The tax treatment of funded pensions

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The tax treatment of pensions is a critical policy choice in the transition from a public sector, pay-as-you-go system to one in which all or part of pensions are provided through individual, privately-managed pension accounts. A generous tax treatment will promote pension saving but may be costly in terms of revenues forgone and encourage tax avoidance. The distributional consequences may also be undesirable if higher income individuals are better able to take advantage of tax reliefs.

In countries with mature funded pension systems — such as the Netherlands, Switzerland, the United Kingdom and the United States — pension funds are worth an average of 85 per cent of GDP. Private pensions account for a major part of private-sector savings flows, are an important supplier of capital to industry and play a large and growing role in providing retirement incomes. These figures alone mean that it is vital to give the tax treatment of pensions careful consideration.

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This paper is structured as follows. The next section considers a number of different possible ways of taxing pensions. Section 2 provides a descriptive overview of the tax treatment of pensions in a range of countries. Section 3 extends the analysis to compute a summary measure of the generosity of tax incentives, the marginal effective tax rate on pension saving. Section 4 considers the link between the taxation of pension funds and the tax treatment of the underlying assets, particularly equities and bonds, in which they invest. Section 5 examines the deductibility of contributions. Sections 6 and 7 look at the importance of pension funds and associated tax incentives in aggregate. Section 8 assesses the objectives for taxing pensions, the options and the arguments while section 9 concludes.

1. Possible pensions taxation régimes

Three transactions constitute the process of saving via a funded pension scheme, each of which provides an occasion at which taxation is possible:

- when money is contributed to the fund, normally by employers and employees;
- when investment income and capital gains accrue to the fund; and
- when retired scheme members receive benefits.

If pensions are pay-as-you-go financed (*i.e.,* out of current contributions) then the second point at which taxation may occur is lost.

Given three points at which it is possible to levy tax, there are eight basic tax combinations. There are examples of many of these in practice, but some are more common and characterise theoretical ideals for the tax system.

Table 1 illustrates four hypothetical régimes.[2] The Table shows the net pension resulting from a contribution of 100 made five years before retirement.

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2 The table ignores extreme cases where pensions are taxed at all three possible points or at none of them, and where either investment returns alone are taxed or alone are exempt.

A proportional tax of 25 per cent and a rate of return on investment of 10 per cent per annum are assumed. The effect of inflation is ignored for the moment.

The first régime exempts contributions from tax, does not tax fund income, but does tax the pension in payment. This can be termed an exempt, exempt, taxable (EET) system. The second involves saving out of taxed income, no tax on the fund's investment return and tax-free withdrawal of pension benefits, *i.e.*, a TEE system. In this simple framework with a flat tax rate, these two systems are equivalent in effect. They both confer a post-tax rate of return to saving equal to the pre-tax rate of return. They are neutral between consumption now and consumption in retirement. Faced with either régime, an individual earning 100 now can consume now, paying 25 in tax and buying goods worth 75, or they can save, allowing consumption of 120.79 in five years. But 120.79 is simply the amount available for consumption now, increased at a 10 per cent rate of compound interest, i.e. $75 \times (1.1)^{5.}$ This also means these régimes are equitable in their treatment of different individuals: people who save for future consumption pay the same tax as those who consume now. Finally, the two systems also deliver the same net present value of revenues to the government. However, the timing is different: revenues are deferred until retirement under EET, but received immediately under TEE.

In practice, the EET and TEE systems may not have the same effect because of the point at which the tax exemption occurs. If an individual pays a different marginal income tax rate while in work from the tax rate paid in retirement, then pre- and post-tax rates of return will no longer be equalised. The individual will benefit more from a régime granting tax relief when his or her marginal rate is higher.

Table 1. **Alternative pensions taxation régimes**

These more unusual régimes are discussed below.

	EET	*TEE*	*TTE*	*ETT*
Contribution	100	100	100	100
Tax	-	25	25	-
Fund	100	75	75	100
Net investment return	61.05	45.79	32.67	43.56
Fund at retirement	161.05	120.79	107.67	143.56
Tax on pension	40.26	-	-	35.89
Net pension	120.79	120.79	107.67	107.67
Net present value of tax	25	33.14	25	33.14

Note Assumes 10 per cent annual real return, 25 per cent tax rate and five-year investment term

The last two systems involve taxation at two points. Under the third régime, savings are made out of taxed income, income earned by the fund is then taxed but benefits received are exempted (TTE). The tax exemption in the last system occurs at the point of contribution, while fund income and benefits are taxable (ETT).

The effects of these two systems are the same in this simple model. However, the post-tax rate of return is now below the pre-tax rate (7.5 per cent rather than 10 per cent: $107.67 = 75x(1.075)^5$). These two systems result in a disincentive to saving, because consumption now is worth more than consumption in the future.

The EET and TEE régimes are equivalent to the 'expenditure tax' of the public finance literature[3], while the ETT and TTE systems correspond to a 'comprehensive income tax'. The origin of these names is clear. The first two régimes tax only consumption (or expenditure) and at the same rate whether consumption is undertaken now or in the future. In contrast, the last two systems tax all accruals to income, whether from earnings or investments, irrespective of whether they are saved or consumed.

These two benchmark tax systems are different ways of interpreting 'fiscal neutrality' with respect to savings. Equalising pre- and post-tax rates of return is neutral between present and future consumption. A comprehensive income

3 The EET system is the classical example of an expenditure tax. The TEE system is often called the 'pre-paid expenditure tax'.

tax is neutral between consumption and saving, treating savings in exactly the same way as any other form of consumption. However, savings are not a commodity like any other good or service. They are a means to future consumption, and this is particularly obvious where saving for retirement is concerned. Neutrality between consumption now and consumption in retirement is the relevant concept for taxing pensions, and that is the form of neutrality achieved by the expenditure tax.[4,5]

2. An international comparison of the tax treatment of pensions

Having examined the taxation of pensions in theory, this section compares pensions taxation in practice in a range of countries.[6]

Table 2 summarises the tax treatment of pensions in OECD countries at three stages identified in the previous section: when contributions are made, investment returns accrue and when the pension is paid out.[7]

The first column relates to the personal income tax treatment of contributions made out of earned income. In most countries — exceptions include Australia, Iceland and Japan — contributions to a pension are made out of pre-tax income or attract a tax rebate. The extent of this deductibility is limited in most countries.

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4 On these issues, see Kaldor (1955), Carter Commission (1966), Meade Committee (1978), Pechman (1980), United States Treasury (1977, 1984), Andrews (1974) and IFS Capital Taxes Group (1995).

5 Unfortunately, optimal tax theory gives little guidance on the appropriate tax treatment of savings. The theory shows that the cross-elasticity of labour supply with respect to the interest rate is a central variable in an intertemporal model, but there is no empirical agreement on the magnitude of this variable. The only firm conclusion is that neither a capital tax rate of zero (the expenditure tax) nor a capital tax rate equal to the tax on labour earnings (the comprehensive income tax) is optimal.

6 See also Dilnot (1992, 1996*a*), Johnson (1993) and Whitehouse (1996) for international comparisons of pensions tax incentives.

