THE SWEDISH PENSION SYSTEM ANNUAL REPORT 2003

The Social Insurance Office

Average Svensson
Vägen 1
123 45 Orten

Account statement from the Social Insurance Office: your Inkomstpension

Changes in your pension account for Inkomstpension in 2003	Amount (SEK)	
Opening balance on 31 December 2002	443,109	A
Inkomstpension credit 2002	+ 21,266	B
Inheritance gain	+ 1,192	C
Indexation	+ 15,909	D
Charge for administrative costs	– 231	E
Closing balance on 31 December 2003*	476,703	F

* The difference between the closing balance and the total above is due, among other things, to changes in taxation and to the fact that some individuals have started to draw a pension during the year; see Table A, page 22.

When you read the table:
The Opening balance of your pension account is the same as the Closing Balance in your statement from the Insurance Office last year.

Your Inkomstpension credit has been calculated based on your earnings in 2002.

Your *Inheritance gain* is your share of the account balances of the persons in your age group who have died during the year. *Indexation* is the revaluation of your pension balance, a form of interest. This year's interest is 3.45 percent and is equal to the growth in the average income in Sweden. The *Charge for administrative costs* is what you pay for the management of your inkomstpension.

Your *Closing balance* shows how much pension credit you have earned up to now in your inkomstpension account. This amount, together with your premium pension, is the basis for the forecast on page 1.

THE SWEDISH PENSION SYSTEM ANNUAL REPORT 2003

Millions of SEK

2,830,626	A
135,849	B
7,616	C
101,626	D
–1,475	E
3,045,230	F

See table A
page 22

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Project manager: Gudrun Ehnsson

Adaptation and analyses of data: Lena Lundkvist, Boguslaw D. Mikula and Anna Röstberg.
Also participating in the preparation of the report: Åsa Andersson, Atosa Anvarizadeh, Hans Karlsson, John Tseung and Karin Leth (PPM).
Special Feature Article: Ole Settergren.

Further information on social security in Sweden is available on the RFV website, www.rfv.se, and at www.forsakringskassan.se. Information on the premium-pension system can be found at www.ppm.nu.

For information on the National Pension Funds, please see the websites of each fund: www.ap1.se, www.ap2.se, www.ap3.se, and www.ap4.se.

National Social Insurance Board, RFV
Adolf Fredriks Kyrkogata 8
SE-103 51 STOCKHOLM
Telephone + 46 8 786 90 00
E-mail: rfv.stockholm@rfv.sfa.se

Translation: Richard Wathen
Grafic Production: Kristina Malm
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Preface

In the year 2003, all pensioners received their old-age pensions according to the rules of the new system. The folkpension has been terminated and replaced by the new basic protection provided by the guaranteed pension. Also in 2003, the oldest birth cohort covered by the premium-pension system reached 65, the "traditional" retirement age.

The elements of the new pension system are gradually being implemented as planned. New parts of the system are being put in operation, and new experience is being gained from the parts that have been in effect.

Adjustment Indexation

The first pension disbursements under the reformed rules were made in 2001. At that time, adjustment indexation of pensions was also introduced. The inkomstpension and the ATP now follow the growth in the average income of the economically active, reduced by 1.6 percentage points, rather than the increase in prices. With adjustment indexation, pensions have been higher than if price indexation had remained in effect; the total additional increase is 2.3 percent. For an average pensioner, this means an extra SEK 220 per month. Since incomes, as measured by the income index for 2004, have increased by 1.6 percentage points more than prices, adjustment indexation on January 1, 2004 resulted in the same increase in pensions that price indexation would have provided.

The new form of indexation of pensions does not guarantee protection against inflation. If the growth in real incomes is less than 1.6 percent, the inkomstpension and ATP will increase by less than the inflation rate. If this should happen, however, the guaranteed pension will cushion the impact for persons with low pensions, since this basic protection is price-indexed. How adjustment indexation functions and what it may mean to pensioners are the subject of this year's special feature article, *Adjustable Pensions.*

Distributable Surpluses

Adjustment indexation in itself entails a risk that pensions will decrease in real terms, a possibility that has not been discussed much so far. Automatic balancing, on the other hand, has occupied a larger place in the debate, where it has been portrayed as a threat to expected pension levels. Balancing affects both pension-credit balances and pension disbursements, but since it contains a feature that restores pension

levels, the effect for the individual is usually not long-lasting. Balancing is a guarantee of the system's financial stability in economic downturns. But developments may also exceed expectations. A government commission has studied the possibility of positive automatic balancing, which entails distributing surpluses arising within the system, for example by an additional upward adjustment of pension credit and pensions. The report of the commission will be presented during the year.

An Autonomous System

The pension reform means that the old-age pension system became autonomous in financial terms. All accrued pension credit is to reflect a contribution to the system. The financing of disability and survivors' pensions was transferred from the National Pension Fund to the central-government budget. The additional financial burden on the central-government budget has been partly compensated by transfers of capital from the National Pension Fund to the central government.

According to the agreement on pensions, there is to be a study in 2004 on the question whether the remaining burden to the central-government budget, which the reform is expected to entail, can be compensated by a final transfer. The calculations used in the attempt to answer this question are presented in the section *Checkpoint in 2004*.

Longer Life, Higher Retirement Age

Gradually, the pension system is approaching full implementation, though it is not yet close to fulfilling its objectives. A number of important elements remain, including a complete IT system that will effectively facilitate the system's administration also in areas where action had to be postponed in order to ensure disbursements in 2003. However, our mission will never be completely accomplished – for example, there will be a constant need for information and the dissemination of knowledge about the pension system.

A positive finding emerged from the latest annual survey by the National Social Insurance Board (RFV) of the population's knowledge about the pension system: there is greater popular awareness of facts like the importance of the retirement age in determining the size of pensions. If the average life span increases and the retirement age remains unchanged, the monthly pension of each new birth cohort will decrease. This would lead to deteriorating living standards for pensioners compared to persons of working age. To avoid such a tendency, it is

important that older persons be allowed to continue working if they wish to do so. Reaching a certain age should not automatically mean that one is expected to retire. As the large birth cohorts of the 1940's approach retirement, it will become increasingly burdensome financially for the economically active to support the rest of the population. It is therefore imperative that in our society all persons be given the opportunity to support themselves – and others – by working.

The Annual Report of the Swedish Pension System is a means of spreading information and knowledge about the pension system and its financial position and development. The report for 2003 is the third in succession. I hope you find it interesting and enjoyable to read!

Stockholm, April 2004

Anna Hedborg
Director General

Accounting for the Result of the Pension System in 2003

The Inkomstpension

The inkomstpension* is so designed that the change in the value of the pension liability is closely, but not absolutely, linked to the change in the value of system assets. For this reason, the inkomstpension system can record both positive and negative results. Since the total assets and liabilities of the system are so vast – about SEK 6,000 billion – the result will often be sizable in monetary terms. If the accumulated surplus becomes a deficit, automatic balancing is activated. Balancing guides the system toward a balanced surplus/deficit of SEK 0 by reducing the indexation of pensions and pension balances. Any accumulated surpluses arising after balancing has been activated are used directly to increase indexation and restore the value of pensions to the extent possible.

The assets of the inkomstpension system consist of the contribution asset and the buffer fund. The contribution asset is the value of the system's flow of contributions. The change in the value of the contribution asset is determined primarily by the growth in per-capita income, by the number of persons of working age, and by their employment rate. In 2003 the contribution asset grew by SEK 172 billion, or almost 3.3 percent. The increase was due primarily to a larger contribution inflow resulting from higher per-capita income. The growth in the value of the contribution asset is also a product of changes in the system's so-called turnover duration. In 2003, turnover duration increased by 27 days, providing a modest contribution to the increase in the contribution asset.

The buffer fund, i. e. the First-Fourth and Sixth National Pension Funds, constitute some 10 percent of system assets. The capital of the fund increased by a total of SEK 89 billion, of which the return on the fund accounted for SEK 82 billion. Pension contributions exceeded pension disbursements, adding SEK 7 billion to the fund after deduction for costs of administration.

Thus, in total the assets of the system increased by SEK 262 billion, or 4.5 percent. Liabilities also increased by 4.5 percent – SEK 256 billion, to be more precise. The pension liability has been affected by adjustment indexation of pensions at the end of 2002 and by income indexation of pension balances at the end of 2003, for compounding by some 3.5 per cent in both cases. As assets grew by SEK 262 billion and liabilities by SEK 256 billion, the net income 2003 was SEK 6 billion. With the positive result of SEK 6 billion for 2003 added to the opening surplus of SEK 52 billion, the system has a surplus of SEK 58 billion. In proportion to the pension liability, this surplus is slightly less than 1 percent. This means that the balance ratio is just under 1.01. A balance ratio of 1.01 for a pay-as-you-go system can be considered equivalent to a consolidation ratio of 101 percent for a funded system. The system's balance ratio for 2005, which reflects its financial position as of December 31, 2003, has been calculated at 1.0097.

* The Swedish name, *inkomstpension*, for the notional defined contribution, pay-as-you-go financed, pension will not be translated in this report. The name refers to the fact that the indexation of this pension is a function of the growth in average income. The Swedish word for income is *inkomst*.

Key Numbers for the Inkomstpension in 2003

Billions of SEK

	2003	2002	Change	Change, %
First–Fourth + Sixth National Pension Fund assets	577	488	89	18.3
Contribution asset	5,465	5,293	172	3.3
Total assets	6,042	5,780	262	4.5
Pension liability	5,984	5,729	256	4.5
Surplus	58	52	6	11.9
Balance ratio	1.0097	1.0090	0.0007	0.1

In last year's Annual Report, the contribution asset was underestimated by SEK 8 billion, the reason being that the value of CPI for 2002 used in the calculation was too low. Since the opening balance of the contribution asset has not been adjusted for this difference, the result has been affected positively by the same amount. The balance ratio for 2004, calculated on the basis of conditions prevailing at the end of 2002 after the adjustment noted above, was set at 1.0105.

The Premium Pension

The premium-pension system is a funded system in which pension savers (the insured) themselves select the funds in which their premium-pension moneys will be invested. In the premium-pension system, changes in the prices of fund shares affect the value of insured's share of system assets directly and by the same amount. For this reason, the result of the premium-pension system in principle will always be SEK 0 in the long run. Since the entire cost of administration is not being charged to the insured during the build-up of the system, but is being debt-financed, the Premium Pension Authority (PPM) is currently operating at a loss. In 2003 this loss was SEK 109 million.

During the year, funded premium-pension assets increased by SEK 35 billion, of which SEK 21 billion consisted of new pension credit and SEK 14 billion of an increase in value.

Key Numbers for the Premium Pension in 2003

Millions of SEK

	2003	2002	Change
Fund insurance*	94,124	59,416	34,708
Conventional insurance*	31	4	27
Total pension assets	94,155	59,420	34,735
Fund-insurance commitments*	94,127	59,418	34,709
Provision for life insurance*	30	4	26
Total pension liability	94,157	59,422	34,735

* Including decedents' capital.

Terms Used in Describing the Inkomstpension – Counterparts in Other Forms of Insurance

The "contribution asset" in the accounts of the inkomstpension system refers to the value of the inflow of contributions. There is no directly equivalent concept in funded insurance. But if an analogy is to be made, the contribution asset would most closely correspond to the investment asset, or insurance capital, in funded insurance. By this analogy, the change in the value of the contribution asset would most closely correspond to the return on capital in funded insurance. The value of the contribution asset changes partly through changes in contribution revenue, and partly through changes in turnover duration. The respective effects of these two determinants on the value of the contribution asset are shown separately in the income statement.

Turnover duration is the time that an average monetary unit of pension credit can be expected to remain within the system; at present, turnover duration is approximately 32 years.

Other concepts used in the income statement and balance sheet of the inkomstpension system have more direct counterparts in conventional accounting for life-insurance businesses. Pension contributions are the equivalent of premium revenue in funded insurance; pension disbursements correspond to insurance benefits; the change in pension liability, to changes in actuarial provisions; opening surplus/deficit to profit/loss brought forward.

Inkomstpension, Income Statement and Balance Sheet

Income Statement, millions of SEK

Change in fund assets	Note	2003	2002	Change
Pension contributions	1	165,107	160,745	4,362
Pension disbursements	2	–155,410	–151,757	–3,653
Return on funded capital	3	82,060	–84,529	166,589
Costs of administration	4	–2,359	–2,081	–278
Total change in fund assets (a)		89,398	–77,622	167,020
Change in contribution asset				
Value of change in contribution revenue	5	159,964	224,275	–64,311
Value of change in turnover duration	6	12,346	–16,763	29,109
Total change in contribution asset (b)		172,310	207,512	–35,202
Change in pension liability[1]				
New inkomstpension credit and ATP credit	7	–172,567	–167,585	–4,982
Pension disbursements	2	155,410	151,562	3,848
Indexation	8	–228,288	–275,946	47,658
Value of change in average life span	9	–11,045	–5,923	–5,122
Inheritance gains arising	10	7,090	6,389	701
Inheritance gains distributed	10	–7,616	–6,617	–999
Deduction for costs of administration	11	1,475	1,478	–3
Total change in pension liability (c)		–255,541	–296,642	41,101
Net income/-loss (a)+(b)+(c)		6,167	–166,752	172,919

[1] A negative value (–) means that the pension liability increases, and a positive value ( ) that the pension liability decreases, by the amount shown.

Balance Sheet, millions of SEK

Assets	Note	Dec 31,2003	Dec 31,2002	Change
First–Fourth and Sixth National Pension Funds	12	576,937	487,539	89,398
Contribution asset	13	5,465,074	5,292,764	172,310
Total assets		6,042,011	5,780,303	261,708

Liabilities and Surplus	Note	Dec 31,2003	Dec 31,2002	Change
Opening surplus/-deficit		51,645	218,397	–166,752
Net income/-loss for the year		6,167	–166,752	172,919
Total surplus/-deficit		57,812	51,645	6,167
Pension liability	14	5,984,199	5,728,658	255,541
Total liabilities and surplus		6,042,011	5,780,303	261,708

Premium Pension, Income Statement and Balance Sheet

Income Statement and Balance Sheet

Change in fund assets	Note	2003	2002	Change
Pension contributions	1	21,040	20,404	636
Pension disbursements	15	–11	–1	–10
Return on funded capital	16	13,948	–25,879	39,827
Costs of administration	17	–351	–599	248
Debt-financed costs of administration	24	109	365	–256
Total change in fund assets (a)		34,735	–5,710	40,455
Change in pension liability[2]				
New pension credit	18	–21,040	–20,404	–636
Pension disbursements	19	11	1	10
Change in value	20	–13,948	25,879	–39,827
Change in assumptions on which calculations are based	21	0	0	0
Decedents' capital	22	213	145	68
Inheritance gains distributed	23	–213	–145	–68
Deduction for costs of administration	24	242	234	8
Total change in pension liability (c)		–34,735	5,710	–40,445
Debt-financed costs of administration (d)	17, 24	–109	–365	256
Net income/-loss (a)+(c)+(d)		–109	–365	256

[2] A negative value (–) means that the pension liability increases, and a positive value ( ) that the pension liability decreases, by the amount shown.

Balance Sheet, millions of SEK

Assets	Note	Dec 31, 2003	Dec 31, 2002	Change
Insurance assets	25	94,155	59,420	34,735
Other assets	26	46,140	45,307	833
Total assets		140,295	104,727	35,568

Liabilities and Deficit	Note	Dec 31,2003	Dec 31,2002	Change
Opening surplus/-deficit		–1,618	–1,253	–365
Net income/-loss for the year		–109	–365	256
Total surplus/-deficit		–1,727	–1,618	–109
Pension liability	27	94,157	59,422	34,735
Other liabilities	28	47,865	46,923	942
Total liabilities		142,022	106,345	35,677
Total liabilities and deficit		140,295	104,727	35,568

Earnings Related Old Age Pension, Income Statement and Balance Sheet

Inkomstpension and Premium Pension

Income Statement, millions of SEK

Change in fund assets	Note	2003	2002	Change
Pension contributions	1	186,147	181,149	4,998
Pension disbursements	2, 15	–155,421	–151,758	–3,663
Return on funded capital	3, 16	96,008	–110,408	206,416
Costs of administration	4, 17	–2,710	–2,680	–30
Debt-financed costs of administration	24	109	365	–256
Total change in fund assets (a)		124,133	–83,332	207,465
Change in contribution asset				
Value of change in contribution revenue	5	159,964	224,275	–64,311
Value of change in turnover duration	6	12,346	–16,763	29,109
Total change in contribution asset (b)		172,310	207,512	–35,202
Change in pension liability[3]				
New pension credit	7, 18	–193,607	–187,989	–5,618
Pension disbursements	2, 19	155,421	151,563	3,858
Indexation/change in value	8, 20	–242,236	–250,067	7,831
Value of change in average life span etc.	9, 21	–11,045	–5,923	–5,122
Inheritance gains arising/decedents' capital	10, 22	7,303	6,534	769
Inheritance gains distributed	10, 23	–7,829	–6,762	–1,067
Deduction for costs of administration	11, 24	1,717	1,712	5
Total change in pension liability (c)		–290,276	–290,932	656
Debt-financed costs of administration (d)	17, 24	–109	–365	256
Net income/-loss (a)+(b)+(c)+(d)		6,058	–167,117	173,175

[3] A negative value (–) means that the pension liability increases, and a positive value ( ) that the pension liability decreases, by the amount shown.

Balance Sheet, millions of SEK

Assets	Note	Dec 31,2003	Dec 31,2002	Change
First–Fourth and Sixth National Pension Funds	12	576,937	487,539	89,398
Insurance assets	25	94,155	59,420	34,735
Other assets	26	46,140	45,307	833
Contribution asset	13	5,465,074	5,292,764	172,310
Total assets		6,182,306	5,885,030	297,276

Liabilities and Surplus	Note	Dec 31,2003	Dec 31,2002	Change
Opening surplus/-deficit		50,027	217,144	–167,117
Net income/-loss for the year		6,058	–167,117	173,175
Total surplus/-deficit		56,085	50,027	6,058
Pension liability	14, 27	6,078,356	5,788,080	290,276
Other liabilities	28	47,865	46,923	942
Total liabilities and surplus		6,182,306	5,885,030	297,276

Notes and Comments

Notes 2–14 relate to the inkomstpension; Note 15–28, to the premium pension. Note 1 applies to both parts of the earnings-related old-age pension system.

Note 1 Pension Contributions

Table A. Pension Contributions and Taxes, by Type of Contribution

Millions of SEK

Contribution, etc., in the form of ...	Inkomst-pension	Premium pension	Tax	Total	of which contributions
Employer contributions	70 750	18 223	10 986	99 959	88 973
Self-employment pension contributions	2,255	581	350	3,186	2,836
Individual pension contributions	69,957	–	–	69,957	69,957
Central-government old-age pension contribution	21,817	3,552	–	25,369	25,369
Final settlement in 2003 for 2001	910	–2,089	1,179	0	–1,179
Loss in collection, settlement	–362	–	–	–362	–362
Discrepancy between accounting of RFV and of Natl. Pension Funds and PPM, and adjustment	–220	773	–	553	553
Total	165,107	21,040	12,515	198,662	186,147

The taxes reported are "pension contributions" in the form of employer contributions and self-employment pension contributions on the portion of income above the ceiling on pension-qualifying income. This ceiling is 8.07 income-related base amounts[4] before deduction of the individual pension contribution and 7.5 after this deduction. Since contributions on amounts above the ceiling do not give rise to pension credit, they are taxes and are included in the central-government budget.

The discrepancy between the accounting of RFV and that of the National Pension Funds (–220) is due primarily to differences in accounting principles for periodization. The discrepancy between the accounting of RFV and that of the PPM (773) is due largely to the fact that in the PPM reports the contribution revenue is for pension credit that was confirmed in 2002 and transferred to the premium-pension funds in 2003 whereas RFV accounting is for contribution revenue received in 2003. Contributions received in 2003 are for pension credit that will be confirmed at the end of 2004 and invested early in 2005.

Pension disbursements reported by the National Pension Funds include an amount of SEK 818 million which in fact is for a negative contribution settlement. In this Annual Report, an accounting adjustment has been made so that this amount is reported instead as a negative pension contribution.

[4] The income-related base amount for 2003 is SEK 40 900. One income-related base amount multiplied by 8.07 equals SEK 330,063 and by 7.5 equals SEK 306,750.

Table B. Pension Contributions by Type of Contribution Base

Millions of SEK

	Employer, selfemployment and central-government contributions	Individual contributions	Total
Earned income[5]	103,336	62,685	166,021
Transfer payments, see Table C	10,578	7,272	17,850
Pension-qualifying amounts, see Table D	14,791	–	14,791
Total	128,705	69,957	198,662

The allocation of the individual pension contribution to the two types of contribution base is estimated; it is not shown in the accounting systems.

[5] Earned income, including sick pay and self-employment income, excluding transfer payments.

The individual pension contribution is 7 percent of earned income and pension-qualifying transfer payments such as sickness cash benefits, etc., but not including sickness and activity allowances (formerly termed disability pensions). The individual pension contribution is assessed only on the portion of such income below the ceiling of 8.07 income-related base amounts.

The pension contribution paid by employers and self-employed persons on earned income, and by the central government on the above-mentioned transfer payments, is 10.21 percent. The central-government pension contribution on sickness and activity allowances and on so-called pension-qualifying amounts, which are not subject to the individual pension contribution, is 18.5 percent .

Table C. Pension Contributions for Transfer Payments

Millions of SEK

	Central-govt. contributions	Individual contributions	Total
Sickness cash benefits	4,521	3,108	7,629
Rehabilitation benefits	255	175	430
Benefits to immediate relatives	7	5	12
Compensation for work-related injuries, etc.	386	265	651
Partial pension	19	13	32
Parental insurance	1,984	1,364	3,348
Care allowances	185	127	312
Unemployment compensation, etc.	3,189	2,192	5,381
Educational allowances	28	19	47
Artists' Board	4	3	7
Allowances to disease carriers	0	0	0
Total	10,578	7,272	17,850

The allocation of individual pension contributions to the different types of transfer payments is estimated; it is not shown by the accounting systems.

Table D. Pension Contributions for Sickness/activity Allowances and Pension Qualifying Amounts

Millions of SEK

Sickness and activity allowances	8,467
Amounts credited for child-care years	3,831
Amounts credited for study	2,257
Amounts credited for compulsory national service	236
Total	14,791

Sickness and activity allowances consist both of pension-qualifying compensation paid and of pension-qualifying amounts. In each case the contribution is 18.5 percent.
A minor portion of amounts credited for study and for compulsory national service consists of pension-qualifying income.

Note 2 Pension Disbursements

Millions of SEK

ATP	154,103
Inkomstpension	1,307
Total	155,410

It is possible to draw a pension from the age of 61 on. The ATP corresponds to the former ATP and the so-called income-related folkpension. This type of pension is calculated by previous rules, but from the age of 65 on, it is indexed according to the provisions of the inkomstpension for adjustment indexation. ATP credit is earned only by persons born before 1954. The oldest birth cohort to receive the inkomstpension is the one consisting of persons born in 1938.

For persons born in 1938, four twentieths of their pension is calculated according to the rules of the new system. The corresponding proportion for persons born in 1939 is five twentieths, etc. Persons born in 1954 or thereafter will receive their entire pension according to the new rules. The pension provided by the new pay-as-you-go system is termed the inkomstpension.

The accounts of the National Pension Funds include in pension disbursements a sum of SEK 818 million that is actually a negative adjustment of pension contributions. In this report, an accounting adjustment has been made so that this amount is reported as a negative pension contribution.

Note 3 Return on Funded Capital

Millions of SEK

National Pension Fund:	First	Second	Third	Fourth	Sixth	*	Total
Stocks and shares	17,153	18,098	16,796	19,890	1,350	6	73,293
of which: direct return	*1,838*	*1,639*	*1,918*	*1,704*	*71*	*47*	*7,217*
realized and unrealized capital gains	*15,315*	*16,459*	*14,878*	*18,186*	*1,279*	*–41*	*66,076*
Bonds and other interest-bearing securities	2,031	2,446	2,991	1,491	143	243	9,345
of which: direct return (net interest)	*1,869*	*2,154*	*2,661*	*1,693*	*143*	*243*	*8,763*
realized and unrealized capital gains	*162*	*292*	*330*	*–202*	*0*	*0*	*582*
Other items	581	383	206	–1,831	0	83	–578
of which: direct return	*1,282*	*761*	*0*	*966*	*0*	*83*	*3,092*
realized and unrealized capital gains	*3,484*	*2,243*	*970*	*44*	*0*	*0*	*6,741*
net foreign-exchange gain/-loss	*–4,185*	*–2,621*	*–764*	*–2,841*	*0*	*0*	*–10,411*
Total return	19,765	20,927	19,993	19,550	1,493	332	82,060
Costs of administration	–190	–234	–235	–216	–340	–19	–1,234
Total return after costs	19,575	20,693	19,758	19,334	1,153	313	80,826

Sources: Annual Reports of the First, Second, Third, Fourth, and Sixth National Pension Funds for 2003.

* Special administration of the First and Fourth National Pension Funds. In this column, an adjustment has also been made for effects of rounding off when the funds are added together.

