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Demography and State Pensions: Mainly the United Kingdom Experience 1975–95

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Introduction

This paper sets out some of the changes that have taken place in the State National Insurance Pension system in the United Kingdom. The purpose is to emphasize those issues that are likely to be of particular interest to actuaries and others responsible for analyzing the financial position of social security pension arrangements, including those in other countries. It therefore avoids unnecessary details of the U.K. system and, where relevant, includes references to other countries.

The United Kingdom introduced the State Earnings Related Pensions Scheme (SERPS) in addition to the flat-rate ("basic pension") in the Social Security Pensions Act of 1975. This followed several years during which several proposals had been made by the different political parties with the aim of increasing the level of pensioners' incomes, especially for those not in occupational schemes.* *It is perhaps interesting to note in retrospect that one of these proposals, and one that came close to being introduced, was a defined-contribution pension scheme. Although the flat-rate basic element would have been retained, the second tier was similar to the type of scheme that is being increasingly discussed in various countries where the future of the state social security pension arrangements is being reviewed.*

The potential future cost of SERPS has proved controversial. Section 3 outlines the changes that have been made to SERPS (and also to the basic pension) since 1975 in order to reduce the costs in the long term. Although there are some circumstances that might be regarded as particular to the United Kingdom, the concern about the future costs is really part of the worldwide debate about the future of pension schemes in light of the projected demographic trends in the next century. The demographic future is fundamental to all our work. So, before considering the changes made to the pension arrangements, Section 2 gives a summary of some relevant demographic developments, mainly covering the projections since SERPS was introduced. With the benefit of hindsight, it provides an interesting lesson on the uncertainties of demographic projections and *the need to try to make pension schemes sufficiently adaptable to be able to cope with demographic and other uncertainties, such as the future prospects for employment.*

One particularly interesting feature of the U.K. experience, especially when compared to that of most of the other European countries, is the role of employer-sponsored occupational pension provision. When the basic pension was introduced in its current form in 1948, some 25% of employees were members of occupational pension schemes. This percentage had risen to about 50% of employees by 1975. However, that left half of all employees not in occupational schemes, in spite of the tax incentives available. In view of the relatively low rate of the flat-rate "basic pension," many observers still perceived a need for further state provision for those not in occupational schemes so that all retired people are able to enjoy a reasonable standard of living.

* In U.K. terminology a pension scheme is a pension plan.

In designing the state second-tier SERPS, it was vital to take account of these occupational pension schemes. This was necessary to avoid any reduction in the coverage of private occupational pension schemes that are normally funded in the United Kingdom, apart from certain public sector schemes and in particular circumstances.

In order to achieve this, it was possible for people in occupational schemes that met certain criteria to "contract out," whereby they paid lower contributions to the National Insurance scheme in return for giving up part of their SERPS pensions. This is a particularly interesting feature of the U.K. state pension arrangements. It too has undergone several changes since it was introduced, including the introduction of "contracting out" by individual rather than group occupational schemes; Section 4 describes the actuarial aspects of these changes. This feature raises important issues relevant for countries considering greater "privatization" of pension provision.

The Government Actuary's Role in the United Kingdom

The Government Actuary is required by law to make quinquennial assessments of the future costs of the pension and other benefits of the National Insurance fund and the contribution rates needed to meet these projected costs on a pay-as-you-go basis. In addition, every five years he is required to review the reduction in the contribution rate to be paid because of contracted-out contributors. The Government Actuary also prepares a report whenever significant changes are made to the National Insurance pension system. The estimates include in this paper are based on such reports since 1975. Where necessary, earlier estimates have been adjusted to make them consistent with the terms in which later figures are expressed.

Demographic Developments

Future population estimates are critical in determining the financial outlook for pay-as-you-go pension systems. It is therefore interesting to look at the particular projections that were used at the time of the introduction of SERPS in 1975 and when the subsequent changes were made in 1985 and 1995, and to focus on the main assumptions on which the projections were based. These population projections are produced by the Government Actuary following discussion with experts in other government departments.

The Government Actuary's report to Parliament on the introduction of SERPS was based on the 1973 population projection; the changes to SERPS introduced in 1985 were based on the 1983 projection; the financial estimate of the effect of the changes in the 1995 Pensions Act were based on the 1992 population projection. (For publications refer to the bibliography.)

Table 1 shows the fertility and mortality assumptions made for selected years in the three population projections. The actual figures for 1991 are also shown so that these can be compared to the estimates made in respect of that year in the 1973 and 1983 projections.

