age a yearly amount is paid during the remaining lifetime, or during a certain number of years. The pension plan can include disability and survivors' provisions.

Individual pension plans were subject to an increased product differentiation during the 1980s. There seems to be a desire for means of supplementing the pension coverage provided by the public and the occupational pension systems. Under the new pension system most probably this interest will increase.

3. The new system for public pensions in Sweden

Like the old system, the new one is a compulsory national scheme.

The rules governing the minimum protection as well as those for the earnings related part have been completely redesigned with respect to the old system. The minimum protection [19] will be offered as a State supplement, to be paid out to those who have no or only a small earnings related pension. The income related pension will be financed by contributions [20] and will consist of two parts, one from a thoroughly reformed pay-as-you-go system [21] and the other from a new funded scheme [22].

3.1 Minimum pension supplements

The old basic pension is abolished. In the new system it is replaced by a fairly high minimum guaranteed level. As in the old system, various income tested supplements will be available. The costs of the minimum pension will be financed out of general revenue.

3.1.1 The guaranteed level for the public pension

The State pays a supplement, equivalent to the difference between a guaranteed level and the earnings related pension a person is entitled to. All citizens who have lived in Sweden at least 40 years are entitled to this supplement. It is reduced on a pro rata temporise basis for those who have lived less than 40 years in Sweden [23].

For a single pensioner without any earnings related pension, the maximum supplement is equivalent to 2.13 base amounts. In 1998 that was 77532 SKR. The supplement is reduced when a person is entitled to an earnings related pension as table 4 illustrates.

[19] See 3.1.

[20] See 3.2.

[21] See 3.3.

[22] See 3.4..

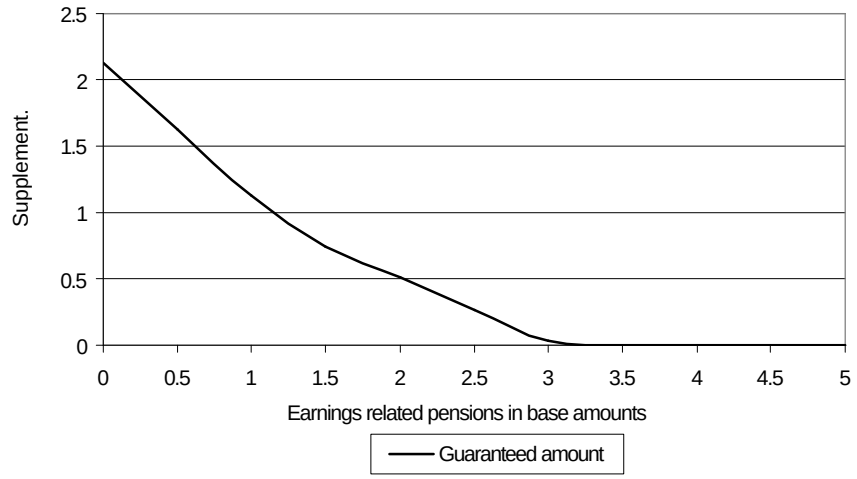
[23] The reduction is made in proportion to the number of years missing from 40.

Table 4: The reduction formula for the minimum pension guarantee [24]

Earnings related pension	*Supplement reduction*
0<pension<1.26 base amounts	100 per cent reduction
1.26 base amounts<pension<3.07 base amounts	48 per cent reduction
pension ≥3.07 base amounts	no more supplement

In graph 1 the amount of the supplement is illustrated as a function of the earnings related pension that an individual is entitled to.

Graph 1: **Supplement, measured in base amounts, as a function of the earnings related pension**



The graph illustrates that some small additional supplement is paid to an individual even if he or she is entitled to an earnings related pension of as much as three base amounts.

The guaranteed level is price indexed. If wages grow in real terms and the guaranteed level is not adjusted accordingly, then the level of the protection that the guarantee provides successively decreases compared to wages. The long-term effect would be that the earnings related part of the pension would gradually become more and more important. Such a shift would entail a significant change in Swedish welfare policy. Such a shift has neither been subject to any public debate, nor is there any clear indication on the matter in the Government Bill. As the supplement is financed out of general revenue, it is reasonable to assume that it will be considered to be a part of the general welfare arrangements and be subject to continuous political review in the same

[24] In this calculation, the pension from the funded scheme is calculated as if the rate of return on investments had been the same as growth in the economy, measured by the growth in average real wages. The reason for this is that differences in investment returns due to the individual's choice of funds, should not be eliminated by corresponding differences in the guaranteed supplement.

way as other parts of those arrangements. In all, the role that the guaranteed supplement will play for pensions in the future will depend on real wage growth and political preferences.

3.1.2 Housing supplement to pensioners

Today certain supplements are paid to those who have no or only a small earnings related pension. In the new system a housing supplement will be retained, the design of which is still under investigation. The intention is that it should not be smaller than it was previously [25].

3.2 The earnings related pension; contributions

The earnings related pension consists of a pay-as-you-go part and a fully funded premium reserve part. Those two separate schemes will be financed by contributions totalling 18.5 per cent of covered earnings. The covered earnings will be subject to a ceiling that is approximately 50 per cent above the average wage level for an industrial worker in full-time employment.

Out of the total contribution of 18.5 per cent, 16 per cent points will be set aside for the pay-as-you-go earnings related system. The contribution to this scheme is meant to be stable indefinitely and indexation rules and other features of the scheme are designed to make this possible.

The remaining part of the contributions, 2.5 per cent points, will finance the fully funded scheme, called the “premium reserve scheme”.

The pensionable earnings ceiling will be indexed according to wages. The same ceiling will be introduced for contributions. This is an important difference compared to the old system, where the pensionable earnings ceiling was indexed according to prices and there was, until a few years ago, no ceiling for the contributions from employers. Contrary to the situation in the past, where the employer paid the entire contribution, half of the contribution will be paid by the insured persons themselves and half by their employers [26].

There will be pension rights in the earnings related schemes not attributable to any earnings at all (i.e. child birth, studies) or to earnings for which contributions have not been paid by the employer (i.e. unemployment benefits) [27]. The State will pay all or part of the contributions, to both the pay-as-you-go scheme and the premium reserve scheme, needed to finance pension rights that arise from periods of sickness or disability, unemployment, child care and studies. Hence, this particular part of the

[25] See 2.1.1.

[26] This is a matter where final decisions are still pending. Due to stiff opposition from unions the decision has been delayed.

[27] See 3.3.3.

"social dimension" of the pension system is made transparent by separate financing.

3.3 The pay-as-you-go earnings related pension

In the pay-as-you-go earnings related scheme a pension right of 16 per cent of insurable earnings is credited to the individual [28]. The main characteristics of this scheme are that:

- the contribution rate is meant to remain unchanged indefinitely and hence all contributions paid throughout a career give rise to the same amount of pension credits;
- the benefit is based on lifetime earnings, subject on a yearly basis to a certain ceiling;
- certain periods with social security benefits or without earnings give rise to pension rights, partly financed by the State and partly by the individual;
- pension rights are indexed according to average wages and accumulated during the entire career;
- the retirement age for an individual is flexible after age 61;
- the pension amount is dependent upon a cohort's average life expectancy and on the individual age of retirement;
- pension benefits are indexed in relation to growth in average wages minus 1.6 per cent;
- there will continue to be a reserve fund in the pay-as-you-go system, serving as a buffer for demographic fluctuations.

The main differences between the old and the new pay-as-you-go earnings related system are that in the old system, benefits are based on a fairly short reference period, whereas the new system bases benefits on all earnings during the full working career. In the old system accrued pension rights and pensions are indexed to prices. In the new one accrued pension rights are indexed to wages and pensions are indexed to a modified wage index. The old system does not adjust benefits to changes in life expectancy, whereas the new one does. The way in which benefits are calculated in the new system relates benefit amounts more closely to individual contributions and to the pension system's ability to pay.

3.3.1 Constant contribution rate

The point of departure for the reform process was the problems in the old system[29], the focal point being; How can a pay-as-you-go defined benefit system be designed to be financially stable in the face of fluctuations in demography and economic growth?

[28] Contrary to what has been stated in various documents it is not the contributions that are registered. See 4.4.1.

[29] See 2.2.

By linking pensions to the growth of earnings, indexing the pensionable earnings ceiling to wages, linking the pensionable age to life expectancy for each cohort and using the reserve fund as a demographic buffer, it appears that it will be possible to achieve a constant contribution rate for the Swedish pension system, for a fairly broad range of different growth rates and various demographic fluctuation patterns, while retaining the basic pay-as-you-go system and offering adequate pensions. As will be described in the following sections, the focus has gradually changed during the reform process to the idea that the design of the system should be such as to guarantee a fixed contribution rate indefinitely, regardless of every conceivable change in the environment.

3.3.2 Coverage related to lifetime earnings

All earnings under a certain ceiling over an individual´s working career, starting at age 16, are used for calculating the pension. This is a radical shift from the old system.

The fact that the size of the pension depends on lifetime earnings indicates a radical change of opinion about what is considered socially acceptable. The risk of an inadequate benefit level stemming from an uneven flow of earnings over a lifetime is switched in principle from the State to the individual, but mitigated by the effect of the guaranteed minimum pension.

3.3.3 Pension rights for periods with social security benefits or without earnings

Pension rights will be granted for certain periods without earning from gainful activities. Contributions will be paid in full, either by the State or by the State and the employee together[30]. These pension rights fall into two categories. One refers to periods with social security cash benefits, the other one refers to certain activities without remuneration or where the pension rights are calculated based on other criteria than the remuneration.

All social security benefits give rise to pension rights, based on the benefit itself.

The individual pays a contribution equal to the employee's contribution. The State pays a contribution equal to the employer´s contribution [31].

The social security benefits that fall into this category are:

[30] Hence, contributions of 18.5 per cent will be paid for such periods. Of these, the individual will be credited with 16 per cent points as pension rights in the pay-as-you-go scheme and 2.5 per cent points in the premium reserve scheme.

[31] This fact is of great importance for the financial sustainability of the system. Absence from gainful activity due to any cause that gives right to a social security benefit does not exert any strain on the system, as contributions are paid for the corresponding pension rights.

- sickness cash benefits;
- parental cash benefits;
- care allowances;
- unemployment benefits;
- certain kinds of educational grants;
- work injury benefits.

Disability pensions also belong to this category. How periods with disability pensions are to be counted towards pension rights has however not yet been decided.

Three different types of activities fall under the category of credit periods without remuneration. These are child care, military service and education above a certain level. The State will pay the total contributions for such periods.

