price base amount is 37,900 kronor in 2002.

Figure 2 Guaranteed pension of single pensioner
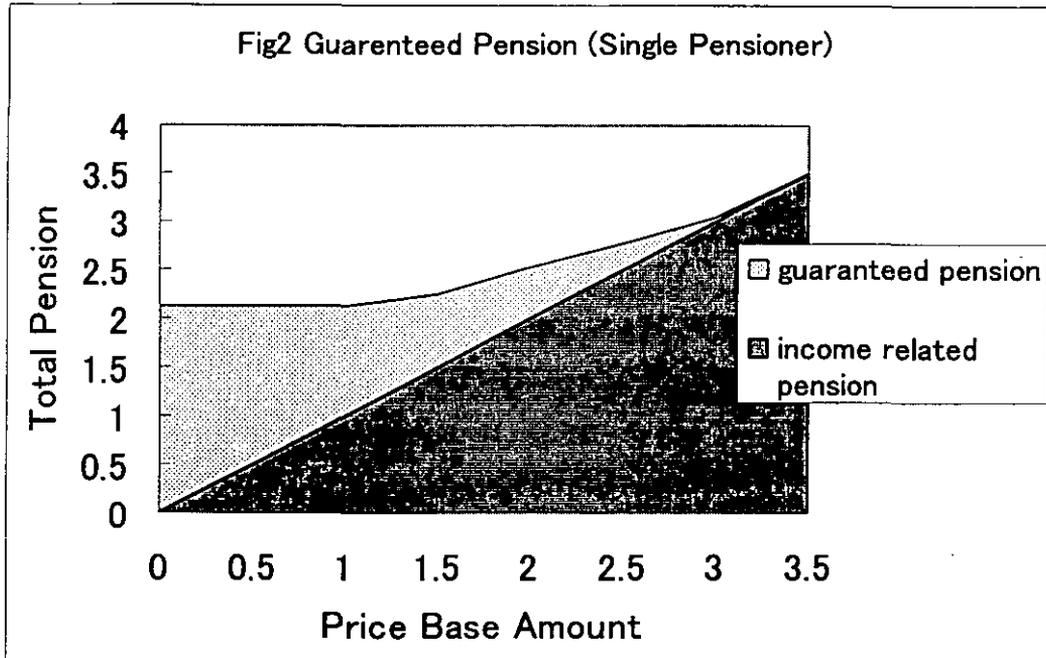
Fig2 Guarenteed Pension (Single Pensioner)

☐ guaranteed pension

☒ income related pension

The reduction rate in a guaranteed pension is as follows (see figure 2);
■ Unmarried pensioner
    0 ～ 1.26 price base amounts : 100%
   1.26 ～ 3.07 price base amounts : 48%
■ Married and cohabiting pensioner
    0 ～ 1.14 price base amounts : 100%
   1.14 ～ 2.72 price base amounts : 48%

3.5 Other characteristics

Other characteristics are pensionable amounts and the widow's pension. The Swedish government supports parents of young children as well as those who perform national service and those who receive study support. These are called pensionable amounts. In the new Swedish pension system, the widow's pension will be phased out.

4. Implications for the Japanese pension system

The following issues help us to consider the implications for the Japanese pension reforms.

1) Intergenerational equality: The pension contribution rate is fixed.

2) Sustainability: The automatic balance mechanism. The effect of rising longevity and economic fluctuation built into pension benefits.

3) Separate public assistance from pension system based on social insurance: The guaranteed pension is entirely financed by taxes.

4) Support for childcare years:

In the new Swedish pension system, the contribution rate is fixed. The main reason for intergenerational inequality is that the contribution rate rises continually. Now Sweden fixes the contribution rate at 18.5 percent. Therefore, the new Swedish pension system has the advantage of intergenerational equality.

In the new Swedish pension system, pension benefits are adjusted for rising longevity and the economic fluctuation. The automatic balance mechanism activates if pension financing becomes unsound. The automatic balance mechanism and adjustments of pension benefits for rising longevity and economic fluctuation contribute to the sustainability of pension system.

In the new Swedish pension system, guaranteed pensions are entirely financed by taxes. Meanwhile, in Japan, there is a basic pension. The Japanese basic pension is a universal pension and plays a role in minimum guarantees after retirement. However, the financing method of the Japanese basic pension differs from that of the Swedish guaranteed pension. The Japanese basic pension is financed by a pension contribution and state subsidy, which is a tax. Therefore, it is said that the role of the state subsidy or tax is unclear in the Japanese pension system. Meanwhile, the Swedish guaranteed pension is entirely financed by taxes, and separate public assistance from the pension system based on social insurance. This point is interesting.

In Sweden, the government supports the parents of young children via its pension system. There are called pensionable amounts. It would seem that these pensionable amounts are similar to childcare credits in Germany. Pensionable amounts are financed by taxes. Meanwhile, in Japan, there is no scheme like pensionable amounts or childcare credits.

Finally, we compare the Japanese pension reform plans with the new Swedish pension system. Recently, Ministry of Health, Labor and Welfare announced the Japanese pension reform plans. There are two main reform plans. Reform plan 1 is the traditional method. Contributions and benefits are adjusted every five years. On the other hand, reform plan 2 is a new method. The Contribution rate will be fixed at 18.35

percent. In addition, benefits levels are adjusted according to social and economic conditions[7]

Table 1 summarizes the Japanese pension reform plans, in terms of contribution rate, adjustment of benefits, guaranteed pension and childcare.

Table 1 The Comparison of Japanese Pension Reform Plans

Sweden	Japanese Pension Reform (EPI)	
	Reform Plan 1	Reform Plan 2
Contribution is fixed	No	Yes
Automatic adjustment of pension benefit to the declining number of workers	No	Yes
Guranteed pension is entirely financed by taxes	No	No
Childcare credits or Pensionable amounts	No	No

1) EPI means Employees' Pension Insurance.

First, reform plan 1 does not state that the contribution rate is fixed but reform plan 2 states that the contribution rate is fixed. Therefore, in terms of fixing contribution rate, reform plan 1 is no, reform plan 2 is yes.