7 The Table refers to individual pension savings accounts. Employer-based plans are significant in a number of countries and their tax treatment is usually similar to personal pensions. Exceptions are Australia and Portugal —where employer contributions are fully deductible, but employee contributions only partially deductible — and Germany and the United States — where employer contributions are deductible but employee contributions are

The next three columns relate to the treatment of investment returns. In most countries, income accruing in the pension fund accumulates tax-free, although Australia and Sweden apply a special tax rate (15 and 10 per cent respectively) to pension fund investment returns that is lower than marginal income tax rates. Denmark taxes only real investment returns, in line with the 'pure' comprehensive income tax.

The final two columns of Table 2 cover taxation of the pension in payment. The tax treatment of withdrawals from the fund, either as an annuity or a lump sum, varies considerably. All countries bar New Zealand extract some tax at this point, although there are often tax concessions available. Australia, Ireland, Japan and the United Kingdom, for example, allow withdrawal of a tax-free lump sum to be from the fund. In most countries, withdrawals from the fund before retirement age are not permissible, although in some, such as Austria and the United States, this is possible subject to a tax penalty.

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taxed.

Table 2. **Tax treatment of personal pension plans**

Country	Contributions	Pension fund			Pension payment		Notes
	PIT	PIT	Other taxes		PIT/CGT		
		Fund income	Fund Income	Fund value	Pension income	Original value	
Australia	T	E	T	E	T	E	10% rebate on first A$1,000 (US$670) of contributions, phased out when income exceeds A$27,000; 15% tax on fund income; lump sums taxed at 16.25% over A$77,000; 15% rebate on pension income; deductible contributions treated as fringe benefits
Austria	E	E	E	E	T	T	50% of contributions deductible to ceiling; 25% of annuity from individual's contributions taxable; 30% tax penalty on early withdrawal
Belgium	E	E	E	T	T	T	Limits on deductibility of contributions; 0.17% tax on assets of mutual providers (ASBL); tax credit on annuity; 10% tax on lump sums
Canada	E	E	E	E	T	T	Pension income credit at basic 17% rate on C$1,000 (US$780) of annuity income
Denmark	E	E	T	E	T	T	Real interest taxable
Finland	E	E	E	E	T	T	60% of contributions deductible up to ceiling
France	T	E	E	E	T	T	—
Germany	E	E	E	E	T	T	Contributions deductible to ceiling, which may be exhausted by compulsory social security contributions
Iceland	T	E	E	E	T	T	—
Ireland	E	E	E	E	T	T	Limits on deductibility of contributions
Japan	T	E	E	E	T	E	Annuity income net of contributions taxable at standard rates; 50% of net lump sum over Y500,000 (US$4,000) taxable
Luxembourg	E	E	E	E	T	T	Limits on deductibility of contributions
Netherlands	E	E	E	E	T	T	Limits on deductibility of contributions
New Zealand	T	E	T	E	E	E	—
Norway	E	E	E	E	T	T	Limits on deductibility of contributions
Portugal	E	E	E	E	T	T	Limits on deductibility of contributions; 20% tax on lumps sums net of contributions
Spain	E	E	E	E	T	T	Limits on deductibility of contributions
Sweden	E	E	T	E	T	T	Limits on deductibility of contributions; 20% tax on fund income
Switzerland	E	E	E	E	T	T	Limits on deductibility of contributions
United Kingdom	E	E	E	E	T	T	Limits on deductibility of contributions
United States	E	E	E	E	T	T	Limits on deductibility of contributions; 10% tax penalty on withdrawals before age 59½

Source Derived from OECD (1994*a*), Table 4.4. See OECD (1994*b*) for more detailed descriptions.
Note PIT = personal income tax; CGT = capital gains tax; E = exempt from relevant tax; T = subject to tax. Personal pension plans only, not those provided by employers. Data relate to January 1993. Personal pensions available in Italy since April 1993. Greece and Turkey did not have personal pensions in January 1993

Table 3 shows tax treatment in a range of countries, most of which have recently moved, or are proposing to move, towards a funded pension system. In the majority of Latin American countries, the tax treatment is of the traditional expenditure tax kind (EET). The only exception is Peru, which has a pre-paid expenditure tax (TEE). Hungary and Poland have both adopted the expenditure tax for their new mandatory pension funds. Poland operates a pre-paid expenditure tax régime for voluntary pension contributions. Hungary gives a much more generous treatment: exempting investment returns and pensions in payment as well as giving a tax credit on contributions which exceeds even the highest tax rate (see the box in the next section). The Czech Republic taxes its voluntary funds in a similar way, matching contributions up to a limit.

Table 3. **Tax treatment of personal pension plans**

	Contributions	*Returns*	*Benefits*	*Notes*
Latin America				
Argentina	E	E	T	
Chile	E	E	T	
Colombia	E	E	T	
Costa Rica	E	E	?	
Mexico	E	E	T	
Peru	T	E	E	
Uruguay	E	E	T	
Eastern Europe				
Czech Republic	C	E	E	
Hungary	E	E	T	Mandatory, or 'second-pillar', contributions. Voluntary, 'third-pillar' contributions have tax credit to a limit (CEE)
Poland	E	E	T	Second-pillar contributions. Third pillar has pre-paid expenditure tax treatment (TEE)
Asia				
India	E	E	T	Employees' contributions to voluntary personal pension plans. Lump sums are tax free. Contributions to employees' and exempt or approved provident funds attract a 20% credit
Indonesia	E	T	T	Funds' bank deposits and returns on listed local securities tax free; returns on open-ended mutual funds, unlisted securities and property taxed
Korea	E	E	E	
Philippines	T	T	E	Employees' contributions. Employers' are ETE to tax qualified occupational pension plans and TTE to unqualified plans

Note T=taxed, E=exempt, C=tax credit

Tables 2 and 3 show that most countries' systems for taxing pensions approximate to the expenditure tax treatment, that is allowing income tax deduction of contributions, exempting funds' investment returns and with tax due on pensions in payment. Twenty-three of 35 countries shown broadly follow this pattern, although most of them have minor deviations from a pure expenditure tax. It is also worth noting that these apparently generous schemes have typically been in place for lengthy periods. Countries that have recently reformed their pensions tax system have tended to make them less generous. For example, New Zealand has moved from EET to TTE, and

Australia now extracts some tax at all three possible points. In New Zealand, this has led to a dramatic reduction in pension saving.

In all countries, there are enormous differences between pensions taxation and the taxation of other forms of savings. For example, housing is often offered a similar (*e.g.*, Canada, United States) or even more generous (*e.g.*, Germany, United Kingdom) treatment than pensions. Direct investment in equities or bank deposits is taxed more heavily than housing or pensions almost everywhere.[8] Individuals choose where to put their savings not on economic grounds, such as expected return and risk, but on fiscal grounds.

Many countries have moved recently to reduce differences in tax treatment.[9] Denmark, Finland, Norway and Sweden have implemented the most extensive reforms, moving towards a flat-rate tax on capital income. Finland, for example, has introduced a separate flat tax of 25 per cent on capital income and abolished tax-exempt savings deposits. Norway taxes interest, imputed income from owner-occupation, dividends *etc.* at a flat 28 per cent. In Portugal, the tax reform of 1989 introduced reliefs for retirement and housing savings accounts and stock option plans. Other countries have introduced special savings-incentive schemes (often with expenditure-tax treatment). Examples, which exempt the interest on deposits up to a ceiling, include the plan d'épargne populaire (PEP) and Livret A accounts in France. Germany, the Netherlands and Spain simply exempt a fixed amount of interest income from all sources. Schemes offering limited deduction for equity investments are available in Austria, Belgium, Canada, France, Germany, Iceland, Ireland, Luxembourg and Norway. In the United Kingdom, special schemes for tax-free deposits and equity investments have recently been merged into a new individual savings account (ISA).[10]

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8 See OECD (1994*a*).
9 See Whitehouse (1997).
10 See Inland Revenue (1997) and Banks, Dilnot and Tanner (1997).

