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Reasons, design and performance of the Swedish automatic balance mechanism

Ole Settergren, head of analysis at the Swedish Pensions Agency

The Finnish Centre for Pensions have asked me to briefly answer the following questions.

What kind of stabilisation mechanism do you have in your pension system?

The Swedish public pay-as-you-go pension plan, *inkomstpension*, has an explicit and ”final” financial stabilisation feature called the automatic balance mechanism. However, in the development and legislation of the pension plan there were three preceding design features that to some extent were chosen for their financial stability enhancing features.

Inkomstpension benefits are essentially calculated by dividing the accumulated contributions (indexed by the development of the average wage) by the life-expectancy at the age of retirement. The one-to-one relationship between contribution and the credited pension value, the indexing with average wage development and the linking of pension benefit for each cohort to life expectancy are the three features that give a fundamental, but imperfect, financial stability.

The one-to-one relation between contribution and credited pension will contribute to differences in periodic contribution income and pension expenditure, partly and perhaps particularly due to differences in cohort sizes. This is partly managed by the (sizable) buffer fund inherited from the previous pension plan. However, the existence of the buffer fund is also a source of financial instability, positive or negative, as the return on assets normally differs from the return corresponding to a neutral financial status of the pay-as-you go pension plan.

Life expectancy was decided to be estimated based on the most recent observed mortality known before the year the (potential) retiree turns 65. Granted pensions are not recalculated even if life expectancy continues to increase. This, in combination with the choice to use average wage development to index pension credits and pensions[1] did leave, or even create, financial instability in the inkomstpension system.

To dramatically simplify the reasoning behind the chosen design of the indexation, there were two main alternatives, to link it to the development of the wage sum or to link it to the average wage. Within both these alternatives, there are many other important choices to be made. Wage sum indexation does give maximum financial stability[2], while average wage indexation, arguably, gives stronger social stability as it makes retirees and workers income move in the same pace. However, the indexing with average wage development has the serious draw-back of risking deficits if the number of workers, or their labour force participation, decline.

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[1] Inkomstpensions are indexed with average wage development reduced by an interest rate of 1,6 percent that is used to increase, “front-load” initial pension.

[2] Rather than wage-sum the highest financial stability would be achieved by indexing with the development of the contribution base or even contributions themselves. In Sweden the base of contributions differ somewhat from the wage sum.

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The automatic balance mechanism of the inkomstpension is the result of an attempt to manage the conflict between financial stability and what might be labelled as social stability.

The recent decision by parliament to increase earliest possible age to pick up pension, from age 61 to 63, and also age at which guaranteed pension can be paid, from age 65 to 67, and from 2026 peg those ages to life-expectancy can be seen as a form of mainly non-financial stabilization mechanism to lessen the negative tendency of pensions replacement rates that result from life expectancy increases. The higher retirement age also affects the automatic balancing mechanism so that the risk of balancing is reduced.

How does it work?

The basis of the automatic balance mechanism is the accounting principles used for estimating the "assets" and liabilities of the plan. If the pension liability exceeds the "assets" the forthcoming indexing of the pension liability is reduced, it can even be negative. When triggered, the automatic balance mechanism can also increase indexing. Such increased indexation happens if "assets" exceed pension liability and only if indexation first has been reduced, the increase cannot surpass the indexation that would otherwise occurred.

The accounting method uses only historic information. The accounting method assumes that the pension liability in the notionally defined contribution scheme can usefully be estimated by its nominal value. That is by adding all the account values of the active workers and to that adding the corresponding values for the retirees. The value for the retirees is estimated as the paid pensions to each birth-cohort multiplied by the cohort's estimated remaining life expectancy.[3] Arguably, this would be a correct pension liability estimate in a fully funded defined contribution system, i.e. a pension plan that instantly adjusts pension accounts and pensions to the return on funded assets and has perfect life expectancy projections. For such a simplistic pension liability estimate to be reasonable in a non-funded, i.e. notional, defined contribution pension plan one would have to assume that the indexation of "notional" pension capital equals the internal rate of return of the system[4]. Even though the inkomstpension does not normally index pension accounts or pensions with the internal rate of return of the system nor has perfect life expectancy projections the pension liability is valued as if this were true. Only when the automatic balance mechanism is activated does the pensions plan index with the (available) internal rate of return, also taking into account the effect on the pension liability from experienced life-expectancy development.

