

**BUDGET
PERSPECTIVES
2006**

**Tim Callan
Aedín Doris (eds.)**

**Alan Barrett, Adele Bergin,
Kieran Coleman, John McHale,
Edgar Morgenroth, John Walsh**

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OPENING ADDRESS

Brendan Whelan

WELCOME

On behalf of the co-hosts, the Economic and Social Research Institute and the Foundation for Fiscal Studies, I would like to wish you all a warm welcome to this year's *Budget Perspectives* Conference. These conferences have proved to be a very useful venue in which the context surrounding the budget can be analysed and debated, and the excellent attendance today is testimony to their on-going relevance. As usual, I should begin by reminding everyone that the views expressed are strictly those of the individual authors; neither the ESRI nor the FFS takes corporate or institutional positions in relation to any of the issues raised.

The Overall Economic Situation

While it might not seem so to the Minister, or to those helping him to frame the budget, the overall economic and fiscal situation provides more flexibility than has been the case for many previous budgets. As our first presentation, from Alan Barrett the editor of the ESRI's *Quarterly Economic Commentary*, will show the immediate prospects for the Irish economy appear to be quite positive. Growth in both 2005 and 2006 is projected to be close to the long-run potential rate of about 5 per cent, recent data indicate that expansion in employment has been strong and tax revenues are buoyant. There are, of course, some threats and uncertainties, including the global imbalances in the world economy, the possibility that the unusually strong performance of the Irish construction sector might suffer a set-back and the volatility of oil prices. However, on the whole the immediate future seems quite favourable. It is appropriate, therefore, that our conference this year should focus on a range of relatively long-term issues, factors which, if given policy attention now, will yield returns for many years to come.

LONG-RUN PRESSURES ON THE PUBLIC FINANCES

Our second presentation, by Alan Barrett and Adele Bergin, quantifies the effects which Ireland's ageing population will have on the public finances. While less dramatic and immediate than the threats posed in other countries, these pressures are very real and

should be taken into account in designing current policy. Alan and Adele provide a detailed timeline illustrating the pattern of future vulnerabilities and discuss how policy instruments such as the National Pension Reserve Fund can best be utilised.

**Retirement
Saving**

Our distinguished international speaker this year is John McHale, an Irishman now based in Queen's University Canada. John takes a keen interest in developments in Ireland and is a frequent and insightful commentator on the Irish economy. His paper uses some insights from the burgeoning field of behavioural economics to make policy suggestions, applicable to Ireland's situation, about how private saving for retirement could be significantly increased so reducing the burden on the public finances.

Tax Expenditures

In the third presentation, Tim Callan, John Walsh and Kieran Coleman focus on a key aspect of the overall taxation system: the extent to which it is desirable utilise "tax expenditures" in the sense of tax foregone through the use of reliefs and allowances to fund desired economic and social objectives. They draw on international experience and put Ireland in comparative context. They conclude that it is very important for both policymakers and taxpayers to be aware that tax concessions have real costs, so that the tests required for direct expenditures are equally required for tax expenditures.

**User Charges for
Waste Collection**

In the final presentation, Edgar Morgenroth will review the debate about user charges for refuse collection in the light of the economic literature on incentives in local service provision. He argues in favour of basing the charge on the level of service, such as on the basis of weight or volume of refuse, and presents evidence that the efficiency of waste collection in Ireland has improved as a result of greater private sector involvement.

Final Comment

We have tried to plan the morning so that there will be time for a short period of discussion after each paper as well as a general panel session at the end. I hope that the now well established tradition of lively participation in these exchanges will continue.

ASSESSING AGE-RELATED PRESSURES ON THE PUBLIC FINANCES, 2005 TO 2050

*Alan Barrett and Adele Bergin**

1. Introduction

The purpose of this paper is to quantify the pressures that will be put on the public finances over the next half century as a result of population ageing. While this is an issue that has been addressed in a number of studies, this study makes a useful addition to the literature for the following reasons.

- First, many of the studies have looked at individual components of the public finances, such as social welfare or long-term care, but have not considered aggregate impacts on variables such as the Exchequer deficit and the national debt. Examples of such studies include Department of Social and Family Affairs (2002a) and (2002b).
- Second, the one study that has taken an aggregate view (Department of Finance, 1998) was based on population projections that are somewhat outdated. Here, we consider both individual components of the public finances and the aggregate picture, using population projections based on the Census 2002. As improvements in life expectancy between 1996 and 2002 exceeded previous projected levels (CSO, 2004), it is important that these be captured in new projections.
- Third, the Department of Finance (1998) study was written before the introduction of the National Pension Reserve Fund. It is now important that its potential role be assessed in easing age-related fiscal pressures.