3. Empirical analysis of pension saving incentives

The diversity of taxes, allowances and deductions shown in Tables 2 and 3 gives little guidance to the incentive effects of the taxation of pensions. This section uses a simplified model of the saving decision to summarise the effect of different taxes. The approach is adapted from the King and Fullerton (1984) method used to calculate investment incentives in the corporate sector.[11] The model looks at a saver's incentives at the margin, that is a small additional investment in an asset already held, which generates returns just sufficient to make the saving worthwhile. The analysis assumes a fixed pre-tax real rate of return of 5 per cent. The fund is invested 40 per cent in bonds and 60 per cent in equities, and dividends account for one third of the real return on equities, with two thirds from capital gains. Two savers are considered: one paying the marginal tax rate applicable at the earnings level of the average production worker[12] in the country concerned, the second at the highest rate of all relevant taxes.

Figures 1 and 2 show the marginal effective tax rate on pension saving in 21 OECD countries in January 1993. Figure 1 shows the marginal effective tax rate at average earnings and Figure 2 at the top rate of income tax applied to earnings. The marginal effective tax rates under the two benchmark systems described above — the expenditure tax and the comprehensive income tax — are shown for comparison. The effective tax rate under an expenditure tax would be zero, since the pre-tax return equals the post-tax return. Under a comprehensive income tax, it would be the top income tax rate or the marginal rate on average earnings respectively. The figures rank countries by the value of the marginal effective tax rate.

The Figures show the enormous range of tax treatments. The most generous scheme offers a tax subsidy of 12 per cent at the tax rate levied on

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11 See Annex 2 of OECD (1994a) for a detailed description of the methodology as applied here; OECD (1991) and Scott (1987) provide a detailed discussion of the King-Fullerton approach.

12 See OECD (1997) for a description.

average earnings, rising to 26 per cent at top tax rates. The least generous has a marginal effective tax rate of 73 per cent.

The countries can be divided into four main groups according to the generosity of their tax treatment. First, a group that grants pensions a more generous treatment than the expenditure-tax benchmark: Australia, Austria, Ireland, Portugal and the United Kingdom. Secondly, Canada, Germany, Luxembourg, the Netherlands, Spain and the United States, who apply an expenditure-tax treatment to pensions. Thirdly, another six countries — Denmark, France, Finland, Norway, Sweden and Switzerland — where the system's generosity lies between the two benchmarks. Fourthly, the system in Belgium, Iceland, Japan and New Zealand is even less generous than a pure comprehensive income tax.

The exact value of the marginal effective tax rate is often very sensitive to the assumptions used. In particular, no account has been taken of the fact that a pensioner may often pay income tax at a lower rate than when working.. This is due both to the progressivity of the tax system (incomes in retirement are generally lower) and due to special tax treatment of pensioners.[13] Eleven OECD countries — Australia, Belgium, Canada, Finland, Ireland, Japan, Norway, Portugal, Sweden, the United Kingdom and the United States — have such concessions. For example,

- Canada grants an extra age tax credit of C$3,482, withdrawn above a ceiling;
- single pensioners in Ireland receive an extra age allowance of IR£400, with IR£800 for couples;
- a range of deductions in Japan mean the vast majority of pensioners pay no income tax;
- tax allowances in the United Kingdom are worth between 29 and 34 per cent

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13 See OECD (1990) and Disney and Whitehouse (1999), section 6 and Kalisch and Aman (1998),

more (depending on age) for single pensioners than for people of working age, and 39-43 per cent more for married couples; the extra allowance is withdrawn above a ceiling; and

- the United States offers an extra $1,000 deduction for single pensioners, and an $1,800 for married couples

Taking account of these concessions would be complex. But the effect would obviously be to reduce the effective tax rate below the levels shown in Figure 1 and 2.

Table 7.

Figure 1. **Marginal effective tax rates on pension saving**
Tax rate at average production worker earnings level

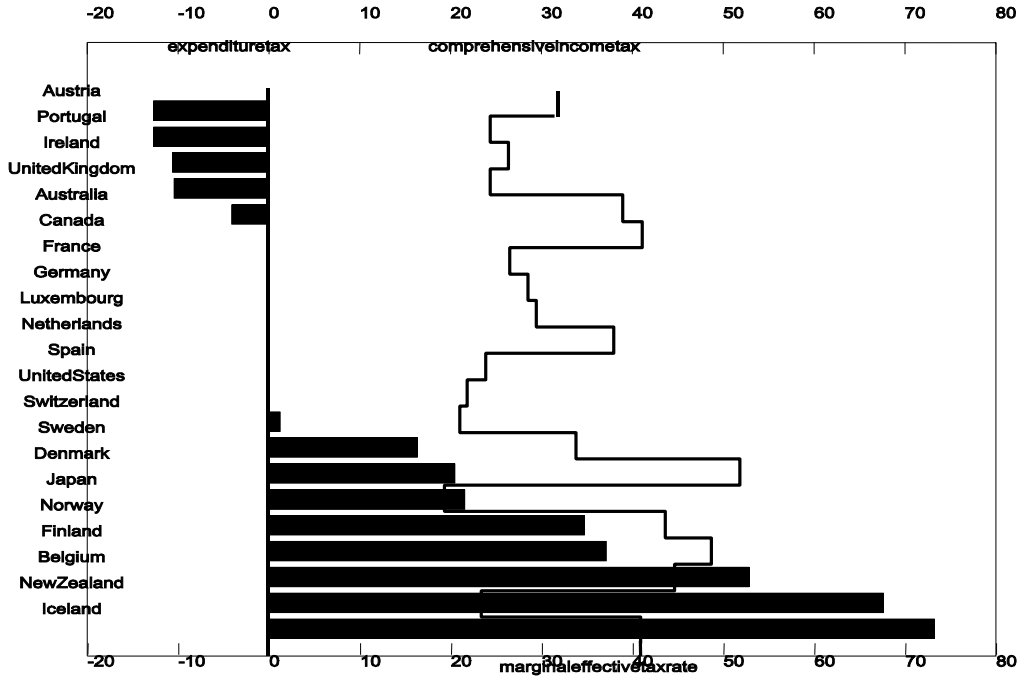
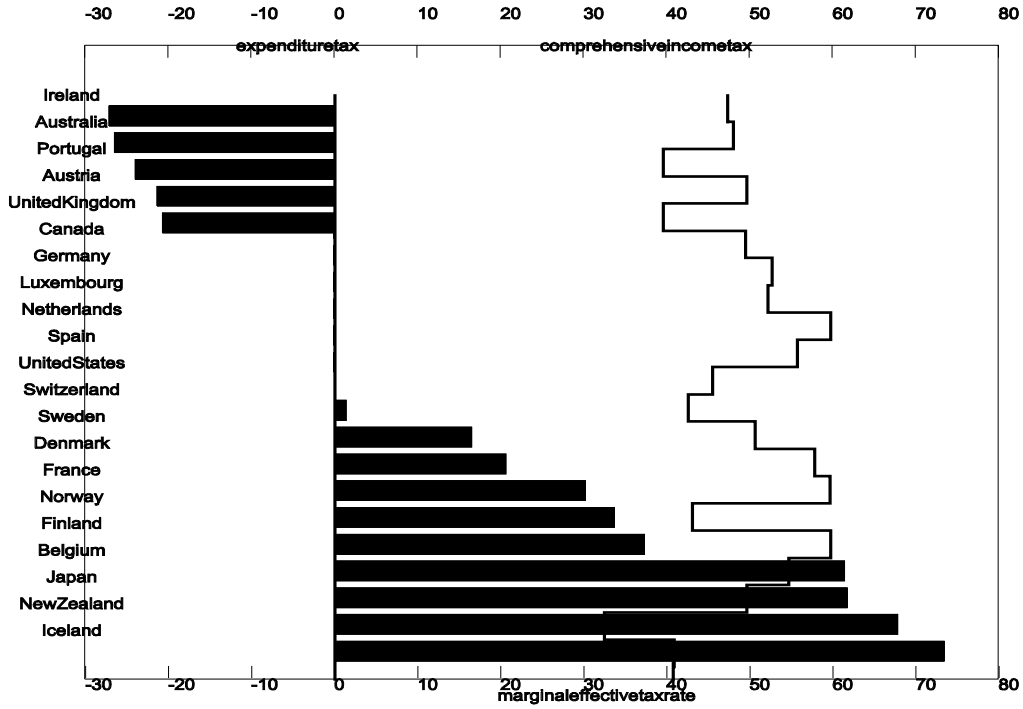