Next, reform plan 2 states that pension benefits are automatically adjusted for social and economical conditions, such as a decline in the number of workers, but reform plan 1 does not. Therefore, in terms of the adjustment of pension benefits for social and economic conditions, such as those described above, reform plan 1 is no, reform plan 2 is yes.

Next is the guaranteed pension. In the Japanese pension system, there is not a guaranteed pension but there is a basic pension. The basic pension plays the role of minimum guarantee after retirement. The Japanese basic pension is financed by

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[7] Ono (2003) states that reform plan 2 has the possibility of losing the discipline of its reserves. He points out that the Swedish automatic balance mechanism is effective under the fixed pension premium.

contributions and state subsidy. Consequently, guaranteed pension paid entirely by taxes is no. However, Swedish new pension system has a clear distinction between the role of tax and pension contribution because the Swedish guaranteed pension is entirely financed by taxes.

Finally, neither reform plan addresses childcare support, such as childcare credits in Germany and pensionable amounts in Sweden.

To summarize, the Japanese pension reform plan 1 is not similar to the Swedish pension reforms, but the Japanese pension reform plan 2 is similar to the Swedish pension reforms. A fixed contribution rate and adjustment of benefits to the declining number of workers are similar to the Swedish pension reforms. Consequently, reform plan 2 is more advantageous in terms of intergenerational equality and sustainability than reform plan 1.

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2. 6 Pension Reform in the UK: implications for Japan

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1. Introduction

In UK, private pension schemes play a major role, and individuals have freedom of choice of pension provider within the mandatory of pension scheme. It is very rare to have these two characteristics. Owing to these two features, UK has not high cost of public pension after baby boomers attained 65 years over. On the other hand, as for in Japan the cost becomes high. Because of most of old ages rely on public pension, which uses both price and earnings indexation. In this paper, we review recent UK pension reform and discuss its implication for Japan.

2. Recent UK pension reform

Recent UK pension reform made it's scheme as depicted in Figure1. It contains a mandatory state 'pillar' (the contributory basic flat state pension supplemented by an income tested 'floor' MIG), a second mandatory 'pillar' that permits the individual either to be in the public pension or in a private scheme, and a third 'pillar' of voluntary retirement saving and investment. And in the second pillar, individuals have freedom of choice of pension provider and scheme and this is a distinction UK and other countries.

Figure1 The UK Pension system, 2003
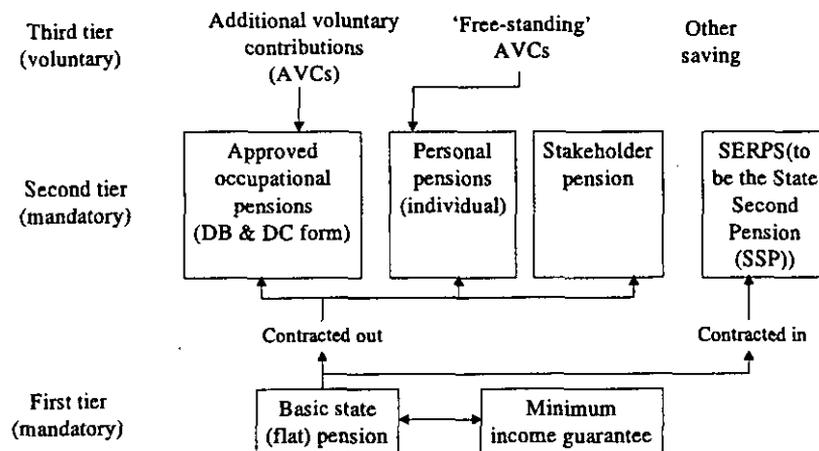
The 'fallback' plan in this second pillar is that the individual pays social insurance contributions to the State Earnings Related Pension Scheme (SERPS), which is a traditional publicly provided earnings-related defined benefit plan. Another option permits the individual to pay a reduced rate of National Insurance contribution so long as individuals belong to the employer-provided occupational pension scheme – typically a group defined benefit plan. And the difference between the 'full' rate of contribution and the reduced rate is known as the 'contracted out rebate', COR. This option, known

as 'contracting out', has introduced since 1978. Before another variant of contracting out introduced in 1988, it allows workers to opt to have part of their social insurance contribution, the National Insurance contribution, paid into an individual defined contribution retirement savings account provided by a private insurer (a Personal Pension), instead of SERPS. And, since 2000, the government has introduced a further opting out 'path', by which employers will permit employees to join a 'stakeholder pension' scheme, which is a form of low cost retirement savings plan(Self-employed can join the stakeholder pension, too). Moreover, individuals can switch, not always costless, between different pension schemes during their working lifetime.

(1)The State Earnings-Rrlated Pension Sshime

The intention of the SSPA 1975 was to introduce a mandatory earnings-related additional pension to sit on top of the flat-rate basic pension (at that time equivalent to about 25% of national average earnings). Earnings from 25% up to about 175% of national average earnings (relevant earnings) were to be covered by the State Earnings-Related Pension Scheme (SERPS). The benefit was to be 25% of revalued relevant earnings during the working life, payable from age 65 for men and age 60 for women, but with the calculation based on the best 20 years of revalued relevant earnings, rather than the whole working life[1].

Revaluation of earnings up to the level at the pension age was to be in line with movements in a general index of earnings. The aim was to reflect the pattern of earnings over the whole career, but re-expressed in current day terms at the time the pension came into payment. However, using only the best 20 years of revalued earnings was intended to help individuals with an incomplete earnings record, such as women who had taken time out from careers to raise families.

(2)Contracting Out

Approximately half of the employed workforce were members of occupational pension plans, which in most cases provided better benefits, on the basis of a wider range of salary, than would by SERPS. Since there was no point in duplicating this provision or in creating incentives for employers to reduce funded occupational pension provision, with this being replaced by pay-as-you-go state provision, the system of "contracting out" was devised. The National Insurance Fund could "sub-contract" the delivery of earnings-related benefits to good occupational pension plans, with the SERPS additional pension being the fall-back earnings-related provision for those who were not members of good occupational pension plans. This enabled SERPS to be introduced with much lower long-term costs than would otherwise have been the case, while providing encouragement to occupational pension plan coverage. Further, employers with good occupational pension plans (most public sector employers were in this category) did not need to restructure their pension arrangements. The intention from the start was that those who were contracted-out should pay lower National Insurance Contributions, with the contribution reduction (the "contracted-out rebate") actuarially

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[1] Revaluation of earnings up to the level at the pension age was to be in line with movements in a general index of earnings. The aim was to reflect the pattern of earnings over the whole career, but re-expressed in current day terms at the time the pension came into payment. However, using only the best 20 years of revalued earnings was intended to help individuals with an incomplete earnings record, such as women who had taken time out from careers to raise families.

determined so as to be a fair reflection of the value of the particular pension commitments being made by the occupational pension plan in substitution for SERPS additional pension. The contracted-out rebate was determined by the government for periods of five years.

