Automatic balancing mechanisms and Social Security

Report, based on Swedish experiences, to a PBSS seminar in Edinburgh 26-27 September 2011

Comments are most welcome

Karl Gustaf Scherman
E-Mail: kg.scherman@abc.se

Mr Scherman is Honorary President of the International Social Security Association. He has had a long career in the Swedish public sector. In 1976 he was appointed State Secretary of the Ministry of Housing and Physical Planning. In 1979 he became the Managing Director of the Karolinska Hospital in Stockholm. He was Director General of the Swedish National Social Insurance Board 1981-1996. His international engagement includes many years of participation in the activities of the ISSA, and between 1993 and 1998 he was the President of the Association.
Mr Scherman holds degrees as a Master of Engineering from The Royal Technical High School in Stockholm and as Master of Business Administration from The Stockholm School of Economics

For comments and discussions over the years about the issues dealt with in this report, either they agree or disagree with my views, I am deeply grateful to many colleagues and friends.

Abstract
In the 1990'ies the Swedish public pension was thoroughly reformed in a broad agreement between political parties representing some 80% of the seats in parliament.

In the new Swedish public pension system there is a minimum guarantee that everyone, resident in Sweden, is entitled to and an earnings related part. The earnings related part consists of two sub schemes; those are an individual account scheme and a completely redesigned PAYG scheme. The costs of the minimum guarantee are financed by general revenue while the earnings related pension is financed by a contribution of in total 18,5 % of covered earnings.

A core idea behind the new earnings related scheme is that the contribution rate should be unchanged for the indefinite future. A range of features are implemented in the PAYG sub scheme in order to obtain this result.

The effect on benefits of the types of rules introduced into the Swedish public pensions is profound. The consequence of these rules is that there is no way to change the pension system in the face of changes in external conditions with a view to attain a new balance between social goals and financial constraints. Instead all adjustments are made on the benefit side, either in the accumulation phase or for pensions in payment or both. As a matter of fact what was said to be a weakness of conventional PAYG schemes, i.e. that all financial problems were met by raising the rate of contribution, has now gone into reverse: All financial problems are met by reducing benefits.

The result of unforeseen (unforeseeable) developments since the enactment of the new system has become political unrest. Changes have already been made in certain aspects and the whole scheme is currently under review. As a consequence, the original agreement; on establishing rules that would never need to be changed, has gradually converted into a new approach; that whatever changes may be needed shall be designed in consensus between the parties that backed the original reform. But the leader of the main opposition party has gone a step further, by clearly stating that either should the schemes' rules be changed or will the "pensions agreement" be abandoned and pensions once again become an divisive issue between left and right.

TABLE OF CONTENTS

For further information about the Swedish pension system and the authors work, including a comprehensive list of references, please see *"Swedish Pensions under stress"* published 2011 in two parts in the *Actuary India Magazine* by the Institute of Actuaries of India.

The first part of the article appeared in the January 2011 issue from page number 17 to 25. It can be found at **http://actuariesindia.org/magazine/souvenir/2011/Actuary%20India%20Jan%202011.pdf**

The second part of the article appeared in the February 2011 issue from page number 19 to 23. It can be found at **http://actuariesindia.org/magazine/souvenir/2011/Actuary%20India%20Feb%202011.pdf**

Swedish public pensions reformed

In the 1990'ies the Swedish public pension was thoroughly reformed following a broad agreement between political parties representing some 80% of the seats in parliament. Decisions on the principles for the new system were taken in 1994, most of the system rules were enacted in 1998.

In the new system there is a minimum guarantee that everyone, resident in Sweden, is entitled to and an earnings related part. The earnings related part consists of two sub schemes; those are the Individual Account scheme and a completely redesigned PAYG scheme. The costs of the minimum guarantee are financed by general revenue while the earnings related pension is financed by a contribution of in total 18,5 % of covered earnings. A core idea behind the new scheme is that the contribution rate should be unchanged into the indefinite future.

The minimum guarantee came into effect for new pensions already from 2003. For the earnings related scheme there are extensive transitional arrangements and the new scheme will be in full effect for new pensioners only after a prolonged transition period. Today nearly all earnings related pensions in payment are based mainly on the old rules. But they follow the rules in the new PAYG scheme when it comes to the yearly revaluation (indexation) rules.

A fully integrated contribution defined earnings related system with two sub schemes became the unexpected result of a long period of trial and error

To be able to follow the debate about the Swedish system it is important to know that the start of the design process, up until decisions on principles were passed by parliament in 1994, was characterised by beliefs and ideas that subsequently were abandoned.

- One factor of far reaching consequences was the expectations about how a fairly conventional reform of a PAYG scheme should be able to function with the rate of contribution unchanged into the indefinite future. These expectations steered the original design of the PAYG sub scheme and the division of a total contribution of 18,5% of covered earnings between this sub scheme and the Individual Account scheme. Those expectations were based on projections about finances that subsequently proved to be too optimistic. Instead of reopening the discussion on the rate of contributions and the division of contributions between the two sub schemes an automatic balancing mechanism (ABM) was invented and put in place in the new PAYG sub scheme.
- Another factor concerns the basis for introduction of what ultimately became the Individual Account scheme with a wide range of investment alternatives for the individual to choose among and without any minimum guarantee for investment return. At the outset that sub scheme was intended to become a private life insurance type of arrangement, with guaranteed minimum return on individual accounts and a fairly modest scope for individual choice. It was never explained why this change of approach was made an it was never openly discussed.

The reason why it is of importance to know about these factors is that only then it is possible to understand that whatever is said about "principles" behind the reform, such principles are formulated after the open political design process was completed. For instance, it was never an intended consequence of the reform that whatever happens all financial strains should end up in reductions of pensions. Neither was it intended that an individual account scheme of the sort that was ultimately designed should be put in place. But, regardless of these facts, nowadays experts around the world discuss the Swedish reform as if it was the result of a conscious design process. And Swedish politicians defend it without questioning the radical changes made after the decisions on principles back in 1994, often without even understanding what has happened.

There are also technical features of the new system that seems to be poorly understood in the international debate. That concerns the fact that the two sub schemes are meant to function together. It is not reasonable to discuss the one part with-out observing its relation to the other. Some reasons are the following:

All calculations about replacement rates underpinning the reform and subsequently in yearly reports were/are made for the combined out-come of the two sub schemes.

For a very long period the pensions will be/have been calculated based on a combination of the old ATP-scheme and the two new sub schemes, *a combination that changes over time.* For new pensions, drawn at the age of 65, earnings under the old pension system will influence the calculation up until 2019. But it is only in 2040 (2044[1]) that all earnings influencing a first years pension will have been earned fully under the ultimate division of pension rights credited under the new PAYG sub scheme and the Individual Account sub scheme respectively.

For instance, when we study the development of earnings related pensions 2009-2015 below (page 5) it is pensions in payment fully or to a dominant part originating from the old PAYG system that are illustrated. Hence, in that scenario the automatic balancing mechanism affects the total pensions for individuals concerned, while in a distant future it will affect only the part of the pension that originate from the new PAYG sub scheme.

When we study development of pension ages (page 6) on the other hand, it displays in the first part of the period studied a combination of transitional arrangements maturing and the rules under the new system. Towards the end of the period, i.e. towards 2055, the development follows fully from the rules under the new system.

Hence when discussing the one or the other feature of the Swedish System, one need to see the whole public pension system as a background. Other ways the risk of drawing wrong conclusions is high.

But the need of a broad background is even larger.

Pension adequacy depends on much more than pensions

A judgment about the quality of a pension system must take into account the whole pension system, i.e. both the earnings related part and the minimum pension. It must also take into account not only the financial stability of the system, but also the adequacy of pensions that it offers, today and in the future. The adequacy of pensions in turn, is dependent on which other arrangements there are available for the elderly, be it housing supplements, subsidized services and so forth.

The effect of a less generous earnings related scheme will be that the living standard for those with low life-time earnings will be more dependent on basic protection arrangements– in terms of basic pension provisions, benefits in kind, means tested benefits and other supplements- than in the old system.

These matters are often overlooked in discussions about pension reform in a particular country. Most probably this depend on an often not even discussed feeling that these other arrangements can be considered as permanent. But, obviously, they are not.

[1] For the years 1995-1998 out of the total contribution rate, 18,5% where 2,0% credited to the Individual Account sub scheme. From 1999 this figure was increased to 2,5% and the part credited to the PAYG scheme was correspondingly decreased.

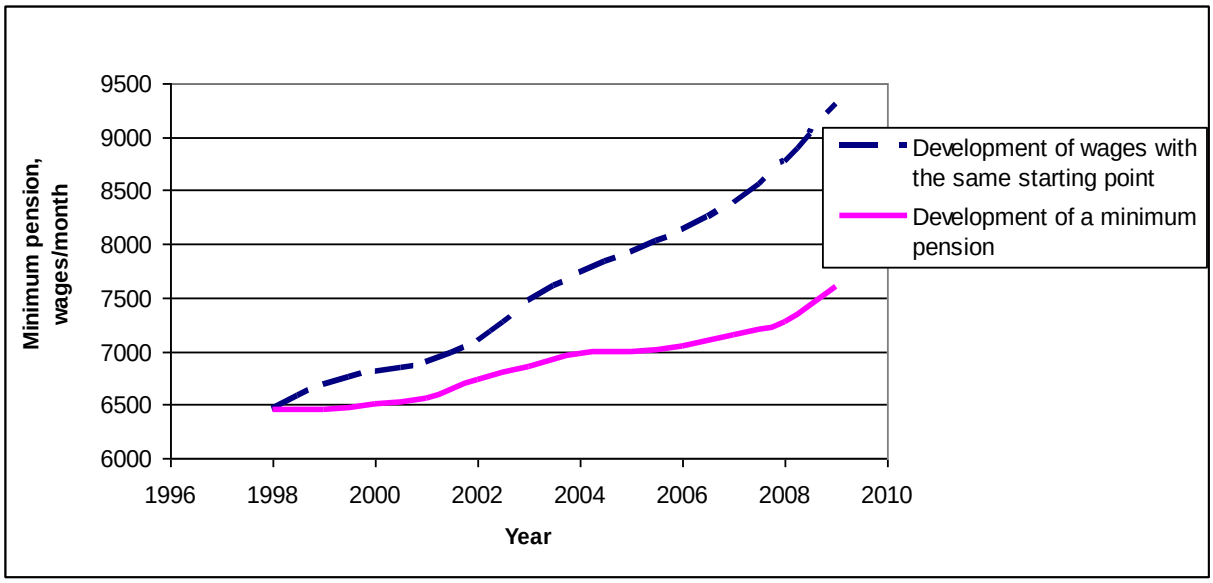
Development of pensions

The following illustrates development of pensions under the new rules with the relevant transitional arrangements, as described above, included.

The minimum pension

The minimum pension, i.e. the guarantee of a minimum amount to be received as a public pension, is indexed to the cost-of-living, and as real wages increase the minimum pension will gradually decline as a proportion of average wages. Since 1998, when the new pension system was enacted, this reduction in the minimum pension as compared to wages has amounted to some 20%. Diagram 1 illustrates this.

Diagram 1. Minimum pension is indexed to cost of living, not to wages. Comparison of development 1998-2009 of the sum 6 500 kronor (SEK)[2]/month



Source: Authors own calculations

Even when one takes into account that Swedish pensioners with low incomes have access to a housing supplement, there is still a large reduction.

The Government insists that no increases above the cost of living indexation should be made, not even in the long run. OECD and other expert bodies protest.

