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Swedish pension reforms in the 1990s.¹

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Abstract

Many Western countries with an aging population consider reforms of their pay-as-you-go pension systems. In Sweden a new pension system has already been decided and implemented. This paper gives a brief background to the Swedish reforms in the 1990s and explains the structure of the new system.

Keywords: Pensions, pay-as-you-go, notional defined pensions, pension reform
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1. Three kinds of pensions

1.1 Social security pensions

In 1947 Parliament decided on a flat rate basic pension that was not means-tested. 1960 an earnings related supplementary pension followed. After a referendum voters opted in favour of a PAYGO system and against a funded DC system. It was in the interest of the social democrats and the workers union to get a PAYGO system that could give workers a pension relatively quickly without having to wait for funds to accumulate. Although some white collar groups already had occupational pensions, many voted in favour of a PAYGO system because all prewar birth cohorts would benefit from the suggested PAYGO system. They would contribute less than they got out.

In the supplementary pension system, called the ATP system, benefits were given at a replacement rate of 60 per cent of the average annual earnings of the fifteen best years up to a ceiling. To get a full pension 30 years of qualifying earnings were required. Earnings as well as benefits were indexed by the CPI. Contributions were paid based on all earnings, also earnings above the ceiling. For ordinary wage earners these contributions were paid by the employers. Already from the start of the ATP system relatively large buffer funds were built up. They were larger than motivated just by their function as buffer funds. The ATP system thus included an element of forced savings to compensate for an expected drop in private savings when the new pension system was introduced. They have primarily been used to finance public housing programs, and deficits in the government sector while a smaller share was channelled back as loans to the firms that contributed to the system.

1.2 Negotiated group (occupational) pensions

About 80 per cent of the Swedish work force is covered by negotiated group pensions. They have been negotiated between unions and employers. They do not only cover union members but usually also non-members within the same "occupations". There are four major contracts: One for blue collar workers in private industry, one for white collar workers in private industry, one for government employees and one for employees of local governments. Until the most recent pension reforms in the 1990s all contracts were of the defined benefit type. The pensions in the private sector were funded while the pensions in the public sector were not. These negotiated group pensions typically increased the compensation rate for an average worker by about 10 percentage points. They included stipulations of an upper retirement age, usually the age of 65.

1.3 Private pension policies

It has been possible to sign up for a private pension policy with an insurance company during the whole post war period and enjoy a postponement of income tax within certain limits. However, relatively few wage earners did. It was an instrument primarily for people who were not well covered by social security and group pensions and for relatively wealthy people. Not until the discussion about the viability of the social security system started in the 1980s private pension policies became a more popular instrument (Bager-Sjögren & Klevmarken, 1998).

1.4 The relative importance of the three pension sources

Table 1 gives the relative importance of various income sources by the age of household head for all Swedish households in 1992 and 1999. In 1992 the share of social security pensions of all incomes was about 75 percent for those who were 70 or older and 67 percent in the age group 65-69. In 1999 this share had decreased to about 65 and 55 percent respectively while the relative importance of group insurance doubled from 6-8 per cent in 1992 to 12-16 per cent in 1999. The share of private insurance increased too. It was highest among the young pensioners and contributed 3 per cent in 1992 and 5 in 1999 for those in the age group 65-69. It is also interesting to note that the share of capital income, that is a close substitute to incomes from private pensions, increased their share from 9-11 per cent to 14-15 per cent for the age groups above 65.

The major explanation to the decreasing share of the public pensions is that an increasing share of the wage earners have passed the ceiling of the system and earn maximum benefits, while there is no such ceiling in the group pensions. The increased share of private pensions is explained by increased savings and an exceptional return on financial assets in the 1990s.

2. **Why a reform?**

The combination of increased early retirement, increasing longevity, low economic growth and the large cohorts of the 1940s made the public system financially unstable.

Table 2 shows five years average labor force participation rates by hours of work, age and gender for the period 1976-2000. These numbers illustrate the drop in male participation that was particularly strong in the age group 60-64, and the initial increase and then drop in female participation. At the end of the 1990s less than 50 percent of 64 years old males worked and less than 40 percent of 64 years old females. Thus about half the work force had left the labor market before "normal" retirement age! Figure 1 shows from which sources those who have left the labor force draw incomes. There are several routs out of the labor force. Two major routs are through unemployment and other labor market policy related benefits, and through sickness and rehabilitation benefits. Disability pension is another but smaller route. Not until people approach 60 early use of old age pensions becomes a major source of income, in particular the negotiated group pensions.

In 1960 the remaining life expectancy after the age of 60 was 19.3 years for Swedish females and 17.3 years fore males. In 1998 these numbers had increased to 24.2 and 20.2 years respectively.

Like in most other Western countries these changes combined with the large birth cohorts of the 1940s will in the next ten years increase the dependency ratio. In 1999 there were 2.1 gainfully employed for every old age and early retired, and in 2030 this ratio is predicted to decrease to 1.5.

Computations presented in Social Insurance in Sweden 2000 pages 20 and 27 suggest that if the ratio between the number of employed and the number of pensioners is 1.6 in 2030 and the compensation rate 60 percent then the contribution rate to old-age *and* disability pension would have to be 37.5 percent of earnings. If the share of employed to pensioners was to increase to 2.25 then the contribution rate could drop to 27 percent to give a compensation

rate of 60 percent. With the ratio of workers to pensioners equal to 1.6 a contribution rate of 27 percent would only give a compensation rate of 43 percent.