The paper is structured as follows. In Section 2, we review the literature in this area, especially as it relates to Ireland. In Section 3,

* We would like to acknowledge the helpful comments of Tony Fahey, John Fitz Gerald, Brian Nolan and the Editors. All remaining errors are our own.

we present the baseline population projections that underpin our public finance projections. We also outline the assumptions that are used in projecting GNP out to 2050. In Section 4, we turn to the public finance projections. We begin by setting out the projected values for the various components that are most likely to be affected by population ageing – these are social welfare, health and education. We then bring the various components together to assess the overall impact of population ageing on the public finances. In Section 5, we alter some of the assumptions underlying the population projections and consider the impacts on the public finance projections. In Section 6 we conclude with some policy-related observations.

2. Literature

Department of Finance (1998) presents possible long-term trends in the public finances out to 2056. The report includes a number of scenarios, all of which point to long-term pressures on the public finances as a result of population ageing. In the baseline scenario, the government is assumed to operate budget surpluses out to 2032 whereby the national debt becomes a national surplus (reaching 14 per cent of GNP in 2030). This leaves the Exchequer well placed to deal with the acceleration in the ageing of the population in the 2030s and 2040s although the Exchequer deficit does reach 2.3 per cent of GNP by 2050.

A number of alternative scenarios are presented. In one such scenario debt is held constant at 36 per cent of GNP from 2005 to 2020. In this case annual deficits rise to 12.9 per cent of GNP by 2050 and debt increases to 168 per cent of GNP in the same year. In another scenario, economic growth is assumed to be 1 per cent lower each year than in the baseline. This leads to a projected deficit of 36.1 per cent of GNP in 2050 and a debt level of 455 per cent.

This report was followed by another (Department of Finance, 1999) which recommended the setting up of the National Pension Reserve Fund (NPRF) as a way of *partly* pre-funding public pensions (public service and social insurance/assistance). According to calculations presented in this report, if the Fund was relied upon to bridge the gap between receipts and age-related spending, it would be exhausted by 2056 thereby creating a large funding gap in that year. Hence the Fund is only part of the solution and in our analysis below we consider what role it can play.

Other studies of long-term fiscal pressures in Ireland have looked at components of the public finances rather than the aggregate situation. Projections for Ireland included in Economic Policy Committee (2001) show spending on public service and social welfare pensions combined rising from 4.6 per cent of GNP in 2000 to 9 per cent in 2050. The projected increase of 4.4 percentage points is higher than that for the EU-15 average (3.2 per cent¹). This can be partly explained by the fact that for many EU countries population ageing was already affecting spending on pensions in

¹ For all countries other than Ireland, spending is expressed as a share of GDP.

2000. Average spending for the EU stood at 10.4 per cent of GNP in 2000, partly because of more generous benefits but also because of population structure. That same report also contained projections on spending for health and long-term care combined. The result for Ireland was similar to the EU average – an increase of 2.5 percentage points of GNP between 2000 and 2050 in Ireland and a EU average of 2.7 percentage points.

One other point that is worth noting from EPC (2001) is that public pension spending across the EU is expected to peak, on average, in 2040. In Ireland's case, the projected value was at the end of the projection period and so we do not know when the peak will occur. The different pattern relates to the earlier onset of population ageing elsewhere. In the case of France, public pension spending was 12.1 per cent of GDP in 2000 and was projected to rise to 16 per cent in 2030. By 2040, this was projected to fall to 15.8 per cent. Italy shows a similar projected pattern, with public pension spending rising from 13.8 per cent of GDP in 2000 to 15.7 per cent in 2030. This largest projected increase is in the case of Greece, with spending projected to rise from 12.1 per cent of GDP in 2000 to 24.8 per cent in 2050.

Analyses of the age-related fiscal issues arise in the context of the periodic actuarial review of the Social Insurance Fund. The most recent review (Department of Social and Family Affairs, 2002a) captured the age-related fiscal pressures by estimating the required increases in contribution rates that would be needed to keep the Fund in balance. Assuming payments are indexed to earnings, it is estimated that contribution rates would have to be 240 per cent of current rates in 2056 to achieve a balance between expenditure and receipts. The report goes on to consider a situation in which payments are raised at the outset of the projection period so that the lowest benefit is equal to 27 per cent of average industrial earnings. This results in a contribution rate in 2056 that is 276 per cent of current rates if balance is to be achieved. This points to the importance of considering long-term cost implications of short-term policy changes. The report also includes an analysis of the situation in which payments are indexed to prices as opposed to earnings. This results in contribution rates in 2056 that are lower than today's rates but this, of course, is achieved at substantially devalued benefits rates.²

A final study of relevance is of the long-term cost of long-term care for the elderly (Department of Social and Family Affairs, 2002b). This report estimates that the cost of current state provision of long-term care could rise from €513 million in 2001 to €4.2 billion in 2051 (in real terms).