3.Changes in the Contracting Out Arrangements

Contracting out has undergone many changes over the years. In 1980, formal annual price indexation of the basic pension was introduced (instead of the better of price or earnings increases). Since then, the Lower and Upper Earnings Limits (LEL and UEL), which define the band of relevant earnings referred to earlier, have also been uprated broadly in line with prices, so that the band of earnings covered for SERPS additional pension (the "relevant earnings") has become a lower part of the earnings distribution. This has had the effect of bringing more low-paid individuals within the scope of mandatory earnings-related pension coverage, while reducing the value of the rebate, and the mandatory level of benefits, for those earning above the national average. Recent upratings of the UEL in excess of price inflation have, however, countered this to an extent. The LEL and UEL are now, respectively, about £75 and £585 a week, that is, about 17% and 135% of national average earnings (in April 2002).

Changes were made to the underlying SERPS benefits in 1988. Subject to some transitional arrangements, maximum accrual over the working life was to be limited to 20%for the future, and the best 20 years' earnings calculation was replaced by the average over the whole contribution period. GMPs were redefined to include price indexation of pensions in payment up to 3% a year, with the excess up to full price indexation still remaining a liability of the National Insurance Fund. With each change to the contracted-out benefits, the rebate was reviewed to take the benefit changes into account. In 1995, legislation was passed to raise the female retirement age from 60 to 65 for those reaching retirement age between2010 and 2020.

Rebates were in any case required to be reviewed at least every five years. At most of these reviews, changes were also made to various demographic and economic assumptions. Other things being equal, there would be a steady fall in the level of the rebate over the first20 years, as the effect of the initial accelerated maturity of GMPs (faster accrual rates for those reaching State Pension Age before 1998) worked its way through the age distribution of those contracted-out.

Table 1 shows the history of the contracted-out rebates for contracted out salary-related schemes (COSRS).In 1986, the requisite benefits test was abolished, leaving the individual GMP test. However, GMPs ceased to accrue after March 1997, and the test reverted to being scheme based, with each scheme having to be at least as good as the "reference scheme." At this stage, the actuarial certification in respect of GMP liabilities was also withdrawn and replaced by the general Minimum Funding Requirement (MFR). From 1978 to 1997, the rebate was expressed as the value of the Guaranteed Minimum Pension that a COSRS was required to provide for periods of contracted-out service. Thereafter, the rebate was expressed as the value of the SERPS benefit forgone. Since April 2002, when State Second Pension (S2P) was introduced, with higher effective accrual rates on lower bands of earnings, the rebate for COSRS has been based on benefits forgone, but at the standard SERPS (20%) accrual rate, rather than at the S2P rates.

Table 1. Histry of COSRS Rebates

Period	Contracted-out rebate* for		Total Rebate*
	Employees	Employer	
1978-83	2.50	4.50	7.00
1983-88	2.15	4.10	6.25
1988-93	2.00	3.80	5.80
1993-97	1.80	3.00	4.80
1997-2002	1.60	3.00	4.60
2002-07	1.60	3.50	5.10

*as percentage of relevant earnings - between LEL and UEL.

4. Money Purchase Contracting-Out

A radical change was introduced to contracting-out in 1987, when it became possible to contract-out on the basis of membership in a defined contribution plan. Contracting out became possible through an Appropriate Personal Pension (APP) or Contracted-Out Money Purchase Scheme (COMPS). APPs and COMPS were not required to provide GMPs. Instead, the contracted-out rebate was paid into the money purchase plan, and these" minimum contributions," together with the investment return generated, were treated as "protected rights," which were subject to particular restrictions. For example, they had to be used to purchase an annuity subject to specific provisions. (unisex basis, 3% a year increases, and a 50% reversion to a surviving spouse).There were no guarantees that investment of the minimum contributions would produce a pension equivalent to, or greater than, the SERPS additional pension forgone, which was based on the GMP that a defined benefit plan would have had to pay to a person with the same age and earnings. The availability of this type of contracting-out, and, particularly, the need for those selling personal pensions to be able to offer advice that people should contract out with a personal pension, put pressure on the government to offer a rebate that could be portrayed as reasonably generous, relative to the SERPS additional pension benefits forgone. When money purchase contracting-out was introduced in 1987, the rebates payable as minimum contributions were independent of age and sex. Indeed, they were initially the same as the standard COSRS rebates, supplemented by an incentive payment of2% of relevant earnings. This incentive rebate was offered from 1987 to 1993 to those contracting out for the first time, and between 1993 and 1997, an incentive payment of 1% of relevant earnings was offered for those over age 30 contracting out on the basis of an Appropriate Personal Pension (APP). Since the cost of purchasing benefits equivalent to the SERPS benefits forgone increases markedly with age, these flat-rate rebates made it very attractive for younger people to contract out by this route; the rebate was not so attractive to older people. In 1997, age-related rebates were introduced for APPs and COMPS. There was a maximum rebate of 9% of relevant earnings, to avoid rebates being in excess of the contributions being rebated. Recent estimates suggest that, of an employed population of 20.2 million, 8.1 million were contracted-out through membership in COSRS, 0.3 million through membership in COMPS, and 3.7 million through APPs, leaving 8.1 million contracted-in to SERPS. Since April 2001, stakeholder pensions have been available as a further alternative for contracting-out of SERPS. Stakeholder pensions are another form of money purchase contracting-out. They can be constructed as

occupational pension plans or as personal pension plans. Stakeholder pensions are subject to a number of conditions to make them transparent and low-cost. The costs are kept low by rules permitting only a charge of up to1% a year on the value of the accrued investment fund. No initial charges, flat-rate charges, or exit charges are permitted. Since October 2001, employers with five or more employees who do not have access to a suitable alternative pension arrangement, must make a stakeholder pension plan available to their employees. Employers are not, however, required to contribute to stakeholder pension plans. It can be argued that there was an incentive element throughout in the COSRS rebates. An extra ½ % was added to the proposed rebate during the passage of the Bill that became SSPA1975. In subsequent reviews of the rebate, this was maintained by applying a 7.5% contingency margin. This has always been rationalized as an additional rebate to make it attractive for a wider range of salary-related plans to contract-out, for example, with a higher than average age distribution.