TABLE 1
ASSUMPTIONS IN U.K. POPULATION PROJECTIONS

	Base Year for Projection		
	1973	**1983**	**1992**
Total period fertility rate			
Projection for 1991 (actual = 1.82)	2.2	1.9	—
Projection for 2011	2.2	2.1	1.9
Expectation of life at birth (males)			
Projection for 1991 (actual = 73.2 years)	n.a.	71.6	—
Projection for 2011	71.2	73.0	76.8
Expectation of life at birth (females)			
Projection for 1991 (actual = 78.7 years)	n.a.	77.5	—
Projection for 2011	77.6	78.9	81.9

Source: C. Shaw, "Accuracy and Uncertainty of the National Population Projections in the United Kingdom," *OPCS Population Trends,* 77 (autumn 1994).

Mortality

There has been a tendency for projections to underestimate future improvements in mortality and, as a result, to underestimate the actual deaths. This has become evident even in the short term between the projections made in 1973 and 1983 and the actual experience between then and now. For example, as shown in Table 1, the actual life expectancy for men in 1991 was already greater than that projected for the year 2011 in the projection made as recently as 1983. *This tendency toward an overly pessimistic view that* *medical and other advances would only very slowly extend the average expectation of life has been criticized. It is worth noting that it would also appear to be true of projections made in many other countries. Might it still be true now?*

As a result of this trend and examination of the reasons for the underestimates and the continuing improvement, more recent projections have taken a more optimistic outlook for future mortality improvement when compared to those assumed in earlier projections. This has led to increases between the 1973- and 1992-based projections of some five years in the assumptions made for the life expectancy of men and women by 2010. This results in significant increases in the expected numbers over pension age (as can be seen by the changes in the numbers over State pension age in Table 2). However, a part of the sharp rise between the 1983- and 1992-based estimates for the long term (2051) is also due to an increase in the assumed level of net inward migration in the near future.

TABLE 2
RESULT OF POPULATION PROJECTIONS

	Base Year for Projection		
	1973	**1983**	**1992**
Over Pension Age (millions) (Male 65+, Female 60+)			
Projection for 1991 (actual = 10.5)	9.9	10.3	—
Projection for 2011	10.0	10.9	12.2
Projection for 2051	—	12.3	16.2
At Working Ages (millions)			
Projection for 1991 (actual = 35.5)	34.6	35.0	
Projection for 2011	37.1	35.1	37.3
Projection for 2051		34.0	32.9
Working Age ÷ Pensioners			
Projection for 1991 (actual = 3.3)	3.5	3.4	
Projection for 2011	3.7	3.2	3.1
Projection for 2051		2.8	2.0

Fertility

As can be seen from Table 1, there has been a steady fall in the assumed future level of fertility with the assumed total period fertility rate (TPFR) reduced by 0.1 at intervals between 1973 and the latest projections. The 1973-based projection assumed that the eventual TPFR would be 2.2, whereas the corresponding 1992-based assumption was 1.9. Indeed, the 1994-based projections, which have not yet been used for published pension projections reduced this further to 1.8.

The earlier projections were made soon after the baby-boom period, which peaked in 1964 in the United Kingdom. The overestimate of fertility rates, and therefore of births, in the projections made in the 1970s is therefore perhaps understandable. The projections made since that time, however, have continued to assume that in the long term there would be some recovery in the period fertility rate. However, the persistence of a TPFR of around 1.8 has made this assumption increasingly difficult to justify. As a result, the longer-term assumption has been steadily reduced to its current level and is now significantly less than that required for the population to replace itself. This has produced a steadily worsening effect on the support ratio (Working age population ÷ pensioners) and compounds the problem created by the trend in mortality assumptions.

Table 2 shows some figures for selected years from the three projections to illustrate the effect these changes to the assumptions have on the results. As this paper is intended to highlight the main issues rather than to give a complete explanation of all the changes, it is important to emphasize that the mortality and fertility changes are the main factors leading to the differences in the projections, but changes to the migration assumptions also affect the projected numbers in the U.K. future population. The result have two main features relevant to pension analysts.

The first is the rise in the projected numbers over state pension ages (male 65, female 60), in particular in the most recent projections. Note that the 1973-based projection did not include published figures farther ahead than 40 years. Although longer-term projections were made at that time as a guide to the long-term pension outlook, it was accepted that these were subject to particular uncertainty. It is clear, however, that the *changes* in the projected outlook for the numbers over fixed pension ages as well as the future trend in the numbers have led to increasing concern for the costs involved not only of pensions but also of the medical costs.

The second are the change between projections and the sharp reduction in the long term in the projected ratio of the numbers at working ages to the number of pensioners. The detailed figures for all the years of the projection show that this ratio declines very slowly for the next 20 years but then falls sharply over the following 20 years as the baby boomers retire. Thereafter the outlook is increasingly uncertain. However, on the basis of the latest estimates, the support ratio does not significantly change in the subsequent 20 years to the middle of the next century.

Some International Comparisons

All countries will experience the aging of the population as outlined above. The only difference is the timing. Table 3 shows the "demographic pensioner support ratio" for three European countries, the United States, and Canada to illustrate this difference. As would be expected, the European countries by 1995 had aged to a greater extent than had the North American ones, although the future prospects are broadly similar.