”Other items” consist primarily of derivatives. The capital gains/losses on stocks and shares have been charged with the cost of brokerage commissions on both purchases and sales. Total brokerage commissions in 2003 were SEK 339 million.

Note 4 Costs of Administration

Thousands of SEK

Tax administration (incl. Enforcement Service)	340,135
National Social Insurance Board (RFV)	505,768
Regional Social Insurance Offices	279,360
National Institute of Economic Research	135
Total costs of insurance administration	1,125,398
First National Pension Fund	190,000
Second National Pension Fund	234,000
Third National Pension Fund	235,000
Fourth National Pension Fund	216,000
Sixth National Pension Fund	340,000
First and Fourth National Pension Funds, Special Administration	19,000
Total costs, fund administration	1,234,000
Total costs of administration	2,359,398

The costs of insurance administration are shared equally by the First through the Fourth National Pension Funds. Each fund finances its own costs of administration by withdrawals from itself. The sum of both forms of administrative costs is financed in principle by a percentage deduction from the pension balances of the insured. As is shown in the Income Statement, however, pension balances were not charged with the full costs of administration in 2003. The explanation is provided in Note 11.

Some Key Numbers for the Administrative Costs of the Inkomstpension

Costs as a ...	Insurance admin.	Fund admin.	Administration, total
... percentage of total pension liability	0.0188	0.0206	0.0394
... percentage of inkomstpension liability to the economically active*	0.0353	0.0387	0.0740
... SEK per economically active person insured	176	193	369
... SEK per old-age pensioner**	729	799	1,527

* The term *economically active* refers to insured persons aged 16–64 and with pension balances or ATP credit.

** No deduction is made for costs of administration in regard to current old-age pensions. See Note 11.

Note 5 Value of Change in Contribution Revenue

Turnover duration in years, contribution revenue in millions of SEK

Smoothed contribution revenue 2003	168,681
Contribution revenue used 2002	–163,738
Change in contribution revenue	= 4,943
(Smoothed turnover duration 2003 + Smoothed turnover duration 2002)/2[6]	x 32.36173
Value of change in contribution revenue	159,964

[6] (32.39887+32.32459)/2=32.36173.

Table A. Basis for Calculating a Smoothed Value of Contribution Revenue

Millions of SEK

	2000	2001	2002	2003
Contributions received by National Pension Fund	144,275	156,811	160,745	165,107
Contribution deficit arising from contributions and contribution base not phased-in	0	0	3,500	2,600
Accounting adjustment to correct value of contributions	3,583	–1,543	0	0
Basis for calculating smoothed value of contribution revenue	147,858	155,268	164,245	167,707
Smoothed value of contribution revenue	–	–	163,998	168,681
Contribution revenue used	144,275	156,811	163,738	168,681
CPI, June	261,24	268,31	273,24	277,74

During a phase-in period extending through fiscal year 2004, adjustments are to be made so that the contribution amount used in calculating the contribution asset reflects the contribution inflow as if the system were fully functioning. In 1999–2002 disability pensioners born in 1937 or earlier were not included in the base for the central-government old-age pension contributions. Even so, preliminary central-government old-age pension contributions were paid – erroneously – for these groups in 1999, 2000, and 2001. Consequently, in 2002, 2003, and 2004, the contribution paid by the central government will be less to compensate for the contributions paid by mistake in previous years. In 2003, preliminary central-government old-age pension contributions were thus lowered by SEK 2,600 million; this reduction would not have been made if the system had been fully functioning in 2000. For this reason, the inflow of contribution revenue has been adjusted by a total of SEK 2,600 million.

The method of calculating the smoothed contribution revenue is shown in the Technical Appendix, Section 1. In the 2001 report, no smoothed value was calculated for either contribution revenue or turnover duration. The smoothed value of the contribution revenue used in 2002 report (163,738) was erroneous calculated; the CPI used was too low, (272.59 instead of 273.24). With a smoothed value of 163,998, the contribution asset for 2002 is increased by SEK 8,404 million.

Note 6 Value of Change in Turnover Duration

Turnover duration in years, contribution revenue in millions of SEK

Smoothed turnover duration 2003	32.39887
Smoothed turnover duration 2002	32.32459
Change in smoothed turnover duration	=0.07428
(Smoothed contribution revenue 2003 + contribution revenue 2002)/2[7]	x 166,210
Value of change in turnover duration	12,346

[7] (168 681+163 738)/2=166 210

Table A. Basis for Calculating a Smoothed Value for Turnover Duration

	1999	2000	2001	2002	2003
Pay-in duration	21.86097	21.50279	21.99799	21.96768	22.09653
Pay-out duration	10.00638	10.18358	10.32660	10.43119	10.43638
Turnover duration	31.86735	31.68637	32.32459	32.39887	32.53291
Smoothed turnover duration			31.86735	32.32459	32.39887

The smoothed value of turnover duration is the median of the turnover duration for the latest three years. The method of calculating turnover duration is described in the Technical Appendix, Section 3.

Since pay-in duration cannot be calculated until all pension credit has been confirmed, the 2003 calculation is based on the value of pension credit earned in 2002 and confirmed in 2003. Pay-out duration is calculated from the data as of December 2003.

Note 7 New Pension Credit and ATP Credit

Millions of SEK

Pension credit earned in 2003, estimated value	144,711
Estimated value of ATP credit, 2003	4,642
Adjustment amount for inkomstpension, see Table A	–802
Adjustment amount for ATP, see Table B	24,016
Total	172,567

Table A. Adjustment Amount, New Pension Credit

Millions of SEK

Confirmed credit earned in 2002 for inkomstpension	135,849
Estimated* credit earned in 2002 for inkomstpension	–136,522
Adjustments affecting pension balances, see Note 14, Table A	–129
Adjustment amount A	–802

* As estimated in The Swedish Pension System – Annual Report 2002.

Since the tax assessment for the year of the financial statements is not completed when the statements are prepared, the amount of pension credit earned during the accounting period can only be estimated.

In the Annual Report for 2002, the pension credit earned in 2002 was estimated at SEK 136,522 million. After the tax assessment for 2002 had been completed, the actual value proved to be SEK 135,849 million.

Table B. Adjustment Amount, New ATP Credit

Millions of SEK

Effect of difference between assumed value for 2003 and estimate for 2002, etc.	4,189
Paid-in pension contributions for ATP excl. value of ATP credit	19,827
Adjustment amount B	24,016

The value of the ATP credit earned in 2003 has been forecast in the RFV's simulation model. The last year for which ATP credit can be earned is 2017. This means that until 2018 contributions will differ somewhat from the pension credit accrued.[8]

Note 8 Indexation

Millions of SEK

ATP liability to the economically active	36,487
Inkomstpension liability to the economically active	101,626
ATP liability to retirees aged 65+	89,281
ATP liability to retirees below age 65	696
Inkomstpension liability to retirees	198
Total	228,288

[8] In 2003, contributions for the ATP pension amounted to SEK 24.4 billion, whereas the value of new ATP credit that same year was only SEK 4.6 billion. Thus, contributions paid exceeded the value of ATP credit earned by SEK 19.8 billion. This relationship is explainable by the fact that in the ATP system pension credit often accumulates relatively early in working life. An individual aged 55, who is already past her/his 15 years of maximum earnings (and has worked for at least 30 years), cannot increase her/his ATP pension at all, despite continuing to work and to pay contributions until age 65. The situation illustrates one of the negative incentives of the ATP system for older members of the labor force.

The amount of indexation refers to the indexation affecting the pension liability as of December 31, 2003. ATP credit earned follows the development of the price-related base amount. However, the ATP liability to the economically active, as calculated in this report (see Note 14), increases by the change in the income index between 2003 and 2004. The inkomstpension liability to the economically active is similarly affected by the change in the income index between 2003 and 2004.

The ATP liability to retirees below age 65 has been indexed by the change in the price-related base amount between 2002 and 2003. ATP pensions to persons aged 65 or older, and all inkomstpensions, are subject to adjustment indexation; that is, they are indexed by the change in the income index less the norm of 1.6 percentage points. The pension liability to these pensioners was affected by the adjustment indexation made at the end of 2002.

Table A. Price Related Base Amount and Income Index

	2002	2003	2004
Price-related base amount	37,900	38,600	39,300
Change in price-related base amount	2.71 %	1.85 %	1.81 %
Income index	106.16	111.79	115.64
Change in income index	2.87 %	5.30 %	3.44 %
Adjustment indexation	3.28 % *	3.64 %	1.81 %

* The norm for this year was 0.996.

Note 9 Value of the Change in Average Life Span

Millions of SEK

ATP liability to the economically active	3,371
Inkomstpension liability to the economically active	–
ATP liability to retirees	7,595
Inkomstpension liability to retirees	79
Total	11,045

The term "life span" as used here refers to the assumed payout duration of an average pension, or so-called economic life expectancy, adjusted for the norm of 1.6 percent. The average economic life expectancy is expressed as an economic annuitization divisor. The method of calculating economic annuitization divisors is shown in the Technical Appendix, Section 4.

A higher average economic life expectancy will increase the pension liability for the ATP, both to the economically active and to retirees. In the inkomstpension system, only the liability to retirees will be higher if the average life expectancy increases.

Calculating the effect of changes in average economic life expectancy first involves determining the pension liability based on the economic annuitization divisors that can be measured in the system in the year covered by the financial statements. This liability is thereafter reduced by the pension liability calculated with the economic annuitization divisors for the preceding year.

Note 10 Inheritance Gains, Arising and Distributed

Millions of SEK

Year of birth	Year of death	Inheritance gains arising	Inheritance gains distributed
1938–1943	2003	1,771	2,314
1943–	2002	5,319	5,302
Total		7,090	7,616

Inheritance gains arising, i.e., the pension balances of persons who have died, are distributed to the survivors in the same birth cohort. With the aid of an inheritance-gains factor, the distribution is made as a percentage increase in the survivors' pension balances.

Before the year when a birth cohort reaches age 60, the inheritance gains actually arising in the cohort are distributed among its surviving members. The inheritance-gains factor is thus determined by the total pension balances of decedent cohort members. Owing to a certain delay in the information regarding those who have died during the year, there is a one-year time lag in the distribution of inheritance gains.

The inheritance gains resulting from persons dying in 2002 before reaching age 60 (SEK 5,310 million) were distributed to the corresponding birth cohorts in 2003. The inheritance gains distributed were SEK 5,302 million. The difference is explainable by the annual adjustment of pension balances due to changes in tax assessments, among other reasons. Beginning with the year when a birth cohort reaches 60, the inheritance gains distributed are not those actually arising, but those estimated to have arisen. Inheritance-gains factors are estimated on the basis of the mortality observed by Statistics Sweden, the Swedish central office of statistics, for an earlier period. Since this mortality will not be exactly the same as actual mortality in the year concerned, and since mortality may also vary with the income levels of the persons insured, there is a discrepancy between inheritance gains arising and gains distributed for ages 60 and above (SEK 1,771 million and 2,314 million in 2003).

The reason for the change at age 60 to distributing estimated inheritance gains, rather than the gains corresponding to the pension balances of decedents, is that a pension may be withdrawn beginning at age 61. Thus, from that age onward it is no longer possible to apply the procedure for distribution of inheritance gains actually arising that is used for ages up to 60.

Note 11 Deduction for Costs of Administration

Costs of administration are to be financed by a reduction in pension balances. However, there is no equivalent reduction of pensions. In order to avoid charging a disproportionately high cost to younger birth cohorts during the period when the ATP is being phased out, the deduction for costs of administration is being introduced successively. In 2003, 64 percent of the costs of administration were financed by a deduction from pension balances. The proportion of these costs to be financed by this deduction will increase by two percentage points each year; the deduction will not cover 100 percent of the costs of administration until 2021.

The deduction for costs of administration is taken from pension balances as a percentage based on an administrative-cost factor. The calculation of the administrative-cost factor is made according to the budgeted costs of administration for the year concerned and an estimate of the pension balances among which the cost is to be allocated. The difference between the monetary value of the deduction actually made and the cost established is considered in the calculation of the administrative-cost factor for the following year. For 2003, the administrative-cost factor was 0.048 percent.

Note 12 First-Fourth and Sixth National Pension Funds

Millions of SEK

National Pension Fund:	First	Second	Third	Fourth	Sixth	*	Total
Stocks and shares**	80,943	81,279	82,887	84,690	10,395	1,105	341,299
of which Swedish stocks and shares	*20,313*	*33,454*	*27,683*	*32,688*	*10,395*	*1,040*	*125,573*
foreign stocks and shares	*60,630*	*47,825*	*55,204*	*52,002*	*0*	*65*	*215,726*
Bonds and other interest-bearing securities	53,816	54,718	54,476	46,035	2,740	3,984	215,769
of which: Swedish issuers	*24,598*	*29,292*	*34,335*	*21,133*	*2,740*	*3,984*	*116,082*
foreign issuers	*2,218*	*25,426*	*20,141*	*24,902*	*0*	*0*	*99,687*
Other items	5,972	5,552	5,554	5,415	536	1,465	24,494
Total assets	140,731	141,549	142,917	136,140	13,671	6,554	581,562
Liabilities	–1,466	–1,199	–381	–634	–896	–49	–4,625
Total funded capital	139,265	140,350	142,536	135,506	12,775	6,505	576,937

* Special administration of the First and Fourth National Pension Funds.

** Stocks and shares are reported by marketplace of acquisition.

Note 13 Contribution Asset

Millions of SEK, turnover duration in years

Smoothed contribution revenue, 2003	168,681
Smoothed turnover duration, 2003	x 32.39887
Contribution asset, 2003	5,465,074

See Notes 5–6 and the Technical Appendix, Section 1, for the values and formulas used in calculating contribution revenue and turnover duration.

Note 14 Pension Liability

Millions of SEK

	Economically active	Retired	Total
ATP, Dec. 31, 2003	1,123,765	1,637,340 [9]	2,761,105
Inkomstpension, Dec. 31, 2003	3,189,941	33,153	3,223,094
Total	4,313,706	1,670,493	5,984,199

[9] SEK 31,728 million is the ATP liability to retired persons younger than 65. The remainder, or SEK 1,605,612 million, is the ATP liability to pensioners 65 years of age or older.

The pension liability to retirees is calculated in the same manner for the ATP and the inkomstpension. The first step in the calculation is to total the pension disbursements to each birth cohort in December. This total is multiplied by 12 to obtain an annual amount, and then by the economic annuitization divisor for each birth cohort, resulting in the pension liability to each birth cohort. The pension liabilities to the various birth cohorts are then summed up. Economic life expectancy is expressed in the form of economic annuitization divisors. The method of calculating the pension liability and the economic annuitization divisor is shown in the Technical Appendix, Section 4.

The inkomstpension liability to the economically active consists of the total pension balances of all persons insured as of December 31, 2003, with the addition of the estimated pension credit earned in 2003.

The ATP liability to the economically active cannot be calculated directly from the data in the records on earned pension credit. This liability is estimated in the pension model of the RFV. The calculation is performed for birth cohorts 1939–1953, that is, for persons whose pensions will be calculated in part by ATP rules. The ATP liability consists of the expected ATP pension of these birth cohorts in the year when they reach age 65. The annual amount of the ATP pension is multiplied by the economic annuitization divisors for persons aged 65. To obtain the present value of the pension liability thus cal-

culated, the liability is reduced by that cohort's assumed future contributions to the system and simultaneously discounted by the assumed future increase in the income index. In the calculation it is assumed that the income index will increase at an annual rate of 2 percent.

The year 2018 is the final one in the calculation since the cohort born in 1953 will reach age 65 that year.

Table A. Analysis of the Change in Inkomstpension Liability to the Economically Active

Millions of SEK

Pension liability, December 31, 2002	2,973,893
of which estimated pension credit for inkomstpension earned in 2002	–136,522
Deduction for undistributed inheritance gains (1)*	–1,297
Pension balance, December 31, 2002	= 2,836,074
Deduction for undistributed inheritance gains (2)**	–5,319
Adjustments affecting pension balances***	–129
A Opening pension balance 2003	= 2,830,626
Changes in tax assessments etc. affecting pension balances[10]	–349
B Confirmed inkomstpension credit 2002	135,849
C Distributed inheritance gains from persons dying in 2003 and born in 1943 or earlier	2,314
C Distributed inheritance gains from persons dying in 2002 and born in 1943 or thereafter	5,302
D Income indexation by the income index 2003/2004	101,626
E Deduction for costs of administration	–1,475
Pensions drawn, 2003	–26,989
Pensions revoked	97
Inheritance gains arising from persons dying in 2003 and born in 1943 or earlier	–1,771
F Pension balances as of December 31, 2003****	3,045,230
Estimated inkomstpension credit earned in 2003	144,711
Inkomstpension liability to the economically active, December 31, 2003	3,189,941

* See *The Swedish Pension System – Annual Report 2002*, Notes 11, 12, and 16.

** Inheritance gains from persons born in 1943 and thereafter who died in 2002; these gains were distributed in 2003.

*** Adjustments for deceased persons, sealed cases, changes of civic registration number.

**** Of which SEK 5,344 million in undistributed inheritance gains from persons dying in 2003 and born in 1944 or thereafter. To be distributed in 2004.

[10] Consisting of changes in taxation between 2002 and 2003 and an adjustment amount (SEK 126 million) for persons dying in 2003 and born in 1943 or earlier who have a closing pension balance. The pension balances for these persons are to be deducted from the inkomstpension liability. Inheritance gains arising for these birth cohorts are estimated on the basis of the mortality observed by Statistics Sweden.

Table B. Analysis of Change in ATP Liability to the Economically Active

Millions of SEK

Pension liability, December 31, 2002	1,183,128
Effect of difference between assumption for 2003 and estimate in 2002 etc.	4,189
Pension drawn, 2003	–127,878
Opening ATP liability, 2003*	= 1,059,439
Change in value (change in incomes and prices)	36,486
Value of ATP credit earned in 2003	4,642
Value of other paid-in contributions to ATP	19,827
Effect of change in average economic life span	3,371
ATP liability to the economically active, December 31, 2003	1,123,765

* Concerns persons who had not begun to draw a pension in 2002.

Table C. Analysis of Change in ATP and Inkomstpension Liability to Retirees

Millions of SEK

	ATP	Inkomst-pension	Total
Pension liability, December 31, 2002	1,566,203	5,434	1,571,637
Net addition from the economically active	127,668	28,749	156,417
Pensions disbursed, net	–154,103	–1,307	–122,188
Indexation	89,977	198	56,953
Increase in liability, increase in average economic life span	7,595	79	7,674
Pension liability to retirees, December 31, 2003	1,637,340	33,153	1,670,493

Notes and Comments on the Premium Pension

Note 15 Pension Disbursements

Thousands of SEK

Pension disbursements from fund insurance	9,943
Pension disbursements from conventional insurance	954
Total	10,897

Like the inkomstpension, the premium pension can be drawn from the age of 61. One option for the pension saver is to retain her/his accumulated balance in fund insurance, which means that the amount of the pension will depend on the change in the value of the funds in which the saver has invested. The other option is to switch to conventional insurance. A changeover to conventional insurance can be made at the time of retirement or subsequently. With conventional insurance, the pension is disbursed as a fixed monthly amount. In the calculation of this amount, a return is assumed; at present this return, before deduction of assumed costs of administration, is 3 percent. After a deduction of 0.3 percentage point for costs of administration, the return is 2.7 percent.

If PPM management of conventional-insurance capital achieves a surplus, a bonus can be paid out in the form of a supplement to the pension received. The supplement can vary from year to year. The total amount of supplements paid out in 2003 was SEK 5,000.

Note 16 Return on Funded Capital

Thousands of SEK

	Fund Insurance	Conventional Insurance	Total
Stocks and shares	14,493,523	2,182	14,495,705
of which: direct return	*1,118,667*	*1,236*	*1,119,903*
realized and unrealized capital gains	*13,374,856*	*946*	*13,375,802*
Bonds and other interest-bearing securities	4,104	–478	3,626
of which: direct return (net interest)	*4,104*	*–638*	*3,466*
realized and unrealized capital gains	*0*	*160*	*160*
Net foreign-exchange gain/-loss	–551,496	0	–551,496
Total return	13,946,131	1,704	13,947,835

The return earned includes realized and unrealized foreign-exchange gains and losses.

Note 17 Costs of Administration

Thousands of SEK

Operating expenses	–285,492
Return on capital, revenue/expense, net	–65,888
Total	–351,380

The costs of administration include the (net) cost of interest on loans taken to finance the PPM, and for other purposes. Costs of fund management are defrayed directly from insurance assets and thus are not included in the PPM's costs of administration. The average management fee after repayment of the bonus is 0.43 percent. See also Note 24.

Note 18 New Pension Credit

In the premium-pension system, the total of all new pension credit including interest will be equal to the contribution revenue during the period when the contribution moneys are managed by the PPM. The amount also includes changes in positive pension credit earned in previous years and distributed rebates of fund-management fees.

Note 19 Pension Disbursements

Pension disbursements reduce the pension liability; see Note 15. A pension may be drawn from the age of 61.

Note 20 Change in Value

The pension liability changes with the change in the value of the premium-pension funds, see Note 16.

Note 21 Change in Assumptions for the Calculations

There has been no change during the year in the assumptions made by the PPM for calculating the amount of life-insurance provisions. Changes in assumptions for calculations relate primarily to assumptions about life span and return on capital.

Note 22 Decedents' Capital

Thousands of SEK

Decedents' capital, fund insurance	182,933
Decedents' capital, conventional life insurance	30,212
Total	213,145

What is termed "decedents' capital" in the premium-pension system is analogous to "inheritance gains arising" in the inkomstpension system. In fund insurance and conventional insurance, the capital of decedents is distributed to the survivors as inheritance gains. This item also includes amounts from the reduction in pension capital for the decrease in premium-pension credit when a premium pension is transferred between spouses. Transferred capital is currently reduced by 14 percent. This percentage is subject to change, but the change affects only the capital transferred thereafter. The amount of the reduction is then distributed to pension savers as a group.

Note 23 Inheritance Gains Distributed.

Inheritance gains are set aside for pension savers. The distribution of inheritance gains is normally made annually and also includes pension savers who have elected to begin receiving their premium pensions.

Note 24 Deduction for Costs of Administration

The amount of SEK 242 million is for the PPM fee of 0.3 percent withdrawn in 2003 to help finance the operating expenses of the PPM. During the build-up phase and until 2018, the authority will be financed through a combination of fees charged and interest-bearing loans from the National Debt Office to meet the need for working capital. The authority is permitted to withdraw annual fees equivalent to a maximum of 0.3 percent of the aggregate account balances of pension savers. During the build-up phase, these withdrawals will be less than the costs sustained by the PPM; the difference is to be debt-financed. This will be done to avoid charging disproportionately high fees to persons currently insured at a time when their premium-pension capital is limited.

Note 25 Insurance Assets

Thousands of SEK

Fund insurance	94,123,230
Conventional life insurance, PPM management	31,278
Total	94,154,508

Note 26 Other Assets

Thousands of SEK

Temporarily managed preliminary contributions	45,584,145
PPM's administrative inventory of fund shares (trading inventory)	20,285
Other assets	535,872
Total	46,140,302

The PPM is responsible for temporarily managing the preliminary contributions transferred monthly by the RFV until pension credit has been confirmed and the moneys have been invested in the insurance alternatives of the PPM. Preliminary contributions are contributions that have been paid in but not yet invested.

These moneys are invested by the PPM in an account with the National Debt Office, where they are invested in nominal- and real-rate bonds and managed for an average of 18 months. The moneys managed in 2003 were for pension credit earned in 2001–2003. The moneys for credit earned in 2001 were invested in January 2003.

Note 27 Pension Liability

Thousands of SEK

Pension liability, fund insurance	94,126,625
Pension liability, conventional life insurance	30,230
Total	94,156,855

The provision for the fund-insurance pension liability consists of the redemption value of fund shares, decedents' capital, reductions on transfer of pension capital, and unsettled damage claims.

The provision for the conventional-insurance pension liability is determined for each insurance policy as the capital value of remaining guaranteed benefit payments. Premiums paid in are reported as single premiums and increase the guaranteed amount. The value is calculated on the basis of assumptions about the future return, mortality, and operating expenses. Provisions are made for unsettled damage claims, which refer to pension disbursements not yet effectuated.

Note 28 Other Liabilities

Thousands of SEK

Liabilities relating to preliminary contributions paid	45,751,876
Other liabilities	2,115,017
Total	47,866,893

Liabilities relating to preliminary contributions paid are transferred monthly from the RFV to the PPM. The contribution moneys are reported as liabilities until pension credit has been confirmed and the moneys invested in the insurance alternatives of the PPM.

Accounting Principles and Related Matters

By decision of the Swedish Parliament (the Riksdag), a report is to be prepared each year on the financial position and development of the earnings-related old-age pension system. The reasons for that decision and the accounting principles used in the report are described in this section.