(1)Most Recent Review of The Rebate

The latest contracted-out rebate review started with a consultation paper in August 2000. The Government Actuary reported to the Secretary of State for Social Security in March 2001, and the report was published with the Secretary of State's decisions, in Cm 5076in March 2001, alongside the relevant order to bring the new rebates into effect from April2002. The Secretary of State chose to implement the rebate levels proposed by the Government Actuary as the pure actuarial cost of the SERPS benefits forgone. This means that the COSRS rebate for the 5 years that started in April 2002 will be 5.1% of relevant earnings, split 1.6% to the employee and 3.5% to the employer. APP, COMPS, and Stakeholder rebates are age-related (and change each year), ranging from 4.4% at age 20 to9.9% at age 50 in 2002/03. The cap on age-related rebates will be increased to 10.5%, so that those below the cap in 1997/2002 should still be below the cap in the next 5 years.

(2)State Second Pension

Beginning in April 2002, SERPS itself was replaced by State Second Pension (S2P). S2P is a career-average revalued plan, similar to SERPS, but giving more weight to accrual on lower tranches of salary. Benefit accrues at the rate of 40% over the working life on earnings up to the Low Earnings Threshold (LET), which is £10,800 a year for 2002/03, and at 10% from the LET up to a level of earning defined as "three times the LET less twice the QEF (qualifying earnings factor)" (the QEF is the annualised LEL). This level of earnings has initially been set at £24,600 a year. Above this level, accrual is at 20%, exactly as with SERPS, up to the Upper Earnings Limit. S2P has other features to help the low paid. Those earning below the LET are credited with S2P as though they were earning at the LET. Even some people outside the labor force, because of incapacity or caring responsibilities, will be credited with S2P at the level of the LET. The accrual of S2P is shown diagrammatically in Figure 2.

Following the introduction of the State Second Pension (S2P), the age-related rebates for APP contracting-out are now calculated on the basis of the S2P benefits forgone, that is ,at the 40%, 10%, and 20% accrual rates. However, for COSRS and COMPS, the rebate is based only on a uniform 20% accrual rate (as under SERPS) between the LET and the UEL.The rebate for those earning below the LET is based on

actual earnings, rather than the deemed earnings, equivalent to the LET, which apply for S2P purposes. Setting the rebate terms inevitably involves some compromises. Giving more to those contracted-out means charging more to those who are not contracted-out. Increasing the generosity of the terms, particularly for personal and stakeholder pensions, may make the corresponding private sector product more marketable but will also raise criticism that the government is paying over the odds to transfer liabilities to the private sector. The adequacy (or otherwise) of the rebate is posed in particularly clear-cut terms with money purchase contracting-out, where the provider of a personal pension or stakeholder pension has to demonstrate that the offer is good value compared to the alternative of remaining in SERPS.

Figure2 S2P and SERPS

QEF	LET		3LET-2QEF	UEL
Band1		**Band2**	**Band3**	
		Earnings		
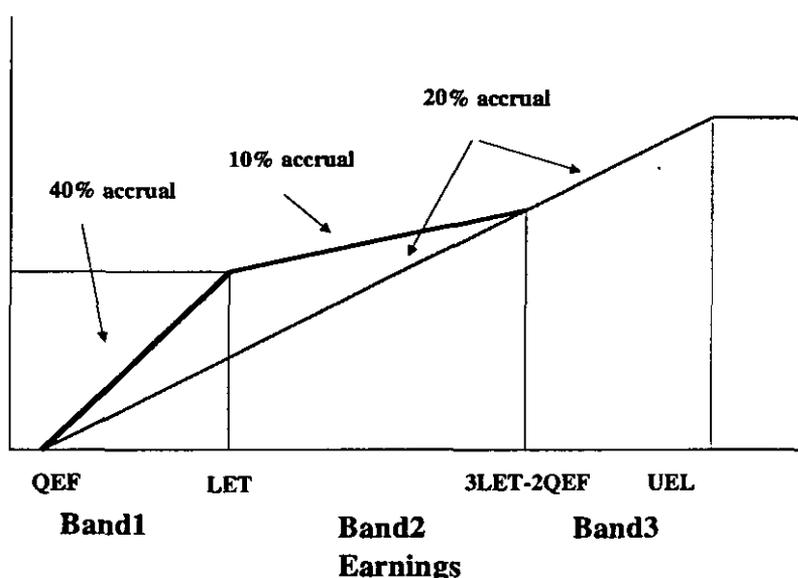
5. Aggregate pension saving in the UK

How much retirement saving is undertaken in the UK? Is it 'adequate' by any criterion? There has been an extensive debate in the United States concerning this issue, revolving in part around what components of retirement income are included in the criterion of 'adequacy' (see Bernheim and Scholz, 1993). To answer this question in the UK context, we need a simple benchmark against which to compare actual saving.

Consider therefore a simple life cycle hypothesis (LCH) model of saving, with no uncertainty as to lifetime income (Deaton, 1992). Assume an individual works continuously for 40 years from, say, age 20 to age 60, expects to survive for 25 years after age 60, and saves 20% of earned income. If real earnings growth at 2% and the real return on saving is 5%, an individual could convert the capital sum at retirement into an annuity sufficient to replace 65% of final earnings, or 94% of average lifetime earning. Saving at 10% of course halves the replacement rates. Adding in short periods of interruption to work, an additional replacement of earnings arising from the basic state pension of say 10% of lifetime earnings, and the reduction is living 'needs' after retirement (say, the absence of travel to work costs) suggests that a 10-15% saving rate out of earnings is the minimum required to receive a replacement rate of 50-60% of final earnings in retirement. This ignores any other motives for saving, such as

precautionary saving and it also ignores any provision for bequests, whether to widow(er)s or to other family members.