Earnings related pension 2009-2015

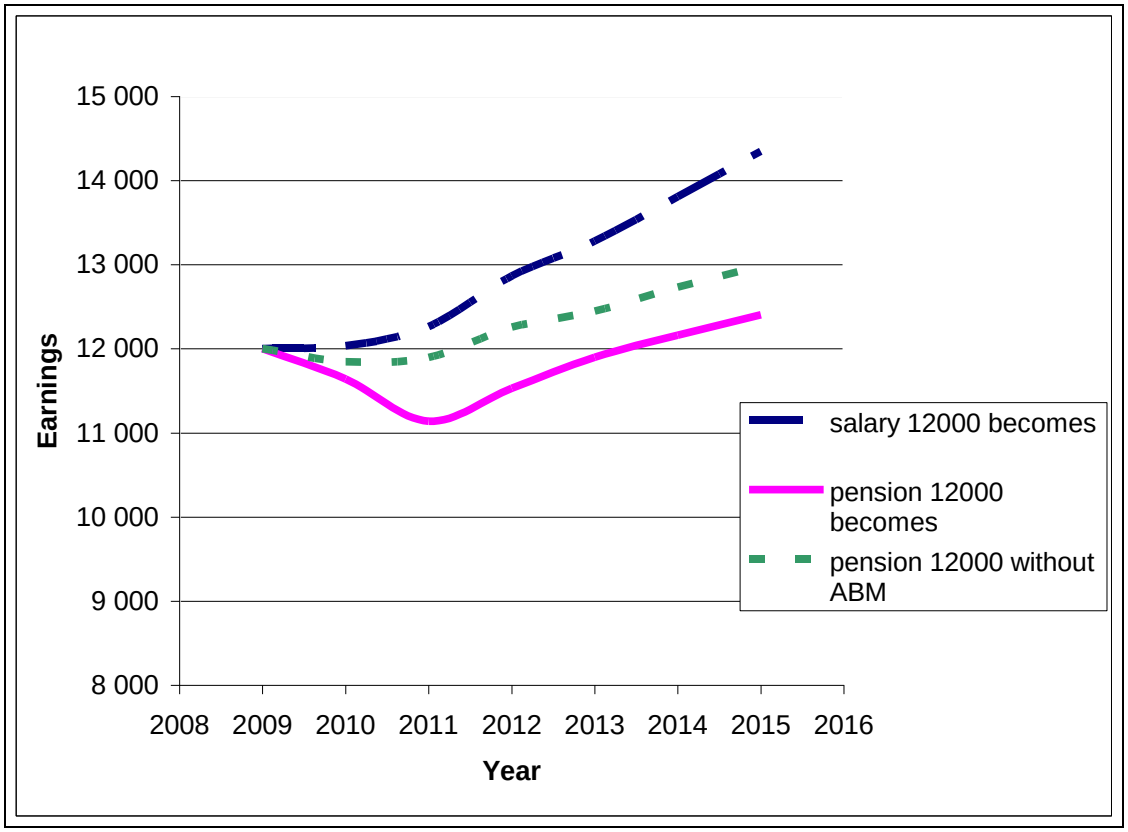
The Pensions Authority[3] is charged with evaluating and publishing information about the social effects and financing of the pension system. In its *Annual Reports*, it reports on its findings.

In July 2011, the Pensions Authority published a forecast of how gross earnings related pensions, i.e. pensions before income tax, will develop. One can see that a monthly pension in payment 2009 of 12,000 SEK, a pension amount that is used as 'the typical public pension', will reduce to 11,300 SEK in 2011, and then in 2014 rise back to 12,000. A salary in 2009 of 12,000 SEK will, on the other hand, continually increase to about 14,000 SEK in 2014 and then further in 2015, i.e.

[2] The exchange rate is around 9 SEK to one Euro
[3] Formerly National Social Insurance Office (NSIO) and before that the National Social Insurance Board (NSIB)

around 2,000 SEK more per month for the working person. The development can be seen in the following diagram 2.

Diagram 2. Comparison of official projections of development of a salary and a pension, starting from 12,000 SEK a month each in 2009



Source: Report 2011-07-28, from the Pensions Authority to the government and authors own calculations

An important reason for the pension level declining and the gap between the retiree and the active worker increasing is that a special *automatic balancing mechanism* (ABM) was activated. It reduces the monthly pension by 200 SEK in 2010, and an additional 500 SEK in 2011. There will be a further reduction in 2012, and the ABM is still applied in 2015. As a matter of fact its effect will last even until 2020 according to recent[4] forecasts.

The developments in this section are dependent primarily on transitional rules as most pensioners today have pension calculated based on the rules in the old system, i.e. they are PAYG pensions. And all pensions in payment from the PAYG scheme are subject to the new rules governing pensions in payment, i.e. subject in full to the effects of the ABM.

In next section we shall study pensions for today's younger generations. We do it by discussing development of pension age needed to draw a certain pension.

Pension age: A fundamental feature of every pension system

In most descriptions/comparisons of pension systems its "quality" is measured as the replacement rate normally obtained at the age of 65 at various future years. But such a comparison can become confusing, as it often does not take into account which financial situation for a particular system that is associated with the replacement rate calculated at corresponding years. Hence, such

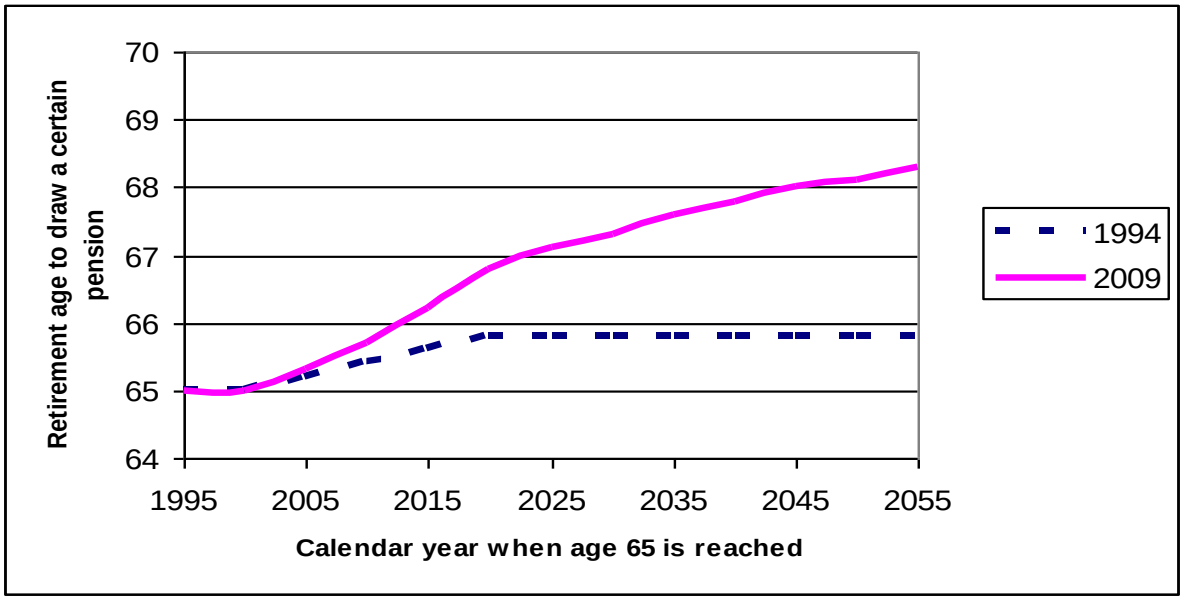
[4] The Pension Authority to the Government in 2010

comparisons tends to obscure the fact that some systems either need major revisions or might otherwise have collapsed long before a particular future year, while others might be designed as to have sustainable finances.

A fundamental factor in this context is the pension age. A necessary condition for hindering replacement rates to deteriorate, or the contribution rate to become too high in the face of an increasing life expectancy, is that people work more and up to higher ages. Hence, comparisons between pension systems ought to be made based on assumptions about pension ages that are considered compatible with sustainable finances. But to do this approaches an attempt to square the circle: Politicians often do not want to make any forecasts in this respect. But that leaves individuals without any reasonable guidance when it comes to their life planning.

As a matter of fact, should today's forecasts about the development of life expectancy in Sweden for younger generations come true, it seems reasonable that some three to four years should need to be added to the working career for a person who reaches the age of 65 in 2050 as compared to a person who reaches the same age in 2005, in order to retain a fair balance between pensioners and the active generation. But this was not at all foreseen in 1994, when the principles of the system were established. The following diagram illustrates.

Diagram 3. Age of retirement at different years in the future, needed in order to draw a certain pension, as it could be drawn at age 65 before the reform, and at the life expectancy forecasts prevailing in 1994 and 2009 respectively



Source: Proposals from the Pensions committee, SOU 1994:20, page 513, Pensions Annual Report 2009[5], page 30 and authors own calculations

The calculations made in 1994 indicated a need for rising the age of retirement by less than one year up until 2019, i.e. for a person that is born 1954 and hence is 53 years of age in 2007. From then on it was assumed to be constant. Today's forecast for the same person is an increase of the age of retirement of more than one *additional* year, i.e. a person born 1954 needs to anticipate an age of retirement of 67. For younger cohorts *more than two years must be added* to the 1994

[5] As mentioned, a new pension is established with successively larger parts following the new rules. Hence and at the same pace, the Individual Account scheme contributes with a larger part to the pension amount. In the calculations made by the Pension Authority there is an implicit assumption that the rate of return will be the same in the PAYG part and in the Individual Account part.

expectations, i.e. an age of retirement of more than 68. And these figures are for those with the most favourable earnings profile. For other groups more years must be added.

The diagram illustrates that the new Swedish scheme has a built in mechanism that automatically reduces pensions when life expectancy increases. This mechanism stabilizes finances, but it also results in the Swedish system coming out poorly in conventional comparisons of replacement rates at 65. This is for the simple reason that the Swedish system (and some others) have built in the increase of pension age needed, while others have not.

But this automatic function has caused a new set of problems. Swedish politicians, as other politicians, have not dared to speak up and tell voters what the resulting pension age is. Hence, in the new Swedish system, there is no statutory pension age. People are left to choose for themselves when, from the age of 61, they shall retire. Fully or partially. Diagram 3 illustrates the difficulties facing individuals when making their planning for retirement. To understand information about the pension benefits under different assumptions about the development of demography, wages and of economy and about the age at which the pension is drawn is not easy. By contrast, a 'statutory standard pension age' is.

Moreover, the avoidance of speaking out loud and clear about pension age has made it possible for politicians to avoid facing the need to strike a balance between pension levels, pension age and rate of contributions, to take into account which employment opportunities there are and what is done to make it possible for people to be employable at higher ages. In addition to this, it has become possible for them to avoid discussing the age limit for the social safety net. The security in the form of unemployment insurance, early retirement, etc terminates at age 65.

The effect of "automatic stabilizers" combined with a set of rules intended to be unchanged into the indefinite future is profound

As we have just seen, the effect on benefits of the types of rules introduced into the Swedish public pensions is profound. The consequence of these rules is that there is no way to change the pension system in the face of changes in external conditions with a view to attain a new balance between social goals and financial constraints. Instead all adjustments are made on the benefit side, either in the accumulation phase or for pensions in payment or both. As a matter of fact *what was said to be a weakness of conventional PAYG schemes, i.e. that all financial problems were met by raising the rate of contribution, has now gone into reverse: All financial problems are met by reducing benefits.*

The new Swedish pension system has become much observed throughout the world. The international interest for this system most probably depends upon "automatic stabilizers" built into the new PAYG sub scheme. Those features tend to stabilize the system's finances in the face of changes in various external factors such as economy and demography. The expectations were that those automatic features should be defined once and for all in the new law. Following this, politicians should be relived of the responsibility to make those complicated and politically sensitive decisions that follow from continuously following, monitoring and adjusting the parameters of the pension system.

The effects on pensions described above originate from different sources for the different sub schemes.

- The gradual facing out of the minimum guarantee follows from pure political ambition, ending up in putting more and more emphasis on supplements based on needs, especially for housing.