Reasons for the Report and Its Objectives

The size of pension benefits in the two parts of the earnings-related pension system, the inkomstpension and the premium pension, is adjustable, changeable in relation to the demographic, and economic conditions that determine the financial development of the system. In the inkomstpension system, the size of an individual's pension is governed by the sum of paid-in contributions and the return earned on them, together with the current average life expectancy and the age of the insured when he/she begins to draw a pension. In the premium-pension system, it is determined by the sum of paid-in contributions and the change in value of the funds chosen, together with a forecast of the average life expectancy at the age of the pension saver. Since the size of pensions is dependent on factors that include the financial position and development of the pension system, the Swedish Parliament has considered it important to receive annual reports on the system. The purpose of the report is to make it possible to follow and understand the financial development of the pension system, and to explain each of the factors that determine the size of the inkomstpension and of the premium pension.

One objective of the report is thus to provide information on the processes that may affect the pensions of the insured. This means that the report should seek to present clearly the demographic, economic, and behavioral risks and opportunities that determine the financial position of the system and that directly affect, or may subsequently affect, the value of pensions. A further ambition is that the report should conform as much as possible to generally accepted accounting principles for insurance companies.

Where Do the Figures Come From?

The preparation of an annual report for the premium-pension system is the responsibility of the Premium Pension Authority (PPM). The PPM prepares the Annual Report in accordance with the Law (1995:1560) on Annual Reports of Insurance Companies.

The Annual Report of the Pension System presents a set of consolidated financial statements that also include the premium-pension system, managed by the PPM. In the consolidated financial statements, the accounting of the PPM has largely followed the PPM Annual Report; however, certain items have been simplified and aggregated for purposes of clarity.

The information in this report concerning the First-Fourth and Sixth National Pension Funds is taken entirely from the annual reports of these funds for 2003. The contribution revenue and pension disbursements of the inkomstpension have also been taken from the reports of the funds. In other respects, the reporting for the inkomstpension system is based on data from RFV records – within the system there is no accounting in a conventional

sense. The amounts reported are based largely on those taken from RFV records on pension credit earned and pension disbursements.

Principles for Calculating Assets and Liabilities of the Inkomstpension System

The distinguishing feature of a pay-as-you-go pension system is that its expenditure is financed more or less directly by current contribution revenue. Since the liability of the inkomstpension system is financed primarily by current contribution revenue, the flow of contributions may be regarded as the principal asset of the inkomstpension system – in other words, it may be treated as a *contribution asset*.

The method of calculating the assets and liabilities of the inkomstpension is regulated by law. The applicable legislation provides, among other things, that the contribution asset be valued according to the pension liability that can be financed by the inflow of contributions given the conditions prevailing at the time of valuation. This hypothetical pension liability is equal in amount to the contribution revenue multiplied by the so-called turnover duration of the system.[11]

The actual pension liability is also valued on the basis of the conditions prevailing at the time of valuation.[12] This means that the inkomstpension liability to persons who have not yet begun to withdraw their old-age pensions is reported at its nominal value. In other words, the liability is equal to the aggregate of the amounts specified in the pension statement contained in the orange envelope sent annually to each insured. In addition to this amount, there is estimated pension credit for inkomstpension earned during the year covered by the report. The pension liability to retirees is also presented at its nominal value. This is done by multiplying pensions granted by the expected number of times that the amount will be disbursed, with the number of disbursements discounted (reduced) by the norm of 1.6. The expected number of disbursements is calculated from measurements of the length of time that the pension amounts in RFV records are paid out. See the Technical Appendix, Section 4.

The assets of the National Pension Funds are reported at their so-called true value. This means that the assets are valued at the latest price paid on the final trading day of the year, or otherwise at the latest price bid.

Calculating Assets and Liabilities Is Easy

The assets and liabilities of the inkomstpension system are valued solely according to what is observable at the time of valuation. For example, the normal assumption that contribution revenue increases at the rate of economic growth is not explicitly considered in the calculation of the contribution asset. Nor does the valuation of the pension liability take into account that pension disbursements, because of factors like indexation, will increase in the future. The main reason why it has been deemed reasonable to value assets and liabilities solely according to what can be observed is that the financial position of the system is not dependent on the amount of assets and liabilities taken separately. The financial position of the system is determined exclusively by the relationship between assets and liabilities, in other words, by the so-called balance ratio.

The inkomstpension is so designed that there is a strong link between the development of system assets and of system liabilities. In cases where the balance ratio exceeds one (1), however, liabilities and assets will develop at (somewhat) different rates. But in cases where the balance ratio is less than one (1), the provisions for automatic balancing establish in principle an ab-

[11] The calculation of turnover duration is described in the Technical Appendix, Equation 3; see also the List of Terms.

[12] As explained below, this is not fully applicable until ATP credit can no longer be earned, i.e., beginning in 2018.

solute link between the rates of growth in liabilities and assets. Taken as a whole, this means that valuing the assets and liabilities of the system solely on the basis of conditions observable at the time of valuation entails no risk of overestimating assets in relation to liabilities in the long run.[13] The provisions for automatic balancing have eliminated the need for assumptions about future economic and demographic developments in order to ensure the financial stability of the system.

It is apparent from the above that the method for valuing the assets and liabilities of the inkomstpension system is based on an implicit assumption that assets and liabilities grow at the same rate after each valuation. To put it another way, it is assumed in the method of valuation that the internal rate of return of the system will always be the same as the indexation of the pension liability, even though this outcome is certain only if balancing has been activated. When balancing has not been activated, the internal rate of return can be either greater or less than the indexation of the pension liability.

[13] The manner of calculating turnover duration involves an implicit assumption that the working-age population will remain constant. Thus, turnover duration will be (slightly) overestimated in cases where the working-age population shows a decreasing tendency. This entails a risk that the calculations will (slightly) overestimate the system's assets in relation to its liabilities. However, it is reasonable to assume that the population decline will cease at some point. If so, the deficit will be temporary.

ATP an Exception: Not So Easy

One central accounting principle for the inkomstpension requires that the report be based only on events or transactions that have occurred and been recorded. Since pension credit will be earned according to ATP rules through the year 2017, this accounting principle cannot yet be fully applied. The reason is that it is impossible to determine the size of the pension liability calculated by ATP rules to persons who have not yet begun to receive their pensions as of the date of the financial statements (the ATP liability to the economically active) without making assumptions about future economic and demographic developments. That portion of the pension liability has been estimated according to the principles set forth by the Government in its proposed legislation (2000/01:70) on Automatic Balancing in the Old Age Pension System. In brief, these principles provide that the ATP liability to the economically active is to be calculated on the assumptions of the same average life expectancy used in determining the inkomstpension liability and of two-percent annual growth in the income index.

As of December 31, 2003, the ATP liability to the economically active was slightly less than 20 percent of the total pension liability. This proportion will decrease rapidly in the future.

Regulations and Guidelines

The Annual Report of the Pension System has been prepared in accordance with Chapter 15, § 20 of the Earnings Related Old Age Pension Act (1998:674), which provides that each year the authority designated by the Government is to prepare a report on the financial position and development of the earnings-related old-age pension system. The income statements and balance sheets in the Annual Report of the Pension System are based on the financial statements of the First–Fourth and Sixth National Pension Funds, the financial statements of the Premium Pension Authority (PPM), and the RFV records on pension credit earned and pension disbursements. To a substantial extent, the Annual Report of the Pension System is prepared according to accounting principles especially designed for a pension system that is primarily a pay-as-you-go system.

According to Chapter 1 of the Earnings Related Old Age Pension Act (1998:674), the assets of the pension system consist of the contribution asset of the pay-as-you-go system, with the addition of the reported market value of the assets of the First–Fourth and Sixth National Pension Funds. The pension liability refers to the total pension commitment of the pay-as-you-go system.

Formulas for calculating the contribution asset and the pension liability are specified in Regulation (2002:780) on the Calculation of the Balance Ratio.

According to Regulation (2002:135) on the Annual Report, the liability of the ATP system for the economically active is calculated on the basis of specified assumptions. In the Annual Report of the Pension System, the value of these commitments is calculated according to the principles stated in Proposal (2000/01:70), *Automatic Balancing of the Old Age Pension System*.

In accordance with Regulation (2002:135), the Annual Report of the Pension System includes a projection of the assumed long-term development of the system.

How the Public Pension Works

The Swedish public pension consists of the inkomstpension and the premium pension – and if the sum of these two is below a certain level, the guaranteed pension as well. It is estimated that the public pension provides some 50–60 percent of the average earned income of the economically active.

Almost Like Saving in the Bank

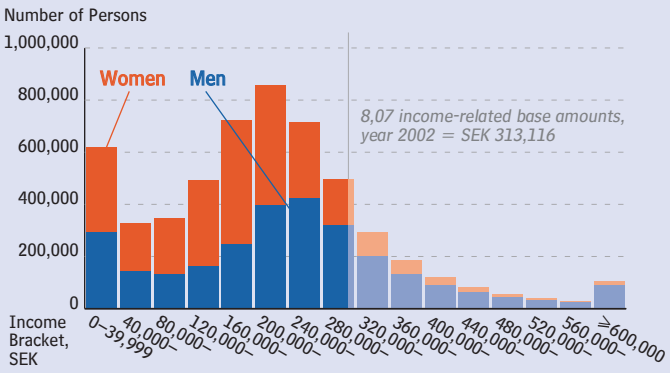
The earnings-related pension system works much like ordinary saving in the bank. The comparison applies to both parts of the system, the *inkomstpension* and the *premium pension*. Each year pension contributions for this insurance are paid by the insured, their employers, and in certain cases the central government. The contributions are recorded in the "bankbook" of the insured – i.e., the respective accounts for the inkomstpension and the premium pension. The savings grow over the years with the inflow of contributions and with the "interest" accumulated on each form of insurance.

The orange envelope sent out each year contains information that enables the insured to watch their own inkomstpension and premium-pension accounts grow from year to year. On retirement, the stream of payments is reversed, and the inkomstpension and premium pension are paid out for the remaining lifetime of the insured.

Pension Insurance Only

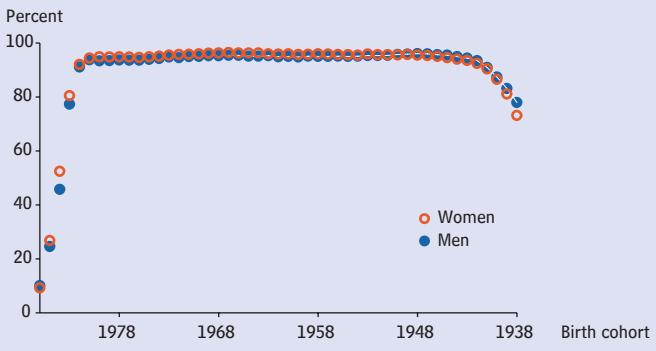
One feature of pension insurance is that the savings are blocked; it is impossible to withdraw all or any part of them before the minimum age for receiving a pension. This age is 61 years for both the inkomstpension and the premium pension. The savings are withdrawn in a monthly amount that is paid for the remaining lifetime of the insured. Thus, the capital saved cannot be withdrawn all at once. Nor can it be inherited by relatives – it can only be inherited by all insured persons as a group. In the premium-pension system, however, it is possible to withdraw the premium pension as a joint life

Distribution of Income in 2002



Women are overrepresented in low-income intervals, men in high-income ones. In total, 17 percent of all individuals – 24 percent of men and 9 percent of women – had incomes above the ceiling of 8.07 income-related base amounts, or SEK 313,116 in 2002. Incomes above the ceiling are not pension-qualifying.

Proportion of Population Aged 16–64 Earning Pension Credit in 2002



Almost 95 percent of the population aged 21–60 are earning pension credit. This high proportion is explainable by the fact that pension credit accrues not only for earnings, but also for sickness and activity allowances, sickness cash benefits, parental allowances, and unemployment compensation, for example. For the oldest individuals, the proportion with pension credit is lower, primarily because of early retirement.

annuity. This means that the premium pension is paid out to either of two spouses or cohabitants as long as one of them is living. With this survivor benefit, the monthly pension will be lower.

One purpose of pension insurance is to redistribute assets – consumption potential – from individuals with shorter-than-average life spans to those who live longer. Consequently, before withdrawal of the old-age pension, there is an annual redistribution of the pension balances of persons who have died – the so-called *inheritance gain* – among the surviving insured.

The pension savings, or the balance of the insured's pension account, consist of the sum of that individual's pension credit (contributions), accumulated interest, and inheritance gains. The account is charged each year with a fee for costs of administration. The balance of the inkomstpension account is called the individual's pension balance, whereas the balance of the premium-pension account is called premium-pension capital.

Also during the time when the pension is drawn, assets are redistributed from those with shorter-than-average life spans to those who live longer. For the premium pension, the distribution of inheritance gains during the time of retirement takes place in the same manner as before retirement. For the inkomstpension, the redistribution is done by calculating the monthly pension on the basis of an average life expectancy but paying it out for as long as the insured lives. Consequently, the total pension disbursements to persons who live for only a short time after retirement are less than their pension savings. Those who live longer than average receive more than the value of their pension balances and premium pension capital.

One Krona of Pension Credit for Each Krona Contributed

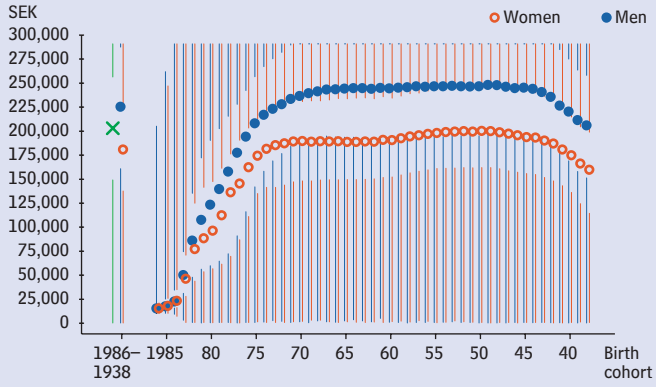
The pension contribution is 18.5 percent of the pension base. Similarly, the pension credit earned is 18.5 percent of the individual's pension base. Pension credit accrues at 16 percent of the pension base for the inkomstpension and at 2.5 percent for the premium pension.

The pension base consists of pension-qualifying income and so-called pension-qualifying amounts. Pension-qualifying income consists of the insured's earnings and certain social-insurance benefits, as well as unemployment-insurance benefits. In addition, pension credit is granted for time spent caring for small children, pursuing studies, and performing compulsory national service. This latter type of pension credit is not earned on actual

Guide to the diagrams

The median is the value in the middle of those ranked in order from lowest to highest. A line marks the interval of values for the bottom 25 and the top 25 percent of the insured in the distribution of income. The two empty spaces between the lines and the median show the interval of values for the 25 percent of the insured closest to the median on either side.

Pension Base Earned in 2002, Median and Measure of Dispersion



The median income of each birth cohort in a particular year also provides a picture of the expected average lifetime-income profile. There is a substantial difference in income between men and women. The median for men is about the same as the 75th percentile for women. This means that only 25 percent of women have a pension base higher than the median income for men. The difference is explainable by the lesser amount of remunerated working time and the lower wages and salaries of women.

income, but is calculated on a special basis, termed a pension-qualifying amount. Pension credit for pension-qualifying amounts is also received for the sickness and activity allowances that were formerly termed disability pensions. The maximum pension base is 7.5 income-related base amounts (SEK 306,750 in 2003).

An example: For an insured individual with a pension base of SEK 100, both the pension credit and the contribution paid are SEK 18.5. The inkomstpension account is then increased by a deposit of SEK 16, and the equivalent is earned in credit for the inkomstpension. Similarly, a deposit of SEK 2.5 is made to the premium-pension account, and the same amount in premium-pension credit is earned. The amount of SEK 16 is added to the buffer funds of the inkomstpension system, the First-Fourth National Pension Funds, while the amount of SEK 2.5 is invested in the premium-pension funds chosen by the insured.

Who Pays the Contribution?

The insured pays an individual pension contribution to the pension system of 7 percent of his/her earnings and any (earnings-equivalent) social-insurance and/or unemployment-insurance benefits received. The contribution is paid on incomes up to 8.07 income-related base amounts.[14] The individual pension contribution of 7 percent is not included in the pension base.

For each employee, employers pay a pension contribution to the pension system of 10.21 percent of that individual's earnings[15]. This contribution is also paid on earnings exceeding 8.07 income-related base amounts. Since there is no pension credit for earnings above 8.07 income-related base amounts, these contributions are in fact a tax.[16] They are therefore transferred to the central-government as tax revenue and are not added to the buffer funds of the pension system.

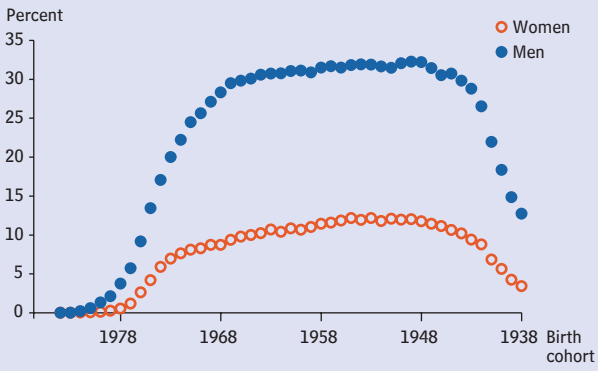
For recipients of earnings-equivalent social-insurance or unemployment-insurance benefits, the central government pays a contribution of 10.21 percent of these benefits to the pension system. By contrast, for persons credited with pension-qualifying amounts, the central government pays a contribution of 18.5 percent of the pension-qualifying amount. These central-government contributions to the old-age pension system are financed by general tax revenues.

[14] In 2003, 8.07 x SEK 40,900 = SEK 330,063.

[15] Self-employed persons pay the individual pension contribution of 7 percent and a self-employment contribution of 10.21 percent.

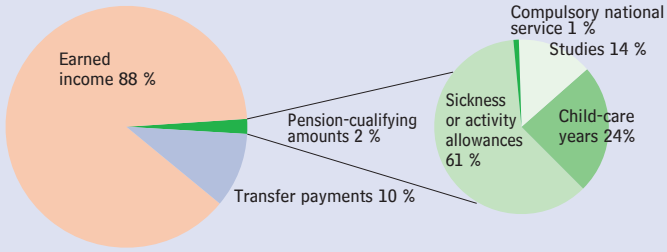
[16] In Note 1 it is shown that this tax amounted to SEK 12.5 billion in 2003.

Proportion of Persons Who Earned Pension Credit in 2002 With Incomes at or Above the Ceiling



Beginning in 2002, the ceiling on earnings is indexed to the general growth in income, as measured by the income index. Thus, the proportion of incomes above the ceiling will remain constant. On the other hand, there may be changes in the age and gender distribution of persons with incomes above the ceiling.

Pension Credit Base in 2002



The public earnings-related pension system is of the defined-contribution variety in the sense that for each krona of pension credit earned, an equal contribution is made, and that for each krona added to the system, an equal amount of pension credit is granted. This does not mean that pension credit is granted only for earnings. For instance, pension credit also accrues for taxable social-security benefits and unemployment compensation.

The total pension contribution on earnings and transfer payments thus sum up to 17.21 percent, while the pension credit and the pension contribution itself are 18.5 percent of the pension base. The difference is due to the fact that the pension base is reduced by the individual pension contribution of 7 percent when pension credit is calculated.[17] This means that the maximum pension base is 93 percent of 8.07, or 7.5 income-related base amounts. The maximum pension credit was SEK 56,749 in 2003.

Where Does the Contribution Go?

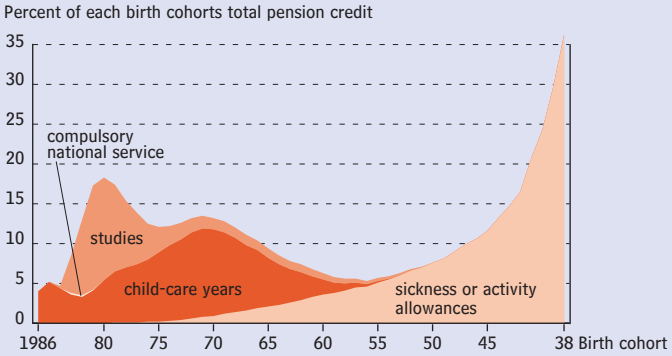
Inkomstpension contributions are deposited in the four buffer funds of the system, the First, Second, Third, and Fourth National Pension Funds.[18] Each fund receives one fourth of the contributions and finances one fourth of pension disbursements. The monthly pension disbursements of the inkomstpension system are thus made from the buffer funds. In principle, more or less the same moneys that were paid in during the month are paid out in pensions to the recipients. Thus, there is virtually no saving in the pension system for the economy as a whole. For the insured, however, the pension contribution can be considered a form of saving.

The premium-pension contribution paid each month is invested by the Premium Pension Authority (PPM) in interest-bearing assets until the final tax assessment is complete. Only then does the PPM know how much premium pension credit has been earned by each insured. When this amount has been determined, the PPM purchases shares in the funds selected by the insured. At the end of 2003, the premium-pension system included 664 funds administered by 87 different fund managers. Contributions of insured persons who do not actively select a premium-pension fund are invested in the Seventh National Pension Fund. When a pension is to be disbursed, the PPM sells shares in the recipient's funds, and the proceeds are paid out as a pension.

[17] 0.1721/0.93=0.185.

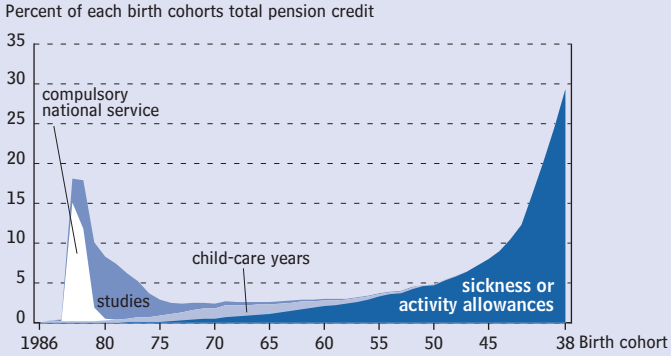
[18] The assets of the inkomstpension system also include the Sixth National Pension Fund, which however does not receive any contributions or pay any pensions.

Pension Credit for Pension Qualifying Amounts in 2002, Women



Pension credit is granted for pension-qualifying amounts in certain particular phases of life, such as time spent caring for small children and performing compulsory national service. The most widespread type of pension-qualifying amounts, however, is sickness or activity allowances. These account for some 35 percent of the pension credit earned by women at age 64.

Pension Credit for Pension Qualifying Amounts in 2002, Men



Men have less pension credit than women for child-care years and a somewhat smaller proportion of pension credit for sickness or activity allowances and for study, but more for compulsory national service.

Funds in the Premium Pension System as of December 31, 2003

	Number of registered funds	Managed capital 2003, SEK billions	Managed capital 2002, SEK billions
Equity funds	470	45.8	27.9
Mixed funds	52	4.0	2.6
Generation funds	29	11.6	8.2
Interest funds	113	2.7	1.9
Premium Savings Fund	–*	29.8	18.6
Total	664	93.9	59.3

* The Premium Savings Fund is included in the number of equity funds.

Interest on the Pension Account

Savings in a bank account earn interest, and the pension system works in the same way.

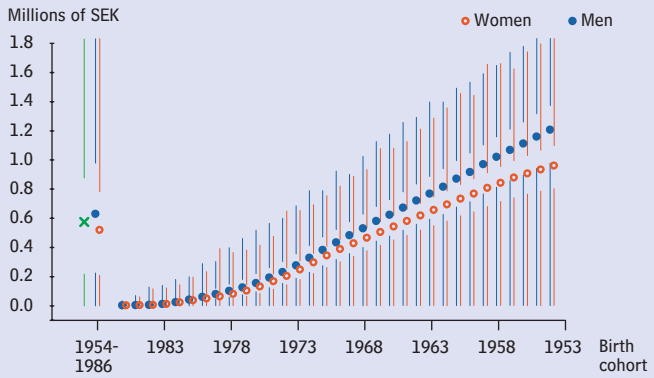
The interest on the inkomstpension account is normally determined by the growth in average income. If the average income in Sweden increases by three percent, for example, the rate of interest will also be three percent. The average income is measured by the income index. The equivalent of interest on the premium-pension account is determined by the change in the value of the premium-pension funds chosen by the insured.

Thus, the interest earned on pension credit depends on what happens in different areas of the economy. The inkomstpension account earns interest at the rate of increase in wages and salaries – in the price of labor, to put it another way. The development of the premium-pension account follows the tendency on financial markets. Neither of these rates of interest is guaranteed; they may even be negative. By apportioning contributions between separate subsystems where the rate of return is determined by somewhat different circumstances, the risk is spread to a certain extent.

A Rate of Interest Other Than the Income Index – Automatic Balancing

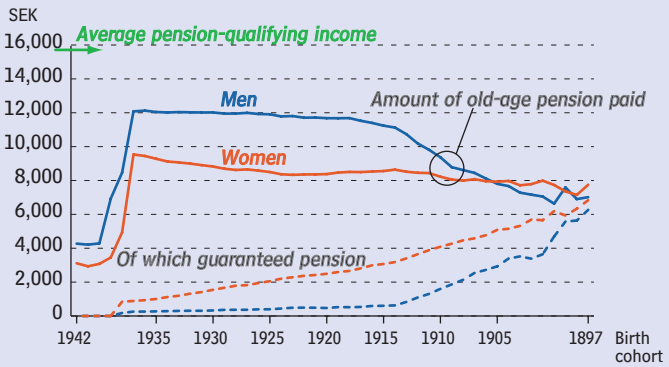
Given certain demographic and economic developments, it is not possible to earn interest on the inkomstpension account and the inkomstpension at a rate equal to the growth in average income and at the same time finance

Pension Balances as of December 31, 2003



Shown here are the pension balances, i. e., the balances of the inkomstpension accounts, of those birth cohorts that are entirely covered by the rules of the new system. In each birth cohort, there are newcomers who have earned their first pension credit. This explains why the smallest pension balances are close to zero for all ages.

