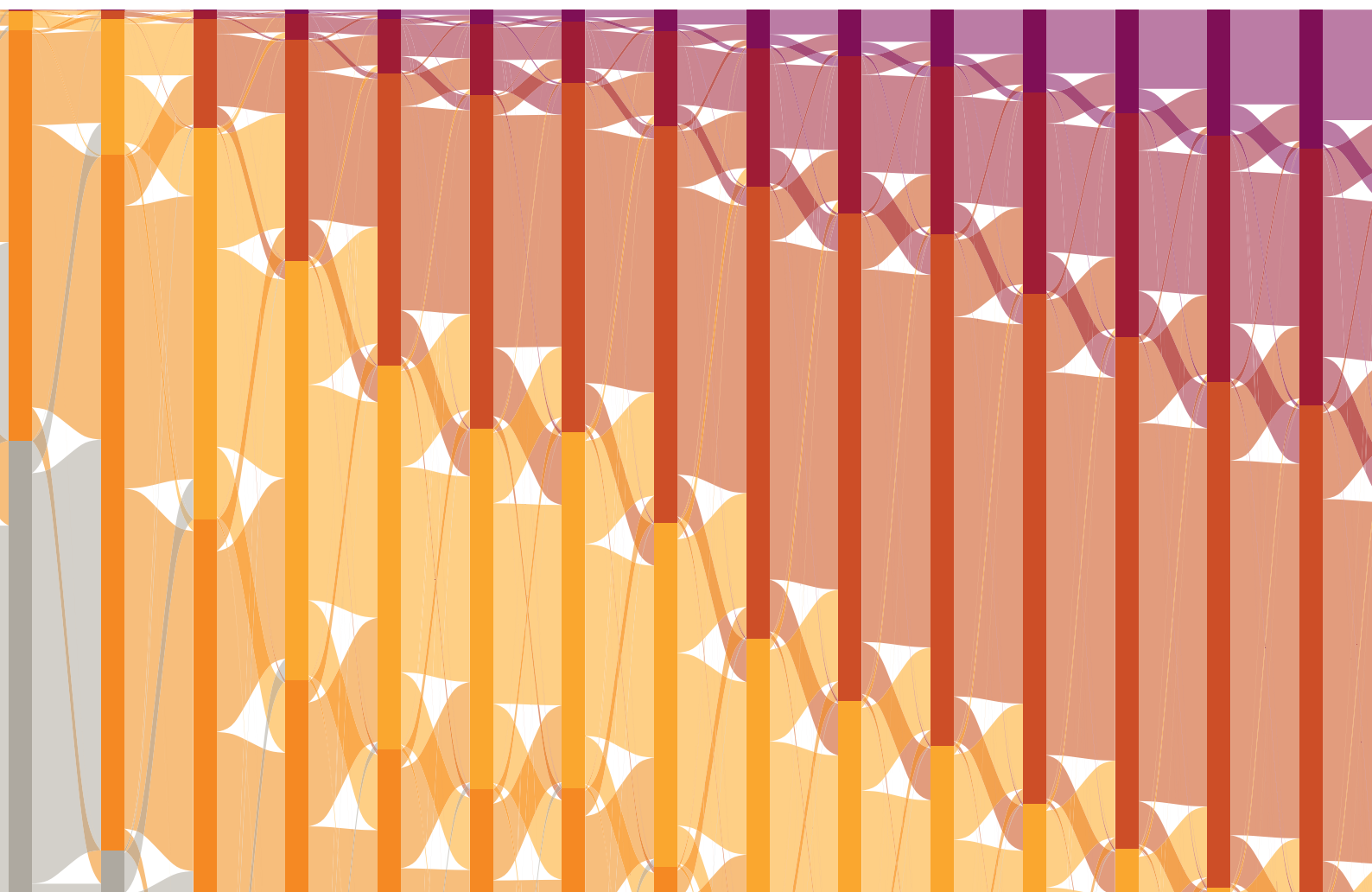


ORANGE REPORT 2020

Annual Report of the Swedish Pension System



PENSIONS
MYNDIGHETEN

Orange Report 2020

What is Orange Report?

The Orange Report 2020 describes the financial position of the *national* income-based pension system at the end of 2020, its evolution in 2020, and three scenarios for the future. To put the national income-based system in context, it is related below to, inter alia, information on occupational and private pensions. However, data for these insurance systems are so far only available up to and including 2019, thus the amounts below refer to 2019. Private pension refers only to data on tax-deductible pension savings.

Total annual fees and premiums for national pension, occupational pensions, and private pensions are estimated at SEK 549 billion, of which the national pension's SEK 334 billion represents 61 percent. The wage bill in Sweden amounted to approximately SEK 1,940 billion in 2019 (including earnings of the self-employed). This means that we set aside an amount equal to 28 percent of our salaries for various pensions.

Funded capital in the national pension amounted to SEK 3,152 billion on December 31 2019. This corresponds to approximately 46 percent of total funded pension capital in Sweden at one time. The Swedish Pensions Agency paid out SEK 326 billion in inkomstpension and premium pension in 2019. It equates to 67 percent of the total amount paid out that same year.

The Orange Report thus accounts for significantly more than half of Sweden's pension activities involving contributions and disbursements. The fact that it reflects a lower proportion of funded capital is due to the fact that inkomstpension is a distribution system with a buffer fund and not a fully funded pension system.

In 2019, in addition to inkomstpension and premium pension, the Swedish Pensions Agency paid out guaranteed pension to the amount of SEK 13 billion. Other pension-related benefits paid by the Agency during the year to elderly persons include income-based widow's pension of SEK 10 billion, housing supplement of SEK 9 billion and maintenance support for the elderly of SEK 1 billion. These benefits are financed from the state budget and are not reported in the Orange Report.

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A Stable Pension System Despite the Effects of the Pandemic



In March 2020, the WHO classified Covid-19 as a pandemic. In February–March, world stock markets fell rapidly and sharply, but recovered in the latter part of the year. The Covid crisis is still hitting large parts of society hard. In Sweden, unemployment has risen and employment has fallen. The impact on the national economy and our future pensions is difficult to predict, as this depends on various factors such as the duration of the pandemic, the evolution of unemployment, and the support measures put in place to mitigate the pandemic's effects.

The Orange Report, the annual report of the national pension system, shows that the financial position of the inkomstpension system is strong, and that the

indexation of pensions paid and pension balances in 2022 will not be affected by the system's financial position despite the impact of the pandemic on society. The balance ratio for 2022 is already set at 1.0824 and exceeds 1.0000, which means that automatic rebalancing will not be activated. Assets exceeded liabilities by SEK 806 billion. This corresponds to just over 8 percent of the total pension liability.

The report also shows that premium pensions are still being phased in and that premium pension capital continues to grow.

The Swedish Pensions Agency is working to move its operations in a more sustainable direction and contribute to Sweden's achievement of the Agenda 2030 goals. We see that our actions matter. Our reviews of the funds on the Agency's fund market show that they generally meet our new requirements in terms of sustainability, commissions, and management. Among premium pension savers, we see an increased interest in sustainability, and we have made it easy to choose sustainable savings on the fund market. Women and younger savers are more likely to actively choose funds with, for example, low carbon risk or to opt out of fossil fuels, pornography, nuclear weapons, and gambling concerns.

In 2020, the adequacy of pensions, as well as the difference between baseline social security and income-based pensions, have continued to be topical issues in the public debate. In December, Parliament decided to increase the pensions of some people through an inkomstpension complement, which is a supplement to the national public pension for those with long working lives at low pay. The inkomstpension complement will be paid as of September 2021 and will be financed from the national budget rather than from pension contributions.

In 2020, the minimum age for taking national public pension was raised from 61 to 62, and the rules for the allocation of inheritance gains were adjusted. The pension system is fundamentally stable, but a recession can lead to a reduction in payments. The future scenarios in the Orange Report show that assets are expected to be sufficient to avoid rebalancing even under pessimistic assumptions about future developments.

Daniel Barr
Director General, Swedish Pensions Agency

About Orange Report

Further information on the Swedish national public pension system is available at the Swedish Pensions Agency's website: www.pensionsmyndigheten.se

For information on the National Pension Funds, please see the websites of the respective funds: www.ap1.se, www.ap2.se, www.ap3.se, www.ap4.se, www.ap6.se and www.ap7.se (premium pension)

We at the Swedish Pensions Agency thank our readers for their questions and views, which have helped enhance the quality of the Orange Report.

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1. Results of the Pension System in Brief

Inkomstpension net income in 2020 was SEK 48 billion and the balance ratio was 1.0824, that is, assets exceeded liabilities 8.24 percent or SEK 806 billion.

The value of pension savers' and pensioners' premium pension assets on December 31, 2020 amounted to SEK 1,583 billion, while the value in temporary management was SEK 42 billion. The increase in value for fund insurance was 6.4 percent in 2020.

The two parts of the national income-based pension system

The national income-based pension system in Sweden consists of inkomstpension and premium pension. The inkomstpension and premium pension are defined-contribution, financially stable pension systems. Given this design, liabilities and assets normally change in equal measure; in other words, each year net income is more or less equal to zero. In principle, this is always true of the premium pension system, while inkomstpension allows substantial differences between liability and asset development from year to year, providing that accumulated deficits are not allowed to remain in the system. In this report, inkomstpension also includes ATP pension, which is a defined benefit scheme.

Inkomstpension

The inkomstpension system is a pay-as-you-go system, and pension contributions paid in are used to pay retirees in the same year. The surpluses or deficits resulting from pension contributions being higher or lower than pension disbursements are managed by the First–Fourth National Pension Funds, which together with the Sixth National Pension Fund form the buffer fund.

The assets of the system are the value of future pension contributions, referred to as the contribution asset, and the buffer fund. The contribution asset is calculated as follows: contribution revenues are multiplied by the expected average time that one krona will remain in the pension system, referred to as turnover duration.

The pension liability consists partly of a liability to the economically active and partly of a liability to retirees. The liability to the economically active is mainly the sum of the pension balances of everyone (the last row in the account statement of everyone's Orange Envelope). The pension liability to retirees is the expected total of all pensions paid to today's pensioners for the rest of their lives. The pension liability changes primarily with the annual indexation of pensions and pension account balances. Indexation is determined by the change in the average income in Sweden, in combination with the balance ratio in years when balancing is activated.

The result of the inkomstpension system is affected by numerous key economic and demographic factors. In the short run the development of employment is the most important factor, but the effect of the stock and

bond markets on the buffer fund is also of significance, particularly in case of major changes. In the long run demographic factors are most important.

The result for 2020 was SEK 48 billion. Together with a capital surplus of SEK 758 billion from 2019, this yields a capital surplus of SEK 806 billion at the end of 2020. The result for the year is by definition due to assets increasing more than liabilities in 2020. Assets exceed liabilities by just over 8 percent. The system's balance ratio for the financial and calculation year 2020 is calculated at 1.0824. The system is not in a balancing period, and therefore the balance ratio will not affect the indexation of pensions and pension balance for the (balancing) year 2022.

Table 1.1 Assets and Liabilities of the Inkomstpension System, Financial Years 2015–2020

billions of SEK

	Calculation year					
	2015	2016	2017	2018	2019	2020
Balancing year	2017	2018	2019	2020	2021	2022
Buffer fund	1,230	1,321	1,412	1,383	1,596	1,696
Contribution asset	7,457	7,737	7,984	8,244	8,616	8,893
Total assets	8,688	9,058	9,396	9,627	10,213	10,589
Pension liability	8,517	8,714	9,080	9,165	9,454	9,783
Surplus/Deficit	171	344	315	463	758	806
Balance ratio	1.0201	1.0395	1.0347	1.0505	1.0802	1.0824
Damped balance ratio	1.0067	1.0132	1.0116	1.0168	1.0267	1.0275

Assets in 2020 increased over the year by SEK 377 billion (3.7 percent). Contribution assets increased by SEK 277 billion (3.2 percent). The value of the change in turnover was SEK 94 billion and the value of the change in contribution revenue was SEK 183 billion. The return on funded capital of the buffer fund was SEK 133 billion (8.3 percent).

The year 2020, like 2019, was a year when pension disbursements, fund expenses and administrative costs exceeded pension contributions in the inkomstpension system. The difference, primarily net lending¹, produced a negative contribution of SEK 33 billion.

Pension liability in 2020 increased by almost SEK 329 billion (3.5 percent). The liability increases with new contributions as these give rise to future pensions. Similarly, the liability decreases with pension disbursements, which can be seen as an amortisation. The liability increases with the allocation of inheritance gains but decreases with the amount of inheritance gains received. The cost of administration reduces the insured's assets and hence the liability. The net result of the above was a reduction in liability of SEK 21 billion.

Liability recalculation, indexation, increased liability to the gainfully employed by SEK 340 billion. Liability to pensioners is affected by changes in average life expectancy. Compared to 2019, the average expected payout duration (economic life expectancy) for a 65-year-old increased from 16.77 to 16.81 years, or by just over 16 days. The reason why economic life

expectancy has increased despite the coronavirus pandemic is that a three-year average is used, and economic mortality was higher in 2017 than in 2020. The increased expected payout duration in itself meant that liability increased by SEK 10 billion.

Premium Pension

The premium pension system is a funded system where pension savers and pensioners themselves choose the funds in which to invest their premium pension moneys. The pension is disbursed from the proceeds of selling off accumulated capital. The assets consist of the investments in funds by pension savers and pensioners. The pension liability to the economically active and to retirees is related primarily to fund shares. Changes in the value of fund shares affect the assets of pension savers and pensioners in the system, directly and to an equal degree. With traditional insurance, the pension liability is the value of the remaining guaranteed disbursements. That value is calculated with assumptions about future return, life expectancy and operating costs. In the premium pension system all payments in and out of the system and all changes in value have in principle the same effect on system assets and liabilities. The system's positive balance belongs to the pension savers and pensioners and is placed in the consolidation fund in equity. Moneys in the traditional insurance consolidation fund are paid out as a capital bonus when pensions are paid. Moneys in the consolidation fund for fund insurance are deducted from the following year's contributions to cover operational costs.

The value of the premium pension assets of pension savers and pensioners on December 31, 2020 amounted to 1,583 billion, while the value in temporary management was SEK 42 billion. The increase in value for fund insurance was 6.4 percent in 2020.

Profit for the year 2020 amounted to SEK 2,829 million. The result for the entire insurance business deteriorated by SEK 2,727 million. This is mainly explained by the positive return on capital in traditional insurance this year amounting to SEK 61.7 million, compared to 2019 when the return was SEK 4,335 million. The increase in value of other investment assets amounted to SEK 2,243.5 million, which is an increase of SEK 336.5 million. Insurance benefit payments increased by SEK 250 million and amounted to SEK 1,682 million (1,432).

Operating costs amount to SEK 535.9 (578.5) million and have thus decreased by SEK 42.5 million. The cost of purchased services decreased and is mainly due to the purchase of IT services, administrative services, consultancy costs decreased in 2020.

Table 1.2 Assets and Liabilities of the Premium Pension System, 2015–2020

millions of SEK

	2015	2016	2017	2018	2019	2020
Insurance assets						
Fund insurance	841,332	962,304	1,113,510	1,105,809	1,461,732	1,583,021
Traditional insurance	20,784	26,029	30,745	35,240	46,431	53,380
In temporary management	34,260	36,034	37,478	39,120	40,886	41,568
Total Insurance assets	896,376	1,024,367	1,181,733	1,180,169	1,549,049	1,677,969
Pension liability	889,386	1,015,464	1,170,466	1,177,423	1,539,635	1,668,334
Net income/loss for the year	1,003	2,686	3,213	1,339	5,556	2,829

Assets in 2020 increased by SEK 133 billion during the year. The change in insurance assets refers in principle to newly earned pension credit, positive change in value, allocated management fees and payment of pensions as mentioned above.

The pension liability in 2020 increased by SEK 133 billion. The change in pension liability refers principally to the same newly earned pension credit, positive change in value, allocated management fees and payment of pensions as mentioned above.

Footnotes

1. Primarily because the return on invested capital is missing from financial savings. Primary net lending essentially refers to the difference between contributions and disbursements in the inkomstpension system.

2. Income Statement and Balance Sheet

Inkomstpension, Income statement and Balance sheet

Table 2.1 Income Statement

millions of SEK

	Note	2019	2020	Change
Change in fund assets				
Pension contributions	1	289,386	295,499	6,113
Pension disbursements	2	-314,724	-326,266	-11,542
Return on funded capital ^a	3	240,318	132,722	-107,596
Costs of administration	4	-1,757	-1,856	-99
Total Change in fund assets		213,223	100,099	-113,124
Change in contribution asset				
Value of change in contribution revenue	5	331,755	182,990	-148,765
Value of change in turnover duration	6	40,243	93,798	53,555
Total Change in contribution asset		371,998	276,788	-95,210
Change in pension liability^b				
New pension credit	7	-302,495	-304,394	-1,899
Pension disbursements	2	314,724	326,257	11,533
Indexation	8	-268,855	-339,735	-70,880
Value of change in life expectancy	9	-31,559	-10,503	21,056
Inheritance gains arising	10	12,633	12,135	-498
Inheritance gains distributed	10	-15,697	-14,598	1,099
Deduction for costs of administration	11	1,673	1,818	145
Total Change in pension liability		-289,576	-329,020	-39,444
Net income/-loss for the year		295,645	47,867	-247,778

a. In the Pension Agency's annual report for 2020, the preliminary return was SEK 132,721 million.

b. A negative item (-) increases the pension liability, and a positive item decreases it, by the amount shown.

Table 2.2 Balance sheet

millions of SEK

	Note	2019	2020	Change
Assets				
Fund assets ^a	12	1,596,342	1,696,441	100,099
Contribution assets	13	8,616,216	8,893,004	276,788
Total Assets		10,212,558	10,589,445	376,887
Liabilities and results brought forward				
Closing results brought forward				
Opening results brought forward		462,685	758,330	295,645
Net income/-loss for the year		295,645	47,867	-247,778
Total Closing results brought forward		758,330	806,197	47,867
Pension liability	14	9,454,228	9,783,248	329,020
Total Liabilities and results brought forward		10,212,558	10,589,445	376,887

a. In the Pension Agency's annual report for 2020, the preliminary value of fund assets was SEK 1,696,440 million.

Premium Pension, Income statement and Balance sheet

Table 2.3 Income Statement

millions of SEK

	Note	2019	2020	Change
Change in fund assets				
Pension contributions		45,140	45,727	587
Pension disbursements	15	-10,942	-14,028	-3,086
Return on funded capital	16	341,911	101,787	-240,124
Costs of administration	17	-597	-444	153
Total Change in fund assets		375,512	133,042	-242,470
Change in pension liability^a				
New pension credit	18	-45,140	-45,727	-587
Pension disbursements	15	10,942	14,028	3,086
Change in value	16	-336,233	-99,022	237,211
Inheritance gains arising	19	3,700	4,135	435
Inheritance gains distributed	19	-3,700	-4,135	-435
Deduction for costs of administration	20	474	508	34
Total Change in pension liability		-369,956	-130,213	239,743
Net income/-loss for the year		5,556	2,829	-2,727

a. A negative item (-) increases the pension liability, and a positive item decreases it, by the amount shown.

Table 2.4 Balance sheet

millions of SEK

	Note	2019	2020	Change
Assets				
Insurance assets				
Fund insurance	21	1,461,732	1,583,021	121,289
Traditional insurance	21	46,431	53,380	6,949
Temporary management	21	40,886	41,568	682
Total Insurance Assets		1,549,049	1,677,969	128,920
Other assets	22	7,348	11,093	3,745
Total Assets		1,556,397	1,689,062	132,665
Liabilities and results brought forward				
Closing results brought forward				
Opening results brought forward ^a		11,206	15,775	4,569
Net income/-loss for the year		5,556	2,829	-2,727
Total Closing results brought forward	23	16,762	18,604	1,842
Liabilities				
Pension liability	24	1,532,161	1,659,599	127,438
Other liabilities	25	7,474	10,859	3,385
Total Liabilities		1,539,635	1,670,458	130,823
Total Liabilities and results brought forward		1,556,397	1,689,062	132,665

a. Opening results brought forward differs from Closing results brought forward last year, see Note 23.

Inkomstpension and Premium Pension, Income statement and Balance sheet

Table 2.5 Income Statement

millions of SEK

	2019	2020	Change
Change in fund assets			
Pension contributions	334,526	341,226	6,700
Pension disbursements	-325,666	-340,294	-14,628
Return on funded capital	582,229	234,509	-347,720
Costs of administration	-2,354	-2,300	54
Total Change in fund assets	588,735	233,141	-355,594
Change in contribution asset			
Value of the change in contribution revenue	331,755	182,990	-148,765
Value of change in turnover duration	40,243	93,798	53,555
Total Change in contribution asset	371,998	276,788	-95,210
Change in pension liability^a			
New pension credit	-347,635	-350,121	-2,486
Pension disbursements	325,666	340,285	14,619
Indexation	-605,088	-438,757	166,331
Value of the change in life expectancy	-31,559	-10,503	21,056
Inheritance gains arising	16,333	16,270	-63
Inheritance gains distributed	-19,397	-18,733	664
Deduction for costs of administration	2,147	2,326	179
Total Change in pension liability	-659,533	-459,233	200,300
Net income/-loss for the year	301,200	50,696	-250,504

a. A negative item (-) increases the pension liability, and a positive item decreases it, by the amount shown.

Table 2.6 Balance sheet

millions of SEK

	2019	2020	Change
Assets			
Fund assets	1,596,342	1,696,441	100,099
Insurance assets	1,549,049	1,677,969	128,920
Other assets	7,348	11,093	3,745
Contribution assets	8,616,216	8,893,004	276,788
Total Assets	11,768,955	12,278,507	509,552
Liabilities and results brought forward			
Closing results brought forward			
Opening results brought forward ^a	473,891	774,105	300,214
Net income/-loss for the year	301,201	50,696	-250,505
Total Closing results brought forward	775,092	824,801	49,709
Liabilities			
Pension liability	10,986,389	11,442,847	456,458
Other liabilities	7,474	10,859	3,385
Total Liabilities	10,993,863	11,453,706	459,843
Total Liabilities and results brought forward	11,768,955	12,278,507	509,552

a. Opening results brought forward differs from Closing results brought forward last year, see Note 23.

3. Accounting Principles

The data on the financial position of the inkomstpension have been presented previously in the annual report of the Swedish Pensions Agency. Information concerning the premium pension has also been presented previously in the annual report of the Pensions Agency. The audit of the information in the balance sheet and income statement is performed in connection with the confirmation of the Pensions Agency's annual report. The Annual Report of the Swedish Pension System – the Orange Report – provides essentially the same information concerning income statement, balance sheet and notes as that published in the Swedish Pensions Agency's Annual Report. However, certain adjustments and simplifications of the information on the premium pension have been made to facilitate comparisons between the two systems.

Regulations and Guidelines

The Annual Report of the Pension System has been prepared in accordance with Chapter 55 § 4 of the Social Insurance Code (2010:110) on the Earnings Related Old Age Pension (SFB) and Regulation (2002:135) Annual Reporting of the Financial Position and Development of the Old-Age Pension System.

The income-related old-age pension system includes the benefits provided by the inkomstpension, the ATP and the premium pension.¹ The inkomstpension and the ATP are examples of benefits in a pay-as-you-go pension system. In such systems, contributions are not funded, but in principle are used directly to finance pension disbursements. The National Pension Funds are buffer funds that absorb differences between the inflow of contributions and the outflow of pensions. As elsewhere in the accounts, the term “inkomstpension” is used here in reference to the entire pay-as-you-go system; in other words, it often applies to the ATP as well. According to Chapter 58 § 14 SFB, the reported assets of the pay-as-you-go system consist of the contribution asset and the value of the assets of the First–Fourth and Sixth National Pension Funds. Formulas for calculating the contribution asset and the pension liability of the inkomstpension system are provided in the Regulations for Calculation of the Balance Ratio (2002:780). These formulas are also found in [Appendix B](#).

In this year's report, the Pensions Agency has revised a formula to bring it in line with the increase in the minimum withdrawal age from 61 to 62. This revision concerns the variable he , change of pension disbursements due to death, which is calculated on the basis of pension disbursements per birth year. With the increase in the pension withdrawal age, there will be no pensioners age 61 at the end of 2020, and the Pensions Agency therefore considers that he be set at 1 for the age group, which means that the variable L^* , proportion of remaining disbursements, is set to 1 for age 61 in the same way that it was set to 1 for age 60 in previous years.

The premium pension system is a fully funded pension system where contributions are invested and the proceeds of selling accumulated capital are used to pay pensions.

According to the Regulations for the Annual Report (2002:135), the Orange Report is to include a projection of the assumed long-term development of the pension system. See [chapter 7 Three Scenarios for the Future of the Pension System](#).

The accounting principles of the National Pension Funds are set forth in their annual reports and are therefore not described in this report. The annual report of each national pension fund is available on the home page of the respective fund: www.ap1.se, www.ap2.se, www.ap3.se, www.ap4.se and www.ap6.se. As the annual report of the Swedish Pensions Agency describes the accounting principles used for the premium pension, these are only presented in summary form in this report.

Where Do the Figures Come From?

The accounting for the inkomstpension system is based on data from the records of the Swedish Pensions Agency on pension credit earned and pension disbursements, respectively.

In the Annual Report of the Swedish Pension System, information on the operations of the First–Fourth and Sixth National Pension Funds has been taken primarily from the annual reports of the respective funds.² The buffer funds prepare their annual reports according to the Law on National Pension Funds (2000:192). Furthermore, on the basis of applicable provisions for comparable financial companies, the funds have developed common principles for accounting and valuation.

In the Annual Report of the Swedish Pension System, information on the premium pension has been taken from the annual report of the Swedish Pensions Agency, which was prepared as provided in Regulation (2000:605) on Annual Reports and Supporting Documentation for Budgeting. Invested assets (and the corresponding liabilities) of the premium pension system have been valued according to the provisions of the Law (1995:1560) on Annual Reports of Insurance Companies and according to the regulations and general guidelines of the Swedish Financial Supervisory Authority for Annual Reports of Insurance Companies. The assets and liabilities of the premium pension systems are included in the consolidated balance sheet of the Swedish Pensions Agency, and the operations of the premium pension system are reported in a separate section of the income statement. Certain revisions, simplifications and consolidations have been made to facilitate comparison between the presentation and that of the inkomstpension.

Assets and liabilities included in the temporary management of pension contributions are reported in the annual report of the Swedish pension system as an insurance asset and pension liability. This is a deviation compared to the Swedish Pensions Agency annual report.

Principles for Valuation of Assets and Liabilities

The assets and liabilities are valued mainly on the basis of events and transactions that are verifiable at the time of valuation. For example, the fact that contribution revenue normally changes at the rate of economic growth is not considered in the calculation of the contribution asset. Nor is consideration given in the valuation of the pension liability to the fact that

pension disbursements, through indexation and other factors, will change in the future.

Through the design of the inkomstpension, there is a strong link between the development of the system's assets and liabilities, respectively. When balancing is activated, there is basically an absolute link between the respective rates of change in liabilities and in assets.³

The way in which the assets and liabilities of the inkomstpension system are valued is based on the assumption that these will change at the same rate after each valuation. To put it another way, the method of valuation is based on the assumption that the system's future internal rate of return will be the same as the future change in the value of the pension liability, even though this is certain only if balancing is activated. When balancing is not activated, the internal rate of return may be either greater or less than the change in the value of the pension liability.

The valuation of the contribution flow and the pension liability is based almost exclusively on conditions prevailing at the time of valuation. This is not due to any belief that all these factors will remain totally constant. Rather, the accounting is designed not to include changed conditions until the changes are reflected in the events and transactions on which the accounting is based.

Valuation of Inkomstpension Assets

The basis for valuation of the contribution asset is the size of the pension liability that the contribution revenue for the accounting year – i.e. paid-in pension contributions – could finance if the conditions prevailing at the time of valuation remained constant. The relevant determinants here, in addition to the rules of the pension system, are economic and demographic. The economic conditions consist of the average pension-qualifying income of each annual birth cohort and the sum of these incomes. The demographic factors relate to mortality at different ages. The relevant rules for the pension system are those that govern the calculation and the indexation of the inkomstpension, define the contribution and pension base and determine the contribution in percent. The contribution asset is calculated by multiplying the financial year's contribution revenue by the previous year's turnover duration.⁴ Turnover duration expresses how long it takes, on average, from the payment of SEK 1 in revenue into the system to the disbursement of a pension based on the pension credit arising at the time the pension credit was earned. Thus, turnover duration reflects the age difference between the average pension contributor and the average pensioner that would result if the economic, demographic and legal conditions were constant. If turnover duration increases it means the value of contribution flow increases and vice versa.

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

Valuation of Inkomstpension Liabilities

The liability of the inkomstpension to persons who have not begun to draw an old-age pension is valued as the sum of the pension balances of all insured persons. Income earned in the year covered by the accounts has not yet been confirmed at the time of the report. For this reason, an estimate of the inkomstpension credit earned in the year of the report is added to the sum of the pension balances of the insured. This added amount equals about three percent of the total pension liability. The difference between estimated and confirmed pension credit is deducted in the accounts for the following year.⁵

The pension liability to retirees is calculated by multiplying the pensions granted (annual amount) by the expected number of years for which the amount will be disbursed. The number of years is discounted in order to reflect the indexation of disbursed amounts by the increase in the income index or balance index with a reduction of 1.6 percentage points.⁶

The expected number of pay-out years is calculated from measurements of the pay-out period of pension amounts according to Swedish Pensions Agency's records and is expressed in terms of so-called economic annuity divisors.⁷ An average of the preceding three years' economic annuity divisor is used in the calculation of the pension liability. The financial breakdowns take into account any correlation between the size of the pension amount and the length of time it is paid. For more details, see the report "VER 2016-390 *Payment Age and Economic Annuity Divisors*". In the years for which a balance index has been established the liability to pensioners is multiplied by the damped balance ratio established for the year $t + 1$.

Since 2018, it is no longer possible to earn ATP pension. The ATP pension liability to those who have not yet begun to withdraw old-age pension can thus be calculated without assumptions concerning future economic and demographic developments. Since 2019, the liability is valued as if ATP pension as yet unclaimed had been claimed in December of the current reporting year. The liability is calculated by calculating a ATP pension amount for each individual, taking into account age, which is then multiplied by the number of years the amount is expected to be paid out (the economic annuity divisor).

Valuation of Premium Pension Assets and Liabilities

Premium pension assets are reported at their true value, or accrued acquisition cost, according to the regulations and general guidelines of the Swedish Financial Supervisory Authority (FFFS 2009:12) on Annual Reports of Insurance Companies. Assets reported at their true value as of the balance sheet date are valued at their price on the last trading day of the year. In the valuation of assets reported at accrued acquisition cost, the difference between acquisition cost and redemption price is periodized as interest revenue for the time remaining to maturity.

Temporary management consists of pension contributions paid in periodically during the year in which pension credit is earned; these are transferred to the premium pension system when the pension credit for the

year has been confirmed. Assets under temporary management are reported at their accrued acquisition value.

Fund insurance assets refer to pension savers' investment in funds and are reported at the redemption price for fund assets. The pension liability for fund insurance consists of fund insurance assets and of liquid assets not yet converted into fund shares. Traditional insurance assets are invested in equity and interest funds and are reported at their true value.

The pension liability for traditional insurance with profit annuity is determined for each insurance policy as the capital value of the remaining guaranteed disbursements. That value is calculated on assumptions about future returns, life expectancy and operating expenses. The return consists of an aggregation of the market interest rate on government bonds and guaranteed mortgage bonds of varying maturities. The market rate of interest is determined on the basis of the time remaining to maturity for guaranteed disbursements. The market valuation of the liability means that provisions set aside for life insurance are affected by changes in interest rates. Paid-in premiums are reported as lump-sum premiums and increase the guaranteed amount. Assumptions about life expectancy are based on Statistics Sweden's population forecast from 2015, where mortality has been reduced by 10 per cent in order to better match mortality observed in the Swedish Pensions Agency's stock. Operating expenses are assumed to be 0.1 percent of the insurance capital. Taken together, this means guaranteed commitments in traditional insurance have been valued carefully in accordance with established actuarial methods.

Footnotes

1. The guaranteed pension, which is part of the national public pension, is not income-based but charged to the national budget. The guaranteed pension is therefore not included in the accounting.
2. The accounting of the inkomstpension system in the annual report of the Swedish Pensions Agency for 2020 is based on preliminary information in regard to the operations of the National Pension Funds.
3. With the method for calculating turnover duration, there is an implied assumption that the size of the economically active population will remain constant. If the population decreases, there is consequently a risk that the accounts will (somewhat) overestimate the system's assets in relation to its liabilities. It is reasonable to take for granted, however, that the population decrease will end at some point. If events take this course, the underestimation, and the possible resulting deficit in the buffer fund, will be temporary. The buffer fund will in time return to a level of at least SEK zero.
4. The calculation of turnover duration is described in [Appendix B, Formula B.3.1](#).
5. See [Note 14, Table 8.21 A](#).
6. The recalculation of inkomstpension is made using the ratio between the new and old income index divided by 1.016. For those years when balancing is activated, the income index is replaced by the balance index.
7. See [formula B.7.5 in Appendix B](#).

4. How the National Pension System Works

The principles of the inkomstpension and the premium pension are simple. A portion of your earnings each year is set aside in two different accounts. The pension is calculated on the basis of the amount of money you have in your account when you claim your pension, and how many more years you are expected to live from that point onwards. The purpose of this section is to provide those who so desire with somewhat more advanced knowledge than these elementary basic premises.

Almost Like Saving at the Bank ...

The national pension system works much like ordinary saving at the bank. The comparison applies to both earnings-related parts of the system, the inkomstpension and the premium pension. Each year pension contributions are paid by the insured, their employers and in certain cases the central government. Contributions are paid into two separate accounts, one for inkomstpension and one for premium pension. Savings grow through the years in line with the contributions paid and the ‘interest rate’ applicable to each account. The statement sent out each year in the Orange Envelope enables the insured to watch their own inkomstpension and premium pension accounts develop from year to year. When the insured individual retires, the stream of payments is reversed, and the inkomstpension and premium pension are disbursed for the remaining lifetime of the insured.

... but Entirely a Form of Pension Insurance

With pension insurance savings are blocked; it is impossible to withdraw all or any part of them before the minimum age for receiving a pension. Inkomstpension and premium pension can be claimed first at age 62.

One purpose of pension insurance is to redistribute assets from individuals with shorter-than-average life spans to those who live longer. The pension balances of deceased persons – so-called **inheritance gains** (see [Appendix A](#)) – are redistributed each year to the surviving insured in the same birth cohort. Also after pension withdrawal begins, assets are redistributed from those with shorter-than-average life spans to those who live longer. This is done by basing the monthly pension on average life expectancy but disbursing it for as long as the insured lives. Consequently, total pension disbursements to persons who live for a relatively short time after retirement are less than their pension savings, and those who live longer than average receive more than the value of their own pension savings.

The balance of an insured’s pension account consists of the sum of her/his pension credit (contributions), accrued interest and inheritance gains. A charge for administrative costs is deducted from the account each year.

One Krona of Pension Credit for Each Krona Contributed

The pension contribution is 18.5 percent of the pension base. The pension base consists of pension-qualifying income and pension-qualifying amounts. In addition to earnings, benefits from the social insurance and unemployment insurance systems are treated as income. Pension-qualifying amounts are a basis for calculating pension credit but are not income, properly speaking. Pension credit is granted for pension-qualifying amounts for sickness and activity compensation (disability pension), years with small children (child-care years), and studies. Up until 2010, pension-qualifying amounts were also granted for compulsory national service. As of 2018 it can be received again when compulsory military service is reintroduced. The maximum pension base is 7.5 income-related base amounts (SEK 501 000 in 2020). Pension credit is earned at 16 percent of the pension base for the inkomstpension and 2.5 percent for the premium pension.¹

Who Pays the Contribution?

The insured pays an individual pension contribution to the national public pension of 7 percent of her/his earnings and any benefits received from the social insurance and/or unemployment insurance schemes. The contribution is paid on incomes up to 8.07 income-related base amounts² and is paid in together with the withholding tax on earnings. The individual pension contribution of 7 percent is not included in the pension base. Annual earnings are pension-qualifying when they exceed the minimum income for the obligation to file a tax return, which as from 2003 is 42.3 percent of the current price-related base amount.³ When an individual's income has exceeded this threshold, it is pension-qualifying from the first krona. Since the individual receives a tax deduction for national public pension contributions on their tax returns, it can be seen as the state paying the national public pension contribution.

For each employee, employers pay a pension contribution of 10.21 percent of that individual's earnings.⁴ 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. They are therefore allocated to the central-government budget as tax revenue rather than to the pension system.⁵

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

The total pension contribution is thus 17.21 percent, whereas the pension credit and the pension contribution are 18.5 percent of the pension base. The reason for the difference is that the contribution base is reduced by the individual pension contribution of 7 percent when pension credit is calculated.⁶ This means that the maximum pension base is 93 percent of 8.07, or 7.5 income-related base amounts. The maximum pension credit in 2020 was SEK 92,685.

Where Does the Contribution Go?

Of the pension contribution of 18.5 percent, 16 percentage points are deposited in the four buffer funds of the inkomstpension system: the First, Second, Third and Fourth National Pension Funds.⁷ Each fund receives one fourth of contributions and finances one fourth of pension disbursements. The monthly pension disbursements of the inkomstpension system thus come from the buffer funds. In principle, the same moneys that were paid in during the month are paid out in pensions to retirees.

The moneys allocated to the premium pension, 2.5 percent of the pension base, are invested in interest-bearing assets until the final tax settlement. Only then can it be determined how much pension credit for the premium pension has been earned by each insured. When pension credit has been confirmed, shares are purchased in the funds chosen by the insured. For those who have not chosen a fund, their moneys will be invested in the Seventh National Pension Fund, AP7 S  fa, the government pension management alternative based on birth cohorts, which has a generation-fund profile, including AP7. At the turn of the year 2020/2021, there were 486 funds in the premium pension system, administered by 65 different fund management companies. With each disbursement of pensions, enough fund shares are sold to provide the monthly amount.