TABLE 3
RATIO OF THE NUMBERS AT WORKING AGES (20–64) TO THE NUMBERS OVER PENSION AGE (65 AND OVER)

	Year			
Country	**1950**	**1995**	**2025**	**2050**
U.K.	6.95	3.75	2.80	2.17
France	5.13	3.95	2.62	2.13
Italy	6.89	3.89	2.32	1.40
U.S.	7.12	4.63	3.10	2.61
Canada	7.14	5.15	2.94	2.47

Source: Government Actuary's projections for U.K. and UN 1994 projections for other countries.

It is also worth noting that (1) the "aging" already experienced since as recently as 1950 is very substantial, and (2) the future projections depend critically on the assumed fertility rates, which for Italy were extremely low relative to the other countries.

Changes to the U.K. State Pension System

Between the introduction of SERPS in 1975 and today, several changes have been made to the National Insurance pension system, affecting both the flat-rate "basic pension" and SERPS. These changes were made largely in response to the view that the demographic outlook would make the system unaffordable. The recent change to increase the female state pension age from 60 to 65 directly responds to the demographic argument, while the other changes have targeted the rules of the pension system.

The following is a very brief summary of the main features of the basic pension and SERPS. It is intended to be adequate to understand the general nature of the changes made, rather than to be a complete description of the details of the scheme. The first page of the section describes the provisions as they existed at the introduction of SERPS in the 1975 act. The latter part describes the subsequent changes.

Basic Pension

The basic pension is payable if individuals, both the employed and the self-employed have paid, or been credited as having paid, adequate contributions for about nine-tenths of their working life. Pro-rata pensions are paid for individuals with less complete contribution records (provided they satisfy a minimum requirement). Most men receive full-rate basic pensions. Until 1977, married women and widows were not required to pay contributions that qualified for basic pension in their own right. If they paid lower contributions, they were entitled to a lower pension level based on their husband's contribution record. This provision is being phased out, which will improve women's entitlements. At the same time, entitlement to a basic pension can now be earned by those with "home responsibility" for looking after qualifying children or disabled people. Once these provisions have been fully phased in, it is expected that most women will be entitled to virtually the full basic pension rate.

In 1975, the full basic pension rate was about 22% of average adult earnings, and the legislation required it to be increased annually by the greater of earnings or price increases.

SERPS

Entitlement to the earnings-related pensions from SERPS have accrued only on the National Insurance contributions paid by employees since 1978. The current expenditure is low relative to basic pension as fewer than half of all pensioners have any entitlement and many have only accrued small amounts. However, entitlements are building up steadily, and, other things being equal, SERPS will be an increasing part of the total cost of state pensions.

As originally enacted, *SERPS would have provided a pension of 25% of revalued relevant earnings, based* *on the best 20 years of an employee's contribution lifetime.* This formula tried to ensure that those with only 20 years to go to retirement age at the start of the scheme could be entitled to "full pensions." In addition, by requiring only 20 years of contributions for a "full SERPS pensions," it avoided those with contribution years missing being badly affected. This protected, for example, those looking after children (mainly women) and those long-term incapacitated or unemployed. It also meant that manual workers who tend to have their highest earnings in the middle part of their working life would benefit rather than lose out, as would be the case if their pension had been based on their earnings close to retirement. Up to retirement, the earnings on which the SERPS pension is to be based are revalued in line with the increases in average earnings. After retirement, SERPS pensions are increased in line with price increases.

A widow entitled to receive the whole of her former husband's SERPS entitlement, subject to there being an overall maximum of that potentially payable to a single contributor.

The law made it possible for employers to "contract out" those employees who were members of an occupational scheme that met certain criteria. In particular, the scheme had to provide guaranteed minimum pensions (GMPs), which were broadly similar to SERPS, as well as to meet a qualitative test of having a benefit formula up to a prescribed level generally greater than SERPS. GMPs accrued over all of an employee's working life rather than being based on the best 20 years. Occupational schemes did not have to increase GMPs in payment. As a result, even contracted-out people accrue some SERPS entitlement.

In return for taking on the liability to provide GMPs, employers, and their employees, paid a lower rate of National Insurance contribution, and the employees had their SERPS pensions reduced by the amount of the GMP. The reduction in the contribution rate is called the "contracted-out rebate."

The Changes Made since 1975

Section 4 sets out the changes been made to contracting out. The rest of this section outlines the changes made to basic pension and SERPS. However, given the inextricable link between SERPS and contracting out, some of the financial estimates in this section take account of the corresponding effect of contracting-out changes.