The old Swedish public pension system was rather sensitive to economic growth. "With acquired rights in the coming twenty years already nearly established, the contribution rate required to pay for them was determined almost exclusively by the real rate of growth of the contribution base. With real economic growth of 1 percent per year, the contribution rate for old-age pension would increase to about 27 percent. On the other hand, real growth of 3 percent would be sufficient to maintain a constant contribution rate."² At the end of the 1950s when the ATP system was constructed a growth rate of 3 percent was not considered high, while today even a rate of 2 percent might be optimistic.

Another feature of the ATP system that politicians came to consider a disadvantage was that the 15 years and 30 years rules gave an unfair redistributed from blue-collar workers with rather flat earnings profiles towards white-collar workers with longer periods of schooling and generally higher life-time earnings. This feature jointly with the fact that contributions had to be paid also on earnings above the ceiling that limited benefits implied that many workers got less in benefits than they contributed.

The rules of the old-age pension system were not independent of those of the disability pension and other benefits. Changes in social policy might then also imply changes in the pension system and the system was thus susceptible to the political risk of changes.

Finally, the large cohorts of the 1940s were likely to eliminate the accumulated funds in the ATP system. To compensate for this reduction in savings a new system that stimulated savings was desirable.

3. A new public pension system

In 1994 Parliament decided about a new pension reform. Persons born prior to 1938 are completely outside the new system and those born after 1953 are completely covered. The cohorts in between will receive pensions from both the old and the new system.

The new pension system consists of *two almost independent parts*. One that has been called a notional defined contribution pay-as-you-go system (NDC), and one defined contribution system (DC). In both systems individual accounts have been set up recording how much each individual contributes to each part. The accounts in the NDC system are notional in the sense that contributions are not accumulated in funds but used to pay current pensions, while in the DC system contributions are invested in the financial markets through registered mutual funds.

The *contribution rate* is 18.5 percent on all earnings below a maximum of about 31000 ecu per year³. There is no contribution if annual earnings does not reach a certain minimum level, presently a little more than 900 ecu⁴, but if this threshold is passed also earnings below it are included in the contribution base. Contributions are split between employees and employers. 16 percent goes to the NDC system and is noted on the individual's NDC account and 2.5 percent goes to the individual's financial DC account. For the latter contribution the

² Palmer (forthcoming 2002)

³ In 2001 this upper threshold was 282750 SEK. It is indexed by the consumer price index.

⁴ 9963 SEK in 2001.

individual can choose to invest in one to five out of some 600 registered funds. These funds are independently managed by Swedish and foreign banks, insurance companies and stock market brokers. The contributions of those who do not choose funds actively are invested in a publicly managed default fund. It is possible to switch funds and there is presently no charge for this service. A new government agency, the Premium Pension Authority (PPM), administers the interchange between investors and the financial markets.

Accounts in both the NDC and DC schemes grow with:

- New contributions and transfers to the system for non-contributory rights (see below).
- A rate of return based on the growth in the average wage rate in the NDC scheme and the return on the individual's fund(s) in the DC system.

In the NDC system they also grow with inheritance gains from accounts of persons that die prior to retirement. These gains are distributed among survivors in the same birth cohort as the deceased. In the DC system inheritance gains are accumulated with the surplus of the PPM and distributed to pensioners as a surplus rate proportional to each account value.

A full or partial (25%, 50% or 75%) *pension can be claimed* from the NDC and/or DC scheme separately or together at any age from age 61. There is no upper age limit. A benefit can be combined with continued work. Contributions paid on earnings from work always yield enhanced account values. A person who claims a partial benefit and/or combines a benefit with work will have the benefits recalculated, based upon new account values, upon permanent retirement.

In the NDC system the *annuity* is obtained by first dividing the account value by a unisex life expectancy at retirement. Then this ratio is increased by an assumed real annual return of 1.6 percent and indexed by the CPI. However, if the trend of annual real per capital contribution growth deviates from 1.6 percent the annuity is adjusted (up or down) by the deviation. In periods of low growth this rule will thus work as a check on the system such that the pensions do not increase more (or less) than the earnings of the active generations and that of benefits do not exceed contributions.

In the financial DC account system the return on the individually chosen funds will determine the annuity. The participants can choose either a fixed or a variable life annuity. In the former case the fund shares are sold, and the revenue collectively reinvested by the Premium Pension Authority in the capital market to cover the fixed annuity, say B, computed from of the following balance equation⁵,

$$FV_x = B a(x); \tag{1}$$

FV_x is the value of the account at the time of retirement of an individual of age x and $a(x)$ a longevity adjusted discount factor,

$$a(x) = \int_x^{\infty} e^{-\delta x} l(x); \tag{2}$$

where the survival function $l(x)$ is

⁵ The expressions (1) and (2) are somewhat simplified. The corresponding expressions used in practice take into account that the time point when the annuity is computed might precede the time point when the annuity starts, and that annuities are monthly not annual.

$$l(x) = \exp\left\{-\int_0^x \mu(t)dt\right\} \quad (3)$$

and $\mu(x)$ are age specific death rates. The interest rate δ used by the PPM is 3%. If the PPM accumulates a profit it will become distributed back to the fund owners and pensioners. The annuity B will then be increased by a “surplus rate”. For couples a joint life annuity is offered. In this case the survival function above is adjusted accordingly.

When a variable annuity is demanded the pensioner keeps the fund shares and is able to reallocate to new funds. A variable annuity is recomputed every year using the same formula (1) above as for the fixed annuity, but with the current market value of the fund shares (net of withdrawals) and an interest rate of 4%. In this case the pensioner thus chooses to take the market risk but also to shift more of the pension payments towards the first half of the retirement spell.