Disbursements of Public Old Age Pensions in December 2003, Mean Value

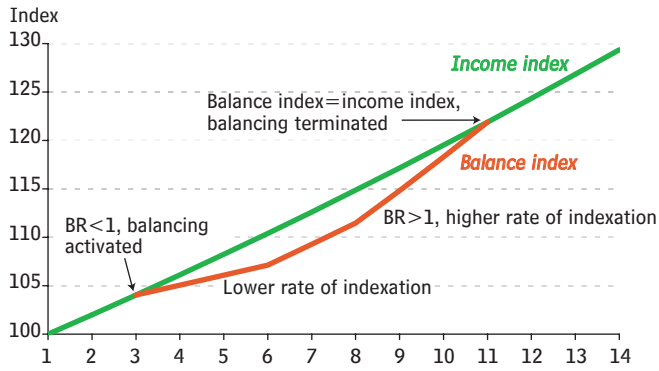


Women have consistently higher guaranteed pensions than men. The difference is due to the fact that women on average have lower earnings-related pensions than men. Similarly, older persons have higher guaranteed pensions since on average they have lower earnings-related pensions than younger pensioners. No guaranteed pension is paid to persons under age 65.

payments of the inkomstpension with a fixed contribution. In order to maintain the contribution at a level of 16 percent, income indexation is suspended in such a situation. This is done by activation of so-called automatic balancing. Automatic balancing provides rules for calculating the assets and liabilities of the system, and for when and how the rate of interest will differ from growth in average income.

If the assets of the system are divided by the pension liability, we obtain a measure of the financial position of the system, the balance ratio. If the balance ratio exceeds one (1), assets are greater than liabilities. If the balance ratio is less than one (1), liabilities exceed assets. Balancing is activated when the balance ratio drops below one (1). When balancing is activated, pension balances and pensions will be indexed by the change in a balance index instead of the change in the income index. The balance index changes as a function of the change in the income index and the size of the balance ratio.

Automatic Balancing



An example: If the balance ratio falls below 1 to 0.99 while the income index rises from 100 to 104, the balance index is calculated as the product of the balance ratio (0.99) and the income index (104), for a balance index of 103. The indexation of pension balances will then be at 3 instead of 4 percent; the indexation of pensions will be reduced correspondingly.[19]

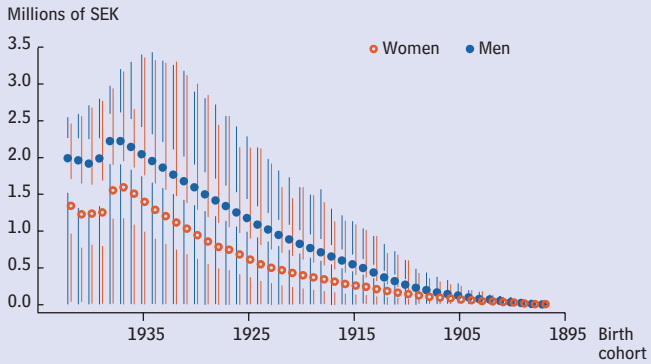
If the balance ratio exceeds 1.00 during a period when balancing is activated, pension balances and pensions will be indexed at a rate higher than the increase in the income index. This will continue until pensions regain the value that they would have had if they had been adjusted solely by the income index. When the balance index reaches the level of the income index, balancing is deactivated, and the system returns to one in which adjustment is made only by the change in the income index.

[19] The balance index for following year is calculated by multiplying the balance index (103) by the ratio between the new and old income indices, multiplied by a new balance ratio.

Costs of Administration Reduce Pensions

The costs of administering the inkomstpension are deducted annually from pension balances by the same percentage for all insured. This deduction is made only until the insured begins to withdraw a pension. In 2003 the deduction for costs of administration was 0.048 percent. At the current level

Pension Liability to Retirees as of December 31, 2003



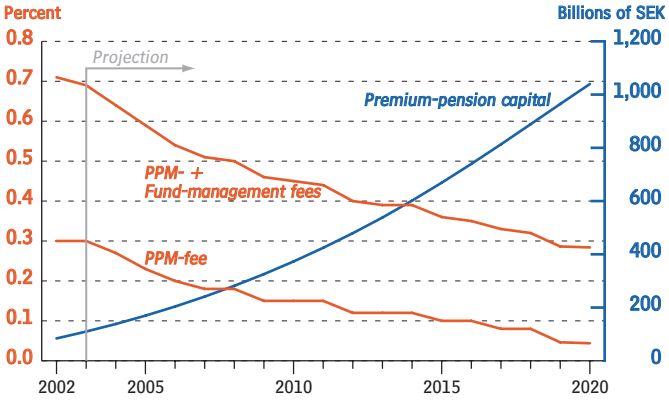
The median pension liability to a man aged 65 is about SEK 2.2 million, and to a woman aged 65, about SEK 1.6 million. The pension liability has been calculated as if both sexes were expected to live equally long. Thus, the differences in pension liability for men and women reflect differences in monthly pensions, not lifetime pensions.

of costs, the deduction for costs will reduce the inkomstpension by approximately 1 percent compared to what it would be if the costs of administration were 0 percent.[20]

In a similar manner, the costs of administering the premium pension are deducted each year from the premium pension capital. In this case, however, the deduction continues to be made after the insured begins to draw a pension. In 2003 the deduction for the PPM's costs of administration was 0.3 percent. This deduction does not include the costs of fund management, which instead reduce the value of fund shares. The average cost deduction for fund managers in 2003, after rebates, was 0.43 percent. Thus, the total deduction for costs in the premium-pension system in 2003 averaged 0.73 percent. However, the annual percentage deduction for costs will decrease in the years ahead. As fund capital grows, it is expected that the PPM's fee for administration will decrease to about 0.1 percent, and that the rebates received from fund managers and credited to pension savers will become substantially larger. For an insured person born in 1963, it is estimated that the deduction for costs of administration will reduce the premium pension by an average of 11 percent.

[20] On average, a pension balance remains in the system for 22 years, i.e., the pay-in duration of the system. With annual costs of administration of 0.048 percent, the inkomstpension is reduced by these costs to (1–0.00048)22 ≈ 99 percent of what it would have been without the deduction for costs.

The Costs of the Premium Pension



How is The Inkomstpension Calculated?

The inkomstpension is calculated by dividing the pension balance by a so-called annuitization divisor. There is a specific divisor for each birth cohort. The annuitization divisor reflects both the remaining life expectancy at the time the individual begins to withdraw a pension, and an interest rate of 1.6 percent. The remaining life expectancy is an average for men and women and is based on the observed mortality of the five-year period immediately preceding the year when the cohort reaches age 65 (61 when the individual begins to withdraw a pension before reaching 65). With the interest rate of 1.6 percent, the annuitization divisor is less than the average life expectancy, and the initial pension will be greater than it would have been otherwise.

An example: If an insured person has a pension balance of SEK 1.8 million and the annuitization divisor is 16, the annual pension will be SEK 112,500 and the monthly pension, SEK 9,375.

The inkomstpension is revalued annually by the change in the income index less the interest of 1.6 percentage points credited in the annuitization divisor.[21] This means that if wages and salaries increase by exactly 1.6 percent more than inflation, as measured by the Consumer Price Index, pensions will increase at the rate of inflation. Thus, pensions will only be unchanged in constant prices if wages and salaries increase by precisely 1.6 percent more than the inflation rate. If, for example, wages and salaries increase by 2 percent more than inflation, pensions will increase by 0.4 percent in constant prices. If wages and salaries increase by 1 percent more than inflation, pensions will decrease by 0.6 percent in constant prices.

[21] It is somewhat misleading to use a minus sign; the inkomstpension is recalculated by the ratio between the new and the old income index divided by 1.016.

How is the Premium Pension Calculated?

The premium pension can be withdrawn either as fund insurance or as conventional insurance.

In both forms of insurance, the value of the pension account is determined in principle through dividing it by an annuitization divisor based on the average life expectancy. The annuitization divisor of the premium pension, however, is based on forecasts of future life spans with interest credited

at 3 percent before the deduction of PPM costs – after this deduction the interest rate is 2.7 percent.

If the premium pension is withdrawn in the form of conventional insurance, the pension is calculated as a guaranteed life-long annuity payable in nominal monthly amounts. In this case the PPM sells the insured's fund shares and bears the responsibility and the financial risk of investing the proceeds. The pension is calculated with an assumed nominal return that is presently 3 percent. The amounts disbursed may be greater if the conventional life-insurance operation reports a positive result.

Fund insurance means that the savings of the insured remain in freely chosen PPM funds. If fund insurance is elected, the size of the premium pension is revalued once each year on the basis of the value of fund shares in December. In each month of the following year, a sufficient number of fund shares are sold to finance payment of the premium pension. If the value of the fund shares increases, fewer shares are sold; if the value decreases, more shares are sold. The variations in prices affect the value of the following year's premium pension.

As noted previously, the premium pension can be withdrawn as a joint life annuity.

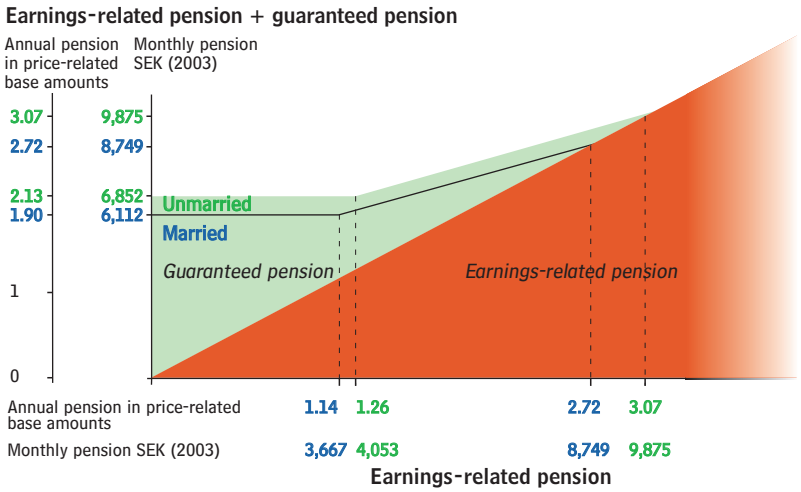
Guaranteed Pension

The guaranteed pension provides basic protection for persons with little or no income. The guaranteed pension may be paid beginning at age 65 to persons residing in Sweden. To receive a full guaranteed pension, an individual must in principle have resided in Sweden for 40 years after the age of 25. Residence in another EU/EES country is also credited toward a guaranteed pension.

In 2003 the maximum guaranteed pension for single pensioners was SEK 6,852 per month (for an annual pension of 2.13 price-related base amounts[22]), and for a married pension, SEK 6,112 kronor per month (annual pension 1.90 price-related base amounts). The guaranteed pension is reduced for persons with an earnings-related pension. The reduction is made in two stages: for low incomes, the guaranteed pension is reduced by the full amount of earned income; for higher incomes, the guaranteed pension is only reduced by 48 percent. The provisions for offsetting mean that a single pensioner with a monthly earnings-related pension of SEK 9,875 or more in 2003 would receive no guaranteed pension. For a married pensioner the corresponding income limit was SEK 8,749 kronor.

An example: A pensioner living alone has an annual earnings-related pension equivalent to 2.26 price-related base amounts. The guaranteed pension is reduced by the full amount of income up to 1.26 price-related base amounts. The remaining total of (2.13–1.26 =) 0.87 price-related base amount is reduced by 48 percent of the income above 1.26 price-related base amounts, or by 0.48 price-related base amount. Thus, the guaranteed pension will be 0.39 price-related base amount, and the total annual pension, 2.65 price-related base amounts.

[22] For 2003, the price-related base amount was SEK 38,600.



When the guaranteed pension is calculated, the premium pension is not considered. Instead, the inkomstpension is calculated as if it had been earned at 18.5 percent of the pension base, rather than 16 percent. One reason for these provisions is that they simplify administration of the guaranteed pension. So far the premium pension is a very small part of the total old-age pension. When the premium pension has become larger, the rules may be reviewed.

The guaranteed pension is financed directly by the tax revenue of the central-government budget and is therefore not included in the income statement and balance sheet of the pension system.

ATP

Persons born before 1938 have not earned either an inkomstpension or a premium pension. Instead they receive ATP, a pension calculated by an older system of rules. The level of ATP is based on an individual's income for the 15 years of highest income, and 30 years with income are required to receive a full pension. If a pensioner has fewer than 30 years with income, the ATP is reduced by one thirtieth (1/30) for each year less than 30.

For persons born in 1938–1953, transitional rules apply. These individuals receive a portion of their earnings-related old-age pension as ATP and the rest as an inkomstpension and a premium pension. The younger the individual, the smaller the proportion of ATP. Persons born in 1938 receive 80 percent of their ATP pension; persons born in 1939 receive 75 percent of their ATP pension, etc. Persons born in 1954 or thereafter will receive their entire pensions as calculated by the new provisions for inkomstpension and premium pension.

Inkomstpension, Income Statement and Balance Sheet in Percentage of GDP

Income Statement, percentage of GDP. In 2003, 100 = SEK 2 440 billion. In 2002, 100= SEK 2 347 billion

Change in fund assets	2003	2002	Change
Pension contributions	6.8	6.8	0.0
Pension disbursements	−6.4	−6.5	0.1
Return on funded capital	3.4	−3.6	7.0
Costs of administration	−0.1	−0.1	0.0
Total change in fund assets (a)	3.7	−3.3	7.0
Change in contribution asset			
Value of change in contribution revenue	6.6	9.6	−3.0
Value of change in turnover duration	0.5	−0.7	1.2
Total change in contribution asset (b)	7.1	8.8	−1.8
Change in pension liability*			
New pension credit + ATP credit	−7.1	−7.1	0.0
Pension disbursements	6.4	6.5	−0.1
Indexation	−9.4	−11.8	2.4
Value of change in average life span	−0.5	−0.3	−0.2
Inheritance gains arising	0.3	0.3	0.0
Inheritance gains distributed	−0.3	−0.3	0.0
Deduction for costs of administration	0.1	0.1	0.0
Total change in pension liability (c)	−10.5	−12.6	2.1
Net income/-loss (a)+(b)+(c)	0.3	−7.1	7.4

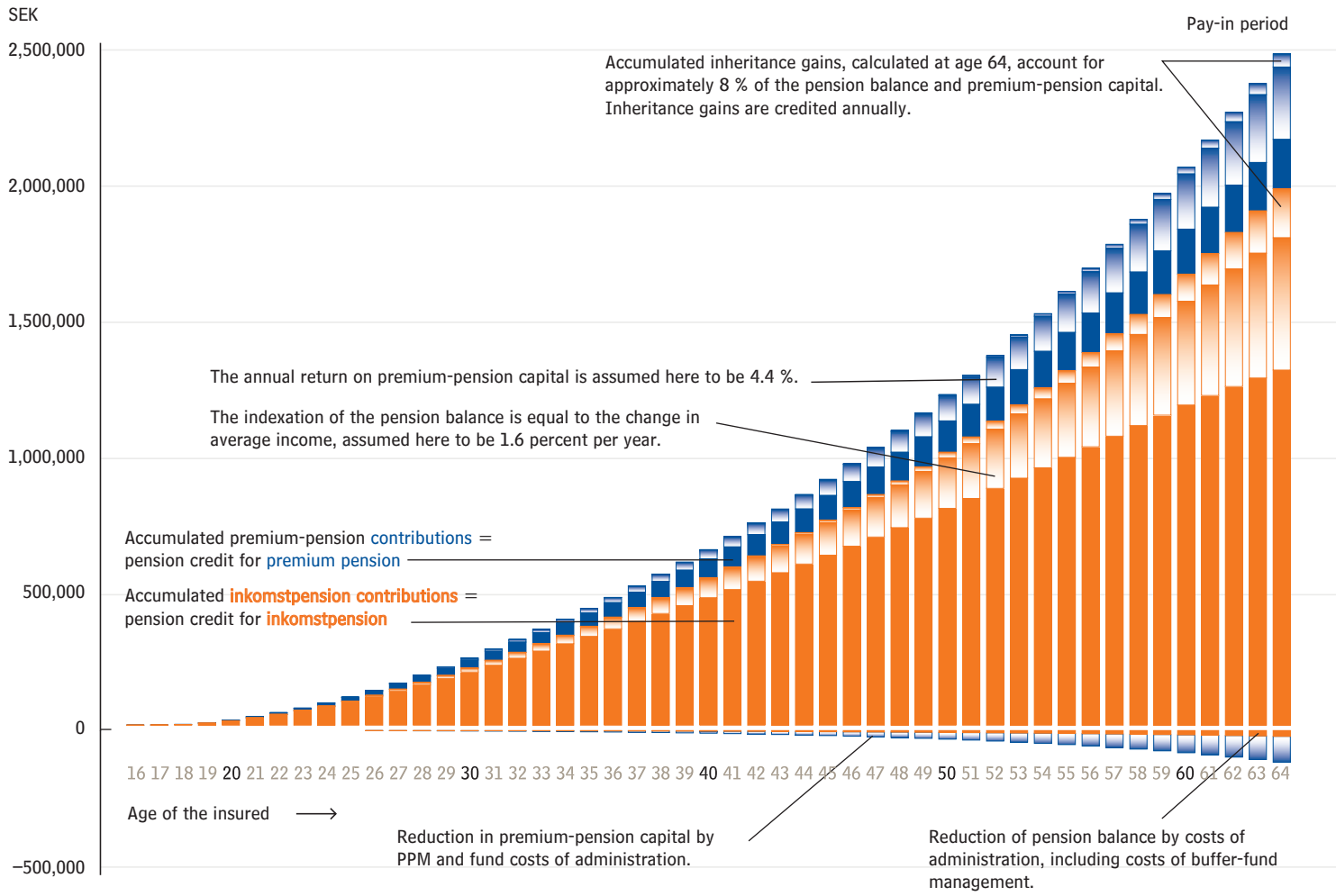
* A negative item (−) means that the pension liability increases, a positive item (), that the pension liability decreases.

Balance Sheet, percentage of GDP

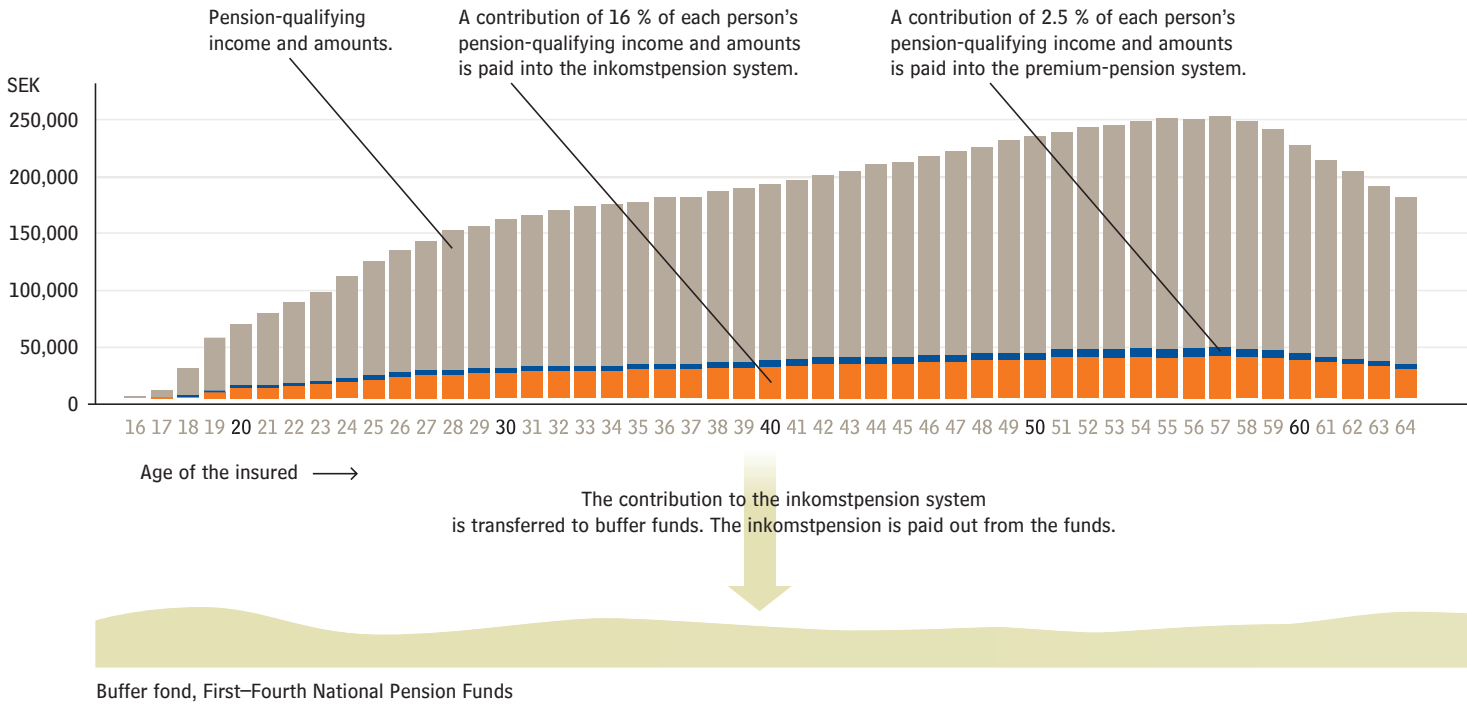
Assets	Dec 31, 2003	Dec 31, 2002	Change
First–Fourth and Sixth National Pension Funds	23.6	20.8	2.9
Contribution asset	224.0	225.5	−1.5
Total assets	247.6	246.2	1.4

Liabilities and Surplus	Dec 31, 2003	Dec 31, 2002	Change
Opening surplus/-deficit	2.1	9.3	−7.2
Net income/-loss for the year	0.3	−7.1	7.4
Total surplus/-deficit	2.4	2.2	0.2
Pension liability	245.2	244.0	1.2
Total liabilities and surplus	247.6	246.2	1.4

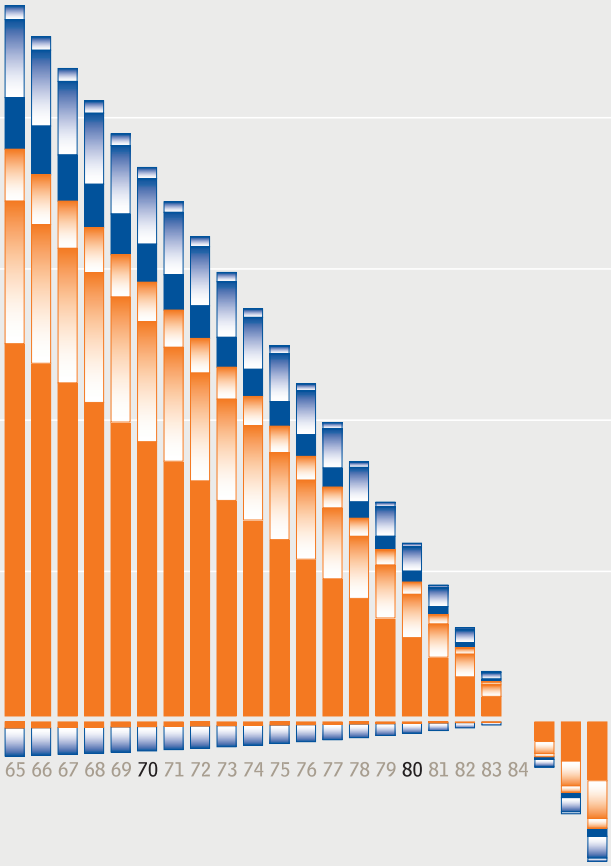
Earning and Calculation of the Inkomstpension and Premium Pension for an Insured Individual



Annual Pension Qualifying Income and Amounts, and Contribution and Pension, for an Insured Individual



Pension period

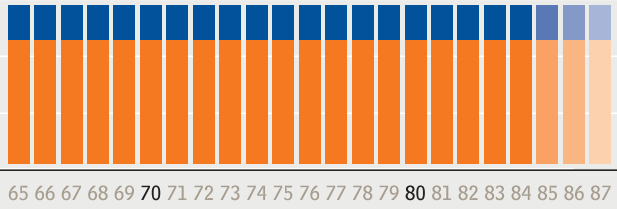


Withdrawal of inkomstpension. The inkomstpension is calculated by dividing the pension balance by a so-called annuitization divisor. The annuitization divisor is a reflection of remaining average life expectancy and an interest rate of 1.6 %.

Withdrawal of premium pension. In principle, the premium pension is calculated like the inkomstpension, except that the annuitization divisor of the premium pension is based on forecasts of future life expectancy, and the interest rate credited is 3 percent before deduction of PPM costs; after this deduction, the interest rate is 2.7 percent. The premium pension can be withdrawn in the form of conventional insurance or fund insurance.