Combined contributions to occupational pension schemes from employees and employers generally lie in this 10-15% range, implying that such schemes provide adequate retirement saving opportunities; at least for long-serving employees. However this must be qualified for individuals who switch repeatedly in and out of schemes, since there are still significant potential costs to mobility between occupational pension schemes if they are not transferable. The issue of saving adequacy is however more pertinent for individuals who remain in SERPS, or who have opted to pay their contracted out rebate (COR) into a Personal Pension account. Although the COR varies across individual Personal Pension insured because it is age-related, the average rebate or contribution to SERPS is less than 5% of earnings, leaving a significant retirement saving 'deficit'. This is why many UK actuaries use the 'rule of thumb' that individuals who are not in a defined benefit occupational pension scheme should make additional contributions of 10% of earnings to guarantee an 'adequate' pension. In particular 'rebate only' Personal Pension insured are unlikely to have an adequate replacement rate in retirement.[2] Note however that SERPS contains a number of additional features, such as spouses' benefits, while annual returns on equity invested Personal Pensions in the 1990s have averaged well over the 5% assumed here.

There is a further issue to be taken into account when looking at aggregate data. The LCH model assumes that individuals spend assets after retirement. This should be reflected in 'negative' saving rates among older households. However, measured saving rates may misrepresent this behaviour if the rundown of the accumulated fund after retirement is treated as 'income' rather than as dissaving. This mis-measurement may partly explain the 'puzzle' of observed positive savings rates among older people (Miles, 1999) although this bias is in turn offset if changes in wealth due to capital gains (for example changes in the value of housing equity) are also not measured in the savings data.

Finally, note that demographic structure is important in looking at the aggregate saving rate. In a static population with no productivity growth in a simple LCH model, we might expect 'true' retirement saving to be zero if positive saving among workers is entirely counteracted by dissaving of retired households. However in a population where successive cohorts are more productive or where demographics are not in steady state, this result will not hold. Most pertinently, in the UK, the 'baby boom' generation are now middle aged and probably at their peak saving level. So we would expect to see a net measured inflow into retirement saving; a picture that will be reversed in a decade or so as that generation reaches retirement age.

Figure 3 illustrates the quarterly household saving rate in the UK from 1963 Q1 through to 2000 Q2. The series incorporates all kinds of retirement saving, including contributions to occupational pension schemes, as well as payments of life assurance premiums, saving in financial assets and *net* saving in housing (i.e. less the net acquisition of mortgage debt). The series exhibits a good deal of volatility, partly from its construction as a residual, and partly because it measures the net effect of two flows: asset acquisitions and sales. There are notably sharp falls in the saving rate in the mid-1980s and since 1998, both periods of growing consumer confidence. There are

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[2] See Pension Provision Group (1998).

rises in saving rates in the early 1980s and the later 1980s, both periods of recession and growing public deficits, suggesting that a precautionary saving motive, and revisions to permanent income expectations, play a major role in interpreting saving volatility in the UK.[3]

Figure3 Aggregate UK savings rate from 1963 Q1 to 2000 Q2.
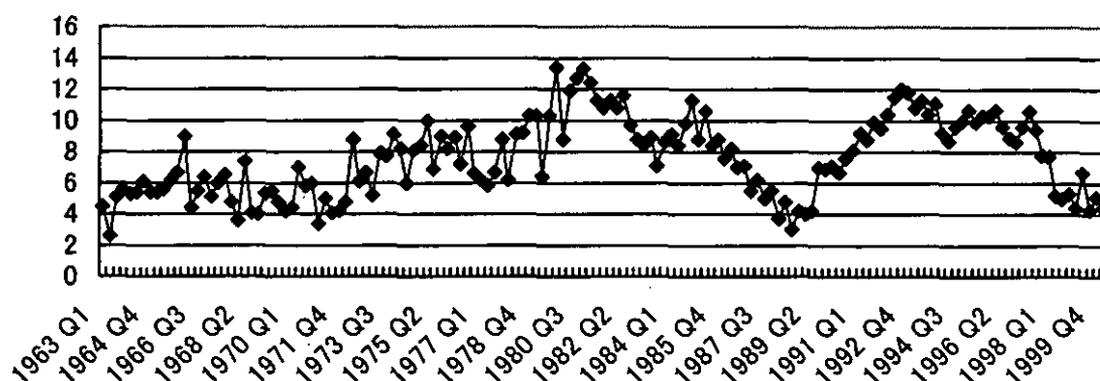
Note: Seasonally adjusted quarterly data
Source: Office for National Statistics (O.N.S.): Economic Trends. See table 2.5 series NRJS.

Figure4 Household savings rates (annual) – alternative definitions
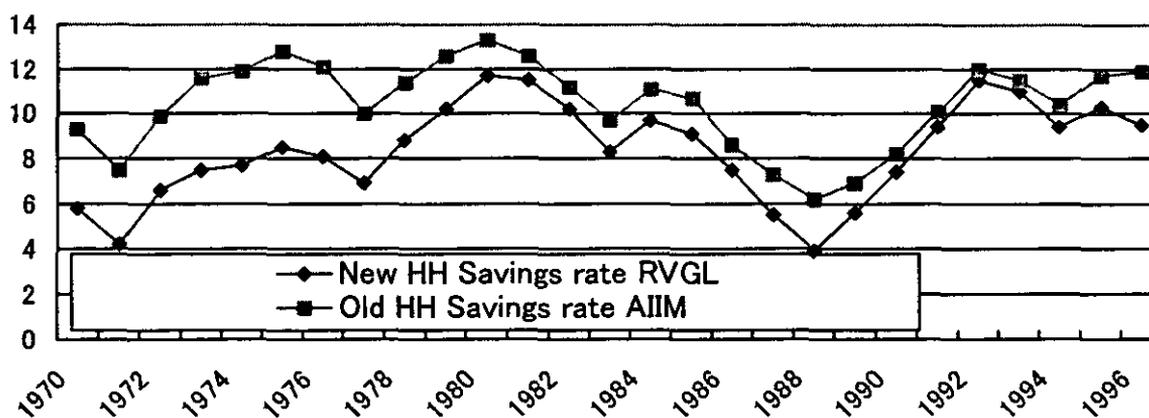
Note: Comparison of savings ratios as calculated under ESA standards and under the system before these standards were introduced.
Source: O.N.S.: United Kingdom National Accounts ("The Blue Book").