The PPM might also come to offer a survivor benefit that can be subscribed to during working years.⁶

The new pension system includes certain *non-contributory rights* that are part of the social insurance system. These include:

- Child birth credits that are given for a maximum of four years per child, although only one credit can be earned at any given time. (Two children born two years apart give 6 credit years in total.) The credit can be claimed by either parent. Claimants are entitled to the most advantageous of 1) contributions based on 75 percent of average earnings for all covered persons; 2) contributions based on 80 percent of the individual's own earnings the year prior to child birth; or 3) a supplement consisting of a fixed amount, indexed over time to the per capita wage.
- Credits from periods of sickness, disability and unemployment covered by social insurance that are given in both the NDC and the DC schemes. Benefits for sickness and unemployment are treated as earnings in computing contributions. An imputation of future earnings will be performed for disability.
- Pension rights generated in compulsory military service in both pension systems.
- A guarantee benefit that is available from the age of 65. It is an inflation-indexed supplement (with a maximum) to the total earnings related benefits from the NDC and DC systems. The initial level of the guarantee was set at a high enough gross value to align it after-tax with the commensurate benefit in the old system.

All these non-contributory rights are financed by contributions to the NDC and DC systems out of general revenues. There are at least two advantages with this way of financing these non-contributory rights. First, the pension costs, for instance for sickness and unemployment will be charged to the sickness benefit and unemployment benefit systems respectively where they belong, and not to the old-age pension system. Second, any changes in these social rights can be made without changing the old-age pension system, that render it a certain “political stability”.

⁶ This is an issue under investigation.

The NDC system has a *buffer fund* that arises due to fluctuations in the sizes of birth cohorts, but it will also pick up remaining imperfections in the practical design of the scheme. The old ATP system had accumulated reserves in year 2000 amounting to approximately 25 percent of GDP. These will partially become transferred to the new NDC system and help in financing the transition period when the large cohorts of the 1940s will retire.

Even in the new pension system there are at least two remaining sources of *potential financial instability*. One originates from the way life expectancy is calculated. Rather than basing the calculations on cohort-specific projections or allowing for adjustments after retirement the architects of the system have chosen to base the estimates on contemporaneous survival frequencies for 65 years olds. If the current trend of increasing life expectancy continues the pension system will underestimate life expectancy and pay too generous pensions. The second source of instability arises because NDC accounts and pensions are indexed by the growth in the average wage rate rather than by the growth of the contribution base. If the labor force decrease while wages increase the balance between contributions paid in and pensions going out could become lost. As a second check on the system a *balance index* has been constructed. It is the ratio of the present value of assets to liabilities. When the index falls under unity both account values and benefits are deflated by the index. Positive indexation occurs in a recovery until the balance index reaches unity again.

The *administration of the system* is divided between the tax authorities, the National Social Insurance Board and the Premium Pension Authority (PPM). The tax authority collects contributions. The NDC accounts are kept by the National Social Insurance Board. It also pays out NDC, DC and guarantee benefits. The PPM works as a clearing house that receives contributions to the DC scheme and invests them in the financial markets according to the choices made by the participants. The PPM also keeps track of all individual accounts in the DC system. This implies that banks, insurance companies and stock market brokers will never see an individual's investment decisions, all they see are the net sums of transactions to the registered funds.

4. Recent changes in the negotiated group pensions

During the 1990s the contractual group pension schemes for private sector blue-collar and municipal government employees⁷ have converted to DC systems following the reform of the public system. The contribution rate of the blue-collar group pension is 3 percent of earnings and that of the municipal workers extends up to 4.5 percent depending on regional arrangements. (Palmer 2000, 2001 and 2002). The result is that over half of the Swedish employees are covered by a large mandatory/quasi-mandatory component (the DC components of the public and the group pensions), in which participants choose their own investment portfolios. As already mentioned the group pension for white-collar workers in the private sector is a funded defined benefit system, but it also includes elements of individual choice of funds. A new agreement was signed for government employees in the beginning of this year. It implies a gradual shift away from an unfunded DB system towards a funded DC system. For employees born in 1943, the first cohort to

⁷ People working in health care, education, social assistance and other local public services and administration.

be covered by the new agreement, the DB component gives almost the whole group pension (9.5 percent of earnings) while for those who were born in 1972 it will become reduced to 0.5 percent. The contribution rate to the DC part is 2.3 percent from the age of 23 and it increases by another 1.9 percent at the age of 28. Thus in the middle of the 2030s the group pension for government employees will become of the funded DC type too.

Table 3 illustrates the replacement rates generated jointly by the public pensions and group pensions for alternative assumptions of financial return. Given the assumptions as explained in the footnote to the table the joint replacement rate at the age of 65 will become 54 percent if the real rate of return is 2 percent but 70 percent if the real rate of return is 5 percent.

5. A closer look at the DC scheme of the public pension: How did people choose?

In the fall of year 2000 the Swedish people got their first opportunity to choose the funds they would like to manage their contributions to the DC scheme of the public pension system. About 4.4 millions were eligible to choose and they had to choose between 460 funds, Swedish and foreign. The PPM sent out a catalogue with all registered funds listed and with some basic facts about each fund. Mass media was filled with analysis of the participating funds. The catalogue also included a form on which each individual could state her/his preferences.

67 percent of the eligible made an active choice. Those who did not, about 1.4 millions, got their contributions allocated to the default Premium Savings Fund operated by the government Seventh AP-Fund.

Figures 2 and 3 shows that women were more active in their choice than men. They also on average split their contributions on more funds than men did. Figure 3 shows that those who had more money to allocate were more active than those who had less. On average people had 1300 ecu to allocate with a minimum of 10 ecu and a maximum of 2700 ecu.⁸ The age pattern displayed in Figure 2 is probably at least partly explained by differences in contributions. Young and old had less to allocate.