The premium pension and the inkomstpension are paid out over the remaining lifetime of the insured. Persons living longer than the average life expectancy receive pension disbursements that exceed their accumulated pension balance. This deficit is financed by the unused pension balances of those living for less than the average life expectancy.

Lifetime pensions



If the premium pension is withdrawn in the form of conventional insurance, the insured receives a guaranteed amount with the possibility of a bonus. If the premium pension is withdrawn in the form of fund insurance, it will be recalculated each year according to the change in the value of the funds.

The inkomstpension is recalculated annually, or indexed, by the change in average income less interest of 1.6 percent credited in the annuitization divisor. In the illustration, the value of a pension is constant in real terms.

Three Scenarios for the Future of the Pension System

To show how different developments can affect the financial position of the inkomstpension system and the size of pensions, three projections are presented for the development of the system over the next 75 years.

The long-term financial development of the inkomstpension system is described below in three different projections. They are referred to as the base, optimistic, and pessimistic scenarios. In the base scenario, which starts with the latest population forecast by Statistics Sweden, it is assumed that incomes will grow by 2 percent annually and that the return on buffer-fund assets will be 3.25 percent. In the other scenarios, assumptions have been made about a more positive and a less positive development, respectively, for the financial position of the inkomstpension system.

A high rate of return on the buffer fund can soften the impact of an otherwise negative tendency on the pension system. In the pessimistic scenario, therefore, the future development of the system has been calculated on various assumptions about the return on the buffer fund.

The results of the projections are reported as calculations of net contribution, the size of the buffer fund, the balance ratio, and the average pension level for new pensioners. In addition to the inkomstpension and the ATP, the average pension includes the premium pension and the guaranteed pension. In brief, net contributions will be negative in all three scenarios beginning around 2010 and for rather many years thereafter. Pension disbursements are thus forecast to exceed contribution revenue. Only in the pessimistic scenario, however, does this development ultimately exhaust the buffer fund. The reason is that both the number of persons of working age and the return on the buffer fund are relatively low in this scenario. Only in the pessimistic scenario is balancing activated.

Base Scenario

The demographic trend in the base scenario follows the 2003 population forecast of Statistics Sweden, in which it is assumed that nativity rises from its level of 1.65 children per woman in 2002 to 1.86 in 2010 and then remains at that level. It is further assumed that the average life expectancy for individuals reaching age 65 increases by 36 days per year on average until 2010 and by 23 days per year thereafter. Net immigration, which in the last 20 years has averaged 21,500 per year, is expected to be higher, especially in the initial decades. It is assumed that in the first years until 2010 net immigration averages 31,000 persons per year. It is estimated that beginning in 2010 the annual average will be about 24,000. The proportion of persons aged 16–64 with an annual income exceeding one (1) income-related base amount is assumed to remain at 77 percent, roughly equal to the present employment rate as defined in the Labor Force Surveys, the so-called AKU definition. Real annual growth in average income is assumed to be 2 percent, and the real annual return on the buffer fund, 3.25 percent. The same rate of return, after deduction for costs of administration, has been assumed for the premium-pension funds in the calculation of the average pension level for new pensioners.

Optimistic Scenario

Demographically, the optimistic scenario is identical to the base scenario; the two scenarios differ only in respect to economic factors. In the optimistic scenario, the proportion of persons aged 16–64 with annual incomes exceeding one income-related base amount is 80 percent; real growth in average income after the year 2010 is 2.8 percent, and the real annual return on the buffer fund is 5 percent. The real rate of return in the premium-pension system is also assumed to be 5 percent, after deduction of costs of administration. The assumed rate of growth is high, or very high, by historical standards. On the other hand, the rate of return is not particularly high, but in line with the historical average.

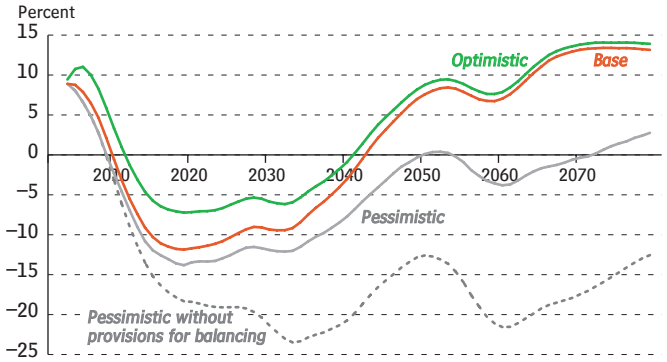
Net Contribution 2004–2079

The size of pension disbursements is a function of the rules of the system and their interaction with demographic and economic developments. Since birth cohorts vary in size, and to some extent will have worked to different degrees, the contribution revenue and pension disbursements of the system will vary over time. During certain periods, contributions will exceed disbursements; at other times, the opposite will be true. Surpluses and deficits are managed through the buffer funds of the system.

To allow comparison of net contributions (contribution revenue minus pension disbursements) in the three scenarios, net contribution has been divided by contribution revenue. The volume effect of different growth rates on net contribution is thus eliminated.

The net contribution, which initially is positive, will turn negative around 2010, when the large birth cohorts of the 1940's leave the labor force and begin to receive their pensions. Around 2020 there will be a noticeable improvement, and the net contribution deficit will gradually diminish. After 2040, contribution revenue will exceed expenditure in the base and optimistic scenarios. In the pessimistic scenario, on the other hand, the net contribution will remain negative for about 30 more years. The automatic balance mechanism will reduce the deficit.

Contributions Minus Disbursements as a Percentage of Contribution Revenue



Only in the pessimistic scenario is automatic balancing activated. The reduction of the pension level due to balancing in this case is described below in the section "Development of Pension Levels for Birth Cohorts 1940–1990".

The Buffer Fund 2004–2079

The size of the buffer fund can be expressed in terms of fund strength (fund capital divided by pension disbursements for the year). Fund strength shows how many years of pension disbursements can be financed by the fund without additional contributions or return on assets. At the end of 2003, fund strength was 3.7; i. e., the fund could have financed 3.7 years of pen-

Pessimistic Scenario

In the pessimistic scenario, nativity is assumed to be 1.5 children per woman. Net immigration is assumed to average 22,000 per year for the years until 2010 and 12,000 per year thereafter (the basic assumption of the Statistics Sweden population forecasts in the 1990's). The average life expectancy is assumed to develop as in the other two scenarios. The assumed rate of labor-force participation is the same as in the base scenario, but here the long-term rate of real growth in average income is 1 percent. The real return on the buffer fund and the premium-pension funds, after deducting costs of administration, is also 1 percent. In principle, a return on the buffer fund equal to the growth in average income will not contribute to the long-term financing of pensions. The buffer fund then becomes a demographically determined repository for pension capital and has a neutral impact on the financing of the system. Under the assumptions of the pessimistic scenario, contribution revenue increases more slowly in relation to the desired indexation of average income. The pessimistic scenario describes the risks managed by balancing and the effects of a prolonged negative tendency on pensions.

sion disbursements of the same amount as in 2003. Compared to the year before, fund strength has increased by the equivalent of half a year's pension disbursements. The varied development of the buffer fund in the three scenarios is due to differences both in net contributions and in the assumed return on buffer fund.

In the base scenario, fund strength increases initially, but after 2010 it gradually decreases because of the negative net contribution. Fund strength will reach its low point around 2040, when it will be equivalent to just more than two years of pension disbursements.

In the optimistic scenario, there is a substantial increase in fund strength. The explanation lies in the limited contribution deficit and the high rate of return on the fund in relation to the growth in average income. In 2050, fund strength will be equivalent to more than eight years of pension disbursements.

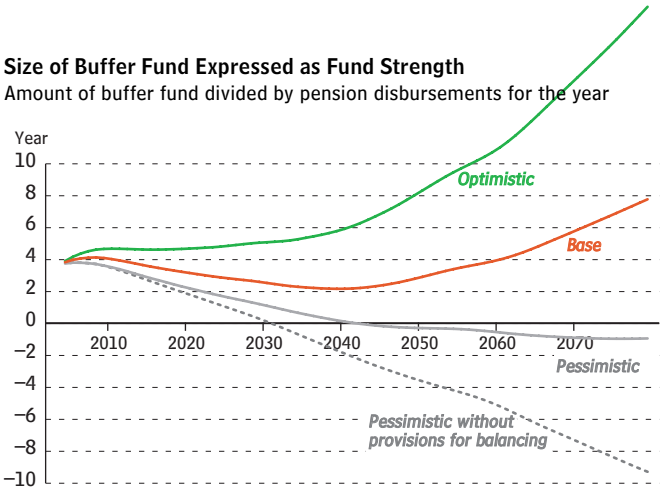
In the pessimistic scenario, the buffer fund is exhausted by 2042 and is slightly negative thereafter. This development occurs even though balancing is activated as early as 2009. The principal reason[23] is that in the calculation of turnover duration, the population is assumed to be constant. With a declining trend in the working-age population, turnover duration will be somewhat overestimated. Balancing was deliberately designed not to eliminate the risk of exhausting the buffer fund. This risk has been addressed by authorizing the funds to borrow money. Any borrowing is to take place via the National Debt Office.

When the population stops decreasing – as it must some day if it is not to disappear entirely – the buffer fund will be guided toward a fund strength of at least zero. During the years when the fund is negative, interest is paid on the loans. In the diagram it has been assumed that the rate of interest on these loans is the same as the assumed rate of return in the scenario, i. e., 1 percent.

With balancing initiated so early, the annual reduction in pension levels relative to growth in average income will be modest at first, but will increase somewhat as time passes. For older birth cohorts, the balancing effect will be about 1.5 per-

[23] One contributing cause is a marginal lag – in principle six months – between the time when the net asset deficit arises and the time when balancing corrects this deficit.

Size of Buffer Fund Expressed as Fund Strength
Amount of buffer fund divided by pension disbursements for the year



Specification of the Assumptions in the Scenarios

	2004–2010			2011–2079		
	Base	Optimistic	Pessimistic	Base	Optimistic	Pessimistic
Nativity, children per woman	1.80	1.80	1.53	1.86	1.86	1.50
Increase in average life span from age 65, days/year	36	36	36	23	23	23
Proportion of persons aged 16–64 with incomes over (1) income-related base amount	0.77	0.79	0.77	0.77	0.80	0.77
Annual net immigration	31,000	31,000	22,000	24,000	24,000	12,000
Growth in average income/year	2.0 %	2.2 %	1.8 %	2.0 %	2.8 %	1.0 %
Real annual return on the buffer fund/PPM funds	3.25 %	5.00 %	1.00 %	3.25 %	5.00 %	1.00 %

centage points – see the section "Development of Pension Levels for Birth Cohorts 1940–1990".

Financial Position of the Inkomstpension System 2004–2079

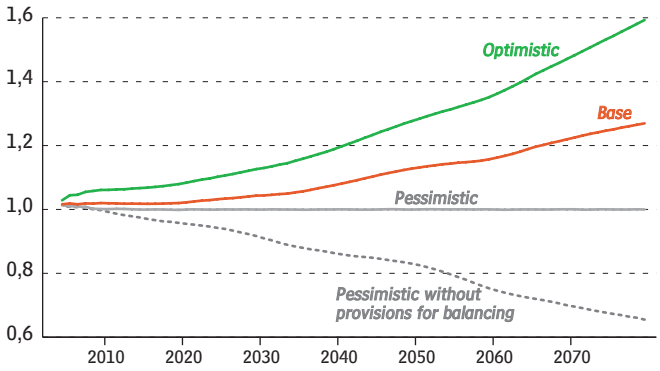
The balance ratio describes the financial position of the inkomstpension system. At the outset, in 2003, the assets of the system are somewhat greater than the total pension liability – the balance ratio to four decimal places is calculated at 1.0097. When the balance ratio drops below 1.0, liabilities exceed assets, and balancing is activated. In principle, a balance ratio of 2.0, i. e., when assets are twice as great as liabilities, means that the system is fully funded.

In the base scenario, the balance ratio remains around 1.01–1.02 for the next 15 years. After 2020 the financial position of the system strengthens.

In the optimistic scenario, the consolidation ratio of the system increases for almost the entire period. By 2050, assets of the system exceed liabilities by almost 30 percent.

In the pessimistic scenario, the balance ratio drops below 1 in 2009; consequently, balancing is activated. With balancing, the liability of the system accrues interest at a rate equal to the growth in system assets. Consequently, the balance ratio tends to stabilize around 1.0.

Financial Position of the Inkomstpension as Expressed in the Balance Ratio (Contribution Asset + Buffer Fond) / Pension Liability



Development of Pension Levels for Birth Cohorts 1940–1990

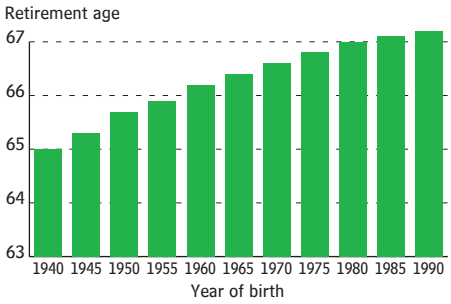
The pension level is defined here as the average public pension in relation to the average income for the economically active aged 16-64. For this level to be constant, one requirement is that the relationship between the number of economically active years and years of retirement be unchanged. If this requirement is to be met when the average life expectancy is increasing, the retirement age must be raised; alternatively, the age of entry into working life

Summary of Certain Results of the Projections

	2003–2010			2011–2079		
	Base	Optimistic	Pessimistic	Base	Optimistic	Pessimistic
Annual number reaching age 16	123,000	123,000	123,000	120,000	120,000	85,000
Number of persons aged 16–64 who at any time resided in Sweden	6,085,000	6,085,000	6,066,000	6,559,000	6,559,000	5,565,000
of which living in Sweden	5,916,000	5,916,000	5,893,000	6,193,000	6,193,000	5,084,000
of which with income	4,946,000	5,067,000	4,928,000	5,180,000	5,327,000	4,262,000
Number of persons above 64	1,729,000	1,729,000	1,729,000	2,882,000	2,882,000	2,795,000
Number of persons with income/ number of persons above 64	2.86	2.93	2.85	1.80	1.85	1.52
Sum/average ratio *	0.18 %	0.69 %	−0.14 %	0.15 %	0.15 %	−0.48 %

* The sum/average ratio shows the relationship between the annual growth rate of the contribution base and that of average income. The ratio is calculated as [(1+ percentage increase in contribution base) / (1+ percentage increase in average income) −1] x 100. With a positive sum/average ratio, the system's assets are growing at a higher rate than its liabilities.

Retirement Age Required to Maintain an Unchanged Inkomstpension



must be lowered. Moreover, for the value of pensions to remain constant in relation to incomes, automatic balancing must not be activated.

It is assumed that the average life expectancy will increase rather substantially. As a result, the annuitization divisor will rise from 15.7 for persons born in 1940 to 18.1 for persons born in 1990. With the higher annuitization divisor, the monthly pension for birth cohort 1990 will be 13 percent lower than for cohort 1940, provided those born in 1990 begin drawing their pensions at age 65. To compensate for the negative effect of this longer life expectancy on the pension level, those born in 1990 will have to work 26 more months, retiring shortly after their 67th birthday.

Average Life Expectancy and Retirement Age

Cohort born in	reaches 65 in	Forecast annuitization divisor at 65	Effect of change in life expectancy on pension at 65	Retirement age to neutralize effect of life expectancy on pension	Remaining life expectancy at 65, women and men
1940	2005	15.7	–	65 years	18 years, 6 months
1945	2010	16.1	−2 %	+ 4 months	+ 6 months
1950	2015	16.4	−4 %	+ 8 months	+ 12 months
1955	2020	16.8	−6 %	+ 11 months	+ 17 months
1960	2025	17.0	−8 %	+ 14 months	+ 21 months
1965	2030	17.3	−9 %	+ 17 months	+ 25 months
1970	2035	17.5	−10 %	+ 19 months	+ 29 months
1975	2040	17.7	−12 %	+ 22 months	+ 33 months
1980	2045	17.9	−12 %	+ 24 months	+ 36 months
1985	2050	18.1	−13 %	+ 25 months	+ 38 months
1990	2055	18.1	−13 %	+ 26 months	+ 40 months

In the three scenarios, the average pension at age 65 in percent of the average income is shown in the following three bar graphs.

In the base scenario, the average pension level at age 65 drops from 64 percent for birth cohort 1940 to 50 percent for birth cohort 1990. Of this

Calculation of the Pension Level

The calculation of pensions includes only individuals with at least 30 years of pension credit. The reason is to eliminate the effects of immigration and emigration on the calculation of the average pension. Since the portions of income above 8.07 income-related base amounts are not covered by the public pension system, they are not included in the income to be compared. All income earners pay the individual pension contribution of 7 percent on the income covered, but are compensated by a tax reduction of 75 percent of the contribution paid. The income to be compared has been reduced by 1.75 percent to compensate for the difference between the economically active and pensioners in regard to the contribution/tax assessed. At present, the average income for persons aged 64 is somewhat lower than the average income for persons aged 16–64. This means that the pension level shown in the bar graph is a few percentage points less than it would have been if the average pension instead had been compared to the incomes of 64-year-olds.

Other Assumptions in the Calculations

For the year 2004, the economic forecast of the National Institute of Economic Research in December 2003 has been used in the calculations. The assumptions on which the scenarios are based do not apply until after 2005, except for the assumptions about the return on the funds, which apply beginning January 1, 2004.

Since the guaranteed pension is price-indexed, the lowest pensions will decrease in relation to average income, and the tax component of the pension contribution for persons with low incomes will also decrease. The effect over a 75-year period is extremely powerful. With a 2-percent annual increase in average income, the latter will be more than four times as high in 2079 as it was in 2004. Thus, the guaranteed pension becomes totally marginal toward the end of the calculation period.

The inkomstpension system is designed to adjust the value of pensions according to growth in average income. With the pension liability indexed by the growth in average income, it

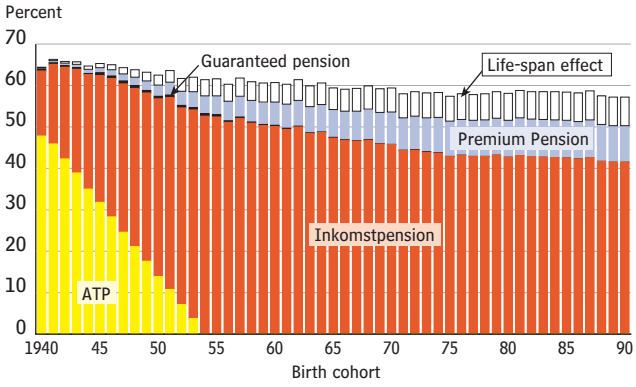
decrease, 7 percentage points are due to the expected increase in average life span. The rest of the decrease is due in part to the fact that that the calculations are for persons with 30 or more years of work in Sweden. Compared to the new system, the ATP system is particularly generous toward persons who have worked only 30 years. If the number of working years is increased to neutralize the effect of higher life expectancy on the pension level, the latter will stabilize at just below 60 percent of the average income.

In the base scenario, the rate of return in the premium-pension system, 3.25 percent after costs of administration, exceeds the assumed growth rate of 2.0 percent in average income. As a consequence, the premium pension in proportion to its contributions accounts for a higher share of the public pension.[24] For the youngest birth cohorts, the premium pension averages about 9 percent of the average income, and the inkomstpension, about 42 percent. For persons who have worked for 30 years or more, the guaranteed pension is only marginal in this scenario. Since the guaranteed pension is assumed to remain unchanged in constant prices, its relative importance decreases each year with the growth in income. The realism of this assumption is open to question.

In the other two scenarios, the growth in average income is higher and lower, respectively, than in the base scenario. As long as balancing has not been activated, the inkomstpension is attributed a rate of return equal to (is indexed by) the growth in average income and thus increases at the same rate as the average income. The relationship between pension and average income is then not affected by growth; in other words, the level of pensions as a percentage of income is unchanged. However, the monetary amount of the inkomstpension is greater with higher growth and less with lower growth.

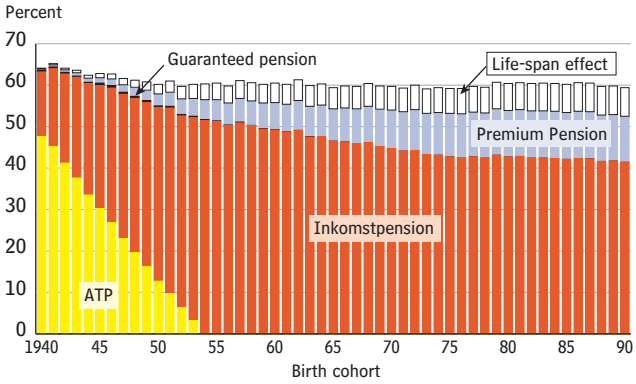
The relationship between the return earned in the premium-pension system and the growth in average income affects the relative amount of premium pensions. The higher

Average Pension at Age 65 as a Percentage of Average Income, Base Scenario



[24] Another reason why the premium pension is relatively larger is that the interest credited in the annuitization divisor is higher for the premium pension than for the inkomstpension; see the section How the Public Pension Works. As a result, the annuitization divisor is lower and the initial pension higher.

Average Pension at Age 65 as a Percentage of Average Income, Optimistic Scenario



may seem unnecessary to vary the growth in average income in the scenarios. However, since the ATP liability to the economically active is indexed by the rate of increase in prices, the pension system is initially still influenced by the growth in average income. Moreover, the relationship between the increase in average income and the return on the buffer fund is significant for the financial development of the inkomstpension. The relationship of the rate of return to growth in average income also affects pension levels via the premium pension. In each of the three scenarios, the buffer fund contributes to a different extent to the financing of the inkomstpension. In the base scenario, the return on the buffer fund exceeds the growth in average income by 1.25 percentage points (3.25–2.0). In the optimistic scenario, the rate of return is 2.2 percentage points higher than the growth in average income. In the pessimistic scenario, the two rates are equal.

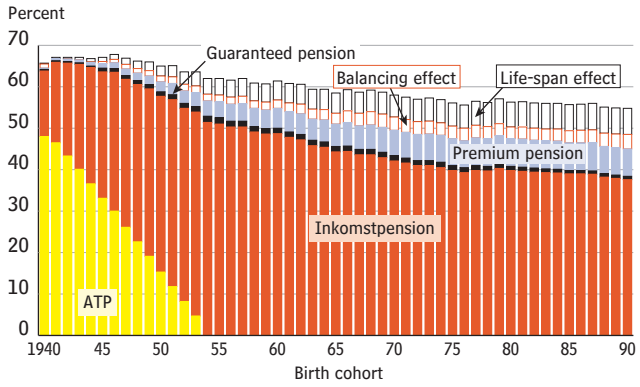
the rate of return in relation to growth, the greater the proportion of the public pension consisting of the premium pension.

In the optimistic scenario, the rate of return for the premium pension is 2.2 percentage points higher than the growth in average income – 5 percent compared to 2.8 percent. The relatively high premium pension partly compensates for the effect of the increase in life expectancy. If the retirement age should rise at the same rate as the average life expectancy, the level of pensions would remain constant at 60 percent.

In the pessimistic scenario, the growth in average income is half that of the base scenario. The rate of return is also lower – 1 percent instead of 3.25 percent. With the lower rate of return, the premium pension is less both in monetary terms and in proportion to the total pension. Given the lower earnings-related pensions in comparison to the base scenario, the guaranteed pension assumes a larger role.

The diagram also shows the effect of balancing on pensions. Balancing is activated in 2009. For persons born in 1954, the first birth cohort not to receive any of their pension as ATP, the pension level at age 65 has been reduced as an effect of balancing by 1.6 percentage points in relation to average income. For birth cohort 1990, balancing has resulted in a decrease in pension levels by 3.5 percentage points.

Average Pension at Age 65 as a Percentage of Average Income, Pessimistic Scenario

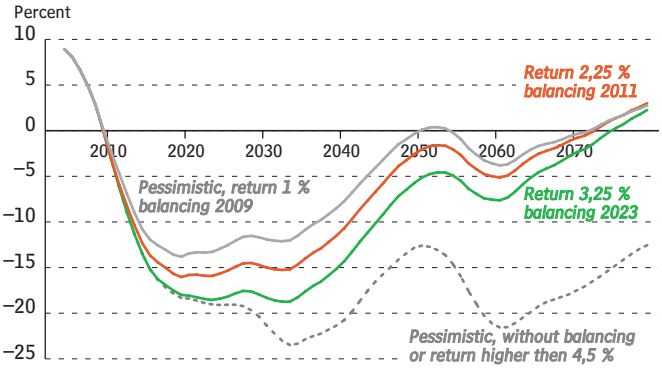


Balancing, Rate of Return, and Guaranteed Pension

A demographic and/or economic trend with a negative impact on the pension system can be offset by a higher return on the buffer fund. In the pessimistic scenario, balancing is not activated if the return on the buffer fund is at least 4.5 percent. With growth of 1 percent in average income, this rate of return will compensate for the strain put on the system by a birth rate of 1.5 children per woman and the rather strong increase in average life expectancy assumed in all three scenarios. A higher rate of return means that the system can afford larger negative net contributions.