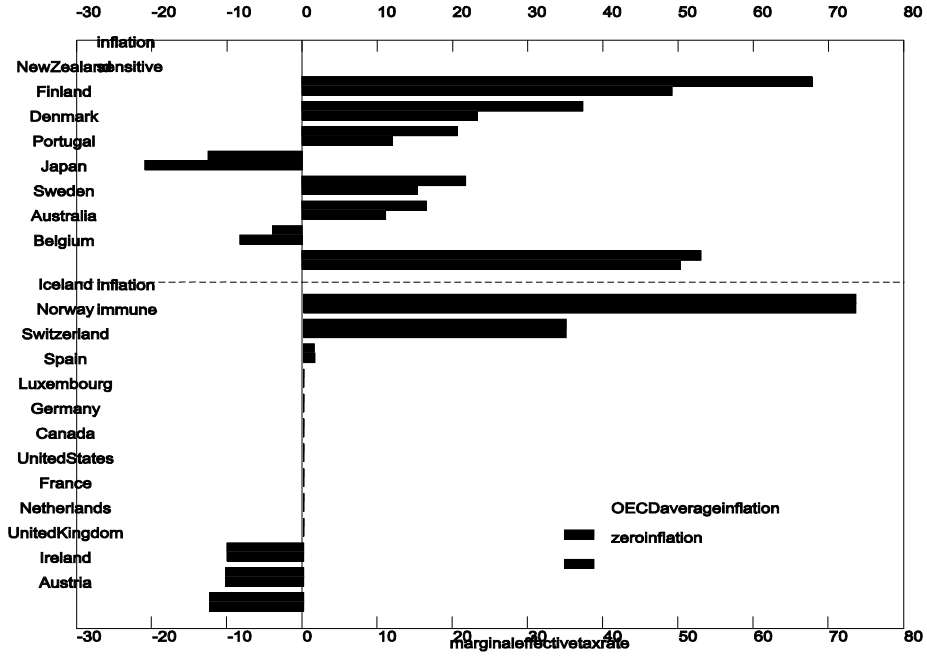
Figure 2. **Marginal effective tax rates on pension saving**
at top rate of tax



Note Calculated at OECD average inflation rate of 3.7 per cent in January 1993.
Source OECD (1994a), Tables 5.4, 5.5 and A2.2.

A second difficulty is the sensitivity of the tax burden to the level of inflation. A pure comprehensive income tax would only tax *real* returns, but countries which tax investment returns tend to tax *nominal* returns, meaning that the real tax burden is sensitive to the level of inflation. The marginal-effective-tax-rate calculations in Figures 1 and 2 assumed inflation at the OECD average in January 1993 of 3.7 per cent. Figure 3 looks at the sensitivity of taxes to inflation, by comparing the earlier results with tax liabilities under zero inflation, keeping the real return fixed at 5 per cent. The nominal return is 8.9 per cent in the OECD average inflation case, and 5 per cent in the zero inflation case.

Figure 3. **Marginal effective tax rates on pension saving**
at OECD average and zero inflation



Source OECD (1994a), Tables 5.4 and 5.6

Given the prevalence of expenditure tax or near expenditure tax treatments, the marginal effective tax rate is insensitive to inflation in 13

countries. Sensitivity to inflation in the other eight countries occurs for a variety of reasons. Australia, New Zealand and Sweden tax nominal returns as they accrue, so the tax rate rises with inflation. Japan and Portugal effectively tax the nominal return by taxing withdrawal of pension net of the amount contributed. In Belgium, the value of the pension fund may be taxed, and in Belgium, Denmark and Finland inflation-sensitivity arises from the taxation of the original value of the asset.

Figure 3 shows that even at low levels, inflation can have big effects on the net returns to pension savings. The move from zero to 3.7 per cent can increase the marginal effective tax rate by over 20 percentage points. Inflation can also have significant distortionary effects on the investments pension funds make, and it is to the tax treatment of pension funds' assets which we now turn.

Box. **Tax treatment of pensions in Hungary, 1996**

The table runs through the tax treatment for two categories of taxpayer: one paying the lowest rate of 20 per cent and the other, the highest rate of 48 per cent. The table assumes an investment of Ft100, earning a return of 10 per cent a year over five years.

The 50 per cent tax credit means that the fund receives more than Ft100, even for a higher-rate taxpayer. With no tax on the fund earnings or withdrawal, the rate of return on savings exceeds 20 per cent, more than double the pre-tax rate of return. The generosity exceeds that of an EEE treatment. In contrast, EET or TEE would give a post-tax rate of return of 10 per cent, and ETT or TTE would give 5-8 per cent, depending on the taxpayer (compare the results here with Table 1).

Table 4. **Tax treatment of pensions in Hungary**

Ft	*20% tax*	*48% tax*
Earnings	100	100
Tax	-20	-48
Tax credit	50	50
Fund	130	102
Fund returns	79.37	62.27
Withdrawal	209.37	164.27
Rate of return (%)	21.2	25.9

The effect is still more pronounced if account is taken of reduced social-security contributions. For every Ft100 switched from current earnings to pension, the government loses Ft42.5 in employer contributions, Ft10 in employee contributions, on top of the Ft50 tax credit. So, the total loss to government is Ft102.5 for every Ft100 deferred from current pay to pension.

(Adapted from Dilnot, 1996*b*)

4. Pension fund taxation and company taxation

Many discussions of pension fund taxation ignore the tax treatment of the underlying assets in which pension funds invest.[14] Table 5 illustrates the issue with a highly simplified example based on the tax system in the United Kingdom before the July 1997 budget. A company earns profits of 100 before tax and debt interest (initially of 20), and pays out half of net profits as

14 De Ryck (1996), for example, describes the United Kingdom as exempting investment returns. But, as shown below, the effective tax rate on pension funds' investment returns is substantial.

dividends. The corporation tax rate is 31 per cent (the current rate in the United Kingdom) of profits after interest has been deducted. In the first three columns, this leaves a net profit of 55.2, of which half (27.6) is distributed.