Table 4.1 Funds in the Premium Pension System in 2020 and Capital Managed 2016–2020

December 31, billions of SEK

	Number of registered funds 2020	Managed capital				
		2016	2017	2018	2019	2020
Equity funds	346	388	441	407	517	582
Mixed funds	37	69	70	66	69	65
Generation funds	28	147	166	167	209	221
Interest funds	74	127	26	30	31	31
AP7 S��fa/Premium Savings Fund	1	328	407	433	632	680
Total	486	959	1,110	1,103	1,458	1,579

Interest on Contributions That Gave Rise to Pension Credit

Savings in a bank account earn interest, and the national public pension works in the same way. The interest on the inkomstpension account is normally determined by the growth in average income. Average income is measured by the *income index* (see [Appendix A](#)). 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 the development of different variables in the general economy. The inkomstpension account earns interest at the rate of increase in incomes. The development of the premium pension account follows the tendency on financial markets, which among other things reflects the price of capital. Neither of these rates of interest is guaranteed; they may even be negative. Through apportionment of contributions to separate subsystems where the rate of return depends on somewhat differing circumstances, risks are spread to some extent. The average return of the inkomstpension system (income-/balance index) has

been 3.1 percent since 1995.⁸ During the same period, the Premium Pension system has generated an annual rate of return of 7.7 percent.

A Rate of Interest Other Than the Income Index – Balancing

Under certain demographic and economic conditions, 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 to finance payments of the inkomstpension with a fixed contribution. In order to maintain the contribution rate at 16 percent, income indexation must be suspended in such a situation. This is done by activation of balancing.

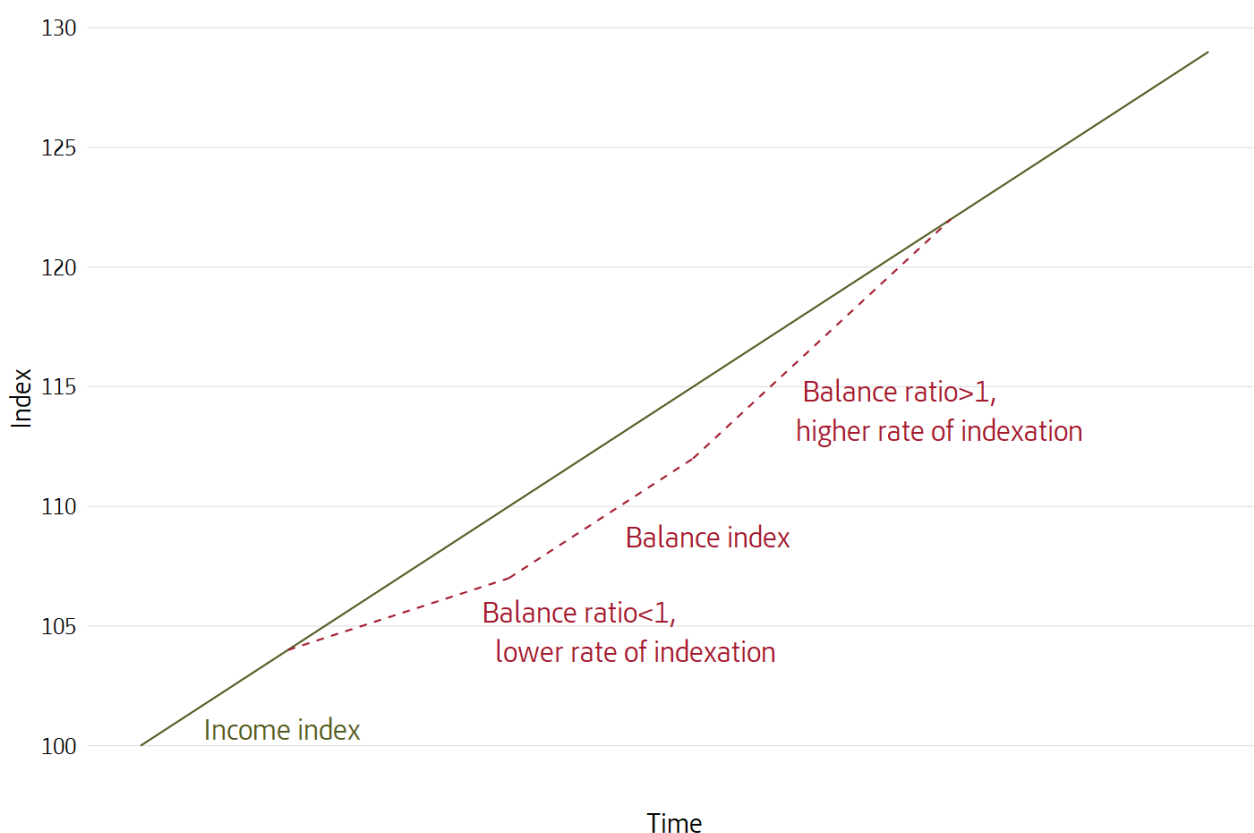
The assets of the system divided by the pension liability provides a measure of its financial position, a ratio referred to as the balance ratio (balanstalet, BT). If the balance ratio is greater than the number one, assets exceed liabilities. If the balance ratio is less than one, liabilities exceed assets, and balancing is activated. When balancing is activated, pension balances and pensions are indexed by the change in a *balance index* instead of the change in the income index. The change in the balance index is determined by the change in the income index and the size of the balance ratio.

An example : If the balance ratio falls below 1.0000 to 0.9900 while the income index increases from 100.00 to 104.00 the damped balance ratio is first calculated according to: $\frac{0.9900-1}{3} + 1 = 0.9967$.⁹

By multiplying the income index (104.00) by the damped balance ratio (0.9967) the balance index 103.66 is obtained.¹⁰ The indexation of pension balances is thus 3.66 instead of 4 percent. Indexation of pensions is reduced to the same extent.

If the balance ratio exceeds 1.0000 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. When the balance index reaches the income index level, balancing is turned off. Pensions then regain the value they would have had if they had been indexed using the income index alone. The system returns to indexing based solely on changes in the income index. A schematic description is given in [Figure 4.1](#).

Figure 4.1 Balancing – Concept description



Pensions Reduced by Costs of Administration

The costs of administering the inkomstpension are deducted annually from pension balances through multiplication of these balances by an administrative cost factor (see [Appendix A](#)). This deduction is made only until the insured begins to draw a pension. At current cost levels, the deduction for costs will reduce the inkomstpension by approximately 1 percent compared to what it would have been without the deduction.

Similarly, the costs of administration and fund management in the premium pension system are deducted from premium pension capital. In this case, however, the deduction continues to be made after the insured begins to draw a pension. On average, the cost was 0.21 percent of premium pension capital in 2020. At this level of costs, the deduction for administrative costs will reduce the premium pension by an average of about 8 percent from what it would have been without any cost deduction. In order to reduce the costs of pension savers, capital managers associated with the premium pension system are required to grant a rebate on the ordinary expenses of the funds. The rebates to pension savers in 2020 are equivalent to a reduction in fund management fees of about 0.35 percentage points. Without the rebate, the premium pension would be about 12 percent lower.

The Different Parts of the National Public Pension

How is the Inkomstpension Calculated?

The inkomstpension is calculated by dividing the balance of the inkomstpension account by an annuity divisor (see [Appendix A](#)) at the time of retirement. The annuity divisors are specific to each cohort and reflect partly the remaining life expectancy at the age pension is drawn and partly an advance interest of 1.6 percent. Remaining life expectancy is an average for men and women. The advance interest of 1.6 percent makes the annuity divisor lower than average life expectancy and thus initial pension is higher than it would have been without the interest.

An example: a person who retires at age 65 has a remaining life expectancy of about 20 years. The advance interest of 1.6 percent causes the annuity divisor to drop to 17.07. If the person has SEK 3 million in their inkomstpension account, the person receives SEK 175,700 per year (3 million/17.07) in inkomstpension or SEK 14,646 per month.

The inkomstpension is recalculated annually according to the change in the income index after deducting the advance interest of 1.6 percentage points credited in the annuity divisor, so-called adjustment indexation.¹¹ This means that if the income index increases by exactly 1.6 percent *more* than inflation, as measured by the Consumer Price Index, pensions will increase at exactly the same rate as inflation. If the income index increases by more than 1.6 percent above the inflation rate, pensions will rise in constant prices, and vice versa. When balancing is activated, the income index is replaced by the balance index when pensions are recalculated.

How Is the Premium Pension Calculated?

The premium pension can be drawn either as traditional insurance with profit annuity or fund insurance. In both forms of insurance, the value of the pension account is divided by an annuity divisor, in the same way as with the inkomstpension. But for the premium pension, unlike the inkomstpension, the annuity divisor is based on forecasts of future life expectancy. The advance interest rate is currently 1.75 percent for both fund and traditional insurance, and a deduction for future costs of 0.1 percent is included in the calculation of the annuity divisors.

Fund insurance means that the pension savings remain in the premium pension funds chosen by the insured. With fund insurance, the amount of the premium pension is recalculated once each year based on the value of fund shares in December. Each month, a sufficient number of fund shares are sold to finance payment of the calculated premium pension. If the value of the fund shares increases, fewer shares are sold; if it decreases, more shares are sold. Variations in prices of fund shares affect the value of the following year's premium pension.

Drawing premium pension in the form of traditional insurance means that the pension is calculated as a lifetime guaranteed nominal monthly amount and an additional amount varying in size from year to year. In the event of a transition to traditional insurance, the insured's fund shares are sold and the Swedish Pensions Agency assumes responsibility for the management of the assets.

The premium pension may include a survivor benefit for the period of disbursement. This means that the premium pension will be paid to either of two spouses or cohabitants as long as one of them survives. If survivor benefit is chosen, the monthly pension will be lower because premium pension payment is expected to last longer.

Sustainability in the fund market

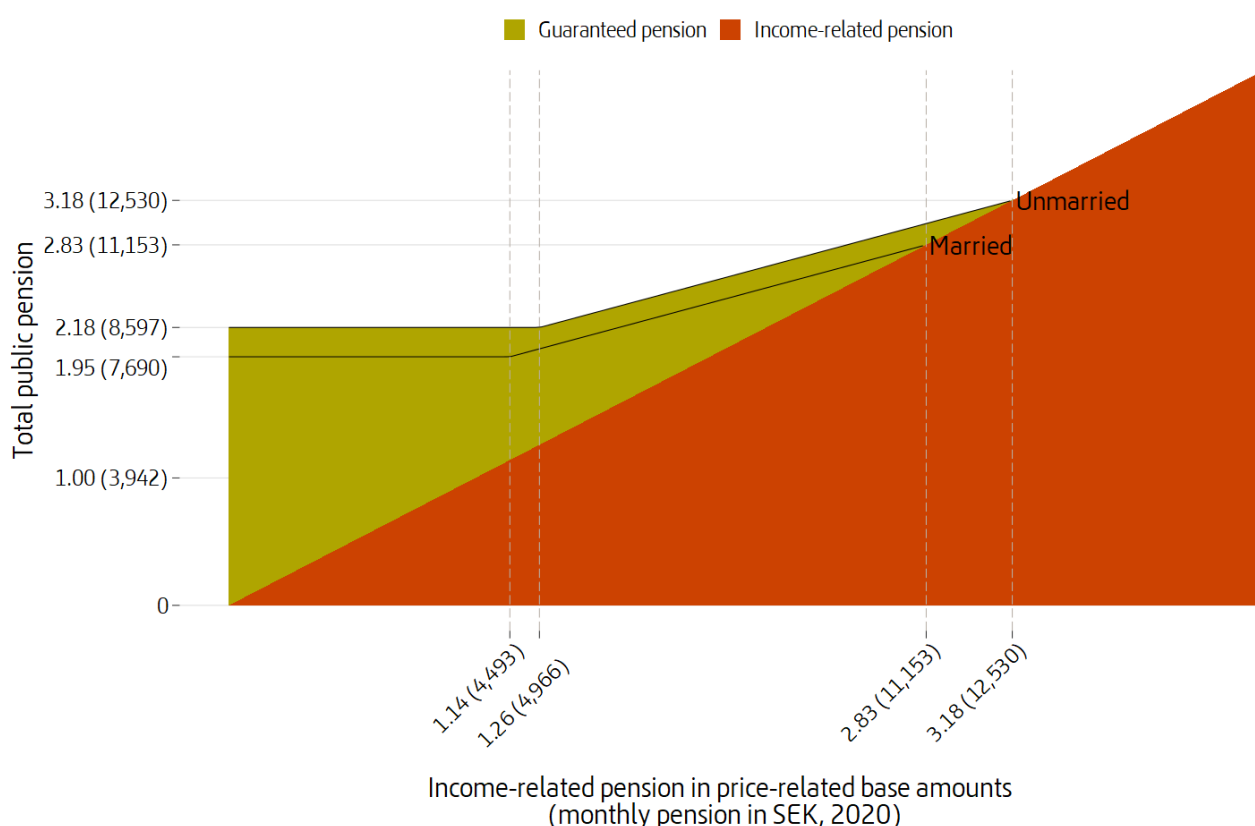
Since 2018, fund managers are required by law to report on their sustainability efforts by indicating, inter alia, the methods they use and how they follow up their sustainability efforts. The Pensions Agency requires at the minimum that fund managers be signatories to the United Nations Principles for Responsible Investments (UN PRI). The Agency offers pension savers a range of tools to make it easy for them to choose sustainable funds on the premium pension market.

In 2020, the Pensions Agency examined in its sustainability report the extent to which pension savers actively make sustainable fund choices. Also in 2020, the premium pension fund market was prepared for imminent implementation of the EU Sustainable Finance Disclosure Regulation (Regulation (EU) 2020/852) which regulates, inter alia, how fund management companies, insurance companies, and financial advisors should inform investors and clients about environmental, social, and governance (ESG) aspects. The regulation was implemented on 10 March 2020, and its aim is to move towards more coherently designed sustainability-related information in the securities market.

Guaranteed Pension¹²

The guaranteed pension provides basic social security for individuals with little or no income. Residents of Sweden are eligible for a guaranteed pension beginning at age 65. To receive a full guaranteed pension, an individual must in principle have resided in Sweden for 40 years after age 25. Residence in another EU/EEA country can also be credited toward a guaranteed pension. Refugees can include residence in their home country and thus receive a full guaranteed pension.

Figure 4.2 Income-related Pension and Guaranteed Pension



The figure shows total public pension at different levels of the income-based national pension, SEK per month.

In 2020 the maximum guaranteed pension for a single pensioner was SEK 8,597 per month (2.181 price-related base amounts¹³) and for a married pensioner SEK 7,690 per month (1.951 price-related base amounts). The guaranteed pension is reduced for persons with an earnings-related pension. The reduction is taken in two steps: for low incomes, the guaranteed pension is decreased by the full amount of the earnings-related pension; for higher incomes, the guaranteed pension is decreased by only 48 percent. This means that a single pensioner with a monthly earnings-related pension of SEK 12,530 or more received no guaranteed pension in 2020. For a married pensioner the corresponding income limit was SEK 11,153.

An example: A pensioner living alone has an earnings-related pension equivalent to 2.26 price-related base amounts. The guaranteed pension is first reduced by the full amount of income up to 1.26 price-related base amounts. The remainder of 0.921 price-related base amount ($=2.181-1.26$) is reduced by 48 percent of the income above 1.26 price-related base amounts, which in this example gives a guaranteed pension of 0.441 price-related base amount ($=0.921-0.48 \cdot (2.26-1.26)$). The total inkomstpension and guaranteed pension will then be 2.701 price-related base amounts ($0.441+2.26$).

When calculating the guaranteed pension, the premium pension and the effects of a possible early withdrawal of the inkomstpension are both disregarded. Rather the “inkomstpension” is calculated, which reduces the

guaranteed pension as if it had been earned at 18.5 percent instead of 16 percent and as if it had been levied at the earliest at age 65. These rules facilitate administration of the guaranteed pension and mean that there is no financial gain from taking inkomstpension early.

The guaranteed pension is financed 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 the ATP (supplementary pension) according to the old pension system. The level of the ATP pension is based on an individual's income for the 15 years of highest income, and 30 years with income are required for a full pension.

For persons born in 1938–1953, there are special transitional provisions. These individuals receive a portion of their earnings-related old-age pension as an 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; those born in 1939 receive 75 percent of their ATP, etc. There is an additional guarantee that the pension received will not be less than the ATP earned by the individual through 1994 – the year of the decision in principle to adopt the pension reform. Those born in 1954 or later earn their entire pensions under the provisions for the inkomstpension and the premium pension.

Table 4.2 Proportion Granted a National Pension at Various Ages^a

Percent

Birth cohort	61	62	63	64	65	66	67	68	69	70	71-	Total	Avg age
1938	3.6	2.3	2.3	2.1	77.3	4.1	3.2	0.8	0.3	0.3	0.7	97.1	64.9
1939	3.9	1.9	2.1	2.3	75.6	6.5	2.3	0.8	0.3	0.3	0.8	96.9	65.0
1940	3.0	2.1	2.5	3.1	75.9	5.0	2.6	0.8	0.4	0.5	0.7	96.6	65.0
1941	2.9	2.2	3.0	3.7	73.2	6.3	2.8	0.8	0.5	0.4	0.7	96.5	65.0
1942	3.4	2.9	3.4	3.9	70.8	6.2	3.4	1.2	0.5	0.4	0.7	96.7	64.9
1943	3.9	3.1	3.6	5.3	66.4	7.1	4.4	1.2	0.4	0.5	0.8	96.6	64.9
1944	4.7	3.4	4.7	5.9	63.1	7.9	4.0	1.1	0.5	0.5	0.8	96.5	64.9
1945	5.1	4.2	5.3	6.1	61.5	7.2	4.0	1.3	0.5	0.5	0.8	96.4	64.8
1946	6.0	4.8	5.4	6.7	59.1	6.7	4.2	1.2	0.5	0.6	0.8	96.1	64.7
1947	6.3	4.6	6.0	7.4	56.7	6.9	4.7	1.3	0.6	0.5	1.0	95.9	64.7
1948	6.0	4.9	6.7	7.8	54.6	7.3	5.0	1.5	0.5	0.5	1.0	95.8	64.7
1949	5.8	5.4	6.9	8.6	52.2	7.9	5.4	1.4	0.6	0.5	1.1	95.8	64.7
1950	5.8	5.4	7.7	9.1	49.9	8.6	5.4	1.6	0.7	0.6	1.1	95.9	64.7
1951	6.5	6.3	8.0	9.3	47.5	8.3	5.5	1.8	0.7	0.6	1.2	95.8	64.7
1952	6.8	6.8	8.4	10.3	44.3	8.9	6.0	2.0	0.8	0.6	1.2	96.1	64.7
1953	7.7	6.5	9.4	10.4	41.8	9.5	5.1	3.0	0.9	0.7	1.2	96.0	64.6
1954	7.5	7.1	9.5	10.7	40.3	9.7							
1955	7.5	6.6	10.2	11.1	39.3								
1956	7.0	7.8	10.3	10.8									
1957	7.7	7.8	9.8										
1958	8.9	7.5											

a. The proportions are for new retirees in relation to the potential number of retirees as of December 2019. Ages are as of December 31 of the year when the pensioner began drawing an inkomstpension/guaranteed pension. Prognosis for the highest ages, prognosis in italics. For those born 1959, the minimum withdrawal age is 62 and they are therefore not included.

Table 4.3 Number of newly granted and deceased pensioners, in thousands and as a proportion of all old-age pensioners, 2020^a

	Number of women	Proportion, percent	Number of men	Proportion, percent	Number in total	Proportion, percent
Newly granted	54	4.3	54	4.8	108	4.6
Deceased	47	3.8	46	4.1	93	3.9
Old-age pensioners	1,244		1,119		2,363	

a. Applies to those who have an inkomstpension, supplementary pension, or guaranteed pension.

Table 4.4 National public pension paid out for newly granted and deceased old-age pensioners, monthly amounts in SEK million and in relation to total national public pension paid out, 2020^a

	Amount women	Proportion, percent	Amount men	Proportion, percent	Total amount	Proportion, percent
Newly granted	657	4.3	740	4.5		4.5
Deceased	487	3.4	665	4.1		3.7
Old-age pensioners	14,438		16,306			

a. The monthly amount is for the last month the individual had a pension.

Individuals new granted pension in 2020 accounted for 4.6 percent of all old-age pensioners and those who died accounted for 3.9 percent of the total.

Pensions paid to new beneficiaries were 4.5 percent of all payments and were slightly higher than the pensions of the deceased would be were they still alive, which was 3.7 percent.

The National Pension System – in Illustrations and Figures

This section describes the pension system in figures.

Incomes, Pension Credit and Pension Disbursed

Figure 4.3 shows average income for 2019, average pension credits to savers' accounts in 2020 and average pension disbursement in 2019.

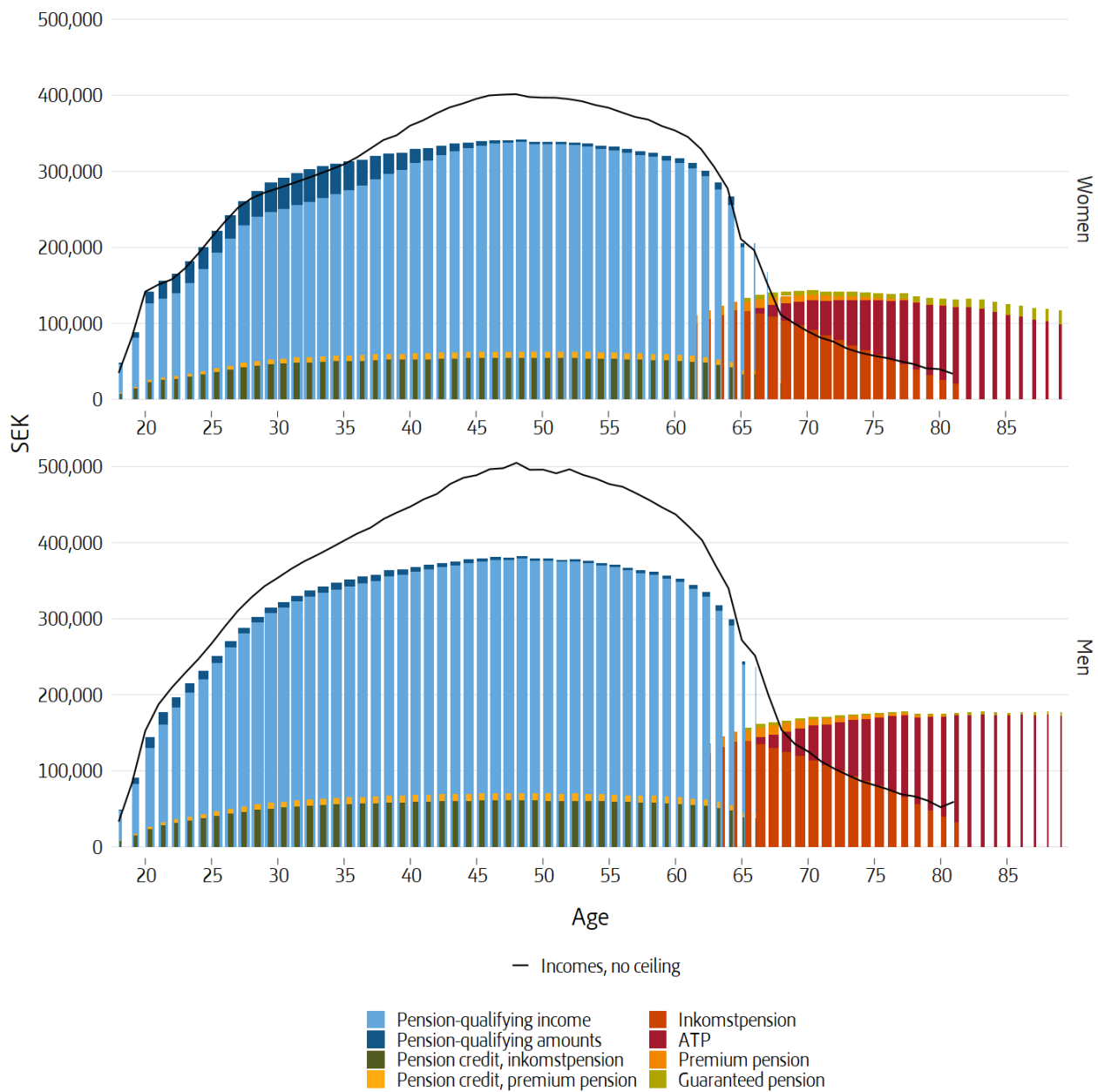
The average income increases during the first half of the earnings period, then levels off at age 45 before turning downwards and falling sharply after age 60. One reason for the decrease in average income is the increase in the proportion of persons with sickness compensation (disability pensioners) with lower average incomes. Another reason for the decrease in average income is that certain individuals have reduced their work hours, or have fully retired during the year. The importance of the upper limit, the ceiling, on the earning of pension credit is shown in the figure – the average pension-qualifying income (pensionsgrundande inkomst, PGI) would follow the line for *Incomes, no ceiling* if there had not been a ceiling.

Persons with an income lower than 0.423 price base amount (SEK 19,670) for 2019) are included in the uncapped income (no ceiling income) group, but do not receive a fixed pension-qualifying income. In some age groups, where a relatively large proportion have an income below the limit, the average pension-qualifying income is greater than the average income. This has to do with low-income people pulling down the average income, but does affect the average pension-qualifying income. These age groups are found mainly among younger people, a majority of whom have only sporadic income, and among women aged 66–67, a relatively high proportion of whom have an income below the limit.

The figure provides an overview of the level of disbursements to the 2,269,000 people receiving a pension from the public pension system in December 2019. ATP pension still accounted for the largest part of the pension but it is noticeable that inkomstpension and premium pension begin to replace ATP pension for cohorts born in 1938 and later. For younger

cohorts, their pension consists wholly or almost wholly of inkomstpension, premium pension and guarantee pension. Guarantee pension still makes up a large part of the pension, especially among older cohorts. For the older age groups, the guaranteed pension is a large part of the pension, especially for women. For the younger cohorts, the guaranteed pension represents an increasingly small part of their pension.

Figure 4.3 Average income, pension credit earned and pension disbursed 2019



The width of the bars reflects the number of people in the annual cohort, with cohort 1990 as the norm.

Refers to 18–89 years.

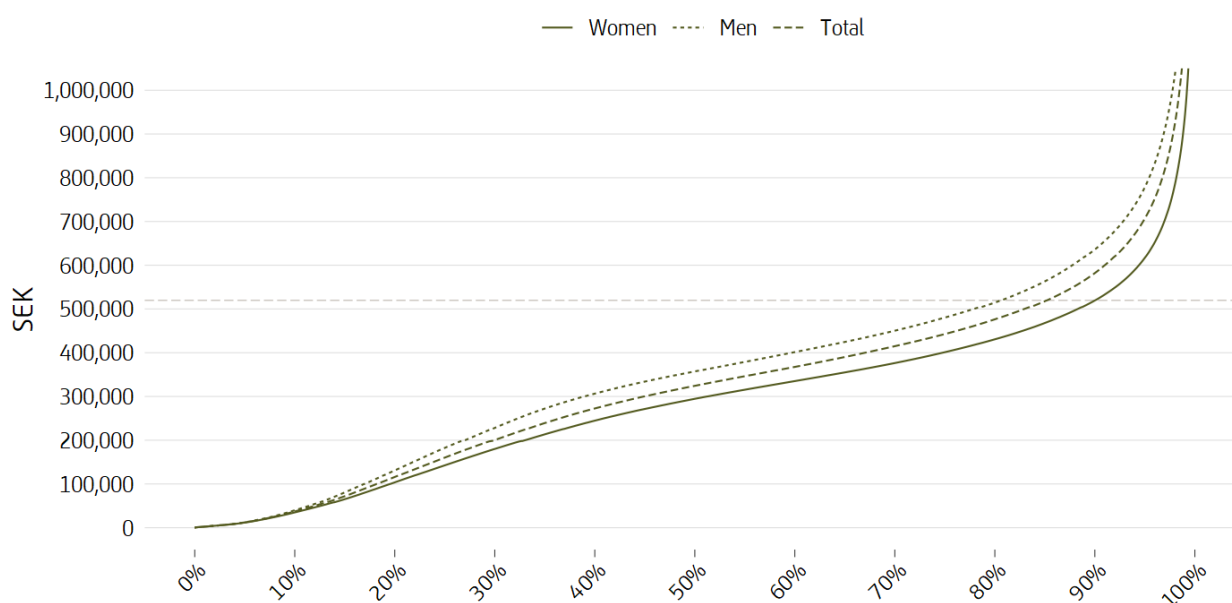
Figure 4.3 show that women on average have lower incomes than men. We also see that the ceiling on pension-qualifying income has a greater negative

influence for men than for women, since a larger share of men's incomes are above the ceiling. The fact that women have a greater share of pension-qualifying amounts than men is illustrated by the fact that women have more dark blue in their pension base than men - more details on pension-qualifying amounts can be found in [Figure 4.6](#). Moreover, women on average have lower pensions and considerably more guaranteed pension than men.

Uncapped pension-qualifying income

[Figure 4.4](#) below shows uncapped pension-qualifying income divided between women and men. Incomes up to 8.07 income-related base amounts (SEK 519,700 for income year 2019) form the base for the national pension. The diagram below shows incomes for the income year 2019 divided up in rising order (in total 5,779,000 persons, of which 2,809,000 women and 2,970,000 men. Of these, 4,859,000 people had incomes below the contribution ceiling (2,507,000 women and 2,352,000 men).

Figure 4.4 Uncapped pension-qualifying income for women and men, income year 2019



Refers to tax-assessed earned income (wages and salaries, income from active and passive business operations, sickness cash benefits, parental allowances, sickness and activity compensation, unemployment compensation etc.). The income is before deduction of the individual pension contribution and is shown for persons with incomes above the minimum for the obligation to file a tax declaration, 42.3 percent of the price-related base amount. The horizontal line at SEK 519,700 designates the ceiling on contributions.

Roughly 618,000 men, or 21 percent of men, had an income above the ceiling on pension-qualifying income. The corresponding proportion for women was 11 percent or approximately 302,000 persons. The table below shows the average uncapped pension-qualifying income and pension-qualifying income for women and men.

Table 4.5 Average Uncapped Pension-Qualifying Income and Pension-Qualifying Income, Income Year 2019

SEK

	Uncapped pension-qualifying income	Pension-qualifying income
Women	295,300	276,700
Men	368,100	319,300
Total	332,700	298,600

Table 4.5 reveals that women's incomes are lower than men's – 80 percent of uncapped pension-qualifying income and 87 percent of pension-qualifying income.

Pension Credit for the Inkomstpension and the Premium Pension

The average pension credit for inkomstpension and premium pension in 2019 amounted to SEK 56,000 – lower for women (SEK 53,000) and higher for men (SEK 58,900). See table 4.6 below.

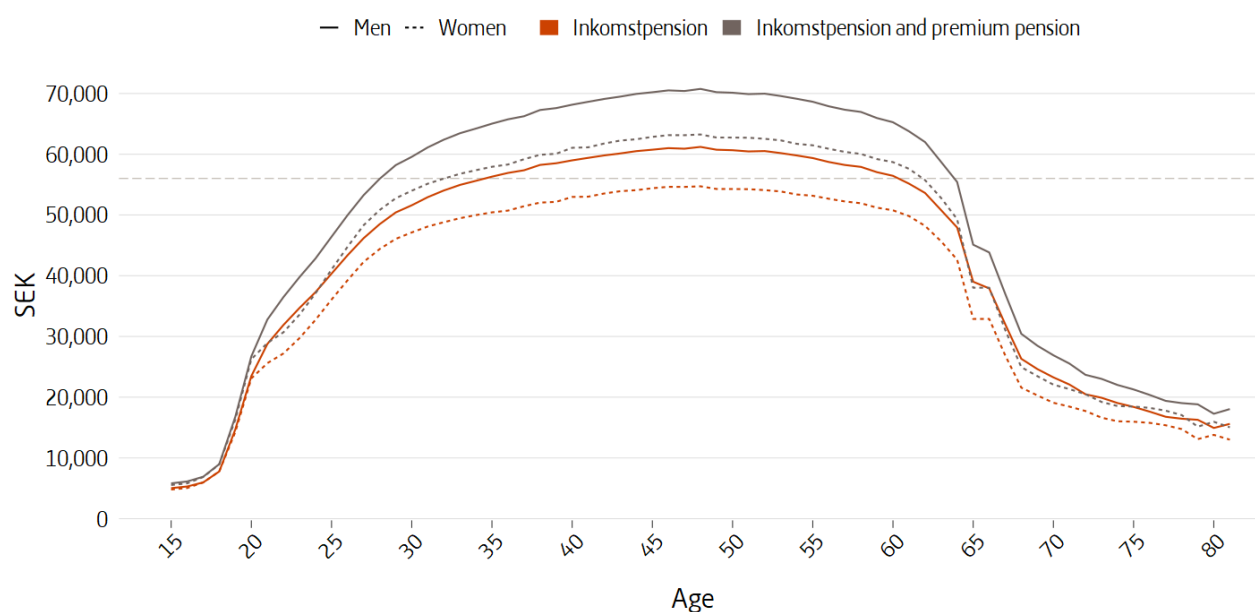
Table 4.6 Average Pension Credit Earned, 2019

SEK

	Inkomstpension	Premium pension	Total
Women	46,000	7,000	53,000
Men	51,000	7,900	58,900
Total	48,600	7,400	56,000

From the table above and figure 4.5 it can be seen that the average pension credit for women was approximately 90 percent of men's.

Figure 4.5 Average Pension Credit Earned, Women and Men, earned 2019



The horizontal line at SEK 56,000 shows the average for all individuals.

The average pension credit to inkomstpension and premium pensions decreases sharply between ages 64 and 65 and then levels off between 65 and 66 (age at the end of the year). This has to do with many people choosing to take their pension and stop working at 65, resulting in lower annual income and less pension credit earned during that year.

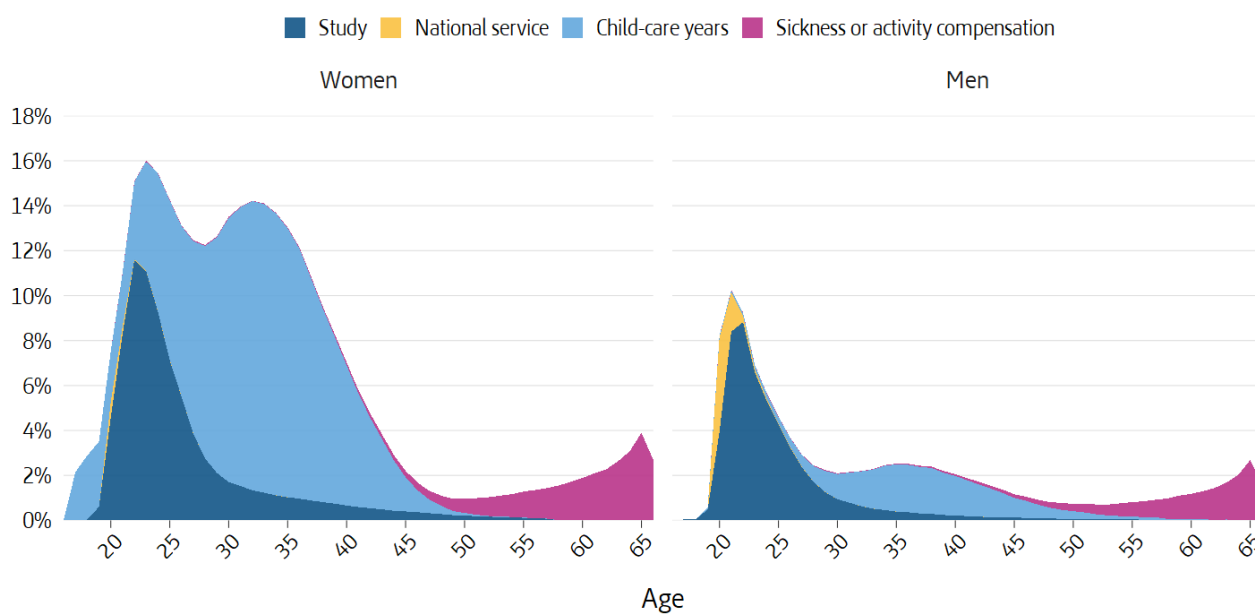
Pension-Qualifying Amounts

Credit is granted for pension-qualifying amounts in particular phases of individuals' lives, such as years with small children or of studies. Between 1995 and 2010, national service gave pension credit. After being dormant since 2010, conscription was resumed in 2018, and since then conscription once more provides pension credit. Those who earned pension credit from national service in 2019 were primarily men.

In 2019 pension-qualifying amounts constituted 6 percent of the allocated pension base for women and approximately 2 percent for men. The largest portion for women, 4 percent, consisted of amounts for years with small children. For men childcare years also made up the largest portion, nearly 1 percent of the total pension base.

Viewed over a life cycle, pension-qualifying amounts are received by younger people for study, national service and years with children, and later in life amounts are received for sickness compensation.