Intuitively, we would expect retirement saving to be less volatile. In order to construct a longer time series on retirement saving relative to the overall household saving rate, it is necessary to use a slightly different definition of household saving to that portrayed in Figure 3. The series used was constructed by the ONS only until 1996 and is labelled as the 'old' series in Figure 4, where it is compared to the annualised 'new' series used in Figure 3 based on the European System of regional and national accounts (ESA). The comparison is intended to link the interpretation of Figures 3 and 4. The 'new' series

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[3] See Attanasio and Weber (1994) and Acemoglu and Scott (1994).

has a different treatment of capital gains, income from partnerships and various other changes.[4]

Figure 5 Savings rate and rate of saving in funded pensions, 1970 to 1996.
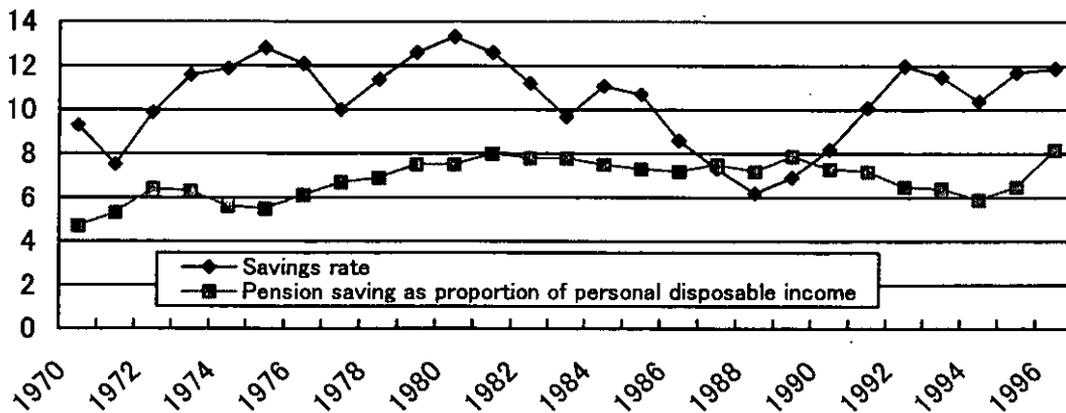
Note: Uses figures calculated before ESA standards had been introduced.
Source: ONS: The Blue Book.

A measure of net pension saving (as defined below), relative to the overall household saving rate, is depicted in Figure 5. As predicted, the pension saving rate is much less volatile, showing a slight increase until the late 1980s and thereafter a slow decline. Note, for reference purposes, that 1988 was the first year in which individuals could save through Personal Pensions and there is indeed a slight positive 'blip' in the data. There is, however, a steady decline in pension saving thereafter until 1995-96, when there again an upsurge in the pension saving rate (again, in fact, coinciding with another pension reform).

Figure 6: Pension saving rate: inflow and outflow from pension funds, 1970 to 1996
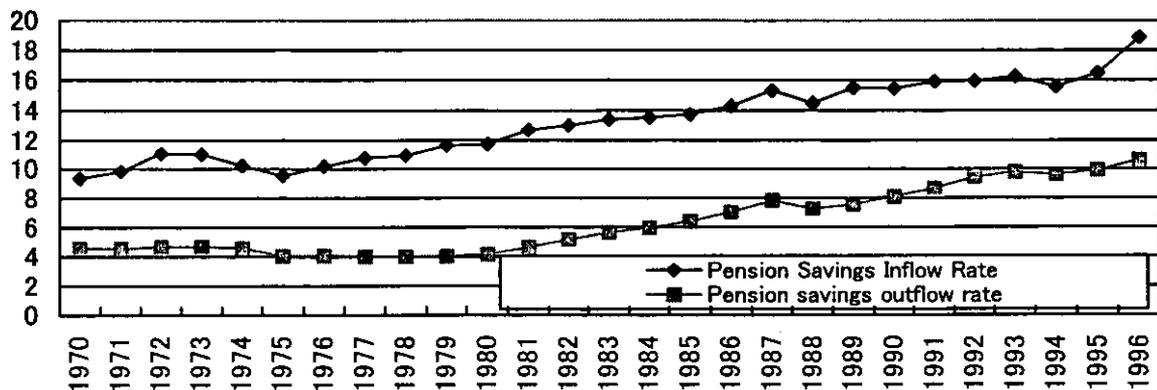
Note: Administration costs are netted out of the pension savings inflow rate (see note to Figure V) and not included in the calculation of the outflow rate.
Pre-ESA definitions are used.
Source: O.N.S.: The Blue Book.

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[4] The new series is calculated to the new standards implied by the European System of national and regional Accounts (ESA).

Finally, in this basic description of aggregate series, Figure 6 examines inflows into private pension funds (defined as payment of contributions plus the flow of returns earned by the cumulated sum of contributions) relative to outflows (annuitisation and cash sum payments). The difference between the two series is the net pension saving rate depicted in Figure 4. As can be seen from Figure 6, the inflow is greater than the outflow which, as suggested previously, is consistent with the age structure of the population. It also arises from the growing maturity of pension funds, many of which were initiated in the 1950s and 1960s. Furthermore, Figure 5 gives a better guide to the total accrual of rights in pension funds, and to the changes in household wealth, than the net figure of pension fund saving depicted in Figure 6.[5] Overall, the figure suggests a significant, and growing, share of household retirement wealth in GDP arising from saving through pension funds.

6. Saving through Personal Pensions

Most of this retirement saving arises through the net accumulation of assets in occupational pension funds, rather than through individually purchased retirement saving assets. Employee and employer contributions to Personal Pensions only accounted for around 0.3% of GDP in 1998-99, so even if a large part of the net financial flows into pension funds depicted in Figures 5 and 6 are returns on past contributions rather than accumulated 'new' contributions, these contributions to employer-provided funds still dwarf current contributions into individual retirement accounts. Nevertheless, we focus on Personal Pensions here because they are new, and still at a relatively early stage of development, whereas the current magnitude of saving through occupational pension funds arises from the past evolution of pension fund coverage in the UK. In particular, it is interesting to speculate on what fraction of contributions into Personal Pensions represent 'new' saving.