Under the system before 199x, shown in the first column, the tax rate on dividends was 25 per cent. However, pension funds, exempted from tax, could obtain a 25 per cent credit against the tax paid at the company level, which would be 0.25x27.6/0.75, or 9.2. So net tax receipts under this system were 15.6.

Table 5. **Tax treatment of pension fund investment in a simple example company**

	Full imputation (before 199x)	*Partial imputation (199x-1997)*	*Classical system (1997-)*	*Switch to debt finance*
Gross profits before interest	100	100	100	100
Debt interest	20	20	20	40
Gross profits after interest	80	80	80	60
Tax at 31%	24.8	24.8	24.8	18.6
Net profit	55.2	55.2	55.2	41.5
Dividend	27.6	27.6	27.6	13.9
Retained profits	27.6	27.6	27.6	27.6
Tax credit	9.2	6.9	0	0
Net tax paid	15.6	17.9	24.8	18.6

The 199x budget cut the basic rate of tax on dividends to 20 per cent. But at the same time, the tax credit was cut to 20 per cent. Despite the apparent cut in tax, the effect was to raise tax on pension funds' investments as the tax credit falls to 0.2x27.6/0.8 or 6.9. Net tax receipts increase from 15.6 to 17.9, or 14 per cent.

Assuming 50 per cent of profits were paid as dividends, the effective tax rate on domestic equity investment was 0.5x0.31 + 0.5x(0.31-0.2), or 21 per cent. Domestic equities comprise 52 per cent of pension funds' portfolios, with overseas equities making up a further 23 per cent. Assuming that other countries' corporate income tax rate is also 31 per cent, then the effective tax rate on pension funds under this system would be 0.52x0.21 + 0.23x0.31, or 18.1 per cent.

The tax credit was abolished altogether in the 1997 budget by the incoming New Labour government. So although pensions funds remain exempt from tax on their dividends, there is no longer any allowance made for taxes paid at the company level. The net tax revenues in this simple model are now 24.8 (31% of 80). This increases the effective tax rate on domestic equities from 21 to 31 per cent. The overall effective tax rate on pension funds, with a total of 76 per cent invested in equities, is therefore 0.76x0.31, or 23.6 per cent. As this is a little higher than the standard rate of income tax (23 per cent), the true tax régime for standard-rate taxpayers is ETT rather than EET.

One likely impact of this reform is to encourage companies to switch from equity to debt finance, either from loans or bond issues. Debt interest increases from 20 to 40 in the final column of Table 5. Retained profits remain at 27.6, leaving 13.9 for the dividend. However, net tax receipts fall to 18.6, and so the net return to pension fund investors (as bond and shareholders) increases. There is already evidence of companies organising their finances to avoid tax in this way.

5. Distributional issues and restrictions on pension contributions

Table 2 shows that most countries restrict the extent to which pension contributions can be deducted from the personal income tax. This is normally to circumscribe tax avoidance or because of distributional concerns. Higher-income individuals are better able to make pension contributions, and receive a larger tax advantage because of the deductibility of contributions against higher rates of income tax.

Limits on deductibility can take a number of forms:

- absolute limits on the amount of contributions (*e.g.* Australia, Germany)
- limits on the proportion of contributions that can be deducted (*e.g.* Austria, Finland)
- limits on the proportion of income on which contributions can be made (*e.g.*

United Kingdom)

- limits on the deductibility of contributions at higher rates of income tax

Table 6 investigates the last of these further using the simple framework of Table 1. The first four columns look at an individual who pays a higher tax rate, assumed to be 40 per cent, during both their working life and retirement.

The first column shows the standard expenditure-tax treatment. Since contributions are deductible at the higher rate, the result up to retirement is the same as for the standard rate taxpayer in Table 1. After retirement, however, 40 per cent tax is payable, so the net pension is just 96.63. Again, the tax is neutral over the timing of consumption: the individual can consume 60 now or $96.63 = 60x(1.1)^5$. Again, the classical expenditure tax has the same effect as the pre-paid expenditure tax, shown in the second column.

The deductibility of pension contributions is restricted to the standard rate of tax — assumed to be 25 per cent — in the third column. Partial deductibility means the gross contribution of 100 is reduced by 15 (the difference between the higher and standard rates). The result is a lower pension — 82.14 or 15 per cent lower — than the unrestricted expenditure tax. However, although the pension is 14 lower, the net present value of tax receipts is only nine higher. The partial taxation of contributions means there is less to tax when the pension is paid.

The fourth column shows a comprehensive income tax at a 40 per cent rate. This shows that restricting the deductibility of contributions is close to introducing a comprehensive income tax. Moreover, the arguments for and against this treatment can also be applied to the argument that contributions should not be deductible at higher rates of income tax.

Table 6. **Alternative tax treatments for higher-rate taxpayers**

	Higher rate in work and retirement				*Higher rate in work, basic rate in retirement*			
	EET	*TEE*	*with limit*	*ETT*	*EET*	*TEE*	*with limit*	*ETT*
Contribution	100	100	100	100	100	100	100	100
Tax	0	40	15	0	0	40	15	0
Fund	100	60	85	100	100	60	85	100
Net investment return	61.05	36.63	51.89	43.56	61.05	36.63	51.89	43.56
Fund at retirement	161.05	96.63	136.89	133.82	161.05	96.63	136.89	133.82
Tax on pension	64.42	0	54.76	53.53	40.26	0	34.22	33.46
Net pension	96.63	96.63	82.14	80.29	120.79	96.63	102.67	100.37
Net present value of tax	40	40	49	50.14	25	40	36.25	37.68

The final four columns show a similar analysis for a person who pays the higher rate of tax when contributions are paid and investment returns accrue, but pays the standard rate of tax during retirement. Column five shows that the classical expenditure-tax treatment delivers the same pension and tax receipts as for people who pay the standard rate of tax during their working life (compare Table 1). But the pre-paid expenditure tax raises more revenue than the classical tax from people who are higher-rate taxpayers when working and standard-rate taxpayers when they draw their pension.

Again, restricting the deductibility of contributions to the basic rate (column seven) reduces the pension compared with unrestricted deductibility. It also raises the tax take, but the initial gain from restricted deductibility is offset by the loss from the lower revenues on the lower pension. The net effect is again close to the comprehensive income tax (column eight).

6. An international comparison of pension funds

Table 7 gives an indication of the scale of pension funds in a selection of OECD countries. In eight of them — Canada, Finland, Ireland, Japan, the Netherlands, Switzerland, the United Kingdom and the United States — pension funds' assets exceeded 40 per cent of GDP in 1996. In seven others — Austria, Belgium, the Czech Republic, Hungary, Italy, Korea and Spain — pension fund assets are much smaller, less than 5 per cent of GDP. These differences reflect varied levels of private pension provision and differences in

pension financing. In the countries with the largest pension fund sectors, coverage of employees in employer-provided pension plans varies between 50 per cent in the United Kingdom and 90 per cent in Switzerland.[15] In Belgium, for example, coverage is less than 5 per cent, whereas in France, although coverage is broad, most schemes are pay-as-you-go.