² The indexing of pension payments to prices as opposed to earnings has been adopted in the UK and has resulted in projections of pensions spending showing lower spending in 2050 relative to today. In EPC (2001), UK public spending on pensions is projected to fall from 5.5 per cent of GNP in 2000 to 4.4 per cent in 2050.

3. Population and GNP Projections

The population projections are generated in the following way. Beginning with the baseline year of 2002 (the year of the most recent Census), we impose assumptions on fertility, mortality and migration to produce projected numbers of males and females in each yearly age cohort out to 2050. In making assumptions, we have decided to follow closely the CSO partly to ensure some degree of comparability with other published results (CSO, 2004).

With regard to fertility, we assume that the total fertility rate decreases to 1.85 by 2011 and remains constant thereafter. For mortality, we assume that the rate of improvement observed between 1986 and 2002 is maintained out to 2036; from then on the rate of improvement is halved.³ This implies a life expectancy of 83.7 years for men in 2050 and 88 years for women. On migration, we assume that net inflows will be 30,000 in 2005 and 2006, 20,000 on average annually between 2006 and 2010, 10,000 on average annually between 2011 and 2015 and 5,000 annually thereafter.

The headline results from the projections are shown in Table 1. Looking firstly at the total population, it is projected to increase from 4.1 million in 2005 to 5.2 million in 2050, an increase of 28 per cent. For the purposes of this paper, what is of greater interest is the change in the structure of the population. In 2005, 11 per cent of the population is aged 65 and over. This proportion increases gradually to 12 per cent by 2010 but then grows more rapidly, rising to 29 per cent of the population by 2050. Hence, the ageing of the population is readily observable. An alternative view of this can be taken by looking at the relative sizes of the old-age and working-age⁴ populations, i.e. the old-age dependency ratio. This increases from 16.4 per cent to 51.5 per cent.

Table 1: Population Structure 2005-2050

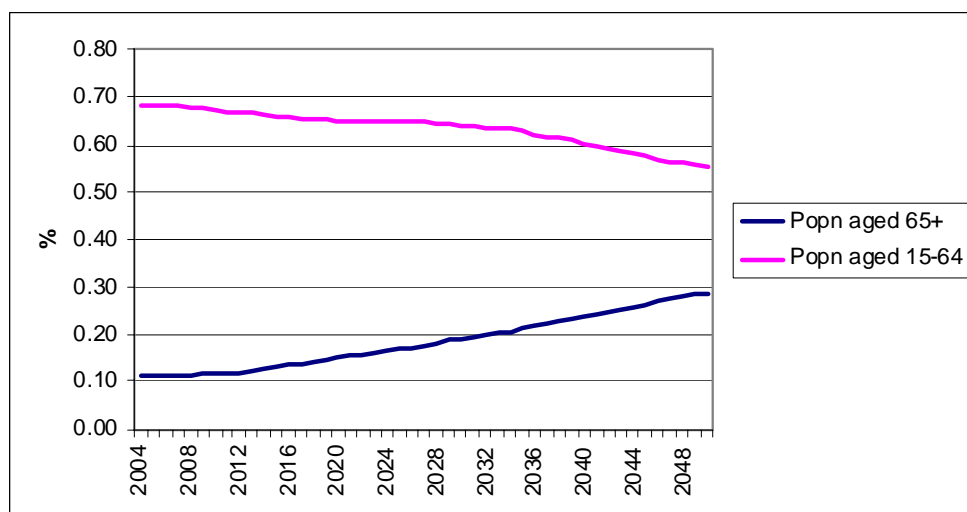
Age	2005	2010	2020	2030	2040	2050
0-14 years	856,900	923,979	954,022	847,107	829,230	838,852
15-64 years	2,789,249	2,949,469	3,103,383	3,195,614	3,113,398	2,903,635
65+ years	456,213	508,750	705,058	948,419	1,223,508	1,496,073
Total	4,102,362	4,382,197	4,762,462	4,991,140	5,166,136	5,238,561
	%	%	%	%	%	%
0-14 years	21	21	20	17	16	16
15-64 years	68	67	65	64	60	55
65+ years	11	12	15	19	24	29
Old-age DR	16.4	17.2	22.7	29.7	39.3	51.5

³ There is one exception to this assumption – for 20-29 year olds, the improvement in mortality between 1996 and 2002 is used.