The maximum number of funds one could choose was 5. Figure 4 shows that a little more than 20 percent of all eligible used the maximum number of funds. The first two bars of the figure shows the share of women and men that did not choose at all and thus got their contributions allocated to the default government operated fund.

As expected, those who had more money to allocate did choose more funds than those who had less (Figure 5).

Figure 6 shows how the sum of all contributions from those who made an active choice was allocated on type of fund. Almost 35 percent of all contributions was invested in funds operating in shares from certain regions, while 15-20 percent were invested in each of the funds focusing on Swedish shares, shares in certain industries and in so called generation funds. Women had a slight preference for the less risky mixed, generation and interest funds.

⁸ 12700, 100 and 26700 kronor respectively.

There is a rather wide variation in what the funds charge their investors. The typical fund would charge 1-1.25 percent annually but there are funds that charge less than 0.24 percent and more than 1.75 percent. Almost 50 percent of the contributions were allocated to funds charging in the range of 0.25-0.49 percent and almost 30 percent to funds in the range of 1-1.24 percent. Because women tended to chose less risky funds with lower charges they ended up paying less than men on average.

The Swedish “clearing-house” model is rather unique. The tasks of the PPM as a clearing-house are in summary:

- to enter into contracts with funds applying to participate in the system,
- to execute aggregate purchases vis á vis the participating funds,
- to collect and make available information on fund share values on a daily basis,
- to keep the individual accounts for the system, and
- to provide the insurance products specified by law.

The goal of the system architects was to give the contributors as great flexibility as possible in choosing among many different funds and in reallocating between funds at a low cost. The PPM also gives the investors integrity against the fund managers. Because they do not have any information about single investors and their investments they cannot use this information in any marketing effort directed to single investors.

The PPM has acted as a powerful buyer of the services of the funds and negotiated the administrative charges. In fact all funds that wanted to participate had to sign a contract that made the administrative charges much lower than normal. The construction is such that the funds will have to give the PPM a rebate. The rebate is computed according to a special formula that makes the rebate a function of the funds normal charge and the funds holding from the PPM. For instance, a fund with a normal administrative charge of 1.5 percent and holdings less than 70 million SEK (a little more than 7 million ecu) would charge 1.225 percent net of the rebate, while a fund with the same normal charge but holdings of more than 7000 million SEK (a little more than 700 million ecu) would only charge 0.1752 percent net of the rebate. The motivation for this rebate is that the PPM will do some of the services the fund managers normally would do, that the funds would only have one big client not several thousands and that large investments do not cost much more to administer than small investments.

The PPM currently charges the investors 0.3 percent for its services. This service charge includes the cost of an annuity. There is not yet any differentiation due to how many times an investor reallocates her/his holdings. The motivation is that the first years of operation should be seen as a learning period for the participants in the pension system. Less than half of the population had any previous experience of investing in funds.

6. Likely consequences of the reforms

The new pension system is much more viable than the old system. It is likely that it will become possible to maintain a contribution rate around 18.5 percent. If economic growth increases to a long-run rate of 3 percent or more it is even possible that the contribution rate can be reduced. There is however, a price paid by those who retire. At the current rate of

growth at about 2 percent the compensation rate becomes lower than most expected to get from the old system and if the growth rate becomes lower the compensation rate drops even more.⁹ The most important change is probably that the risk of decreased growth, low return in the financial markets and increased longevity will be carried by the pensioners not by the working population. The increased risk to be carried by the pensioners does not only originate from the public system but also from the group pensions as explained above, and from the increased relative importance of incomes from capital. On the other hand one might hope that the “political risk” has decreased. There is though still a latent intergenerational controversy that could arise because people have not fully understood how the new system works and still have expectations based on the old system. These expectations would not be met if economic growth becomes low and if the Swedish society will not be able to provide for the large baby-boom cohorts.

To increase the growth rate of the Swedish economy it is important to reverse the trend of early retirement and make people choose to stay in the labor force beyond the age of 65. The new system opens for this possibility and makes any combination of work and retirement possible after the age of 61. The maximum pension age of 65 in the group pension contracts have been lifted to 67 by legislation in Parliament, and the recent changes in some of these contracts towards a DC system might lift this limit even further.

Also the new pension system includes disincentives for increased work for low and high-income earners. For low-income earners increased work will increase the earnings related pension but at the same time decrease the guarantee pension. The gradual decrease of the guarantee pension creates a higher marginal effect for low-income earners than for an average worker. In the other end of the earnings distribution those who are above the ceiling do not earn any additional pension from the public system by working more hours. They might though increase their group pension

One might be rather pessimistic about any increase in the average retirement age because leisure is an income elastic commodity and the baby-boom generation is the most wealthy generation ever (Klevmarken, 2001). Surveys about people’s retirement plans carried out since 1984 show that the share of people with a job in the age bracket 50-64 who wanted to retire early increased from 11 percent in 1984 to 20 percent in 1998 (Table 4) and the share of people that wanted to reduce work before normal retirement balanced just above 30 percent during the whole period. Very few declared in interest in working beyond normal retirement age. Admittedly these surveys were done while the old pension system was working and the responses might have been influenced by the rules it gave. However, they give such a consistent picture of very strong preferences for leisure that it is hard to believe that the new pension system will provide sufficiently strong incentives to increase labor supply among the old, at least in the short-run. To my knowledge no econometric evaluations are available as of yet.

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⁹ Large groups could expect to get a compensation rate around 80 percent taking both the old public system and the old group pensions into account.

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Table 1 The relative importance of different income sources 1992 och 1999 by age.