Table 7. **Pension-fund assets as a percentage of GDP, 1987-96**

Country	*1987*	*1990*	*1993*	*1996*
Switzerland	75	73	82	117
Netherlands	46	78	84	87
United Kingdom	62	60	72	75
United States	36	38	53	58
Ireland	—	32	40	45
Canada	26	30	36	43
Japan	38	37	41	42
Finland	20	25	38	41
Sweden	33	31	27	33
Australia	—	18	30	31
Denmark	11	12	19	24
Luxembourg	20	20	18	20
Greece	—	7	8	13
Portugal	—	2	6	10
Norway	4	5	6	7
Germany	3	3	6	6
France	—	3	3	6
Belgium	2	3	3	4
Spain	—	2	2	4
Korea	3	3	3	3
Italy	—	—	2	3
Austria	—	—	1	1
Czech Republic	—	—	—	1
Hungary	—	—	—	0

Source OECD (1998*a*), Table V.1

Note Figures for Denmark include company pension funds only in 1996 and for Germany for 1993 and 1996 only. Figures for Finland cover financial assets only. First pillar assets are included in Sweden for 1987 and 1990.

In the eight countries with the largest pension funds, there has been

15 OECD (1992).

rapid growth in their assets: by an average of 56 per cent over the nine-year period. This growth reflects the maturing of private pension schemes in many countries. In the United Kingdom, for example, private sector pension funds had five contributors for every pensioner in 1970, falling to fewer than two in 1991.[16] Pension funds also grew because of high real rates of return. In Ireland, these were 11 per cent a year between 1984 and 1996, 8 per cent in the Netherlands, 4 per cent in Switzerland, 10 per cent in the United Kingdom and 9 per cent in the United States.[17]

In many of these countries, pension funds are an important source of capital. They own a third of equities in the United Kingdom and United States.[18] In the Netherlands and the United States, pension funds own around 40 per cent of corporate bonds. Ownership of financial assets is also concentrated in some countries which have introduced funded pension systems more recently. For example, Chilean funds account for 43 per cent of stock-market capitalisation, and Argentine funds for 15 per cent.

Table 8 shows pension fund assets in a range of Latin American countries that have recently introduced funded defined-contribution pension systems. Chile, which reformed its system in 1981, now has $33bn in its pension funds, or 44 per cent of GDP. Of the others, Argentina, which reformed its system in 1994, has the largest funds at $9bn, almost 3 per cent of GDP. However, growth in Argentina has been slower than in Chile, where funds exceeded 8 per cent of GDP three years after reform.

Table 8. **Pension fund assets as a percentage of GDP,**
December 1997

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16 Appendix 5.1 of Dilnot *et al.* (1994).
17 OECD (1998*a*), Table V.3.
18 OECD (1998*a*) and Davis (1995). See also Brancato (1994) on the United States and Hoffman and Lambert (1993) on the United Kingdom.

Country	*Assets, % of GDP*
Chile	44.1
Argentina	2.8
Peru	2.1
Colombia	1.3
Uruguay	1.0
Mexico	0.2

Source Queisser (1998) based on Uruguay, Central Bank (1997), Comision Nacional del Sistema de Ahorro para el Retiro (1997), Primamerica (1997) and Superintendencia de Administrado de Fondos de Jublicaciones y Pensiones (1997)

There is some correlation between tax treatment and the size of pension funds, but a number of exceptions. Austria and Portugal give among the most generous tax privileges to pensions, but have relatively small funds. In Austria's case, this probably reflects the size of the public pension system (Table 9). This is also likely to apply to Germany and Spain, where pension funds are relatively small despite the expenditure tax treatment.[19] At the other end of the spectrum, Finland and Japan have large pension funds but tax private pensions closer to the comprehensive income tax than the expenditure tax. A generous tax treatment seems neither a necessary nor a sufficient condition for large private pension funds. The regulatory and industrial relations régimes, historical factors as well as the public pension system will also affect the size of private funds.

19 The book reserve financing system in Germany also complicates the analysis.

Table 9. **Public pensions in OECD member countries**

Percentage of GDP	*1980*	*1985*	*1990*	*1995*
Italy	9.1	11.3	12.0	13.6
Austria	11.7	12.6	12.5	13.4
France	9.8	10.9	11.1	12.2
Greece	6.1	9.8	10.5	—
Germany	10.8	10.8	10.1	10.9
Luxembourg	10.8	10.1	9.7	10.4
Belgium	9.4	10.0	9.4	10.3
Spain	6.5	7.9	8.1	9.2
Finland	5.7	7.6	7.5	9.1
Sweden	6.8	7.4	7.5	8.2
Denmark	6.1	6.0	6.6	7.8
Netherlands	8.0	7.9	8.8	7.8
Portugal	4.2	4.6	5.4	7.7
OECD mean	**6.6**	**7.0**	**6.9**	**7.5**
United Kingdom	6.8	7.1	7.1	7.3
Switzerland	6.1	6.3	6.0	7.1
Czech Republic	—	—	6.1	6.4
Japan	4.0	4.8	5.0	6.3
United States	6.1	6.2	6.0	6.3
Norway	5.1	5.2	6.3	6.2
New Zealand	6.9	7.5	7.6	5.8
Canada	3.0	3.8	4.3	4.8
Iceland	—	—	—	4.2
Turkey	1.7	1.8	3.2	3.7
Ireland	4.3	4.5	4.0	3.5
Australia	3.9	3.7	3.4	3.4
Korea	—	—	0.8	1.4
Mexico	—	0.3	0.3	0.4

Source Preliminary data from OECD (1998*b*)
Note OECD mean calculated using only countries for which all for years of data are available

There is a reasonable negative correlation between the size of public and private pension systems. Italy and Austria, for example, with the largest public pension expenditures, have among the smallest private pension funds. But countries with the smallest public pension systems, with the exceptions of Australia and Ireland, also tend to have small private pension funds. This is probably because the five lowest-spending countries — Australia, Ireland, Korea, Mexico, Turkey — also have the lowest aged dependency ratio of the OECD countries.

Table 10. **Public pensions as a percentage of total pensioner income**

Country	*Per cent*
Germany	78
Australia	77
Sweden	75
France	68
Netherlands	66
United Kingdom	62
Italy	61
Japan	52
United States	46

Source Börsch-Supan (1998).

Private pensions perform an important and growing role in providing incomes in old age as well as a sizeable asset base in many of these countries. Table 10 shows the proportion of pensioners' incomes derived from public pensions in a selection of OECD countries. Private income sources range from over half in the United States to a little over a fifth in Germany. In many countries, the importance of private sources has been growing. In the United Kingdom, for example, private income sources were under 40 per cent of total incomes in 1979, rising recently to more than half. This trend is likely to continue: among recently retired pensioners (in the first five years over state pension age), private income sources are 60 per cent of the total.[20]

7. Measuring the revenue cost of pensions taxation incentives

The concept of a 'tax expenditure' was developed in recognition of the fact the tax system can be used to achieve similar goals to public spending programmes, but accounting for the costs and benefits of tax measures is often less rigorous and regular than for direct expenditure. A tax expenditure is said to exist when the tax system deviates from some benchmark tax system. In general, this norm includes the tax rate structure, accounting conventions,

20 Department of Social Security (1994, 1997). See Whitehouse (1998) for a discussion.

administrative provisions and provisions relating to international fiscal obligations. Defining a tax expenditure in practice can be difficult: some tax measures may not be readily classified as part of the benchmark or an exception to it.[21] Tax expenditures are usually calculated using the so-called 'revenue forgone' method, which computes the tax that would have been payable *ceteris paribus* if the tax concession were removed, and economic behaviour remained unchanged. Fourteen OECD countries now produce tax-expenditure reports.