⁴ We define “working age” to be 15-64 years although our GNP projections below do factor in people over the age of 65 who are still working.

In Figure 1, we provide a graphical representation of how the percentages of the population age 65 years and over and between 15 and 64 years will evolve out to 2050. The pattern is clear and the reason for age-related fiscal pressures is readily apparent, with the proportion of the older group rising and the proportion of working age people falling.

Figure 1: Per Cent of Population Aged 15-64 years and 65+years, 2004 to 2050



We noted in the Introduction that improvements in life expectancy have exceeded earlier expectations, thereby making the population projections underpinning earlier studies (such as Department of Finance, 1998 and EPC, 2001) out-dated. We can illustrate the difference by noting that the population projections in Department of Finance (1998) saw the percentage of the population aged 65 years and over rising to 27 per cent by 2056; based on the assumptions used here, the corresponding figure in 2056 would be 29 per cent. Making a similar comparison but in terms of old-age dependency ratios, the Department of Finance (1998) value for 2056 was 53 per cent whereas our assumptions lead to a value of 58 per cent.⁵

When presenting projections for the public finances in the next section, we show all figures as proportions of GNP. At this point, we will set out the approach and assumptions used in generating a GNP series out to 2050. We should stress that the approach used here differs from the approach used in short-term forecasting exercises such as the ESRI's *Quarterly Economic Commentary*. As our interest is in the long term, we only attempt to project the long-run trend in national output. Actual output in the short and medium term will fluctuate around potential but we make no effort to capture this.

⁵ These old-age dependency ratios are based on the population aged 19-64 years and not 15-64 years as is the case in Table 1.

The main building blocks in our GNP series are employment growth and productivity growth. By combining these with the baseline value for GNP in 2004, it is straightforward to generate a series. However, in order to produce figures for employment growth and productivity growth, more assumptions are needed.

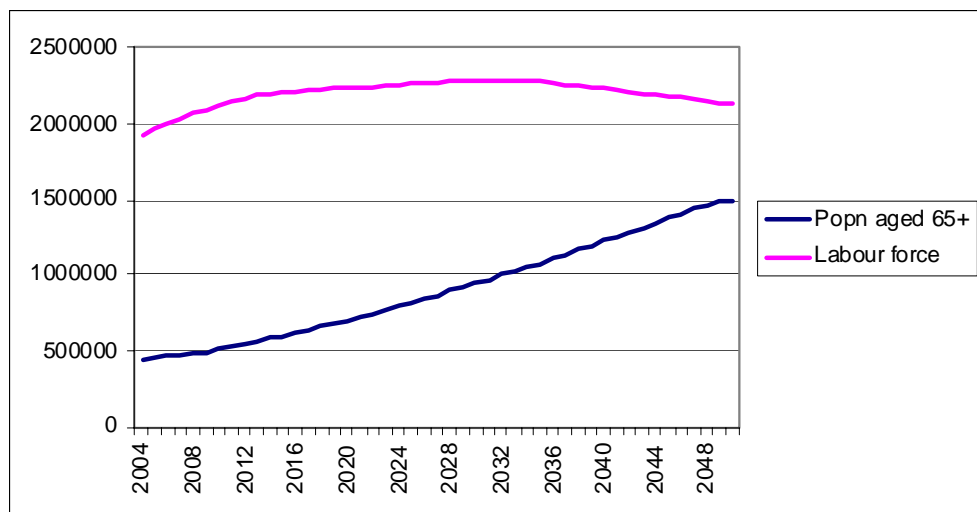
We generate employment growth in the following way. Our population projections provide the number of people in each yearly age cohort by gender out to 2050. By applying age specific participation rates, we can generate a labour force series. In the case of men, we assume that participations rates will not change over the projection period. However, in the case of women, it seems reasonable to assume that some increase will occur. We have chosen to assume that for the age groups 35-44 years and 45-55 years, the Irish female labour force participation rates will converge towards those of the EU-15 by 2015. For the age group 35-44 years, the current participation rate is 0.66 with the EU-15 figure being 0.77. The corresponding figures for the 45-54 year age group are 0.6 and 0.71.