Procent of gross income	Age groups													
	55-59		60-64		65-69		70-74		75-79		80-84		85-	
	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999
Earnings	68,69	69,25	47,35	43,39	7,21	6,23	1,78	1,57	0,47	0,6	0,06	0,15	0,02	0,15
Business incomes	2,35	1,85	1,35	2,16	1,39	1,07	0,41	0,36	0,14	0,12	0,12	0,67	0,06	0,16
Income of capital	8,38	11,58	7,06	11,95	11,12	14,05	9,37	15,18	11,39	15,68	11,58	15,29	11,11	13,85
Disability pension	8,85	5,87	19,37	12,84	0	0,13	0	0	0	0	0	0	0	0
Partial pension	0	0	3,04	0,14	0,28	0,13	0	0	0	0	0	0	0	0
Old-age pension	0,01	0	3,03	1,69	66,66	54,99	76,69	65,05	75,65	66,69	73,13	64,7	70,56	61,03
Group pensions	1,33	1,7	8,11	14,27	7,28	15,79	6,42	12,02	7,92	11,89	8,17	13,21	3,57	12,57
Individual pension insurances	0,42	0,63	1,43	2,05	3,08	4,97	2,54	3,02	0,73	1,44	0,62	1,67	0,22	1,43
Annuities	1,08	0,82	1,7	1,7	0,72	0,52	0,5	0,32	0,32	0,22	0,03	0,16	0,36	0,21
Family support	0,7	0,86	0,74	0,96	1,39	1,12	2,21	2,36	3,32	3,35	6,27	4,13	13,93	10,52
Labor market related benefits	1,96	3,29	1,66	5,14	0,1	0,49	0	0	0	0	0	0	0	0
Other positive transfers	6,23	4,16	5,15	3,7	0,78	0,52	0,07	0,12	0,07	0,01	0,02	0,02	0,18	0,07
Mean gross incomes, 1992 SEK	184596	222919	162468	204074	145645	172356	124098	146064	114042	135690	97595	133722	81947	111107
No of observations	1817	2087	1684	1802	1299	1505	630	1440	302	1738	162	1155	71	818
(corresponds in the population)	433282	533151	411316	452880	434134	372151	425755	358592	322708	343754	191914	239324	114108	199265

Note. People living in institutions are not included in the 1992 sample. The unit of analysis is an individual. Shares and means are weighted by sampling weights.

Source: Andersson et.al.(2001) Data source: HINK/HEK

Tabell 2 **Labor force participation rates by hours of work, age and gender 1976-2000.**

(Five years means. The first row shows the share of the labor force that worked more than 34 hours per week and the second the share of those who worked 20-34 hours per week.)

Age	Males					Females				
	1976-80	1981-85	1986-90	1991-95	1996-00	1976-80	1981-85	1986-90	1991-95	1996-00
20-24	0,81	0,78	0,79	0,61	0,58	0,75	0,76	0,78	0,62	0,53
	0,02	0,02	0,03	0,04	0,05	0,13	0,15	0,16	0,14	0,14
25-34	0,94	0,91	0,91	0,81	0,81	0,75	0,83	0,87	0,78	0,74
	0,02	0,03	0,03	0,03	0,04	0,26	0,32	0,32	0,26	0,21
35-44	0,96	0,95	0,95	0,88	0,85	0,80	0,87	0,91	0,86	0,82
	0,02	0,02	0,03	0,03	0,04	0,31	0,35	0,37	0,34	0,28
45-54	0,94	0,93	0,93	0,89	0,86	0,79	0,85	0,89	0,87	0,84
	0,02	0,02	0,03	0,03	0,04	0,29	0,33	0,33	0,29	0,24
55-59	0,88	0,86	0,85	0,79	0,78	0,65	0,71	0,77	0,75	0,75
	0,03	0,04	0,04	0,05	0,06	0,24	0,29	0,32	0,29	0,26
60	0,78	0,73	0,73	0,67	0,65	0,52	0,61	0,65	0,64	0,60
	0,08	0,10	0,12	0,16	0,07	0,21	0,28	0,31	0,31	0,24
61	0,73	0,69	0,69	0,62	0,58	0,45	0,52	0,56	0,56	0,53
	0,11	0,14	0,16	0,20	0,11	0,20	0,26	0,28	0,31	0,23
62	0,69	0,64	0,63	0,56	0,51	0,39	0,47	0,52	0,50	0,47
	0,12	0,16	0,15	0,20	0,12	0,17	0,23	0,29	0,27	0,21
63	0,63	0,58	0,56	0,49	0,44	0,30	0,31	0,40	0,38	0,33
	0,12	0,18	0,16	0,19	0,11	0,12	0,14	0,20	0,21	0,15
64	0,58	0,53	0,51	0,42	0,37	0,24	0,26	0,31	0,31	0,25
	0,09	0,17	0,16	0,17	0,12	0,10	0,12	0,15	0,17	0,12

Source: Andersson et.al. (2001). Primary source: Labor Force Surveys, Statistics Sweden..

Table 3 Replacement Rates (annuity as percentage of last earnings)

Age	NDB Only (contribution rate 16%)	Return for Public Second Pillar (2.5%) + Group Occupational (3.5%)			Return for NDB+ Public Second Pillar + Group Occupational		
		2%	5%	8%	2%	5%	8%
61	0.32	0.12	0.23	0.47	0.44	0.55	0.79
62	0.33	0.13	0.25	0.52	0.46	0.58	0.85
63	0.35	0.14	0.27	0.57	0.49	0.62	0.92
64	0.37	0.15	0.29	0.63	0.52	0.66	1.00
65	0.39	0.15	0.31	0.69	0.54	0.70	1.11
66	0.42	0.16	0.33	0.76	0.58	0.75	1.18
67	0.44	0.17	0.36	0.83	0.61	0.80	1.27
68	0.47	0.18	0.39	0.92	0.65	0.86	1.39
69	0.50	0.19	0.42	1.01	0.69	0.92	1.51
70	0.53	0.20	0.45	1.12	0.73	0.98	1.65