- The functioning of the Individual Account scheme follows conventional rules for such schemes; contributions paid in and dividend obtained on them always determine the value of benefits on an individual basis. Nothing is new or especially interesting with that part[6].

- But the new PAYG scheme, to which 16 percentage points out of a total contribution of 18,5 percent of covered earnings are set aside, contains many unconventional rules. In the following we will further elaborate on that part.

Rules originally expected to be unchanged into the indefinite future are already under review

As we have seen, the automation comes at a price. Future pension age is increased much more than expected and pensions in payment are reduced even nominally. And the minimum pension is continuously eroded as compared to wages.

The result of these unforeseen (unforeseeable) developments has become political unrest. Changes have already been made in certain aspects and the whole scheme is currently under review. As a consequence, the original agreement; on establishing rules that would never need to be changed, has gradually converted into a new approach, to the effect that whatever changes may be needed shall be designed in consensus between the political parties that backed the original reform. But the leader of the main opposition party has gone a step further, by clearly stating that either should the schemes' rules be changed or will the "pensions agreement" be abandoned and pensions once again become an divisive issue between left and right.

We will come back to the reform needs after having investigated further the reform process, the design of the new PAYG scheme, how it fits into the general trends in reforms of such schemes and how it performs.

[6] The administrative arrangements are quite different to what is the usual set up for such schemes. But that's of no significance for the discussion in this context

The design process and its result: a lack of transparency as well as oblivion of social goals of a public pension system

Why a premium reserve system?

There is a whole range of questions to deal with when it comes to analyzing the reasons for arranging a public pension system on a funded basis. One question concerns the role of a funded pension arrangement in the economy. Others concern how a funded system should be arranged in order to function properly.

When it comes to the impact of a funded pension system on the economy and whether it should be privately managed or not, the international debate have been intense, especially during the 80'ies and the 90'ies. One line of argument concerns questions about the impact of alternative pension arrangements on savings and investments and on the growth of the economy. The debate was at the time not very conclusive. Neither arguments put forward in favour of one solution, nor those in favour of the other seemed to be well supported by facts and findings.

A second line of argument among economists involved whether different pension management institutions can have a positive impact on economic growth for reasons not directly related to their effect on national saving. 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 bias to financial decision making.

A third line of arguments concerns the need to diversify risks. The arguments were, that as we really do not know what kind of system, the pay-as-you-go or the funded alternative, is the best, 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 concerned the desirability to let private entities administer pension schemes and manage the investment of funds.

With the development over the last couple of years, with one financial crash in the early 2000, and another in full swing today, there seems to be an urgent need to reopen the debate on these counts.

In the discussion about the Swedish reform some reasons in favour of a funded component with similarities to private insurance were mentioned. Enhanced private savings, greater personal involvement, greater security for the individual's assets and a lesser dependence on public pension funds were among those reasons.

For the right wing parties, their old opposition against the buffer funds under public responsibility in the old pension system was of great importance. Especially so when the need to build financial buffers for the future, following the financial strains when the baby boom generation approaches retirement, became more and more apparent. By introducing the Individual Account sub scheme, and by the elaborate transitional arrangements, the system designers succeeded in switching the need for enhanced pension savings from buffer funds in a publicly managed PAYG scheme to the new Individual Account scheme.

All the same, in official documents there is no conclusive indication given why the system is designed as it is. As a matter of fact there was no consensus about the reasons. The result was a pure political compromise between the right, who wanted a fully funded privately managed scheme of the Chilean type, and the Social Democrats, who wanted to retain a publicly managed PAYG scheme.

Why a completely automatic system?

In the public debate during the 1980s and the early 1990s it had become more and more obvious that the benefit formula in the Swedish public pension scheme was too generous. The same observation was true for the pension 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 had increased by more than three years while the pension age had 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.

A Government commission was set up in the mid 1980s with the task to study the pension system, its problems and possible remedies. 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 new commission was appointed in the autumn of 1991 in order to design concrete proposals. An overhaul of the system was proposed by the commission and the parliament decided on principles for a reform in 1994.

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[7]. 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.

A downside of the approach chosen was that the "losers" only gradually realized what had 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 individual account 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. but the consequences of the dispute seems to be long lasting.

This description of what happened in the beginning of the 90'ies, up until around 1996, offers a background for understanding what happened there after. Experts realised that the projections

[7] For instance, a "less generous" formula for calculating the pension was proposed, as well as an increased pension age. Moreover, the accumulation of pension rights and for indexation of pensions in payment were made dependent on growth of the economy. But there was no individual account component and no automatic balancing mechanism.

about the long range financial sustainability of the new PAYG sub scheme was way too optimistic. Politicians faced a grim choice: to reopen the debate on the 1994 principles or to find a way out, were new interpretations of the wording of the principles might make it possible to hide the problems. The latter approach was chosen. Advanced interpretations of the wording of the1994 principles led to a set of fully automated rules in the PAYG sub scheme. The Individual Account sub scheme was already fully automated. Hence, this last step should make it possible for the politicians to avoid a new political debate.

The politicians also thought that the automatic functioning of the whole earnings related scheme would make it possible to avoid any discussions even in the future. "This system will last until next Ice Age", as the leading politician behind the reform proudly said.

As we have seen, the new system lasted until the first crises, i.e. 2008, until reality hit it. It is now only to wait and see what will come out of the reopened reform process and of the of brave words by the leader of the main opposition party (see page 9).

More about the process that led to the Automatic Balancing Mechanism in the PAYG scheme.

We have just seen that the Automatic Balancing Mechanism became the effect of politicians back in 1994 believing in too optimistic projections, making too explicit promises about unchanged rates of contribution in the future, having to find a way out without losing face.

One of the leading experts behind the reform drew the following conclusion from the situation that gradually emerged: "As Swedish pension reformers had set out to create a (notional) defined-contribution scheme it was necessary to make sure that the system was financially stable. Otherwise it would have been logically inconsistent". Hence the automatic balancing mechanism (ABM) was invented and put in place.

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

Goals were formulated with respect to replacement rates that reflected what was considered socially acceptable.

A wish for a stable contribution rate was clearly formulated. But the switch from a defined-benefit to a defined-contribution system was portrayed as the result of the introduction of a full working career as the basis for the pension rather than as an overriding principle.

In 1994, those responsible for the reform thought they could guarantee that the new rules could be kept in place for the foreseeable future, even if the level of contributions to the two sub schemes were to remain constant. It was claimed that the reserves accumulated in the old pensions fund would ensure this even for the new PAYG sub scheme. This was also the way in which the reform was presented to the general public, especially by the Social Democratic party that was endeavouring to get its members to accept the reform.

The financial constraints, or – more accurately – the absence of financial constraints, were formulated in the discussion about the buffer fund that was available in the old system and that became the backbone determining the financial performance of the new PAYG sub scheme. In this context, the terms of the original documents that proposed payment to the state budget of monies to compensate for some of the extra burdens that it would incur as a result of the reform are worth citing. After having described the proposed compensation, the text reads:

> "Of course these proposals affect, as has been described above, only the financial side. Neither the successive phasing in of the contributions, nor the transitional use of the buffer fund for other then old-age pension payments, affect the benefit side, that is obvious".

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

The collapse[8] of the projections behind the 1994 principles was never brought into the open and no public debate occurred. Instead, what happened was that the idea of the contribution rate being kept unchanged indefinitely *was allowed to become* a cornerstone of the reform, and that the wish to transfer funds to the state budget in the very same process was transformed from a result of projections showing that there was money left over in the buffer fund into one of the leading principles of the reform. As a consequence the automatic balancing mechanism was introduced. But, obviously, other solutions might have been found. When the projections and assumptions behind the initial 1994 decision on principles of the reform proved unsustainable, the whole project could have been reconsidered and subject to open debate.

The result of the decisions made was that social justice became "*the same as inter-generational balance defined as "having a constant ratio of present value of pension benefits over present value of contributions for all birth cohorts".* This is the guiding principle behind the final design of the new PAYG system, with its automatic balancing mechanism. In this system, as now designed, there is no room left for a political monitoring of the generational contract in the future.

This is the ultimate result of a design process, intended to allow politicians to be relived of the need to deal with these highly complicated and sensitive matters.

The ABM is not the only sign of a far reaching change of welfare policy

The impression of a gradual shift of focus, and of a gradual retreat from political responsibility for the social outcome of the pension system is further illustrated by a series of other features of the present situation. Among these are the following.

The government's stated opinion is that the value of the minimum pension shall diminish in the face of real wage growth.

The social safety net is not extended to higher age groups as the de facto pension age is increased.

The complete change of the funded component as compared with the decisions on principles. In 1994, it was stated that the funded scheme should include a guaranteed minimum yield and that the wish to provide for diversity in the management of funds should not be allowed to take precedence over the wish for security. The rules governing life insurance companies were mentioned as good examples in this respect. Ultimately, a completely different model was designed, with 800 funds for the individual to choose between and with no minimum guarantee.

[8] It goes without saying that actuarial calculations must be revised from time to time. Sometimes the assumptions behind them are awfully wrong. But this situation does not justify talk about any "collapse" of the calculations. This label becomes motivated only when the calculations all of a sudden become the basis for a *totally automatic system.*

This complete overhaul was presented neither to the parliament nor to the general public as a change of principle.

A "paradigm shift" took place

But it occurred only gradually and without being observed…

Internationally there is a debate about which approach to reform is the best, a "paradigm shift" or "parametric reforms". Paradigm shifts is characterized by a complete overhaul of a pension system as well as of the vocabulary used to describe reform needs and reforms. Such a shift has, as we have just seen, taken place in Sweden.

Those advocating a "paradigm shift" often say that such an approach make it easier for the general public to understand and accept necessary changes. Others advocate successive reforms, with political responsibility retained in order that the generational contract can be monitored. The latter is the approach applied by Germany, France and the US – countries that, to date have introduced "mere parametric reforms".

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

…and it left the general public behind,….

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

The increase in the pension age that is brought about by introducing a factor dependent on remaining life expectancy in the pension calculation formula. On the basis of this, it is claimed that there is "free choice" and "flexibility", when, in fact, what is happening is that the retirement age, as that concept is conceived today, will be gradually raised. Should the regular measures built into the system prove insufficient, the automatic balancing mechanism will take care of the need for an extra reduction in benefits, forcing people to try and postpone retirement yet further.

The reduction in the replacement rate that is brought about by not merely increasing the number of years taken into account in calculating the benefit, but also by switching to a lifetime perspective, introducing a couple of non-contributory periods into the basis for the pension, and changing the indexation method from the price index to the wage index. A comparison of the new and the old system show "winners" as well as "losers" instead of only "losers". This obscures the fact that the most important result of the reform is the requirement for people to work longer under the new than under the old system to obtain a pension of a given level.

The lack of clarity surrounding the worth of the Individual Account component of the pension that is brought about by the design of the that component with its confusing range of funds and with pensions solely dependent on whichever market return on investments that the individual can obtain. Every discussion on the merits of this component unavoidably ends up in complete uncertainty, since no one knows what the development will be in the future.

The fundamental change in welfare policy in the long run that is implied by some elements of the reform. Particular mention should be made of the effective cut in the level of the minimum pension, since its level is indexed to prices and, relative to wages it will fall if there is an increase in average real wages. This change in welfare policy has never been discussed openly.

A consequence of this approach is that the "losers" only gradually realize what has happened and this hampers the political process. No one knows what part of the public response, a response that so far has been mostly total silence, is caused by ignorance and what part is an informed opinion.

...resulting, as it seems, in complete indifference to what happens

The scope of change of focus that the paradigm shift has caused can be illustrated by the following examples.

The first concerns pension levels. In successive Annual Reports the Pensions Authority presents calculations about estimated average pension level. The following table illustrates the figures from successive Annual Reports.