In order to move from a labour force series to an employment series, we need to impose an unemployment rate. In doing this we draw on Bergin *et al.* (2003); they forecast that the unemployment rate will fall from its current level of 4.3 per cent to 4 per cent in 2015. We assume that it will then stay at that level out to 2050.

These assumptions lead to a projected labour force out to 2050 as shown in Figure 2. The labour force peaks at 2.29 million in 2032, with the increase between 2005 and 2032 being partly driven by the increases in female participation (up to 2015) and partly by increases in those of working age (up to 2032). While the working age population is increasing up to 2032 it should be remembered that the population aged 65 years and over is increasing at a faster rate and so the working age population is declining as a share of the total (as shown in Table 1 and Figure 1 above). After 2032, the labour force declines while the population aged 65 years and over continues to increase. It should also be noted that the aggregate participation rate declines over time as more people move into the 55-64 year age bracket and hence are assumed to have a lower age-specific participation rate.

For assumptions on productivity growth, we draw again on Bergin *et al.* (2003). They forecast that productivity growth will average 3 per cent out to 2010 and 2.3 per cent between 2011 and 2020. Thereafter, we assume annual productivity growth rates of 2 per cent.

By multiplying GNP from one year by employment growth and productivity growth in the next year, GNP in real terms in the next year can be calculated. This can be translated into a nominal value by assuming a deflator – we assume 2.4 per cent and 2.2 per cent in 2005 and 2006 respectively (drawing on McCoy *et al.*, 2005) and 2 per cent thereafter (drawing on Bergin *et al.*, 2003). By assuming that wages will grow in line with productivity, we can generate a series for real and nominal wage growth. This is used when indexing some payments in the sections below.

Figure 2: Projected Labour Force and Population aged 65+ years, 2005-2050

4. Baseline Results

We will set out our baseline projections under four headings. The first three relate to the areas of spending which are most likely to be affected by population ageing, namely, social welfare, health and education. The fourth heading is the total budget where we bring together all elements of the public finances, including the National Pensions Reserve Fund.

4.1 SOCIAL WELFARE

In projecting social welfare expenditure out to 2050, we took the following approach. The *Revised Estimates for Public Expenditure 2005* (Department of Finance, 2005 hereafter referred to as REV 2005), provides spending figures for the current year under both social insurance and social assistance headings. Within each of these, the specific programmes are listed. This allows us to take the figures for spending on those aged 65 years and over and to project these figures forward indexing to the change in the population aged over 65 years. The programmes that we include are as follows:

- non-contributory old-age pension;
- widows', widowers' and orphans' (non-contributory) old-age pension;
- contributory old-age pension;
- widows', widowers' and orphans' (contributory) old-age pension;
- retirement pension;
- free schemes.

As mentioned, we index spending under each to the percentage change in the population aged 65 years and over. We also index to both the deflator and to changes in real earnings, thereby building in the assumption that payments under these programmes increase in line with average earnings in the economy. In Table 2, we show the

projected trend in spending across these six programmes out to 2050. The rise in spending as a percentage of GNP can be seen and also the acceleration. Although the figures reported in the EPC (2001) on public pensions are based on slightly different definitions and assumptions, it is interesting to note the trebling in spending projected here as opposed to the doubling projected in EPC report (see Section 2 above). This can be explained in part by improving mortality, as noted in the Introduction.

Table 2: Projected Old-age Social Welfare Spending (Assistance and Insurance) 2005-2050, Per Cent of GNP

	2005	2010	2020	2030	2040	2050
Old-age SW as % of GNP	3.1	3.2	4.2	5.5	7.3	9.3

While the old-age spending within the social welfare budget has received attention in exercises such as Department of Finance (1998) and EPC (2001), child-related spending (in the form of child benefit payments) have received less attention. But clearly, the changing age structure of the population suggests the possibility of savings in the child-related area which may offset to some degree increased spending pressures in the area of old-age spending. In order to explore this issue, we take the spending figure for child benefit from the REV 2005 and index it to changes in the population aged 0-17 years out to 2050. We also index to our assumed values of the deflator and productivity, on the assumption again that payments rise in line with nominal earnings. The projections are presented in Table 3. While the payments are projected to fall as a percentage of GNP, the fall is modest. In order to understand why this is so, it is useful to look back at Table 1 and to note that while the proportion of children in the population is falling, so also is the proportion in the standard working age population.