Figure 7:Contributions to Personal Pensions, by type of contribution (1998-99 prices)
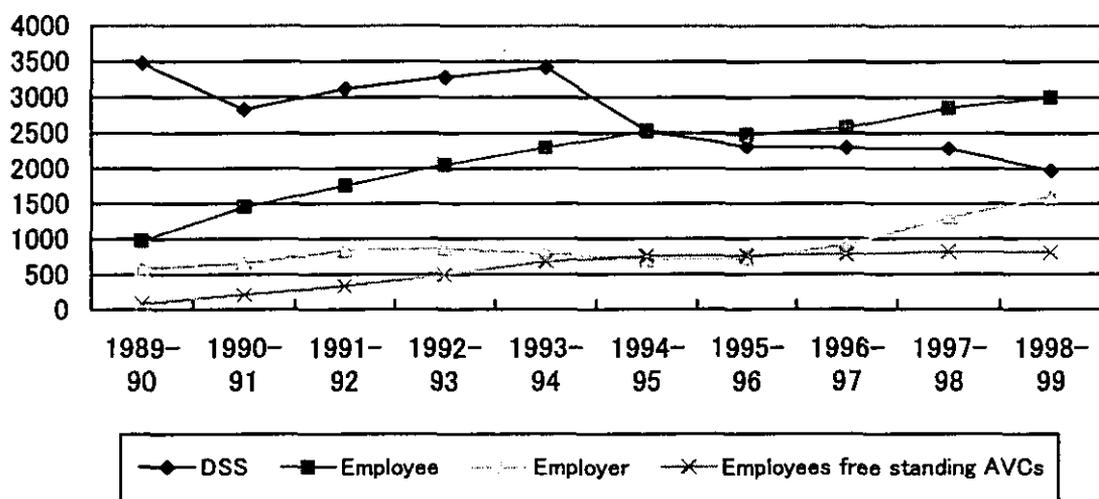
Source: Inland Revenue Satistics, (tables 7.1 and 7.2), deflated by authors.

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[5] And thereby by-passes the Miles (1999) critique that household income figures treat dissaving by pensioners as 'income' and thereby overstates the 'saving rate' among elderly households.

Figure 7 presents some evidence on flows of contributions into Personal Pensions, plus free-standing additional voluntary contributions (AVCs) used to 'supplement' accumulated funds in occupational pension schemes. Unlike occupational schemes, disbursements (payment of annuities) from Personal Pensions can largely be ignored, since few insured have yet have reached the minimum age or accumulated a sufficient fund to make annuitisation worthwhile.[6] In any event, the data used here from Inland Revenue records only include flows of contributions.

Figure 7 suggests that, initially in the late 1980s and early 1990s, the flow of funds into Personal Pensions was dominated by payments of the contracted-out rebate (COR) into pension accounts, with 'voluntary' contributions by employees and employers only summing to half that amount. What is the impact of these COR payments on total household saving? The extension of contracting out permits individuals who were previously in SERPS to purchase a funded pension, financing it with a lump sum transfer of contributions. Assuming that the return on a Personal Pension exceeds SERPS for those who choose to opt, this purchase is equivalent to a positive retirement wealth shock which should increase consumption and thereby have a *negative* impact on household saving, depending on the household's demand for retirement wealth relative to other assets. Analysis of this period confirms that equity returns, often well into double digit real returns, far exceeded returns on SERPS which, for men, were low or even negative.[7] Furthermore, since contracting-out was voluntary, and insofar as the public understood the relative risks involved, those who were more risk-averse concerning investment risk or who did rather better out of the various redistributive features built into SERPS, could choose to stay in the public scheme. Thus the wealth effect of contracting out should work only in one direction, in favour of lower saving.

In addition to those who left SERPS, who were essentially given a 'one way bet' (see Disney and Whitehouse, 1992), a substantial number of individuals left occupational pension schemes to buy Personal Pensions – somewhere between 750,000 and 1.1 million out of around 6½ million individuals who chose to buy Personal Pensions in the late 1980s and early 1990s. These decisions were the basis of the 'mis-selling' scandal that led to a substantial compensation bill in the mid to late-1990s. The losses arising from such a decision are threefold: costs in transferring pension rights or in incomplete indexation of deferred benefits in the occupational scheme, upfront administrative charges on Personal Pension accounts, and the likely loss of the employer's contribution, which would not normally be paid into the account of an individual opting to leave a company-provided scheme. Since such a decision would almost certainly result in a lower pension than would otherwise be the case, a decision to leave an occupational pension scheme and to buy a rebate-only Personal Pension can, and was, interpreted as a mistake. But it can also be interpreted as a conscious (if myopic) decision to *reduce* retirement saving, since the individual opting for a rebate-only Personal Pension is thereby no longer required to make an employee's contribution to the occupational scheme.[8] This type of behaviour however reinforces

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[6] Personal Pensions can be annuitised between ages 50 and 75. Most Personal Pension optants start their plan in their twenties and thirties, and may subsequently join an occupational pension scheme.

[7] See Disney and Whitehouse, 1993.

[8] And purchase of a rebate-only Personal Pension does not preclude the individual making later contributions to their Personal Pension. Giving individuals compensation for a conscious decision to

the possibility of saving reductions arising from opting out, but this time through reductions in retirement saving, as well as other saving.

In the late 1980s, there was very little additional saving in Personal Pensions by employees and employers, according to Figure 7. However, in 1995, the government tightened up its subsidies to Personal Pensions by age-relating the COR applicable to Personal Pension insured and thereby on average reducing the average COR, especially for younger insured. This approximately halved payments by the government into Personal Pension accounts by the end of the decade. At the same time, and perhaps consequently, there has been a steady increase in employee and employer contributions into Personal Pensions, which tripled in real terms over the decade.