In Sweden one of the parents [32] will be automatically credited with child-care pension rights. Such rights will be calculated according to the most favourable of the following three calculations:

- a credit supplement up to the individual´s own earnings in the year prior to childbirth;
- a credit supplement equal to the difference between the individual´s own current earnings and 75 per cent of average earnings with the pension scheme during that particular year;
- a credit supplement consisting of a fixed amount. For 1999 it will be 36400 SKR. This sum will be indexed in line with wage increases [33].

Each alternative is targeted to a specific type of recipient. The first replaces own earnings for a person who leaves his or her job after childbirth and is wholly or predominantly at home. It also provides a supplement for someone who works less than prior to childbirth. The second covers parents without earnings immediately prior to childbirth. The third provides an extra supplement after the return to work - thus not discriminating against those who return sooner (in Sweden mothers usually return after 8-12 months) with earnings equal to or higher than those prior to childbirth.

For each child [34] four years of pension credits, according to the most favourable of the above three alternatives, are granted.

Conscripted military service, provided the time of service is above a certain number of days, will give pension rights equivalent to 50 per cent of average earnings reported to the pension scheme during that particular year. Years in higher education will also give rise to pension rights, the extent of which have not been decided yet.

[32] There is a set of rules regarding which is the parent who should be entitled to the benefit.

[33] The same index as is described in 3.3.4.

[34] If there is more than one child under four years of age at the same time, only one grant is given for that particular time.

3.3.4 Pension rights are credited with inherited gains indexed and accumulated

Pension rights are registered annually. To the rights directly stemming from the pensionable earnings of an individual are added inherited gains, i.e. the accumulated pension rights of those in a cohort who have died during the year which are distributed among those in the same cohort who have accumulated pension rights [35]. The total is continuously indexed each year to reflect wage increases. The result is that for each given year there is, for each individual, an accumulated sum of pension entitlements which is calculated. It is this sum that is the basis for calculating a pension when a person retires

The index is based on the growth of average earnings [36]. Such an index will have the effect that when there is an increase in the average real wages, the value of the accumulated pension rights will increase in real terms, and if there is a decline in the level of average real wages, the value of the accumulated pension rights will decrease accordingly. The reason why the growth of average earnings rather than the sum of earnings is used as the basis for the index is the wish to let pension rights grow simultaneously to earnings of the gainfully employed [37].

3.3.5 Flexible retirement age

Everyone will, as previously, be entitled to draw an old-age pension at age 61. Starting in the year 2001, regulations concerning flexibility in retirement age will be changed significantly.

Pensions may be taken out as a full pension or a partial pension. The later a pension is drawn, the higher the annual pension will be. This upward adjustment is implemented on an actuarial basis. Pensioners are able to interrupt the receipt of a pension temporarily, for example if they return to gainful employment for a period of time. Earnings from such a period will be subject to contributions and give rise to additional pension rights which will increase the amount of the pension when pension payments are resumed.

3.3.6 Pensions

The pension of the first year is obtained by dividing the accumulated pension rights, calculated as described above, by an annuity factor. Pensions are indexed annually according to certain rules. The way in which the annuity factor is established and pensions are indexed is crucial for the operation of the system. In this section a

[35] For a person born in 1954 and drawing a pension at age 65, the total gain has been estimated at around 8 per cent of accumulated entitlements without such gains.

[36] The total earnings used in the calculation in a given year, are measured as the sum of all earnings reported as pensionable earnings and the sum of early retirement pensions. The average is calculated using the total number of people reporting such incomes.

[37] Resulting problems for the financial sustainability of the system are discussed in 4.2.

general description is given and the computation rules are described in more detail under “The pension calculation” section.

The key objective for establishing the annuity factor and designing the indexation rules is that pension payments shall be linked to the system´s ability to meet its obligations at a stable contribution rate. To obtain financial stability, certain interdependences between the annuity factor and the rules for the annual adjustment of pensions must be observed. Primarily two measures are implemented:

- life expectancy is the key element in the determination of the annuity factor. This means, firstly, that a growing life expectancy reduces the pension amounts(at the calculation date); secondly that the individual´s age of retirement is taken into account when a pension is calculated;
- the pensions are linked to the development of average wages [38]. For certain reasons a deviation from a straight wage indexation, where the annuity factor would simply be equal to the remaining life expectancy of a new pensioner, is introduced. This, however, as will be explained further on, does not affect the financial equilibrium.

The effect of the introduction of wage indexation is that in case of real growth in wages pensions will grow more than under price indexation. Should real wages decrease, pensions will be lower than they would be in case of price indexation. This is a fundamental change compared to the former system where pensions were price indexed.

A result of switching from price indexation to wage indexation is that there is no guarantee that pensioners will be fully compensated for inflation. This is one key feature of the reform, whereby pensioners share, with the active population, the risk of poor economic performance [39].

In the design of the indexation mechanism there has been a second objective to meet, that is that the pension of the first year should be made higher than what it would have been under a straight wage indexation mechanism without raising the overall costs of the system. This is brought about by deviating from a straight wage indexation. The result is a reallocation of total pension payments, while retaining the present value of total payments for an individual who lives as long as the estimated remaining life expectancy. The technique used is to reduce the annual adjustment with respect to real wage increases by a certain "norm", the resulting index is called the "economic

[38] The wage index that is chosen, i.e either the development of the sum of earnings or the average earnings, is of importance to the financial stability. Problems related to the choice of the index in the Swedish system (i.e. the average wages) are, as already mentioned, discussed in 4.2.

[39] In the past, when economic recessions have put the pension system into problems, there have been certain ”manipulations” with the indexation formula that have achieved the same result.

adjustment index", and to use the resources freed thereby to increase the initial pension[40].

The pension calculation

The accumulated pension rights at retirement are divided by an annuity factor, calculated on the basis of the principles described above [41]. This calculation produces the annual pension of the first year from the pay-as-you-go scheme in the reformed system.

The three elements that determine the annuity factor are established in the following way:

- a "norm" real rate of return: the "norm" is a 1.6 per cent increase in average real wages[42];
- remaining life expectancy at age 65 for a birth year cohort: at present the average remaining life expectancy at 65 is 18 years;
- age at retirement: the remaining life expectancy for an individual is dependent on his or her age. The annuity factor is adjusted accordingly.

Once a pension is established it is indexed annually, taking into account the growth in average real wages as well as the "norm" real rate of return.

The norm

As already pointed out, the introduction of a "norm" in the annuity factor comprises a redistribution of payments over time but does not influence the expected present value[43] of the total pension payments for a pensioner who lives as long as the expected

[40] The "norm" used comes into the annuity factor as an imputed real rate of return.

[41] The annuity factor is calculated in the following way:
$An = \sum_k \sum_x P(k,x)F(n,k,x)/12$ where
An= Annuity factor for a person who retires at the age n years (and 0 months)
P(k,x)= Probability for a person who has reached age n to be alive at age k years and x months
F(n,k,x)= Discount factor from the age k years and x months to the age **n** years.
The division with 12 reflects the fact that the expression to summarize represents monthly payments while the annuity factor produces the annual pension.
The sums go **over x** from 0 to 11 which represents the 12 months in a year, **over k** from n(that is the age when a person retires) to ∞ which represents the whole set of probabilities for a person who has reached age n to remain alive at a certain age above n years of age.
In this formula F and P have the following expressions:
$F(n,k,x)=1.016^{\{(n-k)-x/12\}}$, where 1.016 represents the norm 1.6 per cent
$P(k,x)=\{L_k+(L_{k+1}-L_k)*x/12\}/L_n$
where L_k is the number of surviving people at age k.

[42] The average real wages are calculated as described in 3.3.4.

[43] Measured by annual pensions discounted with the growth in the income index.

remaining life for his or her cohort. Still, the choice of the norm is of great importance. Some of the effects deserve to be mentioned [44]:

- a high norm would mean high initial pensions that stand a relatively high risk of being reduced, when earnings growth does not meet the norm. Conversely, a low norm would mean low initial pensions which have a relatively high probability of being increased annually as earnings growth exceeds the norm;
- the norm affects the distribution of pensions between pensioners. Obviously, a person with a low life expectancy gains from a high norm, as such a norm redistributes pension payments towards the first few years of the pensioner's life as a beneficiary.

Pensions will be adjusted annually by the increase in the CPI and the increase in average real wages less 1.6 per cent points. The norm is introduced in the law itself and it is not intended that it will be changed in the future. In the beginning of the reform process the norm, its value and the concept of economic adjustment indexing stemmed from discussions on which rate of growth in wages was needed to make the old system financially stable. Once established in the new system, though, the norm has the sole function to bring about the redistribution of payments over time, here described.

If average real wages increase by the level of the norm then pensions will be adjusted exactly by the inflation rate. Should the growth in average real wages be permanently higher than 1.6.per cent then the rate of increase of pensions in payment will be permanently higher than the change in the cost of living. Should the growth of average real wages be permanently lower than 1.6 per cent, then the pension for an individual over his or her years in retirement will be successively reduced in real terms.

An example may illustrate the above.

[44] See section 3.6 about the use of the economic adjustment index in the old system.

Table 5: The economic adjustment with a norm of 1.6 per cent

	Growth = norm %	High growth %	Low growth %
Average rate of nominal wage increase	4.7	5.4	3.7
Rate of price inflation	3.1	3.1	3.1
Average rate of real wage increase	1.6	2.3	0.6
Deviation from the norm 1.6%	0	0.7	-1
Pension adjustment = economic adjustment index	3.1	3.8	2.1

Source: Government information on the new pension system, available from the Ministry of Health and Social Affairs in English, French, German and Spanish

Life expectancy

The average life expectancy used for a cohort is not really a projection for the cohort itself. Instead the basis for the calculation is the mortality patterns for ages 65 and over during a five year period preceding the date of retirement. Based on such figures, mortality tables are established. Those tables are fixed for a birth year cohort and they are not changed even if real mortality turns out differently. For people drawing their old-age pension before 65 years of age preliminary mortality tables will be established.

By using such an estimation, disputes over assumptions and their accuracy are avoided[45].

A higher average life expectancy for a cohort will lead to an increase in the size of the factor for that cohort compared to preceding cohorts. Put simply, this means that the longer people live, the smaller the annual pension, drawn at a certain age, will be. An increase in the factor by 0.1 units requires about an extra months work before retiring to offset the negative effect on the annual pension amount. The effect is further illustrated in table 6.

[45] About resulting problems for the financial stability of the system see 4.2.2.