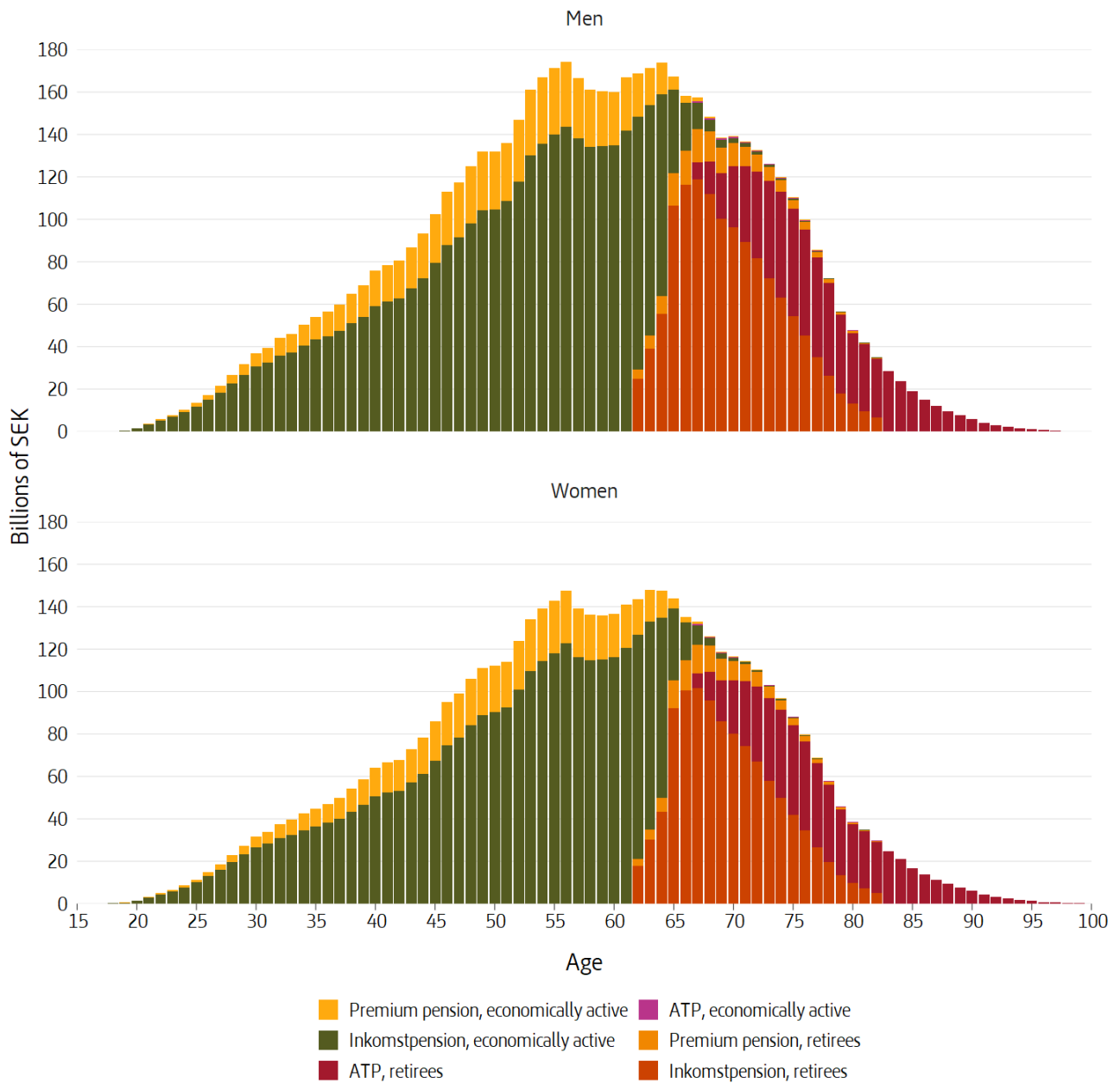
Figure 4.6 Pension-Qualifying Amounts, Income Year 2019



Pension Liability

The pension liability – the pension capital of the insured – in the inkomstpension and the premium pension system was SEK 11,440 billion as of December 31, 2020. The liability, broken down by sex, for ages 15 and up, is shown in [Figure 4.7](#).

Figure 4.7 Pension liability, women and men, at year-end 2020



Women have lower earned pension capital compared with men. It is also clear that supplementary pension (ATP) is the principal pension asset for older pensioners but will soon have completely disappeared for working-age cohorts.

For savers, inkomstpension dominates, while the increasing importance of premium pension can be seen. Provisions for premium pension were introduced in 1995, before which all pension credits were set aside for inkomstpension. Assuming that earnings began at age 20, everyone aged 45 or younger in 2020 has been earning income and premium pension throughout their working life.

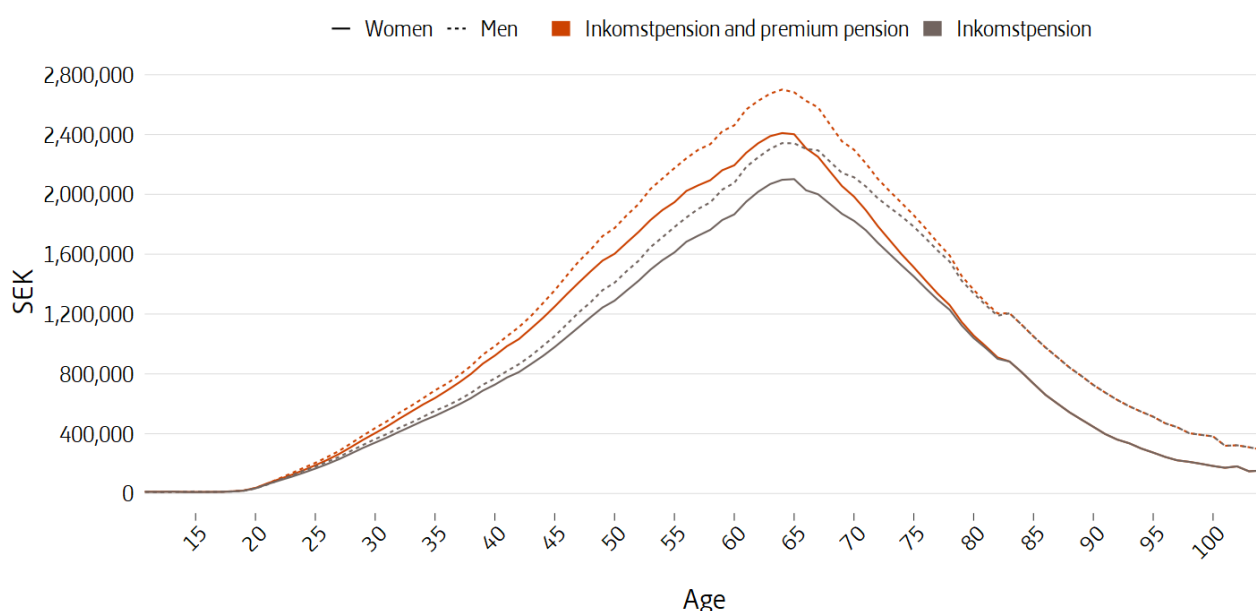
Table 4.7 Average Pension Liability, 2020

SEK

	Inkomstpension	Premium pension	Total
Women	1,066,000	191,000	1,239,000
Men	1,204,000	223,000	1,408,000
Total	1,137,000	207,000	1,325,000

Average pension liability (the sum of all years of earned pension credit for inkomstpension and premium pension) amounted to just over SEK 1.3 million at the end of 2020. See [table 4.7](#).

Figure 4.8 Average Pension Liability, 2020

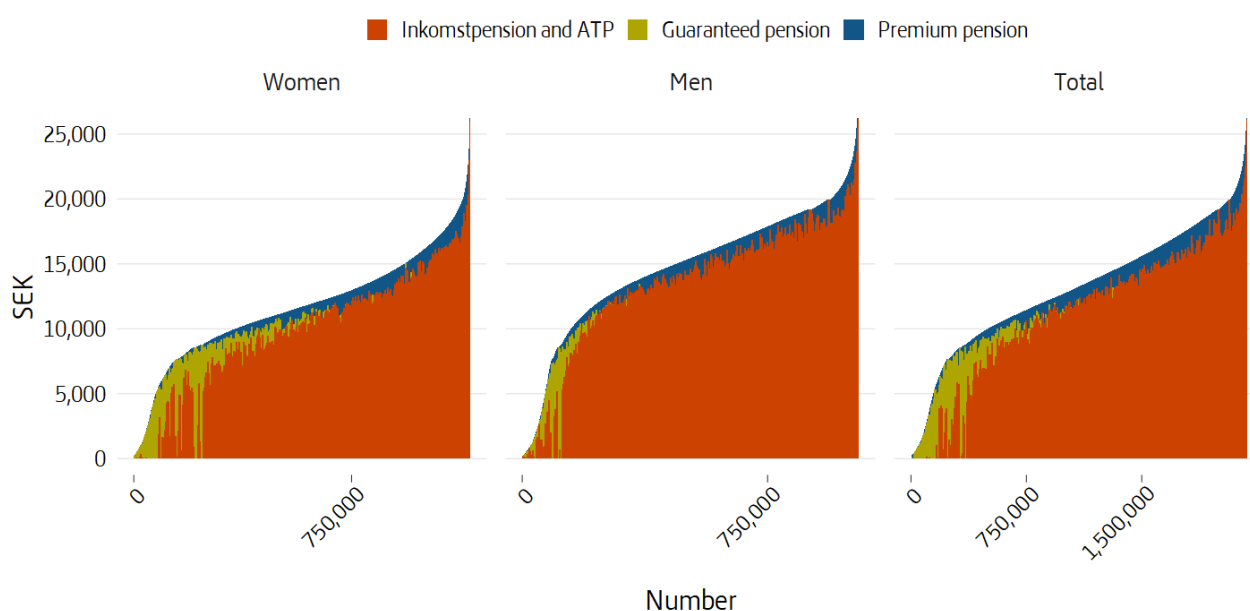


The figure above shows that average liability increases with increasing age up to and including the age of 65. After that, liability decreases, since many after that have entered retirement.

Pension Disbursements

In [Figure 4.9](#) below the disbursements of the national pension are shown in rising order of size. Disbursements refer to December 2020 for women and men born in 1955 or earlier (1,157,000 women and 1,028,000 men). For total pensions disbursed during 2020, see [Note 2 in the chapter Notes and Comments](#).

Figure 4.9 Pension Disbursements, Women and Men, December 2020



The difference in level and composition of different parts of pensions for men and women is the most striking feature of the figure. The average pension for women – income-based pension and guaranteed pension – was SEK 11,700. The corresponding amount for men was SEK 14,700. Of women’s national pensions, 93 percent consisted of income-based pensions and 7 percent of guaranteed pensions. However, a full 47 percent of women had some portion of guaranteed pension. That the proportion with guaranteed pension increases sharply with age is not shown by the diagram. Of the national pension for men, 98 percent consisted of income-based pension and 2 percent of a guaranteed pension. A total of 16 percent of men had some proportion of guaranteed pension. Neither the widow’s pension nor the housing supplement, each of which is paid primarily to women, is included in the figure.

The completely green bars indicate persons who have only guaranteed pension and no income-based pension. This group consists predominantly of women. Persons without an income-based pension with at least 40 years of residence in Sweden receive the maximum guaranteed pension. This explains the concentration of green at the maximum guaranteed pension for “married persons” (SEK 7,690 per month in 2020) and for “unmarried persons” (SEK 8,597 per month).

Those with a lower guaranteed pension, but also without any income-based pension, have fewer years of residence in Sweden. Only persons born in 1938 or later can receive premium pension – based on their own income, but only on that part earned since 1995. Thus the impact of premium pension is still limited. However, the importance of premium pension is growing with each new annual cohort that draws a pension. The few individuals with a national pension exceeding SEK 20,000 per month have reached that pension amount in part by postponing pension withdrawal. The maximum public pension paid in 2020 was SEK 54,300 per month. It is a person born

later than 1938 who has continued to work after the age of 65 and who has postponed withdrawing a pension.

What affects the development of the balance ratio?

The balance ratio is a crucial measure of the financial position of the inkomstpension. It is used as part of the system's indexation mechanism to ensure its financial stability. This section explains how the balance ratio is affected by some key factors.

The balance ratio is calculated as the ratio between the assets and liabilities of the inkomstpension system. The assets consist of the assets of the AP funds (the buffer funds) and the contribution asset. The contribution asset consists of the year's contribution revenue multiplied by turnover duration, where turnover duration measures how long it is expected to take, on average, from the payment of SEK 1 in contribution to the system (income age) until the pension credit created by the contribution is paid out in the form of pension (payment age)¹⁴.

The turnover duration – the difference between expected payment age and earning age – decreases if average pension credits increase less for younger than for older people (increased earning age). For example, this may happen if labour market entry is delayed. It also falls if pension withdrawals are brought forward (reduced payment age). Turnover duration tends to increase with increased life expectancy, especially if the life expectancy of those with above-average pension incomes increases (higher payment age).

The inkomstpension system has a liability to economically active persons and to pensioners. The liability to economically active persons increases with earned pension credits, while the liability to pensioners decreases with pension disbursements. Liabilities are recalculated using the income index (or balance index when balancing is activated). The liability also increases with increased life expectancy, especially if life expectancy of people with above-average pension amounts increases.

The fact that a general increase in life expectancy increases liability as well as assets reduces the balance ratio sensitivity to changes in life expectancy, even if the increase in assets is less than the increase in liability.

To this must be added the buffer funds. If the return on buffer fund capital is higher than growth in average income, the funds contribute to strengthening the balance ratio. Buffer funds account for approximately 16 percent of the assets of the inkomstpension system, but as the funds' returns are much more volatile than other factors, the funds have a greater impact on the development of the balance ratio relative to their share of assets.

The number of persons with pension-qualifying income affects the relationship between contribution asset and pension liability

The contribution asset grows mainly with the change in the inflow of contributions (the sum of the pension base) and the liability is growing mainly by the change in the income index (average income). This means that if the sum of pension-qualifying income grows faster than average, the balance ratio increases (all else being equal). In principle, this is true if employment increases, but as the contribution base to the pension system includes the unemployment benefit, the sickness benefit, and the sickness

compensation, the link to employment trends is not absolute. However, the link to the evolution of the number of persons with pension-qualifying income is central. If the number of people with pension-qualifying income increases, the balance ratio is affected in a positive direction.¹⁵

The balance ratio is affected by the business cycle

Above is described, in a somewhat stylised fashion, how changes in the balance ratio can be broken down into changes in the ratio between contribution revenue and average income, changes in turnover duration and changes in pensioner life expectancy, as well as the return on buffer fund capital. In particular, the relationship between contribution revenue and average income is affected by the utilisation of resources in the labour market, which varies with the business cycle.

The state of the economy is often described in terms of how *actual* GDP values, employment, and other indicators relate to corresponding *potential* values.¹⁶ The difference between the growth of actual and potential variables can therefore be used as an approximate measure of cyclical adjustment of the ratio of contribution revenue to average income. As described above, the relationship between contribution revenue and average income is mainly influenced by the rate of change in the number of people with pension-qualifying income. Below, the rate of change in the size of the labour force is used as an approximation of the rate of change in the number of persons with pension-qualifying income. Based on this, a cyclical effect on the ratio of contribution revenue to average income is estimated.

The economic downturn triggered by the Covid-19 pandemic meant that the number of employed persons decreased and the number of persons outside the labour force increased. The employment rate fell for the first time since the financial crisis.¹⁷ The actual labour force for 2020 was lower than the potential one, while that of 2019 was slightly higher¹⁸, which according to the above reasoning would constitute a negative contribution to the balance ratio.

Turnover duration can also be affected by the business cycle. Delayed labour market entry, which often occurs especially in deeper recessions, tends to increase the earning age and thereby reduce turnover duration. In contrast, fund returns over the past 30 years have not tended to be correlated with indicators of the economic situation.

Effects of various alternatives on the balance sheet and balance ratio

To illustrate some possible scenarios, a number of stress tests are carried out on a simplified balance sheet and balance ratio. The examples are to be regarded as purely illustrative.

- Option 1: No change in contribution revenues, but the number of persons with pension-qualifying income adjusted for the difference between the actual and the potential workforce. As a consequence, the income index is adjusted downwards by 0.2 percent for 2020 and adjusted upwards by 0.4 percent for 2021.
- Option 2: Buffer fund returns are reduced by SEK 162 billion in 2020 (corresponding to the funds' results at mid-year 2020).

- Option 3: Lowest withdrawal age 63 in 2020¹⁹

Table 4.8 Simplified Income Statement and Balance Sheet

	2020	Change, alternative 1	Change, alternative 2	Change, alternative 3
Change in fund assets				
Pension contributions	295,499	0	0	0
Pension disbursements	-326,266	0	0	1,869
Return on funded capital ^a	130,865	0	-170,465	0
Total Change in fund assets	100,098	0	-170,465	1,869
Change in contribution assets				
Value of change in contribution income	182,990	0	0	179
Value of change in turnover duration	93,798	0	0	17,190
Total Change in contribution assets	276,788	0	0	17,369
Change in pension liability				
New pension credit	-304,394	0	0	0
Pension disbursements	326,257	0	0	-1,869
Indexation	-339,735	-34,977	0	808
Other	-645	0	0	0
Value of change in life expectancy	-10,503	0	0	90
Total Change in pension liability	-329,020	-34,977	0	-971
Net income for the year	47,866	-34,977	-170,465	18,267
Assets				
Fund assets	1,696,440	0	-170,465	1,869
Contribution assets	8,893,004	0	0	17,369
Total assets	10,589,444	0	-170,465	19,238
Liabilities and income				
Closing balance	806,196	-34,977	-170,465	18,267
Pension liability	9,783,248	34,977	0	971
Total liabilities and income	10,589,444	0	-170,465	19,238
Balance ratio	1.0824	-0.0031	-0.0174	0.0019

a. Including administration costs (which are assumed to be the same in alternative with reduced returns).

In the first option, the income index for 2021 is assumed to be higher than it actually was (due to fewer people with PGI) and slightly lower for 2020 (due to more people with PGI), which increases pension liability slightly and the balance ratio thus weakens marginally. The second option, which corresponds to the position of the buffer funds after the first half of 2020, and in which fund returns are reduced by approx. SEK 162 billion, has a significantly greater impact on the balance ratio.

It may also be noted that raising the minimum age for pension disbursement strengthens the balance ratio even under the assumption that contribution income does not increase, mainly because the payment age increases. If raising the minimum age also leads to increased labour force participation, the balance ratio is further strengthened.

Footnotes

1. Pension credit for the premium pension may be transferred between spouses. Transferred capital is currently reduced by 6 percent, since more transfers are made to women than to men and women on average live longer than men.
2. In 2020: $8.07 \times$ the income-related base amount = SEK 539,076.
3. In 2020: $0.423 \times 47,300 =$ SEK 20,008.
4. Self-employed persons pay a national pension contribution of 7 percent and self-employment charge of 10.21 percent.
5. This tax was SEK 20.6 billion in 2020; see [Chapter 8 Note 1](#).
6. $0.1721 / 0.93 \approx 0.185$
7. In addition there is the Sixth National Pension Fund, which is an asset in the inkomstpension system but provides no contributions and pays no pensions.
8. Capital-weighted return. For further information, see chapter 6 Changes in the Value of the Pension System, [section on measures of change in value in the premium pension system](#).
9. The balance index for the year 2017 and later will be calculated using the damped balance ratio (SFS:676). See also [Appendix B](#).
10. Next year's balance index is calculated by multiplying the balance index (103.66) by the change in the income index, multiplied by the damped balance ratio. See [Appendix A](#).
11. The inkomstpension is recalculated as the ratio between the new and the old income index divided by 1.016. In years for which a balance ratio has been set, the income index is replaced by the balance index.
12. These provisions concern the guaranteed pension for persons born in 1938 or later. For older individuals, other rules apply.
13. In 2020 the price-related base amount was SEK 47,300.
14. Details can be found in [Appendix B, Mathematical description of the balance ratio](#).
15. Since the income measure in the income index is based on the sum of pension-qualifying income without limitation of the ceiling on pension-qualifying earnings (uncapped PGI), differences in income growth above and below the earnings ceiling can in principle affect the balance ratio. However, in recent years, differences in the rate of change between contribution revenue and uncapped PGI have been small.
16. The levels that are consistent with stable inflation in the long run. See the The Swedish National Institute of Economic Research (2018) The Economic Situation in October 2018, pp. 75-79, for a further description of economic terminology.
17. SCB (2021) The labour market situation for the entire population age 15–74, AKU 2020 (in Swedish).

18. Swedish Pension Agency's calculations based on data from the National Institute of Economic Research's forecast from December 2020.
19. In this case it is assumed that earning is constant, that changes in the payment age will take full effect starting in 2020 and that no pensioners are born in 1958.

5. Costs of Administration and Capital Management

The amount of costs is an important factor for future pensions. Of the factors affecting pension capital, the size of costs is the one which the responsible authorities have the greatest opportunity to influence. In the case of premium pension, however, costs also depend on the saver's own choice of fund.

This section brings together gross¹ and net reported costs² and also transaction costs which are impossible for the National Pension Funds and the Swedish Pensions Agency to wholly quantify. The aim is to provide as complete a picture as possible of the total costs of the old-age pension system. It is important to keep in mind that net management costs and transaction costs have already had a negative effect on the performance of the funds.

Accounting for Total Costs

The total cost of insurance administration and capital management for the pension system, in addition to other charges, amounted to SEK 7.4 billion, of which SEK 2.5 billion is reported in the income statement of the pension system. The SEK 2.5 billion is the sum of insurance administration (SEK 1,441 million) and the operating expenses of the National Pension Funds (SEK 1,018 million). See [table 5.1](#).

Inkomstpension costs

For inkomstpension the costs reported in the income statement amounted in 2020 to SEK 1,918 million, of which SEK 900 million was for insurance administration and SEK 1,018 million was for National Pension Funds' operating expenses. In addition to the SEK 1,018 million in operating expenses, the National Pension Funds had fixed management fees of SEK 617 million. The sum of reported asset management costs as shown in the National Pension Funds' income statements thus amounted to SEK 1,635 million. Performance-based fees and transaction costs such as brokerage commissions are not reported as direct costs by the National Pension Funds but instead have a negative effect on returns. Performance-based fees are not ordinary management fees, but a way for the National Pension Funds to share risk and reward with their external managers. In total the National Pension Funds paid SEK 625 million in performance-based fees and SEK 269 million in brokerage commissions and other transaction costs. When these costs and fees are included, the sum total of costs for inkomstpension is SEK 3,429 million.

Premium pension costs

In the income statement of the Swedish Pensions Agency for the premium pension system are reported administrative costs of SEK 541 million. In previous years, in addition to administration costs, payments have also been made towards the cost of setting up the defined contribution pension system, a set-up loan which was repaid in 2018. The total cost of premium pension insurance administration amounted to SEK 578 million. See Total Insurance Administration in [table 5.1](#).

Within the premium pension system the item Management Fees refers to both fixed and performance-based fees that the premium pension funds, including the 7th National Pension Fund, charge after rebates have been returned to premium pension savers. The gross calculated premium pension funds' management fee amounts to SEK 7,362 million. Of this gross fee it is estimated that repayment from the funds provides SEK 4,854 million in the form of rebate. The net fee can then be totaled as SEK 2,508 million³. The rebate system limits the maximum fee charged. For equity funds the fee is limited to maximum 0.89 percent after returned rebate, for bond funds it is limited to 0.42 percent, and for mixed and generation funds it is limited to 0.62 percent. In addition to the SEK 2,508 million in fixed management fees an estimate of premium pension funds' transaction costs is also shown. Transaction costs consist primarily of commissions paid by the funds when trading in securities. As of 2020, this figure is based on actual figures provided by fund companies and estimated to be SEK 955 million in 2020. In total, some 320 funds reported their transaction costs, representing about 92 percent of total capital.

Table 5.1 Costs and Charges of the Old-Age Pension System

millions of SEK

	Inkomstpension	Premium pension	Total
Insurance administration			
Pension administration ^a	459	472	931
Payments to other agencies	441	69	510
Amortization and interest implementation loan			0
Total Insurance administration	900	541	1,441
Capital management costs and charges			
Operating expenses of the National Pension Funds (reported gross)	1,018		1,018
Management fees			
Fixed management fees (reported net)	617		617
Performance-based fees ^b	625		625
Total Management fees	1,242	2,508	3,750
Transaction costs ^c	269	955	1,224
Total Capital management costs and charges	2,529	3,463	5,992
Total	3,429	4,004	7,433

- The amount for the inkomstpension refers to actual cost, whereas the amount in [Note 4 in chapter 8](#) refers to the compensation paid by the National Pension Funds for costs of administration.
- This item represents fees that the National Pension Funds pay only if a particular manager achieves a certain agreed result.
- Transaction costs refer to brokerage and clearing fees charged on the stock and derivatives market. These charges are included in the transaction and have a negative effect on the return earned by the funds. Interest and foreign-currency transactions are paid for through the spread between buying and selling prices and thus cannot be reported as a separate charge. The calculation of premium pension transaction costs is now based on the reported costs of approximately 320 funds.

Costs over Time

Below, in [table 5.2](#) and [table 5.3](#), cost items are shown for the past five years and are reported in millions of SEK. Figures refer to SEK per number of insured (i.e., more than 8.6 million people with a pension account, including pensioners) and extends from 2001.

Table 5.2 Costs of the Inkomstpension

millions of SEK

	2016	2017	2018	2019	2020
Insurance administration					
Pension administration ^a	455	434	428	411	459
Payments to other agencies	406	432	421	406	441
Total Insurance administration	861	866	849	817	900
Capital management costs and charges					
Operating expenses of the National Pension Funds (reported gross)	890	953	956	1,016	1,018
Management fees					
Fixed management fees (reported net)	847	801	760	753	617
Performance-based fees ^b	372	442	331	406	625
Total Management fees	1,219	1,243	1,091	1,159	1,242
Transaction costs ^c	289	233	244	203	269
Total Capital management costs and charges	2,398	2,429	2,291	2,378	2,529
Total	3,259	3,295	3,140	3,195	3,429

a. The amount for the inkomstpension refers to actual cost, whereas the amount in [note 4 in chapter 8](#) refers to the compensation paid by the National Pension Funds for costs of administration.

b. Some adjustments have been made to fees in 2018.

c. See the explanation in [table 5.1 Total Costs and Charges of the Old-Age Pension System](#).

Table 5.3 Costs of the Premium Pension

millions of SEK

	2016	2017	2018	2019	2020
Insurance administration					
Pension administration	379	417	463	515	472
Payments to other agencies	63	68	66	63	69
Amortization and interest implementation loan	169	181	325	0	0
Total Insurance administration	611	666	854	578	541
Capital management costs and charges					
Management fees (net reported)	2,033	2,466	2,279	2,500	2,508
Transaction costs	428	519	551	646	955
Total Capital management costs and charges	2,461	2,985	2,830	3,146	3,463
Total	3,072	3,651	3,684	3,724	4,004

Figure 5.1 Insurance Administration, Inkomstpension

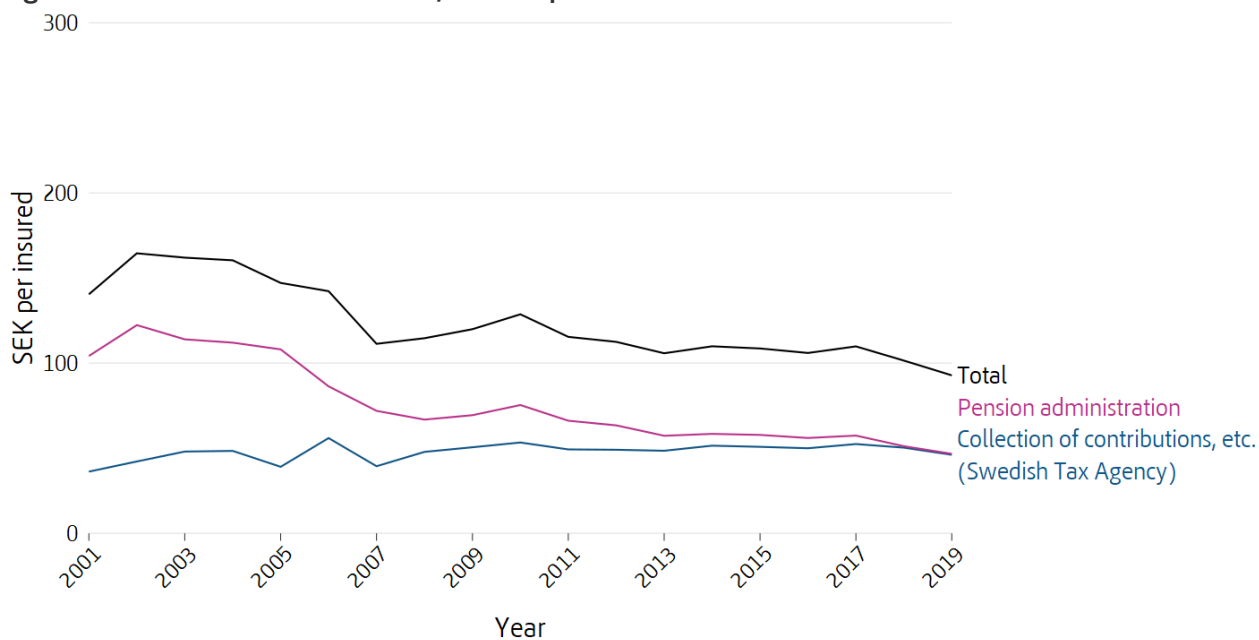


Figure 5.2 Insurance Administration, Premium Pension

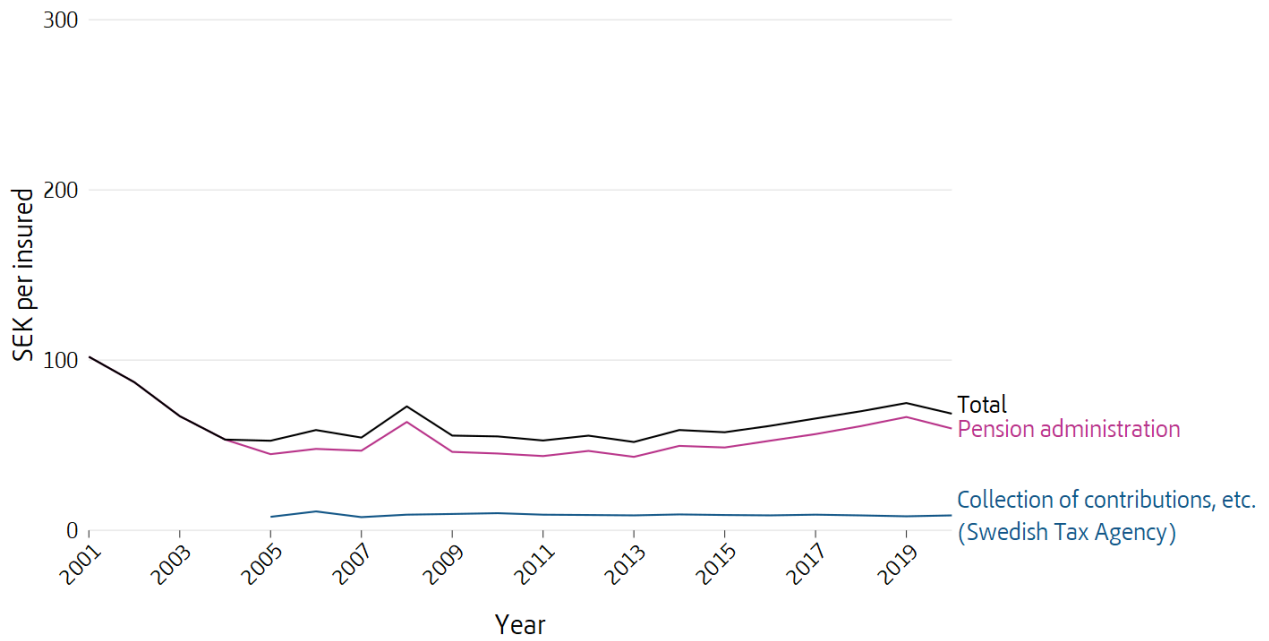


Figure 5.3 Capital management costs and charges, Inkomstpension

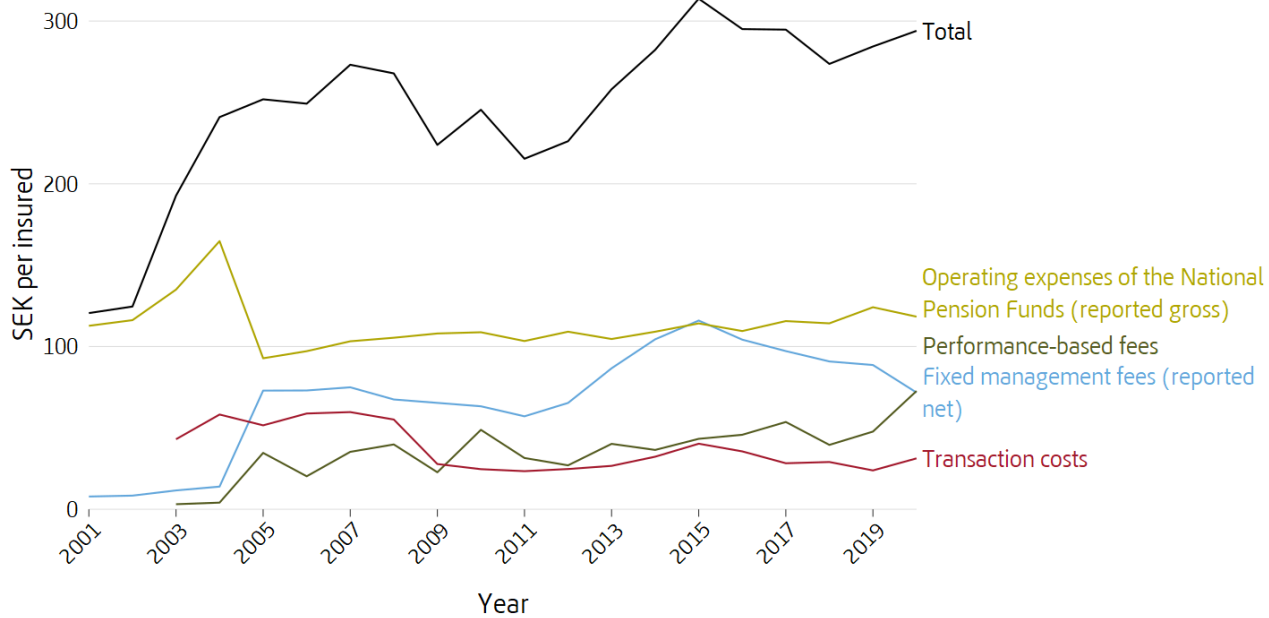


Figure 5.4 Capital management costs and charges, Premium Pension

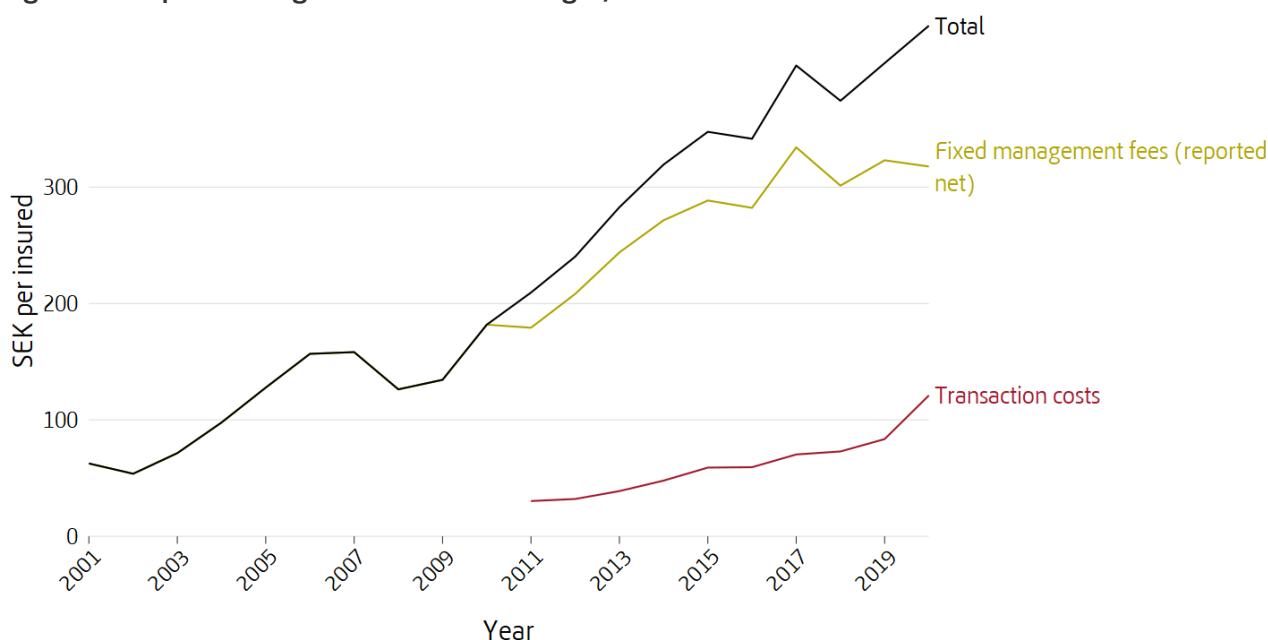


Table 5.2 shows that inkomstpension costs have been somewhat stable in the last five years. After declining during several years, insurance administration costs increased in 2020. Table 5.5 shows a certain reduction in asset management costs relative to assets managed.

Total premium pension capital management costs and fees have increased from 2019 to 2020, also in terms of cost per insured. The development of capital management costs and fees results from the fact that average managed capital has increased and that capital management costs are charged as a percentage of capital managed. A large part of the increase can also be explained by the new method of accounting for transaction costs. On the other hand, as a percentage of the capital, premium pension costs have decreased over the last five years. The rebate system used in the premium pension system is progressive, meaning that greater managed capital requires a higher percentage discount and thus lower fees. The annual cost is estimated on the basis of costs during quarters 1–3.

There are a number of cost items within insurance administration that are common to inkomstpension and premium pension. Examples are the production and distribution of the Orange Envelope, and reimbursement to the Swedish Tax Agency for tax collection, etc. Such costs are spread between the various branches of insurance in proportion to the number of insureds, volume of fees or other factors.

Capital Management Costs in Relation to Pension Capital Managed

In 2020 the total capital management costs for the First–Fourth National Pension Funds and for the much smaller Sixth National Pension Fund was 0.10 percent of the capital managed. The AP Funds' performance-based fees amounted to almost 0.04 percent, and transaction costs amounted to slightly

less than 0.02 percent of capital managed. The sum of asset management costs and fees totalled 0.15 percent of assets under management.

The capital management costs reported for funds within the premium pension system amounted after rebates to 0.17 percent, while the funds' transaction costs are estimated at 0.06 percent. The total of capital management costs and charges was thus 0.23 percent of the capital managed.

The percentual cost differences between the inkomstpension's funded assets and premium pension funds are explained partly by economies of scale within AP funds 1–4, partly because these funds invest approximately 35 percent of their capital in bonds or similar assets with low management costs compared to shares. In the premium pension system, approximately 10 percent of total assets are invested in holdings of this type.