In focusing on employee and employer contributions on top of the COR contribution, the analysis of the saving effect is more conventional. The offer of a new saving instrument should increase private saving, so long as there is no completely substitutable financial asset available. Certainly, at the start of the 1980s, no substitute tax-relieved asset was available, although by the end of the decade, it was apparent that Individual Savings Accounts (ISAs), although not providing longevity insurance, had other similar properties to Personal Pensions (Emmerson and Tanner, 2000). Finally, in calculating the net saving effect, we should deduct the contribution arising from tax reliefs on Personal Pensions, by which tax rates would be higher than would otherwise be the case if individuals opt for Personal Pensions.

As a 'back of the envelope' calculation, assume that the income (wealth) elasticity of other saving to Personal Pensions is –0.1 and that the substitution elasticity rose from 0.3 to 0.4 over the period as closer asset substitutes became available. With an income tax rate of 0.23 (averaged over the period), this would imply a total positive impact on savings in 1989-90 of the £5 billion invested in Personal Pensions of approximately £450 million. This is not large. However, the impact rises over the decade, with the impact of the £6.5 billion invested in 1998-99, on these values, increasing total saving by £1.88 billion in that year.[9] Of course, this estimate is highly sensitive to the value assigned to the 'retirement wealth effect' arising from the switch of the COR from SERPS to a Personal Pension.

6. Discussion

In short, very low replacement rate and cutting down state pension's benefit lebel make good UK's financial condition and some projection say it is eternal. Very low state pension benefit and Contracting-out scheme makes individuals free. It may be the following point to be able to learn from U.K.

1. Not using earnings indexation, but price indexation for pension benefit.
2. Making incentive for lower middle class to contribute higher paying pension, like S2P
3. Clarifing a relation benefit and contribution

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reduce their retirement saving is an extreme version of paternalism (although the compensation ought logically to have involved thereby making mandatory extra contributions to their retirement saving account).

[9] Given the assumed values   1989-90: $[-0.1 \times 3.5] + [(1 - 0.23) \times 0.7 \times 1.5]$
1998-99: $[-0.1 \times 2.0] + [(1 - 0.23) \times 0.6 \times 4.5]$

Current Japanese system has no contrating-out (if pariciate in Kousei Nenkin Kikin, some rebate for fund own investing) and National Pension is too low benefit to paricipate in. In Japan, we should extend consumer choice and the share of pension provision backed by privately invested funds and the government has to make broad safety net.

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2.7 REFORMING SOCIAL SECURITY: DISTRIBUTIONAL, EQUITY, AND ECONOMIC CONSIDERATIONS

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Introduction

Most of the debate over reforming national social security systems centers on the desirability of introducing individual accounts and the need to restore long run financial balance. However, there are a series of parameters in these national retirement plans that affect the size of retirement benefits, how benefits vary across households, work and retirement decisions, and revenues to the system. Important characteristics include income redistribution in the current benefit formula, retirement tests, spouse and widows' benefits, treatment of the self-employed, taxation of retirement benefits, the overall cost of employee benefits, and the relationship to other employee benefits. This article examines the existing structure of the U. S. Social Security system and its prospects for amendment. The analysis begins with a review of the current funding status of the U.S. Social Security program and then examines some of the important characteristics that affect the distribution of retirement benefits. The article concludes with a brief assessment of the importance of discretionary employee benefits in the U.S.

1. FUNDING STATUS OF U. S. SOCIAL SECURITY1.

On an annual basis, revenues to Social Security currently exceed expenditures; however, projections clearly indicate that in the coming years, this situation will be reverse. As a result, the U.S. Social Security system faces a long-term actuarial deficit that will tend to increase in the coming years unless significant reforms are adopted. This section briefly describes the financial status of this retirement program.

In the United States, Old Age, Survivors and Disability Insurance (OASDI) or Social Security primarily is financed by a payroll tax (Federal Insurance Contribution Act) paid by employers and employees. Employed persons have the payroll tax withheld from their wages. A payroll tax equal to 6.2 percent of covered earnings is paid by employees to finance the national retirement and disability system. This represents a tax of 5.3 percent for retirement benefits and 0.9 percent for disability benefits. Employers also pay a payroll tax of 6.2 percent of covered earnings. The employer contributions do not count as earnings in the determination of employee compensation subject to the payroll or income taxes. The employer contributions are a business expense for the firm and thus are deducted from corporate income tax liability. Maximum annual earnings subject to these taxes are $87,000 in 2003. The maximum level of earnings subject to the payroll tax is increased automatically each year by the rate of growth of the national average annual earnings.

Since 1951, self-employed individuals have been covered by Social Security and are required to make mandatory contributions to OASDI. Tax rates for self-employed individuals are set in the Self-Employed Contribution Act (SECA). Self-employed persons pay the combined tax (employee plus employer payroll tax) of 12.4 percent of

their net taxable earnings; however, several tax provisions have been adopted in an attempt to make the tax burden for the self-employed analogous to that of employees. The provisions in the tax code tend to reduce the payroll and income tax liability of the self-employed by allowing a deduction from net earnings from self-employment equal to the amount of net earnings before the deduction times one-half the SECA tax rate (or 6.2 percent of net earnings). As a result, the self-employed do not make Social Security contributions or pay income tax on 6.2 percent of their net earnings or the money that is equivalent to the employer's contribution for Social Security.

Social security taxes are paid by 96 percent of American workers. Some federal workers hired before 1984, railroad workers, some state and local government are not covered by Social Security. Unlike in Japan, avoidance of the tax by self-employed persons does not appear to be widespread; however, illegal alien workers often are paid in cash and many remain outside the system.[1]

In 2001, wage and salary earnings of 145 million employees totaled $4.7 trillion of which $4.0 trillion were reported as taxable. This means that 84.2 percent of earnings were subject to the payroll tax. The average worker had estimated annual earnings of $32,615. Approximately 94 percent of all employees had total earnings below the Social Security taxable earnings limit, thus about 9 million workers had earnings greater than this amount. There were 15 million self-employed individuals who reported total earnings of $0.3 trillion of which 65.9 percent were subject to Social Security taxes. The average earnings per self-employed person were $22,680. Approximately 94 percent of all self-employed individuals also had total net earnings less that the Social Security earnings cap implying that about one million self-employed persons had earnings above