Source: Palmer (2000, 2002)

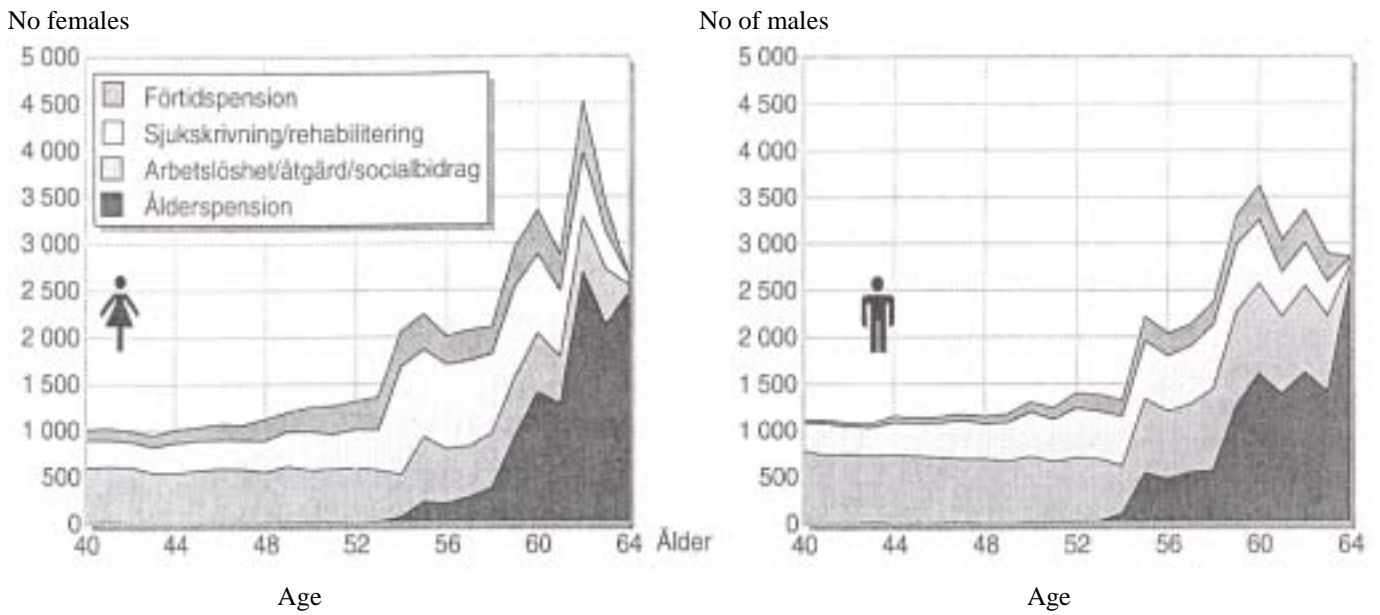
Notes: The individual's earnings are assumed to grow at a real rate of 2 percent per annum throughout the earning career. The rate of growth used for indexation of capital in the PAYGO system is 2 percent. The PAYGO, second-pillar, and group occupational annuities are all based on unisex life expectancy and a real rate of return on capital from retirement of 1.6 percent.

Table 4. Desire to stop working before normal pension age 1984-1998;
(Percent of 50-64 years old working males and females)

Year	1984	1986	1993	1996	1998
Stop completely	11.1	12.4	13.4	13.8	20.4
Work less	30.5	31.2	34.7	30.6	30.9
Continue until normal age	53.1	50.3	46.4	48.4	43.1
Don't know	5.3	6.1	5.6	7.2	5.7
Total	100.0	100.0	100.0	100.0	100.0
No of observations	324	477	785	637	583
Average age	56.4	56.1	55.7	55.7	55.7

Source: Swedish Household Panel Surveys (HUS), Sjöström(2001)

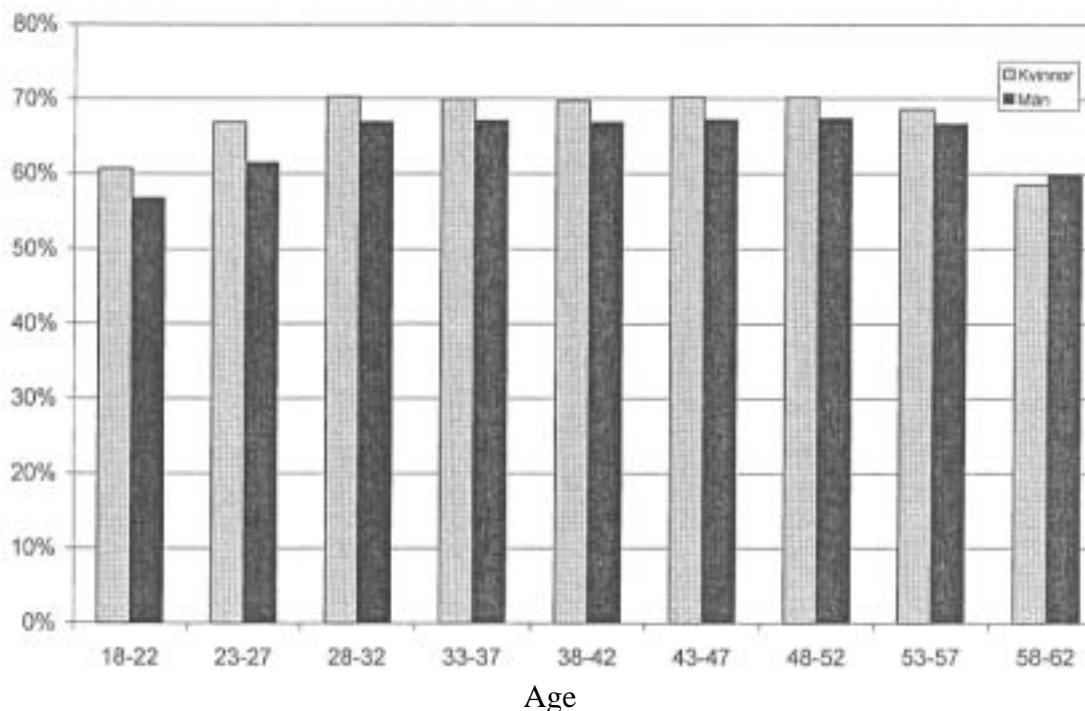
Figure 1. Major source of income 1999 for females and males who stopped working 1998-1999