With three occasions at which they might be taxed, pensions offer a broad range of possible benchmarks, a subset of which were presented in Table 1. Countries' methods of calculating tax expenditures for pensions differ, and a number of countries (including Belgium, Canada and the United Kingdom) have recently changed their methods of reporting tax expenditures for pensions. In Australia, Canada, Spain and the United States, the comprehensive income tax — with pension benefits tax-free and contributions and investment returns taxed — is used as the benchmark. Usually, however, there is no inflation adjustment, so nominal rather than real returns are taxed. In the United Kingdom, the actual tax treatment is compared with a so-called 'unapproved' scheme, where contributions and investment returns are taxed but the withdrawal of the pension as a lump sum is tax-free. This is equivalent to the comprehensive income tax treatment (*i.e.*, TTE). Other countries (such as the Netherlands) do not report tax expenditures for pensions at all, or (for example, Germany) choose a benchmark very much closer to the actual system.

The results are highly sensitive to the choice of benchmark. The difference in the results between measuring the cost against the comprehensive income tax and the expenditure tax can be seen from the relative positions of the two lines in Figures 1 and 2. The baseline against which the actual

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21 See OECD (1984, 1995) and Surrey (1975) for a detailed discussion.

treatment is compared is between 25 and 50 per cent higher (depending on the country's tax system) in the comprehensive income tax case. Dilnot and Johnson (1993*a*,*b*) argue that, since an expenditure tax is the most appropriate tax treatment for pensions, tax expenditures should be calculated against this norm. A second argument for using an expenditure tax as benchmark is that in response to the abolition of pension tax incentives, savings would flow to similarly fiscally privileged assets. Taking account of behavioural responses, the extra revenue raised from abolishing pensions tax incentives would be small. Dilnot and Johnson found that the United Kingdom tax expenditure on pensions was just £1bn when measured in this way, compared with around £7bn reported in official figures at the time of their study.

Table 11 shows tax expenditures relating to pensions reported by OECD governments in national currencies and as a percentage of total tax receipts. Compared with a comprehensive income tax base, over 3 per cent of income tax revenues are forgone in Australia, Canada, the United Kingdom and the United States. In Canada and the United Kingdom, pensions are the largest item in tax expenditure accounts; in the United States, they are the second largest, after health insurance. These tax expenditures are also large when compared with direct public spending. In the United Kingdom, for example, the total reported in the tax expenditure accounts for 1996-97 was over £10bn compared with £30bn spent on state pensions.

However, because of the use of different benchmarks in computing revenues forgone, many of these figures are not strictly comparable between countries. Nor, because of behavioural responses, are they an accurate indication of the revenues that the removal of tax reliefs for pensions would raise.

Table 11. **Revenue cost of pensions tax incentives**

Country	*Tax expenditure*	*Year*	*Amount*	*% of total tax revenue*
Australia	Concessional treatment of superannuation contributions, fund income and benefits paid	1992-93	A$5.3bn	4.6
Belgium	Private pension savings	1989	BF 8.9bn	0.3
	Employer pension schemes ('Assurance-Groupes')	1988	BF 3.7bn	0.1
Canada	Registered retirement saving plans	1989	C$3.23bn	2.5
	Registered pension plans	1989	C$7.7bn	5.9
Finland	Tax exemption of national pension supplements, etc.	1991	FMk 0.7bn	0.3
	Pension income deduction in municipal taxation	1991	FMk 3.1bn	1.5
Germany	Flat rate tax of 15% on taxable employer contributions to company pension schemes	1991	DM 1.7bn	0.2
Ireland	Employees' contributions to approved superannuation schemes	1990	IR£53m	0.5
	Exemption of the income of approved superannuation funds	1990	IR£200m	2.0
	Retirement annuity premiums of the self-employed	1990-91	IR£23m	0.2
Portugal	Retirement savings schemes	1992	Esc 2.8bn	0.1
Spain	Tax incentives for pension funds	1993	Ptas 16bn	0.1
Sweden	Pension funds	1992	SKr 9.7bn	1.3
United Kingdom	Occupational pensions - income tax relief	1996-97	£8.0bn	3.0
	Contributions to personal pensions – income tax relief (including retirement annuity premiums and 'free-standing additional voluntary contributions')	1996-97	£2.2bn	0.8
United States	Employer plans	1991	$48bn	3.0
	IRAs	1991	$6.9bn	0.4
	Keogh plans	1991	$1.6bn	0.1

Note Figures are not comparable between countries

Source OECD (1994*a*, 1995), Australia, Department of the Treasury (1994), Belgium, Chambre des Représentants (1992), Canada, Department of Finance (1993), United Kingdom, HM Treasury (1997), United States, Joint Committee on Taxation (1993) and Treasury (1994)

8. Objectives for the tax system

The first section of the paper argued that the expenditure tax was the most appropriate treatment for pension savings because it is neutral in the allocation of consumption between the working life and retirement. There are further reasons, including ones of equity and simplicity, for thinking that an expenditure tax might offer the best way of taxing pensions.

First, identifying investment returns, especially those in the form of unrealised capital gains, can be difficult. Taxing gains on realisation rather

than as they are accrued causes different problems.[22]

Secondly, as the marginal effective tax rates in Figure 3 showed, the comprehensive income tax has difficulty dealing with inflation. Taxing investment returns often means that *nominal* returns are taxed, meaning the post-tax *real* return falls still further below the pre-tax real return. If, for example, the real interest rate were 2.5 per cent, and inflation 7.5 per cent, then the TTE and ETT systems without inflation adjustment would result in the net pension showing *no* real return. The 7.5 per cent post-tax nominal return is only just enough to compensate for inflation. A higher level of inflation would deliver negative real returns. Many OECD countries do tax certain assets this way, such as ordinary interest-bearing deposits.[23] By contrast, the expenditure tax, by avoiding taxing investment returns, maintains equal pre- and post-tax real returns whatever the mix of inflation and real returns in the nominal interest rate.

However, a comprehensive income tax raises more revenue at a given tax rate: the discounted total tax take is 25 under the expenditure tax and 33 under the comprehensive income tax in the example given in Table 1. The broader tax base of comprehensive income allows a lower tax rate to collect the same revenues. A 20.5 per cent rate in the simple model would raise the same revenues as an expenditure tax with a 25 per cent rate. This could have important economic effects through labour-supply incentives and the incentive to work in the 'black' or 'shadow' economy.[24] But it still means savings choices

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22 Defined-benefit plans (where the value of the pension benefit is related to some measure of earnings and years of scheme membership) raise further administrative difficulties. At any point during scheme membership, the value of the pension depends on two future, uncertain variables — the total duration of membership and future earnings — and so the value of fund and investment returns cannot be allocated to individuals. When marginal income tax rates vary (as in any progressive tax system), it is not possible to find the appropriate tax rate to apply to the pension fund, unless some arbitrary rate is used. This also applies to contributions to the fund: in a defined benefit plan, these bear no relation to the pension benefit being accrued, and employer contributions are typically made as some percentage of the aggregate payroll (Disney and Whitehouse, 1994, 1996).