Table 1. Average pension level as estimated in Annual Reports 2001-2010

Annual Report year:	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cohort due soon to retire	1938	1938	1940	1940	1940	1940	1942	1944	1945	1946
Average pension level at 65 for that cohort	69	69	64	68	70	66	68	66	66	66
Cohort 1990: Average pension level at 65	51	55	50	51	54	53	53	53	53	52
Difference	**18**	**14**	**14**	**17**	**16**	**13**	**12**	**11**	**13**	**14**
Of the difference is due to life expectancy according to the Annual Report	9	7	7	7	8,5	9,6	10	9	9	9
Other factors	**9**	**7**	**7**	**10**	**7,5**	**3,4**	**2**	**2**	**4**	**5**

The table indicates that figures seems to have stabilised somewhat after 2006. About the figures up to and including 2006 the following deserves to be observed.

The estimation of average pension level for a birth year cohort soon to retire ranges from 64 to 70 percentage points. The difference between these levels corresponds to 10% of the pension. The estimation of average pension level for the birth year cohort 1990 ranges from 50 to 55 percentage points. This difference too corresponds to 10% of the pension.

Moreover, the explanation to the difference between the two cohorts, i.e. the distribution of the difference between "life expectancy" and "other factors" is not stable over the years.

The Pension Authority did not commented on these differences between years, now-one else, be it media, politicians, union representatives or individuals in general, did ask about this. And, after all, at least the difference in estimated pension level *for a cohort due to retire* ,10% as the difference is, would create big havoc in most countries. In Sweden the interest for pension levels seems to have vanished.

After 2006 the figures presented indicate some stabilisation. Here the average pension level, 66%, is the same for persons due to retire 2006 and 2010 respectively. This in spite of the fact that other tables in the relevant reports indicate that an individual born in 1945 needs to work an additional 6 months to obtain a pension of the same level as a person born in 1940.

Most probably there are good technical explanations to these figures. The striking matter is: No one reacts, no-one asks any questions. There is no debate at all.

Another example concerns retirement ages as presented 2004 and earlier as compared with 2005 and after.

The Pension Authority changed perspective for their account for retirement ages between the 2004 and 2005 Annual Reports. In annual report 2004 retirement age needed for a certain pension level was calculated as if a retirement age of 65 for birth year cohort 1940 was a relevant point of departure for the calculation. But that was incorrect. The calculation of first years pensions in the new system is based on increases of life expectancy that occurs for later birth years cohort as compared to individuals born 1930. Therefore, in Annual Report 2005 the starting year for the calculation has been cut back to birth year cohort 2030.

Birth year cohort 2030 reached 65 in 1994 when the decision on principles for the new system was taken. But it was only in 2003, i.e. for birth year cohort 1938, that the new pension system for the first time was applied to the calculation of new pensions. Under the formulas of the new system the increase of life expectancy between birth year cohort 2030 and birth year cohort 1938 calls for an increase in retirement age of 9 months in order to reach a certain replacement rate. In actual application, this increase is introduced from birth year cohort 1938 onwards, following the transitional rules.

For persons born 1985 the retirement age needs to be 10 months higher than calculated in AR2004. This can be seen in table 2.

Table 2. Retirement age to neutralize the longevity effect, as indicated in the Annual Reports 2004 and 2005

Retirement age	2004	2005	Increase
Cohort 1940	65 years	65 years 9 months	9 months
Cohort 1985	67 years, 1 month	67 years 11 months	10 months

Once again, no questions asked, no debate. Even the interest for retirement ages seems to have vanished.

These are but a few examples of developments that have occurred without anyone noticing. It will be for the future to clarify whether a genuine change of minds or sheer ignorance is the explanation to this situation.

In this context it is worth observing that individuals are each year presented an individual prognosis about his or her future pension, based on some alternative “assumptions” about future development of external factors and their own future work pattern. The basic assumptions has varied over time, as has the way of presenting the result of the calculation. The existence of the automatic balancing mechanism is not even mentioned. The Pensions Authority makes yearly inquiries about how this information is received. By 2009 not even 50% of people under 50 answered that they even know about the public pension system. But they are supposed to begin their pension planning long before that age!

The social outcome is neglected.

Swedish authorities as well as pension politicians have lost track of the basic purpose of a public pension system: To provide decent pensions.

The Pensions authority has a responsibility to report not only on the financial performance, but also on the social outcome. In previous sections we have studied the politics of the reform process and we have seen what type of information that is reported in the Annual Reports. The information presented overlook the fact, that this new type of system, i.e. a completely automated

contribution defined system, needs a new approach to the analyses of the system if the adequacy of pensions should be incorporated in the analyses.

Traditionally, when reforming a mature defined benefit PAYG pension system, it is projections showing a need for an increase in the contribution rate that cause alarm. It is important to realise that this follows from the design of a defined-benefit system. Since the benefit rules are established in advance, every disturbance of the system emerges as a disturbance of its financial sustainability. In the new Swedish system, it is the financial rules that are defined in advance, in the PAYG sub scheme as well as in the Individual Account part.. These rules establish the financial scope for the total amount of benefits. Individual rights and pensions are adjusted accordingly.

In a contribution defined scheme the "alarm system" has to be redesigned. It will have to register not what future contributions would have to be, as the rate of contributions is set once and for all, but instead what will happen to the well being of pensioners.

The outcome of such analyses is among other factors dependent on which other arrangements there are available for the elderly, be it housing supplements, subsidized services and so forth.

In addition to the *guarantee pension* there is a whole range of arrangements, heavily subsidised for all or for those in need, of this type in Sweden:

- Housing supplement and special housing supplement for pensioners
- Maintenance support for elderly persons
- Transport service for disabled persons
- Home adaptation grants
- Care charges for elderly and disabled people
- Pharmaceutical benefits
- Dental support for elderly people
- Cost ceiling for health and medical care

This list underscore the need for a broad perspective on the matters at hand.

Risks and opportunities needs be described in all these dimensions. What is required then is the establishment of social indicators and the development of means to make projections of these into the future. Among such indicators are likely to be those showing the relationship between pensions and wages and income disparities among pensioners – in each case illustrating how these would stand given differing economic and demographic assumptions as well as development of all public arrangements for the elderly.

As yet, no such indicators are available. And, most probably, they can not be designed with any accuracy. But this is what should need to be studied in order to find out how well public policy for the elderly fulfils its mission.

There is an obvious conclusion: As the future can not be described with any degree of certainty, this is as well the case for a public pension system with any ambition to meet social goals. Hence, a fully automated pension scheme can not function in the long run.

About the new PAYG scheme: A framework for analyses

Different types of stabilizers are introduced in different countries. They can be classified into three broad types, all with different characteristics.

When analysing the new types of PAYG schemes, of which the Swedish is one, it is important to note that there are stabilizers of fundamentally different sorts. Here we will discuss those stabilizers under three headings. Those are

- Automation of the first order. These are features that make benefits dependent on changes in factors *external to the pension system* such as demography and economy, that otherwise tend to disturb the financial balance of the system.
- NDC schemes, that make benefits dependent on contributions paid in on an individual basis
- Automation of the second order. These are features that react *based on the financial balance itself* and guarantee financial balance whatever happens in the environment.

Automation of the first order

There are formulas in reformed pension systems of many countries that make benefits dependent on demography and economy.

Germany is one example. The so called sustainability factor, introduced in the 2004 legislation, does contain an automatic adjustment to indexation of pensions in payment. But it is dependent on the relation between contributors and pensioners, i.e. factors external to the pension system, and it does not guarantee in itself the financial sustainability and it does not hinder adjustments to contribution rates. Instead, it is combined with commitments to political action, should either replacement rate or contribution rate targets risk not to be fulfilled. Hence, Germany has retained a political responsibility to monitoring the balance between incomes of active and retired people, by adjusting from time to time target replacement rates, the benefit formula and the contribution rates.

In the Canada pension plan there is a similar function in place.

Important is to realise that such reforms as those just described from Germany and Canada base the new features and formulas on *factors external to the pension system*. And they do not base pension rights on contributions and they do not claim to make adjustments of the rate of contributions unnecessary in the future. There are a whole range of examples of this kind of reforms, among those Finland, Norway and Japan.

For some highlights of the schemes mentioned here see Appendix, page 33 ff. The flexibility in a PAYG scheme is retained in such systems. We call this kind of automatic adjustments *automation of the first order.*

There are a few countries (Italy, Sweden, Latvia, and Poland) that have taken this kind of reforms a step further and introduced the so called NDC-scheme. Those schemes contain a couple of features (different in each country) of the kind we call "automation of the first order". *In addition* to this they all have two additional features, namely

- *the contributions themselves are the basis for accumulation of pension rights* and
- *contributions are intended to be unchanged into the indefinite future*

In such a scheme the situation becomes radically changed, as compared to the examples above from Germany and Canada. But, as a matter of fact, the fundamental importance of introducing *contributions,* not *earnings* as the basis for pension rights was not properly observed, neither in Sweden nor in the international debate. And, as we have seen, in 1994 the promise in the Swedish reform to hold contributions unchanged over time was based on actuarial projections of how the new scheme would function, not a principle.

The Swedish PAYG sub scheme as it emerged in a first round of decisions

Among automatic stabilizers, as they appeared in a first round of decisions of principles for the new Swedish scheme in 1994, are indexation rules and the automatic decrease in pensions drawn at a certain age, when life expectancy increases. Another stabilizer is the buffer fund.

The characteristics of the new PAYG scheme as decided in 1994 were the following:

- Benefits are based on all contributions over an individual's full working career.
- Indexation rules are linked to average wage development:
  - pension rights being indexed to average wage growth,
  - pensions in payment being indexed to average wage growth reduced by 1.6 percent per year (flexible indexation with the 'norm' 1,6 %).

    The 'norm' used comes into the annuity factor as an imputed real rate of return. Its function is to rearrange the time profile of pension payments over an individual's time in retirement, making first years pension larger than it would otherwise have been. A reason for this approach was the political wish to offer a first years pension that was of the same magnitude as in the old system. It has no connection to any projections of presumed increases of real wages
- Benefits are made dependent on life expectancy, meaning that a benefit drawn at a certain age by an individual belonging to one cohort will be lower than that for the preceding cohort, if life expectancy has increased.
- All contributions are paid into the buffer fund and all pensions are paid out of it. As a consequence, the buffer fund accumulates capital in certain periods, for example if large cohorts reach working age, and, consequently, the labour force expands, or if labour force participation increases. The surplus generated under such periods will be used to counter financial strains on the system in other periods.

The PAYG part is financed by a contribution of 16.0 percentage points.

As we have seen (page 12 f) back in 1994 it was claimed that this design would make it possible to retain the contribution rate to the PAYG scheme unchanged into the indefinite future. But in that state of the design process this was the result of conventional actuarial projections, not a prerequisite for the system as such. Alongside with these projections goals were formulated for benefit levels and, as we have seen, a need for an increase of pension age with less than one year was anticipated (see about this page 6 ff).

It was only later that the projections of contribution needs were transferred into a principle of a fixed contribution rate, and Swedes and the World Bank began to talk of a certain type of PAYG pension schemes, the NDC scheme[9].

The evolution of the Swedish scheme was the result of a gradual process, from 1994 up until the beginning of 2000, a process wherein politicians and experts gradually invented mechanisms that converted the original projections into automatic formulas. This process ended up in what we

[9] The concept was introduced to a World Bank conference in 1998 (96) by Mr Edward Palmer. This was definitely later than the principles of the Swedish (and Italian) reforms were formulated

here call "automation of the second order". We will come back to this concept after a discussion of some characteristics of the general NDC concept.

The design process was characterised by "trials and errors" and still today there are many problems in understanding the new system. The Pensions Authority has asked for permission to further investigate the scheme and to be allowed to present alternatives to the current design.