Table 5.4 Average capital managed

billions of SEK

	2013	2014	2015	2016
Inkomstpension	1,008	1,121	1,207	1,276
Premium pension	527	662	829	854
	2017	2018	2019	2020
Inkomstpension	1,367	1,398	1,490	1,646
Premium pension	1,030	1,161	1,280	1,518

Table 5.5 Capital Management Costs in Relation to Capital Managed

percent

	2015	2016	2017	2018	2019	2020
Inkomstpension						
Reported capital management costs						
Operating expenses of the National Pension Funds (reported gross)	0.08	0.07	0.07	0.07	0.07	0.06
Fixed management fees (reported net)	0.08	0.07	0.06	0.05	0.05	0.04
Total Reported capital management costs	0.15	0.14	0.13	0.12	0.12	0.10
Performance-based fees	0.03	0.03	0.03	0.02	0.03	0.04
Transaction costs	0.03	0.02	0.02	0.02	0.01	0.02
Total Inkomstpension	0.21	0.19	0.18	0.16	0.16	0.15
Premium pension						
Reported capital management costs						
Fixed management fees (reported net)	0.25	0.23	0.22	0.20	0.18	0.17
Total Reported capital management costs	0.25	0.23	0.22	0.20	0.18	0.17
Transaction costs	0.05	0.05	0.05	0.05	0.05	0.06
Total Premium pension	0.30	0.28	0.27	0.25	0.23	0.23

Insurance Administration Costs in Relation to Pension Balance/Capital

To cover the AP funds' reported expenses for inkomstpension, a cost deduction is made from the pension balances each year. For the year 2020, cost deduction for inkomstpension from pension balances was 0.0305 percent. The deduction for costs is only made during the accumulation phase and not when the pension is disbursed. Neither the fixed net reported management fees of 0.04 percent of assets managed nor the performance-based fees nor the trading costs of 0.02 percent of assets managed are charged to pension savers through cost deductions.

The net reported costs are charged to the buffer capital in the AP funds, but unlike the gross reported costs are not financed through a deduction from pension savers' inkomstpension accounts.

In 2020 the deduction for administrative costs for premium pension insurance was on average 0.04 percent of the premium pension capital. The maximum cost charged in 2020 was SEK 100 per account holder. The premium pension has, just like inkomstpension, small periodic discrepancies between fee charged and the actual cost. These deviations too are corrected continuously.

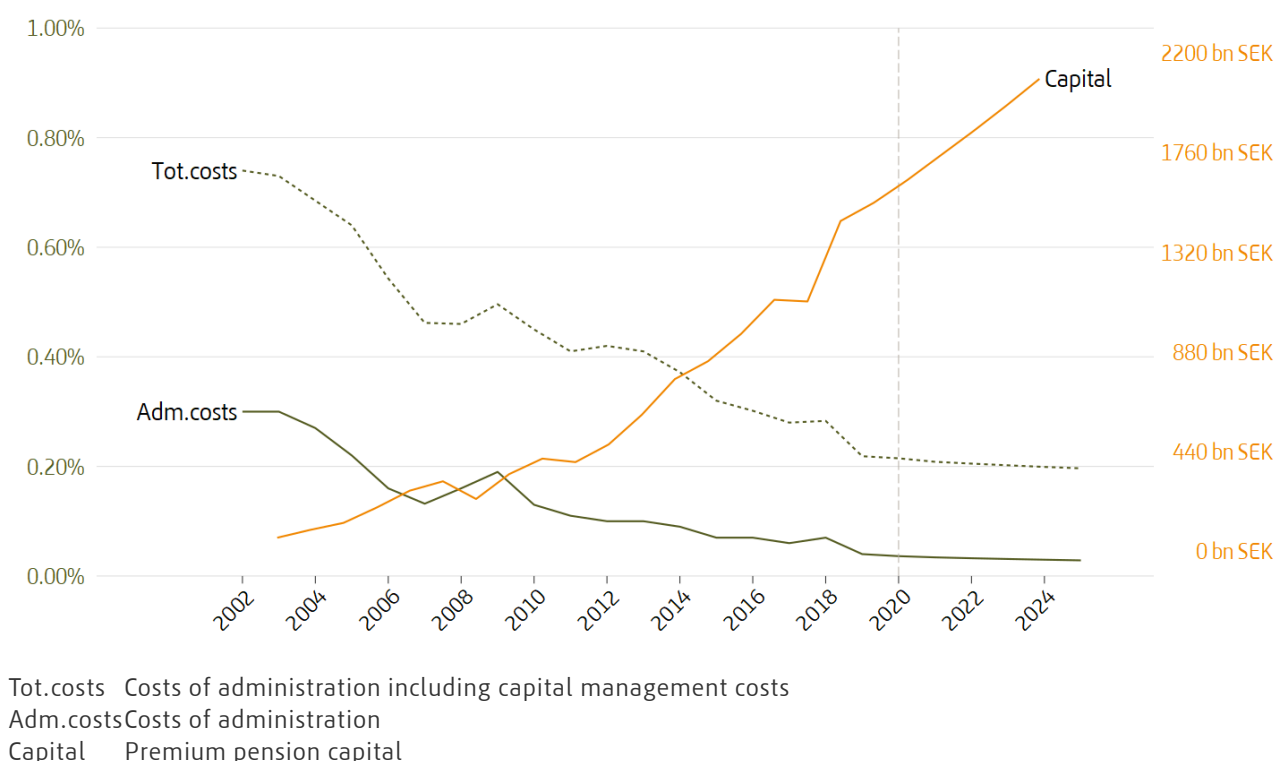
Table 5.6 Insurance administration costs

percent

	2014	2015	2016	2017	2018	2019	2020
Inkomstpension^a	0.0326	0.0284	0.0302	0.0305	0.0310	0.0288	0.0305
Premium pension	0.09	0.07	0.07	0.06	0.07	0.04	0.04

- a. The cost deduction for inkomstpension also includes costs incurred by the National Pension Funds . The deduction is made up until the point where the first payment is made.

Figure 5.5 Premium pension costs and capital



What Difference Do Costs Make in the Size of a Pension?

Costs are an important factor in determining the size of a future pension. A seemingly low annual fee can reduce the pension by a considerable amount since the fee is deducted annually over a long period. Of the factors affecting pension capital, the size of costs is the one which the responsible authorities have the greatest opportunity to influence. Also the insured are able to influence certain costs for the premium pension.

The following simplified calculation provides a fairly accurate portrayal of how a certain cost percentage affects the size of the pension disbursed. The average time for which a paid-in contribution remains in the inkomstpension system before being disbursed is roughly 21 years.

If the cost of the inkomstpension is 0.03 percent, the charge for administrative costs will reduce the inkomstpension to $(1-0.0003)^{21}$ which is about 99 percent of what it would have been without the charge, or by roughly 1 percent. If premium pension costs are 0.23 percent, the deduction will reduce the premium pension by just over 7 percent $(1-0.0023)^{33}$ of what it would have been without the cost deduction. The reason for the deduction being made over 33 years is that in the premium pension system, pension capital is annually recalculated with costs deduction even during the period of retirement. The expected return is slightly higher, which contributes to a longer turnover period. A fairly normal management fee in Sweden for saving outside the national pension system is around 1 percent – not infrequently, it is even higher. If the charge for costs for the same period as in the example above is 1 percent, pension capital savings will be 72 percent of what they would have been with a fee of 0 percent; in other words, 28 percent is lost in charges for costs.

Footnotes

1. The pension system's income statements for inkomstpension and premium pension show the costs that the Swedish Pensions Agency and the National Pension Funds report as expenses in their own income statements as "gross reported costs."
2. The asset management costs of the National Pension Funds and the premium pension system which are 'net reported' against revenue and net fund return are not visible in the income statement of the pension system. The concept of net reported costs refers here to such costs as those which in the National Pension Funds' income statement consist of fixed management fees and which in the premium pension income statement are used as the net for items named management fees and discounts on management fees.
3. These costs are preliminary and are based on an upward adjustment of costs for the quarters 1–3. The amount does not include management fees relating to traditional insurance of SEK 11.5 million. This cost is net reported through a reduction in return on funded capital (see [note 17 in Chapter 8](#))

6. Changes in the Value of the Pension System

Sweden's national pension is based primarily on earnings. In each of their economically active years, gainfully employed individuals contribute a certain portion of their income toward a pension. The bulk of their contribution goes to the inkomstpension system, a lesser share to the premium pension system. Pension credit is accumulated over a long period, 40–45 years, sometimes even more. The size of future pensions will thus depend on the change in the value of contributions paid into the system. For example, someone who deposits a constant amount each year for 40 years, at an annual interest rate of 2 percent, will end up with a final balance that is 54 percent higher than that of a saver with no return.

In the inkomstpension system the change in value is normally determined by the percentage increase in the income index. This index follows the average growth rate in the earnings of the economically active. In the premium pension system, on the other hand, the change in value is determined by the return on the funds of pension savers. For pensioners who have opted for traditional insurance, the increase in value is determined by the rate of return decided by the Pensions Agency, based on the increase in value of the assets invested in by the Pensions Agency.

The discussion below applies hereafter to the development within fund insurance. A significant difference between the inkomstpension and premium pension system is that the change in the value of the inkomstpension is the same for everyone, whereas the return of the premium pension may vary from one individual to another, depending on the type of funds chosen.

Changes In Value During 2020

The pension balance in the inkomstpension system is normally written up in step with the income index, but during a balancing period, the balance index is used. Between 2010 and 2018, there was a period of rebalancing.

The change in value only occurs at the turn of the year for the income/balance index, unlike the premium pension system, where changes are ongoing. Indexation between 2020 and 2021 was 2.2 percent (see the year 2020 in [table 6.1](#) below). It was thus by this percentage that earned inkomstpension credit of employed persons was changed at the end of the year.

For pensioners the inkomstpension and the ATP are recalculated each year by the change in the income-/balance index, reduced by 1.6 percent. The reduction is due to the fact that an advance interest rate of 1.6 percent has already been credited to the inkomstpension in the annuity divisor.¹

During a balancing period, inkomstpension is affected by the development of capital markets because the value of the AP funds is included in the calculation of the balance ratio. AP funds value represents almost 16 percent of reported assets and the impact is therefore not extensive. The decrease in the market value of investments in the record drop of 2008 was one of the main reasons why balancing was activated in 2010. The positive return has subsequently contributed to higher indexation of inkomstpension and to the ending of balancing in 2018.

Change in value of the premium pension system is wholly determined by developments in capital markets. After a positive development on the global (calculated in SEK) as well as Swedish stock markets in 2019, the rise continued during the beginning of 2020. This was followed by a dramatic decline in the spring as a result of the coronavirus pandemic. However, capital markets recovered and the 2020 change in value of premium pension funds was finally 6.4 percent.

Table 6.1 Annual Indexation of Inkomstpension Accounts and Return on Premium Pensions

percent

	Income-/balance index	Premium pension index ^a
2004	2.4	8.8
2005	2.7	30.6
2006	3.2	12.1
2007	4.5	5.7
2008	6.2	-34.2
2009	-1.4	34.7
2010	-2.7	12.2
2011	5.2	-10.7
2012	5.8	12.1
2013	-1.1	21.1
2014	2.5	20.7
2015	5.9	6.4
2016	4.4	10.9
2017	2.6	12.6
2018	3.1	-3.4
2019	3.8	29.5
2020	2.2	6.4

a. The premium pension index measures how much an amount paid into the system at a certain point in time has changed over a certain period (so-called time-weighted return). In this case the period is the same as a calendar year. The return for individual pension savers will normally have varied depending on the funds that they have chosen.

Measures of Change in Value in the Premium Pension System

The change of value in the premium pension system can be measured in several ways. The measures presented in this chapter are so-called time-weighted return and capital-weighted return. Another term for capital-weighted return is internal rate of return.

Time-weighted return is used to describe the change in value of a fund or an index. The time-weighted return shows the return on one krona deposited at the outset of the period. No consideration is given to whether deposits or withdrawals have been made during the period.

Capital-weighted return can be used for evaluating the premium pension on an overall basis, but also individual accounts. Consideration is given to the

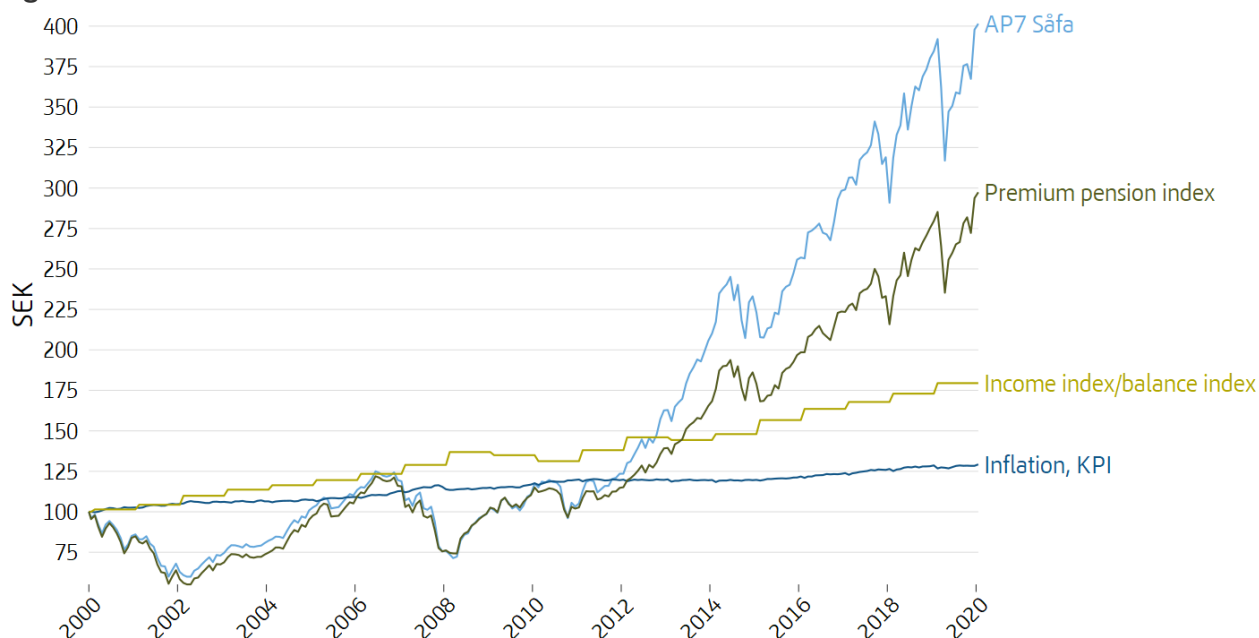
timing and amount of all deposits and withdrawals for the account, and to the balance at the end of the period. The capital-weighted return matches the average annual interest rate during the period.

In the section [Income and Premium Pensions as Complementary](#), time-weighted return is used, whereas capital-weighted return is used in the section [Change in Value of Pension Savers' Accounts](#). (For a more thorough description of the time- and capital-weighted return, see [Appendix A](#).)

Income and Premium Pensions as Complementary

One reason for establishing the premium pension as complement to the inkomstpension was that variations over the years in the growth of earnings and return on capital could tend to offset each other. Development over time shows that these indexations do not necessarily follow each other (see [table 6.1](#) above). The importance of spreading risk may increase in the future, when the premium pension funds' share of total pension capital increases.

Figure 6.1 Value of SEK 100



Value of SEK 100 paid into the inkomstpension system in December 2000 (income-/balance index) and into the premium pension system (premium pension index and AP7 Sâfa). Inflation is included as a reference.

In December, 2000, premium pension savers could begin investing their capital in the funds of the system. Before then, the capital had been under temporary management, which had invested it in an interest-bearing account with the Swedish National Debt Office (Riksgälden). The value of an amount deposited at the start in 2000 has varied substantially over the years. Indexation of the inkomstpension have however remained relatively stable.

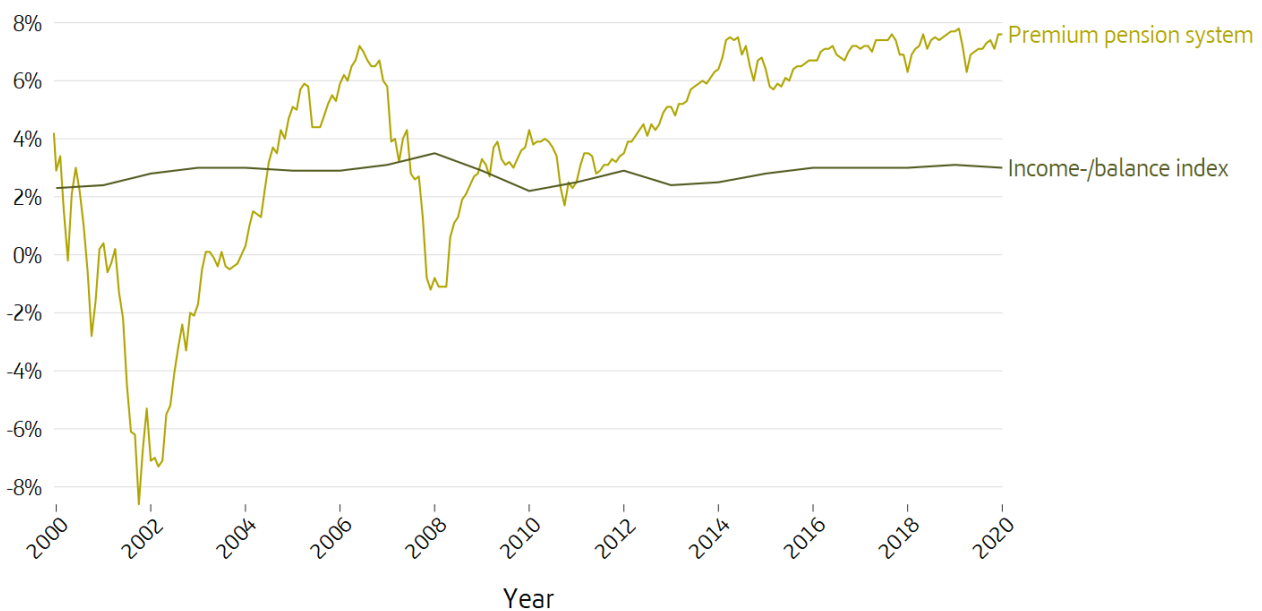
Those who refrained from selecting funds, and thus had their moneys invested in the AP7 Sâfa, the Central Government Fund Management Alternative (Statens Årskullsförvaltningsalternativ), had by December 31, 2020 obtained a return on moneys invested in December, 2000, greater by

104 percentage points than that of the average fund saver (premium pension index, which includes AP7 Sâfa).

Changes in Value of Pension Savers' Accounts

The time-weighted return shown above does not take into account changes in the amount of capital during the period of saving, most notably deposits, but disbursements as well. For individual savers, but also for the premium pension system as a whole, it is important to show the return as measured by the capital-weighted rate of return. One reason why this is the case is that the aggregate deposits on pension savers' accounts have grown significantly over time, as the system is under construction. For example, the funds included almost twice as much capital in December 2019 as in December 2014. In the subsequent years, i.e., 2020 and 2015 respectively, the time-weighted returns were the same (see [table 6.1](#)), but the amount that could benefit from this positive return was thus much larger in 2020. The capital-weighted rate of return takes this difference into account by assigning greater weight to 2020 than to 2015.

Figure 6.2 Average Capital-Weighted Rate of Return for All Premium Pension Savers up to Different Points in Time during the Years 2000–2020



Each point on the curve shows the average annual internal rate of return (after 1995) until the time concerned.

Figure 6.2 shows the progression by year of the average annual capital-weighted rate of return for the premium pension built up at different points in time, as well as the corresponding rate of return if the premium pension had instead developed like the income/balance index. With this return, the capital-weighted rate of return through the end of 2020 would have been 3.0 percent per year. This may be compared with the actual average capital-weighted rate of return for the premium pension, 7.6 percent through 2020. The diagram shows that the corresponding calculation through 2008 was minus 0.8 percent for the premium pension system and plus 3.5 percent if the premium pension system had developed like the income/balance index.

Note that the curve does not show the actual capital-weighted rate of return for inkomstpension savers, since the capital structure of the inkomstpension system is considerably different.

Figures 6.1 and 6.2 reflect two points of view for the saver, based on time-weighted and capital-weighted return as explained above. In the first diagram SEK 100 is deposited in the premium pension system in December, 2000, and it is worth about SEK 297 at the end of December, 2020. The value reached its low point of SEK 55 during 2002–2003. To take into account the deposits of premium pension savers into the system each year, and the long-term nature of pension saving, the second diagram shows the average annual capital-weighted return up until a certain point in time. The average annual capital-weighted return on moneys paid into the premium pension system was 7.6 percent in December, 2020. The annual average capital-weighted return was lowest, at -8.6 percent, in 2002 and highest, at 7.7 percent, in 2019. As the premium pension system matures, the annual variation in capital-weighted return will diminish, as is clearly shown in the diagram.

Figure 6.3 shows the average capital-weighted rate of return for pension savers sorted according to their first year of contributing to the system. The difference in return decreases the longer the birth cohorts have participated and been paying into the system. Pension credit earned in 2019 was invested in funds in December 2020; this also applies to new savers who had made no active fund choice. Prior to the earning year 2017, capital for new savers was invested in April of the following year.

Figure 6.3 Average Capital-Weighted Rate of Return Annually from the Saver's First Pension Qualifying Year

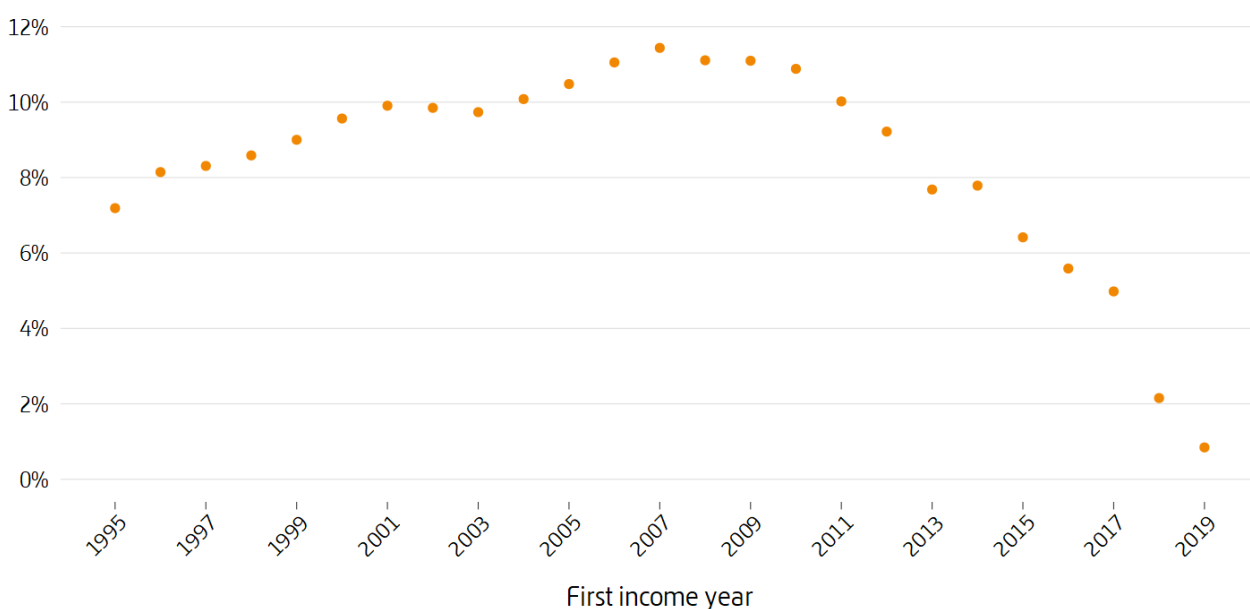
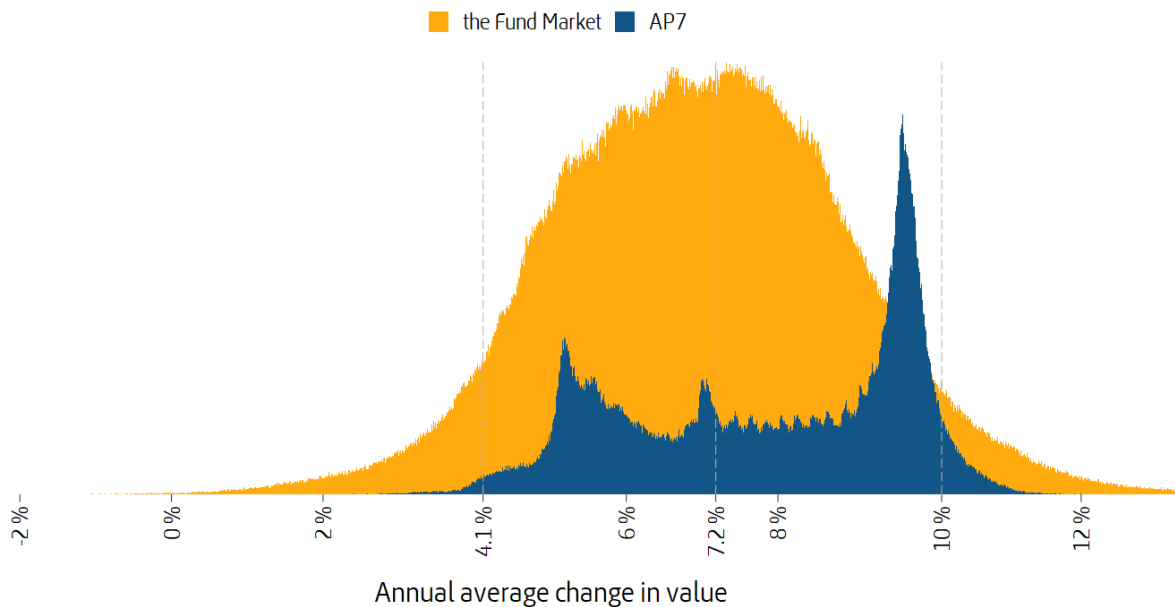


Figure 6.4 shows the distribution of the capital-weighted rate of return among pension savers who have been in the system for an equally long time. Among pension savers who began earning pension credit in 1995 and

who then invested it in funds in 2000, just over 99 percent reported a positive change in value at the end of 2020. The figure is divided into those who at some time made an active choice (the Fund Market) and those who never made an active fund choice (AP7). The fact that return differs among those who only had the national pre-selected alternative is mainly because the distribution between the two funds involved, AP7 Equity Fund and AP7 Fixed Income Fund, varies according to the age of fund savers.

Figure 6.4 Pension Savers who Began Earning Pension Credit in the Premium Pension System 1995, Sorted According to Annual Capital-Weighted Rate of Return up to and including 2020.



The dashed lines indicate the median and the percentiles for 5 and 95 percent.

Since the data refer to participants since 1995, the explanation for the spread is not that they entered the system at different times. Compare [Figure 6.3](#), which shows the distribution by first year of credit earning. Rather, the principal reason is the choice of fund investments with differences in rate of return.

[Table 6.2](#) below summarizes the average annual change in value with the time- and capital-weighted rates of return during the existence of the premium pension system. From 1995 on, allocations were set aside for the premium pension, but not until December, 2000, were the moneys paid into funds. During the period 1995–2000 the moneys were invested in interest-bearing assets.

Table 6.2 Nominal Average Annual Change in Value and Inflation, Respectively

percent

	1995–2020	2000–2020
Premium pension index (time-weighted)	5.4	5.6
Premium pension (capital-weighted)	7.6	7.8
Income/balance index (time-weighted)	2.8	3.0
Income/balance index (capital-weighted)	3.0	3.1
Inflation	1.1	1.3

Importance of a Long-Term View

The aspects of the pension system that relate to its change in value cannot be judged on the basis of the changes in value over only a few years. The importance of a long-term view is easily underestimated, both when stock prices are rising and when they are falling. For the 90-year period 1924–2014, the average real rate of return globally was 6.1 percent per year. However, this does not guarantee such a return in 10 or even in 20 to 30 years. For different 10-year periods since 1930, the real rate of return has varied considerably, on the Stockholm Stock Exchange, from 23 percent per year (1980–89) down to negative figures in certain other periods. There have often been major changes between adjacent 10-year averages, both on the Stockholm Stock Exchange and world-wide.

One conclusion is that “long term” is not 5–7 years, or even 10 years, as is sometimes said, but that in the matter of equity returns one should imagine a much longer period. In the context of pensions, it is reasonable for younger people to have a 30–40-year perspective. Historically, the real value development for longer periods has also been much more stable. Only over a term of at least 35 years is the real value growth for global equities comparable in stability with Swedish real wage development over 10 years. Real wage growth is the factor above all that governs the value growth of inkomstpension. The real wage per employee increased over the period 1918–2012 by an estimated 2.1 percent per year, thus significantly slower than the annual 6.1 percent of real stock returns. The difference was most pronounced during the 1980s and 1990s.

Footnotes

1. For a more detailed description of the income index and the balance index, see [chapter 4 How the National Pension System Works](#).

7. Three Scenarios for the Future of the National Pension System

To show how different developments can affect the long-term financial position of the national pension system and the size of pensions, projections are presented for the evolution of the pension system over the next 75 years in.

This section is primarily based on calculations made using the Swedish Pensions Agency's Pension model. The agency's Typical-case model has also been used. These models may be found on the [agency's website](#). Projections of the pension system are as usual based on the system's financial position at the latest year-end. Last year, there were concerns that the Covid-19 outbreak would have a major impact on the financial position of the pension system. However, pension contributions for 2020 were slightly higher than 2019 despite rising unemployment, and the market value of AP funds on 31 December 2020 was higher than in 2019. The higher mortality rate among the elderly is not captured by the model simulations, being based on demographic assumptions from previous years generated by Statistics Sweden.

The long-term financial position of the inkomstpension system is described below in three different projections, or scenarios. These are referred to as the base, optimistic and pessimistic scenarios.

There is also an alternative baseline scenario in which retirement ages follow the expected recommended retirement age.

The following three aspects of financial position treated are:

- Net contribution
- Fund strength
- Balance ratio

The net contribution is the difference between the system's contribution revenue and pension disbursements. For a better comparison, the net contribution is expressed in the scenarios as a percentage of total paid-in contributions; this adjusts for the volume effect of long-term economic growth. The net contribution is currently -10.4 percent.

Table 7.1 Net Lending of the Inkomstpension System^a

billions of SEK

	2020
Primary net lending	
Net contribution	
Contribution	295
Pensions	-326
Total Net contribution	-31
Costs of administration etc., net	-2
Total Primary net lending	-33
Return	
Interest income	8
Dividends on shares	17
Total Return	25
Net lending	-8

a. There may be some minor deviations from the National Accounts.

The net contribution corresponds (after deduction for costs of administration etc.) to the *primary* net lending of the system. Total net lending includes the net return of the National Pension Funds, which consists of interest income and dividends on shares.

Net lending contributes to the change in the size of the National Pension Funds. In addition, there are upward and downward fluctuations, sometimes considerable, in the market value of the securities held. In 2020, the total return generated by the buffer funds (First – Fourth and Sixth AP Funds) was SEK 133 billion.

Fund strength is the market value of National Pension Fund capital divided by pension disbursements for the year. Fund strength shows how many years of pension disbursements can be financed by the fund. For the year 2020 fund strength was 5.2 years.

The balance ratio is a measure that summarizes the financial position of the inkomstpension system. The balance ratio is the ratio between the total assets of the system and its liabilities. The assets consist of the contribution asset with the addition of the market value of the National Pension Funds. (For a more detailed discussion, see [chapter 4 How the National Pension System Works](#) and [Appendix B Mathematical Description of the Balance Ratio](#)). Calculated on the basis of assets and liabilities as of December 31, 2020, the balance ratio was 1.0824.

The future financial position of the inkomstpension system will depend on the development of several demographic and economic factors. The three scenarios studied differ in the following respects:

- Demographic development
- Change in average income
- Return on the National Pension Funds

The detailed assumptions for the scenarios are presented last in this chapter under the heading [Assumptions in the Calculations for the Three Scenarios](#). A key factor in demographic development is the number of **contributors**, which is determined by the number of people of working age and the proportion of these who have earned income or other pension-qualifying and contributory income.

The development of the working-age population depends primarily on net immigration and – in the longer term – the birth rate. The development of the number paying contributions is of significance for the financial position of the system. Pensions and the pension credit earned by the gainfully employed are revalued annually by the change in average income (the income index, or the balance index in years when balancing is activated). If there is an increase in the number of people with incomes who are paying contributions, the consequences will be that the net contribution, the buffer fund and the balance ratio all increase.

The change in the **average income** of the economically active is of limited importance for the net lending of the pension system, for pensions are linked to the income index, which follows average income. A change in average income results in corresponding changes in both contribution inflow and pension disbursements. In principle, therefore, a change in average income will have no effect on the relative net contribution. The value of the inkomstpension will of course be heavily influenced by the change in the income index.

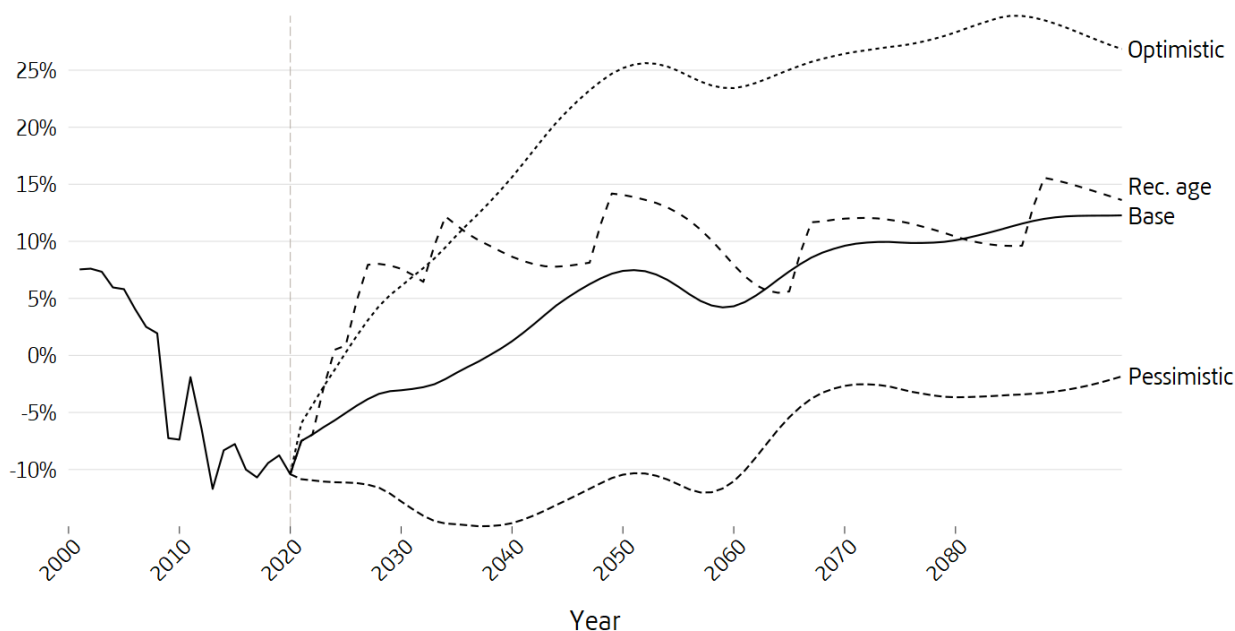
The **return** on the National Pension Funds affects the size of the Funds and thus fund strength and the balance ratio as well. The negative effect of weak growth in the net contribution on fund strength and the balance ratio can be offset by a high return on fund capital. In the base scenario, the real annual return assumed is 3.25 percent; in the optimistic and pessimistic scenarios, the respective returns assumed are 5.5 percent and 1.0 percent. A factor of importance for both fund strength and the balance ratio is the difference between the return and the average income. This is due to the fact that both pension disbursements and the system's pension liability grow at the same rate as average income, whereas the market value of the National Pension Funds grows with the return and is included in the numerator both for the measure of fund strength and for the balance ratio. See [Appendix B Mathematical Description of the Balance Ratio](#).

In summary, the net contribution will be negative in the base and pessimistic scenario for many years to come. Pension disbursements are thus forecast to exceed contribution revenue for these scenarios.

Net Contribution

As previously noted, the net contribution is the difference between contribution revenue and pension disbursements in relation to contributions. Since the birth cohorts in the population differ in size and have worked to differing degrees, the contribution revenue and pension disbursements of the system will vary over time. For a better comparison of the net contribution in the three scenarios, the net contribution has been divided by the inflow of contributions in the scenario. This eliminates the volume effect of the differing growth rates on the net contribution in monetary terms.

Figure 7.1 Net Contribution



Contribution revenue less pension disbursements as a percentage of contribution revenue.

The net contribution was negative for the first time in 2009 and is expected to remain so for many years in the base and pessimistic scenarios. The explanation is that the large birth cohorts of the 1940's almost completely have left the labour force and retired. The negative balancings of 2010, 2011 and 2014 appear in the diagram as improvements in the net contribution. Around 2020 the net contribution begins to slowly improve and the contribution deficit to slowly decrease. From 2038, income is expected to be greater than expenditure in the base scenario. The principal reason is that the large birth cohorts of the 1990s and the 2010s will be of working age at the same time as the cohorts of the 1960s with pension disbursements will be decreasing; see [Figure 7.10](#) at the end of this chapter. If pension-related age limits are raised in accordance with the proposals in DS 2019:2 (Raised Age Limits in the Pension System and in Other Social Security Systems) and occur under the conditions in Statistics Sweden's population projection from 2020, the net contribution will be positive as early as 2024.¹ With each increase in the recommended retirement age, net contribution grows and then declines until the next increase in the recommended retirement age. The decline is due to pension disbursements being higher than in the base scenario due to retirement being postponed.