Table 3: Projected Spending on Child Benefit, 2005-2050

	2005	2010	2020	2030	2040	2050
Child benefit as % of GNP	1.5	1.4	1.4	1.3	1.2	1.3

In Table 4, we add together the old-age and child-related spending projections and also projections of the remainder of the social assistance and social insurance budgets. In the case of the non-child/non-old-age payments, we simply index to the change in the total population and to nominal earnings. Overall, it can be seen that spending is projected to rise from 9.2 per cent of GNP in 2005 to 16 per cent in 2050, a rise of 6.8 percentage points.

Table 4: Projected Total Social Welfare Spending 2005-2050

	2005	2010	2020	2030	2040	2050
Social welfare spending as % of GNP	9.2	9.2	10.3	11.9	13.6	16.0

4.2 HEALTH

While it might seem intuitively obvious that population ageing will have an impact on health spending, the literature in this area suggests that this may not in fact be the case. Empirical studies relating changes in health spending across countries to different rates of population ageing have generally failed to find a relationship (for example, see Barros (1998)). The explanation most frequently offered to explain this is that health spending is more strongly related to proximity to death (in particular in the last year of life) rather than age *per se*. As population ageing is related to reduced mortality, an increasing older population does not necessarily imply an increased population who are in their last year of life. The literature would also suggest that any impact of population ageing on health spending will be less than the potential impact of technological advances.

The approach we take does factor in an ageing component into the projections on the assumption that the intuitive expectation is at least partly correct. But we acknowledge the possibility that this may over-state future pressures on health spending and compensate by not attempting to capture the spending pressures related to technological progress.

The starting point for our projection is to take the REV 2005 figure for the Health Services Executive, less the amount for long-term care of the elderly and an amount for pensions as these are projected separately (see below). The figures in the REV show that two-thirds of this figure is related to pay so we divide the total into a pay and non-pay component in a two-thirds/one-third ratio.

In order to allow us to factor in ageing we need some sense of the relative spending by age group. This is not readily available so instead we need to infer this using information from HIPE and NPRS Units, ESRI (2002). Data presented in this publication show those aged 65 years and over using hospital beds six times more intensively than those aged less than 65 years. Clearly, hospital bed usage is only one dimension of health service usage but in the absence of other data, this 6:1 ratio drives our forecasts.⁶

The projections are generated in the following way. We divide total spending in 2005 on the Health Services Executive (pay and non-pay separately) by the population aged under 65 years plus *six times* the population aged 65 years and over. This gives us a value for spending *per under 65 years equivalent*. In the case of pay, this figure is indexed to nominal earnings; in the case of non-pay, the figure is indexed to the deflator. In both cases, spending per under 65 years

⁶ OECD (1987) suggests that a rule of thumb in apportioning health spending between age groups is to assume that people over 65 consume four times as much healthcare as those under 65 years. Given this, our 6:1 split might seem excessive. However, we should state again that we are not adjusting for the spending pressures associated with technological change. Cutler and Sheiner (2001) suggest that an indexing adjustment of 2.5 percentage points over nominal GNP growth could be required to capture this effect. In this context, our 6:1 age-split and no technology adjustment is actually quite conservative.

equivalent is multiplied by the number of people aged under 65 years plus six times the number of people aged over 65 years.

The results are presented in Table 5. Starting at 7.7 per cent of GNP in 2005, spending falls out to 2010 and then begins to rise. After 2030, the rise accelerates with spending reaching 11.2 per cent of GNP by 2050. As discussed above, although our projections may over-state the impact of ageing, they almost certainly under-state the impact of technological change. One way of factoring this impact into the analysis is to allow the non-pay component to rise at a rate faster than the GNP deflator. If non-pay “health inflation” is assumed to be 1 percentage point higher each year out to 2050, health spending as a percentage of GNP in 2050 would be 12.1 per cent.

Table 5: Projected Health Spending 2005-2050

	2005	2010	2020	2030	2040	2050
Health spending as % of GNP	7.7	7.4	7.9	8.6	9.8	11.0

4.3 EDUCATION

As noted in the Introduction, much of the work in the area of population ageing has focused on the analysis on spending that is likely to increase. However, as the corollary of population ageing is a relatively smaller young population, it is necessary to look at spending on young people to see if there are likely to be savings which can offset the pressures for increased spending. We have already looked at spending on child benefit and in this sub-section we will consider education.