About the general NDC concept

As already mentioned, the fundamental importance of introducing *contributions*, not *earnings* as the basis for pension rights was not properly observed, neither in Sweden or in the international debate.

In the international debate "life time earnings" are still sometime used as the basis for pension rights accumulation in the definition of the basic NDC concept. For instance, international experts from time to time state that defined benefit schemes in general as well as the so-called point systems can be made to mimic the general NDC model[10].

This and similar statements are true only under the condition that the parameters, such as the characteristics of the Swedish PAYG scheme enumerated above, built into a NDC scheme are enough for keeping the scheme in financial balance under various developments of the environment, i.e. demography and economy, without a need to increase the rate of contributions[11]. Under such circumstances a traditional DB (point) scheme, given the appropriate parameters, can function exactly as the NDC-scheme, when it comes to accumulation of pension rights and pensions in payment. The NDC scheme then functions as if 'life time contributions', that are the basis for pension rights accumulations in all NDC schemes, were equivalent to 'life time earning's[12]. *But this is true only provided that the scheme does not come under financial stress.*

Now, it must be observed that every pension system trying to retain benefit and contribution rules unchanged over time comes under financial stress following demographic developments and other changed circumstances, as soon as 'dedicated reserves' or 'buffer funds' that might have been available at some point in time, are depleted. And when financial stress occurs, there are fundamental differences between schemes characterised by "automation of the first order" and NDC schemes.

Under financial stress a traditional DB scheme, regardless of any automatic feature that might be incorporated into the scheme, becomes subject to a review, where benefit levels, pension age and contributions all are discussed. Basically, what happens is a political process aiming at striking a new balance between these factors. Such a reaction is not feasible in a NDC scheme, where, as we have seen, the contributions themselves are the basis for the accumulation of pension rights. Consequently, in a NDC scheme it is not advisable to try to help to solve current financial

[10] Se for instance Whitehouse: 'Decomposing National Defined-Contribution Pensions' in OECD Social, Employment and Migration Working papers No 109 that can be found at **http://www.oecd-ilibrary.org/social-issues-migration-health/decomposing-national-defined-contribution-pensions_5km68fw0t60w-en**

[11] It is a fact that all the countries that are said to use NDC, i.e. Italy, Sweden, Latvia and Poland use contributions as the basis for accumulation of pension rights. As do the original proponents of the model, i.e. Mr Palmer in Sweden and Mr Holzmann at the World Bank.

[12] But then, the whole concept becomes meaningless, being in fact nothing but a certain form of a 'parametric reform' of traditional DB schemes.

problems by increasing the contribution rate, as such an increase would create new pension rights and hence risks creating new financial problems in the future.

In NDC schemes, the desire to stabilise contributions has been transferred into a basic principle; contribution rates are intended to remain unchanged into the indefinite future. In such a scheme all adjustments must be made on the benefit side, either in the accumulation phase or for pensions in payment or both. The alternative is to abandon the NDC principle.

Here, it must be stressed that 'abandoning the NDC principle' only refer to the need to abandon the inseparable and automatic connection between contributions and benefits that is the basis for that concept. As soon as this step is taken, by introducing some sort of contributions that does not give rise to pension rights, such as the 'solidarity contributions' introduced in France or by abandoning all together the contributions as the basis for pension rights, the NDC system has been transformed into a 'traditional DB-scheme with interesting new features'. Such a scheme may contain all other features nowadays and by some experts solely attributed to the NDC concept.

Hence, the only significant consequence of 'abandoning the NDC principle' is that politicians once again, resume responsibility for monitoring the generational contract in order to strike a fair balance between social goals and financial constraints. And, after all, the sooner this need is realised, the better. Already after the financial crises during the last couple of years we have seen that politicians have intervened or voiced plans to mitigate the effect of the crises on pensions in all four countries (i.e. Italy, Sweden, Latvia and Poland) that usually are mentioned as those applying NDC[13].

Automation of the second order; A unique Swedish invention

Only the Swedish system contains a mechanism that makes the basic definition of the NDC concept to a consistent design in so far as all changes needed to guarantee financial stability under an unchanged rate of contributions are built into the new PAYG system[14]. This feature is the *automatic balancing mechanism (ABM)*[15], that operates directly based on the financial balance.

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

This is the mechanism that finally transforms a PAYG scheme into a contribution defined scheme. Following this, politicians can, technically speaking, leave the scheme to itself. This mechanism can reasonably be labelled *automation of the second order.*

[13] About this see: Chłoń-Domińczak A., D. Franco & E. Palmer, 2011. The First Wave of NDC – Taking Stock Ten Years Plus Down the Road in Holzmann, R. & Palmer E. (eds.) Non-financial Defined Contribution (NDC) Pension Systems: Progress and New Frontiers in a Changing Pension World. Forthcoming publication of the World Bank. A draft can be found at **http://www.forsakringskassan.se/omfk/ndc_pension_conferens** and Wojciech, Otto, University of Warsaw, Pension reform in Poland, report to the PBSS seminar in Edinburgh September 26, 2011

[14] Obviously, there is no need for any unconventional features in the Individual Account sub scheme, being fully automated already in its conventional form

[15] This mechanism was at first named 'the Brake' a name still widely used

A summary of features in PAYG reform; three broad types, all with different characteristics.

The fundamental difference between automation of the first order and of the second order seems often to be neglected in the international debate, as is the difference between "traditional PAYG schemes with interesting new features" on the one hand and NDC schemes on the other. The following table might clarify the authors thoughts:

General description	Characteristics	Examples	Label
Traditional PAYG schemes with interesting new features	Pension age dependent on demography, indexation dependent on wage growth etc. And/ or special rules about how to react to financial disturbances and when and how politicians shall intervene, such as in Germany, Canada and Japan	Germany, Canada, Japan, Finland, Norway and many others	Automation of the first order
Contributions unchanged into the indefinite future	Automation of the first order **plus** contributions as basis for pension rights, i.e. "the NDC principle" and a pledge that contributions should be unchanged into the indefinite future Can not function automatically without some additional mechanism (See above under the heading "about the general NDC concept")	Latvia, Italy, Poland, Sweden	NDC
A fully automated pension scheme with contributions unchanged into the indefinite future	NDC **plus** an automatic balancing mechanism **based on the financial balance itself.** mechanism (See above under the heading "Automation of the second order"	Sweden	Automation of the second order

From this table it becomes obvious, that the Swedish model, according to the authors opinion, is of great theoretical interest. But it does not fulfil basic ideas about the need for a proper balance between social goals and financial constraints. Nor does it meet basic ideas about how democracy can function in the long run.

About the performance of the new Swedish PAYG pension scheme: Beliefs and reality

Here we will compare long range scenarios, short term performance and study the believes as of 1994 and 1998 as compared to the development during recent years.

Long range scenarios as presented 2006 and 2010

The Pensions Authority is charged with evaluating and publishing information about the social effects and financing of the pension system. In its *Annual Reports*, it reports on its findings. Following diagrams are based on these reports and its underlying data.

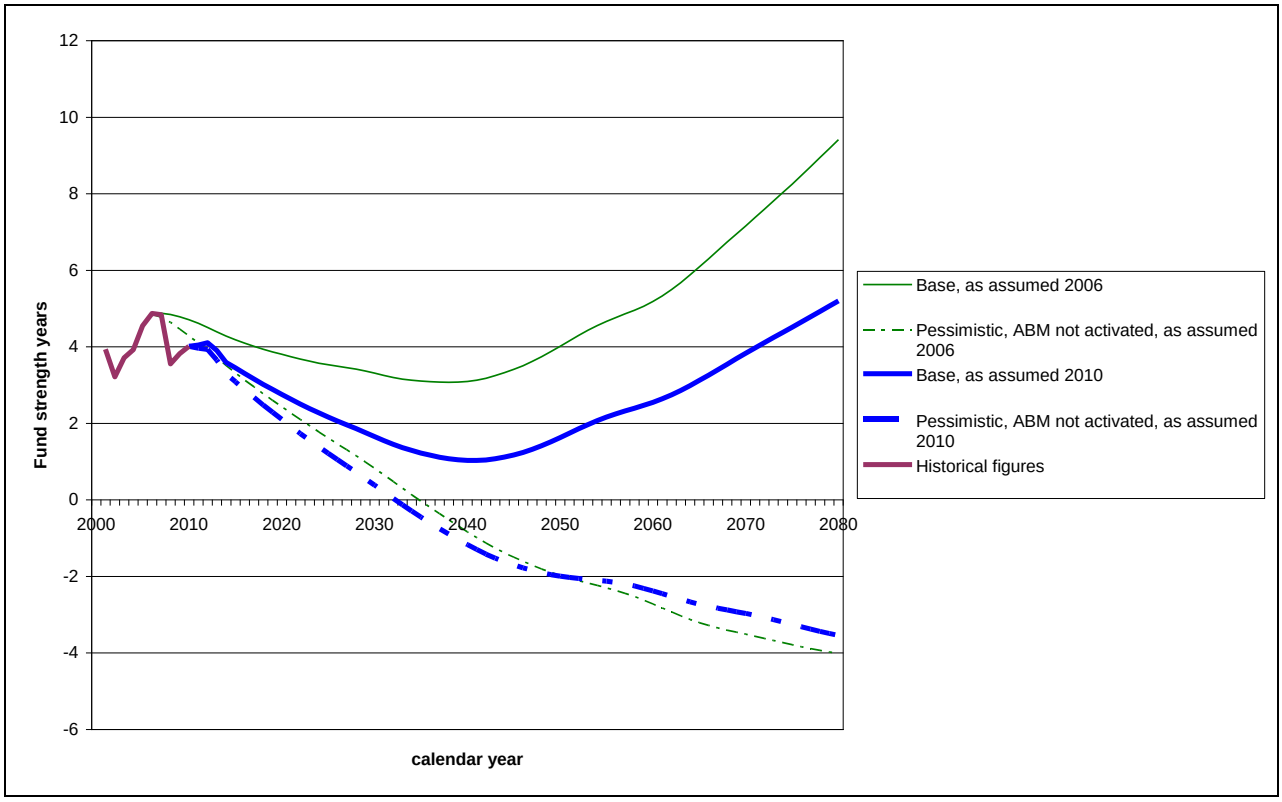
The Buffer fund

The *buffer fund* is an important feature of the new system. All contributions to the PAYG scheme are paid into this fund and all pensions are paid out of it. As a consequence, the buffer fund accumulates capital in certain periods, for example if large cohorts reach working age or if labour force participation increases. The surpluses generated during these periods are used to balance financial strains on the system in other periods. Such a strain will occur when the baby boom generation reaches pension age. At the outset of the new system, most of the pension fund that

had been accumulated under the former ATP pension system was transferred to the buffer fund where it served as a sort of "start up capital".

In the following diagram we can see the development of the buffer fund as conceived 2007, presented in Annual Report (AR) 2006, and 2011 (AR2010). In this diagram the size of the fund is illustrated as fund strength, i.e. the number of years' pension expenditures that could be provided for with the fund alone, without any contributions.

Diagram 4. Fund strength under a two scenarios, a base scenario and a pessimistic, as presented in AR2006 and AR2010 respectively



Source: Annual Report 2006, page 26 and Annual Report 2010, page 26.

As we can see the fund at the inception of the new system (i.e. 2001) was large. The strain on the system develops gradually, peaks around 2040 and thereafter it eases again. This development reflects the demographic development during this period.

The diagram as presented in 2006 indicates that even when the strain on the scheme is as largest the fund strength will be fairly high, or more than three years. But the picture as of 2010 is much less favourable. We will come back to this after having presented the scenarios for the balance number.

The Diagram also displays pessimistic scenarios and what would happen with the fund if no specific countermeasure, i.e. the automatic balancing mechanism (ABM) was implemented.