Basic Pension

Change to the Indexation of the Flat-Rate Basic Pension

In 1975, the legislation required the basic pension to be increased annually by the higher of earnings or price increases. From 1980 onwards, this was changed to be at least in line with price increases. In practice, since that time, the annual increases have been in line with price increases. As a result of earnings increases exceeding prices over that period, the flat-rate pension has fallen from about 22% of average adult earnings in 1975 to 17.5% in 1995. While this is not insignificant, the increasing level of SERPS entitlements for those newly retired over this period has limited the apparent impact for many new retirees.

In the longer term, the effect of this change in indexation is very significant for benefit entitlement and contribution rates and the whole structure of the scheme. Table 4 shows the projected level of basic pension with the two assumptions for upratings and assuming 1.5% real earnings growth. It also shows the effect on SERPS entitlements, as the change in indexation also affects the band of earnings on which SERPS entitlement accrues. The table does not take account of the changes in the latest pensions act, but the effect of that on male SERPS pensions is relatively small.

TABLE 4
PENSION AT AWARD FOR A PERSON ON AVERAGE MALE EARNINGS AS A PERCENTAGE OF EARNINGS BEFORE RETIREMENT ON THE ASSUMPTION OF A GROWTH IN REAL EARNINGS OF $1^1/_2$% A YEAR

	Uprating of Basic Pension and SERPS Earnings Limits in Line with					
	Prices			Earnings		
Year of Award	Basic	SERPS	Total	Basic	SERPS	Total
1995	15%	18%	33%	15%	18%	33%
2000	14	20	34	15	20	35
2010	12	18	30	15	17	33
2020	10	17	28	15	17	32
2030	9	16	25	15	16	32
2040	8	14	22	15	16	31
2050	7	13	19	15	16	31

Source: Government Actuary's Third Quinquennial Review (January 1995).

Indexation in line with price rather than earnings increases lead to a large reduction in basic pension costs, assuming continuing positive real earnings growth. Clearly the effect is highly sensitive to this assumption. Table 5 shows the projected expenditure on both indexation assumptions assuming real earnings increase at 1.5% a year (a relatively conservative assumption if based on the experience in the United Kingdom in the past 30 years). The expenditure figures are shown both in constant price terms and in constant earnings. (Obviously the constant price column with price increases (a) is the same as the constant earnings one with earnings increases (d)).

TABLE 5
COST OF BASIC RETIREMENT PENSION ON ALTERNATIVE ASSUMPTIONS FOR INDEXATION ASSUMING REAL EARNINGS GROWTH OF 1.5% A YEAR (£ BILLION)

	In 1994–95 Price Terms Increases in Line with		In 1994–95 Earnings Terms Increases in Line with	
Year	Prices (a)	Earnings (b)	Prices (c)	Earnings (d)
2000	29.8	32.6	27.3	29.8
2010	33.6	42.6	26.5	33.6
2020	35.2	51.8	23.9	35.2
2030	41.9	71.6	24.5	41.9
2040	44.5	88.3	22.4	44.5
2050	42.3	97.4	18.4	42.3

Source: Government Actuary's report on the Pensions Bill 1994 and author's calculations (December 1994).
Note: Estimates allow for the effect of increasing female state pension age to 65.

The cost of the basic pension in constant 1994–95 price terms (column a) increases in the future because of the demographic trend outlined in Section 2, as well as the increasing level of female basic pension entitlement. However, when expressed in constant earnings terms, the expenditure trend (column C) is fairly constant until 2030 and falls thereafter. As the numbers at working ages do not change greatly in the medium-term future, at least in comparison with the extent of the projected change in the number of pensioners, the contribution base remains roughly constant in earnings terms. Thus, the move to price upratings has stabilized the cost of basic pensions for the next 40 years relative to the contribution base. Pensioners, of course, will pay for this stabilisation. The estimates in Table 5 include the effect of increasing female state pension age to 65, to be phased in from 2010 onwards. This is estimated to reduce the cost of basic pensions by about 10% from 2020 onwards and is significantly less than the effect of the change in the indexation.

SERPS

Changes to the Calculation of the SERPS Benefit

Several changes have been made to different aspects of SERPS. Some of these were introduced in the Social Security Act of 1986, and some more recently in the Pensions Act of 1995. This subsection deals with the nature of the changes and in general does not identify the particular timing of each.

Originally the SERPS pension was to be 25% of the average relevant earnings in the best 20 contribution years. This has now been reduced to 20% of the average over the whole working life, with the 25% target continuing for those retiring up to 2000 and the reduction then being phased in from 2000 onwards. However, all SERPS rights accrued up to 1988 will be based on the 25% rate.

Allowance is still to be made for certain years in which there are no reckonable earnings, to protect some of those without full contribution careers. Although the "best 20 years rule" is abolished, it is intended that years subject to "home responsibility," or for which "credits" have been awarded for basic pension on the grounds of incapacity, will be ignored in the calculation of the average earnings for SERPS purposes.

The amount of SERPS that a widow, and in some circumstances a widower, can inherit has been reduced to one-half rather than the full pension of the contributor, as well as any pension to which she is entitled based on her own contribution record.