To illustrate the severity of the strain on the system in the pessimistic scenario, the assumed rate of return is varied in this scenario. Instead of 1.00 percent, the real annual rate of return is set at 2.25 and 3.25 percent, respectively. The rate of 2.25 percent means that the contribution of the return to the financing of pension disbursements – which is largely determined by the relationship of the rate of return to the growth in average income – is the same as in the base scenario. The rate of 3.25 percent is the same as the return in the base scenario, but it provides a larger contribution to financing pensions than in the base scenario since the growth in average income is only 1 percent in the pessimistic scenario.

Net Contribution at Different Rates of Return, Pessimistic Scenario

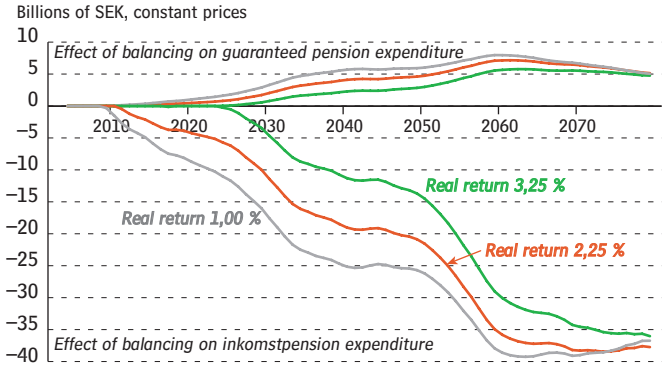


With annual return of 3.25 percent, balancing is activated in 2023, whereas with an annual rate of 2.25 percent activation will be as early as 2011. With a return of 1 percent, balancing is activated in 2009, as previously noted. In all cases, the inkomstpension is lowered by a maximum of some 15 percent.

If balancing is activated, indexation is reduced, decreasing the pension level in relation to growth in average income. Through the design of the guaranteed pension, individuals with pensions of 0–1.26 price-related base amounts (0–1.14 for married persons) are held harmless since the guaranteed pension provides full compensation for the reduction in the inkomstpen-

sion due to balancing. Pensioners in the income bracket between 1.26 and 3.07 price-related base amounts (1.14–2.72 for married persons) receive compensation for 48 % of the reduction in their earnings-related pensions caused by balancing. Other categories receive no compensation at all. With the compensation provided by the guaranteed pension, the central-government budget partly finances the reduction in the inkomstpension resulting from a negative tendency. Thus, with developments that normally involve a decrease in the resources of the economy, there is a larger element of income redistribution in the public pension system. The higher cost of the guaranteed pension is equivalent to a maximum of 20 percent of the saving by the pension system when it is balanced.

Effect of Balancing on the Inkomstpension and the Guaranteed Pension, Pessimistic Scenario



Checkpoint in 2004

In the appropriation document for the National Social Insurance Board (RFV) for 2004, the Board has been instructed to analyze the possibilities of transferring moneys from the National Pension Funds to the central-government budget as of January 1, 2005 – the so-called "checkpoint". With a positive demographic trend and vigorous growth, the balance ratio is expected to remain largely unchanged at a level just above 1.0 for the next 15 years. With this narrow margin, even temporary variations in trends can mean that balancing will be activated. The risk of balancing is increased if the buffer fund is reduced.

As a result of the pension reform, the finances of the pension system were strengthened, but the central-government budget was weakened to a corresponding degree. To compensate the central-government budget for such effects, the Swedish Parliament decided to transfer moneys from the National Pension Funds to the central government. The transfers made so far total SEK 275 billion; this sum includes an estimated indirect transfer of SEK 30 billion because the contribution in 1999 did not amount to 16 percent. This total is equivalent to a one-time transfer of about SEK 257 billion on January 1, 1999. Government Proposal 1999/2000:46, The National Pension Funds in the Reformed Pension System, provides for a so-called "checkpoint" in 2004. This means that there will be a new analysis of the financial position of the pension system; in this analysis, the possibility of transferring additional funds moneys on January 1, 2005, will be examined. The final total transfer, however, is not to exceed an amount which for the balances of the National Pension Funds is the equivalent to a one-time transfer of SEK 350 billion on January 1, 1999. This means that the maximum transfer on January 1, 2005, can be calculated at SEK 120 billion.

In the appropriation document for the National Social Insurance Board (RFV) for 2004, the Government has instructed the RFV as follows: "The RFV is to conduct an analysis of the risks of balancing with an additional transfer of moneys from the National Pension Funds to the central-government budget. In addition, calculations are to be made of the amount that

Calculating the Maximum Amount of a Transfer

A transfer of SEK 45 billion from the National Pension Funds has been made on two occasions, in 1999 and 2000. On January 1, 2001, an additional SEK 155 billion was transferred. Because the contribution to the system in 1999 did not amount to 16 percent, there was an indirect transfer of an estimated SEK 30 billion from the National Pension Funds to the central-government budget. To calculate the total nominal value of the transfers (SEK 275 billion) as of January 1, 1999, the discounting rate used for each year has been an average financing rate for the central-government debt. It has been assumed in the calculations that the amounts of SEK 45 and 30 billion, respectively, were transferred at mid-year. The amount transferred so far, as of January 1, 1999, is then calculated to be SEK 257 billion. The remaining amount to be transferred is thus a maximum of SEK 93 (350–257) billion at 1999 prices. Projected to January 1, 2005, with the type of discounting rate mentioned above, this amount is SEK 120 billion. For 2004, the average interest rate for the initial months of the year has been used as the discounting rate.

The following interest rates have been used in the calculation:

1999	2000	2001	2002	2003	2004
4.27 %	5.10 %	4.62 %	4.46 %	3.60 %	3.58 %

can be transferred on January 1, 2005, without activating automatic balancing before 2050. These calculations are to be based on the conditions specified in Government Proposal 1999/2000:46, The National Pension Funds in the Reformed Pension System. A report on the performance of this instruction is to be provided in the Annual Report of the Pension System for 2003, and the calculations are to be made on the basis of the supporting data available for this Annual Report."

The stated conditions for the calculations mean that they are to be performed according to the main scenario in the latest population forecast of Statistics Sweden and on the assumptions of a 2-percent rate of annual growth in pension-qualifying income per capita and a 3.25-percent rate of return on the assets of the buffer fund. These assumptions correspond to those in the so-called base scenario in the section Three Scenarios for the Future of the Pension System.

The latest population forecast by Statistics Sweden was published in 2003 and is thus based on demographic conditions in 2002. It is assumed in the forecast that the birth rate will increase from 1.65 children per woman to 1.86 in 2010 and remain at that level thereafter. The average life expectancy at 65 years of age is assumed to have increased by 3.9 years for men and 2.9 years for women in 2050. Net immigration, which in the past 20 years has averaged 21,500 persons per year, is expected to be higher until 2020, averaging 28,500 per year. Beginning in 2020, net immigration is estimated at 23,000 per year.

The assumptions made about employment in the future have a considerable impact on the results of the calculations. In 2002, some 77 percent of the population aged 16-64 was employed according to the Labour Force Surveys (AKU) of Statistics Sweden. In the model used for the calculations, this means that 77 percent of the persons in age group 16–64 have an income exceeding one income-related base amount (SEK 42,300 kronor in 2004). By "income" is meant earnings and transfer payments like unemployment compensation, sickness cash benefits, etc., but not the sickness and activity allowances that were formerly termed "disability pensions".

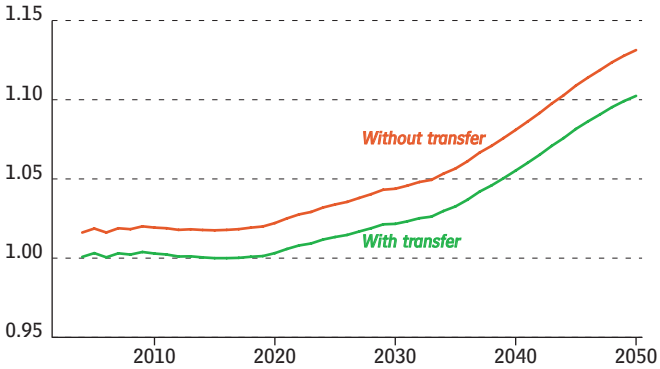
On the conditions specified and with an "employment rate" of 77 percent, balancing will not be activated during the calculation period. The balance ratio will then be at a level just above 1.0 until sometime around 2020, after which it will increase. Under the assumptions of the base scenario, the financial position of the system will strengthen considerably after 2020.

In this scenario, there is a margin for decreasing the capital of the National Pension Funds by a maximum of SEK 96 billion on January 1, 2005, without reducing the balance rate below 1.0.

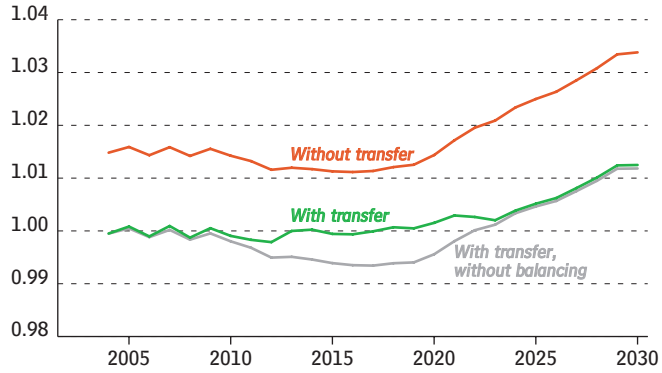
As shown in the diagram, if a transfer of SEK 96 billion is made, there will be no margin for a less favorable demographic or economic development without activation of balancing. For example, if growth were to be 1.6 percent rather than 2 percent, and if the future return on the fund were to decrease accordingly, balancing would be activated after the transfer of moneys. Balancing would subsequently be active in almost every year until 2020, but the annual effect on pensions would be minor. Without a transfer, on the other hand, the balance ratio would be just above 1.0 for the entire period, even on the above assumptions of lower growth and a lower rate of return.

The high net immigration in the base scenario is significant for the future dependency ratio (the ratio between the number of persons not employed and the number employed). In the scenario it is also assumed that the proportion of per-

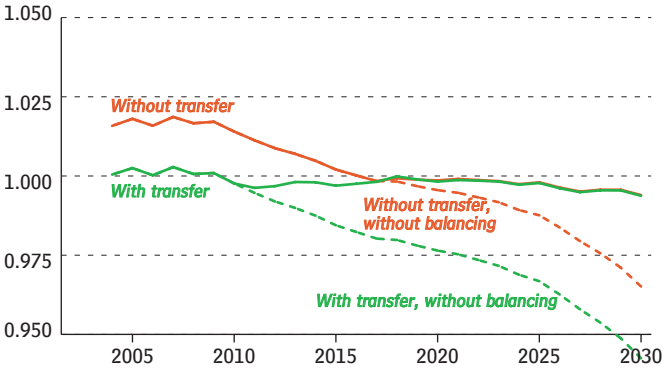
Development of the Balance Ratio Without and With a Transfer of SEK 96 Billion From the National Pension Funds, Base Scenario



Development of the Balance Ratio Without and With a Transfer of SEK 96 Billion From the National Pension Funds, Lower Growth



Development of the Balance Ratio Without and With a Transfer of SEK 96 Billion From the National Pension Funds, Lower Net Immigration



sons with earned income is the same as it is today; in other words, it is taken as given that immigrants will earn incomes to the same extent as the resident population. If future net immigration should be lower and instead follow the pessimistic scenario presented in the section Three Scenarios for the Future of the Pension System, a different picture would emerge. In this scenario, it is assumed that net immigration averages about 22,000 persons per year until 2010, but drops to 12,000 per year thereafter. With this lower immigration, and thus with fewer persons in the labor force, balancing would be activated in 2017 even if no transfer of moneys had been made. To prevent activation of balancing in the next 25 years, it would then be necessary to transfer additional capital of about SEK 140 billion to the National Pension Funds on January 1, 2005.

In the scenarios described above, the demographic and economic assumptions have been held constant for the entire calculation period. No consideration has been given to the variations around a trend that occur in reality. Presented below are the results of the calculations when the proportion of persons with incomes exceeding one income-related base amount has been allowed to vary. The calculations have been performed with the model for variations in employment that was developed in the government study on the surplus in the old-age pension system. The model, which is based on data for the past 40 years, will be described in the forthcoming report on the study. With the aid of the model, the development of the balance ratio for the 15-year period until 2020 has been studied in a large number of simulations where the employment rate has been allowed to vary around the level of 77 percent. The other assumptions on which the calculations are based have been held constant.

With the employment rate allowed to vary around an average of 77 percent, there is a risk that balancing will be activated in the next 15 years even without a transfer of moneys. Without a transfer, the probability that balancing will be activated at some time during the 15-year period has been estimated at about 20 percent. If SEK 96 billion is transferred from the National Pensions Funds on January 1, 2005, the risk of balancing more than doubles to about 45 percent. To express the probability of balancing

The Volatility of the Balance Ratio

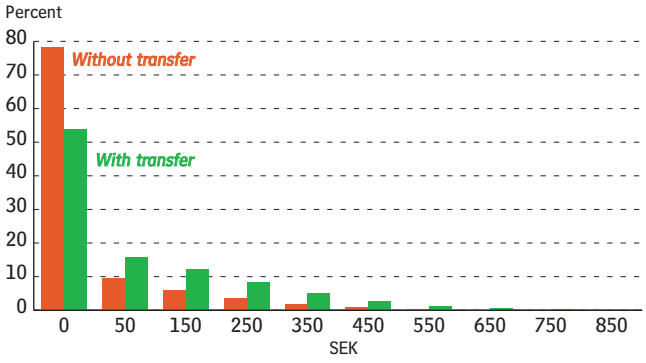
The sensitivity of the balance ratio to variations in the employment rate has been tested in a large number of simulations. The simulation model concerns actual employment and has a standard deviation of 1.13 percent. However, what directly affects the financial position of the pension system is not the employment rate, but variations in the proportion (number) of persons with incomes on which pension contributions are assessed. Pension contributions are paid on earned income as well as on such transfers as sickness cash benefits and unemployment compensation. The simulation model used probably overestimates the volatility in the proportion of income earners, but not the volatility of the balance ratio in total, for variations in other variables such as rate of return and turnover duration have not been considered. In the special feature article of the Annual Report for 2002, The Balance Ratio – A Steady Gyroscope for the Inkomstpension?, it was shown that the balance ratio can be expected to have a standard deviation of about 2 percent, larger than the standard deviation in the simulation model used.

Although the model used thus refers to employment, not to the contribution base, it is probably likely nonetheless that the total volatility of the balance ratio has been underestimated.

in another way, during the 15-year period – if no transfer is made – no balancing is expected in 12 of the years (80 % of 15 years), and balancing is expected to be active in three years. If the National Pension Funds are depleted by SEK 96 billion, balancing is expected to be active in six-seven years, or almost half of the period in question.

For a monthly pension of SEK 10,000, balancing is expected to mean – in the case of no transfer – that the monthly pension will average about SEK 30 less for the entire 15-year period. With the transfer, the expected effect of balancing will be to reduce the pension by a monthly average of SEK 90 for the 15 years. For persons with low pensions, the balancing effect will be partly offset by a higher guaranteed pension and in some cases higher supplementary housing allowances.

Probability of Various Effects of Balancing on a Monthly Pension of SEK 10 000 During the Period 2006–2020

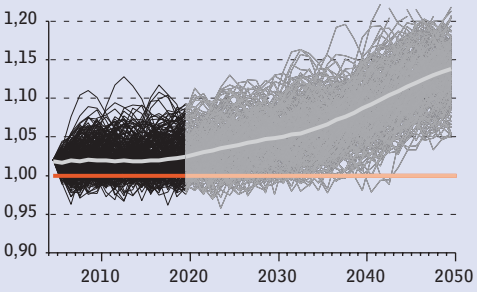


Thus, the annual effect of balancing on pensions will generally be more powerful after a transfer, as is also shown in the bar graph. The first two bars in the graph show the probability that balancing will not be activated in a situation without a transfer and with a transfer, respectively. The subsequent bars show the respective probabilities that balancing will reduce a monthly pension of SEK 10,000 by an average of SEK 50 (reduction in the interval of SEK 0-100), an average of SEK 150 (reduction in the interval of SEK 100-200), etc. Thus, the effect considered here is a reduction relative to a situation without balancing, or rather, reduced indexation of pensions.

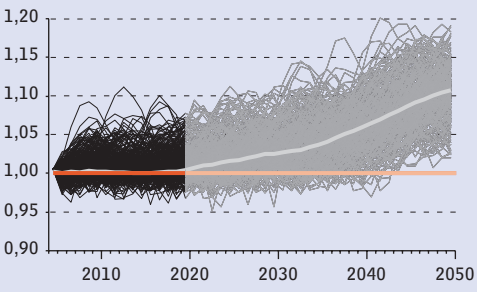
It is difficult, if not impossible, to calculate with certainty the effect of a transfer of National Pension Fund moneys to the central-government budget. The effect will depend on demographic and economic developments, which cannot be predicted. The difficulty is especially great for the next 15 years, when the balance ratio is expected to be near the limit of 1.0. On the other hand, any transfer of moneys from the National Pension Funds will obviously weaken the pension system and strengthen the central-government budget by reducing its interest payments. Thus, the transfer issue entails balancing the benefit of lower interest costs to the central government, on the one hand, and the benefit of a lower risk that balancing will be activated, on the other.

Variations in the Balance Ratio Around the Trend in the Base Scenario When the Employment Rate Varies Around 77 Percent

with no transfer from the National Pension Funds



after transfer of SEK 96 billion from the National Pension Funds



Special Feature Article: Adjustable Pensions

A good system of pension insurance makes commitments to the insured in the amount that they desire and can finance, but no greater. Whether a balance is reached between what is desired and what is financially possible depends in large measure on the design of the rules for revaluation, or indexation, of pensions. Public pension systems are generally designed to protect the value of pensions by revaluing them according to the change in consumer prices. Another and usually more generous principle of indexation is to recalculate pensions by the growth in incomes. The new rule for recalculation of the inkomstpension and the ATP – adjustment indexation – follow neither of these principles. Instead, as in several components of the new Swedish pension system, it has a distinctive design. This article describes adjustment indexation and what it may mean for pensioners.

Summary

The new form of indexation of the pensions of the pay-as-you-go system – adjustment indexation – means that the value of these pensions will vary from year to year. If the trend in the future increase of the income index is the same as the average growth in earnings per employee during the period 1960–2004, the new pensions granted will increase their purchasing power by an annual average of 0.16 percent. The dispersion of the annual changes has been considerable, and in the future we can expect both positive and negative annual changes in the purchasing power of the ATP and the inkomstpension. However, with the indexation of the guaranteed pension by the Consumer Price Index, the annual variations in total public pensions in constant prices will be less than the variations in purchasing power caused by adjustment indexation. In addition, negotiated pensions – and in the long run, premium pensions as well – will limit the impact of adjustment indexation on the annual change in the total pension received.

Important Question, but Not the Only One

In 2003, various forms of old-age pensions, including widows' pensions, totaling some SEK 250 billion were paid to about 1.6 million old-age pensioners. More than SEK 150 billion consisted of earnings-related public pensions, i.e. the ATP and the inkomstpension.[25] Since January 1, 2002, pensions are revalued according to the rules of the new system, which provide for so-called adjustment indexation. Thus, adjustment indexation affects the greater portion of total pension income for the majority of pensioners. With the guaranteed pension, however, the development of the value of the total public pension received by many pensioners will not follow the adjustment indexation entirely. The guaranteed pension, which is a supplement to the inkomstpension and the ATP, is adjusted according to the Consumer Price Index. Consequently, the guaranteed pension of an insured will increase if adjustment indexation leads to a reduction in the earnings-related pension in constant prices.[26] If adjustment indexation leads to higher earnings-related pensions, the guaranteed pension will decrease. The guaranteed pension is

[25] Beginning with 2003, the ATP and folkpension are simply termed the ATP pension. The earnings-related public pension also includes the premium pension, which however is negligible thus far.

[26] Pensioners with an earnings-related old-age pension in the bracket of 0–1.26 price-related base amounts (0–1.14 for married persons) will receive a public pension that changes with consumer prices, regardless of the tendency in incomes. In the bracket of 1.27–3.07 price-related base amounts (1.15–2.72 for married persons), the guaranteed pension will replace 48 percent of the change in the earnings-related pension. Persons with an earnings-related pension higher than 3.07 price-related base amounts (2.72 for married persons) will receive no guaranteed pension. For these individuals, their public pension, except for the premium pension, will be fully affected by adjustment indexation.

financed by general tax revenue through the central-government budget, not by pension contributions.

Approximate Impact of Adjustment Indexation, Pensions Paid in 2003

Insurance Category	Type	Benefit, SEK billions	Share, %	Primary principle of indexation during pay-out period
Public pension	Widows' pensions	14	5	Adjustment indexation starting 2003/2004 (formerly CPI)
	Guaranteed pension	24	10	CPI
	Inkomstpension and ATP	152	60	Adjustment indexation
	Premium pension	0	0	Nominal guaranteed amount + bonus, if any; in the alternative, totally dependent on rate of return
Negotiated pension	Private-sector salaried employees	17	7	CPI, not guaranteed (ITP) Nominal guaranteed amount + bonus, if any; in the alternative, totally dependent on rate of return (ITPK)
	Private-sector hourly employees	7	3	CPI (STP) Nominal guaranteed amount + bonus, if any; in the alternative, totally dependent on rate of return (SAF-LO)
	Central-government employees	6	2	Primarily CPI
	Municipal and county-council employees	7	3	Primarily CPI
Individual life insurance	Conventional and fund insurance	25	10	Normally a nominal guaranteed amount + bonus, if any
Total		**252**	**100**	

Sources: Annual reports of the RFV, the PPM and the Government Employee Pensions Board (SPV), the Association of Local Authorities, and the Federation of County Councils, and with a rough classification by coverage of labor agreements based on the Swedish Insurance Yearbook for 2003, with an increase of 2 percent in the benefits reported there as paid during 2002.

In the current group of old-age pensioners, some 900,000, or 55 percent, are receiving a guaranteed pension. Of these, some 200,000 have such low income-related old-age pensions that their adjustment-indexed pension is fully offset by the guaranteed pension. Almost 700,000 persons have an inkomstpension/ATP in the income bracket where the guaranteed pension neutralizes 48 percent of the effect of adjustment indexation. More than 700,000 persons have an earnings-related pension too high for them to receive any guaranteed pension at all.

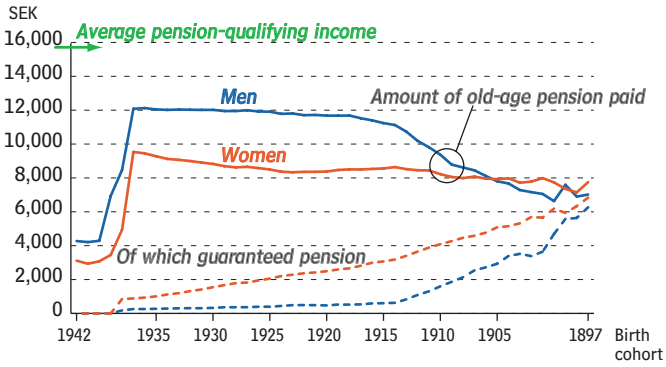
Large Number of Pensioners with Small Guaranteed Pension (GARP)

Amounts in billions of SEK

Bracket for offsetting against earnings-related pension[26]	Number of persons	Guaranteed pension	Inkomstpension and ATP
GARP offset 100 percent	207,000	11	2
GARP offset 48 percent	682,000	13	55
GARP reduced to zero	737,000	0	97
Total	1,626,000	24	154

Amounts and numbers of persons calculated on the basis of disbursements in December 2003. This explains why the total of the inkomstpension and the ATP is higher than the benefits disbursed in calendar year 2003.

The Older the Individual, the Larger the Guaranteed Pension, Average Amount in December 2003



The size of the earnings-related pension – and thus the proportion of persons receiving a guaranteed pension – is closely linked to the age and gender of individual pensioners. Older persons have a higher proportion of guaranteed pension than younger persons, and women have a higher proportion than men. In birth cohort 1938, the proportion with a guaranteed pension is half of what it is for the category of pensioners as a whole. The main reason why older persons have a larger proportion of guaranteed pension is that they earned their income-related pension credit in a lower income bracket than younger persons. The principal reason why women have a larger proportion of guaranteed pension than men is that women have lower hourly earnings and fewer compensated work hours than men.

Thus, adjustment indexation matters more for younger pensioners than for older ones with lower earnings-related pensions. The importance of adjustment indexation for the total public pension could be expected to increase with the retirement of birth cohorts whose earnings have been in higher income brackets. At the same time, however, negotiated pensions would account for an increasing proportion of the total pension for younger birth cohorts, primarily because the ceiling in the public system of pension insurance was constant in real terms from 1960 to 2001. As earnings have increased in constant prices, the ceiling has dropped in relation to the average income, and the proportion of incomes above the ceiling increased from about 3 percent in 1960 to about 10 percent in 2003. The larger the proportion of incomes above the ceiling, the larger the portion of total pensions consisting of negotiated pensions. Moreover, the proportion provided by the premium pension is gradually increasing for each new birth cohort of pensioners. Since neither negotiated nor premium pensions are subject to adjustment indexation, this indexation will become somewhat less significant in the future for the development of the total pension. As previously mentioned, however, the decreasing importance of the guaranteed pension at the same time will constitute an opposing tendency.