In projecting spending on education, we begin by taking the REV 2005 figures for first, second and third level spending. Each of the three is then indexed to nominal wage growth and to changes in the population in the respective age category. The balance (less pensions) is indexed to nominal GNP growth (which, of course, is equivalent to keeping it constant as a share of nominal GNP). The results of the projection are shown in Table 6. Spending is projected to fall from 5.1 per cent of GNP in 2005 to 4.3 per cent in 2050. This saving of 0.7 percentage points is clearly small relative to the projected spending increases in social welfare and health. Even when combined with the projected saving on child benefit (0.2 percentage points of GNP, as shown in Table 3, the youth-related spending reduction is less than 1 per cent of GNP. What is more, the implicit assumptions in this projection include no increase in participation and no improvements in service quality. Both are likely to be violated and so spending on education in 2050 may well exceed the projected 4.3 per cent of GNP, thereby removing most and if not all of the potential saving.

Table 6: Projected Education Spending 2005-2050

	2005	2010	2020	2030	2040	2050
Education Spending as % of GNP	5.1	4.6	4.7	4.5	4.3	4.4

4.4 TOTAL BUDGET

Having looked at each component of public spending, we now turn to the total budget. Our goal in this section is to produce a measure of the overall pressure on the public finances as a result of ageing. One possible approach would be to hold the tax share constant at the 2005 level and to see what would happen to the Exchequer deficit and national debt over time. The problem with this approach is that it leads to debt and deficit figures that are unrealistic and so difficult to interpret. For this reason, we take another approach. We ask what tax share, if held constant out to 2050, would ensure that the Exchequer deficit does not exceed 5 per cent in 2050 and use this as a measure of age-related fiscal pressure. In order to determine the “sustainable” tax share, we need projections on all elements of the public finances. At this point, we set out here how we produced the projections for the items not yet discussed and present the figures in Table 7.

Spending on long-term care for the elderly is indexed to changes in the population aged 65 years and over and to nominal earnings. This may well be a conservative approach to projecting spending on this area because Ireland’s system of long-term care is currently based more on informal care-giving relative to elsewhere. An increase in formal care, such as through nursing homes, would see spending rise even in the absence of population ageing. Here, we take the conservative approach. On the basis of our assumptions, spending on long-term care for the elderly would rise from 0.8 per cent of GNP to 2.4 per cent in 2050.

Public sector pensions have been modelled by drawing on the work on the Commission on Public Service Pensions (2000). The category “rest of gross voted” is a residual and is indexed to nominal GNP. Debt interest is calculated as being 6 per cent of the National Debt in the preceding period. Given our assumed deflator of 2 per cent, this means we are assuming a long-term interest rate of 4 per cent. The remainder of Central Fund spending is indexed to nominal GNP.

Summing across the expenditure categories gives gross current expenditure. From this, we need to subtract appropriations-in-aid so as to arrive at net current expenditure. In the case of contributions to the Social Insurance Fund, we assume a growth rate equal to nominal GNP.

With regard to capital expenditure, there is one important assumption that needs to be set out. Gross voted capital expenditure is currently 5 per cent of GNP, a level that is substantially higher than in other developed economies. This high level reflects the Government’s commitment to reducing Ireland’s infrastructural deficit. Once the deficit has been filled, it will be possible to reduce spending on infrastructure to more usual levels. However, anticipating when this will occur is difficult. We assume that this will happen around 2020 and so hold gross voted capital expenditure at 5 per cent of GNP until 2020 and 2.5 per cent thereafter. The other important elements of capital expenditure (non-voted and contributions to the NPRF) are projected to grow in line with

nominal GNP. In this case of the NPRF, this is in accordance with the relevant legislation that requires that a contribution of 1 per cent of GNP be made up until 2055, even through withdrawals can begin in 2025.

There is a range of other elements of the public finance that are not shown in Table 7 but which are used when calculating the tax rate needed for sustainable public finances. Hence, we need to outline how we handle these in the projections. For capital revenues, we keep them constant as a percentage of GNP except in the case of receipts from the National Pensions Reserve Fund. No withdrawals are allowed until after 2025. Thereafter, we initially assume a withdrawal rate of 3 per cent per annum. Our choice of this percentage is somewhat arbitrary and is based on the Fund having a value of 50 per cent of GNP at the end of our projection period.

The remaining elements are as follows. A “contingency” item is included in order to be consistent with the Department of Finance practice in providing budget projections. As noted in the tables accompanying Budget 2005 “... a prudent contingency provision is made against factors outside the control of government that may impact upon the Budget but which cannot be foreseen” (Department of Finance, 2004, p. D.6). We have taken the Department of Finance figures for 2006 and 2007 and have indexed the 2007 figure to nominal GNP – this implies a contingency of 1 per cent of GNP out to 2050.