Table 6: Factor at 65 years of age at certain future points in time [46]

Year	Factor at age 65
2000	15.4
2010	15.7
2020	15.9

Source: Government information on the new pension system, available from the Ministry of Health and Social Affairs in English, French, German and Spanish

The way in which the factor is calculated means that as life expectancy increases, there is a built in incentive to work longer or to save more prior to retirement or both or to accept a lower annual pension [47]. In practical terms this means that the "normal pensionable age" is “indexed” in accordance with life expectancy.

Age of retirement

The effect of the age at which the pension is drawn can be illustrated by an example. Let us assume a person who retires at age 61 and has accumulated pension rights totalling 1.5 million SKR, including inherited gains. With a divisor of 18.2, that person would receive an annual pension of 83800 SKR. With continued full time employment more pension credits would be earned. At the same time the size of the factor is reduced since the expected time in retirement for this individual is shortened when the withdrawal of the pension is postponed. The result is indicated in table 7.

[46] The calculation is based on the 1994 demographic projections.

[47] Which effect is the greatest is much debated. There are many who believe that the incentive (or the opportunity) 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. Others think that the design of the pension in the long run will strongly affect attitudes and opportunities in society.

Table 7: Annuity factor and pension as a function of the age at which a pension is drawn[48] (with an initial capital of 1.5 million SKR and an assumed annual increase of real wages of 1.6 per cent)

Pensionable age	*Annuity factor*	*Pension per month SKR*	*Per cent of pension at 65 %*
61	18.2	7000	72
62	17.6	7600	78
63	17.1	8200	84
64	16.5	8900	92
65	15.9	9700	100
66	15.3	10600	109
67	14.7	11600	119
68	14.2	12700	130
69	13.6	13900	143
70	13.0	15300	157

Source: Government information on the new pension system, available from the Ministry of Health and Social Affairs in English, French, German and Spanish

3.4 The fully funded "premium reserve" pension

Two and a half per cent of pensionable earnings is set aside and transferred into a fully funded pension system. This part is administered separately from the pay-as-you-go system. Private and public fund managers will be available. The rest of the administration and the insurance function of this sub-system is under public responsibility. The scheme has the following characteristics:

- contributions represent 2.5 per cent of the pensionable earnings including for certain periods with social security benefits or without remuneration [49];
- a State Insurance Authority is fully responsible for all functions in the scheme, with the exception of the investment funds;
- contributions are accumulated in one or several funds which the individual chooses;
- there can be both private and State funds;
- the amount in the funds increases by the investment yield on the savings which are deposited;
- the pension is determined by conventional private insurance principles.

[48] The example is based on the 1994 demographic projections. It illustrates the situation as it turns out for a cohort that reaches age 65 in the year 2020.

[49] See 3.3.3.

3.4.1 Public responsibility and private funds

A Government body, named the Premium Pension Authority (PPM), is responsible for the “premium reserve scheme”. The law states that this authority shall conduct its work "according to insurance principles", which means that it should follow the rules applicable to private insurance companies.

The management of individual funds during the period before retirement shall be entrusted to fund managers of the individual’s choice or, if the individual does not choose a fund, to a separate State fund. It is the State authority that, on behalf of the individual, handles the relations with the funds.

Pensions can be drawn only as life annuities. These can be of two types, one is a traditional life annuity with a guaranteed amount, the other annuity is of a unit link type. When a person chooses the first type of annuity it must be based on all accrued pension rights and the corresponding assets shall be switched over to the Premium Pension Authority, which is the only provider of annuities in the system. In the case of the unit link type of pension, the assets on which the calculation of the annuity is based will continue to be managed by funds of the choice of the individual or by the separate State fund for those who do not choose anything.

Funds that are to participate in the scheme must be registered with the Premium Pension Authority. Such funds must comply with a set of requirements. Such a fund shall:

- be entitled as a fund manager in Sweden according to the special law for such funds;
- have concluded an agreement of cooperation with the Premium Pension Authority;
- have agreed to disclose certain information;
- have agreed not to levy any charges when fund shares are withdrawn;
- have agreed not to levy any other charges than such accepted by the Premium Pension Authority;
- have agreed to report and specify on a annual basis to the Premium Pension Authority all costs levied on the fund.

3.4.2 Why a premium reserve system?

There are a whole range of questions regarding the financing of a public pension system on a funded basis. One question concerns the role of a funded pension arrangement in the economy. Others concern the proper functioning of a funded system.

The international 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 arguments concerns questions about the impact of funded pensions on savings and investments, and on growth of the economy. The debate is not conclusive.

A second line of arguments among economists concerns whether different pension management institutions can have a positive impact on economic growth for reasons not directly related to their effect on national savings. The issue is the relative advantage of relying primarily on the banking sector as the source of capital for a nation´s private business enterprises (the traditional practice in Japan and continental Europe) as opposed to relying on independent financial intermediaries and equity markets (the traditional practice in the United States and the United Kingdom). Independent financial intermediaries are said to be more receptive to financing new enterprises and imposing financial discipline on older, possibly inefficient enterprises. On the other hand, they are also said to have an undesirable short-term preoccupation in their financial decision making.

A third line of arguments concerns the need to diversify risks. As there is no certainty about what kind of system, the pay-as-you-go or the funded alternative, is the best protection against diverse economic and demographic risks, it is worthwhile to use a mix of the two approaches, and that is the considered core of this opinion.

A fourth line of arguments concerns the desire to let private entities administer pension schemes and manage the investment of funds.

In the discussions about the Swedish reform some reasons in favour of a funded component with similarities to private insurance are mentioned. Enhanced private savings, greater personal involvement, greater security of the assets of the individual and a smaller dependance on public pension funds are among such reasons. All the same, there is no conclusive indication given as to why the system is designed as it is. Probably this indicates that there was and is no consensus about the reasons, and that the result was a pure political compromise.

3.4.3 Administration

When it comes to the issue of how a funded system functions, there is a whole range of questions to deal with. In this field too, international debate is intense. It is generally agreed that for a funded, mandatory, privately managed system the State must put in place suitable regulatory mechanisms and furthermore that the State must closely supervise the system. Failing this, the administrative as well as other costs for the system could be very high and the risks involved for the individual could exceed acceptable levels.

Generally speaking, the administrative costs of funded systems where competition is allowed seem to be higher, sometimes much higher, than in a mandatory pay-as-you-go system. This depends upon a variety of factors such as the cost of the development of insurance products and of marketing. There are international examples of marketing activities that have caused severe and well-founded criticism. Furthermore, it is important to point out that there are great economies of scale in unified pension systems that cover a whole population. Such schemes are mostly publicly administered.

The question about the level of risk that individuals should be exposed to is an essential one. In the debate it is sometimes stated that people should be fully responsible for themselves and thus they should freely choose in which fund their money should be put. This is not entirely satisfactory. In a mandatory system the individual is not free to decide for him or herself whether to save money at all. This fact causes concerns about what risks members should be exposed to. Should a certain maximum risk that a fund is allowed to be exposed to be stipulated? Should there be State guarantees for minimum profitability of a fund or at least a State guarantee against insolvency? Should foreign investments be allowed?

Another set of questions concerns the transparency of the management and the investment policy of a fund. To what extent should the individual be informed about the management of the fund, its costs and investment policy?

In order to cope with some of the concerns mentioned here the Premium Pension Authority has been given the authority by law to conclude agreements with private fund managers[50]. The Premium Pension Authority has designed a model for the administration of the funds that would substantially reduce administrative costs compared to traditional fund management. So far, however, no agreements have been concluded with any private fund manager.

It should be noted that people are allowed to change funds whenever they want and that they can divide their assets between funds. This can result in high marketing costs and high transaction costs for the system. Furthermore, there are no significant restrictions proposed for the investment activities of the funds compared to the general regulations to which every investment fund in Sweden is subjected. There is no guarantee against bankruptcies nor any guarantee of a minimum rate of return. The individuals themselves need to bear the risk [51].

3.5 Total pensions in the new public system

3.5.1 The combined effect of the minimum protection and the earnings related pensions

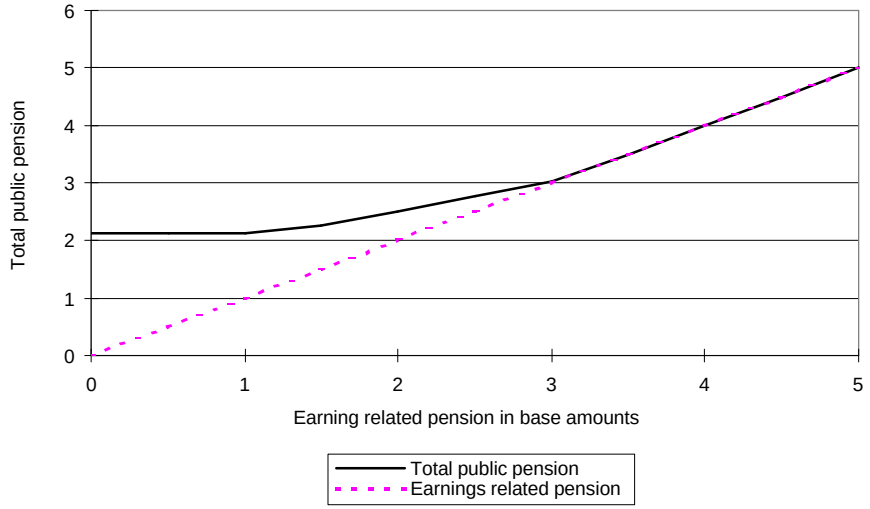
It is interesting to see the combined effect of the minimum pension and the two earnings related schemes. The key question in the comparison of the old and the new system is: what pension will an individual receive given a certain earnings history? First, the effect of the minimum pension guarantee is illustrated in graph 2.

[50] See 3.4.1.

[51] The fact that Sweden has fewer regulations concerning investments than many other countries might reflect several factors: (1)The Swedish premium reserve scheme is comparatively small; (2) Sweden has a large pay-as-you-go, defined benefit scheme; (3) Sweden has well developed capital markets and consumer protection traditions which reduce the need of regulations specially designed for this scheme.

Pensions are measured in 1998 base amounts [52]. The pension from the funded premium reserve scheme is calculated as if the rate of return on investments is the same as growth in the economy, which is assumed to be equal to growth in average wages. The calculation is based on the 1998 level of average wages.

Graph 2: **Total public pension as a function of the earnings related pension**



The graph illustrates the result of the addition of the guaranteed amount to the earnings related pension. The guaranteed amount payable at different levels of earnings related pension can be seen in the graph as the difference between the solid line and the dotted line.

It is the guarantee that constitutes the State responsibility for the level of old-age pension for its citizens. From what has been described, it follows that in the new Swedish system, as in the old, the basic protection is of great importance [53]. This will be even more obvious when the new housing supplement, which has not yet been designed, is added to the total. Then the relative importance of the earnings related part of the pension will be even smaller.