Legend from top to bottom: Disability pension, Sickness benefits/rehabilitation benefits, Unemployment benefits/social assistance, Old-age pension

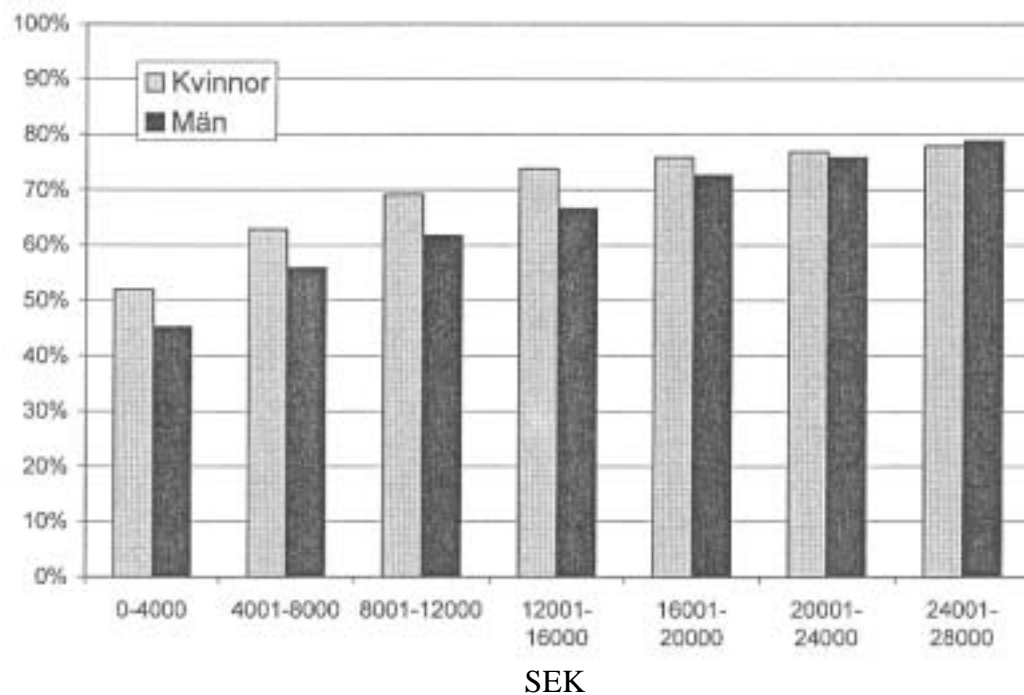
Source: Lagnerö(2001)

Figure 2. Share of participants that have made an active choice by gender and age



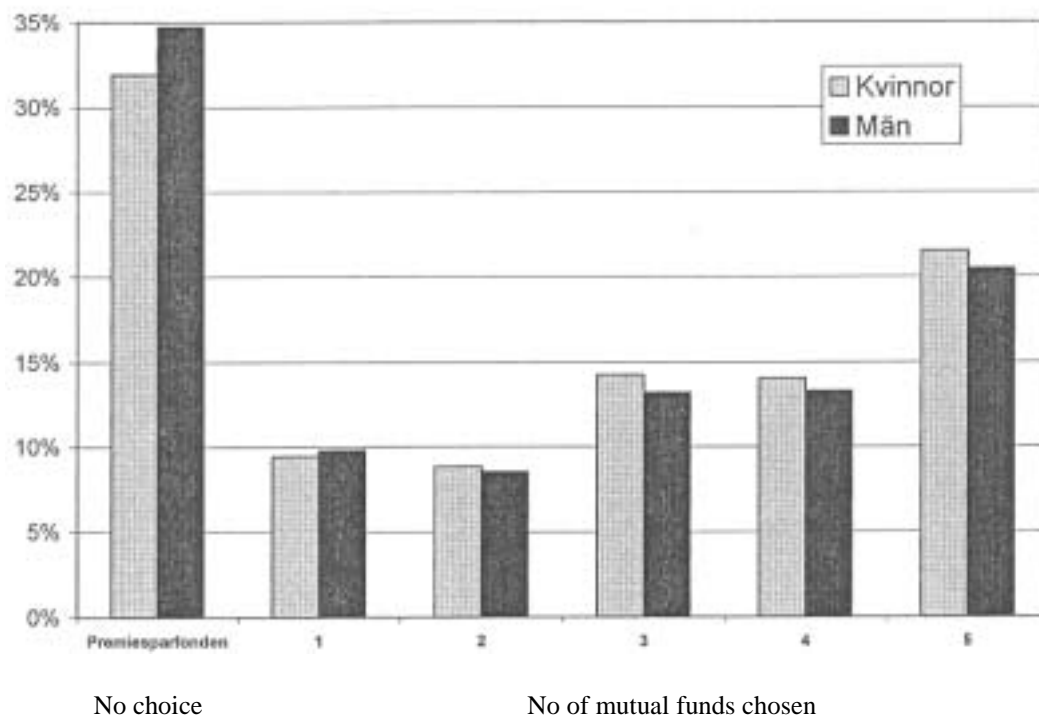
Source: Billberg & Westerberg (2001)