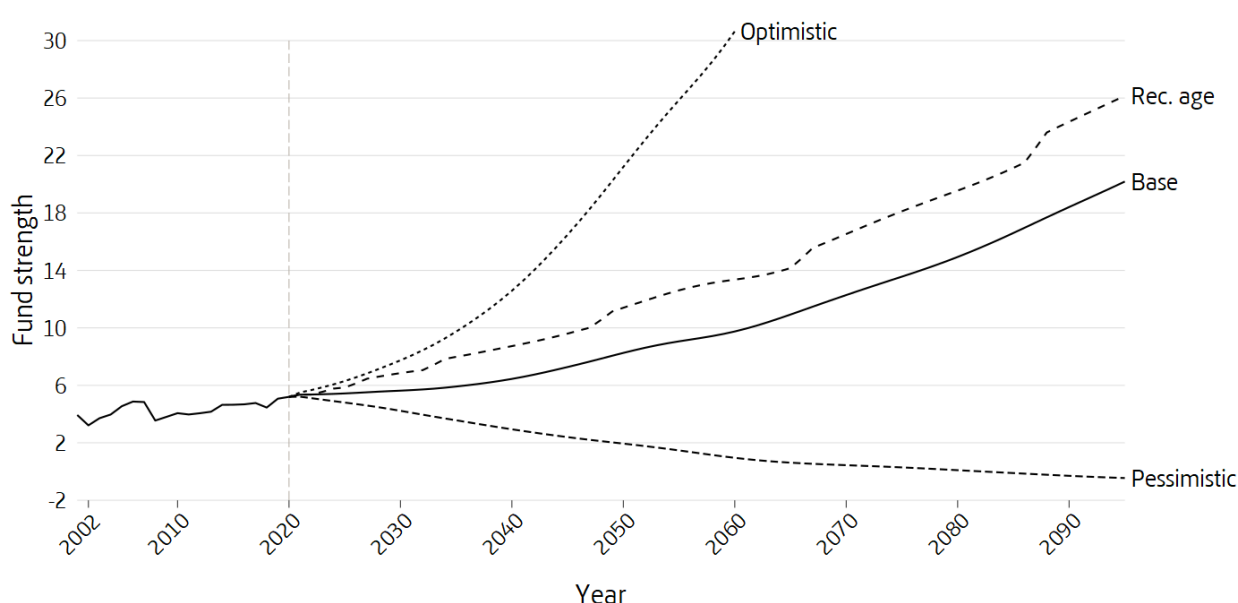
The effect of demography is also reflected in the peaks and troughs in the figure above. The difference in timing of the peaks and troughs between the pessimistic and other scenarios is due to different demographic assumptions. In the pessimistic scenario, net contribution is negative throughout the whole period, but in the optimistic scenario up until and including 2025 The pessimistic scenario has low net immigration and reduced birth rate (see [Figure 7.10](#)).

The Buffer Fund – Fund Strength

The size of the buffer fund is expressed in terms of fund strength, that is, the fund capital at year-end divided by pension disbursements for the year. Fund strength shows how many years of pension disbursements the fund can finance without additional contributions or return in the future. The different development of the buffer fund in the three scenarios is due to differences in net contribution and in the assumed return on the fund.

Fund strength has averaged 4–5 years since 1990. At the end of 2020, it was 5.2 years.

Figure 7.2 Fund Strength



Size of buffer fund divided by pension disbursements the same year.

In the **base scenario**, fund strength increases as the contribution net is assumed to have a positive development combined with the fact that the funds' return (3.25 percent) is expected to exceed average income growth (1.8 percent). If retirement ages are raised concurrently with the **recommended retirement age**, fund strength will be even higher because net contribution will be positive earlier than in the base scenario with no retirement age increases.

In the **optimistic scenario**, fund strength grows faster than in the base scenario, which is explained by a stronger improvement in the contribution net and a greater difference between fund return (5.5 percent) and average income growth (2.0 percent). In 2028, fund size corresponds to 7 years of pension disbursements.

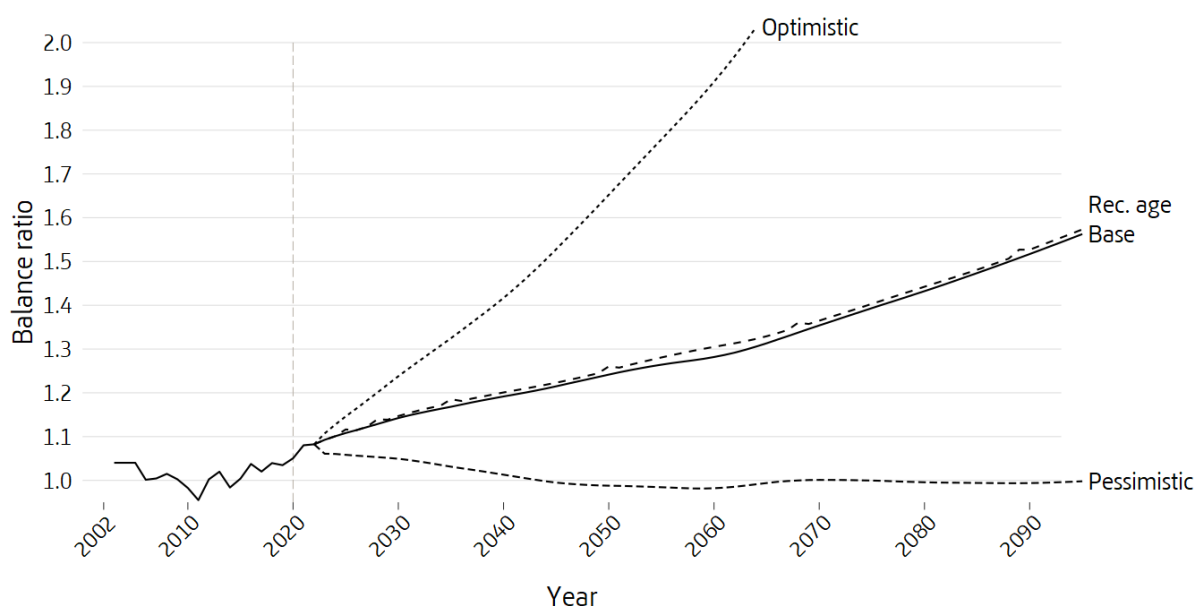
In the **pessimistic scenario**, average income growth is equal to as the fund return (1.0 percent). Due to the unfavourable age composition, the fund will be depleted by 2083 and will continue to drop.

The Balance Ratio

The financial position of the inkomstpension is expressed in terms of a ratio: the system's assets in relation to pension liabilities (see the section [A Rate of Interest Other Than the Income Index – Balancing in chapter 4 How the National Pension System Works](#)). When the ratio is less than one, liabilities exceed assets. A ratio of 2.0 means that assets are twice as great as liabilities and that the system in principle is fully funded, that is, the buffer fund, the contribution asset and the pension liability are of equal size.

In 2010 balancing was activated, and it ended in 2018. When balancing is activated, “interest” is credited to pensions and pension balances through the change in the income index and the balance ratio. As long as balancing is activated, the cumulative indexation is less than it would have been without balancing but in the years the balance ratio is greater than 1 during a balancing period, indexing is greater than that of the income index.

Figure 7.3 Balance Ratio



(Contribution asset + buffer fund) / pension liability

In the **base scenario** the balance ratio is greater than 1 throughout the projection period. In the base scenario the balance ratio strengthens gradually because of demographic factors and the fact that the return on the buffer fund is greater than the income index. The balance ratio reaches 1.1 around 2024, a level that according to the proposal in “Utdelning av Overskott i inkomstpensionssystemet” (Distribution of Surpluses in the Inkomstpension System, (SOU 2004:105) would mean that there were distributable surpluses. However, no such proposal has been presented to the Swedish Parliament.

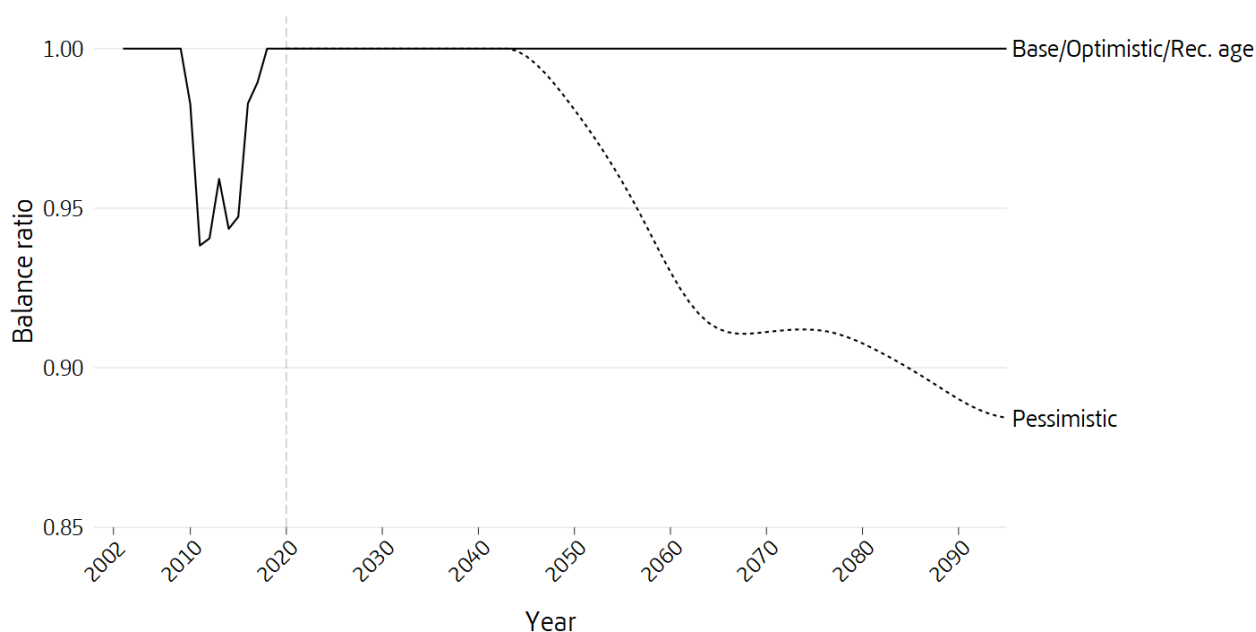
In the **recommended retirement age alternative** and the baseline scenario, the curves follow each other because the assumptions are the same and the increase in pension credit implies an equal increase in pension liability.

In the **optimistic scenario** the balance ratio is also greater than 1 throughout the projection period. As of 2023 the balance ratio exceeds 1.1.

In the **pessimistic scenario**, the balance ratio lies between 0.981 and just over 1 throughout the whole projection period. A new balancing period will occur in 2044. After 2069 and for some years following, the balance ratio will be just over one but then it will drop again.

The figure for the balance ratio does not show the damped balance ratio but the balance ratio as a measure of the financial position of the pension system. The damped balance ratio is that which in combination with the income index affects the upward adjustment of pensions and pension balances during balancing periods. The effects of this are shown in the table for the Cumulative balance ratio product and in [Figure 7.4](#). The balancing period that starts in 2044 in the pessimistic scenario continues throughout the whole projection period, despite the balance ratio being temporarily greater than one at the end of the 2060s.

Figure 7.4 Adjusted Balance Index



Balance Index / Income Index

Premium pension

In addition to projections of the development of the distribution system, the Swedish Pensions Agency has calculated the development of premium pension during the same period. The scenarios are the same: base, optimistic, pessimistic, and base alternative with recommended retirement age increases.

Somewhat simplified, the calculation is based on the premise that premium pension return is evenly distributed for different ages, and that it remains constant throughout the simulation period. Of course that is not realistic. The variation from year to year is likely to resemble the high variation that has been seen historically. Nevertheless, since the purpose of the calculation

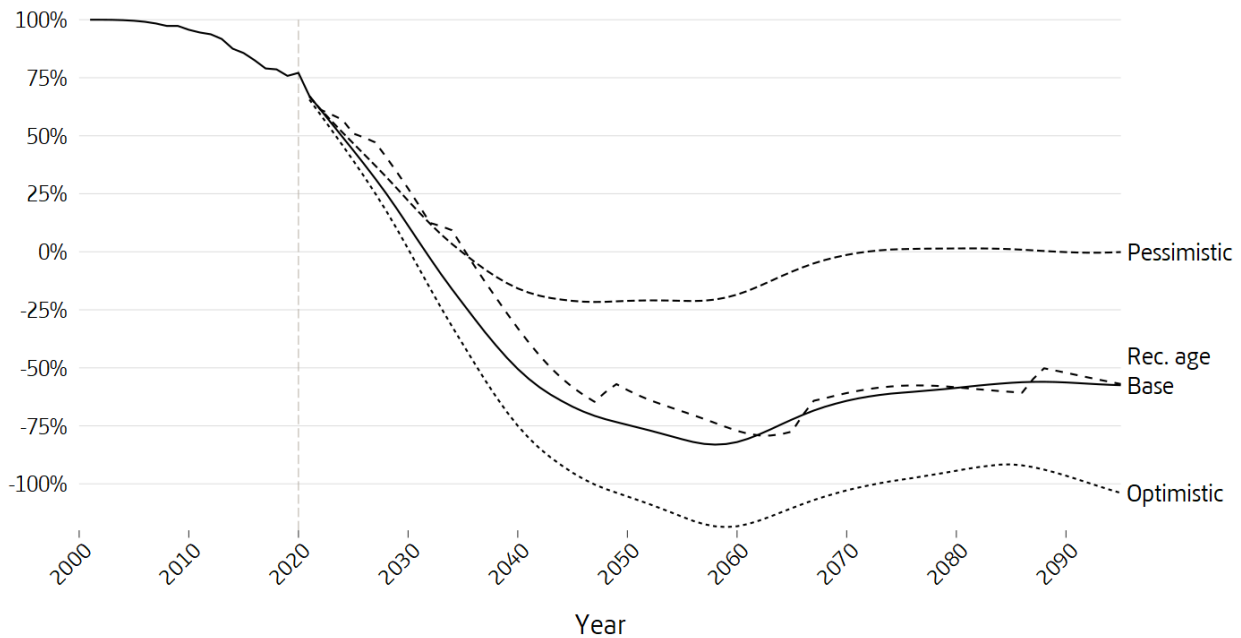
is to demonstrate long-term, average features, it ignores the expected volatility.

All three scenarios have the same historical development of premium pension fund return up to and including the starting year for the projections. The average time-weighted fund return from the start of the premium pension in 1995 up to 2020 amounts to 5.4 percent. Fund return is then assumed to be the same as in the optimistic and pessimistic scenarios' assumption of real buffer fund return. This means 5.5 percent for the optimistic and 1.0 percent for the pessimistic scenario. In the base scenario, premium pension return is 3.90 percent. In addition, inflation is 2.0 percent. As well as return on premium pension, there is an assumption of annual interest in the so-called temporary administration, the time from when the pension premium is paid by the employer or the state until it is placed in the pension saver's account. This covers an approximate time span of 18 months. The interest rate during temporary administration is assumed to be nominally 2.75 percent in the base scenario, 3.0 percent in the optimistic scenario and 1.0 percent in the pessimistic scenario. In addition to the return on capital, the premium pension accounts are charged an administration fee that is assumed to be 0.39 percent of premium pension capital per year.²

The premium pension system is relatively young compared to most pension systems. Earnings did not start until 1995. Only persons born in 1938 or later have been able to earn a premium pension. For those born in 1938 only 4/20 of their earnings went to the income and premium pension system and the rest went to ATP. From 1995 to 1998, the fee deduction was 2 percent instead of the current 2.5 percent, which meant that the lowest actual provision was then 0.4 percent of the pension base. However, the system is growing rapidly. People born in 1970 were 25 years of age when payments to the system began. As they approach retirement age around 2035-2040, they will have been able to earn premium pension credit throughout most of their active lives. By 2060, most pensioners will have been able to earn premium pension for the whole of their professional lives and the premium pension will then have reached its mature phase.

An illustrative measure of the mature phase of the system is net contribution, that is, the difference between system income and pension disbursements. This is divided in the same way as for contributions.

Figure 7.5 Net Contribution Premium Pension



Contribution revenue less pension disbursements as a percentage of contribution revenue.

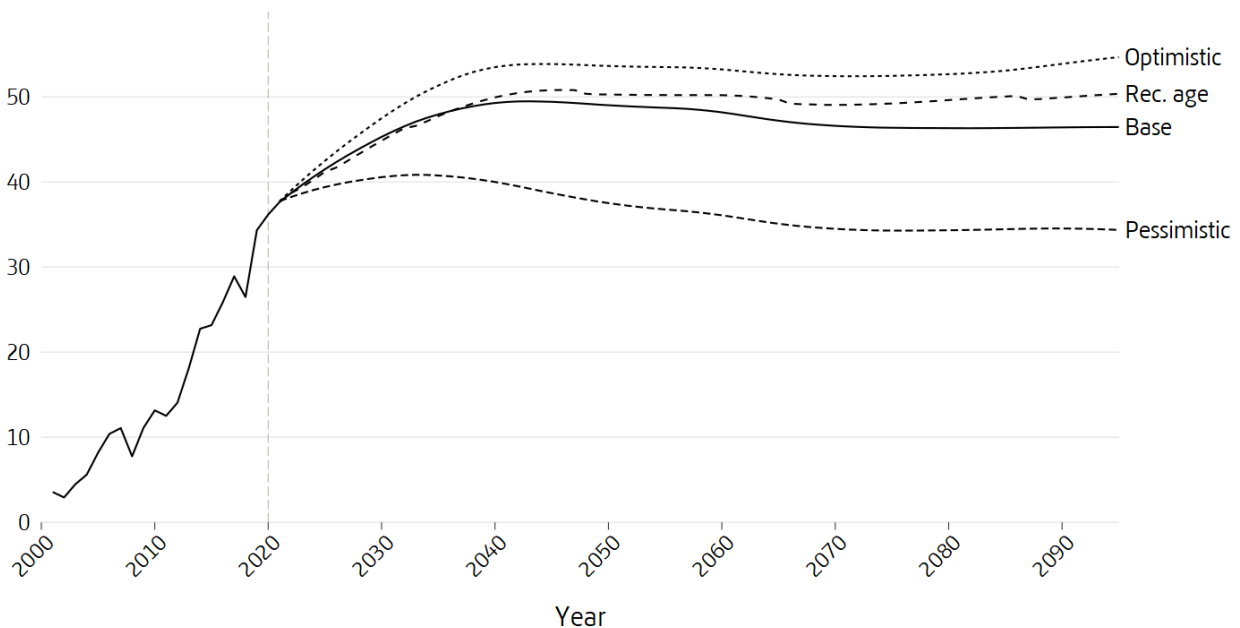
Net contribution is almost 100 percent at the outset because the volume paid out is vanishingly small. The more today's younger cohorts start to retire, the more disbursements will negatively affect net income in the system.

When the system has been phased-in, after the year 2060, net contribution in the pessimistic scenario will begin to hover around zero. In this scenario, no return is given apart from wage growth; instead, the variations in net contribution follow demographic variations in different birth-year cohorts. In assumptions of higher return than wage growth, annual disbursements from the premium pension system will exceed annual pension contributions flowing in. Higher return will facilitate more pension disbursements, leading to a more negative net contribution. The return is an extra inflow of funds to be paid out. In the optimistic scenario there is excess return, about 3.3 percent ($5.5 - 2.0 - 0.39$) per year after costs. Assuming lifelong savings, each premium payment will then be worth 2-3 times more than it would be without the excess return. The high variation in return that is usually linked to high risk-taking is not apparent here. A more complete picture would also show the effect of variations in return.

Another way of looking at the maturity of the system is to study the total size of premium pension funds. During the build-up phase, the premium pension fund is relatively small. For a given birth-year cohort, the system is mature if the individuals have been able to earn premium pension credit throughout their working lives. The system is mature in its entirety when it consists entirely of such cohorts. If all cohorts were the same size, had the same income relative to the current income level, followed each other's mortality patterns and if their excess return over and above wage growth only corresponded to the deducted administration fee, annual pension disbursements would be equal to the total annual pension premium. Fund assets would then stabilize at approximately 32-33 times the annual premium contribution. The closest we can get to this situation is in the

pessimistic scenario shown in Figure 7.6 where population growth is subdued and excess return is zero. The total size of the premium pension funds then becomes 33 years' worth of contributions, which corresponds to the expected average time each contribution remains in the fund between payment and withdrawal. The 33 years of contributions corresponds to the expected average time that each contribution is in the fund between payment and disbursement. The fund may be viewed as a 33-year-long sequence of annual payments which only grow with national wage growth. The same amount paid into the funds each year in the form of contributions flows out in the form of disbursements. Since all individuals sooner or later transition from an active working period to life as a pensioner, approximately the same amount is transferred each year from the savings phase to the payment phase as payments in and out.

Figure 7.6 Size of Premium Funds in Relation to Contributions Received during the Corresponding Year



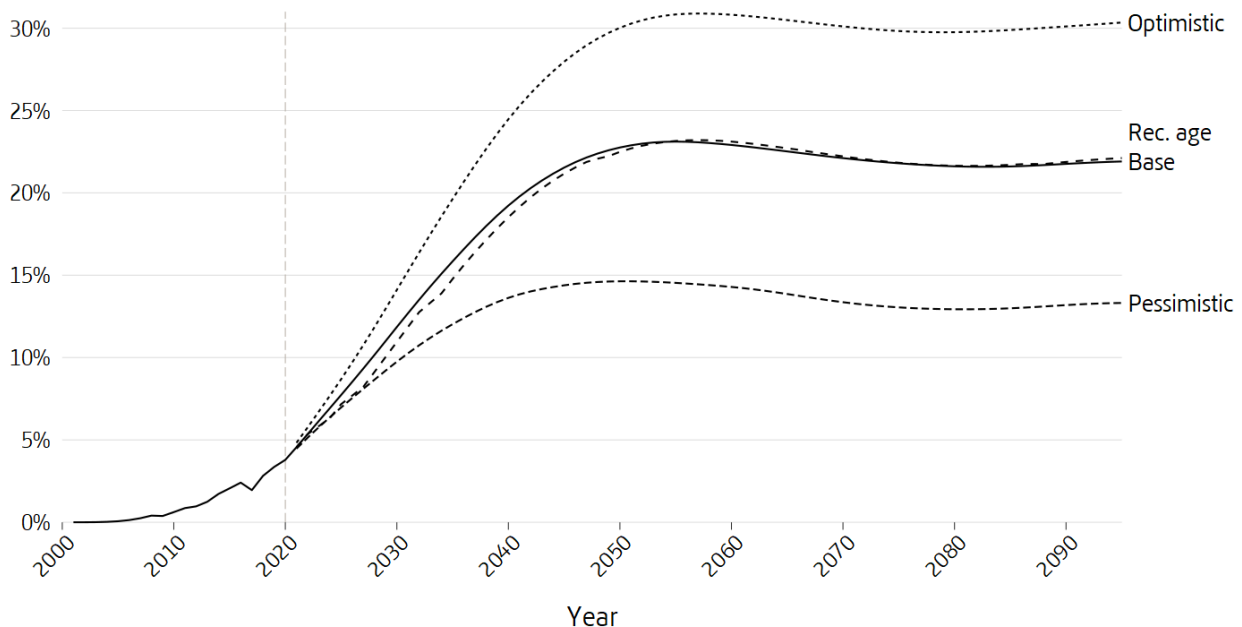
Both the baseline and the optimistic scenarios lead to a significantly larger premium pension fund due to the higher excess return assumptions. The premium pension fund is growing faster than contribution income. This will result in higher pension disbursements, as indicated in Figure 7.5.

Figure 7.6 can be said to show the fund strength, the size of funds relative to the size of contributions. At an early stage in the history of the premium pension system, without disbursements and excess returns, the fund strength corresponds in principle to the number of contribution years.

Another way to present the future role of the premium pension is to show it as a proportion of the total national pension. Earning for premium pension began, as noted, in 1995. This means that cohorts who retire today receive only a small part of their pension from premium pension. The phasing-in will continue until 2040–2050, meaning that an ever increasing share of the pension will be paid from premium pension funds. Of today's contributions 13.5 percent ($2.5 / 18.5$) go to premium pension. Without excess returns, this

results in pension disbursements being paid in the same proportion. Assuming an excess return, the picture changes. In the base scenario, premium pension accounts for approximately 22 percent of the income-based national pension. In the optimistic scenario, the same proportion is just over 30 percent.

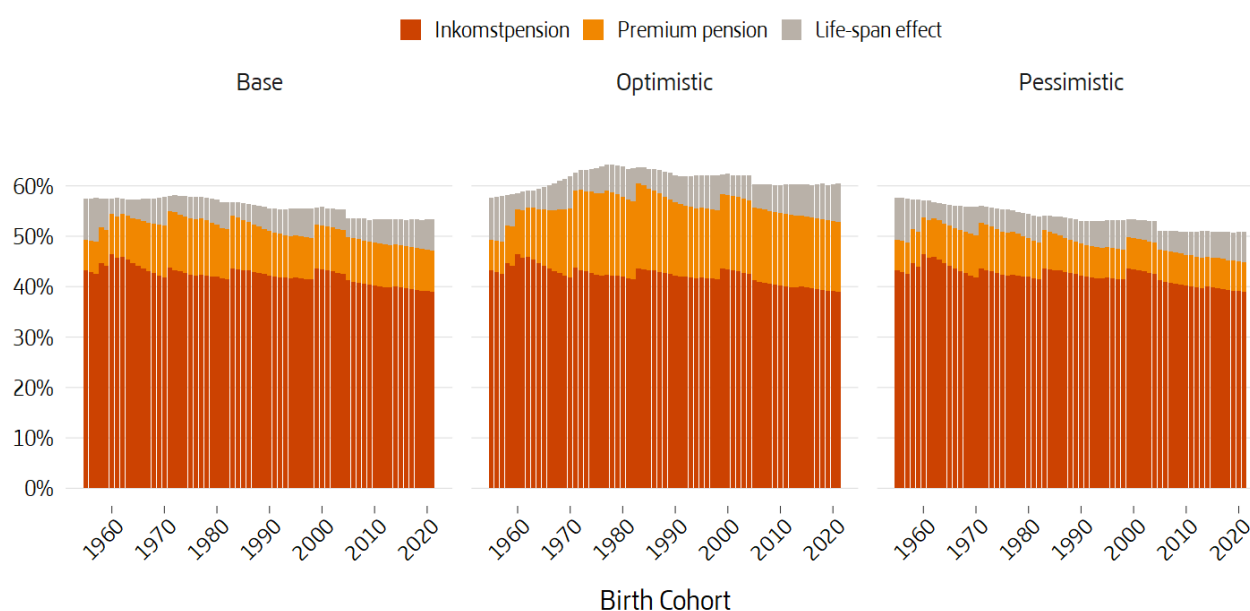
Figure 7.7 Premium Pension as a Proportion of the Earnings-Related Public Pension



Development of Pension Levels for Typical Cases

Below is an account of how the pension develops relative to earned income for typical cases born in the years 1954–2020 using the three different scenarios. The effect of the scenarios on pension level has been streamlined inasmuch as pensions have been calculated for an individual who starts working at the age of 23 and retires at the so-called recommended retirement age - the age when national social insurances (unemployment insurance, sickness benefit etc.) cease and basic protection for the elderly comes into play. Income for typical cases increases with national income growth. Pension level is the national pension at the recommended retirement age in relation to average salary during the final five years of pension earning. Note that the recommended retirement age today is 65 years and is expected to be raised to 66 years in 2023. It is affecting the 1958 birth cohort which will thus not be entitled to basic protection at age 65. In 2026, the recommended retirement age is expected to be raised again by one year to age 67, affecting those born in 1960. Thereafter, the recommended retirement age will be increased by about two-thirds of the increase in life expectancy. However, this will happen with some time lag, and gradually.

Figure 7.8 Pension in Proportion to Final Earnings, Different Birth Cohorts



The scenarios' pension levels at the recommended retirement age are shown in the figure above, one for each scenario. The figure also demonstrates the life expectancy effect. This constitutes total income-based national pension received when typical cases postpone their retirement sufficiently to fully compensate for the negative effect of increased life expectancy on the monthly pension. Increased life expectancy refers to the period since 1994 when the inkomstpension and premium pension system was introduced. Prolonged working life results in a higher pension due to the earning of new pension credit, return on pension capital, a lower annuity divisor in the calculation of the pension, as well as inheritance gains.³ In the figure above, the pension level typical cases reach at the higher retirement age required to compensate for the life expectancy effect, has been marked in light gray.

In the **baseline** scenario, the pension level decreases gradually after each increase in the recommended retirement age, and increases again as the recommended retirement age approaches. The increase is due to the fact that the latter cohort typically works an additional year. The long-term the trend is declining pension levels. One reason is the return: older cohorts with a longer pension history generally have a higher return than the assumed future return. Another reason for lower pension levels is the fact that reduced risk of death applies to all ages, from 18 to recommended retirement age, thus giving lower inheritance gains, while the change in recommended retirement age only takes into account increased life expectancy after the age of 65. People born in 1954 need to work until age 67 and 6 months to compensate for the diminishing effect of life expectancy on the monthly amount of their pension. At that retirement age, the pension is estimated to be around 57 percent of final salary income. The declining pension level despite neutralization is due as noted to the lower average return for younger people. If working life is prolonged so that the effect of increasing life expectancy on pension level is neutralized, the pension level stabilizes at around 56 percent in the base scenario.⁴

In the **optimistic** and **pessimistic scenarios**, growth in average income is higher respectively lower than in the base scenario, as also return on premium pension.

Balancing was discontinued in 2018 and is no longer activated. The inkomstpension is compounded (indexed) with the change in the average income in society. In this case, the ratio of the inkomstpension to final salary is not affected by real wage growth. The inkomstpension as a percentage of final salary remains unchanged. On the other hand, inkomstpension will of course be lower/higher in SEK terms in the event of lower/higher growth.

The relationship between the return of the premium pension system and the increase in average income affects the relative size of the premium pension. The larger the positive discrepancy between return and wage growth, the greater the share constituted by the premium pension. Pension level increases for typical cases if they have an occupational pension. The size of the occupational pension depends on the occupational area, but is around 20–25 percent of the pension at recommended retirement age, which raises the pension level from just over 50 percent to approx. 70 percent.

Life Expectancy Effect and Alternative Retirement Age

Table 7.2 below shows, among other things the life expectancy for persons at age 65 for birth cohorts 1930–2020. Remaining life expectancy at the age of 65 is expected to increase from 17 years and 5 months for persons born in 1930 to 25 years and 10 months for persons born in 2020, an increase of 8 years and 5 months. If those born in 2020 are to have the same pension level that they would have had if life expectancy had not increased, a portion of the increased life span after age 65 must be devoted to working longer. For the cohort born in 2020, working life must be extended to 72 years and 1 month. This measure is called the alternative retirement age. During 2017, the Swedish Pensions Agency changed its formula for alternative pension age.⁵ However, in the Swedish government proposal DS2019:2, “Höjda åldersgränser i pensionssystemet och andra trygghetssystem” (Raised age limits in the pension system and in other social security systems), another formula is proposed (normal pension age) giving a lower retirement age than the alternative retirement age and thereby a lower level of compensation since it does not take into account changes in life expectancy before the age of 65. At the same time, those born in 2020 – despite such a higher retirement age – may look forward to being pensioners 3 years and 0 months longer than those born in 1930.

Table 7.2 Recommended retirement age, alternative retirement age and time as retired^a

Birth cohort born in	... reaches 65 in	Life expectancy at 65	Expected rec. age	Time spent retired	... compared to birth cohort 1930	Alternative Retirement Ages
1930	1995	82 yr 5 m	65 yr	17 yr 5 m	0 yr 0 m	65 yr 0 m
1935	2000	83 yr 1 m	65 yr	18 yr 1 m	0 yr 8 m	65 yr 7 m
1940	2005	83 yr 6 m	65 yr	18 yr 6 m	1 yr 2 m	66 yr 1 m
1945	2010	84 yr 3 m	65 yr	19 yr 3 m	1 yr 10 m	66 yr 8 m
1950	2015	84 yr 10 m	65 yr	19 yr 10 m	2 yr 5 m	67 yr 2 m
1955	2020	85 yr 4 m	65 yr	20 yr 4 m	2 yr 11 m	67 yr 8 m
1960	2025	85 yr 10 m	67 yr	19 yr 2 m	1 yr 9 m	68 yr 0 m
1965	2030	86 yr 5 m	67 yr	19 yr 9 m	2 yr 4 m	68 yr 5 m
1970	2035	86 yr 11 m	68 yr	19 yr 4 m	1 yr 11 m	68 yr 10 m
1975	2040	87 yr 4 m	68 yr	19 yr 9 m	2 yr 4 m	69 yr 3 m
1980	2045	87 yr 10 m	68 yr	20 yr 2 m	2 yr 9 m	69 yr 7 m
1985	2050	88 yr 3 m	69 yr	19 yr 9 m	2 yr 4 m	70 yr 0 m
1990	2055	88 yr 8 m	69 yr	20 yr 1 m	2 yr 8 m	70 yr 4 m
1995	2060	89 yr 0 m	69 yr	20 yr 6 m	3 yr 1 m	70 yr 7 m
2000	2065	89 yr 5 m	70 yr	19 yr 11 m	2 yr 7 m	70 yr 11 m
2005	2070	89 yr 10 m	70 yr	20 yr 4 m	2 yr 11 m	71 yr 3 m
2010	2075	90 yr 2 m	70 yr	20 yr 8 m	3 yr 3 m	71 yr 6 m
2015	2080	90 yr 6 m	70 yr	21 yr 0 m	3 yr 7 m	71 yr 10 m
2020	2085	90 yr 10 m	71 yr	20 yr 4 m	3 yr 0 m	72 yr 1 m

a. Time spent retired refers to expected remaining life span at expected recommended retirement age.

Assumptions in the Calculations for the Three Scenarios

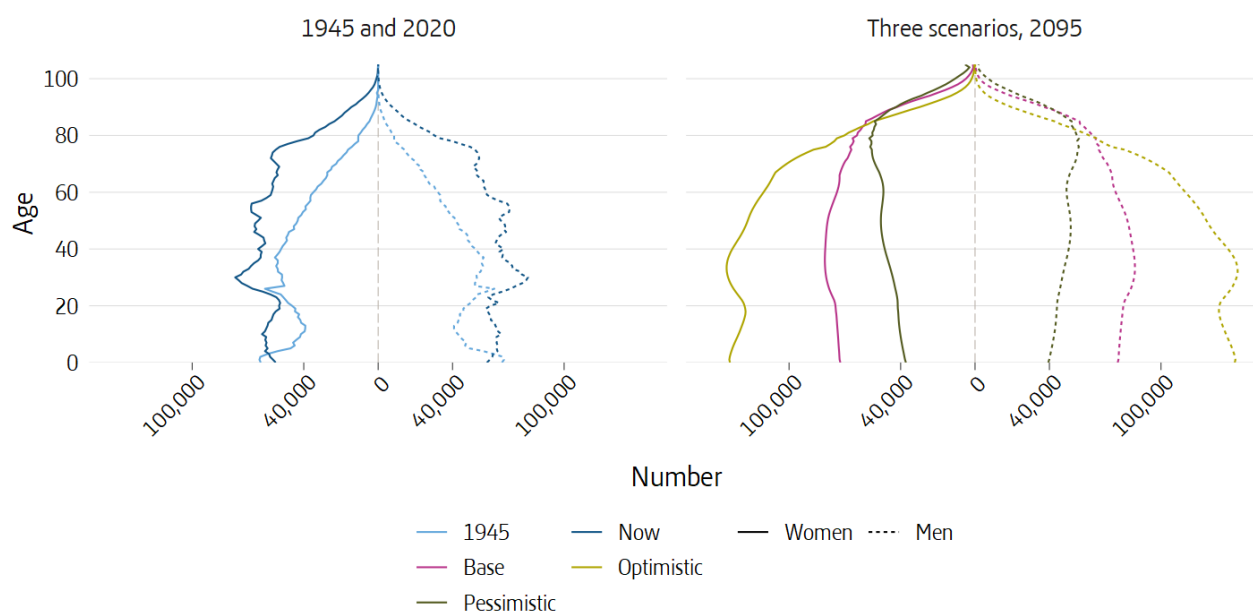
In [table 7.3](#) and in [figure 7.9](#), the various assumptions in the scenarios are summarized.

Table 7.3 Bases for Calculation

percent

	Base	Pessimistic	Optimistic
Inflation	2.00	2.00	2.00
Change in average income	1.80	1.00	2.00
Real return, net, after fees to fund management companies			
Premium pension funds	3.90	1.00	5.50
Buffer fund	3.25	1.00	5.50
National Debt Office	2.75	1.00	3.00

Figure 7.9 Population for 1945, 2020 and projection for 2095 in the three scenarios



Base scenario

The demographic development in the base scenario follows the latest official population forecast of Statistics Sweden from 2020. There it is assumed that nativity will eventually stabilize at 1.86 children per Swedish-born woman. The average life span for men born in 2020 is 81.5 years and is expected to increase to 85.4 years in 2050. For women the average life span is expected to increase from 84.8 to 87.8 years during the same period. For the remainder of the time until the end of the projection period in 2094, the average life span will increase by approximately 4 years for both men and women. The 2020 population projection has a total net immigration of 250,000 people in the next 5 years. Subsequently net immigration drops by a few thousand persons per year to stabilize at just over 20,000 people per year. This year's assumption for the base scenario is constant employment, that is to say, future employment is the same as today. The reason for this is that Statistics Sweden's main alternative implies future employment increases in the older section of the population. This can now be controlled instead in the Pension Agency's pension model with pension age increases. Real average income is expected to increase by 1.8 percent per year. The buffer fund's real return is assumed to 3.25 percent per year. As of 2020, the minimum retirement age is 62 years.

For the base scenario with recommended retirement age increases, everything is the same except the chance to retire is postponed by a whole year. This means that the cohort affected by the higher recommended retirement age works for another year and those with transfers also receive these for another year. Since the mortality rate is the same, the time as a pensioner is reduced by one year.