3.5.2 Comparing replacement rates

As the new system is fundamentally different from the old one it is not meaningful to try to make a simple comparison between replacement rates. Instead, a whole series of scenarios need to be displayed, and it is beyond the scope of this report to show them.

[52] The same base amount as in the old system (described in Section 2.1).

[53] It is not entirely clear, that this conclusion holds in the future. The calculations here are based on the current relation between wages and prices. As is described in 3.1.1 the guarantee is price indexed. If real wages increase and the guaranteed level is not adjusted in real terms, then the guarantee is successively phased out.

Some general observations, though, are of interest:

- the new system is designed not to cost more in relation to the contribution base than the old one would have done at a growth rate of average real wages of about 2 per cent per year. Hence, at lower growth rates, the new system, on average, must give lower pensions than the old one would have done;
- at high growth rates the new pension system tends to give higher pensions than the old one would have done;
- the new system takes lifetime incomes into account while the old one was based on a fairly short qualifying period. As a result, those who have a long working career with stable incomes, gain by the new system as compared with the old one;
- the new system adjusts the level of initial pensions between cohorts so as to take increases in life expectancy into account. Hence, when life expectancy increases, the level of the pension at a certain age decreases. In other words: the normal pensionable age is automatically adjusted when life expectancy changes. This is another feature of the new system that reduces pensions compared to the old system, hence making it financially more sustainable;
- under certain assumptions the break-even point (i.e. the point where new pensions are equal to or higher than old ones) in the comparison of the replacement rates between the old and the new systems for a person with average earnings is said to come after 42 years of employment [54].

3.6 Transitional rules

Changes in basic principles for old-age pensions as radical as the ones described here cannot be introduced without a long transition period. People have planned their retirement on the assumption that pension promises will be fulfilled. Therefore, the new pension system will be introduced successively over a 17 year-period for persons born from 1938 up to 1954. For a person born in 1938 the pension will be the sum of 4/20 of what the rules in the new system should give and of 16/20 of what the rules in the old system should give. For a person born in 1939 the factor will be 5/20 in the new system and 15/20 in the old system. And so on, for each younger cohort the fraction used in the old system decreases by one while the fraction in the new system increases by one. Persons born before 1938 will remain in the old system and persons born in 1954 and later will be entirely in the new system. A consequence of the transitional rules is that the financial behaviour of the pension system will for a long time be dominated by the rules governing the old system.

Some changes are introduced in the old system too. The same indexation formula for pensions as in the new system [55] will be introduced also for pensions that have

[54] The calculation is made for a person who has been working 42 years with earnings that develop as average earnings with the exception of the last five years before retirement, when earnings follow the rate of inflation only. Two percent growth in average real wages is assumed. The average life expectancy is assumed to remain at its 1997 level.

[55] See 3.3.6.

already been granted under the old system. As a consequence, such pensions will be lower under the transitional rules than they would have been under the old rules if the growth in average real wages is lower than 1.6 per cent. If it is higher, the pension will gain in value correspondingly. It is important to note that the pensionable age in the old system is not raised and no indexation of the pensionable age in relation to life expectancy is introduced.

It is also of interest to note to what extent rules in the new system are applied retroactively, i.e. to what extent will pension credits in the new scheme be applied for years before its introduction (1999). The general rule is that such rights are established for earnings from gainful activities and from social security benefits in the same way as in the future. The same applies to child care credits. Disability pensions will also give pension rights for earlier years. Pension rights for conscripted military service and for higher education from 1995 onwards will be credited under the new rules.

For years before 1995 pension rights of the kind described here will be established only in the new pay-as-you-go earnings related scheme. From 1995 onwards such rights will be established also in the premium reserve scheme.

4. The economy and pension expenditure. The financial sustainability of the new PAYG scheme

4.1 The pension system and the economy

4.1.1 An overview

The sustainability of a public pension program depends to a large extent on how it supports the elderly and how big a share of GDP is spent on it. How well it supports the elderly is partly dependent on which provisions there are for old-age care and for health care for the elderly.

There are no explicit calculations published about future macroeconomic scenarios or about the distribution of consumption between the active population and the elderly or about in kind public provisions for the elderly and the development of cost sharing in that respect. Instead, these considerations are of an implicit nature. They have been described in this report. The following points are important:

- the way in which pension rights are established and pensions are calculated and indexed is intended to keep the development of public pension costs in line with economic growth, i.e. the pension share at GDP should on average in the long run remain approximately constant;
- the way in which replacement rates are established and the minimum guarantee is designed reflects a judgement on what is a fair standard of living for the elderly. It implicitly also reflects the opinion that in the future people should take on a greater responsibility for their old-age security.

A problem is that these types of general descriptions of intentions do not make it possible to judge what will be the effect on the "standard of living" of retired persons under different demographic development and economic growth scenarios, on the division of GDP between labour costs and gross profits, on the development of non wage labour costs, on inflation rates and so forth.

The financial base for minimum protection will be general revenue. The financial burden on the State budget will be dependent on how average real wages develop. If average real wages increase and the guaranteed level is not adjusted in real terms, then the need for State financing decreases.

The financial base for the earnings related schemes are contributions based on the sum of wages and certain other earnings. How this financial base is linked to the overall economy depends upon the division of GDP between different types of income. There is no direct link in the pension system itself to reflect possible changes in these parameters. No explicit analysis of this issue has been published.

From the State budget comes contributions corresponding to the social security benefits and certain other types of pension rights. Once the transitional arrangements between the State budget and the pension system are settled, the strain from the earnings related pension schemes on the State budget originates from the development of those benefits. Those benefits are handled in the calculation model that will be described in the following section. From that description it follows, that State contributions are not separated from other sources of contributions. The strain on the State budget under different scenarios of development of State contributions has not been studied.

The strain on the finances of the pay-as-you-go earnings related pension system comes primarily from weaknesses that can exist in the balancing system, i.e. in the combination of calculation rules, indexation mechanisms and size of reserves. The calculation model offers data suited to study those kinds of effects. The funded premium reserve scheme follows conventional insurance principles. There is no discussion about the financial strength of that scheme.

The following sections describe some financing projections that were undertaken when the impact of the new system was discussed.

4.1.2 The model used for calculations

The model used in order to study the questions mentioned here is developed by the National Social Insurance Board. The model can be described in the following way[56]:

[56] Report from the Government Commission, SOU 1994:21 page 12 (Available only in Swedish).

"The point of departure for the calculations is a model for the individual. The model is used for simulating future pension disbursements and the trend in wages. The original population for the model was a sample of approximately 230 000 individuals 16 years of age or older. Information on pensions and incomes for these persons is available starting with 1960. The model then "rolls out" both the working population and population of pensioners taken as a whole. Each year new 16-year olds and immigrants are added to the original sample. The number of persons in each birth-year group is determined according to assumptions on mortality, migration and fertility made by the Central Bureau of Statistics for population forecasts. During a given year an individual can leave the labor force by dying, emigrating, or retiring - either before or at the normal age. Individuals enter the labor market by reaching the age of 16, being rehabilitated, or immigrating. Such changes of status are determined by the model on the basis of status-change probabilities, for example, there is a certain probability that an individual will retire early, a certain probability that he will emigrate, etc. The variations in an individual's income over time are also determined by probability matrices which indicate the probability of moving from one income bracket to another. These matrices are based on actual changes of income bracket during the period 1979-1989. When the model is used, the starting point is the actual population of pensioners at the time, taken as a whole. Changes in pension disbursements from one year to another are determined by adding the pensions of new pensioners and deducting the ones of those who have deceased."

As can be seen, starting points for the calculations by the model are:

- forecasts for the demographic development;
- assumptions about the development of average real wages;
- assumptions, based on past experience, about how incomes will develop for an individual from one year to another. This includes moving in or out of the labour force and, once in the labour force, being unemployed or actually employed.

The earnings taken into account in the model are all earnings that give rise to pension rights, including social security benefits and special pension rights. For most of these rights no explicit assumptions are accounted for, they are counted in the model as other earnings. When it comes to the employment pattern there is only one assumption, that is the rate of employment on average between 1979 and 1989 [57].

From this description it follows, that neither alternative scenarios for the rate of employment nor for employment patterns have been studied. This means that there are no explicit alternatives based on differences in employment for the relation between the sum of wages, which is the basis for contributions, and the average wages. Instead, from the three starting points set out above, only one sum of earnings follows as a basis for calculating contributions.

[57] This rate was considerably higher than what it is today.

4.1.3 Basic assumptions for the calculations

Below some illustrations of the total pension expenditure in the future are shown [58]. The calculations cover the coming 50 years and as a consequence of the transitional rules, payments are heavily influenced by the rules of the old system. It is not until 2018 that expenditure under the new rules, that is the new pay-as-you-go earnings related pension scheme and the premium reserve scheme, will account for more than half of the total payments for earnings-related pensions.

The calculations are made under different assumptions on the development of average real wages and on the demographic environment. These are:

- growth of average real wages throughout the projection model has been assumed to be 2 per cent and alternatively 0.5 per cent;
- two different forecasts for demographic development have been used, one based on demographic determinants of 1994, the other on determinants from 1997. The second one results in a substantially higher number of pensioners in the future. For example, in the year 2050 the number of pensioners is 80000 higher in the forecast based on 1997 conditions than the ones based on 1994 conditions. The future life expectancy for a pensioner of age 65 has been estimated to be approximately 20 years instead of 19 years;
- the pension from the funded premium reserve scheme has been calculated in the same way as the pay-as-you-go earnings related pension. The age of actual retirement has been assumed to be 65.

4.2 Expenditure in the new system

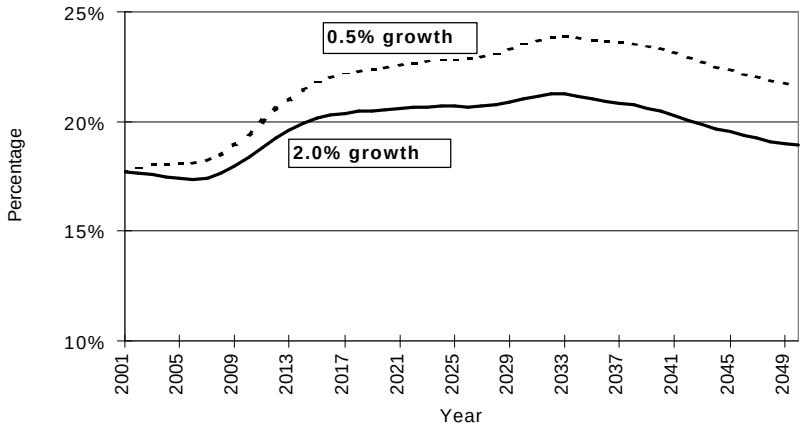
In the following sections some of the results of the calculations of total expenditure in the new system are shown.