The Automatic Balancing Mechanism

.The *automatic balancing mechanism* (ABM), is a mechanism that operates directly based on estimations about the financial balance itself. The purpose of this mechanism is to see to it that financial balance is retained without any increases in the rate of contributions.

The ABM involves a yearly calculation of a *balance number* which records the ratio of assets to liabilities. Assets are the value of future contributions, measured as the so called turnover duration terms last year's actual sum of contributions, together with the assets in the buffer fund. Liabilities are acquired pension rights as registered and a calculated value of pensions in payment[16].

The basic idea is that as long as assets exceed liabilities the financial sustainability of the pension system is secured. Should the balance number fall below unity, the automatic balancing mechanism is activated and leads to a cut in pensions. For example, if the balance number *(balancing ratio)* is 0.99, then one percentage point is deducted from the index that would otherwise have been applied to revaluation of accumulated pension rights and to pensions in payment. After a year, a new calculation is made. If, in spite of the reductions made in the previous year, the balance number is again below unity, a reduction in the yearly revaluation is made in this year, too. This process continues as long as the successive yearly calculations of the balance number produce a result below unity.

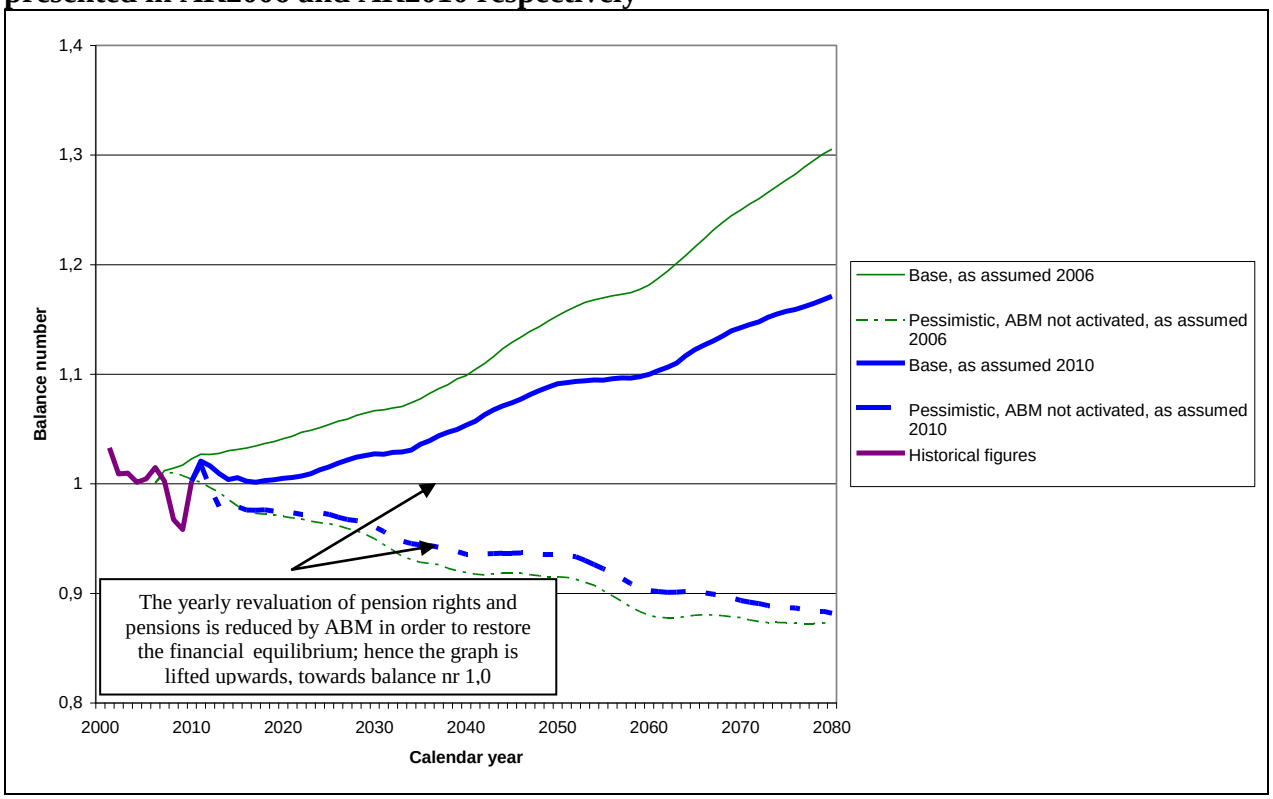
Whatever happens, the ABM reduces current and future pensions by as much as is necessary in order to maintain the stability of the system's financing at a fixed rate of contributions. Or more concretely worded: The ABM sees to it that the Buffer fund never goes into deficit[17].

The consequence of the design here described is that there is no way to monitor the generational contract that is laid down in the pension formula, and no way of adjusting the system in the face of changes in external conditions to attain a balance between social goals and financial constraints in the future. This is the intended consequence: To get the politicians out of the need to deal with these highly complicated and sensitive matters.

[16] There are some smoothing of figures over three years before the year when the balance number is calculated
[17] As a matter of fact, a small deficit can occur. But that deficit is under full control and it does not grow whatever happens.

In the following diagram we can see the development of the balance number as conceived 2007, presented in Annual Report (AR) 2006, and 2011 (AR2010).

Diagram 5. Balance number under a two scenarios, a base scenario and a pessimistic, as presented in AR2006 and AR2010 respectively



Source: Annual Report 2006, page 27 and Annual Report 2010, page 27.

These calculations indicate in the Annual Report 2006 that there is no significant risk that the balance number should fall below unity before 2010. And not even the "pessimistic" alternative indicated the possibility of a development even remotely approaching what really happened.

A further observation is that the balance number in the base scenario for future years develops much more positive in AR2006 than in AR2010.

Under the "pessimistic" scenarios, the balance number falls below unity in both AR2006 and AR 2010. Thereafter there is a reduction in the yearly revaluation of pension rights and pensions in order to restore the balance. This causes the balance number to stabilise around 1,0. Without the automatic balancing mechanism the balance number would fall as the lowest, dotted curves indicate. And, as we have seen in diagram 4, the buffer fund would fall far below zero.

Now time has come to try and find out what causes the significant differences between AR2006 and AR2010. Does it depend on differences in assumptions about future development or on any other causes. We will discuss this in next section.

Assumptions about future development

The " assumptions" behind the scenarios in AR2006 and 2010 respectively are the following:

Table 3: Assumption used in AR2006 and 2010 respectively

	Year of AR	Base scenario	Pessimistic scenario
Fertility	2006	Up from 2006 1.77 to 1.85 in 2010, thereafter constant	Down to 1.65 by 2010
	2010	1.83 through 2025, therafter constant 1.82	1,65 as from 2010
Life expectancy at 65	2006	Down from 36 days per year 2006 to 15 days per year in 2050, **resulting in 87 years får a person born 1985**	
	2010	**87 years for a person born 1985,** with approximately the same development for cohorts in between the starting year and 2050.	
Participation in the labour force 16-64, measured as persons with earnings above a certain trechhold	2006	Around 84%	
	2010	Around 88 %	
Immigration	2006	26000/year until 2015, thereafter 23000/year	17000/year until 2015, thereafter 15000
	2010	Down from 49 000 in 2009 to 25 000 in 2015 and 18 000 in 2085	17 000/year until 2015 thereafter 15 000
Growth in average real wages	2006	1,80%	1%
	2010	1,80%	1%
Real rate of return on investments	2006	3.25%	1%
	2010	3,25%	1%

Source: Annual Report 2006, pages 25 to 30 and AR2010 pages 23-28 and some further information from the Pensions Authority

The assumptions about future development underlying AR2006 and AR2010 are very similar. The only significant difference concerns participation in the labour force that increases. This should strengthen the systems finances. But the reverse is illustrated by the diagrams. Te reason for this must be sought somewhere else.

As it is not the assumptions for the future development that causes the big difference in expectations it must be the starting point, i.e. what has happened between 2006 and 2010. The conclusion becomes that an economic and financial crises over four years in a dramatic way have changed the long range prospects of the PAYG pension scheme. And this is not surprising, this is the way in which exponential functions develop. What is surprising though, is that Swedish politicians have designed a pension scheme extremely dependent on such formulas. We will come back to this after having studied the short range development over the period 2001 to 2009.

Short term: The development during the first 10 years of the new PAYG scheme

As a matter of fact, the balance number is close to unity. Up until 2007 it was only an exceptional development of stock market values that boosted the buffer fund's assets and thereby prevented the balance number from falling below unity. In this section we will present the latest official projections on this matter and study the possible effects of the balancing mechanism being activated.

In July 2011, the Pensions Authority published a forecast of how gross pensions, i.e. pensions before income tax, will develop. We have seen the projection on page 5 were we also saw that an important reason for the pension level declining and the gap between the retiree and the active worker increasing is that the automatic balancing mechanism was activated.

Politicians claim that the economic crisis is the cause of the 'Brake' being applied, particularly through the reduced asset values of holdings in the buffer fund. Government representatives

claimed this most recently in a parliamentary debate in April last year. But they have misunderstood the situation. To analyze what has happened we study the development of the balance number and its parameters. They can be seen in the following table 3, with values in billion SEK (BSEK).

Table 4. The balance number and its parameters in BSEK 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Buffer Fund	488	577	646	769	858	898	707	827	895
Buffer Fund Mean Value							821	811	810
Contribution asset	5 301	5465	5607	5721	5945	6116	6477	6362	6575
Total assets	5 789	6042	6253	6490	6803	7014	7184	7189	7469
Pension liability	5 729	5984	6244	6461	6703	6996	7428	7512	7367
Surplus	60	58	9	28	100	18	-243	-323	103
Balance number	1,0105	1,0097	1,0014	1,0044	1,0149	1,0026	0,9826	0,9549	1,0024
Contribution asset less Pensions liability	-428	-519	-637	-740	-758	-880	-951	-1 150	-792

Note: As from 2008 the Mean Value over three years is used for the calculation of the balance number. This new method of calculation affects registered pension rights in 2009 and pensions in payment in 2010
Source: Pension Authority, Annual Report 2010, page 39. The last row in the table is inserted here fore analytical purposes.

The magnitude of the parameters used in the calculation of the balance number can be illustrated by information about Swedish GDP. For 2010 it is estimated to 3 300 BSEK.

It is true that the value of the buffer fund declined by 191 billion kronor in 2008. But much of that loss was recovered in 2009. Nevertheless, pensions are reduced in 2010 and following years. This depends on something other than the ups-and-downs of the buffer fund. Considerably more than 600 billion kronor have by the end of 2010 been lost in the complicated formulae that steer the ABM mechanism. We shall study three decisive factors.

1. As a result of an unnoticed connection between the tax rules and the 'income index', which is the basis of the annual pension recalculation, the recalculation was 'too large' for several years[18]. *In total this accounted for 160 billion kronor in weakening of the pension system's financial balance*[19]. Additionally, there are elements in the basic method for determining the income index that causes problems for the financial balance, according to a spring 2010 report[20] from the Pension Authority, which failed to reveal just how much this influenced the balance. The Pension Authority proposed a deeper analysis of the problem, after more than a year the government answered..

2. Another factor weighing on the finances is increased longevity. We are living longer and longer, and this affects expenditures from the pension system. In order to counteract this, pensions are successively reduced.

For example, Anderson, who retired in 2008 at 65 years of age, receives a smaller pension than Peterson, who retired in 2005 at the same age and who had the same amount and pattern of

[18] The income index is based on average taxable earnings, i.e. earnings less a base amount that is deducted before taxable income is established. When this base amount is increased, which has been the case over the last decade, people with earnings below this threshold are not included when the average is calculated.