In addition to these changes to the calculation of the SERPS entitlement, changes have been made in relation to contracting out. The details are given in Section 4, but it should be noted that the following estimates for the effect of the changes since 1975 on projected expenditure on SERPS pensions include the effect of the contracted-out changes.

As with the changes outlined above, the contracted-out changes reduce the projected expenditure from the National Insurance fund. However, the contracted-out changes are in general a transfer, from the National

Insurance fund to the particular private contracted-out arrangement, of the liability to finance parts of the SERPS expenditure. Thus, broadly speaking, in respect of these contracting-out changes, in most circumstances the individual employees should not suffer a reduction in total pension entitlement.

Table 6 provides estimates for the projected amounts of SERPS expenditure from the National Insurance fund on the basis of the scheme as originally enacted in 1975 and after the two sets of changes introduced in 1986 and 1995. To place the cost of SERPS in context, the figures should be compared to those in column (a) of Table 5, which shows the corresponding cost of a basic pension. Table 6 assumes price indexation of the earnings limits on which SERPS is based.

Table 6
Projected SERPS Expenditure
(£ Billion at 1994–95 Prices)

Year	On the Original Legislation	After the 1986 Act Changes	After the 1995 Act Changes
2000	4.2	4.2	4.2
2010	12.0	9.2	8.4
2020	25.0	14.5	10.9
2030	41.0	18.7	12.0
2040	49.0	19.5	10.2
2050	55.0	19.3	9.9

Source: Government Actuary's reports on the relevant legislation and related calculations.

The changes discussed in the first part of this section were mainly introduced in the 1986 act. The financial effect of the 1995 changes relate for the most part to the effect of the increase in female pension age (which reduced SERPS expenditure as well as that of the basic pension) and to the changes to contracting out. However, a small technical change to the SERPS formula is estimated to reduce expenditure by some £2.7 billion in 2050. The main causes of the difference between the projections in columns (a) and (b) are the reduction in the accrual rate and the removal of the "best 20 years" rule and the change to the inheritance provision. At the time these changes were introduced, it was estimated that they would reduce the National Insurance contribution rate by some 4%, and, together with a continuation of price indexation of the basic pension, it was estimated that they would let the contribution rate remain roughly constant until 2030, that is, even at the peak of the demographic problem.

The changes to contracting out were less significant financially, although they did contribute to the reductions in expenditure in columns (b) and (c) in Table 6. However, they were perhaps more fundamental in terms of overall pension provision, as they have increased the extent to which future pensions are regarded as being financed outside the state system. The next section therefore focuses on these changes.

Some Non-UK Aspects of Changes to State Pensions in Europe

Almost all the countries in Europe are at some stage in adapting or considering changes to their state pension provisions in view of the perceived future financial problems. In spite of the many differences between the schemes, including wide disparities in target replacement rates and therefore future costs, an understandable similarity exists in these changes with those in the United Kingdom. In general:

1. Minimum pension ages are rising, including restrictions to early retirement schemes
2. Accrual rates are decreasing, or, what is effectively the same thing, contributions required for full entitlement are rising
3. Indexation provisions of the pensions after award are being reduced, in general from pensions being increased in line with earnings to in line with either consumer prices or some intermediate index
4. Greater private provision is being encouraged, although in general this is not specifically linked to the state system (as in the United Kingdom)
5. On the other hand, in spite of continuous interest being expressed, European countries have not caught the Chile bug.

Clearly, changing the minimum pension age responds directly to the perceived demographic pressures. If the labor market could be assumed to adapt automatically to such changes and "create" the desired level and type of employment, it should be possible to increase the pension rate to any desired level. The health level of those between ages 65 and 70 is now such that, in general, employment income could become a real option at these ages after years of steady reduction in the economic activity rates at those ages.

However, in Europe at least, there is considerable concern over the extent to which the labor market is able to respond in that way. Indeed, in considering the financial problems of the welfare state in Europe in a wider context than pensions, the inability of the labor market to provide employment for the current numbers at working ages is such a problem that action to increase pension age may not be capable in itself of achieving the overall desired financial effects. Moreover, changing work patterns may require a more imaginative approach to planning working lives stretching from, say, age 20 or so to 70. Greater support for individuals to make career changes in midlife or to have long sabbaticals seems likely to be necessary.

An alternative approach to the aging problem of particular interest to actuaries is the proposal in Sweden and Latvia to calculate the pension on an annuitized basis, with the annuity factor depending upon actuarial estimates of the expected mortality rates for each specific cohort. This enables automatic fine-tuning of the contribution and benefit levels as this seems likely to be less controversial, although perhaps that cannot be guaranteed.

Changes to the Terms for Contracting Out

Changes were made in 1986 and 1995 to the original requirements that occupational schemes had to meet to contract out of SERPS. These changes affected the type of private pension arrangement that could be used as the basis for contracting out as well as the detailed criteria to be satisfied. They also increased the amount of SERPS benefit given up by an individual who contracts out, leading to part of the SERPS cost reductions in Table 6.