23 See OECD (1994), Table 4.1.

24 However, dynamic models of the economy suggest that wage earners benefit from the lower

are distorted. An individual could choose to consume 79.5 now or save for retirement and consume 116.5 then. But that is equivalent to just 72.3 at working age (or, equivalently, the neutral consumption in retirement would be 128).

An expenditure tax may also affect portfolio choice. Since pensions are taxed on withdrawal under the classical expenditure tax (EET), the government becomes a co-investor, sharing in any rents, but also participating in any losses. This may encourage a riskier choice of portfolio.[25]

A second concept of fiscal neutrality with respect to savings decisions is neutrality between different types of savings instruments.[26] If one savings medium is taxed more lightly than others are, then it will tend to attract funds at their expense. Economic inefficiency results as decisions are distorted compared with those that would be made in a tax-free environment. In many countries, saving for retirement is treated favourably compared with other savings media. A number of arguments have been proposed to support this relatively generous treatment:

- the state should ensure that people maintain a standard of living in retirement approaching the level when they were of working age;
- by encouraging individual provision for retirement, the cost of social security benefits may be reduced, particularly when means-tested benefits are an important source of retirement income; and
- the state should increase long-term savings to add to the level and/or stability of capital available for investment.

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taxation of capital under an expenditure tax. The economy's capital stock is higher, increasing productivity and wages.

25 Of course, this may be corrective if investors suffer from myopic risk or loss aversion.

26 Hamilton and Whalley (1985) find that this type of neutrality is extremely important. They find that both a comprehensive income tax and expenditure tax which treat all savings equally dominate a hybrid system with an expenditure tax treatment for housing and a comprehensive income tax treatment for everything else. The reduced price distortion between assets dominates the effect of reduced distortion of intertemporal choice. See also Hamilton (1987).

The first argument is a paternalist one; the state gives incentives to save for retirement (relative both to current and to future, pre-retirement consumption) because in the absence of incentives, individuals will fail to make 'sufficient' provision.[27] There are a number of reasons why, first this rationale may not be valid and, secondly, why the tax system is not a good way of achieving it. It is hard to define 'sufficiency' of retirement income beyond an adequate minimum. Offering tax incentives for retirement saving may not ensure that everyone achieves a minimum standard; some will still fail to provide whereas others may even over-provide.[28] Other means of ensuring that retirement living standards approach the level during working life may be more effective and, perhaps, less distortionary: for example, the state can adjust the level of compulsory private pension contributions (the 'second pillar').

The second argument is one of 'moral hazard' — individuals will not provide for themselves if they know the state will give them an adequate income anyway. Pensions are partly — *e.g.* in the United Kingdom — or wholly — *e.g.* in Australia — means-tested in a number of countries. This means-testing produces a substantial disincentive to save for retirement, especially for people with low incomes. Again, however, it does not follow that attaching fiscal privileges to pensions is an effective way of minimising the cost to the state, compared, for example, with mandating a certain level of contributions. The reduction in current revenues that results from the tax incentive adds to this argument.

Tax incentives for pensions appear to increase pension savings. Examples include the 'success' of registered retirement savings plans, RRSPs, in Canada, personal pensions in the United Kingdom, and individual

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27 Diamond (1977) and Samuelson (1987).

28 Other individuals may be 'over-annuitised', *i.e.* hold more of their wealth in the form of annuities (which cannot be bequeathed) than they would wish in the absence of tax privileges.

retirement accounts, IRAs, in the United States.[29] Whether this results, however, from a substitution of pensions for other savings media or from an increase in overall savings is difficult to ascertain. If people have a fixed target for retirement savings, a new tax incentive for pensions could induce them to reduce current savings, since their level of retirement income would remain the same. Tax incentives cost the government by reducing revenues, cutting public sector saving. Even if household savings increase, the overall effect on *national* saving is uncertain.

The empirical evidence on the effect of tax incentives on savings is inconclusive. Alan Blinder commented,

> '...there is *zero* evidence that tax incentives that enhance the rate of return on saving actually boost the national saving rate. *None. No* evidence. Economists now accept that as a consensus view'.[30]

Many empirical studies of household saving, particularly of IRAs in the United States, have found a positive effect[31], although others are sceptical.[32] The OECD (1994*a*) study of taxation and savings concludes its survey of evidence in a number of countries,

> 'There is no clear evidence that the level of taxation, along with other factors affecting the rate of return, does generally affect the level of saving'.[33]

Given the inconclusive nature of this literature, it does not seem wise to suggest that a desire to increase economy-wide saving either is or should be a major objective for the taxation of pensions. Changing the composition of saving towards long-term retirement savings might at times, however, be a

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29 See Carroll and Summers (1987) on RRSPs, Disney and Whitehouse (1992*a*,*b*) on personal pensions, and Venti and Wise (1986, 1987) and Gravelle (1989, 1991) on IRAs.

30 Interview in *Challenge*, September-October 1992 quoted by Gylfason (1993).

31 See, for example, Hubbard (1984), Venti and Wise (1987), Feenberg and Skinner (1989) and Poterba, Venti and Wise (1996).

32 For example, Gravelle (1989, 1991), Munnell (1986) and Engen, Gale and Scholz (1994).

33 OECD (1994*a*), p. 189. See also Robson (1995) and Boadway and Wilasdin (1994) for a discussion.

useful policy tool.

Having established the desirability of expenditure tax treatment for pensions and of a 'level playing field' for different types of saving, the final policy choice is between the classical expenditure tax (EET) and the pre-paid expenditure tax (TEE).

The pre-paid expenditure tax has much to recommend it. First, by bringing the revenues from pension taxation forward compared with the deferred taxation in the classical expenditure tax, it alleviates the transitional pension deficit when moving from a pay-as-you-go to a funded system. The outgoing Conservative government in the United Kingdom proposed such a scheme in 1997.[34] Croatia has also adopted the pre-paid expenditure tax. Secondly, it limits tax avoidance and evasion by ensuring the government collects the money up-front. It also ensures revenues can be collected from foreign workers or people who intend to emigrate on retirement. Thirdly, it will raise more revenues from people who are higher-rate taxpayers during their working life but pay tax at the standard rate during retirement.[35]

However, the pre-paid expenditure tax has two major drawbacks. First, although the tax incentive may be equivalent to a classical expenditure tax, psychology suggests that the up-front tax relief is perceived as more valuable. Financial-services companies also find up-front reliefs a better selling point.[36] Secondly, the pre-paid expenditure tax subjects funded pensions to 'policy risk'. A future government may not feel bound by commitments of previous governments not to tax pensions in payment or investment returns, and may view pension funds as an easy revenue target. This is likely to undermine the attractiveness of funded pensions to potential investors.

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34 This is the so-called 'basic-pension-plus' scheme. See Whitehouse (1998), section VI, Department of Social Security (1997) and Whitehouse and Wolf (1997).

35 The effect can be seen by comparing the first and fourth columns in Table 6. The TEE treatment would still produce a net pension of 96.63 if the taxpayer were a higher-rate taxpayer while in work and standard-rate taxpayer in retirement.

36 See Thaler (1994).

9. Conclusions

10. References

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