[19] See Ole Settergren in an article in the periodical 'Veteranen', issued by the Swedish Association of Senior Citizens, Nr 1 2010 (available only in Swedish).

.

[20] Report 2010-02-26 (available only in Swedish)

lifetime income. The amount of the decrease is determined by how the number of older persons has developed over the years.

For social reasons, one doesn't want to reduce pensions even for those that already have retired. This costs money. *From the pension system's annual reports one can calculate that finances have been depleted by 240 billion kronor as a result of this*[21]. This cost wasn't planned for, and, no matter how well socially motivated this concern for those already retired may be, the cost must be recovered. This is brought about by way of the Brake, and the end result is that those already retired share the burden of the costs due to increased life expectancy.

3. A third factor affecting finances, is how younger people are acting in regards to work. If they begin working at an older age, or otherwise delay their careers, the 'contribution assets' of the pension system are reduced. And this has been the case. *Young people are beginning work later, and other changes have also occurred. More than 200 billion kronor has in this way 'disappeared'*[22].

The saying that every individual himself bears the brunt of his/her life choices is incorrect. So is the claim that the 'Brake' ensures that 'costs are not shifted on to our descendents'. Older peoples' pensions are being reduced due to younger people changing their life styles, often due to the unavailability of jobs. A reverse shifting of costs, in other words.

Without these three factors the Brake would not have been needed, despite the 191 billion kronor decline in buffer fund assets 2008 and despite the loss of about 300 billion caused by the economic downturn[23]. Referring to the economic downturn is a way to avoid facing the real problems.

Misunderstandings in the design of the new PAYG scheme, and how it could be reformed.

It is a misunderstanding that the Automatic Balancing Mechanism should be for emergency only

The minister in charge of the reform, Ms Klingvall gave, according to an interview in the leading Swedish Morning newspaper on July 7th 1998, the following example on situations when the automatic balancing mechanism should need to be activated:

> "If, for a long period, we would experience an extremely low rate of growth in the national economy, or if we should have to face an unbelievably high emigration. It is dramatic factors indeed that must happen in order to disturb the balance between contribution asset and pension liability."

This statement is a quite direct quotation from the government bill 1997/98: 151, page 353.

The reality is that over the last couple of years Sweden has had a comparatively high immigration. And, according to the finance minister, Sweden has endured the financial crises very well. Furthermore, as described on page 26 ff, it is not the slump on the stock market that has caused the automatic balancing mechanism to be activated.

[21] The author's own calculations based on annual reports 2001-2010

[22] The author's own calculations based on annual reports 2001-2010

[23] This rough estimate is based on comparison between how the 'contribution asset' has developed between 2001 and 2008 (between 140-400 billion SEK/year with a median value of around 185 billion) with the development 2009, that was a reduction of 115 billion SEK.

The believes of Ms Klingvall and her colleagues were simply wrong.

ABM fails to meet the very reasons for public involvement in pension arrangements

In Government Bill 2000/01: 70, the Bill where the automatic balancing mechanism is finally proposed to Parliament, page 13, one can read about ”uninsurable risks”. Examples of such risks mentioned are economic and demographic developments of various kinds. It is discussed if, when and to which extent pensions should be affected.

The discussion continues on pages 25 to 26. It is said that economic and demographic developments always and ultimately affect the pension system. Therefore, it is to prefer that it is possible beforehand to know what the reaction to such developments will be. Arguments in favour of an automatic balancing mechanism are presented.

With such rules, it is further stated, it will be possible to inform the general public about development of pensions under different scenarios for demographic and economic development. Transparent information about these “uninsurable risks” is the security that can be offered in a public pension PAYG scheme.

The conclusion presented is that it is more favourable for individuals and better for the financial sustainability of the system to meet such development by preset rules instead of resorting to discretionary decisions.

We have seen what kind of “transparent information” that is offered (pages 15-17, and 22-26), and how the general public has reacted (pages 15-16). The information is difficult to understand, it varies between Annual Reports without any explanation, and it proves that the future development of pensions is extremely dependent on development of external factors, the probabilities of which is impossible to estimate. The information to individual fails to explain neither changes of basic assumptions for the forecasts nor the extreme uncertainty that affect long range scenarios. The result has become nearly total silence and the general public seems to have lost any interest in the matter. And this fact should not have come as a surprise. It is obvious that information about what will happen under different scenarios, the probability of which can not be estimated, is of limited use for individual planning. And especially so when the reaction to small deviations under a few years end up in very large changes in the systems performance over short as well as long term.

As a matter of fact, the reasoning in the government bill reveals an ignorance or a neglect of what is the reason for a public involvement in pension arrangement above poverty relief. Among such arguments are the following:

The near universality of comprehensive public actions with respect to pensions suggests a general consensus that individual decisions and free markets can not be counted on to produce a desirable level or pattern of savings for retirement. There are several reasons for this. These include the wish to avoid myopic behaviour and to protect people from insurance market failures.

Myopic behaviour means that some individuals give too little weight to the utility of future consumption, resulting in them saving too little, and realising this only when they are already old and unable to do anything to cure their previous mistakes.

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

- future economic growth rate and future returns on investments;
- future trends in average mortality;

- changes in price and wage levels after retirement; and
- his or her own longevity, relative to that of the cohort as a whole.

The conclusion of this becomes that the very reason for public involvement is that society can handle "uninsurable developments" in a smooth way and with a long range view. And it can make discretionary decisions based on reality, and with a much broader scope of action than is available for a private insurance company. It can pool risks in a way that neither private insurance can do nor most individuals can even understand.

This capacity of a public pension scheme can not be replaced by information to the individual. Individual competence, individual responsibility, "free and well informed" individual choices, neither of these approaches can eliminate the insurmountable difficulties facing individuals left on their own with these matters. A combination of individual responsibility and public action is needed. But then, society must use its full capacity.

What Swedish politicians and experts has done, is to design a PAYG system deprived of these opportunities, thereby reducing its value to the individual.

Automation of the second order is not compatible with a socially responsible public pension system.

A way forward

Having drawn the conclusion that automation of the second order should be abolished, time has come to point to a way forward, including retaining the strengths of the new Swedish PAYG sub scheme. Some core features of such a reform of the reform could be

1. Abolish "the NDC principle"
2. Abolish the automatic balancing mechanism is it current form
3. Make yearly calculations using the interesting formulas now underpinning the ABM
4. Establish a five year period as a basis for a political review, where the balance between pension levels, contribution needs and pension ages for the whole pension system are discussed
5. Charge the government with a responsibility to suggest to Parliament which changes, if any, needs to be done.
6. Establish a renewed automatic formula of the Canadian or German type, that kicks in if the politicians fail to respond to financial needs, as established by calculations under such a renewed automatic formula.
7. Continue to inform individuals of forecasts of possible pension levels in the future, but with much clearer description than today about the uncertainties, both when it comes to external development and individual work pattern, as well as about which will be the future rules of the pension system

By such a reform the political responsibility continually to monitor the pension system is re-established, while still any failure to take action would elicit the activation of measures following preset rules. And the general public would be invited to take an active part in these matters.

By making this change in the structure of the PAYG sub scheme, it becomes possible immediately to address the substantial reform needs that has emerged, following nearly twenty years of ignorance or even neglect of how reality has diverged from what was the beliefs when the reform was designed. An ignorance that has been caused by the false belief that it should be possible to replace political responsibility by mathematic formulas.

A short account for such reform needs closes the discussion in this report

The reform must be reformed in an open and transparent way

It is clear that pensions are not exempt from economic realities. As we live longer, we must accept that pensions will be reduced if we don't work longer. Adjustment must be made. All of this is now meant to be hidden by automatic adjustments –everything happens by itself in complete silence in computers. This is the way an individual account scheme functions, now the Swedes have transformed also the PAYG scheme into a similar function.

But, these are technicalities. There is also a political side. How much will people accept? Not everything is the answer. And as we have seen, adjustments and review is already underway. But it remains to be seen if party leaders are prepared really to open up for an open and comprehensive approach.

After all, the basic facts cannot be concealed. And people must have the chance to understand, and must participate in weighing alternatives between the pension level, pension age and the level of contributions, which must always be done, *and must be periodically reconsidered.*

Some areas that are important to address in such a process are the following.

One area of crucial importance for the functioning of every pension system is the labour market and employment opportunities. It is necessary to make it possible to continue working after age 65. First and foremost, that requires a sound economic and structural policy, that make markets function well and industry to prosper. But more needs to be done. Among such undertakings are laws or collective agreements that prohibit mandatory retirement based on age. However, not even such provisions can guarantee longer working lives. Work environments and employment conditions must be adapted for older workers, and there must be a change in attitude regarding their rights, and those of all employees, to develop their occupational skills and knowledge. There must also be a change in attitudes in the labour market, among employers, labour unions and older workers, themselves, regarding older people's ability and potential.

In this context it is important to realise, that a statutory standard pension age, successively increased in the face of increased life expectancy also is a matter of clarity when it comes to the state's responsibility for employment. Talk about flexibility and free choice tends to relieve the state of becoming even involved in a discussion of this crucially important aspect of old age policy. Having proclaimed a standard pension age, on the other hand, the state becomes involved in providing jobs, and in weighting opportunities against demands. It is not reasonable only to proclaim a pension age, there must also be some realism to what is required. Without any jobs to seek, 'flexibility' and 'freedom of choice' is of no value for the individual; he or she is in practice forced to retire, although under this new regime, 'based on their own decisions'.

Whatever changes there are made to the pensions system itself, the reality is that individuals will have to work more and longer in order not to overburden the active generation. But not everybody can work up to a higher age and others can not find employment. One vital measure then is to see to it that people aged over 65 have *access to the general welfare system as well as social insurance under the same terms as younger people*. Today, even though the age at which a decent pension can be drawn is steeply increased, the social safety net stops at 65. This is another reason why a statutory standard pension age is needed: It offers a reasonable age up to which sickness insurance, disability pension and unemployment benefits should be available.

Another issue that is important to address concerns contributions. At the current level of contributions i.e. in total 18,5% on covered earnings, the sum of wages is not enough to finance

the pledges made, neither to today's retirees nor tomorrow's. The time has come to face this disturbing truth! And it can be faced without panic. It is not likely that those forces who during the 1980s and earlier advocated spending money without proper financing will reappear.

Furthermore, the Individual Account scheme needs reconsidering. With the development over the last couple of years, with one financial crash in the early 2000, and another in full swing today, there seems to be an urgent need to reopen the discussion about this sub scheme. Whatever the arguments in favour of an involvement of the financial markets it is an inescapable fact that the powers transferred to financial markets are so great that nation states of whatever size seem not to be able properly to regulate what happens. Such a state of affairs is not sustainable, nation states have to find a way to rebalance the division of powers between themselves and the markets. A transfer from privately managed funded pension systems to publicly managed PAYG schemes under financially sustainable regimes, might prove to be one way forward to obtain such a result.

A forward looking, decisive engagement in these issues is badly needed and it would most probably be well received by all concerned.

It is a serious misunderstanding to interpret today's relative quiet as meaning that people are satisfied. Quite simply, they have been ignored. New systems, new formulae, theoreticians without contact with common people's situation think that they can provide solutions. Foreign delegations are surprised when they view the Swedish reform's 'success'. What is happening is similar to the world community's enthusiasm for 'the new economy' with all of its incomprehensible 'new financial instruments'. Reality caught up and the world economy almost collapsed. Reality will also catch up with this pension system. When young people discover what they can expect from the system, that it guarantees the rate of contributions while they are young but promises nothing about their pension benefits when they retire, there is a big risk that they will entirely turn their backs on the system. *And this will happen primarily because those who are responsible carefully avoid informing the general public the truth, instead of inviting an open and democratic dialogue.*

It is necessary that party leaders acknowledge facts and evaluate them with reference to what they believe about the Swedish economy and permit an open debate instead of burying questions in a hidden group of politicians from which nothing, except eventual decisions, becomes known;

As mentioned, there are signs that such an development is already underway. But there are many more steps needed in order to come to an open democratic dialog. An emerging interest from media, and a more intense action from unions and senior citizens organisations are promising signs to that effect.