Optimistic scenario

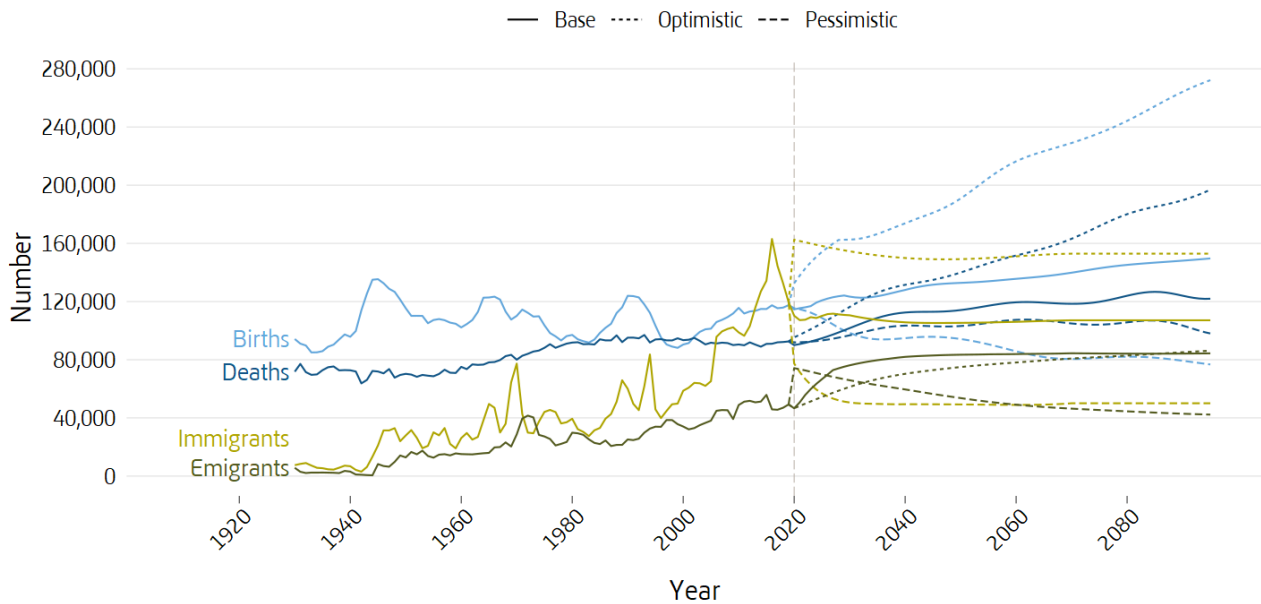
The demographic assumptions do not follow the base scenario and are based on Statistics Sweden's forecasts from 2018. Both nativity and net immigration are higher than in the base alternative. In the long run, nativity is estimated at 2.06 children per Swedish-born woman. Long-term immigration is assumed on average to show a surplus of some 70,000 persons per year. Mortality is assumed to be constant and to retain the same 2019 values throughout the whole of the forecast period. Assumptions regarding employment are the same as in the base scenario. The real growth in average income is 2.0 percent after 2020, and the real rate of return on the buffer fund is assumed to be 5.5 percent per year in the future. The real return for the premium pension is also assumed to be 5.5 percent before costs of administration. The temporary administration of the premium pension at the Swedish National Debt Office is assumed to yield an interest rate of 3.0 per cent. As of 2020, the minimum retirement age is 62 years.

Pessimistic scenario

The assumptions in the pessimistic scenario about birth rates and net immigration are lower than in the base alternative. Nativity is assumed to be about 1.65 children per Swedish-born woman. Net immigration is negative during the period 2022–2056, later rising to approximately 5,000 per year. In the pessimistic scenario life expectancy increases faster than in the base scenario. Remaining life expectancy increases from 84.5 years for women to 89.4 years in 2050 and 95.0 years in 2095. The corresponding figure for men is an increase from 81.3 to 87.3 and finally 93.5 years. The proportion employed is assumed to remain unchanged for the time ahead. The real growth in average income is assumed to be 1 percent per year. The real rate of return for the Buffer Fund, the National Debt Office and the premium pension funds is also assumed to be 1 percent per year. With a return equal to the growth in average income, the return of the buffer fund does not, in principle, contribute to the long-run financing of pensions. The buffer fund is then demographically determined and serves as a neutral repository of pension capital for the purposes of the system's financing. The assumptions in the pessimistic scenario mean that the contribution flow grows slowly in relation to the desired indexation of the average income. The pessimistic scenario describes how pensions are affected by a prolonged weak development with an unfavorable age structure. As of 2020, the minimum retirement age is 62 years.

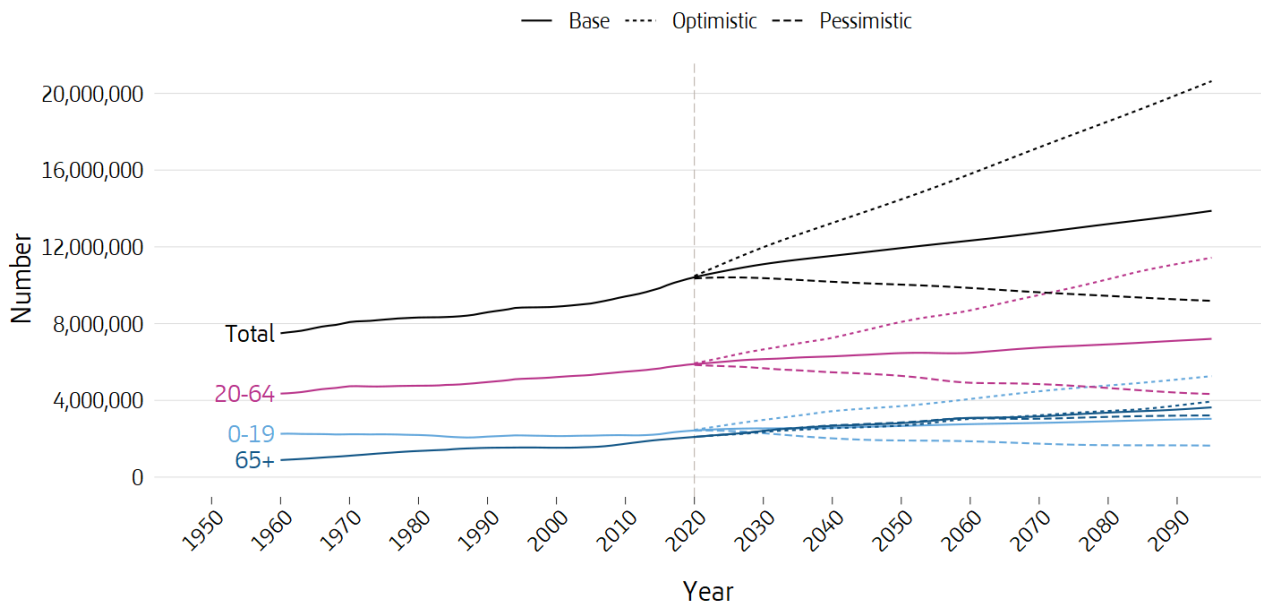
Description of the Assumptions in the Scenarios

Figure 7.10 Births, Deaths, Immigration and Emigration, 1930–2020, and Assumptions Through 2095



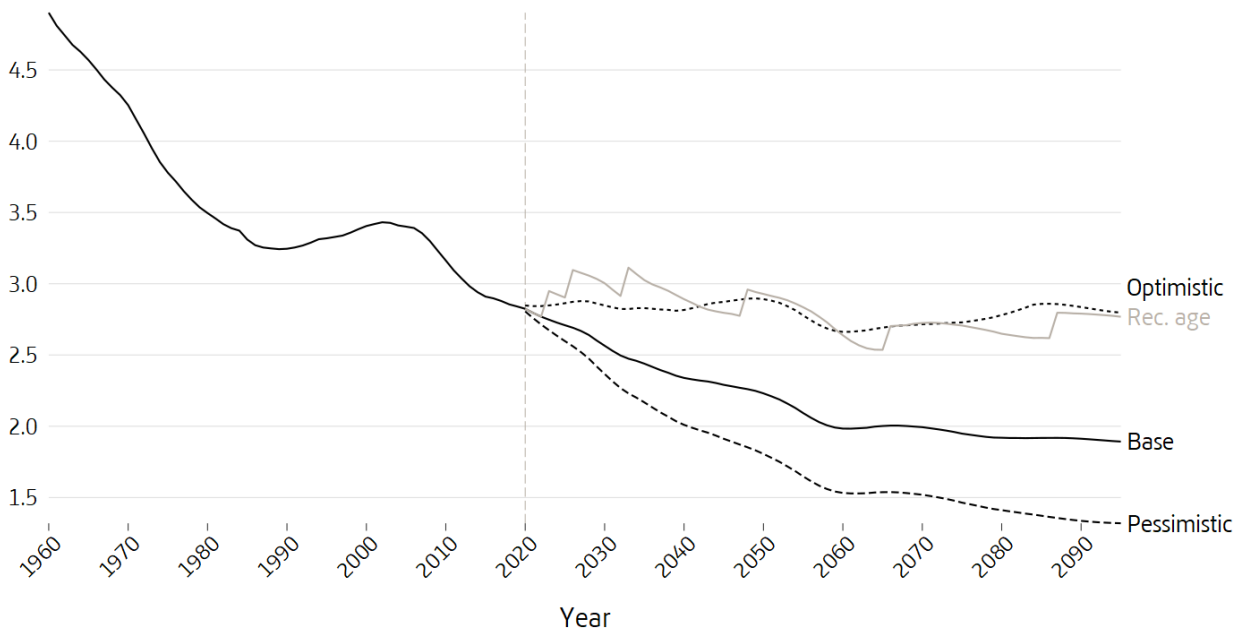
The diagram shows the development of the population since 1930 and the assumptions for 75 years into the future. The large birth cohorts of the 1940's, 1960's, 1990's and 2010's are evident. The number dying increases each year, not because of rising mortality, but because of a growing population. The peak years of immigration are the 1960's and 1970's, when there was substantial immigration of labour, particularly from Finland. There was another peak at the outset of the 1990's, when many refugees arrived, primarily from ex-Yugoslavia. The large immigrant cohorts in recent years are also reflected in the diagram.

Figure 7.11 Size of Population



The total population increases in both the positive and base scenarios, the reasons being a high birth rate and net immigration. The number of persons over 65 is more or less the same from one scenario to another. The historical data are estimates.

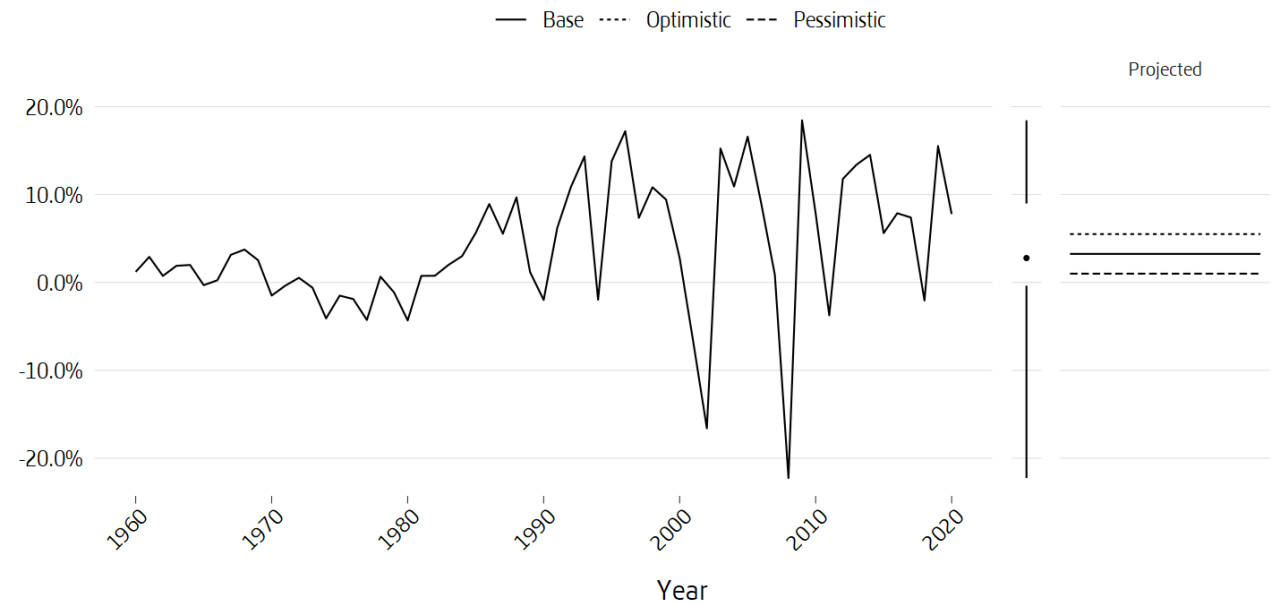
Figure 7.12 Support Ratio During 1960–2020 and Projection According to Statistics Sweden’s Three Scenarios for 2019–2095



For the three scenarios the support ratio is calculated as the number of persons aged 20–64 years divided by the number aged 65 or older. The support ratio for the base scenario has also been calculated with alternative retirement ages instead of age 65 as a limit. For this curve, a smoothed mean value for the burden of support is used.

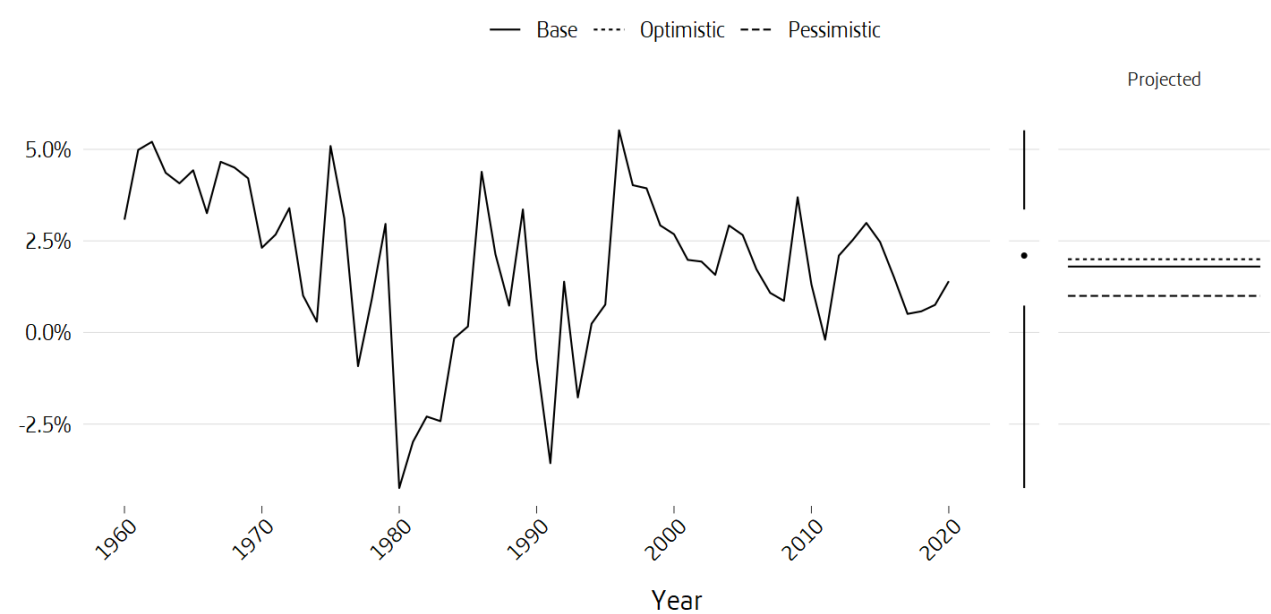
Figure 7.12 shows the support ratio for the elderly for the three scenarios and for the base scenario with recommended retirement age increases. With each increase in the recommended retirement age, one cohort is moved from belonging to the elderly to belonging to the gainfully employed, leading to a temporary increase in the support ratio for the elderly. For the base and the pessimistic scenarios with a fixed age limit of 65, there is a steadily declining support ratio for the elderly. The pessimistic scenario stands out with almost 1.35 persons of working age per old person at the end of the simulation period. This is due to unfavourable demographics with increasing life spans, low net immigration combined with low fertility.

Figure 7.13 Real Return on the Buffer Fund, 1960–2020, and Assumptions until 2095



The historical return of the buffer fund for the last 60 years. The point between the vertical lines is the median value. The starting point for the upper vertical line is the 75th percentile; the ending point is the maximum value. The starting point for the lower vertical line is the 25th percentile; the ending point is the minimum value.

Figure 7.14 Real Growth in Earnings, 1960–2020, and Assumptions until 2095



The development of real earnings for the last 60 years. The point between the vertical lines is the median value. The starting point for the upper vertical line is the 75th percentile; the ending point is the maximum value. The starting point for the lower vertical line is the 25th percentile; the ending point is the minimum value. Source: Swedish National Mediation Office

Footnotes

1. The pension model uses a naive assumption that when the recommended retirement age is raised, the insured postpone their retirement by a full year. The gainfully employed thus work a full extra year and receive one year less of pension disbursements. This is unlikely to happen in real life.
2. The costs, 0.39 percent, are higher from this year forward since they previously consisted only of the Pension Agency's contributions. Furthermore, from this year the average fund charge is also included, which was 0.21 percent in 2020.
3. Inheritance gain can be seen as compensation for the risk of the typical case not surviving until retirement and thus not receiving part of the pension due.
4. Note that the outcome also depends on the phasing-in of the system (1995 was the first year it was possible to earn pension credit in the premium pension system, and at the end of 2001 the fund marketplace was opened for individual fund choice).
5. Report from 2017: Formula for an alternative retirement age

8. Notes and Comments

Note 1 refers to both inkomstpension and premium pension. Notes 2–14 refer to inkomstpension and notes 15–25 refer to premium pension. All amounts are stated in SEK million. In some tables, the sum of the secondary level items does not tally with the total due to rounding.

Notes and Comments Regarding the Pension Contributions

Note 1 Pension Contributions

In the national pension system there are a number of different contributions, as can be seen in [table 8.1](#). Not all contribution revenue goes to the pension system. The part of old-age pension contribution transferred to the central government budget is that part of income above the ceiling on pension-qualifying income. Before deduction for general pension contribution this ceiling is 8.07 income-related base amounts, and after such deduction it is 7.5 income-related base amounts. Since these contributions do not correspond to any pension credit, they are in fact taxes. The old-age pension contribution is paid by employers and self-employed persons; the general pension contribution is paid by all gainfully employed persons who thus earn pension credit. In addition, national old-age pension contributions are paid from various appropriations in the central government budget for pension credit resulting from certain transfer payments such as sickness benefit and unemployment cash benefit. The central government also pays a pension contribution for so-called pension-qualifying amounts, for years with small children and for study, for example.

[Table 8.1](#) on the next page shows pension contributions received during the income year by the Swedish Social Insurance Agency and the Swedish Pensions Agency. Employer contributions or self-employment contributions are entered in the Social Insurance Agency account. The contributions for the inkomstpension system are transferred to the Swedish Pensions Agency and thereafter to the National Pension Funds. Those contributions calculated to correspond to pension credit for premium pension are forwarded to the National Debt Office. The general pension contribution and the general government old-age pension contribution are entered in the Swedish Pensions Agency account before being transferred to the National Pension Funds and the premium pension system respectively. Of the contributions registered in a particular year, a portion relate to the preceding year or, in some cases, to several years earlier. Employer contributions, for example, are registered at least one month after the corresponding salaries are paid.

The general pension contribution is transferred in its entirety to the National Pension Funds. For employer contributions and self-employment contributions, there is a preliminary allocation among the National Pension Funds, the premium pension system and the central government budget. The allocation for a year is made according to set percentages calculated by the Swedish Pensions Agency and set by the Government. It is intended that the premium pension system should receive in the course of a year contributions equivalent to premium pension credit earned during that year while the state

receives contributions corresponding to taxable earnings over the so-called ceiling of 8.07 of the income-related base amount. Remaining contributions are to go to the National Pension Funds. National old-age pension contributions for a year are similarly distributed between the National Pension Funds and the premium pension system according to fixed percentages.

Table 8.1 Pension Contributions by Type, 2020^a

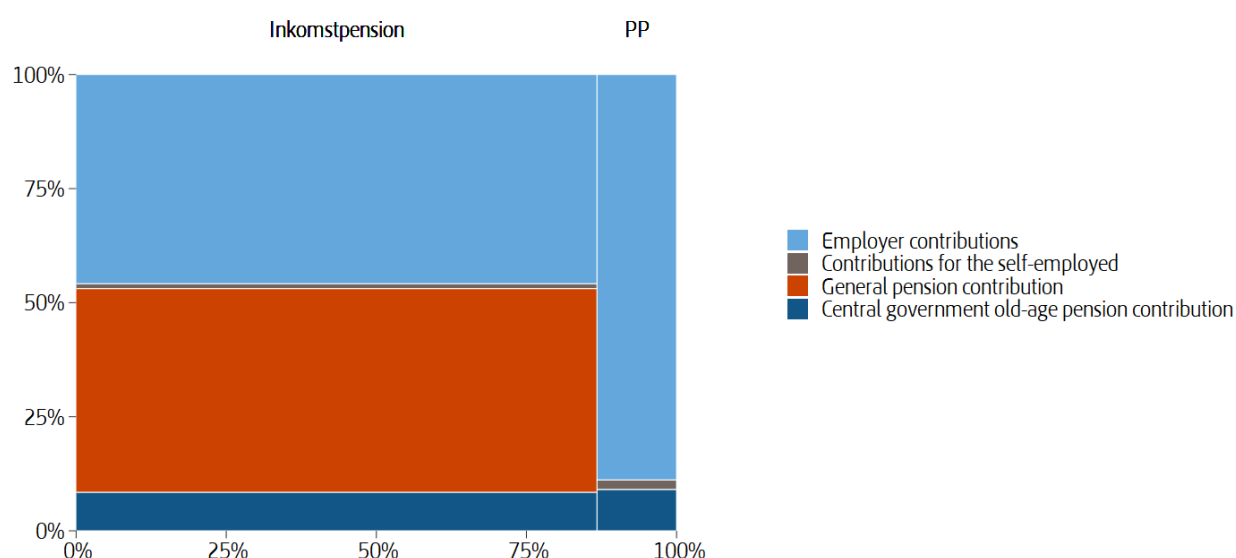
millions of SEK

	Inkomst- pension	Premium pension	Central government budget	Total 2020	Total 2019
Employer contributions	135,573	40,096	20,146	195,815	193,865
Contributions for the self-employed	3,168	936	473	4,577	4,433
General pension contribution	132,033	0	0	132,033	129,503
Central government old-age pension contribution	24,999	4,103	0	29,102	25,440
Final settlements etc.					
Final settlements in 2020 for 2018	-20	-44	64	0	0
Collection loss, settlement	-224	0	0	-224	-227
Adjustment to accounting of National Pension Funds and premium pension system	-30	636	0	606	625
Total Final settlements etc.	-274	592	64	382	398
Total	295,499	45,727	20,683	361,909	353,639

a. Contributions received by the Swedish Social Insurance Agency/the Swedish Pensions Agency in 2020 and transferred to the National Pension Funds, the premium pension system and the central government budget, respectively.

To ensure that the premium pension system has received contributions corresponding to the pension credit earned for a particular year and that the central government budget has received contributions for the part of incomes above the contribution ceiling, any discrepancies are reconciled two years later. Adjustments are then made between the national budget, premium pension and the inkomstpension system (the National Pension Funds). The settlements mean that contribution revenue is redistributed between the premium pension system, the central government budget and the National Pension Funds, ensuring that the first two receive the correct amount for a year's contributions while the National Pension Funds receive the remainder. Settlements are also made between the national pension system and the various appropriations in the government budget charged with national old-age pension contributions. This is to ensure that the various appropriations pay the correct amount for national old-age pension contributions. These settlements are made three years after the year they apply to.

Figure 8.1 Pension Contributions



Contribution revenue to the inkomstpension system increased between 2019 and 2020 by SEK 6.1 billion (2.1 percent), which is a relatively low increase but greater than the change in the sum of wages and salaries (0.8 percent).

The difference between the National Pension Funds' reporting of contribution revenue and that of the Swedish Social Insurance Agency and the Swedish Pensions Agency (SEK -30 million) can be explained largely by periodization differences. The difference between reported contribution revenue in the premium pension system and that reported by the Swedish Social Insurance Agency/the Swedish Pensions Agency (SEK 636 million) is partly due to certain adjustment amounts being included in the amount for the premium pension system (see [Note 18](#)).

Table 8.2 A Pension Contributions, Excluding Settlements etc. Allocated by Type of Contribution Base, 2020^a

millions of SEK

	Employer, self-employed, and centr. govt. pension contribution	General pension contribution	Total
Earned income ^b	200,392	123,045	323,437
Transfer payments, see Table B	13,131	8,988	22,119
Pension-qualifying amounts, see Table C	15,971	0	15,971
Total	229,494	132,033	361,527

a. The allocation of the general pension contribution between the two types of contribution base is estimated and is not shown in the accounting systems.

b. Including sick pay and self-employment income, excluding transfer payments.

The general pension contribution is 7 percent on earned income and pension-qualifying transfers such as sickness benefit, etc., but not sickness and activity compensation. The general pension contribution is only charged on income up to the tax ceiling of 8.07 income base amounts and for incomes above 0.423 price-related base amounts. At the time of tax assessment, a tax deduction is made corresponding to the general pension contribution. In practice, this means that the state finances the contribution.

The pension contribution paid by employers and self-employed 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 compensation and on so-called pension-qualifying amounts, which are not subject to the general pension contribution, is 18.5 percent.

The allocation in [Table 8.2 A](#) refers to the contributions received by the Swedish Social Insurance Agency or the Swedish Pensions Agency in 2020.

Table 8.2 B Pension Contributions for Transfer Payments, 2020^a

millions of SEK

	Cent. govt. pension contrib.	General pension contrib.	Total
Sickness cash benefit	4,049	2,772	6,821
Rehabilitation cash benefit	0	0	0
Allowance for care of close relatives	16	11	27
Work injury compensation, etc.	195	133	328
Parental insurance	4,423	3,027	7,450
Care allowance	399	273	672
Unemployment cash benefit etc.	3,991	2,732	6,723
Educational allowance	0	0	0
Artists' Board	7	5	12
Allowance to disease carriers	51	35	86
Total	13,131	8,988	22,119

- a. The allocation of the general pension contribution among the different types of transfer payments is estimated and is not shown in the accounting systems.

Table 8.2 C Pension Contributions Paid for Sickness/Activity Compensation and Pension-Qualifying Amounts, 2020

millions of SEK

Sickness and activity compensation^a	5,196
Amounts credited for years with small children	7,565
Amounts credited for study^b	3,105
National service	105
Total	15,971

a. Amount refers to contributions for disbursements of both pension-qualifying benefits and pension-qualifying amounts. In both cases the contribution is 18.5 percent.

b. A minor portion of amounts credited for study consists of pension-qualifying income.

Notes and Comments Regarding the Inkomstpension

Note 2 Pension Disbursements etc.

Table 8.3 ATP and Inkomstpension Disbursements and Amounts Transferred to the European Community
millions of SEK

	2019	2020
Pension disbursements		
ATP disbursements	162,584	157,153
Inkomstpension disbursements	152,140	169,104
Total Pension disbursements	314,724	326,257
Transfers to European Communities	0	9
Total	314,724	326,266

During the year, SEK 326,257 million was paid out in pensions from the National Pension Funds, an increase of SEK 11.5 billion (3.4 percent). In 2019, disbursements increased by SEK 10.3 billion or 2.9 percent. Pension disbursements of just over SEK 326 million reduced pension liability to pensioners by a corresponding amount. According to the Act (2002:125) on Transfer of Pension Credit to and from the European Communities (EC), the value of pension credit for EC officials can be transferred from the National Pension Funds and the premium pension system to the service pension system of the EC. In 2020, more than SEK 9 million was transferred from the National Pension Funds.

Note 3 Return on Funded Capital

Table 8.4 Return on Funded Capital of the First–Fourth and Sixth National Pension Funds, 2020^a

millions of SEK

	First	Second	Third	Fourth	Sixth	*	Total 2020	Total 2019
Stocks and shares								
Dividends received	2,932	4,214	4,375	5,002	10	0	16,533	23,649
Gain/-loss, listed and unlisted stocks and shares, net	33,537	20,457	32,652	41,186	7,570	0	135,402	168,143
Total Stocks and shares	36,469	24,671	37,027	46,188	7,580	-1	151,934	191,792
Bonds and other interest-bearing securities								
Net interest	1,568	2,956	2,149	1,489	17	0	8,179	10,937
Gain/-loss, inte- rest bearing assets, net	2,968	3,757	3,370	2,829	0	0	12,924	16,710
Total Bonds and other interest- bearing securities	4,536	6,713	5,519	4,318	17	-1	21,102	27,647
Other investments								
Gain/-loss, derivatives, net	2,701	-2,063	-122	280	0	0	796	-1,661
Net foreign- exchange gain/-loss	-8,624	-16,033	-4,897	-11,079	141	0	-40,492	23,266
Costs of commissions	-76	-277	-126	-138	0	0	-617	-739
Total Other investments	-5,999	-18,373	-5,145	-10,937	141	-1	-40,314	21,618
Total	35,006	13,011	37,401	39,569	7,738	-3	132,722	240,318

a. Adjustment column (*) is included to adjust for various rounding effects.

The item Commission Expenses comprises fees which are not result-based. Result-based charges, brokerage fees and other expenses have reduced the return (see [chapter 5 Costs of Administration and Capital Management](#)).

Note 4 Costs of Administration

Table 8.5 Costs of Administration

millions of SEK

	2019	2020
Costs of Insurance administration		
Swedish Pensions Agency	335	397
Tax administration and other agencies ^a	406	441
Total Costs of Insurance administration	741	838
Costs of fund administration		
First National Pension Fund	238	226
Second National Pension Fund	240	235
Third National Pension Fund	212	222
Fourth National Pension Fund	231	246
Sixth National Pension Fund	95	89
Total Costs of fund administration	1,016	1,018
Total	1,757	1,856

a. Includes Enforcement Authority and the National Government Service Centre

For the funds, only internal administrative costs are reported. External costs of administration and custodial fees are referred to as costs of commissions and are reported as negative revenue (see [Note 3](#)). For all funds, result-based charges, transaction costs etc. have reduced the return shown in [Note 3](#) (see [chapter 5 Costs of Administration and Capital Management](#)).

Owing to phase-in provisions applicable until 2020, only a portion of administrative costs (98 percent in 2020, see [Note 11](#)) is charged to the pension balances of the insured. Each fund finances its costs of administration by drawing on its own fund.

Note 5 Value of Change in Contribution Revenue

Table 8.6 Contribution Revenue^a

millions of SEK

	2019	2020
Change in contribution revenue		
Contribution revenue 2020		295,499
Contribution revenue 2019	289,386	-289,386
Contribution revenue 2018	-278,217	
Total Change in contribution revenue	11,169	6,113
(Turnover duration 2020 + Turnover duration 2019)/2		x 29.93450
(Turnover duration 2019 + Turnover duration 2018)/2	x 29.70323	
Value of change in contribution revenue	331,755	182,990

a. Duration in years, x denotes multiplication.

Contribution revenue increased by SEK 6 billion and the value of the change in contribution income amounts to almost SEK 183 billion. Below the value of the reduced turnover duration is given.

Note 6 Value of Change in Turnover Duration

Table 8.7 Turnover Duration^a

millions of SEK

	2019	2020
Change in turnover duration		
Turnover duration 2020		30.09487
Turnover duration 2019	29.77413	-29.77413
Turnover duration 2018	-29.63233	
Total Change in turnover duration	0.14180	0.32074
(Contribution revenue 2020 + contribution revenue 2019)/2		x 292,443
(Contribution revenue 2019 + contribution revenue 2018)/2	x 283,802	
Value of change in turnover duration	40,243	93,798

a. Duration in years, x denotes multiplication.

Table 8.8 Basis for Calculating Turnover Duration

	2016	2017	2018	2019	2020
Turnover duration					
Income age	45.66774	45.90862	45.76243	45.68355	
Payment age	75.52498	75.54095	75.53656	75.77842	
Turnover duration	29.85724	29.63233	29.77413	30.09487	
Turnover duration for contribution asset calculation	30.13850	29.85724	29.63233	29.77413	30.09487

Turnover duration is calculated as the difference between the expected payment age and income age, for more details see [Appendix B – Mathematical Description of the Balance Ratio](#). Since income age cannot be calculated until all pension credit have been determined, the latest year for which turnover duration can be calculated is the year before the accounting year.

The bottom line of [table 8.8](#), “Turnover duration for contribution asset calculation”, shows which turnover duration has been used for each financial year. Note, however, that the calculated balance ratio refers to the reporting year + 2 years, namely the turnover duration 30.09487 for the year 2020 is used for the calculation of the balance ratio for the year 2022. [Appendix B Mathematical description of the balance ratio](#) – describes how turnover duration is calculated.

Note 7 New Pension Credit

New pension credit includes certain other adjustment amounts that affect the size of the pension liability. What these amounts consist of is shown in the following table.

Table 8.9 Value of New Pension Credit^a

millions of SEK

	2019	2020
Estimated inkomstpension credit earned	289,386	295,499
Adjustment amount, inkomstpension		
Confirmed inkomstpension credit earned in <i>t-1</i>	277,960	287,823
Estimated inkomstpension credit earned in <i>t-1</i>	-278,217	-289,386
Adjustments affecting pension balances, etc.	-3,801	-3,805
Change in amounts disbursed	10,702	11,559
Total Adjustment amount, inkomstpension	6,644	6,191
Adjustment amount, ATP		
Effect of difference between assumed value for year <i>t</i> and estimate for <i>t-1</i> etc.	-81	-196
Change in amounts disbursed	6,546	2,900
Total Adjustment amount, ATP	6,465	2,704
Total	302,495	304,394

a. The table is reported after the income year

Since the tax assessment for the year of the financial statements had not been completed when the statements were prepared, the value of pension credit earned during this year can only be estimated. The adjustments affecting the size of pension balances also represent tax-assessment changes etc.; see [Table 8.21 A](#) in [Note 14](#). The change in disbursed amounts refers to changes in the pension liability to retirees as a consequence of other changes in disbursements than those due to indexation; see [Table 8.21 C](#) in [Note 14](#).

Note 8 Indexation

Table 8.10 Indexation, 2020

millions of SEK

	Active	Retired	Total
Indexation of Pension Balance and Pensions^a	127,674	127,410	255,084
Change in Indexation regarding Pension Liability^b	84,651	0	84,651
Total	212,325	127,410	339,735

a. see [Table 8.12 A](#)b. see [Table 8.12.C](#)

Table 8.11 Indexation, 2019

millions of SEK

	Active	Retired	Total
Indexation of Pension Balance and Pensions^a	212,785	100,347	313,132
Change in Indexation regarding Pension Liability^b	-44,277	0	-44,277
Total	168,508	100,347	268,855

a. see Table 8.12 A

b. see Table 8.12.C

Table 8.12 A Indexation of Pension Balance and Pensions, 2020

millions of SEK

	Active	Retired	Total
Inkomstpension, indexation			
Effect of income index	127,361	77,523	204,884
Effect of balancing	0	0	0
Total Inkomstpension, indexation	127,361	77,523	204,884
ATP, indexation			
Effect of income index	313	49,887	50,200
Effect of balancing	0	0	0
Total ATP, indexation	313	49,887	50,200
Total	127,674	127,410	255,084

Table 8.12 B Indexation of Pension Balance and Pensions, 2019

millions of SEK

	Active	Retired	Total
Inkomstpension, indexation			
Effect of income index	212,201	57,049	269,250
Effect of balancing	0	0	0
Total Inkomstpension, indexation	212,201	57,049	269,250
ATP, indexation			
Effect of income index	584	43,298	43,882
Effect of balancing	0	0	0
Total ATP, indexation	584	43,298	43,882
Total	212,785	100,347	313,132

Pension liability changes with the change in the income index when balancing is de-activated in the system. Balancing was activated 2010–2017 and pension liability then changed with the balance index. Since 2018, liability changes with the income index. The value of the indexation is based on projected pension liability in 2020.

Table 8.12 C Change in Indexation regarding Pension Liability, 2020

millions of SEK

	Active	Retired	Total
Last year's liability adjustment	210,488	0	210,488
This year's liability adjustment	-125,837	0	-125,837
Total	84,651	0	84,651

Table 8.12 D Change in Indexation regarding Pension Liability, 2019

millions of SEK

	Active	Retired	Total
Last year's liability adjustment	166,211	0	166,211
This year's liability adjustment	-210,488	0	-210,488
Total	-44,277	0	-44,277

Note 9 Value of the Change in Life Expectancy**Table 8.13 Value of the Change in Life Expectancy, 2020**

millions of SEK

	Active	Retired	Total
Inkomstpension		6,430	6,430
ATP	25	4,048	4,073
Total	25	10,478	10,503

Table 8.14 Value of the Change in Life Expectancy, 2019

millions of SEK

	Active	Retired	Total
Inkomstpension		17,416	17,416
ATP	105	14,038	14,143
Total	105	31,454	31,559

The lifespan referred to here is the number of years that an average pension amount is assumed to be paid out, the so-called economic lifespan or economic annuity divisor. The method of calculating economic annuity divisors is shown in [Formula B.7.5 in Appendix B](#).

Inkomstpension liability for pensioners is not affected by changes by lifespan changes. The average economic lifespan has increased, which contributes to a higher pension liability for pensioners by just over SEK 10 billion. Economic life expectancy has increased despite the coronavirus pandemic because a three-year average is used, and economic mortality was higher in 2017 than in 2020. The value of the change in life expectancy is the difference between the pension liability calculated with the economic annuity divisors used in the year of the financial statements,

and the pension liability calculated with the economic annuity divisors used in the previous year.

Note 10 Inheritance Gains Arising, Inheritance Gains Distributed

Table 8.15 Inheritance Gains, Arising and Distributed^a

millions of SEK

	2019	2020
Inheritance gains arising		
61 years or older	5,748	5,436
59 years or younger ^b	6,885	6,699
Total Inheritance gains arising	12,633	12,135
Inheritance gains distributed		
61 years or older	8,851	7,947
59 years or younger	6,846	6,651
Total Inheritance gains distributed	15,697	14,598

a. Changes to the age limits for the allocation of inheritance gains mean that the years are not fully comparable.

b. Died last year, distributed current year.