Changes to the Amount of SERPS Given Up by Contracting Out

Under the original legislation, contracted-out employers gave up an amount of SERPS equal to the GMP, which in turn had to be paid as a minimum pension by the occupational scheme, and had to be of the defined benefit type. Unlike SERPS, the GMPs were not indexed after retirement. In view of the concerns among occupational schemes in the mid-1970s over the problems that would be involved in guaranteeing indexation of pensions in payment, it was decided that the indexation would be fully provided by the state scheme for those who contracted out as well as those fully in SERPS. As a result, individuals who are contracted out become entitled to increasing amounts of SERPS payments after retirement, and a complex relationship existed between the SERPS scheme and occupational pensions.

As a result, changes made in 1986 and the recent 1995 changes have resulted in the transfer to occupational schemes of the liability to pay the indexation after retirement, by requiring schemes to increase the amount of the pension in payment in line with price increases up to 5% a year. Corresponding with this, people now give up all the SERPS entitlement that would have accrued to them on their earnings while contracted out.

The requirements placed on occupational schemes have also been simplified. The requirement for schemes to provide GMPs was abolished for earnings from 1997 onwards. In the future, defined-benefit schemes will have to provide benefits that meet a statutory standard. This provides flexibility, as the scheme does not have to match the precise structure of the "reference scheme" as long as the scheme actuary is able to certify that the benefits provided are broadly equivalent to or better than the pensions under the reference scheme.

The amount of the National Insurance contribution "rebate" reflects the value of the SERPS benefit given up by contracting out. The loss of the state-provided indexation therefore makes the rebate greater than it would have been under the original arrangements. On the other hand, the reduction in the accrual rate of SERPS (from 25% to 20%) and the increase in the female state pension age act to reduce the actuarial value of the benefit given up and reduce the "rebate." Roughly speaking, the rebate by 2000 will be slightly lower than was projected when the scheme commenced, although this also reflects changes to the actuarial assumptions underlying the assessed rebate as well as the changes to contracting out.

Different Types of Schemes Can Contract Out

The main change that has been made to contracting out was to extend the range of the type of pension scheme that could contract out. Originally only defined-benefit occupational schemes could contract out, and they had to guarantee a specified level of benefit. The complexity involved was later considered to be one of the reasons why the coverage of occupational schemes had not changed significantly since 1975. Other factors are also important, in particular the changes in the pattern of employment, including the increase in the number of small businesses and the switch from heavily unionized and pensioned large-scale manufacturing to service industries. There have also been increases in part-time and irregular work that tend to reduce overall pension coverage.

In order to make it easier for employers who consider defined-benefit schemes to be too daunting or who are reluctant to undertake the financial risks involved, it was made possible for defined-contribution occupational schemes to contract out on the basis of a simple contribution test. Such schemes have to ensure that the amount of the National Insurance contribution reduction to which they are entitled by virtue of contracting out is invested in "protected rights" in a suitable pension scheme that meets prescribed standards.

These "protected rights" are simply defined-contribution savings plans (although the occupational scheme can provide greater or other benefits on top of this guaranteed minimum). The pensions they eventually produce will therefore depend critically on the investment returns achieved and the expenses involved. At the latest date for which detailed statistics are available (March 1993), there were some 414,000 members of contracted-out money purchase (that is, defined-contribution) schemes (COMPSs) as compared with 9,495,000 members of contracted-out salary-related (that is, defined-benefit) schemes (COSRSs).

When COMPSs were introduced to take effect in 1988, the National Insurance contributions paid for a member of a COMPS were the same as there for a member of a COSRS; that is, they received the same "rebate," although the rate of the reduction was based on an assessment, reviewed every five years by the Government Actuary, of the amount needed specifically to fund GMPs with respect to COSRSs. The rebate applying to COMPSs was therefore based on the characteristics of COSRSs, although this has now been changed by the 1995 act, as described below.

A more fundamental change, also introduced in the 1986 act, was to enable individuals to contract out of SERPS, provided they took out an appropriate personal pension (APP) with a suitable "pension provider" (usually but not exclusively an insurance company) that had been approved for the purpose of contracting out. This extended the option of contracting out to employees whose employer did not have an occupational scheme, although it was also possible for an employee in an occupational scheme that was not contracted out also to contract out personally using an APP.

In order to ease the potential administration problems caused by numerous different employees (or their employers) having to make varying weekly or monthly payments to different providers, people with an APP pay the full rate of National Insurance contributions, and the Department of Social Security pays to the providers the appropriate amount of the rebate amount, together with the associated tax relief, after the end of each tax year. This then becomes the basis of "protected rights" of the APP.