In summary, adjustment indexation is most important for persons with little or no negotiated or private pensions but also with an inkomstpension and/or ATP too high for them to receive a guaranteed pension.

Adjustment Indexation – How Does It Work?

In a pension-insurance scheme, there are two ordinarily quite distinct phases:[27] the pay-in, or saving, phase and the pay-out, or pension, phase.

During the pay-in phase, the insured accumulates pension credit. This credit is withdrawn during the pay-out phase in the form of a pension, which for the public pension is always of lifetime duration.[28] Pension credit earned accumulates with interest during the pay-in phase at the general rate of growth in incomes, as measured by the so-called income index. The income index measures the average pension-qualifying income per person aged 16-64 with such income.[29] Income indexation means that the value of an insured's paid-in contributions, and thus her accumulated pension credit for the inkomstpension, will follow the general development of income.

During the pay-out phase, the ATP and the inkomstpension earn "interest" at the rate of change in the income index minus the so-called norm of 1.6 percentage points. This is the meaning of adjustment indexation. With adjustment indexation, the value of pensions in constant prices is unchanged only if the income index increases by exactly 1.6 percent more than the rate of increase in consumer prices. With any other relationship between the

[27] With the pension reform, however, individuals who have reached the age of 61 are completely free to be in the pay-in and pay-out phases at the same time.

[28] The premium pension, however, may be drawn as a joint life annuity.

[29] For further information on the design of the income index, see the List of Terms and blue section of pages 58–61.

change in incomes and the change in prices, the purchasing power of pensioners will either increase or decrease. The increase or decrease will depend on the change in the income index minus the norm of 1.6, and on the change in consumer prices. In cases where automatic balancing is activated, adjustment indexation is based on the adjusted income index, which is termed the balance index. However, no consideration is given here to the possible effect of balancing on pensions. The significance that balancing may have for the value of pensions is described in the Annual Report of the Pension System for 2002.

Merely because all pensions granted will always lose 1.6 percentage points in value in relation to the average income, the average pension will not necessarily decrease in relation to the average income of the economically active. The apparent contradiction in this statement can be explained by the continuing arrival of new pensioners. If the income trend is positive, these new pensioners will leave the ranks of the economically active with higher earnings and will receive higher pensions than older pensioners. One purpose of the design of the reformed system is to maximize the probability that the average pension will be stable in relation to the average income – within the limits of what is possible with a fixed contribution rate.

If the value of pensions is protected against inflation, i.e., price-indexed as was the case with ATP pensions, the value of pensions granted will decrease in proportion to the average income of the economically active – not by a fixed percentage, but by the growth in real earnings, provided this growth is positive. If the growth in real earnings is negative, the value of pensions will increase in relation to earned incomes.

Thus, adjustment indexation differs both in theory and in practice from the guarantee of value provided by consumer-price indexation and also from the guarantee of relative living standards provided by income indexation in its pure form. In addition, it differs from the type of mixed consumer-price and income indexation, such as 50 percent of each, that is found in a number of countries.

Bonus for ATP Pensioners

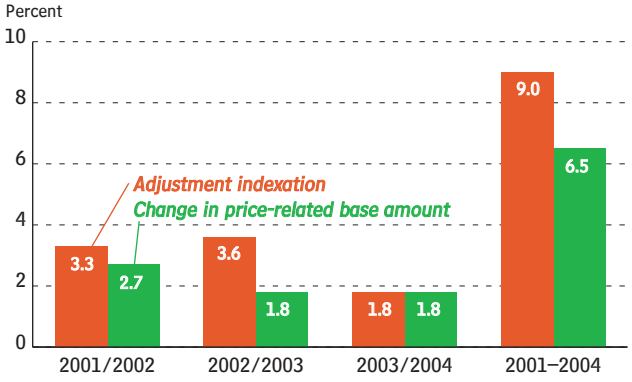
So far, pensions have been adjustment-indexed on January 1, 2002, 2003, and 2004. This year, the income index is 115.64; last year, it was 111.79. Thus the income index has increased by 3.4 percent. With the deduction of 1.6 percentage points from the change in the income index, adjustment indexation was 1.81 percent[30] on January 1, 2004. Since inflation, measured as the change in the CPI (June-June), was 1.6 percent, the real value of pensions increased by 0.2 percent.[31] Because of the favorable economic tendency in Sweden in the late 1990's and initially after 2000, the transition to adjustment indexation has been a positive change for pensioners up to the present. Pensioners who have been affected by all of the three adjustment indexations so far, and whose pensions do not include any guaranteed pension, have benefited from a pension increase 2.5 percentage points greater than they would have received if the rules had not been changed – for a total increase of about SEK 3 billion in the earnings-related public pensions. The higher earnings-related pensions in real terms due to adjustment indexation have meant that the guaranteed pension has been somewhat less.

Somewhat surprisingly, higher pensions – and pension expenditure – have so far been the most noticeable effect of the overhaul of the Swedish pension system, which has achieved its purpose of making the system financially stable. In general,

[30] $\frac{115.64}{111.79} \Big/ 1.016 = 1.0181$

[31] With the rules for rounding off, the price-related base amount increased by 1.81 percent. For this reason, the adjustment indexation as of January 1, 2004, resulted in the same recalculation as if pensions had still been indexed by the change in the price-related base amount.

New System Better for ATP Pensioners – So Far



the pension reform has been perceived as one of the cost-cutting measures undertaken by Sweden in the 1990's in response to the country's economic crisis at that time. This is largely a misconception. For instance, the outlines of the new system – see Ds 1992:89 A Reformed Old Age Pension System – were drafted before the crisis in 1992–1994. In addition, one purpose of the reform was to create a system to pay the pensions that could be financed with a fixed contribution rate. If the growth in incomes is positive enough, such a system provides higher pensions than one that promises pensions indexed by the change in consumer prices. With weak growth in incomes, pensions will be lower in a financially stable system than in one with pensions indexed by consumer prices.

Since the Government and Parliament on several occasions have considered it necessary for financial reasons to depart from indexation by the change in consumer prices, it is not clear what standard of comparison to use for the pensions of a financially stable system. Nevertheless, the norm of comparison in this article is a system in which pensions are indexed to consumer prices.

Reasons for Adjustment Indexation

The reduction of the change in the income index that is made with adjustment indexation corresponds to the interest of 1.6 percent that is credited to the inkomstpension when the pension credit – pension balance – of the insured is converted into a pension. The conversion of pension balances into pensions is done by dividing the pension balance by a co-called annuitization divisor. The annuitization divisor reflects the average life expectancy at the age when the pension is first drawn, and interest of 1.6 percent. Because of the interest credited, the divisor will be less than the average life expectancy, and the initial pension will thus be higher. For example, the estimated current life expectancy for birth cohort 1940 at age 65 is approximately 18.5 years. The forecast divisor at age 65 is 15.7. As a result of the interest credited in advance, the initial pension will be roughly 18 percent higher than it would have been otherwise.[32] This increase in the initial pension due to the interest credited is an advance on future economic growth; the advance is recouped by the system through deducting 1.6 percentage points in revaluing pension disbursements by the income index.

[32] $\frac{18.5}{15.7} \approx 1.18$

Why We Have Not Used the Income Index to Describe History

When the Swedish Parliament decided to use the growth in average income as the "basic rate of interest" in the pension system, there arose a need to specify a measure of average income. In drafting, the legislator has attempted to ensure that the measure adopted will meet two criteria: it must accurately measure the growth in income for persons of working age, and the data collected must be certain and reliable. Pension-qualifying income includes in principle all types of earned income: wages, salaries, and earnings of self-employed persons, as well the benefits of the social-security and unemployment-insurance schemes that replace such earned income in the event of illness, parental leave, unemployment, etc. For this reason, pension-qualifying income is an accurate reflection of the income received by persons of working age. Furthermore, pension-qualifying income is established in each annual tax assessment; consequently, the data can be considered reasonably certain and objectively verifiable.

Thus, pension-qualifying income meets both of the two requirements: it is representative of the average income for persons of working age, and it can be determined regularly in a reliable manner. Primarily for these reasons, pension-qualifying income has been chosen as the measure to be used in the income index. However, since the measure of income is directly linked to pension-qualifying income, it is affected by changes in tax provisions. For example, the increases in the basic tax deduction in recent years, from 24 percent to 42.3 percent of one price-related base amount, have meant that a number of persons with low incomes are not covered by this measure; the resulting effect on the income index has been positive. This type of effect is a drawback resulting from the close linkage between the measure of income and total pension-qualifying income. More details on the design of the income index are provided in the List of Terms.

The bulk of pension-qualifying income, some 90 percent, consists of wages, salaries and other earnings like those of self-employed persons. Taxable transfer payments such as sickness

Public pension systems are commonly designed to guarantee the value of pensions by revaluing them according to changes in the consumer-price index. If the initial pensions are sufficiently large, such an arrangement may become unreasonably costly during periods when real growth in incomes is slight or negative. If – as in Sweden – the public pension system at the very outset constitutes a large proportion of general-government expenditure, and if taxes and contributions are high – weak growth will result almost immediately in serious financial problems. Price-indexed pensions also mean that pensioners do not benefit from economic growth, even when it is very strong. From this perspective, price-indexation of pensions can be said to suffer from imbalance in two ways. One is the risk that generous pensions will be paid when economic growth is too weak for society to finance price indexation; the other is that pensions will be limited when economic growth is sufficient to allow higher pensions than those provided by price indexation.

The aggregate value of expected pension disbursements to insured persons fully covered by the reformed system, i. e., persons born in 1954 or thereafter, would be the same if pensions were initially calculated without advance crediting and then revalued annually by the income index with no reduction. The initial value of such pensions would be lower than their value today, but the recalculation at the beginning of each year would be 1.6 percentage points higher. As long as real growth in incomes is positive, this arrangement would mean that the initial pension paid would have the lowest real value in the stream of pension disbursements, and the final pension paid would have the highest value. Such a distribution of the value of pensions paid is probably contrary to the wishes of the insured.

One reason for crediting advance interest in pension disbursements is that it permits a reasonable distribution of the real value of pensions during the pay-out period without abandoning the financially required connection between growth in incomes and recalculation of pensions. The arrangement is an attempt to ensure that an appropriate balance will be maintained between what is desired and what is financially feasible.

As public pensions have gradually increased as a share of general-government expenditure, and as the level of taxation and contributions has risen, the financial scope for ensuring the value of pensions has become more limited,

cash benefits, sickness and activity allowances (formerly termed "disability pensions"), unemployment compensation, etc. are also pension-qualifying and constitute the remaining 10 percent of the incomes included in the measure adopted. Only the pension-qualifying income of persons aged 16–64 are included in this measure of income, one reason being to prevent an increase in part-time work by persons aged 65 and above from having a negative effect on the income index.

In this article, earnings per employee are used to show the effect that adjustment indexation would have had if it had been used starting in 1960. One reason why we have used earnings per employee and not the income index, which has been determined for the years from 1960 on, is that the income index is affected by conditions that probably would have been eliminated if the index had been used on an on-going basis, rather than designed after the fact. One such condition is that ATP credit earned was the measure of income used in the calculation of the income index for the period 1960–1998. The maximum ATP credit that could be earned each year was 6.5 price-related base amounts. Furthermore, ATP credit was earned only by persons with pension-qualifying income exceeding one price-related base amount. This threshold and floor of one price-related base amount, as well as the ceiling on earnings of 7.5 price-related base amounts, were unchanged in constant prices; consequently, a growing number of persons were earning incomes in excess of the floor and of the ceiling. This development had a negative effect on the tendency of the income index. Beginning in 1999, incomes above the ceiling are also included in the measure of income for the income index; as a result, this aspect of the problem no longer exists. Moreover, as of year-end 2001, the actual level of the ceiling is recalculated according to the change in the income index; thus, the proportion of incomes above the ceiling will no longer increase. In addition, the inclusion of transfer-payment income in pension-qualifying income may have been one reason why the income index has increased more slowly than earnings per employee. The proportion of persons with incomes from transfer payments has increased during the period, and the average income of persons with such incomes is less than for other persons.

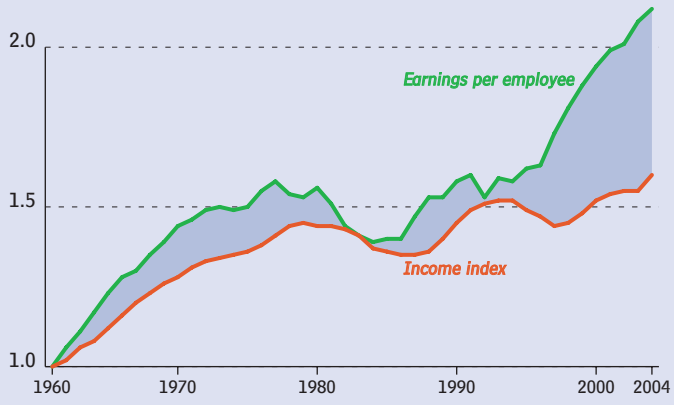
as previously mentioned. At the same time, the higher pension levels resulting from the growth in expenditure have lessened the need to guarantee the value of the earnings-related pensions. The greater risks and opportunities for the insured entailed by adjustment indexation, compared to a system in which the value of pensions is protected against inflation, may now be considered desirable, one reason being that today – unlike 1960 – pensioners as a group enjoy roughly the same living standard as the economically active. In 1960 and for a long time as the ATP system was being phased in, living standards for pensioners were substantially lower than for the economically active. In such a situation, it is less reasonable to shift risks from the economically active to the retired. The same reasoning applies to today's pensioners with the lowest pensions, who are fully protected by the guaranteed pension against decreases in the real value of their total public pension. Persons with "somewhat low" pensions receive 48-percent protection.

Why the Choice of 1.6 Percent?

As noted above, the norm for adjustment indexation does not affect the total expected inkomstpension for the entire period of retirement for those fully covered by the new system, for the norm is also included in the calculation of the annuitization divisor. However, as the norm determines the distribution of pension disbursements over the pay-out period, the amount of the norm is still important to the insured. A higher norm results in a lower annuitization divisor, and thus a higher initial pension; this is an argument for a high norm. On the other hand, with a high norm real growth in pensions will be modest, and there will be a greater risk of repeated decreases in the real value of pensions. Thus, an argument for a low norm is that it results in a lower initial pension but increases the probability of positive real growth in pensions and decreases the risk of a negative tendency in the value of pensions.

In addition to this intrinsically difficult choice, came an additional difficulty from the decision to apply adjustment indexation also to the pensions calculated according to the rules of the ATP and the folkpension. This decision was made partly to strengthen the financial stability of the system, and

Income Index Compared to Earnings per Employee 1960–2004, Deflated series



On average, the income index has increased at an annual rate of 6.7 percent in nominal terms and 1.1 percent in real terms during the period 1960–2004. In the same period, earnings per employee have gone up by an annual average of more than 1.7 percent in real terms. Thus, in constant prices, earnings per employee have risen more than 0.6 percentage points faster per year than the income index, for total greater growth of 32 percent. In addition to the threshold and ceiling effects, and the effect of transfer payments, growth in the income index has been negatively influenced since 1999 by the provision that the individual pension contribution of 7 percent is to be deducted from pension-qualifying income. The result has been a reduction by 2 percent in the income index revalued on January 1, 2000, 2001 and 2002. The effect of this deduction on adjustment indexation on January 1, 2002, however, was eliminated by a special provision.

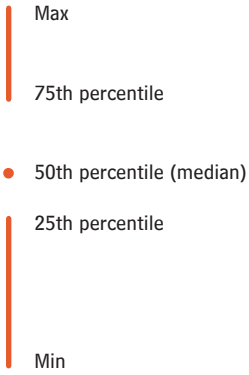
partly because it was considered administratively and politically unfeasible for different birth cohorts of pensioners to receive different benefits from the annual recalculation of pensions. Such differences would have arisen if consumer-price indexation had been retained for ATP pensions. With adjustment indexation applied to ATP pensions as well, the choice of a norm became a matter of financial significance to the insured and for aggregate general-government expenditure.[33] ATP pensions have not been, nor will they be, calculated according to any norm; thus, the amount of the norm matters only in the recalculation of pension amounts that have been determined without being affected by the size of the norm. This means that the lower the norm, the more costly are ATP pensions; conversely, the higher the norm, the less costly are ATP pensions. In various situations, it has been calculated that the ATP system is in financial balance when growth in the average income is about two percent. This was an argument in favor of a two-percent norm. However, with such a high norm, the risk that pensions would decrease in value was considered unreasonably high. In the crossfire of conflicting objectives – initial pensions as high as possible, annual recalculation of pensions at a reasonable rate, avoiding an unreasonably generous/costly phase-out of the ATP system – a norm of 1.6 percent was chosen. This outcome represents a slight but not insignificant increase in the norm of 1.5 percent initially assumed in the study that began in 1992.

Rewriting History – Adjustment Indexation Since 1960

The inputs and products of history – in this case, its political and economic aspects – affect each other in ways that do not allow historians to change one element and assume that the course of events will be otherwise unaffected. Still this is what will be done here. Described below is the annual recalculation of pensions *as if* they had been adjustment-indexed beginning in 1960, rather than price-indexed as a general rule.[34]

It is more interesting, however, to describe the probable future consequences of the current rules than to form a picture of hypothetical adjustment indexation in the past. The reason for revising history with a different set of facts – despite the shortcomings of this procedure – is to get a sense of the possible effects of adjustment indexation on the value of pensions

How to read the diagrams

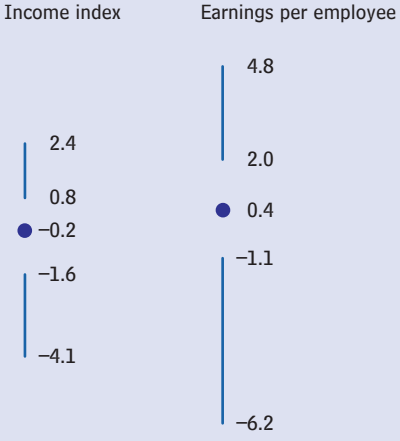


[33] The advance interest is also of importance for the liquidity of the pension system. If pensions were calculated without the advance, disbursements would decrease in the short run, thus giving a lasting boost to system liquidity.

[34] As mentioned above, there have been departures from price indexation on several occasions. In some cases, the purpose has been to eliminate the effects of changes in tax provisions; more often, however, the reason has been that government finances were not considered sufficiently strong to protect the value of pensions in real terms.

Tendency (Median) and Dispersion of Hypothetical Adjustment Indexation 1960–2004

Deflated basis for calculation:



The dispersion of the annual percentage changes in the income index as calculated retroactively for the period 1960–1998 is much less than the dispersion of the annual changes in earnings per employee. The standard deviation for the hypothetical deflated adjustment indexations calculable with the income index is 0.017, whereas the standard deviation is 0.026 for the hypothetical adjustment indexations in real terms as calculated in terms of earnings per employee. With the established income index as the basis for the hypothetical adjustment indexations in constant prices, dispersion decreases to the interval between +2.4 and –4.1 percent. For half of the years, the recalculation percentage was within the interval between +0.8 and –1.6 percent. For one quarter of the years, the percentage was between +2.4 and +0.8 percent, and for one quarter, it was between –1.6 and –4.1 percent. The median was –0.2 percent. The lesser degree of variation is due primarily to the inclusion of transfer incomes in the measure of income for the income index. Unemployment compensation, in particular, increases in economic downturns; consequently, the annual changes in the income index can be expected to be more limited than the changes in earnings per employee.

granted. What interests us is the trend in income growth and the variations around this trend.[35]

In 1960, average annual earnings per employee were SEK 12,400; in 2003, they were more than 21 times as high – SEK 261,000. Much of this fatter pay envelope admittedly consisted of thin air, for consumer prices were about 10 times higher in 2003 than in 1960. Still, in real terms the income of the average Swede was more than twice as high in 2003 as in 1960. In constant prices, the average annual increase in earnings per employee has been 1.76 percent.[36] However, hourly earnings, including employer and individual social-security contributions, have risen at the substantially higher rate of 2.4 percent per year. The reason for the difference is that the average number of hours worked has decreased by about 0.4 percent per year and that employer and individual social-security contributions have increased at an annual rate of about 0.3 percent.

With incomes rising in real terms at an average annual rate of 1.76 percent, adjustment indexation would have brought a slight increase in the value of pensions granted, or an average of 0.16 percent per year. The median of the 44 recalculation percentages is 0.4, slightly higher than the average. The dispersion of outcomes for the various years, however, is considerable. From a real increase in pensions by as much as 4.8 percent (1962) to a real decrease in pensions by 6.2 percent (1982). This sizable reduction is related to the drop in real incomes in the wake of the 1982 devaluation of the Swedish krona by 16 percent. Half of the 44 hypothetical recalculations are between –1.1 and +2.0 percent, and 25 percent of the recalculations, or 11 of them, lie between 2.0 and the maximum of 4.8. One out of every four recalculations falls in the interval between -1.1 and -6.2; in other words, pensions would have been considerably reduced on frequent occasions if adjustment indexation had been applied beginning in 1960.

From the stem- and leaf diagram it can also be seen that if adjustment indexation had been applied from January 1, 1961, the most positive adjustment indexation in real terms would have been 4 | 8 and the most negative, -6 | 2. The diagram also provides a picture – a vertical histogram – of the distribution of recalculation percentages – the most frequent recalculation percentages lie in the interval between 1 | 0 and 1 | 9, with nine in this category. Of the 44 – hypothetical – recalculation percentages in real terms, 26 are positive and 18 negative. The distribution of positive and negative recalculation percentages in real terms suggests that the risk of substantial negative recalculations is greater than for equally substantial positive ones. A sudden sharp drop in real incomes is thus more probable than a surge of the same magnitude.

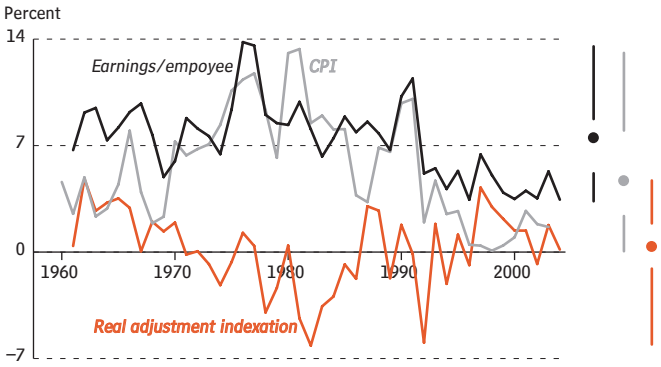
However, the dispersion of the annual recalculation percentages in real terms can be expected to be less than the dispersion of the change in wages per employee as described. The principal reason is that the measure of income for the income index also includes income in the form of transfer payments like unemployment compensation and sickness cash benefits. In the blue section of pages 58-61, the relationship between earnings per employee and the income index is described in greater detail.

Real growth in income as measured in the income index exceeded the norm of 1.6 percent in every year of the 1960's. During this period, adjustment-indexed pensions would thus have increased more than pensions indexed to consumer prices. A pension of SEK 100 granted in 1960 and adjustment-indexed in each year of that decade would have increased to SEK 125 in constant prices by 1970. By contrast, a pension of SEK 100 granted in

[35] One complication is that the income index established by the Government for the period 1960–1998 is not appropriate for use in this description. The reason for this determination is found in the blue section of pages 58–61. As also noted, no consideration is given to automatic balancing.

[36] All mean values in this article are geometric unless otherwise indicated. The arithmetic mean for the annual increase in earnings per employee is 1.80 percent.

Annual Change 1960–2004, Percent



3 * 44 annual changes percentages, 1960–2004

	Earnings per employee	CPI	Real value of adjustment indexation*
13	86	31	
12			
11	4	73	
10	2	61	
9	9854220	830	
8	98654211	54110	
7	987654	31	
6	774430	98642	
5	53321		
4	910	9764	82
3	95544	973	5200
2		97755330	97720
1		9860	998844431
0		5441	444211
-0			1278889
-1			78
-2			1249
-3			6
-4			04
-5			
-6			02

13 | 86 = 13.8 .. 13.6 percent

* Change in earnings per employee deflated by change in CPI, less 1.6 percentage points.

1970 and adjustment-indexed in each year of that decade would be SEK 92 in constant prices by 1980. A pension of SEK 100 in 1980 would be worth only SEK 87 constant prices in 1990, after falling as low as SEK 82 in 1986. A pension of SEK 100 granted in 1990 would have risen to SEK 104 in constant prices in 2000, after reaching a low point of SEK 94 in 1994.

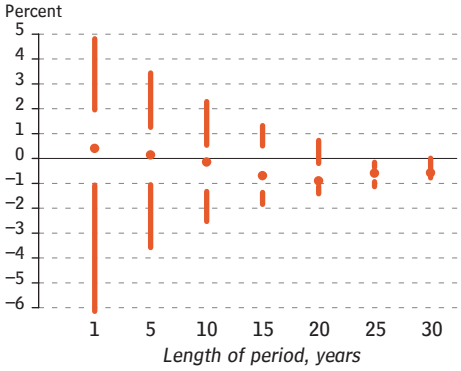
The table shows the best and worst periods of various durations in the years 1960–2004. The longer the period, the fewer the number of periods that can be measured.