4.2.1 Dependence on growth in average wages

Graph 3 illustrates the level of total public pension expenditure(including the guaranteed supplement and the earnings related pension) as a percentage of the basis for contributions, i.e. total pensionable earnings for each particular year. Two different rates of growth of average real wages are assumed, and the demographic development follows the forecast from 1997.

[58] All calculations are from the Government Bill 1997/98:151.

Graph 3: **Total pension expenditure as a percentage of the contribution base at different rates of growth in average real wages**

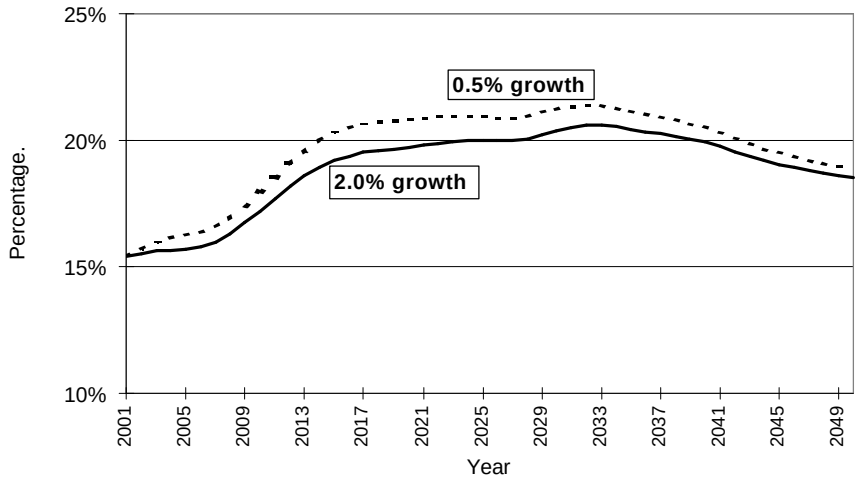


Source: Government Bill 1997/98:151 page 645.

The graph illustrates that pension payments as a percentage of the contribution base at a growth rate of 0.5 per cent exceed those at a growth rate of 2 per cent. The difference is more than 2 per cent of the contribution base. The reason for this difference is that the guaranteed level of a pension is indexed according to prices, while entitlements to the earnings related pensions are indexed according to wages. Hence, at lower growth rates in wages, the expenditure for the supplements paid out following the guarantee becomes greater in relation to the contribution base. This expenditure ends up in the State budget that finances the guarantee.

The fact that the difference mainly stems from the guarantee is illustrated in graph 4, where the earnings related pension alone is compared under the two different assumptions on growth in average real wages.

Graph 4: **Expenditure for income related pensions in relation to the contribution base at different rates of growth in average real wages**



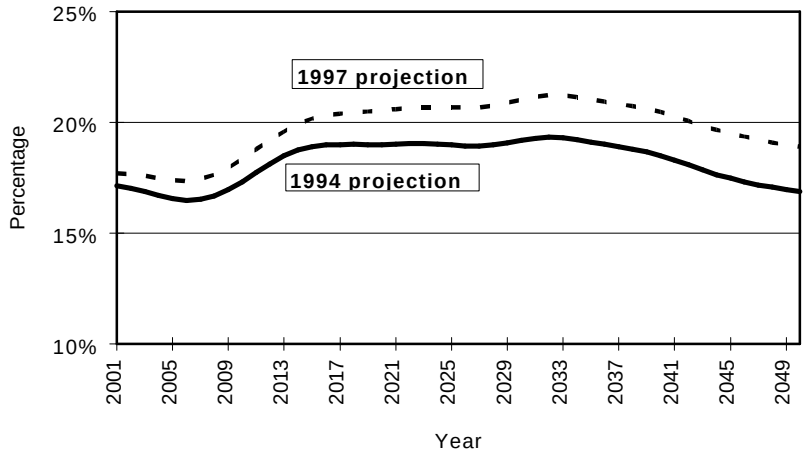
Source: Government Bill 1997/98:151 page 646. (Available only in Swedish.)

The graph clearly shows that the expenditure from the earnings related scheme is fairly well adjusted to the development of average real wages.

4.2.2 Dependence on demographic development

To illustrate the dependence on the demographic development, graph 5 illustrates total public pension expenditure as a percentage of the basis for contributions for each particular year at 2 per cent growth in average real wages and for two alternatives for demographic development, i.e. the 1994 and the 1997 assumptions.

Graph 5: Total pension expenditure in relation to the contribution base at 2 per cent growth in average real wages and two different demographic projections



Source: Government Bill 1997/98:151 page 645.

It can be seen that the maximum difference in pension expenditure as a percentage of the contribution base based on the 1997 demographic assumptions and the 1994 assumptions is slightly more than 2 per cent. This difference shows that the demographic development has a great impact on total pension payments.

There are two main reasons for the dependency on demographic development. One is that the index for revaluation of pension credits and for pensions in payment is the average wage index. Average wages do not reflect a deterioration in the dependancy ratio stemming from factors that reduce the size of the active population: for instance a reduction in the fertility rate, hence such a deterioration directly affects the relative cost[59]. Another reason is that the mortality table for a cohort is fixed at retirement age[60]. Hence, improvements in life expectancy for cohorts after age 65 do not affect pension amounts. These are the main reasons for the supplementary indexation which is considered [61].

4.3 The difference in total pension expenditure between the new and old systems

The following calculations illustrate the difference between expenditure for old-age pensions under the new and the old system. The expenditure are calculated after tax. Changes in the taxation rules for pensioners are a part of the overall pension reform.

[59] The same effect comes from a deterioration in the rate of employment. That effect, though, is not illustrated in this calculation and not discussed in the government bill.

[60] See 3.3.6.

[61] See 4.4.4.

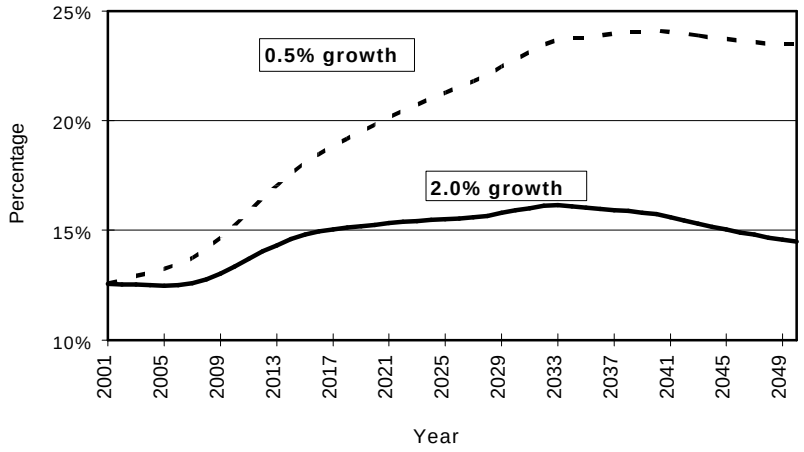
Under the old rules there were certain special deductions for pensioners in the taxation system, those will be abolished. Therefore, the following graphs illustrate total public pension expenditure less the amount of taxes. It is shown as a percentage of the contribution base, i.e. the sum of pensionable earnings for each particular year.

The common assumptions for the calculations mentioned above [62] apply with the following deviation and addition:

- the following graphs are based only on the 1997 demographic projections;
- costs under the old system are calculated as if the ceiling for pensionable earnings were indexed to wages, not to prices.

Graph 6 illustrates the old system under two assumptions of growth in real wages: 0.5 per cent and 2 per cent.

Graph 6: **After tax expenditure for the old pension system in relation to the contribution base at different rates of growth in average real wages**

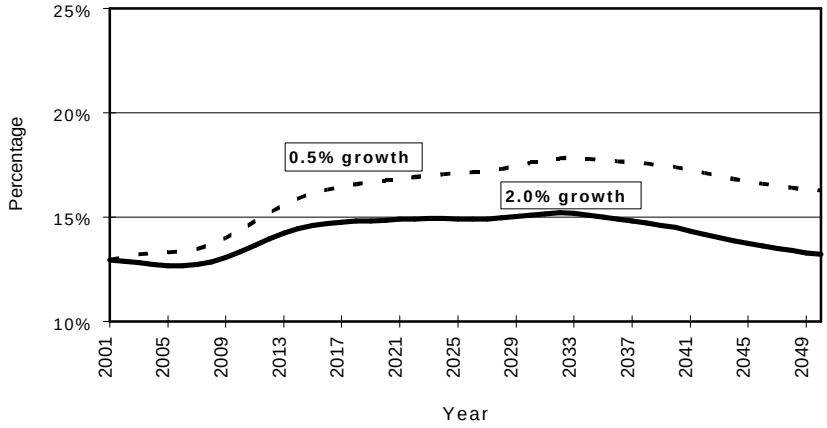


Source: Government Bill 1997/98:151 page 647.

The dependence of the old system on economic growth is clearly illustrated in this graph. That situation can be compared to the new system, illustrated in the graph 7, also under the same two assumptions about growth in average real wages, 0.5 per cent and 2.0 per cent.

[62] See 4.1.3.

Graph 7: **After tax expenditure for the new pension system in relation to the contribution base at different rates of growth in average real wages**

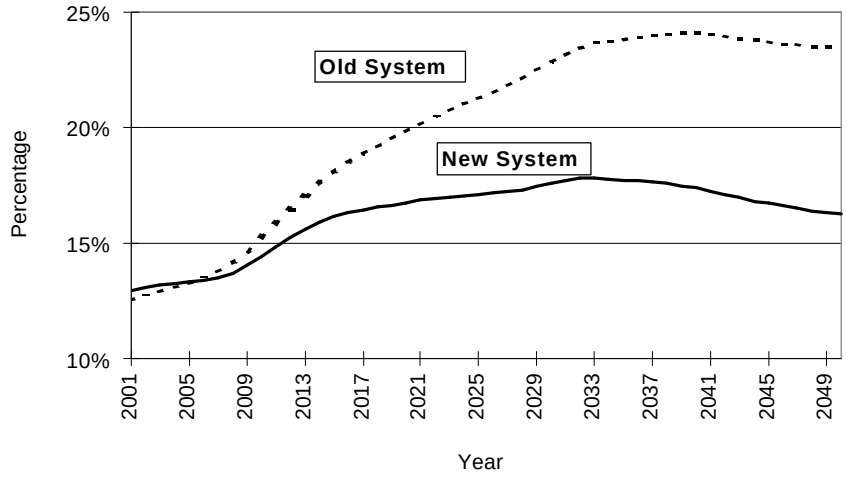


Source: Government Bill 1997/98:151 page 647.