During the period up to the 1992–93 financial year, an extra incentive rebate of 2% was also payable, in addition to the normal 5.8% rate, which was the same as that for members of COMPSs and COSRSs. The 2% (which was subject to a minimum of £1 a week), was payable in respect of all newly contracted-out employees so that members of new COSRSs and of COMPSs were also potentially eligible. By March 1993, some 5,599,000 people are recorded as having current APPs. This can be compared with the figures cited above for the membership of contracted-out schemes and with the 6,474,000 people who were estimated to be in SERPS and not contracted out at that date. Thus, by March 1993, about three-quarters of employees were contracted out in some way or other.

When APPs (and COMPSs) were originally introduced, the protected rights had to be turned into a regular pension at retirement age by the purchase of an annuity. It is now possible for individuals to delay purchasing the annuity (although they must still do so by age 75, and instead to make regular withdrawals from their "protected rights" funds; these "income withdrawals" are subject to both a maximum amount, to avoid the fund being run down too quickly) and minimum amounts (to ensure that the fund meets its original purpose to provide an income in retirement and avoid possible abuse of the tax privileges). The maximum and minimum are reassessed every three years based on factors calculated by the Government Actuary. The maximum income withdrawal reflects the annuity rates available at the time and also must take account of the requirement to provide indexation of pensions after retirement. This extra flexibility also applies to other types of defined-contribution pension savings. It increases the ability of individuals to plan their income in retirement, although in return they accept the risk of the fund not producing adequate investment returns as well as not benefiting from the pooling of mortality risk at least until they buy the annuity.

The Rebate Rate for Appropriate Personal Pensions

The additional 2% incentive rebate was only available for the first five years from 1988. It was effectively replaced in 1993 by an additional 1% rebate, although that was restricted to people aged over 30. This 1% extra rebate was needed to ensure that people with an APP at these ages would remain contracted out when the level of the normal rebate was reduced from 5.8% to 4.8% beginning in April 1993 as a result of the normal five-year review by the Government Actuary. (The reducing level of the normal rebate reflects the declining proportion of the population who are contracted out and who were 16 and over when SERPS began and who accrue SERPS benefits at a higher rate. The rebate rate was therefore anticipated to fall steadily from the initial rate in 1978 before stabilizing in around 2018.)

When an individual decides whether or not to contract out of SERPS into an APP, it is necessary to assess whether the amount of the rebate he or she receives is good value for the SERPS benefit that they give up. They, or more realistically the "provider," that is, usually the insurance company selling the APP, have to make projections of the likely buildup of the protected rights and the annuity that might be expected to be produced, and to compare that with the projected loss of SERPS. Such projections inevitably showed that the flat-rate rebate rate was better value for younger people in view of the greater period over which the rebate money will be invested. In addition, the structure of SERPS means that older people are currently accruing entitlement at a higher rate, and therefore the amount given up by contracting out is relatively higher for older people. Thus older people would require a higher level of rebate than younger people for it to be advisable to contract out. As a result, at present APPs are heavily concentrated at younger ages.

The additional 1% rebate from age 30 could be regarded as the first step in recognizing the need for the rebate to increase by age. However, it could be only a very temporary solution, because people with APPs are steadily aging and would soon hit the critical age and be advised to return to the state system, against the political intentions. The 1995 changes therefore included the requirement for the Government Actuary to assess the level of rebates separately for the three different forms of contracting out—COSRSs, COMPSs, and APPs—and specifically permitted the rebate rates for both defined-benefit forms of contracting out to be related to the age of the employee.

As well as allowing account to be taken of the different nature of defined-benefit and defined contracting out, this also permitted consideration of the different administration of the schemes. In particular, as APPs are organized on an individual basis, and as most COMPSs contain only a few members and so in that sense are not materially different from APPs, the expense allowance include in the rebate rates is higher for these types of schemes. Table 7 shows the age-related rebate rates for APPs that will apply in 1997, the first year of operation. The arrangements for providing the rebates to COMPSs are slightly different from that for APPs, and the rebate rates are correspondingly different. However, the assumptions underlying the rates were consistent.

TABLE 7
THEORETICAL AGE-RELATED REBATES FOR PERSONAL PENSIONS (% OF EARNINGS BETWEEN THE LOWER AND UPPER EARNINGS LIMITS)

Age at Start of 1997–98 Year	Rebate
15	3.4%
20	3.6
25	3.9
30	4.2
35	4.5
40	5.4
45	8.2
50	12.3
55	17.7

Source: Government Actuary's review of contracting-out terms (Cm 3221), March 1996.

In order to avoid very high rebate rates at older ages, and in particular rebates higher than the National Insurance rate of 10% paid by employees, it was decided to cap the rates at 9%. As mentioned above, there are few people with APPs at older ages, and so few will be affected by this capping. These rates can be compared with the rebate rate of 4.6% that apply on a flat-rate basis for all members of COSRSs. The higher average rate for APPs mainly reflects the higher allowance for administration expenses needed to ensure that APPs are a suitable vehicle for contracting out.