In connection with the increase in the minimum retirement age, the age limit for the allocation of inheritance gains was also changed as of 2020. Pursuant to the rule change, the method for accounting amounts arising was reviewed and the method for deriving accrued inheritance gains was changed. The new method provides better coverage and therefore slightly higher amounts than previously. The increase in the age limit and the change in method make the years not fully comparable.

The pension balances of deceased persons (inheritance gains arising) are distributed to the survivors of the same age. The distribution is made as a percentage increase in pension balances according to an inheritance gain factor.

The allocation is made according to two principles, the first of which relates to the younger group, and the second to the older group. Because the minimum age to be granted pension was raised from 61 to 62 as of 2020, the age limits for allocation have been adjusted.

Under the new rules, capital following death at age 60 or under will be allocated the following year (previously this limit was 59). In the year of allocation, those born in the same year as the deceased are one year older. Inheritance gains factors are determined based on pension capital for the deceased in relation to the pension capital of same-age survivors.

As of the year an age group turns 61, the estimated rather than the actual inheritance gains arising are distributed. The inheritance gains factors are calculated based on mortality observed by Statistics Sweden for a previous period. The estimated inheritance gains of those who died in the 61st year of life or later are distributed in the same year.

Allocation according to these two principles means that each year group in a year will be allocated inheritance benefits under both principles because the first principle assigns with delay. For 2020, however, this does not occur, as those born in 1959 have already been allocated according to both principles in 2019.

Note 11 Deduction for Costs of Administration

Table 8.16 Deduction for Costs of Administration

millions of SEK

	2019	2020
Deduction for Costs of Administration	1,673	1,818

Costs of administration are financed by a percentage deduction from the pension balances of the insured. In order to avoid charging a disproportionately high cost to younger birth age groups during the period when the ATP is being phased out, this administrative cost deduction is being introduced in steps. In 2020, 98 percent of administrative costs were financed by a deduction from pension balances. This deduction will increase by 2 percentage points each year and thus will not cover 100 percent of administrative costs until 2021.

The calculation of the administrative cost factor is based on budgeted costs of administration, costs of the National Pension Funds for the current year and the pension balances for the preceding year (see [Appendix A](#)). The difference between the monetary amount of the deduction made and the cost confirmed is considered in the calculation of the administrative cost factor for the following year. The deduction for administrative costs is made by multiplying pension balances by the administrative cost factor. The deduction in 2020 was 0.0305 percent and totalled SEK 1,818 million. The previous year, the deduction amounted to 0.0288 percent or SEK 1,673 million.

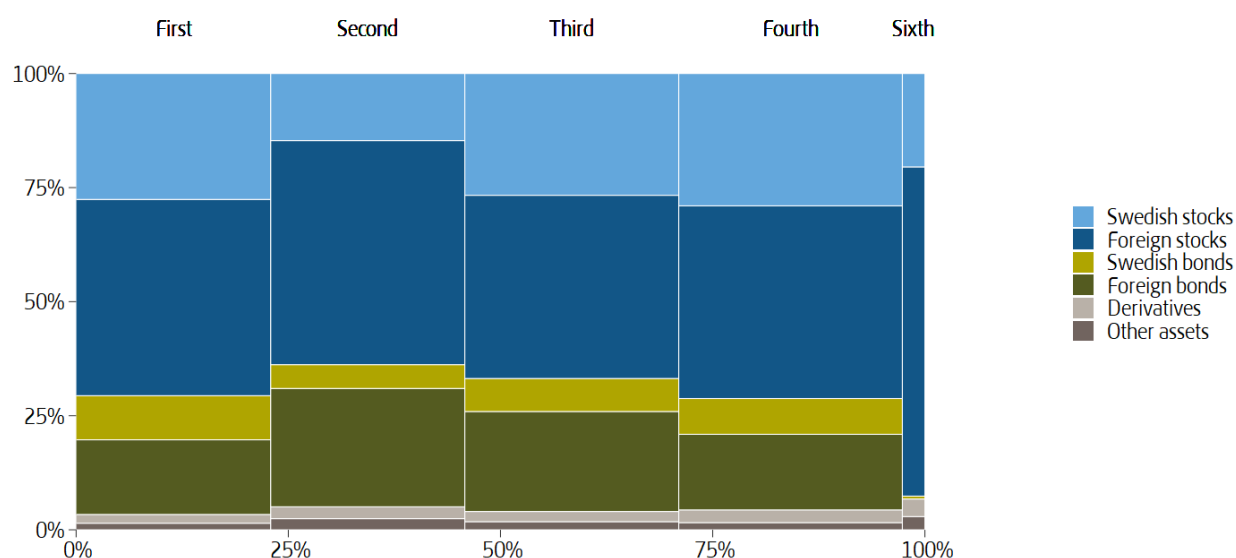
Note 12 Fund Assets

Table 8.17 Assets and Liabilities of the Buffer Fund, 2020

millions of SEK

	First	Second	Third	Fourth	Sixth	Total 2020	Total 2019
Assets							
Stocks and shares							
Swedish stocks	108,592	57,697	115,416	131,131	9,305	422,141	357,339
Foreign stocks	169,198	192,669	173,671	190,918	32,806	759,262	692,061
Total Stocks and shares	277,790	250,366	289,087	322,049	42,111	1,181,403	1,049,400
Bonds and other interest-bearing securities, net							
Swedish bonds	38,009	20,514	31,285	35,438	282	125,528	141,698
Foreign bonds	64,377	101,758	94,783	74,887	0	335,805	370,679
Total Bonds and other interest-bearing securities	102,386	122,272	126,068	110,325	282	461,333	512,378
Derivatives	7,595	10,203	9,671	12,628	1,760	41,857	21,082
Other assets	5,679	9,595	7,714	7,128	1,317	31,433	34,441
Total Assets	393,450	392,436	432,541	452,130	45,470	1,716,027	1,617,307
Liabilities							
Derivatives	-763	-2,412	-384	-1,408	-39	-5,006	-5,694
Others	-50	-3,800	-9,183	-1,273	-274	-14,580	-15,270
Total Liabilities	-813	-6,212	-9,567	-2,681	-313	-19,586	-20,964
Total	392,637	386,224	422,974	449,449	45,157	1,696,441	1,596,342

Figure 8.2 Fund Assets



The data is taken from the annual report of each fund. The item of Other assets include cash and bank balances, prepaid expenses and accrued revenue etc. The item Other under Liabilities includes deferred income and accrued charges.

Note 13 Contribution Asset

Table 8.18 Contribution Asset

millions of SEK

	2019	2020
Contribution revenue	289,386	295,499
Turnover duration (years) ^a	x 29.77413	x 30.09487
Contribution Asset	8,616,216	8,893,004

a. x denotes multiplication

See [Note 5](#) and [Note 6](#) and [Appendix B](#) for the values and formulas used in calculating contribution revenue and turnover duration.

Note 14 Pension Liability

Table 8.19 Pension Liability, 2020

millions of SEK

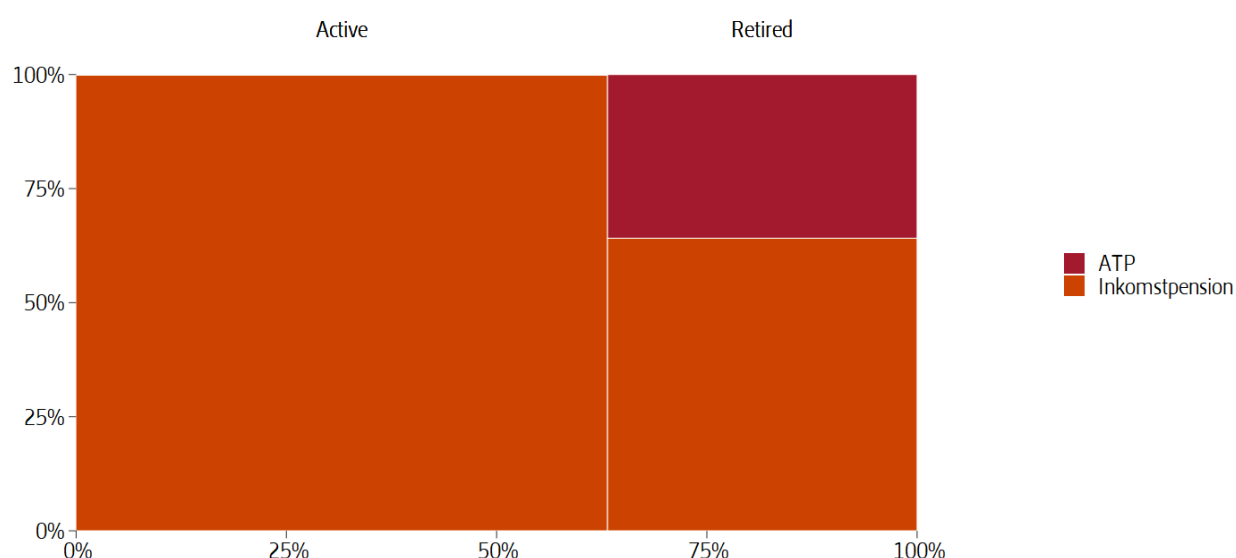
	Active	Retired	Total
Inkomstpension	6,252,655	2,338,804	8,591,459
ATP	8,861	1,308,765	1,317,626
Indexation/balancing	-125,837	0	-125,837
Total	6,135,679	3,647,569	9,783,248

Table 8.20 Pension Liability, 2019

millions of SEK

	Active	Retired	Total
Inkomstpension	6,094,659	2,152,255	8,246,914
ATP	12,774	1,405,028	1,417,802
Indexation/balancing	-210,488	0	-210,488
Total	5,896,945	3,557,283	9,454,228

Figure 8.3 Pension Liability, 2020



The pension liability to retirees for the ATP and the inkomstpension is calculated in the same manner for both. A cohort's liability is obtained from the product of the cohort's pension disbursements in December, a factor of 12 to get the annual amount, and the cohorts average economic lifespan. The total liability to retirees is the sum of the cohorts' pension liabilities. Average economic life expectancy is expressed in the form of economic annuity divisors.

Inkomstpension liability to persons who have not started to draw old-age pension valued at the sum of all the insured's pension reserves at the end of the year end, without taking into account the upward revision of the income index between year t and $t + 1$ (2020 and 2021). To the liability is also added an estimate of the pension credit for inkomstpension earned during the accounting year. The liability is also adjusted for the difference between the previous year's estimated and determined pension credit.

The ATP liability for individuals (born 1938–1953) who have not yet retired is estimated as the annual pension they would have received if they had retired in December 2020. In order to calculate the liability, the pension is multiplied by the economic annuity divisor the expected remaining disbursement period for each cohort. The ATP liability to the economically active is gradually decreasing due to the phasing-out of the system, liability amounting to almost SEK 9 billion in 2020 (SEK 13 billion in 2019).

The pension liability increased by just over 3 percent or by SEK 329 billion. Many factors are involved in this increase some of the most important being increased contributions and higher indexation.

Table 8.21 A Analysis of the Change in Inkomstpension Liability to the Economically Active

millions of SEK

	2019	2020
Inkomstpension liability to the economically active, December 31, <i>t-1</i>	5,870,293	6,094,659
Of which estimated pension credit for inkomstpension earned in year <i>t-1</i>	-278,217	-289,386
Subtotal Pension balances as of December 31, <i>t-1</i>	5,592,076	5,805,273
Inheritance gains arising from persons dying at or before age 59 ^a	-6,885	-6,699
Adjustments affecting pension balances ^b	-691	-172
Subtotal Opening pension balance in year <i>t</i>	5,584,500	5,798,402
Inheritance gains arising, persons dying at or after age 61	-5,748	-5,436
Changes in tax assessments etc. affecting pension balances	-3,110	-3,633
Confirmed inkomstpension credit earned in year <i>t-1</i> ^c	277,960	287,823
Distributed inheritance gains from persons dying at or after age 61	8,851	7,947
Distributed inheritance gains from persons dying at or before age 59 ^d	6,846	6,651
Indexation	212,201	127,361
Deduction for administrative costs	-1,673	-1,818
Pensions drawn	-278,232	-263,791
Pensions revoked	3,678	3,650
Subtotal Pension balances as of December 31, <i>t</i>	5,805,273	5,957,156
Estimated inkomstpension credit earned in year <i>t</i>	289,386	295,499
Total Inkomstpension liability to the economically active	6,094,659	6,252,655

a. Distributed in year *t*.

b. Adjustments for deceased persons, sealed cases, etc.

c. See [Note 7](#).

d. Arising year *t-1*.

Table 8.21 B Analysis of the Change in ATP Liability to the Economically Active

millions of SEK

	2019	2020
ATP liability to the economically active, December 31, <i>t-1</i>	19,898	12,774
Effect of difference between assumption for year <i>t</i> and estimate in <i>t-1</i> etc.	-81	-196
Opening ATP liability, year <i>t</i>	19,817	12,578
Indexation	584	313
Pensions drawn	-7,732	-4,055
Value of change in life expectancy	105	25
ATP liability to the economically active	12,774	8,861

Table 8.21 C Analysis of the Change in Pension Liability to Retirees, ATP and Inkomstpension, 2020

millions of SEK

	Inkomstpension	ATP	Total
Pension liability to retirees, December 31 <i>t-1</i>	2,152,255	1,405,028	3,557,283
Additional liability to the economically active ^a	260,141	4,055	264,196
Change in amounts disbursed	11,559	2,900	14,459
Pensions disbursed ^b	-169,104	-157,153	-326,257
Indexation	77,523	49,887	127,410
Value of change in life expectancy	6,430	4,048	10,478
Total	2,338,804	1,308,765	3,647,569

a. Inkomstpension: Net of Pensions drawn and Pensions revoked, see [Table 8.21 A](#). ATP: See [Table 8.21 B](#).

b. See [Note 2](#).

The liability to pensioners changes with indexation and economic longevity, and decreases with the payments made during the year. The pension may change for reasons such as new earnings, change in marital status (for ATP pensions), changes in valuation, etc. Such changes in the liability are recorded as a change in the amount paid (change in amount). The liability to retired persons also increases with new pensions granted. This increase in the liability is matched by a decrease in the pension liability to active persons.

Notes and Comments Regarding the Premium Pension

Note 15 Pension Disbursements

Table 8.22 Pension Disbursements Premium Pension

millions of SEK

	2019	2020
Pension disbursements		
Fund insurance	9,510	12,344
Traditional insurance	1,432	1,682
Total Pension disbursements	10,942	14,025
Transfers to European Communities	0	3
Total	10,942	14,028

At the time of retirement, a pension saver has the option of retaining her/his accumulated balance in fund insurance; the amount of the pension will then depend on the rate of return of the funds chosen by the saver. The other option is to switch to traditional insurance with profit annuity, either on retirement or later. With traditional insurance with profit annuity, the pension is disbursed as a nominal guaranteed monthly amount. If the management of the traditional insurance with profit annuity capital achieves a return higher than the guaranteed rate, pension savers will receive a rebate in the form of a monthly supplement, which may vary from year to year. In 2020, SEK 988 million was disbursed in supplementary amounts, as shown in [Note 23](#). In 2019 the supplementary amount was SEK 774 million.

According to the Act (2002:125) on Transfer of Pension Credit to and from the European Communities (EC), the value of pension credit for EC officials can be transferred from the National Pension Funds and the premium pension system to the service pension system of the EC. In 2020, transfers of SEK 3 million were made from the premium pension.

Note 16 Return on Funded Capital

Table 8.23 Return on Funded Capital, 2020

millions of SEK

	Fund Insurance	Traditional insurance	Total 2020	Total 2019
Return				
Stocks and shares				
Direct return	22	62	84	85
Realized and unrealized capital gains	96,306	865	97,171	327,912
Total Stocks and shares	96,328	927	97,255	327,996
Bonds and other interest-bearing securities				
Direct return (net interest)	0	-4	-4	-13
Realized and unrealized capital gains	727	1,379	2,106	2,198
Total Bonds and other interest-bearing securities	727	1,375	2,102	2,185
Net foreign-exchange gain/-loss	-4,978	0	-4,978	1,311
Total Return	92,077	2,302	94,379	331,491
Allocated Management Fees	4,622	21	4,643	4,741
Change, Traditional insurance		2,765	2,765	5,679
Total	96,699	2,323	101,787	341,911

The return earned includes realized and unrealized foreign-exchange gains and losses after deduction of fund management costs and distributed rebates of fund management fees.

The pension liability was changed by the return on the premium pension funds, which totals SEK 94,379 (SEK 331,491 in 2019) million.

Note 17 Costs of Administration

Table 8.24 Costs of Administration

millions of SEK

	2019	2020
Operating expenses	554	510
Financial items, net	43	-66
Total	597	444

The item of Financial items, net, refers primarily to borrowing expenses, gain/-loss on trade inventories (see [Note 22](#)) and interest revenue (net).

Costs of fund management are paid directly from insurance assets and are not included in the premium pension system's operating expenses. Total costs of administration in 2020 were SEK 444 million, of which SEK 21.4 million refers to change in traditional insurance with profit annuity. The corresponding amount for costs of administration in 2019 was SEK 597 million, of which SEK 20.8 million refer to traditional insurance with profit annuity. A presentation of the respective gross and net reported costs is provided in the chapter [Costs of Administration and Capital Management](#).

Note 18 New Pension Credit

Table 8.25 New Pension Credit

millions of SEK

	2019	2020
Preliminary contribution revenue, including interest on the premium pension earned in 2017/2018	47,440	48,670
Adjustment amount, confirmed pension credit		
Confirmed pension credit, including interest, for the premium pension earned in 2018/19 and 2019/20	42,986	44,487
Preliminary contribution for the premium pension earned in 2018/19 and 2019/20	-45,298	-47,440
Total Adjustment amount, confirmed pension credit	-2,312	-2,953
Change in pension credit	12	10
Total	45,140	45,727

In the operations of the premium pension system, the equivalent of contribution revenue is new pension credit including interest for the period during which the contribution moneys are managed before being invested in the funds chosen by the insured. During the year, changes in pension credit have come from previous income years. Total new pension credit for the premium pension in 2020 was SEK 45,727 million; in 2019 it was SEK 45,140 million.

Note 19 Inheritance Gains Arising and Distributed

Table 8.26 Inheritance Gains, Arising and Distributed

millions of SEK

	2019	2020
Inheritance gains arising	3,700	4,135
Inheritance gains distributed	3,700	4,135

Inheritance gains arising and distributed are analogous to decedents' capital. Inheritance gains are distributed once a year; in addition, a minor portion is distributed during the course of the year in connection with changeovers from fund insurance to traditional insurance with profit annuity. In 2020 inheritance gains distributed were SEK 4,135 million; this amount was determined by the sum of the capital released by deaths in calendar year

2019. The corresponding amount distributed in 2019 was SEK 3,700 million. This item includes reductions in premium pension credit when premium pensions are transferred between spouses.

Note 20 Deduction for Costs of Administration

Table 8.27 Costs of Administration

millions of SEK

	2019	2020
Deduction for costs of administration	474	508

The amount of SEK 508 million is for the fees deducted by the Swedish Pensions Agency to finance the costs of administration for the premium pension system in 2020. The average fee for 2020 was equivalent to 0.04 percent of pension savers' account balances with a ceiling of SEK 100.

Note 21 Insurance Assets

Table 8.28 Insurance Assets, 2020

millions of SEK

	Fund insurance	Traditional insurance	Temporary management	Total 2020	Total 2019
Stocks and shares	1,484,062	18,713		1,502,775	1,388,529
Bonds and other interest-bearing securities	94,607	34,335	41,568	170,510	156,731
Trade in progress and inheritance gains arising	4,352	332		4,684	3,788
Total	1,583,021	53,380	41,568	1,677,969	1,549,049

In 2020, insurance assets in fund insurance amounted to SEK 1,583,021 million, of which SEK 4,352 million was attributable to current trading and mortality capital. Temporary management of preliminary contributions refers to income year 2020. As of December 31, 2020, there were 6,168,986 premium pension savers, all of them in fund insurance, and 1,723,114 pensioners, of whom 1,381,612 were in fund insurance and 341,502 in traditional insurance with profit annuity.

Note 22 Other Assets

Table 8.29 Other assets

millions of SEK

	2019	2020
The Swedish Pensions Agency's administrative inventory of fund shares (trading inventory)	87	132
Other assets	7,261	10,961
Total	7,348	11,093

The Swedish Pensions Agency's administrative inventory of fund shares facilitates trade in fund shares by reducing the number of trading transactions with fund managers.

The item of Other assets consist of cash and bank balances, fund trading in progress, other receivables and accrued interest revenue.

Note 23 Change in Owner Equity

Table 8.30 Change in Owner Equity, 2020

millions of SEK

	Fund insurance	Traditional insurance	Total 2020	Total 2019
Opening owner equity:				
Consolidation fund	-121	16,883	16,762	11,982
Rebate paid from consolidation fund		-988	-988	-774
Net income for the period	65	2,765	2,830	5,554
Total owner equity	-56	18,660	18,604	16,762

At the beginning of the year, the Swedish Pensions Agency reported negative equity for unit-linked insurance operations. The solvency rules of the Insurance Business Act do not apply to the Swedish Pensions Agency, but the deficit is financed by credit at the National Debt-Office. In 2020 a balance between assets and liabilities was reached. Traditional insurance with profit annuity reports a positive result that will be added to the consolidation fund as owner equity. The amounts in the consolidation fund are distributed to pensioners as refunds in connection with pension disbursements.

Note 24 Pension Liability

Table 8.31 Pension Liability

millions of SEK

	2019	2020
Fund insurance	1,461,885	1,583,251
Traditional insurance	29,602	34,780
Liabilities in regard to preliminary contributions	40,674	41,568
Total	1,532,161	1,659,599

The pension liability is a liability to pension savers and to pensioners. Pension liability in fund insurance is linked primarily to fund shares and is affected by the development of the market value of the funds chosen.

Pension liability in traditional insurance with profit annuity is calculated for each insurance as the capital value of remaining guaranteed disbursements. The value is calculated on assumptions about future return, life expectancy and operating expenses. The value of the asset is shown in [Note 21](#).

Information on how the economic annuity divisors for fund insurance and traditional insurance with profit annuity are calculated is found in [Appendix A Calculation Factors](#).

Liabilities in regard to preliminary contributions correspond to the assets invested under temporary management; the value of these assets can be found in [Note 21](#).

Table 8.32 Pension Liability, 2020

millions of SEK

	Fund insurance	Traditional insurance	Liabilities in regard to preliminary contributions
Premium pension capital, December 31, 2020			
Pension liability, December 31, 2019	1,461,885	29,602	40,674
Change in value	92,076	2,301	
Confirmed premium pension credit earned in 2019	44,098	389	-44,487
Preliminary contributions, premium pension, earned in 2020			48,670
Management fees allocated, etc.	4,622	21	
Inheritance gains arising	3,806	328	
Settlement, preliminary contributions, previous years			-44
Change in pension credit for the premium pension	10	0	
Decrease in liability because of pensions drawn in 2020	-12,344	-1,682	
Switch to Traditional insurance from fund insurance	-6,926	6,926	
Inheritance gains distributed ^a	-3,806	-328	
Deduction for costs of administration	-508		
Change in pension liability		-2,765	
Other	338	-13	-3,245
Total Premium pension capital, December 31, 2020	1,583,251	34,779	41,568
Adjustment affecting premium pension capital			
Total	1,583,251	34,779	41,568

a. Inheritance gains, capital released in 2019, to be allocated in 2020.

The pension liability is changed by new pension credit earned, preliminary contributions, changes in the extent of pension withdrawal, changes in pension credit due to changes in taxation, changes in value of assets, costs of administration, pension disbursements and estimates of future mortality for the insured.

Note 25 Other Liabilities

Table 8.33 Other Liabilities

millions of SEK

	2019	2020
Other liabilities	7,469	10,854
Share of consolidated Swedish Pensions Agency assets, liabilities and result, net	5	5
Total	7,474	10,859

Other liabilities consist chiefly of fund trading in progress, borrowings from the National Debt Office, accrued management fees and accrued interest fees.

The accounting for the premium pension's share of the Swedish Pensions Agency's assets, liabilities and results has been simplified so that a net amount is reported. It is included so that the balance sheet will balance.

A. Appendix Calculation Factors

The Social Insurance Code 58 Ch. 10 § (SFB) (2010:110) requires that the income index be calculated for each year. By Government decision, the Swedish Pensions Agency is to calculate and prepare proposals for an income index, which the Government then confirms. In addition, the Agency is required by the Regulations for the Earnings Related Old Age Pension (1998:1340) to calculate and confirm factors for inheritance gains, administrative costs and annuity divisors.

According to 64 Ch. 3 § SFB, premium pension operations are to be conducted according to sound insurance principles. These principles, as interpreted by the Swedish Pensions Agency, govern the calculation of the bonus rate, inheritance gains and annuity divisors for the premium pension. Further, the Swedish Pensions Agency is to calculate the fee that will finance premium pension operations.

Income Index

The change in the income index shows the development of the average income. Here, income refers to pension-qualifying income without limitation by the ceiling, but after deduction of the individual pension contribution.

$$(A.1.1) \quad I_t = I_{t-1} \cdot \frac{u_{t-1}}{u_{t-2}}$$

$$(A.1.2) \quad u_t = \frac{Y_t}{N_t}$$

t	calendar year
I_t	income index year t
u_t	average pension-qualifying income in year t . The denominator uses the same income data previously used to calculate the income index for the previous year and is therefore an estimate.
Y_t	total pension-qualifying income without limitation by the ceiling, person aged 16–64 in year t , after deduction of the individual pension contribution.
N_t	number of persons aged 16–64 with pension-qualifying income in year t

As of 2017, the income index is calculated according to new rules (SFS 2015: 676). The income index for year t will measure the change in average income between the years $t - 2$ and $t - 1$. Pension qualifying income is first known after taxation, that is, in December of the year following the income year. This means the income of the two most recent years is based on estimates. The income data used in the denominator is the same income data used for previous years. For 2018, the income index was calculated in a special way $I_t = I_{t-2} \cdot u_{t-1}/u_{t-3}$. Income index for year t is thus corrected by the outcome for the year $t - 3$. In the denominator for this calculation year, the outcome of average pension-qualifying income is used.

Balance Index

When balancing is activated, the balance index is used instead of the income index.

$$(A.2.1) \quad B_t = I_t \cdot BT_t^*$$

$$(A.2.2) \quad B_{t+1} = B_t \cdot \left(\frac{I_{t+1}}{I_t} \right) \cdot BT_{t+1}^* = I_{t+1} \cdot BT_t^* \cdot BT_{t+1}^*$$

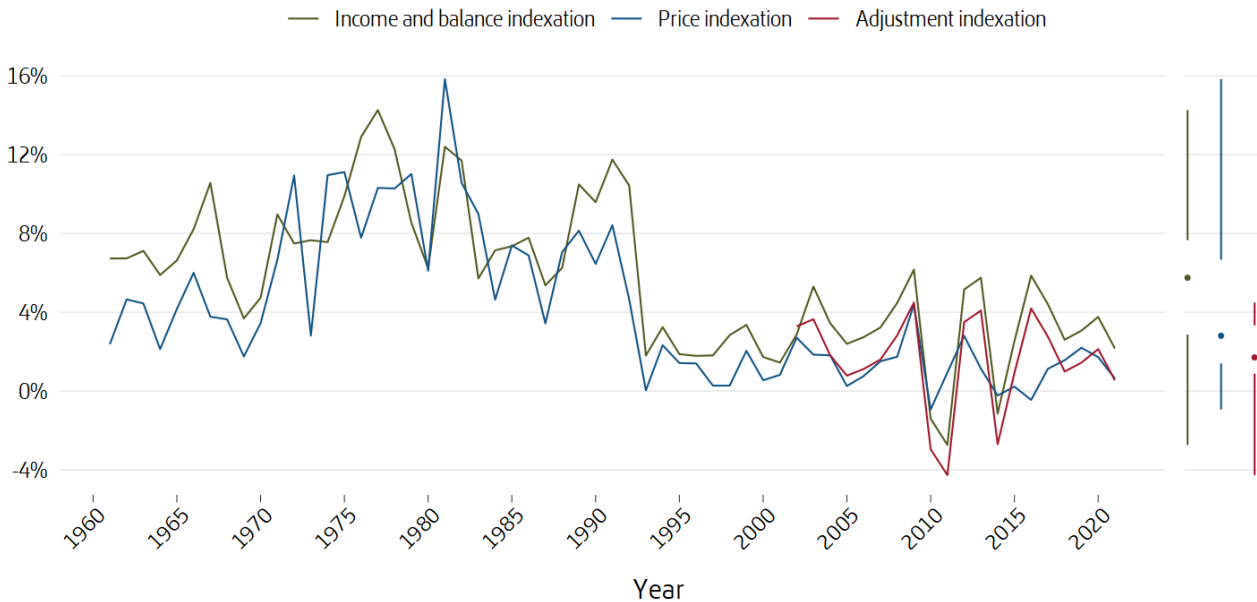
B_t balance index year t

I_t income index year t

BT_t^* damped balance ratio year t^1

At the turn of the year $(t - 1) \rightarrow t$, indexation takes place via multiplication of pensions by the ratio between the balance index for year t and the income index for year $t - 1$ divided by 1.016, and of pension balances by the ratio between the balance index for year t and the income index for year $t - 1$. At the end of year t , there is analogous indexation of the ratio between the balance index for year $t + 1$ and the balance index for year t . Indexation by the balance index ceases when the balance index reaches the level of the income index.

Figure A.1 Indexation

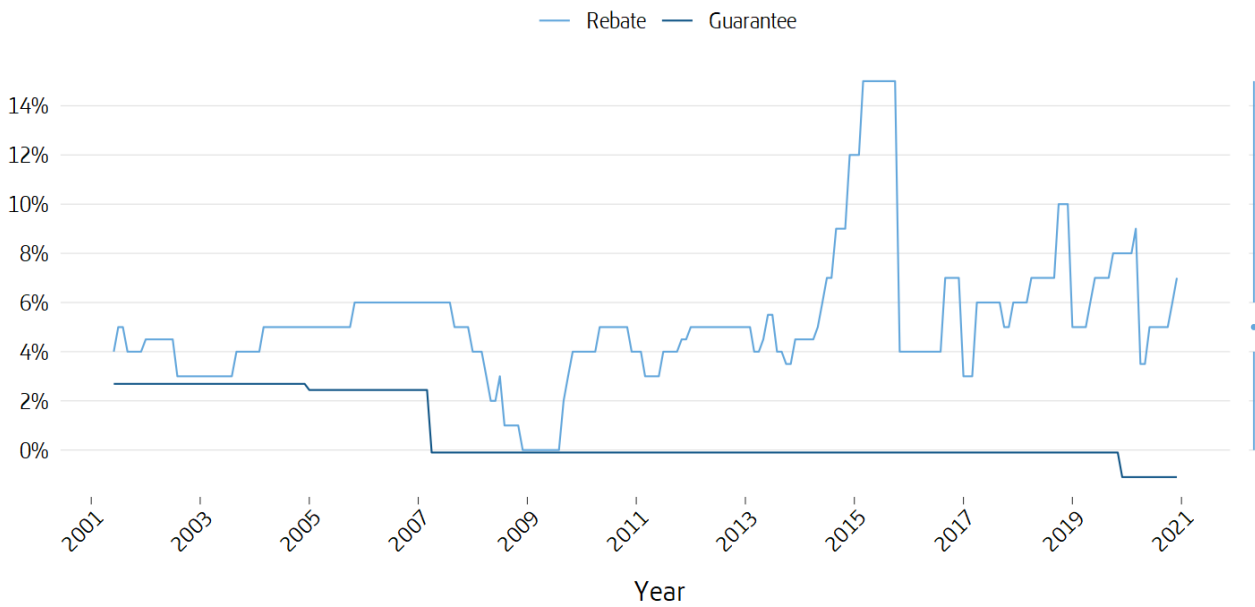


The point between the vertical lines is the median value. The starting point for the upper vertical line is the 75th percentile; the ending point is the maximum value. The starting point for the lower vertical line is the 25th percentile; the ending point is the minimum value.

Rate of return

In the premium pension system the amount to pay out is recalculated each year based on the value of the premium pension account. For those with fund insurance the yield from the account will depend on the fund returns, while for those with traditional insurance with profit annuity the value of the account will depend on the rate of return. The guaranteed amount in traditional insurance remains unchanged during the payout period, but it is increased if new premiums are received. The rate of return does not affect the amount of the life-insurance provisions since the pension liability is calculated on the basis of expected future payments of guaranteed amounts.

Figure A.2 Rate of Rebate and Guarantee



The point between the vertical lines is the median value. The starting point for the upper vertical line is the 75th percentile; the ending point is the maximum value. The starting point for the lower vertical line is the 25th percentile; the ending point is the minimum value.

Inheritance Gain Factors for the Inkomstpension

The pension balances of deceased persons are credited to the survivors in the same age group in the form of inheritance gains. For the economically active, this is done through multiplying the pension balances of the survivors by an annually calculated inheritance gain factor for the inkomstpension.

$$(A.4.1) \quad AF_{i,t} = \begin{cases} 1 + \frac{\sum_{j=2}^{17} PBd_{j-1,t-1}}{\sum_{j=2}^{17} PB_{j-1,t-1}}, & i = 2, 3, \dots, 17 \\ 1 + \frac{PBd_{i-1,t-1}}{PB_{i-1,t-1}}, & i = 18, 19, \dots, 60 \\ \frac{L_{i-1,t} + L_{i,t}}{L_{i,t} + L_{i+1,t}}, & i = 60, 61, \dots \end{cases}$$

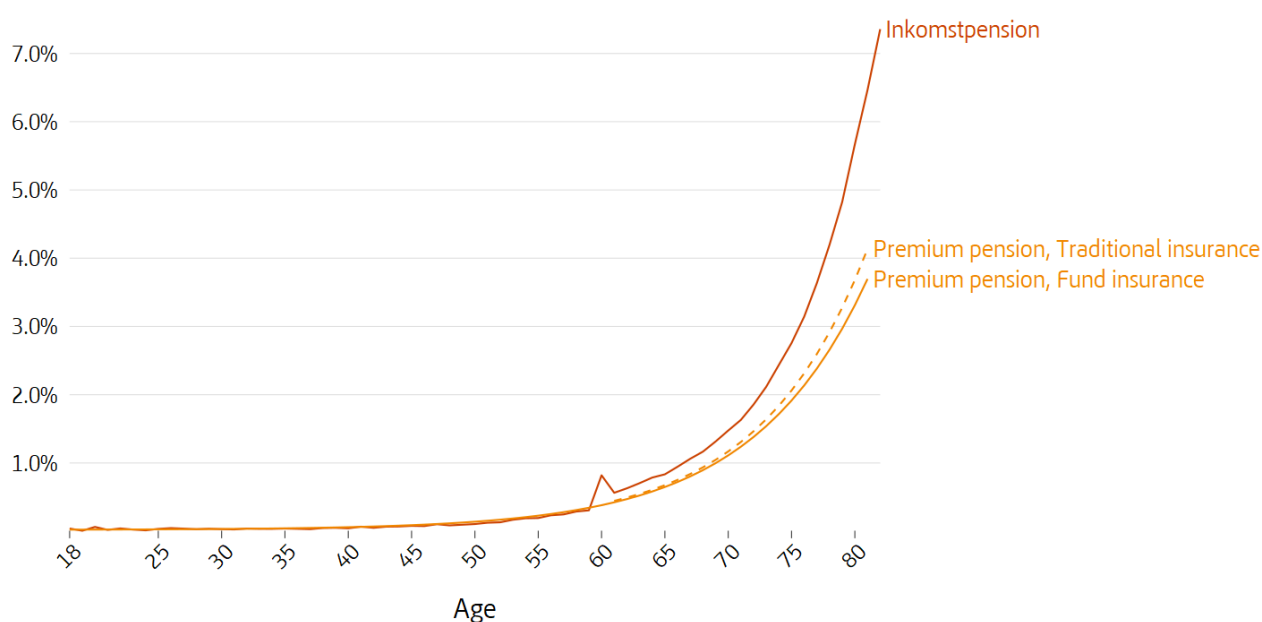
i age at end of year t

$AF_{i,t}$	inheritance gain factor t for age group i
$PBd_{i,t}$	pension balances of persons dying in year t in age group i
$PB_{i,t}$	total pension balances of survivors in year t in age group i
$L_{i,t}$	number of survivors in year t in age group i out of 100,000 born, according to the life span data of Statistics Sweden for the five-year period immediately preceding the year when the insured reaches age 60 for $i=60-64$ and age 64 for $i=65$ or older.

For persons 60 years of age or less, the inheritance gain factor is calculated as the sum of the pension balances of the deceased divided by the sum of the pension balances for the survivors in the same age group. For the group aged 2–17 years, a common inheritance gain factor is calculated. As there is some delay in information on persons dying during the year, the distribution of inheritance gains to persons aged 60 or less is made with a time lag of one year. For older persons, inheritance gain factors are calculated on the basis of the life-expectancy statistics from Statistics Sweden.

Inheritance gains arising after retirement are implicitly taken into account in the annuity divisor, through redistribution from individuals who die earlier to those who live longer. For the purpose of distributing inheritance gains by the same principle for both the economically active and retirees in the same birth cohort, the method of allocation is changed from age 60 on. By switching methods when the individual turns 60, the backlog in the distribution of inheritance gains before pension withdrawal. In the year when an insured turns 60, he or she is credited with double inheritance gains because of the two different procedures. In 2021, the change of method will take place at age 61 instead of 60 because the minimum withdrawal age has been raised to 62. Subject to a transitional provision, the age limit will be 60 in 2020.

Figure A.3 Inheritance Gains



The inheritance gain factor for the inkomstpension for 60-year-olds is shown in the diagram as the two inheritance gain factors multiplied by each other. In the actual distribution of inheritance gains, however, the two different inheritance gains factors are applied to different bases.

The impact of inheritance gains on the pension liability is limited, for the pension balances of deceased persons are redistributed to the survivors. There is, however, an effect on the inkomstpension liability to the economically active because of the difference between inheritance gains arising and inheritance gains distributed; this effect is shown in [Note 10, Chapter 8](#). For the group dying before their 60th year, the difference is explained by tax assessment changes between the time when inheritance gain factors are calculated and the time when the gains are distributed, and by late information on persons dying. For the group dying in their 60th year or thereafter, the reasons are differences between estimated and actual mortality, and possible variations in mortality depending on the insured's level of income, i.e. the effect due to the shorter average life spans, for each gender, of persons with low incomes compared to persons with high incomes.