The deviation between the two curves is much smaller in the new system. This clearly indicates that the new system is financially more stable than the old one when it comes to different patterns of growth in average real wages.

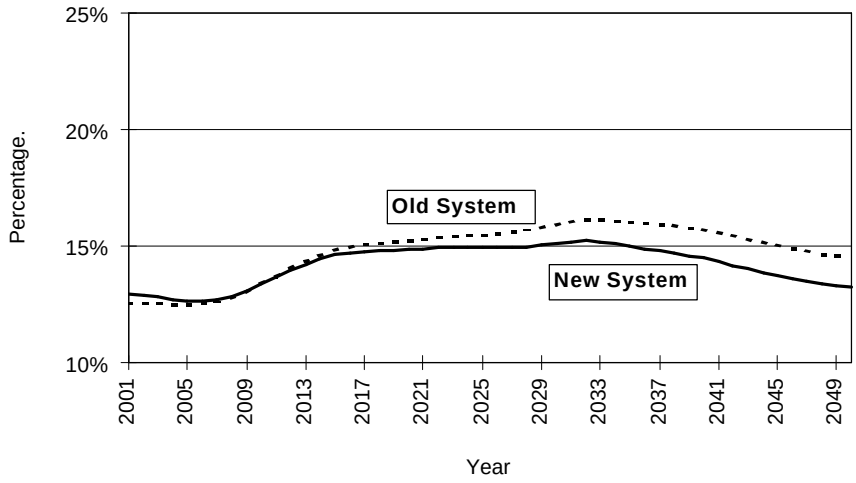
The following graphs 8 and 9 provide direct comparisons on costs between the old and the new system in order to illustrate how the difference in costs is affected by assumptions about the growth in average real wages.

Graph 8: **After tax expenditure for the old and for the new system in relation to the contribution base at 0.5 per cent growth in average real wages**



Source: Government Bill 1997/98:151 page 647.

Graph 9: **After tax expenditure for the old and for the new system in relation to the contribution base at 2 per cent growth in average real wages**



Source: Government Bill 1997/98:151 page 647.

From the two graphs it is obvious that one of the basic aims of the reform, to reduce the high contribution rate needed in the old system at low growth rates, appears to have been achieved. The new system is much less costly compared to the old one at 0.5 per cent growth in average real wages. The cost differential is much smaller at a 2 per cent growth rate of real wages, but even at that growth rate, the new system is expected to be less costly than the old one.

4.4 The financial stability of the pay-as-you-go earnings related scheme

4.4.1 A new concept: An automatically adjusted pay-as-you-go pension system with benefits based on contributions. Claims and reality.

The pay-as-you-go earnings related part of the new old-age pension system is often described as a system where the contributions of an individual throughout his/her career will be the basis for calculating the pension upon retirement, and where the contributions formally constitute pension "rights", in spite of the fact that the system is still financed on a pay-as-you-go basis.

The reality of the new Swedish system is that contributions, as the law is formulated, are set independently of pension entitlements just as in every PAYG defined benefit scheme.

The Old-age Pensions law defines "Pension rights" as a certain percentage of pensionable earnings. The percentage is set at 18.5 per cent out of which 16.0 per cent points goes into the pay-as-you-go scheme. When it comes to financing, the only provision in the Old-age Pension Law on contributions is a reference to a special law

on social security contributions. There is no requirement, in either of these legal provisions, that the contribution rate charged should be identical with the figure used to establish pension rights. This law as such does not prevent an increase (or decrease) in contributions without affecting pension rights.

Thus, strictly speaking, the basis for the description of the system as "contribution defined" and the contributions as constituting "pension rights" is not in the law itself. Instead, in the formal comments to the law the intention is stated that the rate used to calculate pension rights should always be the same as the contribution rate. However, such comments are not legally binding. Already in the first year in which the new law is in force, that is 1999, the total contribution rate to the two earnings related schemes is 14.37 per cent of pensionable earnings while pension rights are calculated at 16 per cent in the pay-as-you-go scheme and at 2.5 per cent in the funded scheme.

The fact that pension rights are “credited” to individual accounts does not introduce a new element. In the old system all such rights were maintained in individual records, this was seen to guarantee the benefit "promises" in the 1950s and 1960s, when the system was introduced. Time has shown that such types of promises can be changed when political preferences change or financial realities require modifications. The same can happen in the new system.

Whatever the legal status of the new scheme, from the description of the new system it follows, that the flexibility of a traditional pay-as-you-go defined benefit pension system is abolished, as long as the objective that contributions should be unchanged indefinitely and that they should constitute pension rights is maintained. In traditional pay-as-you-go systems it is possible to reduce benefits, increase contributions or raise the retirement age in order to meet demographic and economic changes. In the new Swedish model such adjustments are either not intended to be made, or they are made automatically. Therefore, the new system will be less flexible than a traditional pay-as-you-go-system when it comes to adapting the system to substantial changes in the environment. Financial problems cannot be solved by raising contributions, since extra contributions would constitute additional pension rights; nor can they be solved by changing the computation formula without directly and obviously violating the stated intentions of the system. The result of all this is that the financial sustainability of the new system depends entirely on the way in which the benefits are linked to the systems’ ability to pay, i.e. on the automatic stabilisers built into the system. This will be discussed in the following sections.

4.4.2 The requirements for financial stability in the pay-as-you-go earnings related system

As the objective is to hold the contribution rate in the pay-as-you-go part of the system stable indefinitely, special requirements must be met when it comes to the design of adjustment indexes, the building up of buffer reserves and other features that steer the financial performance of the system. These features taken together must guarantee that the inflow of contributions in each year, at the fixed contribution rate of

16 per cent, together with resources from the buffer reserves, are sufficient to meet the obligations for that year.

By introducing the "automatic stabilisers" described above [63], i.e. indexation of pensionable age and indexation of pension rights and pensions to wages, the new system is made more robust when economic and demographic conditions change. How stable the system will be, depends to a considerable extent on what happens to the reserve fund, that has been built up in the old system.

4.4.3 The reserve fund

The reserves accumulated in the old pay-as-you-go-system correspond to five-and-a-half years of pension payments. This fund will be of crucial importance in the future, as in the new system the reserve fund will play an important role as a buffer for demographic fluctuations. In the new Swedish system, a general trend towards higher life expectancy is met by automatically raising the pensionable age [64]. But not all problems stemming from demographic developments are solved by this mechanism, as there can also be variations around a general trend and fluctuations of the size of the active population. It is intended to deal with these variations by letting the size of the fund fluctuate.

According to current plans a part of the existing fund will be transferred to the State in order to meet certain financial obligations. These obligations concern benefits that in the old pension system were financed by contributions but in the new system are financed by the State budget. Although these obligations do exist and exert a considerable strain on the State budget, an important question is, how much of the reserve fund can be transferred to the State budget in order to meet such obligations without jeopardising the ability of the new pension system to meet its basic objectives, that is to provide socially adequate pensions with an unchanged contribution rate in the future[65].

In a proposal from the Ministry of Finance, put forward in January 1998, it was stated, that a point of departure for the considerations should be that the pension system be financially solvent under "all normal circumstances". This should be the case even during long periods of weak economic growth and low rates of return on the reserve fund as well as under such changes in demographic conditions that can be reasonably foreseen. On the other hand, it is also stated, that it is not acceptable to put the requirements on the fund so high as to require it to cover all conceivable scenarios of future development. Such an approach would result in no transfers from the present reserve fund. A balance is to be established between the wish to make the pension system strong enough to be able to withstand all strains, and on the other hand, to

[63] See 3.3.6 and 3.3.4.

[64] See 3.3.6.

[65] This dilemma can reasonably be phrased as a question about how costs that follow from too high ”promises” in the old system should be covered; by the State budget or by the pension system.

avoid high public expenditure on interest to be paid on State loans. Higher taxes might be the consequence.

The total amount in the fund was 715 billion SKR at the end of 1997 and it grew further during 1998. The Ministry of Finance has proposed that 333 billion SKR thereof should be transferred to the State budget. A projection of the size of the remaining fund, measured as a multiple of annual pension expenditure, i.e. the financing ratio is presented in table 8 below. The projection is made for three alternatives, with 2 per cent and 0.5 per cent growth in average real wages and 4 per cent and 2 per cent return on investments respectively.

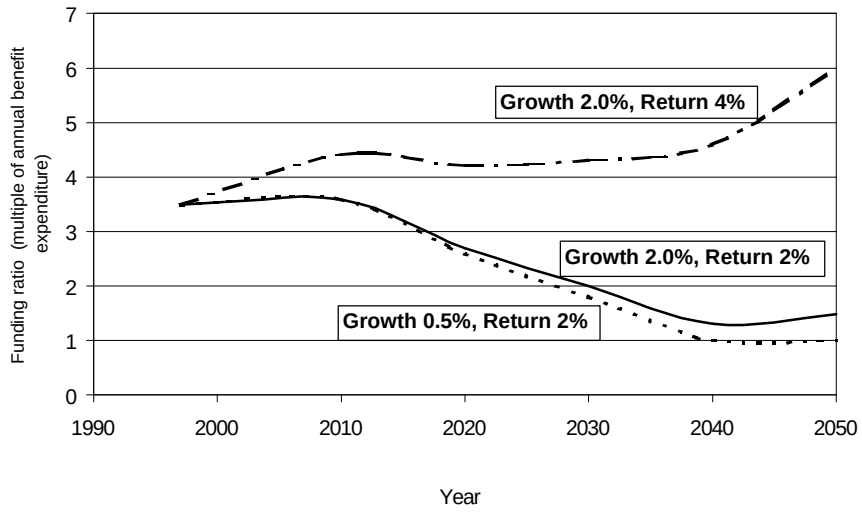
Table 8: Fund strength at different rates of growth in average real wages and return on investments

Growth/Return	*1997*	*2010*	*2020*	*2030*	*2040*	*2050*
2%, 4%	3.5	4.4	4.2	4.3	4.6	6.0
2%, 2%	3.5	3.6	2.7	2.0	1.3	1.5
0.5%, 2%	3.5	3.6	2.6	1.8	1.0	1.0

Source: Ministry of Finance, DS 1998:7 page 32.

The projection is illustrated in graph 10.