The Changes since 1975 and the Projected National Insurance Contribution Rates

The changes to the demographic projections and to basic pension, SERPS, and contracting out have all affected the projections of the future National Insurance contribution rates that have to be made regularly by the Government Actuary. Table 8 summarizes the results of several of the projections made since the introduction of SERPS in 1975.

To enable easy comparisons to be made, many of the figures quoted in the following table have been derived by interpolating between those actually quoted in the relevant reports.

The main conclusion to be drawn from the table is perhaps best gauged by a brief scan of the figures rather than detailed examination: the changes to the pension scheme, which have reduced the future costs and the required contribution rates, have compensated to a remarkably offsetting extent, for the changing assumptions of the future demographic prospects.

Contracting Out: Private Pensions and Regulations

The political philosophy behind the encouragement of private pensions, which has always been a fundamental feature of the U.K. pension system, is that individuals and their employers should be encouraged—even if simply by the lack of adequate state provision—to provide for retirement. This philosophy embraces the advantages of choice and flexibility that individual and occupational based schemes can have.

However, as tax concessions have been needed to add to this encouragement, the state has a role in ensuring that such concessions are not unnecessarily expensive, by way of lost revenue, and are not abused. In addition, in the United Kingdom, most employees with nonstate pension provision use it as a vehicle for contracting out of the earnings-related part of the state scheme. Thus the state has a clear interest in ensuring that the schemes are and will remain adequately funded to provide benefits at the level needed to justify their contracting out. More generally, there is a reasonable

TABLE 8
CONTRIBUTING RATES FOR THE NATIONAL INSURANCE FUND

Report Reference	1978	1985	1990	1995	2000	2005	2010	2020	2030	2040	2050
1	15.5%	15.6%	15.8%	16.1%	16.4%	16.7%					
2	15.3	14.4	14.5	14.7	15.0	15.2					
3	15.3	14.4	14.5	14.7	15.0	15.2	15.5%	17.5%	20.2%		
4		15.3	15.2	15.4	15.5	15.8	16.5	18.5	20.0	21.1%	21.1%
5		15.3	14.6	14.1	13.7	13.5	13.7	14.7			
6			14.5	14.5	14.4	14.5	15.1	16.4	18.0	17.1	15.4
7			15.2	15.1	14.8	14.6	14.6	14.6	14.4	12.6	10.8
8			19.1	18.1	17.8	17.6	17.4	17.8	18.4	16.4	14.1
9				18.1	17.6	17.6	17.6	18.7	20.0	18.7	16.8
10				18.1	17.7	17.5	17.4	16.8	17.2	15.8	14.0

For reports 1–4 above, the basic pension upratings are assumed to be linked to earnings, as that was the position at the time. For 5–10 the basic pension is assumed to be indexed in line with price increases.

Reports (see bibliography for further details):

1. Government Actuary's report on 1975 social security pensions bill in February 1975.
2. Government Actuary's report on benefit and contribution changes in December 1977.
3. G. G. Newton's paper in December 1977.
4. Government Actuary's first quinquennial review earnings uprating and basic pension.
5. Government Actuary's first quinquennial review.
6. Government Actuary's report on the 1986 social security bill before changes.
7. Government Actuary's report on the 1986 social security bill after changes.
8. Government Actuary's second quinquennial review.
9. Government Actuary's third quinquennial review before 1994 pensions bill changes.
10. Government Actuary's third quinquennial review after 1994 pensions bill changes.

level of agreement (reinforced when something goes amiss) that the state has a general role to supervise certain aspects of pensions in view of their financial importance to individuals and their inability to influence their activities.

The supervision and regulation can cover a wide range of the activities of pension schemes. The structure of regulation will depend upon whether the government agencies aim to carry out the regulation or whether that is delegated to the responsibility of relevant professionals, such as actuaries, auditors, and investment managers. It will also depend on the degree of freedom permitted, especially on asset management, where the control can vary from almost total to slight.

The main areas of regulation are likely to be the following:

1. Benefit design: neither too expensive on tax relief but, alternatively, meeting adequacy criteria if aimed at replacing state benefits. These regulations may relate to benefit or contribution levels, but the development of increasingly complex pension arrangement are likely to strain simple procedures.
2. Prudent and good management practice, including providing information to members
3. Ensuring adequate funding levels
4. Regulating investments, either by limits on assets by class or in more detail (or more limited—perhaps restricted to no self-investment)
5. Regulating nondiscrimination.

In view of the large number of pension arrangements in the United Kingdom, it is impractical for a government agency to attempt to scrutinize and supervise each one in detail. The United Kingdom therefore relies in general on the "professional" approach to supervision. As private provision becomes more prevalent in Europe, it will be interesting to see if this arm's length approach becomes generally acceptable.

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