Inheritance Gain Factors for the Premium Pension

In the premium pension system, inheritance gains are calculated as a percentage of the premium pension capital of the survivors. The percentage corresponds to the one-year risk of death, i.e. the probability of dying within one year. Inheritance gains are distributed once a year for both the economically active and retirees. As with the inkomstpension, future expected inheritance gains are included in the annuity divisor. If the insured elects a survivor benefit, the inheritance gain will be much smaller, as it is then based on the probability that the longer-surviving party, whether the primary insured or the co-insured, will die within one year of the first party.

The risk of death in year t is calculated by Makeham's formula (see [Annuity Divisors for the premium pension](#)). The values of a , b and c in the formula

are determined by the relationship between the capital of pension savers dying in year $t - 1$ and the capital of the surviving pension savers in the same year, calculated for each age group. The pension capital used to determine the inheritance gain in year t corresponds to the average balance of the premium pension account as of the last day of every month of year $t - 1$. The amounts of the inheritance gains are adjusted by a factor (close to 1) that will equalize with the greatest possible accuracy the total amount distributed in year t and the capital of pension savers dying in year $t - 1$.

The inheritance gains for the premium pension fund insurance do not affect the pension liability over time, as death capital is offset by inheritance gains distributed.

Table A.1 Values in determination of inheritance gain for 2019, distributed during 2020

	a	b	c	factor
Fund insurance	0.00013	0.0000053	0.1091	0.9938
Traditional insurance	0.00070	0.0000027	0.1188	0.9905

Administrative Cost Factor, Inkomstpension

The costs of administering the inkomstpension system reduce the pension balances of the economically active. The deduction from pension balances is recalculated annually through multiplication of pension balances by an administrative-cost factor.

$$(A.6.1) \quad FF_t = 1 - \left(\frac{B_t \cdot A_t + J_{t-1}}{PB_{t-1}} \right)$$

FF_t administrative cost factor, year t

B_t budgeted costs of administration, year t

A_t proportion charged to pension balances, year t

J_t adjustment amount, equals the difference between the amount that would have been deducted from pension balances in year t , based on actual cost in year t and the adjustment amount in year $t - 1$, as well as the actual deduction taken from pension balances in year t

PB_t total pension balances, year t

The administrative-cost factor is calculated on the basis of a certain proportion, A , of budgeted costs for year t . Until the year 2021, the proportion charged to pension balances will be less than 100 percent (see [Note 11](#)). Moreover, there is an adjustment for the administrative costs of year $t - 1$. The adjustment amount is equal to the difference between the amount that would have been deducted from pension balances, based on actual cost and the adjustment amount for the previous year, and the actual deduction made from pension balances in the same year.

The administrative-cost factor affects the inkomstpension liability to the economically active via the deduction from pension balances (see [Note 14](#),

Table 8.21 A in Chapter 8). The difference between total costs of administration (see Note 4 in chapter 8) and the deduction from pension balances puts a strain on the balance ratio.

Charge for Costs of Administration, Premium Pension

In the premium pension a charge is deducted from pension savers' premium pension accounts once a year. The charge is to cover the total operating costs of the premium pension, including interest and other financial expenses.

Administrative costs affect the capital of the premium pension system and at the same time, through the deduction from pension balances, they affect the premium pension liability by the same amount (see Note 17 and note 20) for fund insurance. For traditional insurance with profit annuity, life-insurance provisions are affected by assumptions of future expected operating costs.

Annuity Divisors for the Inkomstpension

The annuity divisors for the inkomstpension are used for recalculation of pension balances as annual disbursements and are a measure of life expectancy at retirement, with consideration given to the interest of 1.6 percent (advance interest) credited to pensions in advance.

$$(A.8.1) \quad D_i = \frac{1}{12L_i} \sum_{k=i}^r \sum_{X=0}^{11} \left(L_k + (L_{k+1} - L_k) \frac{X}{12} \right) (1.016)^{-(k-i)} (1.016)^{\frac{-X}{12}}, \quad i = 62, 63, \dots, r$$

D_i	annuity divisor for age group i
$k - i$	number of years of retirement ($k = i, i + 1, i + 2$, etc.)
X	number of months (0,1,...,11)
L_i	number of survivors in age group i per 100,000 born, according to the life span statistics of Statistics Sweden. These statistics are for the five-year period immediately preceding the year when the insured reached age 61 in the case of pension withdrawal before age 65, and age 64 in the case of withdrawal thereafter

For persons who have begun drawing their old-age pensions before age 65, the amount disbursed is recalculated, because of the recalculated annuity divisors, at the outset of the year when the individual turns 65. The reason for the recalculation is the change in the underlying statistical data for the latest life expectancy statistics available in the individual's 65th year. With the continuing increase in life expectancy, the recalculated annuity divisors have so far been higher than before, resulting in reduction of future monthly pensions. The consequent marginal decrease in the inkomstpension liability to retirees is a component of the Change in Amounts Disbursed in Note 14, Table 8.21 C in Chapter 8.

After age 65, there is no further recalculation of annuity divisors. The increase in the pension liability of the system resulting from the fixed

annuity divisors puts strain on the balance ratio when life expectancy is increasing.

Drawing an old-age pension involves a transfer of pension liability from the economically active to retirees. The actual recalculation of pension balances as annual disbursements results in a marginal change in the pension liability. The change arises because of the difference between annuity divisors and what we refer to as “economic annuity divisors” in this report. For a description of economic annuity divisors, see [Appendix B Mathematical Description of the Balance Ratio, Pension Liability](#). The economic annuity divisors are used to calculate the pension liability to retirees.

Annuity divisors are determined for each age with no upper age limit.

Table A.2 Confirmed Annuity Divisors for the Inkomstpension^a

	61	62	63	64	65	66	67	68	69	70
1938	17.87	17.29	16.71	16.13	15.56	14.99	14.42	13.84	13.27	12.71
1939	17.94	17.36	16.78	16.19	15.62	15.04	14.47	13.89	13.32	12.76
1940	18.02	17.44	16.86	16.27	15.69	15.11	14.54	13.96	13.39	12.82
1941	18.14	17.56	16.98	16.39	15.81	15.23	14.65	14.08	13.50	12.94
1942	18.23	17.65	17.06	16.48	15.89	15.31	14.74	14.16	13.59	13.02
1943	18.33	17.75	17.16	16.58	15.99	15.41	14.84	14.26	13.68	13.11
1944	18.44	17.86	17.28	16.70	16.11	15.54	14.96	14.38	13.80	13.23
1945	18.55	17.96	17.38	16.80	16.22	15.64	15.07	14.48	13.91	13.33
1946	18.64	18.05	17.47	16.89	16.31	15.73	15.16	14.57	13.99	13.41
1947	18.73	18.15	17.56	16.98	16.40	15.83	15.24	14.66	14.07	13.49
1948	18.83	18.24	17.66	17.07	16.49	15.91	15.33	14.74	14.16	13.58
1949	18.89	18.31	17.72	17.13	16.55	15.97	15.38	14.79	14.21	13.63
1950	18.98	18.39	17.80	17.21	16.63	16.05	15.46	14.87	14.28	13.70
1951	19.06	18.48	17.89	17.30	16.71	16.13	15.54	14.95	14.37	13.78
1952	19.14	18.55	17.96	17.37	16.78	16.20	15.61	15.02	14.43	13.85
1953	19.20	18.62	18.03	17.44	16.85	16.26	15.68	15.09	14.50	13.91
1954	19.28	18.69	18.11	17.52	16.93	16.34	15.76	15.17	14.58	13.99
1955	19.34	18.75	18.16	17.58	16.99	16.40	15.81	15.22	14.63	14.04
1956	19.42	18.84	18.25	17.66	17.07	16.48	15.89	15.30	14.71	14.12

a. Annuity divisors are confirmed each year for all ages, but the table shows only the divisors up to age 70.

Annuity Divisors for the Premium Pension

To calculate the annual premium pension, the value of the premium pension account is divided by an annuity divisor for the premium pension. Unlike the inkomstpension, the annuity divisor for the premium pension is based on forecasts of life expectancy.

$$(A.9.1) \quad D_x = \int_0^{\infty} e^{-\delta t} \frac{l(x+t)}{l(x)} dt$$

$$(A.9.2) \quad \delta = \ln(1+r) - \epsilon$$

$$(A.9.3) \quad l(x) = e^{-\int_0^x (1-s)\mu(t)dt}$$

$$(A.9.4) \quad \mu(x) = \begin{cases} a + be^{cx} & \text{when } x \leq 100 \\ \mu(100) + (x - 100) \cdot 0.01 & \text{when } x > 100 \end{cases}$$

D_x	annuity divisors
x	exact age at time of calculation
r	interest rate
ϵ	interest intensity of operating costs
s	mortality charge

The annuity divisors are calculated in continuous time and according to exact age at retirement, but in principle they are consistent with the formula for the annuity divisor for the inkomstpension.² The survival function, $l(x)$, can be considered equivalent to the number L used in the calculation of the inkomstpension. The mortality function, $\mu(x)$, is the so-called Makeham's formula used for calculating the risk of death within one year. The values of a , b and c correspond to Statistics Sweden's forecast of remaining life expectancy in the years 2015–2110 for individuals born in 1938, 1945 or 1955.

So-called cohort mortality is used, which means that the year cohort 1938 is used for individuals born in the 1930s or earlier, year cohort 1945 is used for individuals born in the 1940s, and year cohort 1955 is used for individuals born in the 1950s or later. For $x > 100$ $\mu(x)$ merges with a straight line with a slope of 0.01. During 2016, a charge s was imposed on mortality intensity following an analysis of how premium pension mortality differed from that found in Statistics Sweden.

Table A.3 Current Values for Disbursement Amounts in Fund Insurance and Traditional Insurance

Cohort	a	b	c	s
1930s	0.00005	0.00000198	0.1239	0.1
1940s	0.00460	0.00000053	0.1373	0.1
1950s	0.00470	0.00000019	0.1476	0.1

When calculating the guaranteed amount in traditional insurance with profit annuity, the Statistics Sweden alternative with low mortality is used, reduced by a further 10 percent.

In the calculation of the payment amount, the interest rate assumption is called advance interest rate. The interest intensity δ is based on the interest rate of 1.75 percent for both fund insurance and traditional insurance, reduced by the interest intensity for operating expenses of 0.1 percent, which corresponds to $\delta = 0.016349$.

When calculating the annuity divisor to produce the guaranteed amount in the traditional insurance, we use Statistics Sweden's alternative with low

mortality reduced by a further 10 percent, an interest rate which is -1.0 percent and an interest intensity for operating expenses of 0.1 percent.

In traditional insurance, the technical insurance provision, FTA (“pension liability”), consists of life insurance provision, unpaid claims and other technical insurance provisions. The life insurance provision is determined for each insurance as the capital value of remaining guaranteed payments. The value is calculated using assumptions about the discount rate, mortality and operating costs. As of May 1, 2017, when a new law regulating the Swedish Pensions Agency’s premium pension operation came into effect, the discount rate is given by an interest rate curve that is the average of the interest rate curve for government bonds and mortgage bonds. The mortality assumption is different for men and women, but otherwise calculated as for amounts to be paid out, cohort-based and using Statistics Sweden’s forecast with a deduction of 10 percent. Operating expenses are assumed to be 0.07 percent of the capital.

Unpaid claims are pension disbursements that have not been able to be carried out. Remaining technical provisions consist of reductions from the transfer of pension credit between spouses not yet distributed. These two items are very small compared to the life insurance provision.

Table A.4 Annuity Divisors for Annual Amount, Fund and Traditional Insurance

	61	62	63	64	65
Without survivor benefit	20.91	20.37	19.82	19.26	18.69
With survivor benefit					
Co-insured 55	26.30	26.12	25.95	25.80	25.65
Co-insured 60	24.69	24.44	24.19	23.96	23.75
Co-insured 65	23.39	23.05	22.72	22.40	22.10
Co-insured 70	22.31	21.88	21.45	21.04	20.63
	66	67	68	69	70
Without survivor benefit	18.12	17.54	16.29	15.71	15.13
With survivor benefit					
Co-insured 55	25.51	25.38	25.17	25.06	24.97
Co-insured 60	23.55	23.36	23.04	22.89	22.75
Co-insured 65	21.81	21.53	21.06	20.83	20.63
Co-insured 70	20.23	19.84	19.12	18.79	18.47

Table A.5 Annuity Divisors for Guaranteed Annual Amount (Traditional insurance)

	61	62	63	64	65
Without survivor benefit	32.49	31.38	30.27	29.17	28.09
With survivor benefit					
Co-insured 55	44.62	44.18	43.76	43.38	43.02
Co-insured 60	40.58	39.97	39.40	38.88	38.39
Co-insured 65	37.57	36.78	36.04	35.34	34.68
Co-insured 70	35.52	34.59	33.70	32.84	32.01
	66	67	68	69	70
Without survivor benefit	27.01	25.94	24.89	23.84	22.81
With survivor benefit					
Co-insured 55	42.70	42.40	42.12	41.87	41.63
Co-insured 60	37.94	37.53	37.15	36.80	36.48
Co-insured 65	34.06	33.49	32.95	32.46	32.01
Co-insured 70	31.22	30.47	29.77	29.10	28.48

Change in Value, Premium Pension

In chapter 6 *Changes in the Value of the Pension System*, two different measures are used for calculating the change in value in the premium pension system. These measures are time-weighted return and capital-weighted return. They are briefly described below.

Capital-Weighted Rate of Return

The capital-weighted rate of return takes into consideration the capital flow of the account by weighing together the return and the capital in the account during the corresponding period. This means that during periods when the sum under capital management has been large, the return is given greater weight in the calculation than the return during periods when there has been little capital managed. The cash flows chiefly included in the calculations consist of paid-in pension credit and pension disbursements. The interest on the preliminary pension credit, the return on the funds in the portfolio, the administration fee to the Swedish Pensions Agency, the management fee to fund companies, the bonus on the management fee and inheritance gains are not included in the cash flows, but affect the return directly.

When the capital-weighted return is calculated, the so-called internal rate of return is sought. This rate is a discount rate at which the present value of all cash flows, including the value of the closing balance but with the opposite sign, will equal zero.

The capital-weighted return (also referred to as the Internal Rate of Return, or IRR) is calculated by solving the equation

$$(A.10.1) \quad \sum_{t=0}^T \frac{C_t}{(1+r)^{\frac{t}{365}}} = 0$$

r internal rate of return during the period, expressed as an annual rate

t	number of days since the starting point
T	closing point
C_t	transaction (cash flow) at time t
C_T	final value, that is, the value of the account as of the day when the valuation is made

The equation requires that the final value be negative so that a value of SEK X results in a transaction of SEK $-X$. C_T is thus always ≤ 0 .

To calculate the internal rate of return, it is therefore necessary to know the closing value of the portfolio (market value), all cash flows to and from the portfolio, and the time when these cash flows take place. The internal rate of return can be said to yield the “interest rate on bank accounts” which, given the deposits and withdrawals, have resulted in the current closing value.

The formula above for the internal rate of return is the one normally used in financial matters.

It can also be expressed in the following way, which is consistent with how interest is actually credited to bank accounts:

$$(A.10.2) \quad \sum_{t=0}^{T-1} C_t \cdot (1 + r)^{\frac{T-t}{365}} = C_T$$

Interest is earned on each deposit C_t from the time of deposit t until the closing date T .

C_T is greater than or equal to zero, and is the balance at the time of calculation.

Time-weighted return

With the time-weighted return, adjustment is made for the effects of capital inflows and outflows, that is, to prevent new pension credit recorded or pensions paid from affecting the calculated rate of return. The time-weighted return thus measures the return for a certain deposited amount for a certain period of time. If time-weighted, the return is measured for a period, the returns for the partial periods are weighed together with equal weights. A partial period consists of the time between two cash flows. The equation below describes the time-weighted return.

$$(A.10.3) \quad R_t = \left(\prod_{t=0}^T \frac{MV_{t+1}}{MV_t + C_t} \right) - 1$$

R_t	return during the period
t	number of days since the starting point
T	closing point
MV_t	market value at time t
C_t	transaction (cash flow) at time t

The time-weighted return can be used to obtain accurate comparisons of the return between funds, where fund managers cannot set aside more capital under favourable return conditions or vice versa. The measure can also be used for comparisons with relevant market indices or with the return achieved by other managers. In the premium pension system, the pension saver cannot freely determine the in- or outflow of capital for the premium pension account. On the other hand, the saver decides whether and when the moneys invested are to be transferred to another fund. The fund companies have no influence over the flow of capital in the fund.

Tabell A.6 Measures of the development of value for the system

How well are the funds doing?
 – Time Weighted Return (Premium Pension Index)
 How well are the pension savers doing?
 – Capital-Weighted Return

Tabell A.7 Measures of the development of value for fund savers

How well are *my* funds doing?
 – Time Weighted Return per Fund
 – Time-Weighted Return for the Fund Portfolio
 How well is *my* account/*my* pension doing?
 – Capital-Weighted Return

Footnotes

1. For balance index 2016 and earlier the balance ratio was used (SFS:2015:676).
2. The formula applies in cases where one life is insured, i.e. where there is no survivor coverage.

B. Appendix Mathematical Description of the Balance Ratio

Excerpt from Regulation (2002:780) on the Calculation of the Balance Ratio¹

In accordance with Ch. 58 § 14 of the Social Insurance Code (SFB, 2010:110), a balance ratio is to be calculated annually. The regulations (2002:780) require the Swedish Pensions Agency to prepare a calculation of the balance ratio, to be confirmed subsequently by the Government.

The balance ratio is calculated as follows:

Balance Ratio, BT

$$(B.1.1) \quad BT_t = \frac{AT_{t-2} + BF_{t-2}}{S_{t-2}}$$

$$(B.1.2) \quad AT_t = A_t \cdot OT_{t-1}$$

t	calender year if the variable refers to flows, end of calender year if the variable refers to stocks
AT_t	contribution asset, year t
BF_t	buffer fund, the aggregate market value of the assets of the First–Fourth and Sixth National Pension Funds in year t . By market value is meant the value which according to Ch. 6 § 3 of the National Pension Funds Act (2000:192) and Ch. 4 § 2 Sixth National Pension Fund Act (2000:193), is to be shown in the annual reports of these funds
S_t	pension liability, year t
A_t	contribution revenue of the pay-as-you-go system, year t
OT_t	turnover duration, year t

Damped Balance Ratio, BT^*

The damped balance ratio for a year is equal to 1 plus one-third of the difference between the balance ratio fixed for that year and the number 1. The damped balance ratio is rounded to four decimal places.

$$(B.2.1) \quad BT^* = \frac{BT-1}{3} + 1$$

Turnover Duration, OT

$$(B.3.1) \quad OT_t = U\dot{A}_t - I\dot{A}_t$$

Income Age, $I\ddot{A}$

$$(B.4.1) \quad I\ddot{A}_t = \frac{\sum_{i=16}^{R_{intj,t}} \overline{PR}_{i,t} \cdot L_{i,t} \cdot (i + 0.5)}{\sum_{i=16}^{R_{intj,t}} \overline{PR}_{i,t} \cdot L_{i,t}}$$

$$(B.4.2) \quad \overline{PR}_{i,t} = \frac{\frac{PR_{i,t}}{N_{i,t}} + \frac{PR_{i+1,t}}{N_{i+1,t}}}{2}, \quad i = 16, 17, \dots, R_{intj,t} - 1$$

$$(B.4.3) \quad \overline{PR}_{R_{intj,t}} = \frac{PR_{R_{intj,t}}}{N_{R_{intj,t}}}$$

$$(B.4.4) \quad L_{i,t} = L_{i-1,t} \cdot h_{i,t}, \quad i = 17, 18, \dots, R_{intj,t} \text{ d\aa}r L_{16,t} = 1$$

$$(B.4.5) \quad h_{i,t} = \frac{N_{i,t}}{N_{i-1,t-1}}, \quad i = 17, 18, \dots, R_{intj,t}$$

i	age at year-end
$R_{intj,t}$	the highest age group to have earned pension credit for year t
$PR_{i,t}$	the sum of 16 percent of pension qualifying-income calculated according to Ch. 59 of the Social Insurance Code and 16 percent of the pension-qualifying amounts calculated according to Ch. 60 of said code, income year t , age group i
$N_{i,t}$	number of individuals in age group i who at any time through income year t have been credited with pension-qualifying income or pension-qualifying amounts and have not been registered as deceased
$L_{i,t}$	proportion of persons in age group i year t
$h_{i,t}$	change in proportion of persons in age group i year t

The proportion of pension liability relating to pensioners, R_i^*

The proportion of pension liability relating to pensioners R_i^* indicates how large a share of pension liability in age group i concerns pensioners and is included in the calculation of the payment age $U\ddot{A}$.

$$(B.5.1) \quad R_i^* = \frac{SP_{i,t}}{SP_{i,t} + PB_{i,t}^*}$$

$SP_{i,t}$	pension liability in year t for age group i concerning pensioners in the distribution system in respect to pensions paid
$PB_{i,t}^*$	the sum of pension balances without regard to change in the income index between year t and $t + 1$

Payment Age, $U\dot{A}$

$$(B.6.1) \quad U\dot{A}_t = \frac{\sum_{i=61}^{R_{utb,t}} 1.016^{-(i-61+0.5)} \cdot L_{i,t}^* \cdot (i + 0.5) \cdot R_i^*}{\sum_{i=61}^{R_{utb,t}} 1.016^{-(i-61+0.5)} \cdot L_{i,t}^* \cdot R_i^*}$$

$$(B.6.2) \quad L_{i,t}^* = L_{i-1,t}^* \cdot he_{i,t} \quad \text{where } L_{60,t}^* = 1$$

$$(B.6.3) \quad he_{i,t} = \frac{U_{i,t}}{U_{i,t} + Ud_{i,t} + 2 \cdot Ud_{i,t}^*}, \quad i = 61, 62, \dots, R_{utb,t}$$

$R_{utb,t}$	oldest age group receiving a pension, year t
$L_{i,t}^*$	proportion of remaining disbursements to age group i year t
R_i^*	the proportion of pension liability in age group i concerning pensioners
$he_{i,t}$	change in pension disbursements due to deaths, year t , age group i ²
$U_{i,t}$	total pension disbursements in December of year t to age group i
$Ud_{i,t}$	total of last monthly pension disbursements to persons in age group i who received pensions in December of year $t - 1$, but not in December of year t ³
$Ud_{i,t}^*$	total of last monthly pension disbursements to persons in age group i who were granted pensions in year t but did not receive a pension payment in December of year t ⁴

Pension Liability, S

$$(B.7.1) \quad S_t = SA_t + SP_t$$

$$(B.7.2) \quad SA_t = PB_t^* + IPR_t + TP_t$$

$$(B.7.3) \quad PB^* = \frac{PB_t}{\frac{I_{t+1}}{I_t}}$$

$$(B.7.4) \quad SP_t = BT_{t+1}^* \cdot \sum_{i=61}^{R_{utb,t}} U_{i,t} \cdot 12 \cdot \left(\frac{De_{i,t} + De_{i,t-1} + De_{i,t-2}}{3} \right)$$

$$(B.7.5) \quad De_{i,t} = \frac{\sum_{j=i}^{R_{utb,t}} \frac{1}{2} \cdot (L_{j,t}^* + L_{j+1,t}^*) \cdot 1.016^{i-j-1}}{L_{i,t}^*},$$

$i = 61, 62, \dots, R_{utb,t} \quad \text{where } L_{R_{utb,t}+1}^* = 0$

SA_t	pension liability in year t in regard to pension commitment for which disbursement has not commenced (pension liability to the economically active)
SP_t	pension liability in year t in regard to pensions being disbursed to retired persons in the pay-as-you-go system
PB_t^*	the sum of pension balances without regard to change in the income index between year t and $t + 1$
IPR_t	estimated value of pension credit earned in year t for inkomstpension according to Ch. 61 §§ 5-10 of the Swedish Social Insurance Code, calculated according to Ch. 62 § 5, second paragraph of same code
TP_t	estimated value of ATP, year t for persons who have not begun to draw this pension
PB_t	the sum of pension balances for year t according to Ch. 62 §§ 2, 5 and 7 of the Swedish Social Insurance Code
I_t	income index for year t according to Ch. 58 § 11 of the Swedish Social Insurance Code
BT_t^*	damped balance ratio, calculated according to Ch. 58 § 20a of the Swedish Social Insurance Code, when the balance index has been fixed for the same year ⁵
$De_{i,t}$	economic annuity divisor for age group i year t

Footnotes

1. Some editing has been done to simplify the presentation.
2. The minimum age for drawing a pension has been raised in 2020 from 61 to 62. In the end of 2020 there are therefore missing pension payments, $U_{61,2020}$, for age 61 and the Pensions Agency therefore considers that he is set at 1, i.e. $he_{61,2020} = 1$.
3. As of 2016, only payments terminated due to death are included. In previous years payments terminated as a result of pension deferral were also included. The risk period has been changed to cover an entire year. Previously the only payments included were those made to individuals who had received at least one payment in year t (in practice, to be included in the variable, previous payments in December of year $t - 1$ and January of year t was required).
4. As of 2016, only payments terminated due to death are included. In previous years payments terminated as a result of pension deferral were also included.
5. When the balance index has not been fixed, BT_t^* is set to 1.

C. Appendix List of Terms

List of Terms

actuarial provisions (försäkringstekniska avsättningar)
provisions set aside to guarantee the commitment of the insurer in traditional insurance.

adjustment indexation¹ (följsamhetsindexering)
annual recalculation of inkomstpension and ATP pension based on the change in the income index. The change in the index is reduced by the interest of 1.6 percent credited in the annuity 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 follows:

$$\text{Adjustment indexation (at the turn of the year } (t - 1) \rightarrow t) = \frac{I_t / I_{t-1}}{1,016}$$

During a balancing period, the income index is replaced by balance index.

administrative costs (administrationsavgift)
fee to cover costs of administration and operations, (see [Appendix A](#)).

annuity divisor (delningstal)
a number used to calculate pension amounts in premium-based pension insurance. The annuity divisor reflects remaining life expectancy at retirement, taking into account the imputed interest credited to the pension (see [Appendix A](#)). Economic annuity divisors are used for calculating the pension liability (see [Appendix B](#)).

ATP (tilläggs pension)
part of the national public pension calculated according to the ATP system. Supplementary pension refers to the former ATP plus folkpension and is paid to all persons born before 1938. Persons born between 1938 and 1953 receive a certain number of twentieths of their income-related pension as ATP and the remaining number of twentieths as inkomstpension and premium pension. The respective number of twentieths depends on the year of birth. The ATP system was a defined-benefit pension system. The ATP portion of the ATP plus folkpension is equal to 60 percent of the average pension points for the 15 years with the most pension points; the folkpension portion is equal to 96 percent of one price-related base amount for single pensioners and 78.5 percent for married pensioners. To receive a full pension, an individual must have at least 30 years of pension-qualifying income.

balance index (balansindex)
replaces the income index during a balancing period. When balancing is activated, pension balances and pensions are indexed by the change in a balance index instead of the income index.

balance ratio (balanstal)
a number that expresses the relationship between assets and pension liability in the inkomstpension and ATP pension system (see [Appendix B](#)).

balancing (balansering)
a method for restoring financial balance in the inkomstpension and ATP pension systems of the national pension. Balancing is activated if the balance ratio drops below 1.0000, that is, if the pension liability exceeds the

assets of the system, and ends when the balance index reaches the same level as the income index.

buffer fund (buffertfond)

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

capital-weighted return (kapitalviktad avkastning)

another term for the capital-weighted return is internal rate of return. In the premium pension system, the measure is used in evaluating individual accounts, but also for the system as a whole. Consideration is given to the point in time and amount of all paid-in pension credit and pensions disbursed as well as pension account balances at the end of the period. The capital-weighted return corresponds to the average annual return during the period and may be compared, for example, with the interest on a bank account. The Pensions Agency's calculation of the capital-weighted return for the premium pension includes in the return not only the change in value of the funds concerned, but also inheritance gains, bonuses and management fees. For more detailed information, see [Appendix A](#).

ceiling on contributions² (avgiftstak)

the highest income on which the national pension contribution and the central-government pension contribution can be based, equivalent to 8.07 income base amounts.

ceiling on pension-qualifying income (intjänandetak)

the highest income, after deduction of the individual pension contribution, for which pension credit is earned. It corresponds to 7.5 income base amounts.

central government old-age pension contribution

a pension contribution paid by the central government. The contribution is 10.21 percent of pension-qualifying social-insurance benefits, except for sickness and activity compensation (disability pension). For sickness and activity compensation and so-called pension qualifying amounts, the contribution is 18.5 percent. (statlig ålderspensionsavgift)

compounding (förräntning)

in this report, synonymous with indexation.

contribution asset (avgiftstillgång)

the value of the flow of contributions to the inkomstpension. Calculated by multiplying the contribution revenue by turnover duration.

contribution base (avgiftsunderlag)

the incomes and amounts on which a pension contribution is to be paid. Consists primarily of earnings, but also of social insurance benefits, such as sickness cash benefits and unemployment cash benefits, as well as pension-qualifying amounts.

contribution revenue (avgiftsinkomst)

the total pension contributions paid to the pay-as-you-go system in one year.

damped balance ratio (dämpat balanstal)

the damped balance ratio for a year is equal to 1 plus one-third of the difference between the balance ratio fixed for that year and the number 1. The damped balance ratio is rounded to four decimal places.

defined-benefit pension system	(förmånsbestämt pensionssystem)
a pension system where pensions are set in advance to a fixed amount or a certain percentage of, for example, final salary or average earnings during a specified number of years. In a defined-benefit pension system the financial risk - due to variations over time in return on the system's assets and in mortality rates - is borne by the insurer. In a public pension system, the insurer is the taxpayers, which means that contributions/taxes to the system may vary.	
defined-contribution pension system	(avgiftsbestämt pensionssystem)
a pension system in which pension credit in monetary terms accrues by the same amount as the pension contribution paid by or for the individual. In a defined-contribution pension system, the insured bears the financial risk deriving from the variability over time in the mortality rate and in the rate of return on the assets of the system. This means that the value of the pension is not guaranteed but may vary.	
fund	(fond)
a legal entity operated by a fund management company. The fund management company invests in securities in which investors in turn can buy shares.	
fund asset	(fondtillgång)
the value of the assets at the end of the confirmation year.	
fund insurance	(fondförsäkring)
pension insurance where capital is invested in funds that may be selected via an insurance company. Through their choice of funds, the insured decide how to invest their saving and bear the risk associated with the development of their pension balances.	
fund strength	(fondstyrka)
the monetary amount of the buffer fund at the end of a given year divided by the pension disbursements for the same year. It is a measure of the size of the buffer fund in relation to the flow of pension payments.	
funded system	(fonderat system)
a pension system in which contributions or premiums paid in are placed in funds and saved separately for each individual or for a collective. The premium pension system is an example of a funded system.	
guarantee rule/guaranteed supplement	(garantiregel/garantitillägg)
an amount by which ATP pension is raised for those born 1938–1953 to ensure they will not receive lower pensions than what they earned up to and including 1994.	
guaranteed pension	(garantipension)
portion of the national public pension paid to those with little or no inkomstpension and/or ATP pension.	
income age	(intjänandeålder)
indicates the average expected capital-weighted age for earned pension credit.	
income index ³	(inkomstindex)
the change in the income index shows the development of the average income each year. The measure of income used here is pension-qualifying income, without limitation by the ceiling, but after deduction of the individual pension contribution, (see Appendix A).	
income-based old-age pension	(inkomstgrundad ålderspension)
the inkomstpension and ATP plus the premium pension.	

income base amount	(inkomstbasbelopp)
base amount which is recalculated each year according to the change in the income index. The income base amount is used primarily to calculate the ceilings on contributions and pension-qualifying income.	
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)
pension contribution paid by each person individually via income tax. It corresponds to 7 percent of income up to the ceiling for contributions.	
inheritance gain	(arvsvinst)
pension balance or insurance capital from a deceased insured person that goes to survivors in the insurance collective. In the national public pension, this refers to inkomstpension assets and premium pension capital inherited by the surviving insured (see Appendix A).	
inkomstpension	(inkomstpension)
the portion of the national public pension where the contribution, 16 percent of the pension base, is paid to a pay-as-you-go system.	
internal rate of return	(internränta)
see capital-weighted return.	
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	(allmän pension)
pension provided for by law. The national public pension is governed by the Social Insurance Code and consists primarily of the inkomstpension, the ATP pension, the premium pension and the guaranteed pension.	
old-age pension contribution	(ålderspensionsavgift)
paid by employers as an employer contribution and by self-employed persons as an individual pension contribution. The contribution rate for the old-age pension is 10.21 percent. It is paid on the individual's entire income, but the contribution levied on the portion of income above the ceiling is not credited to the pension system, but to the central government.	
pay-as-you-go pension systems	(fördelningssystem)
pension system in which pension contributions or premiums paid in during a given year are used to finance disbursements the same year. In a PAYG system with a buffer fund, any surpluses are used to finance deficits in other years.	
payment age	(utbetalningsålder)
indicates the expected average capital-weighted age for pension payments.	
pension balance	(pensionsbehållning)
the value of earned pension credit within the national public pension at any given time. The pension balance for inkomstpension, after deduction of administration costs, is the sum of pension credit each year, adjusted to	

reflect inheritance gains distributed and recalculated by changes in the income index or the balance index.

pension base (pensionsunderlag)
the total of an individual's pension-qualifying income and pension-qualifying amounts, but no higher than 7.5 income base amounts per year.

pension contribution (pensionsavgift)
contribution to the national public pension. See individual pension contribution, old-age pension contribution and central-government old-age pension contribution.

pension credit (pensionsrätt)
amount set aside each year for inkomstpension and premium pension. An individual's pension credit is 18.5 percent of her/his total pension base and equal to her/his total contribution to the pension system. Individuals born in 1954 or thereafter are credited with 16 percent of their pension base for the inkomstpension and with 2.5 percent of their pension base for the premium pension.

pension liability (pensionsskuld)
in this report, the financial commitment of the pension system at the end of each year. For the inkomstpension, the pension liability to the economically active is calculated as the sum of the pension balances of all individuals. The pension liability to retirees is calculated by multiplying the annual pension amount of each birth cohort by the economic annuity divisor for that cohort. Through 2017 the pension liability will also be calculated for the ATP credit earned by the economically active. With fund insurance, the pension liability for the premium pension is calculated as the total value of all fund shares; with traditional insurance, the pension liability is calculated as each guaranteed amount multiplied by an annuity divisor.

pension points (pensionspoäng)
points in the national public pension for persons born 1938-1953 which are calculated annually on the basis of pension-qualifying income and are used to calculate ATP pension. Pension points are calculated as follows:

$$\text{Pension points} = \frac{PGI - HPBB}{HPBB}$$

PGI: pension-qualifying income

HPBB: the higher price-related base amount

pension-qualifying amounts (PGB) (pensionsgrundande belopp)
basis for pension credit in the national public pension for a fictive income for: years with small children, studies, national service, sickness or activity compensation.

pension-qualifying income (PGI) (pensionsgrundande inkomst)
income used as a basis for calculating pension credit in the national public pension. In principle, pension-qualifying income consists of annual income (earnings, sickness cash benefits, parental cash benefits, unemployment cash benefits, etc.) reduced by the individual pension contribution. Beginning in 2003, annual income must exceed 42.3 percent of one price-related base amount to qualify for pension credit.

potential GDP (potentiell BNP)
the level of gross domestic product (GDP) that would arise in the absence of cyclical fluctuations and which in the long term is compatible with stable inflation. Potential GDP cannot be observed in the data but is the result of an assessment. The difference between actual and potential GDP, the so-

called GDP gap, indicates which cyclical phase the economy is currently in. If the gap is positive, the economy is experiencing a boom, if the gap is negative the economy is in recession.

premium pension (premiepension)
part of the national public pension in which the contribution, consisting of 2.5 percent of the pension base, is invested in funds.

price-related base amount⁴ (prisbasbelopp)
an amount used in the national pension system for purposes including calculation of the guaranteed pension. The price-related base amount is recalculated each year according to the change in the Consumer Price Index (for June). In addition there is a higher price-related base amount, which is used to calculate pension points and also follows changes in the Consumer Price Index.

recommended retirement age (riktålder)
age to which pension benefits and calculations are linked. The recommended retirement age serves as a benchmark for the earliest date on which the national public pension should be drawn. The date of when entitlement to the basic benefits of the national public pension can occur is also guided by the recommended retirement age.

resource utilization (resursutnyttjande)
indicates the extent to which the economy's productive resources – labour and capital – are being utilized. Full resource utilization means the economy is in balance.

return (avkastning)
income that results from an investment. For shares of stock, the return may consist of a dividend and the change in the market price. In this report, the concept refers to the direct return plus the change in value of the buffer fund and the premium-pension funds.

time-weighted return (tidsviktad avkastning)
the time-weighted return is used to describe the change in value of a fund or index. The measure shows the return on a deposit made at the outset of the period, without consideration of whether additional deposits or withdrawals have been made during the period. For more detailed information, see [Appendix A](#).

traditional insurance (traditionell försäkring)
pension insurance where the insurance company decides how the insurance capital is to be invested and provides some form of guaranteed payments together with the chance to receive a share of any surplus.

turnover duration (omsättningstid)
reflects the expected time from the earning of pension credits to their payment in the form of inkomstpension. The turnover duration is calculated as the difference between payment age and income age. The turnover duration is used to value the flow of contributions. It is determined by the rules for earning pensions and pension payments and by the earned income and mortality patterns of each age group.

Footnotes

1. For amounts and values, see Statistik och publikationer at www.pensionsmyndigheten.se
2. For amounts and values, see Statistik och publikationer at www.pensionsmyndigheten.se
3. For amounts and values, see Statistik och publikationer at www.pensionsmyndigheten.se
4. For amounts and values, see Statistik och publikationer at www.pensionsmyndigheten.se