Graph 10: The expected funding ratio of the buffer fund at different rates of growth in average real wages and different rates of return on investments



Source: Ministry of Finance, DS 1998:7 page 31.

Interestingly, only one alternative for the average return on investments has been calculated for the alternative with 0.5 per cent growth of average real wages. That

alternative is 2 per cent. At 0.5 per cent, the projected size of the fund would be much smaller. The situation for the fund could then become problematic. Taking a realistic demographic development into account would worsen the situation. The basis for the above analysis was the projection of the demographic development made in 1994. Life expectancy will grow compared to this projection as the 1997 demographic projection shows. This will result in an additional strain on the contribution base and hence, at the same level of contributions, on the fund [66]. Unfavourable development of employment could have similar consequences.

The conclusion is that one can expect that the "automatic stabilisers" described above will not be enough if plans to transfer 333 billion SKR to the State budget are implemented. The indexation formula must be modified if the system is to function under a fixed contribution rate. In order to deal with such problems, an additional mechanism is envisaged. This mechanism is described in the following section.

4.4.4 The special reduction mechanism, "the Brake"

In order to strengthen the financial stability of the system, annual revaluations of pension rights and the adjustment of pensions in payment from one year to the next shall be reduced when otherwise there is a risk of long range deficits in the system. Such risks can occur especially during the transitional period but can also follow from unfavourable demographic and employment developments. There are two main reasons for the dependence on the demographic development and employment. Average wages that are the basis for indexing acquired pension rights and pensions, do not reflect a deterioration in the dependancy ratio stemming from factors that reduce the size of the active population in employment without a corresponding increase in unemployment benefits. Such a deterioration can directly affect the relative expenditure measured as a percentage of the contribution base. Another reason is that the mortality table for a cohort is fixed at age 65 without any projection of possible gains in life expectancy of a cohort [67].

The "normal" wage index, described previously [68], will be reduced under certain circumstances. This so called "brake" will be activated if the total implicit debt of the pension system subtracted from the value of the reserve fund exceeds a certain level. If at a later stage the situation improves, a compensating addition to the pension benefits will be made.

How this "brake" should be designed is at present under investigation. The Governmental Commission in charge of the reform points out that it is not certain that it can be designed at all. Hence, we do not know in which ranges of economic growth, inflation and demographic fluctuations the new model is really stable.

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[66] See 4.2.2.

[67] See 3.3.6.

[68] In 3.3.4 for pension rights and in 3.3.6 for pensions.

The new Swedish model can, theoretically, be designed with some sort of an additional reduction mechanism, so as to be financially stable in all circumstances. Presently, it seems reasonable to assume that in practice, taking political and social consequences of various conceivable scenarios into account, the system will be stable within certain limits when it comes to rates of economic growth, demographic fluctuations and rates of inflation. How narrow those limits will be depends to a considerable extent on what happens with the reserve fund.

Decisions about a transfer of funds from the reserve fund to the State budget have been postponed and will be considered again in conjunction with decisions on the special reduction mechanism.

5. The Reform process

5.1 The Swedish reform

5.1.1 A time-consuming undertaking

The reform process has been time-consuming. Certain phases can be identified, such as raising the awareness for the need for reform, designing alternatives, creating politically favourable conditions for a reform, creating consensus and designing final proposals.

Under the old law the National Social Insurance Board was requested to submit to the Government every five years an analysis of the financial situation for the earnings related pension system. Based on such an analysis the Board suggested a contribution rate for the following seven years. In earlier years, the Board restricted its work to a long-term analysis of the development of the pension system. The scope of the analysis was, however, gradually broadened. The interconnection between the public pension system and the economy in general was highlighted. It became clear that the pension system was financially unstable. This was already pointed out by the Board in the early 1980s. After a prolonged time-lag the politicians and the general public came to realise that something had to be done to cope with the problems.

A special Government commission was set up in the mid 1980s with the task to study the pension system, its problems and possible remedies. The commission proposed the reform of survivors pensions, previously mentioned [69], a reform that resulted in huge savings for the pension system in the medium and long run. The commission's conclusion in its final report in 1990 was that the remaining financial problems would become acute only ten to fifteen years after the year 2000 and therefore, not much needed to be done for the time being. This conclusion from the Government commission was not correct. When financial problems in pension systems become acute, it is too late to cure them! This was realised by the Government, and a

[69] See 1.2.

new commission [70] was appointed in the autumn of 1991 in order to design concrete proposals. These proposals were put forward early in 1994 and they were accepted by a broad majority in the Parliament in the same year. From that time on, yet another Governmental commission was set up, in charge of designing the law itself. Members of the commission are representatives of the parties who support the reform. This group is presently working on the yet unresolved questions described in this report [71].

The financial problems of the pension system did not wait for the emergence of a long-term solution. Already at the beginning of the 1980s and then again in the beginning of the 1990s, when the Swedish economy faced great problems, measures were implemented to reduce pensions substantially. These measures were implemented with assurances that they were only temporary. Still, the general public was alarmed. Probably "the man in the street" managed to interpret correctly what was going on. Gradually the general public, especially young people, lost confidence in the old system. Only this made a thorough reform possible.

5.1.2 The need to rearrange the political "landscape"

In the public debate during the 1980s and the early 1990s it had become more and more obvious that the benefit formula was too generous. The same observation was true for the pensionable age; 65 years of age was too low compared to the contributions that could be raised. Since the beginning of the 1960s average life expectancy has increased by more than three years while the pensionable age has been reduced from 67 years to 65. The fact that the old system was dependent on a high level of growth in the economy was also gradually becoming obvious.

Simply to state obvious facts and change the expensive features of the system might have caused substantial political difficulties. Too many election campaigns had contained promises that such changes were not necessary, too many statements from unions and representatives of pensioner organizations against such changes had been issued. This became abundantly clear when the National Social Insurance Board in the early 1990s submitted to the Government proposals on how to reform the old system. Those proposals contained changes where they were necessary, and the changes were designed so as to be clear enough to be understood. These proposals were intensely opposed. One of the reasons for the politicians choosing to redesign the system completely was the opinion that there was a need to rearrange the political "landscape" by changing the pension policy paradigm.

[70] Under the chairmanship of Mr. Bo Könberg, MP, at the time Minister of Health and Social Insurance.

[71] The Chairman of this group is Ms. Maj Inger Klingvall, Minister of Social Insurance. Before her, the former minister in charge of Social Insurance, now Director General of the National Social Insurances Board, Ms. Anna Hedborg chaired the commission.

5.1.3 A complete overhaul

A consequence of the political strategy chosen is that in the reform which has now been decided, the changes necessary to make the system financially sustainable are "concealed", in a complete overhaul of the system. Three examples illustrate this:

- the increase in the pensionable age is brought about by introducing a factor [72] dependent on the remaining life expectancy in the computation formula for pensions and by changes in the rules for flexible retirement [73]. Thus it can be claimed that there is "free choice" and "flexibility" instead of plainly stating what has happened: retirement age, as that concept is conceived today, will de facto be raised successively. Should the regular measures built into the system prove not to be enough, the " brake" will take care of the need for an extra reduction in benefits[74], forcing people to try and postpone retirement yet a bit further!;
- another example concerns the need to make the benefit formula less generous. This change has been brought about not merely by increasing the number of years taken into account in calculating the benefit but instead 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. Thereby, a comparison between the old and the new systems shows "winners" as well as "losers" instead of only "losers". This obscures the fact that an important result of the reform is that people are requested to work longer than under the old system to obtain a pension of a certain expected level;
- some elements in the design of the reform seem to indicate a fundamental change in welfare policy in the long run. As an example, the guaranteed level is price indexed, and its importance will gradually decrease if there is an increase in average real wages[75]. As for the time being these indications are mostly of an implicit nature, they could be considered as not to be a significant feature of the reform[76]. However, the fact is that a change in long-range welfare policy has not been explicitly discussed.

A downside of the approach described here is that the "losers" only gradually realize what has happened. In Sweden the Social Democratic Party had to experience an internal crisis after the decisions in 1994 on the principles of the reform. That process started when some of the restrictive features as well as politically sensitive elements of the reform were recognized. One part of the discussion concerned the switch to lifetime earnings to be taken into account in the benefit formula, another the introduction of a funded premium reserve component in the earnings related part of the new system, and a third concerned the introduction of employee contributions. After a year the dispute over these issues was settled, at least for the time being.

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[72] See 3.3.6.

[73] See 3.3.5.

[74] See 4.4.4.

[75] See 3.1.1.

[76] That is the interpretation contained in this report, see 3.1.1 and 3.5.1.

5.1.4 An information campaign

The complete rearrangement of the public pension system called for great efforts to inform the Swedish population. This was needed in order to inform about the new rules and to make each and everyone aware of the greater personal responsibility that the individual has to accept for his/her old-age security as a consequence of the reform.

Beginning in the year 1999 each person living in Sweden from age 18 will get annual information about his or her accrued pension rights. Those who are above age 30 or, if being younger have at least five years with pension rights, will also get a forecast of their pension. Substantive resources are given to the social insurance offices to enable them to advise individuals, many activities are launched on the national level to support the dissemination of information about the pension system and what it means for the individual.

5.2 Some comments on the international debate

Before concluding the discussion about the reform process it is worth while to make some comments about the international debate in some respects that are directly connected to what has happened in Sweden. It concerns the so called NDC concept, the three pillar structure and the debate about a need for a "paradigm shift" [77].

5.2.1 "Defined contribution" vs "Defined benefit".

Two main types of pension schemes are labeled "defined contribution" and " defined benefit". In the case of the new Swedish earnings related pay-as-you-go system there is a debate as to into which category it should fall.

As has been described in this report, the main characteristics of the pay-as-you-go earnings related scheme of the new Swedish type are that:

- pension rights, intended to be equal to contributions paid into the system on behalf of an individual, are registered and the registered pension rights alone, accumulated under an indexation rule, form the basis for pension payments;
- indexation rules applied are in some way linked to economic growth;
- the system is intended to be balanced in such a way that the contribution rate can be kept unchanged indefinitely

The international debate calls such models [78] "notional defined contribution" (NDC) models.

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[77] For a comprehensive account of the international debate of all aspects of the pension reform see the publication *The Future of Social Security* , published in English in Stockholm in 1998, by the Federation of Social Insurance Offices, S-111 82 Stockholm. The publication will be issued in German, French and Spanish during 1999.

[78] In the international descriptions of the model the contributions are mostly said to be what is directly registered in the accounts. About the Swedish model in this respect see 4.4.1.