APPENDIX: Some details about pension schemes characterized by "automation of the first order".

Below, some quotations are made from relevant sources in order to give a further idea about systems that have introduced reforms containing what is called "automation of the first order" in this report. This account is meant to provide readers with references to further studies of this important part of current trends in pension reform.

Germany

According to OECD[24] the following is the situation in Germany:

> ***Germany*** introduced a "sustainability factor" into its public-pension scheme – which is based on pension points – from 2005. The size of the adjustment to the value of pension points depends on a measure of the dependency ratio: that is, the ratio of the number of "standardised" beneficiaries relative to the number of contributors. The dependency ratio is "equivalised": it takes into account that high-earning contributors pay more into the scheme than low earners. The adjustment affects the change in the pension-point value. This means that pensions in payment will not be fully indexed to earnings growth, although a safeguard clause rules out reductions in *nominal* benefits. It equally affects all current workers and pensioners, since the accrued rights and future accruals also be proportionately reduced or increased. In the parlance of this report, both "indexation" and "valorisation" are affected. (see the first section of Part III for a definition and discussion of national provisions) The rosy economic outlook at the time of the decision meant that the government promised increases 0.6 to 0.7 percentage points greater than specified in the rules in 2008 and 2009. The fiscal and financial effects of the crisis (and the electoral cycle) mean that such generosity may not be repeated.

John A Turner has written a paper for AARP[25], where he gives a thorough description of automatic features of a couple pension reforms. In the description about Germany [26] the following can be found:

> Unlike Sweden, Germany does not index social security benefits for life expectancy.

And further on:

> The sustainability factor -+-+-+-+-+-+- includes the effects of changes in migration, birth rates, labor force participation rates, and retirement rates. It is used to index benefits, but part of the adjustment to solvency also raises the social security payroll tax rate.

And still further on:

> A safety clause, however, states that the sustainability factor and other changes in the calculation of benefits cannot reduce nominal pensions. Without this clause, nominal benefits could be reduced during a period of low earnings growth or declining earnings. The safety clause took effect immediately, limiting the effect of the sustainability factor in 2005 and 2006 (Toft 2007).
>
> The sustainability factor has reduced the projected payroll tax rate necessary to finance the system in 2040 from 28 percent to 24 percent (Capretta 2006). Germany's goal is to keep the payroll tax rate no higher than 20 percent by 2020 and 22 percent by 2030 (Penner and Steuerle 2007). The sustainability factor does not fully correct for causes of insolvency, which would result in no future increases in the payroll tax rate being needed. The sustainability factor is weighted so that it offsets just one-quarter of the percentage increase

[24] *Pensions at a Glance 2009*, page 37
[25] John A Turner, Social Security Financing: Automatic Adjustments to Restore Solvency, AARP 2009
[26] Turner pages 18-20

> in the system's dependency ratio, rather than the full increase. The difference is made up by the projected increase in payroll taxes.

Canada

According to OECD[27] *Pensions at a Glance 2009*, page 37 the following is the situation in Canada:

> In ***Canada***, there is a review of the financial sustainability of the earnings-related scheme every three years. The scheme is partially funded: the reserve is not designed to cover the entire liabilities but to smooth the required contribution rate over time and, in particular, to prepare for the impact of the large "baby boom" cohort reaching retirement age. If the scheme is deemed to be unsustainable, the law requires a freeze in nominal pensions and an increase in the contribution rate (of half the increase needed to reach solvency) for a three-year period until the next review. Any impact of the economic crisis on solvency would be shared between current retirees and current contributors. However, provincial finance ministers have the power to take alternative action to achieve solvency.

John A Turner gives a further description of how the mechanism functions[28] where the following can be found:

> Canada uses an approach to automatic adjustments that differs from Sweden, Germany, and Japan. Canada introduced its automatic adjustment mechanism in 1997.

And further on:

> The payroll tax rate is projected to be sufficiently higher than the pay-as-you-go rate for a number of years so the fund will continue to grow over time. The CPP is financed with a combined employee-employer tax rate of 9.9 percent. Its fund is invested partially in the stock market. The system is designed so that the fund will be adequate to pay for the retirement benefits of the Canadian baby boomers and the aging of the population, so there should be no need for further contribution rate increases or benefit cuts. However, if financial markets are weak for a prolonged period or if life expectancy increases considerably more rapidly than anticipated, or if another economic or demographic variable affecting funding turns out to be much more adverse to funding than expected, an adjustment may be needed.
>
> Every three years, the system's chief actuary evaluates the CPP's financial sustainability. If the chief actuary determines that the system is not financially sustainable in the long run, legislation requires an automatic adjustment (Canada Pension Plan 2007). However, the automatic adjustment takes effect only if the Canadian provincial finance ministers cannot first decide on an adjustment of their own - an outcome which is considered unlikely.
>
> The automatic adjustment freezes benefit indexation for three years, eliminating cost-of-living increases during this period. In addition, the automatic adjustment increases the contribution rate over that three-year period by an amount equal to half of the adjustment needed to reach the new long-term contribution rate required to restore solvency. That rate is maintained until the next triennial evaluation. Thus, the changes are borne both through an increase in contributions and a reduction in benefits (Brown 2008). If changes in long run assumptions raise the projected steady-state contribution rate required to maintain a constant ratio of assets to expenditures, the contribution rate will be increased permanently.

Jean-Claude Ménard Chief Actuary of OSFI, Canada writes[29] the following about the *insufficient rates provisions:*

[27] *Pensions at a Glance 2009*, page 37
[28] Turner page 22,23
[29] From a commentary by Mr Ménard's presentation to the PPSS seminar in Edinburgh, this is about his slide Nr 20. The commentary can be found at
http://www.osfi-bsif.gc.ca/app/DocRepository/1/eng/oca/presentations/jcm20110927_spe_e2_e.pdf

> The insufficient rates provisions of the Canada Pension Plan are self-sustaining provisions meant to safeguard the Plan in the case where the Chief Actuary calculates a steady-state contribution rate that is above the legislated rate of 9.9% and the finance ministers cannot reach an agreement on the solution to restore the long-term sustainability of the Plan. This design provides the Plan with a safety net without diminishing politicians' responsibility for the Plan's future.
>
> The insufficient rates provisions provide the way to automatically increase the contribution rate and to freeze the benefits. The combination of these two measures allows for cost sharing between contributors and beneficiaries.

Japan

According to OECD [30] the following is the situation in Japan**:**

> The 2004 reform in ***Japan*** introduced an adjustment to benefits related to life expectancy. Public-pension benefits have been cut by 0.9% a year for new retirees; this process will continue until 2023. These adjustments, designed to stabilise the finances of the pension system in the face of rapid population ageing. They are based on the assumption of constant increase in life expectancy of 0.3% per year. But there is no mechanism by which these adjustments vary should life expectancy increase at a different rate than that anticipated. There is no *automatic* link between pensions and life expectancy.

John A Turner describes the situation in Japan in more detail [31], where the following can be found:

> Japan has studied the reforms in Sweden and Germany and developed its own system of automatic adjustments that incorporates features from both countries. Japan calls its approach modified indexation.

And further on:

> In reform legislation passed in 2004, Japan incorporated a demographic factor into the calculation of social security benefits (Sakamoto 2008; Takayama 2006). The social security adjustment occurs by reducing the indexing of initial benefits and benefits in subsequent years.
>
> The Japanese government is gradually increasing the payroll tax rate for its social security program, called the Employees' Pension Insurance Scheme, to 18.3 percent in 2017, at which point the payroll tax is considered to be fixed (Table 5 {not incorporated here}). In the absence of the 2004 reforms, the payroll tax rate was projected to increase to 25.9 percent. It was 13.58 percent in 2004, and is scheduled to rise by 0.354 percent annually until 2017.
>
> With these increases in the payroll tax rate, it is estimated under the best case scenario that the modified indexation will continue until 2023, when indexation will return to that used in 2004.[i] In the Japanese social security system, initial benefits grow at the rate of growth of disposable income. Under the automatic adjustment mechanism, the indexing of initial benefits at retirement is reduced until financial solvency is restored.
>
> [i] Japan decided not to follow the Swedish approach that involves calculating the turnover ratio because in the context of the Japanese social security system it is difficult to calculate that measure. This difficulty arises because of the variety of types of linked benefits, including disability benefits, provided by the Japanese system.

And still further on:

> The adjustment factor, however, is not applied if it would result in a decline in nominal benefits. If the CPI declines in a year (as has happened in Japan) or if per capita disposable

[30] *Pensions at a Glance 2011*, page 86
[31] Turner page 20-22

> income declines, benefits are maintained at their nominal value, rather than reflecting the effects of indexing.
>
> If the replacement rate were to fall much more rapidly than expected, and fell to 50 percent or lower, the adjustment mechanism would be stopped, and the policy would be reviewed. Thus, the law contains a provision to over-ride the automatic stabilizer. This provision is known as the minimum benefit provision.

Mr Junichi Sakamoto, Chief adviser, Nomura Research Institute, Tokyo, in an elucidating comment to the above, writes in an E-Mail on Nov 8:

> You write "According to OECD ……The 2004 reform in Japan introduced an adjustment in benefits related to life expectancy. …..There is no automatic link between pensions and life expectancy." However, the modified indexation is linked not only to the increase rate of life expectancy at age 65 but also to the decreased rate of the active participants in the social security pension schemes. Actually it is the sum of these two factors. To avoid fluctuations due to influenza, etc. we have fixed the increase rate of life expectancy at 0.3% that we thought was a reasonable average rate for the next few decades. On the other hand we directly link the modifier to the decrease rate of the active participants in the social security pension schemes. So in this sense the modifier is conceptually directly linked to some demographic indicators though, as observed, there is no direct link between modifier and actual life expectancy[32].

Finland

According to OECD [33] the following is the situation in Finland:

> From 2010 new earnings-related pensions will be reduced according to increases in life expectancy from 2009. (The calculations use lagged mortality data: for 2010, for example, the data are the average for 2004-08 compared to base year which is based on data for 2003-07.) Between 2002 and 2040, the Statistics Finland mortality projections imply an increase in life expectancy at age 65 from 18.0 years to 24.1 (calculated from unisex mortality rates). The adjustment takes the form of an annuity calculation using a discount rate of 2% per year. The adjustment expected in the year 2040, based on the mortality projections, is to reduce benefits to 85.2% of their value under the pre-reform rules. The life expectancy coefficient is calculated for each cohort at the age of 62.

Norway

According to OECD[34] the following is the situation in Norway:

> Currently the retirement age is fixed at 67 years in the public pension scheme. From 2011 it is decided to introduce flexible retirement for the age group 62-75 years based on actuarial neutrality. It will then be possible to combine work and pension fully or partly from the age of 62 without an earnings test. From 2011 it is also decided to introduce a life expectancy adjustment of the pension for new old-age pensioners. The life expectancy adjustment will be determined for each cohort, based mainly on remaining life expectancy. The factors will be determined when the cohorts are 61 years, and will not be adjusted later. Each cohort will receive a separate life expectancy factor from the age of 62 until the age of 75. At the time of retirement the annual pension is calculated by dividing the accumulated pension entitlements by a life expectancy divisor.

[32] An actuarial valuation was carried out in 2009 and an English summary is on pages 34-42. It can be found at: **http://www.mhlw.go.jp/topics/nenkin/zaisei/zaisei/report2009/pdf/section1.pdf**

[33] *Pensions at a Glance 2011*, page 225

[34] *Pensions at a Glance 2011*, page 279