Figure 3. Share of participants who have made an active choice by gender and amount contributed



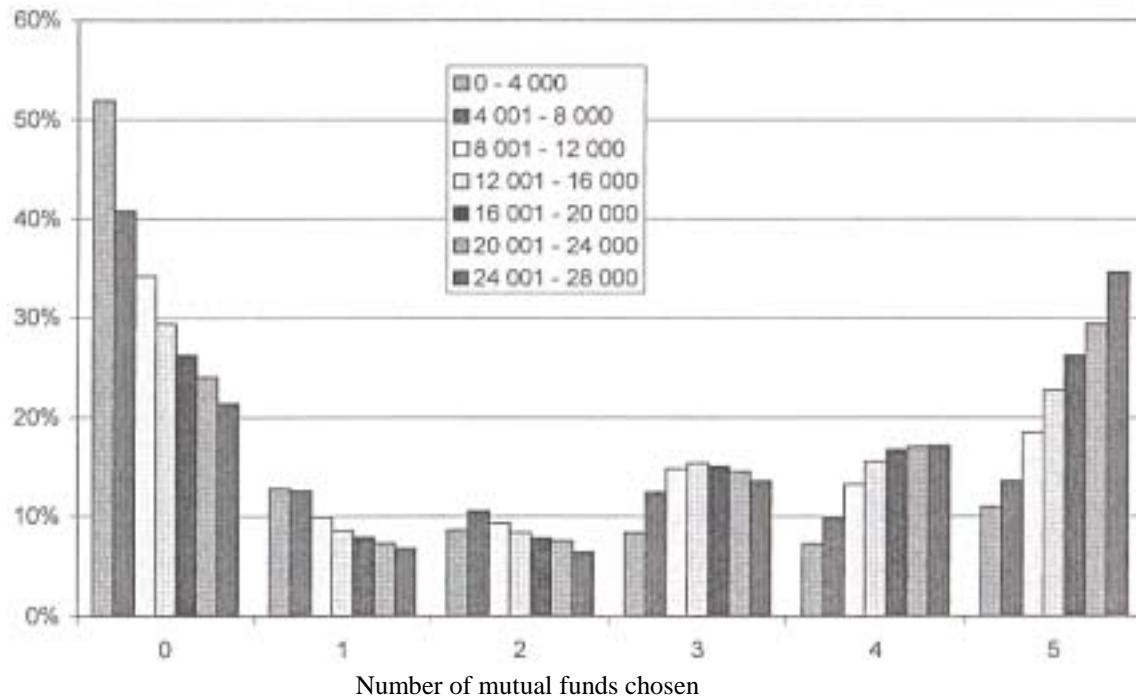
Source: Billberg & Westerberg (2001)

Figure 4. Share among all participants who have chosen 1-5 funds or no fund by gender



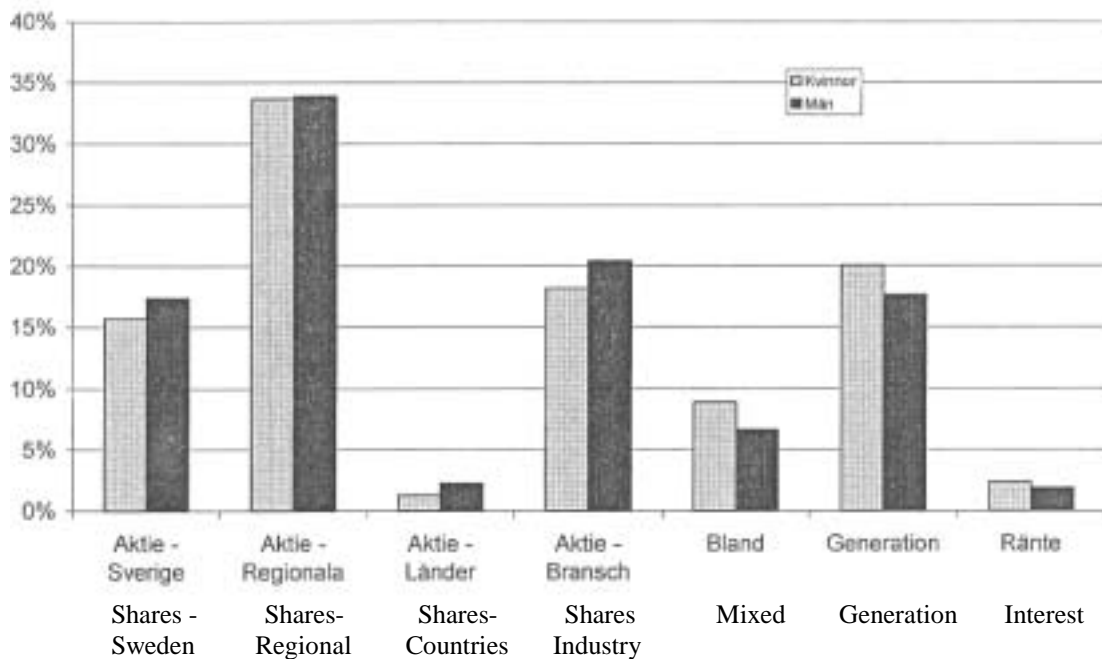
Source: Billberg & Westerberg (2001)

Figure 5. Share of all participants by number of mutual funds chosen and amount contributed



Source: Billberg & Westerberg (2001)

Figure 6. Share of totally contributed sum by type of mutual fund and gender



Source: Billberg & Westerberg (2001)