The characteristics of the NDC model can be compared to definitions of the classical "defined contribution" and "defined benefit" models. The definitions used at present seem to vary considerably. One definition is simply that a "defined contribution" scheme is where contributions are fixed in advance while a "defined benefit" scheme is where benefits are defined in advance.

Obviously, under such a definition the NDC model would fall under the "defined contribution" category. The problem is, that under that definition nothing is said about how it really functions. What matters is which criteria govern the calculation of pensions and whether the system will be financially sound. This observation is true for all schemes whichever variable has been defined in advance, the contributions or the benefits. From the discussion in this report [79] it is clear, that the fact that contributions alone are intended to be the basis for a pension and that indexation rules are linked to economic growth “in some way or another” do not in itself guarantee the financial stability of the system. The ability to pay is dependent on how the rules are designed and made to reflect the economic growth and demographic changes.

A more comprehensive definition of the basic concepts could be:

- **S** "Defined contribution" schemes are those where the contributions are the basis for the benefits in so far as the benefits are totally dependent on the contributions paid in and the rate of return earned on these contributions. From such a definition it follows, that these types of schemes are normally funded schemes;
- **S** In the "defined benefit" scheme, it is the benefit that is defined in advance, based on other criteria than the rate of return on investment of contributions paid. Mostly, such schemes are defined in terms of prior earnings and/or service levels rather than previous contributions and rates of return. The contributions become a function of the benefits, and they are set at a level to cover the benefit payments. The financial arrangements in mature schemes are often pay-as-you-go which means, that the benefit payments for one particular year are financed by contributions paid in during the same year. It is also possible to partially fund such a scheme or, in principle, to make it fully funded. In the later case, often applied in pension schemes based on collective agreements, funds are accumulated with the intention that they at each point in time could cover acquired pension liabilities in the scheme, even if the scheme were to be terminated.

Under these definitions it follows, that what characterizes a "defined contribution" scheme and makes it different from a "defined benefit" scheme is the fact that the benefits in the defined contribution scheme are a function of the contributions themselves and returns on investments. This makes the scheme independent and self regulating, in so far as the benefits become whatever follows from the performance of the investments. Such a scheme, though, is not "totally financially safe". It is vulnerable to unforseen changes in the demographic environment, changes in returns on investments and other such problems. To deal with those problems the factors taken

[79] See 4.4.

into account in the calculation of a pension, such as projected rates of return and life expectancies, are conservatively estimated. If, as has nearly always been the case, real rates of return and mortality are lower than the estimated levels, then "wind fall" profits are added to the guaranteed levels.

There are other definitions too. One definition of a "defined benefit" scheme seems to contain opinions on how such a scheme should be managed and how it has often been managed in the past. The opinion is put forward that:

> "In defined benefit plans the benefit awarded to any individual is defined in terms of prior earnings and/or service levels, rather than previous contributions and market returns thereon. Those in charge of such a plan (should) determine the plan provisions through a process of balancing benefits. Aggregate benefit levels are thus set with due consideration for their projected costs, but they are converted to promises to individuals based on his or her earnings/service. In the real world, if the projections turn out to be wrong, the benefit promises are frequently adjusted either up or down."

Such schemes could be called conventional defined benefit schemes where the guarantee for the promises seems to be high growth in the economy and/or a willingness of the active population to pay gradually higher contribution rates.

The criticism of the defined benefit concept seems to be based on opinions about how they should have been managed and on the fact that, often "promises" phrased in terms of benefit levels have not been kept.

It is important to realize, that the reason for this failure is that the scheme designers in the past thought that future economic growth could always produce opportunities to finance what had been promised. Hence, it was no "mistake" that the schemes were designed as they were, it was a very conscious way of building the systems. But the expectations have not come true. It is important not to adhere to past miscalculations and to make sure that a pay-as-you-go defined benefit scheme does not "over promise". It should be understood that these schemes can be reformed without changing their basic characteristics. For instance a thorough reform of a pay-as-you-go defined benefit scheme can:

- index acquired pension rights to earnings instead of to prices that will make the system less sensitive to unfavourable changes in economic growth (as is done in Germany, France and the US); and ascertain that benefits and contribution income develop in parallel;
- base benefits on a full working career which tends to lower the average total benefit;
- introduce an automatic adjustment for longevity that helps balance the system in the long run (e.g the German demographic adjustment factor which is presently again under discussion).

Finally, which type of scheme does the new Swedish scheme resemble? A defined contribution scheme or such a thoroughly reformed defined benefit scheme?

The main characteristics of the NDC model resemble the characteristics of defined contribution plans. But it must be observed that there are fundamental differences too:

- no real funds are accumulated in a NDC scheme;
- the benefit "promises" in a NDC scheme are based on estimations of how much contributions will be possible to raise in the future;
- there is no equivalent to the widespread praxis in defined contribution schemes to operate with conservatively estimated factors in the benefit formula.

In a NDC scheme the reliability of benefit promises stems partly from the fact that an individual cannot earn pension rights without corresponding contributions having been paid. However, this is not enough. The indexation mechanisms must be designed in such a way that the system is kept in financial balance in the future at a given contribution rate. The scheme is not automatically in balance under the general principal rules of such a scheme. Obviously, it is not a conventional defined contribution scheme.

The NDC scheme is also not a conventional defined benefit scheme. That observation follows from the direct link between contributions and benefits and the automatic adjustment of new pension levels to changing mortality rates.

It seems as if a NDC scheme could very accurately be characterized as "a thoroughly reformed pay-as-you-go defined benefit scheme". Such a characteristic might be more appropriate than the "notional defined contribution" concept, the latter tending to obscure the nature of the far-reaching changes made and, at the same time, giving the false impression of a system that is as self regulating as a conventional defined contribution scheme. Alternatively “a completely new model “might be the most appropriate label”.

5.2.2 A three pillar concept?

In the present institutional debate about pensions a "three pillar" concept is often used. There is a tendency to group many different possible features of a national pension system together under these three labels, as if they always belonged together, although that is not necessarily the case.

The first pillar is referred to as a basic pension, providing the "social dimension" of the pension system by offering a benefit to those who have not earned "enough" credits based on their own earnings records. A flat rate benefit, financed on a pay-as-you-go basis and publicly administered is often associated with this pillar. The second pillar in such a system is often a mandatory, income related component of the fully funded, defined contribution type and privately administered. The third pillar consists of various voluntary private arrangements.

The three pillar concept can help to systematise the analysis of various models. However, it also risks dominating thinking, in so far as there is a tendency to believe, that the contents of the various pillars are more or less fixed. That is not the case. Funded systems can be publicly administered. Earnings related public pensions can be - and generally are - financed on a pay-as-you-go basis. These facts are important to keep in mind.

The new Swedish system could be described under the three pillar concept in the following way:

- First pillar: Minimum guaranteed pension, financed by general revenue, publicly administered, payable to all residents who meet certain criteria;
- Second pillar: A mandatory earnings related pension with two components, one pay-as-you-go, one funded. Mostly publicly administered;
- Third pillar: Private pension arrangements, either based on collective agreements or voluntary.

Thus, the new Swedish system, highlights the wide variety of possible solutions to the three pillar concept.

5.2.3 Reflection on the notion of a "paradigm shift" in the international debate

In the international debate, the problems of public acceptance and hence political feasibility of pension reforms are widely discussed.

A point of departure for the discussion is the fact that reform needs of pay-as-you-go schemes can be addressed by reforming the system while retaining the pay-as-you-go principles. In spite of this, it is argued, it is politically unattractive to engage in a comprehensive pay-as-you-go reform where the fiscal and economic gains would be harvested at the time when the responsible politicians are out of office.

Possibly, it is said, a more promising strategy for the reform of pay-as-you-go systems would be to employ a "paradigm shift" — that is, to put forward a conceptual structure that changes the usual terms of the debate. Sweden has opted for such "paradigm shift".

5.3 Challenges for responsible politicians in Sweden (and elsewhere)

The way in which the Swedish reform has been prepared, with a prolonged "start up" phase, might have helped to accustom people to the need to reform the pension system. Probably, it has been of some importance for the result that the basic analysis has been performed and presented by a non-political authority. However, economic conditions were probably more important than discussions at the expert level. In fact, these in reality eroded the confidence in the old system and gave way to a fundamental reform.

In the international debate on pension reform much energy has been devoted to comparisons of different models, to advantages and disadvantages of "defined contribution" vs "defined benefit" schemes, to discussion about how different "pillars" should be designed and their relative size. A "paradigm shift" where new concepts can be introduced into the debate, is often considered to be particularly helpful. It is possible that this kind of structure is useful on the level of experts and internationally. It is more doubtful whether this is really helpful in the national political contexts.

As has been discussed above, the new Swedish pay-as-you-go earnings related scheme could as well be labelled "a thoroughly reformed defined benefit scheme" instead of a "Notional Defined Contribution" scheme. The three pillar concept could be used to describe the new Swedish system but this would be in conflict with the way in which that concept is generally applied. And is the "paradigm shift" really a conscious change of policy or is it only a change of vocabulary? A lack of transparency in the reform design seems to be a consequence of the shift. On the one hand this "paradigm shift" might have been necessary to make decisions on the reform in Sweden. On the other hand, it remains to be seen what will be the long range effect of this lack of transparency on the public support for the reform.

There are many important differences between the old and the new system that have not yet come into focus. Moreover, as has been described in this report, the very reasons for the reform design in certain respects is not very clear and some of the fundamental welfare aspects are not clearly settled. Many important issues are still under investigation. Obviously, the situation as described here contains many risks for the political alliance behind the reform.

There will be many opportunities for responsible politicians to describe and explain the reform and to enter into a vivid dialogue with the general public in the context of the big information campaign [80] that will be launched now. The way in which this challenge is met will probably have a great impact on the long range public support for the new system.

6. Conclusions

The reform implemented in Sweden was to a large extent forced by the acute economic problems that Sweden faced in the beginning of the nineties. It was made possible by a general awareness that the old pension system was not financially sustainable.

There is still a need for efforts to strengthen the economy and thus create a basis for sustainable growth in the future. In the reform process it is important to observe that nearly everyone in Sweden agrees that a general welfare policy, with stable social security rules concerning sickness, parenthood, unemployment and old-age, is an important component of the economic and social fabric in Sweden.

[80] See 5.1.4.

My concluding opinion is that Sweden is in the process of building a new pension system that is sustainable and, generally speaking, fair. The approach chosen for the reform design makes it difficult to see which are the differences between the old and the new systems. The general public still remains to be informed about the content of the new system. Whether the reform will be sustainable in the long range will to a considerable extent depend on how still not decided questions are settled and on how the political parties in the future will handle the dialogue with the general public.

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