Adjustment Indexation 1960–2004, Periods of Various Durations

Years 1960–	–2004	–2000	–1995	–1990	–1985	–1980	–1975
Duration of period, years	1	5	10	15	20	25	30
Number of periods	44	40	35	30	25	20	15
Worst period	1982	81–85	77–86	72–86	73–92	72–96	67–96
Best period	1962	62–67	61–70	62–76	61–80	61–85	61–90
Standard deviation	2.6	1.8	1.3	1.0	0.7	0.3	0.2

The diagram shows the tendency and measure of dispersion for the periods of various lengths in the table. The median can be seen as an expected value of the real average rate of adjustment indexation for persons living for 1, 5, 10, 20, 25 or 30 years as pensioners. The reason why the averages decrease with the length of the period is the loss of the years at the end of the period of relatively high growth. The dispersion around the tendency decreases with the length of the period measured. This statement is true no matter whether dispersion is measured by the standard deviation, by the distance between the largest positive and negative average indexation, or by the distance between the 25th and 75th percentiles.

Adjustment Indexation 1960–2004, Tendency and Distribution for Periods of Various Durations



The shorter the life of the insured, the higher the risk that a normal variation of real rates of growth in income will have a substantial negative impact on lifetime pensions. The explanation is that the shorter the life of the pensioner, the lower the probability that variations around the trend will have time to offset each other. For persons living for fewer years, the higher risk of average negative adjustment indexation is compensated by the fact that these individuals receive a pension initially some 18 percent higher than it would have been if not calculated with advance interest of 1.6 percent. For insured persons who live between 25 and 30 years of retirement, the average rate of adjustment indexation can be expected to approach the income trend less 1.6 percentage points.

The new rules for indexation of pensions have established a direct link between the principal component of economic change in society – growth in per-capita income – and the change in the value of society's greatest financial commitment – pensions. This change of rules is significant. Adjustment indexation means that the trend in income growth and the dispersion around this trend are of direct importance to a large group who – at least under the rules – were not dependent on these factors. Thus, even more people should now want Sweden's economy to achieve a high and steady growth in incomes – and be willing to act toward that goal.

List of Terms

in Swedish

adjustment indexation

följsamhetsindexering

recalculation of pensions by the *income index* (or balance index) minus the interest of 1.6 percent credited in the *annuitization divisor.* Note that there is no adjustment index, only adjustment indexation. If the income index for year t is designated by I(t), the adjustment indexation is calculated as:

$$\frac{I(t) / I(t-1)}{1.016}$$

annuitization divisor

delningstal

a number that reflects the average remaining life expectancy at retirement, taking into account an imputed "interest" rate of 1.6 percent on the pension to be paid. The divisors are the same for men and women. There are three kinds of divisors: divisors for the *inkomstpension*, divisors for the *premium pension*, and economic annuitization divisors. In the calculation of the annual *inkomstpension*, the individual's *pension balance* is divided by an annuitization divisor. Because of the interest credited at 1.6 percent, the annuitization divisor at the time of retirement is always less than the remaining average life span. The annuitization divisor for the inkomstpension is calculated as follows:

$$G_n = \frac{1}{12 * L_n} \sum_k \frac{1}{1.016^{k-n}} * \sum_x \left(\frac{L_k}{1.016^{x/12}} + \frac{L_{k+1} - L_k}{1.016^{x/12}} * \frac{x}{12} \right)$$

where

G_n = divisor for withdrawal beginning at age n
n = 61, 62, 63 etc.
k = n, n+1, n+2 etc.
L_k = number of survivors at age k (according to the life-span statistics of Statistics Sweden)
x = 0, 1, 2, ..., 11

The annuitization divisor for the premium pension is based on mortality forecasts and an imputed interest rate which is presently 2.7 percent. Economic annuitization divisors are used in calculating the *pension liability* and are determined from pension-disbursement records. The formula for calculating economic annuitization divisors is found in the Technical Appendix.
For the current values of the divisors for the inkomstpension, see Insurance Information/Current Amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

ATP

ATP

the name of the pension benefit and system being phased out and replaced by the inkomstpension and premium pension.

automatic balancing automatisk balansering

method of ensuring via *indexation* of the *pension liability* for the *inkomstpension* (*pension balances* and pensions) that the disbursements of the inkomstpension system will not exceed its revenue in the long run. Balancing is activated if the *balance ratio* drops below 1, that is, when the pension liability exceeds the assets of the system. In that case, the *pension liability* increases at a compounding rate approximately equal to the system's *internal rate of return*.

average income snittinkomst

in this report, income as measured by the *income index*.

balance ratio balanstal

the assets of the *pay-as-you-go system* – i.e. the *contribution asset* and the *buffer fund*, divided by the *pension liability* of the system. The balance ratio can be considered equivalent to the consolidation ratio of a *funded system*. Unlike the consolidation ratio, however, the balance ratio provides no information on the amount of funded assets in relation to the pension liability.

base amount basbelopp

see income-related base amount and price-related base amount.

buffer fund buffertfond

absorbs interperiod discrepancies between *pension contributions* and pension expenditure in a *pay-as-you-go system*. The primary purpose of a buffer fund is to stabilize pension levels and/or pension contributions against economic and demographic fluctuations. The buffer fund of the *national public pension* system consists of five different funds: the First–Fourth, and Sixth *National Pension Funds*.

ceiling on pension-qualifying income intjänandetak

see pension-qualifying income.

central-government old-age pension contribution statlig ålderspensionsavgift

is paid by the central government for pension-qualifying social-insurance benefits (contribution rate 10.21 %) and *pension qualifying amounts* (contribution rate 18.5 %).
See Insurance Information/Current Amounts (Försäkringsinformation/ Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se.

compounding förräntning

in this report, synonymous with *indexation*.

contribution asset avgiftstillgång

the value of the contributions to the *inkomstpension*. It is calculated by multiplying contribution revenue by *turnover duration*.

contribution base avgiftsunderlag

the pension-qualifying income and amounts of imputed pension-qualifying income for which the *pension contribution* is to be paid. Consists primarily of earned income, but also of social-insurance benefits such as sickness cash benefit, unemployment cash benefit, etc., and *pension-qualifying amounts* for sickness or activity compensation, child-care years, study, and compulsory national service.

cost-of-administration factor förvaltningskostnadsfaktor

pension balances are reduced by costs of administration for the inkomstpension and the ATP. The reduction is made as a percentage deduction from pension balances by a cost-of-administration factor. See Insurance Information/Current amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

defined-benefit pension system förmånsdefinierat pensionssystem

pension system in which the insurer bears the financial risk of variations over time in mortality and in the rate of *return* on the assets of the system. In a public pension system, the insurer is the taxpayers, which means that the contribution to the system may vary. The size of a pension is specified in advance as a certain amount or a certain level of, for example, final earnings or average earnings.

defined-contribution pension system avgiftsdefinierat pensionssystem

pension system in which *pension credit* in monetary terms accrues by the same nominal amount as the *pension contribution* paid by or for the individual. In a defined-contribution pension system, the insured bears the financial risk of possible variations over time in mortality and in the rate of *return* on the assets of the system. This means that the value of a pension can vary.

earnings-related old-age pension inkomstgrundad ålderspension

inkomstpension, ATP and *premium pension.*

fund strength fondstyrka

the monetary amount of the *buffer fund* at the end of a given year divided by the pension disbursements of the same year. A measure of the size of the buffer fund in relation to the flow of payments.

funded system fonderat system

a financing system in which premiums are set aside and saved in funds until the time of pension withdrawal. The premium-pension system is an example of a funded system.

growth tillväxt

in this report, the annual percentage change in average income.

guarantee rule/guaranteed supplement garantiregel/garantitillägg

a provision guaranteeing that individuals born between 1938 and 1953 will receive a minimum pension equivalent to what they had earned in the ATP system through 1994.

guaranteed pension garantipension

provides basic retirement protection for individuals with little or no earned income. The guaranteed pension is calculated as a supplement to the public *earnings-related pension.*

income index inkomstindex

the change in the income index shows the increase or decrease in the average income. For purposes of the income index, income consists of aggregate *pension-qualifying income*, including incomes in excess of the ceiling on pension-qualifying income, less the *individual pension contributions* of

persons aged 16–64. The average income is obtained by dividing the sum of these incomes by the number of persons who have earned them. The change in the index is calculated as the average change in real income for the latest three-year period, with a supplement for inflation in the latest 12-month period ending in June. The incomes used are based partly on a forecast. An adjustment for forecasting errors is made in the indices for subsequent years.

If the income index for year *t* is designated *I(t)*, I(t) is calculated according to:

$$I_t = I_{t-1} \times \left(\frac{(U_{t-1})}{(U_{t-4})} \times \frac{(CPI_{t-4})}{(CPI_{t-1})} \right)^{1/3} \times \left(\frac{CPI_{t-1}}{CPI_{t-2}} \right) \times k$$

where
U_{t-1} = estimate of average income for year t–1
U_{t-4} = actual average income for t–4
CPI_{t-1}, CPI_{t-2}, CPI_{t-4} = consumer price index for June in years t–1, t–2 and t–4
k = correction factor for difference between actual and forecast income

See Insurance Information/Current Amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

income-related base amount

inkomstbasbelopp

the base amount which is recalculated each year according to the change in the *income index*. The income-related base amount is used primarily to calculate the ceiling on *pension-qualifying income*. After deduction of the *individual pension contribution*, the ceiling is 7.5 income-related base amounts.
See Insurance Information/Current amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

indexation

indexering

recalculation of *pension balances* by the change in the *income index* (or balance index), and the recalculation of pensions by *adjustment indexation*.

individual pension contribution

allmän pensionsavgift

the portion of the *pension contribution*, 7 percent of earned income, paid by the insured. The individual pension contribution is withdrawn together with the preliminary income tax and is paid on incomes up to 8.07 *income-related base amounts*.
For more information on social security contributions, see Insurance Information/Current amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

inheritance gains

arvsvinst

survivors' bonus, i.e. the *pension balances* or premium-pension capital of deceased persons, distributed to all insured survivors. For the *inkomstpension*, inheritance gains are allocated by increasing the pension balances of all insured survivors in each birth cohort by the same percentage, the so-called inheritance-gain factor. For the *premium pension*, inheritance gains are allocated in a corresponding manner. The inheritance gain arising in the premium-pension system is termed "decedents´ capital".
See Insurance Information/Current Amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se.

inkomstpension — inkomstpension

the portion of the *earnings-related old-age pension* related to 16 percent of the *pension base*. The term inkomstpension sometimes includes the *ATP*. Here the term is also used as a designation for the inkomstpension subsystem of the national pension system.

internal rate of return — internränta

here, *compounding* of the *pension liability* so that it increases at the same rate as the assets of the system. The internal rate of return is determined by the change in the contribution revenue of the system and the change in the extent to which these contributions can finance the pension liability – in other words, the change in *turnover duration* – and in the *return* on the *buffer fund*, in addition to the cost (gain) due to changes in average life span. If balancing is activated, the pension liability is compounded at a rate approximately equal to the internal rate of return of the pay-as-you-go system.

National Pension Funds — AP-fonderna

legally and administratively, the *buffer fund* of Sweden's *pay-as-you-go pension system* consists of five different funds: the First, Second, Third, Fourth, and Sixth National Pension Funds. *Pension contributions* are apportioned equally to the First–Fourth National Pension Funds, which also contribute equally to the payment of pensions. The Sixth National Pension Fund receives no pension contributions and pays no pensions. From the standpoint of the pay-as-you-go system, the five buffer funds may be viewed in some respects as a single fund.

national public pension — den allmänna pensionen

Sweden's national pension system. The national public pension consists of the *inkomstpension*, the *premium pension*, and the *guaranteed pension*. In some cases, the inkomstpension also includes the *ATP*.

old-age pension contribution — ålderspensionsavgift

is paid by employers and by self-employed persons. The old-age pension contribution rate is 10.21 percent of total earnings; however, the contribution on the portion of earnings exceeding 8.07 *income-related base amounts* is not paid to the pension system, but to the central government.

pay-as-you-go pension system — fördelningssystem

pension system which does not require that the *pension liability* be backed by a certain amount of funded assets. A pay-as-you-go system is often described as a system where contribution revenue is used directly to finance pension disbursements. This description is not totally accurate in the case of a pay-as-you-go system with a *buffer fund*.

pension balance — pensionsbehållning

the total *pension credit* for the *inkomstpension*, recalculated annually in accordance with the *income index* (or the balance index), *inheritance gains*, and the *cost-of-administration factor*.

pension base — pensionsunderlag

the total of *pension-qualifying income* and *pension-qualifying amounts*, not to exceed 7.5 *income-related base amounts* per year.

pension contribution pensionsavgift

see individual pension contribution, old-age pension contribution and central-government old-age pension contribution.

pension credit pensionsrätt

an individual's pension credit is 18.5 percent of his/her total *pension base*, the same amount as the pension contribution. The pension credit for the inkomstpension is 16 percent and for the premium pension 2.5 percent of the pension base. Pension credit increases the individual's *pension balance* and premium-pension capital, respectively.

pension level pensionsnivå

here, the average pension in relation to the average pension-qualifying income.

pension liability pensionsskuld

in this report, the financial commitment of the pension system at the end of each year. The pension liability to economically active persons is the sum of the *pension balances* of all individuals. The pension liability to retired persons is calculated by multiplying the amount of the pension of each birth cohort by the economic *annuitization divisor* for that cohort, which reflects the average remaining (economic) life expectancy of the cohort. Through 2017 a pension liability will also be calculated for the ATP credit earned by the economically active.

pension-qualifying amounts pensionsgrundande belopp

a basis for granting *pension credit* which is not derived from actual earned income. Pension-qualifying amounts can be credited for sickness and activity compensation, care of small children (child-care years), study, and compulsory national service.

pension-qualifying income pensionsgrundande inkomst

the income which is used together with *pension-qualifying amounts* to calculate the *pension credit* of the insured. In principle, it consists of annual income (earnings, sickness cash benefit, parental cash benefit, unemployment cash benefit, etc.) reduced by the *individual pension contribution*. Annual income must exceed 42.3 percent of one *price-related base amount* to qualify for pension credit. The maximum pension-qualifying income, or so-called ceiling on pension-qualifying income, is 7.5 *income-related base amounts*.
See Insurance Information/Current Amounts (Försäkringsinformation/Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

premium pension premiepension

the portion of the *earnings-related old-age pension* designed as a *funded system*. The *pension credit* earned for the premium pension is 2.5 percent of the *pension base* and is invested in mutual funds according to the choice of the individual. The premium pension can be withdrawn as fund insurance or as a guaranteed monthly benefit from a conventional life-insurance policy.

price-related base amount prisbasbelopp

an amount used in the *national pension system* for purposes that include calculation of the *guaranteed pension*. The price-related base amount is recalculated each year by the change in the consumer price index (the June index).
See Insurance Information/Current Amounts (Försäkringsinformation/ Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

return avkastning

in this report, the concept refers to the direct return plus the increase in value of the *buffer fund* and the premium-pension funds.

turnover duration omsättningstid

the expected time from when *pension credit* has been earned until the pension is paid out in the form of *inkomstpension*, measured as an average weighted for pension credit and pension amounts. Turnover duration is calculated annually and is used for valuation of the flow of contributions. The calculation of turnover duration is performed according to the same principle and method as the calculation of average life expectancy; in other words, it is assumed in the calculation that the relevant age-determined conditions observed will remain unchanged in the future. Turnover duration depends on the provisions for earning pension credit and disbursement of pensions and on the patterns of labor-force participation and mortality in each age group.
See Insurance Information/Current Amounts (Försäkringsinformation/ Aktuella belopp, in Swedish only) on the RFV home page, www.rfv.se

Technical Appendix: Mathematical Description of the Balance Ratio

Excerpts from Regulation 2002:780 on the Calculation of the Balance Ratio*

* Some editing has been done to simplify the presentation

For each year the National Social Insurance Board is to calculate the balance ratio according to Chapter 1, §§ 5 a and 5 b of the National Income Replacement Pension Act (1998:674) in accordance with the following formula:

1. Balance ratio, *BR*,

$$BR\,(t+2) = \frac{CA(t) + F\,(t)}{D\,(t)} \tag{1.0}$$

$$CA(t) = \overline{C}(t) \times \overline{T}(t) \tag{1.1}$$

$$\overline{C}(t) = \frac{C(t)+C(t-1)+C(t-2)}{3} \times \left(\frac{C(t)}{C(t-3)} \times \frac{CPI(t-3)}{CPI(t)} \right)^{1/3} \times \left(\frac{CPI(t)}{CPI(t-1)} \right) \tag{1.2}$$

$$\overline{T}\,(t) = median\,\left[T\,(t),\, T\,(t-1), T\,(t-2)\right] \tag{1.3}$$

where

t = calendar year if the variable refers to flows, end of calendar year if the variable refers to stocks
$CA(t)$ = contribution asset year t
$F(t)$ = buffer fund, the aggregate market value of the assets of the First–Fourth and Sixth National Pension Funds year t. By market value is meant the value which in accordance with Ch. 6, § 3 of the National Pension Funds Act (2000:192) and Ch. 4, § 2 of the Sixth National Pension Fund Act (200:193) is to be shown in the annual reports of these funds.
$D(t)$ = pension liability year t
$\overline{C}(t)$ = smoothed value for the contribution to the pay-as-you-go system year t
$\overline{T}(t)$ = smoothed value for turnover duration year t
$C(t)$ = contributions to the pay-as-you-go system year t
$T(t)$ = turnover duration year t
$CPI(t)$ = consumer-price index for June year t

2. The average retirement age, *R*, is calculated as

$$\overline{R}(t) = \frac{\sum_{i=61}^{R^*(t)} P_i^*(t) \times G_i(t) \times i}{\sum_{i=61}^{R^*(t)} P_i^*(t) \times G_i(t)},\ \overline{R} \text{ rounded off to nearest whole number} \tag{2.0}$$

where

i = age at end of year t
$R^*(t)$ = the oldest age group for which pensions have been granted in year t
$P_i^*(t)$ = total of pensions granted monthly in year t to persons in age group i
$G_i(t)$ = annuitization divisor in year t for age group i

3. Turnover duration, *T*,

$$T(t) = ID(t) + OD(t) \tag{3.0}$$

3.1 Pay-in duration, *ID*,

$$ID(t) = \frac{\sum_{i=16}^{\overline{R}(t)-1} \overline{E}_i(t) \times L_i(t) \times \left(\overline{R}(t) - i - 0.5\right)}{\sum_{i=16}^{\overline{R}(t)-1} \overline{E}_i(t) \times L_i(t)} \tag{3.1.1}$$

$$\overline{E}_i(t) = \frac{\frac{E_i(t)}{N_i(t)} + \frac{E_{i+1}(t)}{N_{i+1}(t)}}{2} \quad \text{for } i = 16, 17, \ldots, \overline{R}(t) - 2 \tag{3.1.2}$$

$$\overline{E}_{\overline{R}(t)-1}(t) = \frac{E_{\overline{R}(t)-1}(t)}{N_{\overline{R}(t)-1}(t)} \tag{3.1.3}$$

$$L_i(t) = L_{i-1}(t) \times h_i(t) \quad \text{for } i = 17, 18, \ldots, \overline{R}(t) - 1 \text{ where } L_{16}(t) = 1 \tag{3.1.4}$$

$$h_i(t) = \frac{N_i(t)}{N_{i-1}(t-1)} \quad \text{for } i = 17, 18, \ldots, \overline{R}(t) - 1 \tag{3.1.5}$$

where

$E_i(t)$ = the sum of 16 % of pension-qualifying income calculated in accordance with Ch. 2 of the National Income Replacement Pension Act (1998:674) and 16 % of imputed pension-qualifying income calculated in accordance with Ch. 3 of said act in pay-in year *t-1*, i.e. year of determination *t*, for age group *i*

$N_i(t)$ = number of individuals in age group *i* who at any time up until pay-in year *t-1*, i.e. year of determination *t*, have been credited with pension-qualifying income or imputed pension-qualifying income and who have not been registered as deceased

$L_i(t)$ = proportion of persons in age group *i* surviving in year *t*

$h_i(t)$ = change in proportion of persons in age group i surviving in year *t*

3.2 Pay-out duration, *OD*,

$$OD(t) = \frac{\sum_{i=\bar{R}(t)}^{R(t)} 1.016^{-(i-\bar{R}(t)+0.5)} \times L_i^*(t) \times \left(i - \bar{R}(t) + 0.5\right)}{\sum_{i=\bar{R}(t)}^{R(t)} 1.016^{-(i-\bar{R}(t)+0.5)} \times L_i^*(t)} \tag{3.2.1}$$

$$L_i^*(t) = L_{i-1}^*(t) \times he_i(t), \quad L_{60}^*(t) = 1 \tag{3.2.2}$$

$$he_i(t) = \frac{P_i(t)}{P_i(t) + Pd_i(t) + 2 \times Pd_i^*(t)} \text{ for } i = 61, 62, \ldots, R(t) \tag{3.2.3}$$

where

$R(t)$ = the oldest age group receiving a pension in year t
$P_i(t)$ = total pension disbursements in December of year t to age group i
$Pd_i(t)$ = total of the last monthly pension disbursements to persons in age group i who received a pension disbursement in December of year t-1 but not in December of year t
$Pd_i^*(t)$ = total of the last monthly pension disbursements to persons in age group i with pensions granted in year t and not receiving a pension in December of year t
$L_i^*(t)$ = proportion of remaining disbursements to age group i in year t
$he_i(t)$ = change in pension disbursements due to deaths in year t, age group i

4. The pension liability, *D*,

$$D(t) = AD(t) + DD(t) \tag{4.0}$$

$$AD(t) = K(t) + E(t) + ATP(t) \tag{4.1}$$

$$DD(t) = \sum_{i=61}^{R(t)} P_i(t) \times 12 \times \left(\frac{Ge_i(t) + Ge_i(t-1) + Ge_i(t-2)}{3} \right) \tag{4.2}$$

$$Ge_i(t) = \frac{\sum_{j=i}^{R(t)} \frac{1}{2} \times \left(L_j^*(t) + L_{j+1}^*(t)\right) \times 1.016^{i-j-1}}{L_i^*(t)} \tag{4.3}$$

where

$AD(t)$ = pension liability year t in regard to pension commitment for which disbursement has not commenced (pension liability to the ”economically active”)
$DD(t)$ = pension liability year t in regard to pensions currently being disbursed to retired persons in the pay-as-you-go system
$K(t)$ = total of pension balances year t according to Ch. 5, § 2 of the National Income Replacement Pension Act (1998:674)
$E(t)$ = estimated pension credit for the inkomstpension year t according to Ch. 4, §§ 2–6 of said act
$ATP(t)$ = estimated value of the ATP pension year t for persons who have not yet begun to receive this pension.
$Ge_i(t)$ = economic annuitization divisor for age group i in year t.

The Social Insurance Office

DECISION 2003-12-15

Average Svensson
Vägen 1
123 45 Orten

Decision: your earned pension entitlement for 2002

Based on your pension-qualifying income (your annual income up to SEK 291,000 after deduction of your individual pension contribution) and any pension-qualifying amounts that you may have received, the Insurance Office has made the following determination:

Your pension credit for Inkomstpension in 2002 is

SEK 21,266

Your pension credit for the Premium Pension in 2002 is

SEK 3,255

Your new pension credit is added to the amount that you already had in your pension account. On page 2 (for your inkomstpension) and on page 5 (for your premium pension), you can see how much you have earned toward your pension up to now.

The Tax Authority has determined that your *pension-qualifying income* for 2002 is:

Income from employment	SEK	137,783
Income from other occupation	SEK	4,050

The Social Insurance Office has determined your *pension qualifying amounts* for 2002:

Disability pension	SEK	7,676
Military service	SEK	155
Studies	SEK	1,686
Child years	SEK	2,984
This gives you a pension base of:	SEK	154,334

The Social Insurance Office has determined that your *ATP pension credit* is 2.66. (This pension credit is used to calculate the ATP, disability pension or survivor's pension, if any, that you may receive.)

For further information on our decision

On page 6 we explain how we have calculated your pension-qualifying income and your pension-qualifying amounts. There you will also find more information in case you have questions or wish to appeal the decision. The Glossary shown on a separate sheet may be helpful when you read how we have made our calculations.

The Swedish Pension System
Annual Report 2003

In Sweden, the public pension system represents the largest single financial commitment of the central government. In addition to the one and a half million Swedes already receiving their pensions, more than six million persons of working age have earned pension credit in the system. At age 65, the average insured has accumulated pension credit of about SEK two million. The total financial commitment of the pension system is SEK 6,000 billion – equivalent in value to Sweden's total production for two and a half years.

In the Annual Report of the Swedish Pension System, the assets and liabilities of the system are shown according to the principles of double-entry bookkeeping. This new application of classical accounting clearly presents the economic and demographic relationships and processes that determine society's capacity to provide a financially and socially sustainable system of pension insurance. For this reason, the Annual Report should be interesting reading for everyone concerned with economic policy.

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