The method for estimating "assets" in the pay-as-you-go financed inkomstpension plan is almost as simple as estimating the pension liability. The value of contributions is estimated by the maximum pension liability in a steady state (without any funded assets) characterized by the present size of contributions and the contribution-weighted age structure of contributions and pension payments. In a steady state, such

[3] As the inkomstpension is calculated with an interest rate, 1.6 percent, this is acknowledged in the calculation of the pension liability to retirees.
[4] More exact equals the internal rate of return that has not been "leaked" for example by underestimating the development in life expectancy.

a pension liability would have contributions that perfectly match the pension payments. It is reasonable and practical to accept that the value of the contributions in a pay-as-you-go pension plan is the size of the pension liability that those contributions can perfectly amortize. The size of the steady state pension liability can be estimated by annually calculating the expected capital weighted average age of retirees and contributors. The distance between these ages are referred to as the expected turnover duration It informs of the expected time-span between when a contribution is paid into the system to when it is paid "back" as a pension to the insured. Multiplying contributions by the turnover duration gives the "steady-state" pensions liability and thus also the value of the flow of contributions, this value is called "contribution asset" in the accounting.

If the expected capital weighted average age of retirees is 72 and the expected capital weighted average age of contributors is 42 the (expected) turnover duration is 30 years. Estimating the value of the flow of contributions by multiplying it by 30 is equal to estimating the value of a perpetual payment by discounting it by 1/30. The value of the buffer fund is added to the contribution asset to give the total value of the assets of the pay-as-you-go pension plan.

Does it work?

If "*work*" is understood as "*do the different design features for achieving financial stability in the inkomstpension plan, and especially the automatic balance mechanism, secure financial stability*" the answer is a conditional yes. The definition of financial stability that the inkomstpension conforms to is: the buffer fund does always return to a level of at least zero regardless of finite demographic or economic strain on the system. This definition allows the pension plan to have a negative buffer fund and the legislation has rules that give the buffer fund the right to lend money in such an event.

If "*work*" is understood as "*do the electorate and their representatives in parliament accept the rules*" the answer is largely unknown. An indication or interpretation that the legislators do not accept the rules is that the three times the balance mechanism caused negative indexation, 2010, 2011 and 2014, the negative impact on net benefits were reduced or even completely accommodated by reduced taxation.

Further there were and are design problems that did and do create some higher volatility than necessary for securing financial balance. Those problems have partially been solved by modifications in the legislation.

What are the pros and cons with your mechanism?

One advantage of the simple benefit design inherent in the NDC and automatic balance mechanism is that it has made it possible to use more or less classic double-entry bookkeeping in the pay-as-you-go pensions plan, regular financial information by means of a balance sheet and income statement. Further the accounting method provides financial information that is "objective" in the sense that it, after the method is decided, is untouched by human minds. This gives very good knowledge – perhaps as good as it gets –

of the financial status and changes in status of the pension plan. The abstract pension liability and the pay-as-you-go financing of this liability has become more tangible and more explicit by the automatic balance mechanism, its accounting method. This might have good, or perhaps bad, impact on how legislators deal with changes to the plan.

One disadvantage is that the method – or perhaps rather the ambition to have it as an autonomous system, that is with legislated rules, that produces guaranteed financial stability – implies increased and possibly also unnecessary risk for volatility in benefit values. This is unavoidable if the plan should secure financial balance only by changing the value of benefits since the option to increase the contributions (or subsidise by tax subsidies) was ruled out in Sweden. It was considered unwise to secure financial security with intelligent, forward looking rules that needed subjective, human judgement as such rules, or humans, were thought to break down given the political pressure that was expected to arise if an intelligent judgement gave that pensions need to be cut.