The national debt figure is generated by adding the Exchequer balance each year. The debt interest is included in the expenditure figure as discussed above. The NPRF figure is generated by adding contributions, subtracting outflows and adding in interest earned. As was the case with interest on the national debt, we assume a long-term real interest rate of 4 per cent. This interest earned is also factored into the analysis in the movement between the Exchequer balance and the General Government Balance.

Table 7 contains our projections for all elements of public spending out to 2050 and receipt figures for 2005. It should be noted that the Central Fund figure is not a projection. As interest payments on the national debt form a significant part of this figure, this item would increase to an unrealistic level if the tax share was kept at 30 per cent. When calculating the sustainable tax share, the Central Fund is allowed to vary in line with interest payments. Taking that qualification, it can be seen that total gross spending is projected to rise from 32.5 per cent of GNP in 2005 to 44 per cent of GNP in 2050, with net spending rising from 25.8 per cent to 37.5 per cent (the main difference being payments to the Exchequer from the Social Insurance Fund (SIF)).

While Table 7 provides a sense of the extent of the fiscal pressures, it is useful to have a single measure. As discussed above our approach is to ask by how much current receipts would have to be raised as a proportion of GNP in 2006 if a sustainable public finance path is to be achieved, assuming this proportion is held constant out to 2050.

Table 7: Public Spending Projections 2005-2050 (as Per Cent of GNP)

Year	2005	2010	2020	2030	2040	2050
Health	7.7	7.4	7.9	8.6	9.8	11.2
Long-term care	0.8	0.8	1.1	1.5	1.9	2.4
Education	5.1	4.6	4.7	4.5	4.3	4.4
Non-SIF Social Welfare	4.9	4.9	5.1	5.4	5.9	6.6
Expenditure from SIF	4.3	4.4	5.2	6.3	7.7	9.4
Public sector pensions	1.0	1.1	1.4	1.6	1.5	1.3
Rest of gross voted	5.7	5.7	5.7	5.7	5.7	5.7
Central Fund (2005 value assumed throughout)	3	3	3	3	3	3
Gross current expenditure	32.5	31.9	34.1	36.6	39.8	44
Appropriations in Aid (including SIF)	6.7	6.7	6.9	6.9	6.9	6.9
Net Current Expenditure	25.8	25.2	27.6	30.1	33.3	37.5
Net Capital Expenditure	6.3	6.7	6.7	4.2	4.2	4.2
Total net spending	32.1	31.9	34.3	34.3	37.5	41.7
Current receipts in 2005	29					
Capital resources in 2005	1					

Following this approach, we searched for a current receipt share that would keep the Exchequer deficit below 5 per cent of GNP in 2050. The tax share that would achieve this turned out to be 33.3 per cent (as opposed to the 2005 share of 29 per cent). The path of both the Exchequer deficit and the debt with this tax share in place are shown in Table 8. The negative signs before the national debt figures show that from the mid-2010s, the national debt actually becomes an accumulated surplus that will be run down in future decades. In a sense, the high tax share in the earlier period allows the Exchequer to save for the future and so what is being modelled is equivalent to higher contributions to the NPRF.

Table 8: Deficit, GGB, Debt and NPRF Figures Under a 33.3 Per Cent Tax Share

	2005	2010	2020	2030	2040	2050
Exchequer balance	-2.3	1.8	0.8	3.2	0.9	-4.7
General Government Balance (GGB)	-0.8	3.6	3.2	5.2	3.1	-2.2
National debt	28.2	13.9	-4.3	-28.9	-38.1	-7.1
NPRF	9.4	14.0	26.1	36.4	43.4	50.7

It is useful to translate the required increase in the tax share into the impact, for example, on the top tax rate. Based on figures provided to us by the Department of Finance, a 1 per cent increase in the top rate of income tax yields about €200 million. The required increase in the tax share amounts to €5.5 billion (€130 billion by 0.043) and so the required increase in the top rate of tax would be

over 27 percentage points on the current rate of 42 per cent. In reality, any tax increase would be spread over a range of tax headings but this figure does still point to the impact.

While the tax increase would be unwelcome for those impacted upon, we should note that a tax share of under 34 per cent would still leave Ireland a relatively low-taxed economy. The average tax share in the OECD in 2004 was 37.5 per cent, with countries such as Germany and France having substantially higher tax shares (44 per cent and 50.7 per cent respectively). Also, a tax share in the region of 34 per cent would only return Ireland to where it was in the mid-1990s. Hence, the situation does not appear to be unsustainable. However, it should be remembered that the sustainable tax share of 33.3 per cent is based on increasing taxes today; by postponing tax increases into the future, the increases will have to be higher.

5. Altering the Assumptions

As long-term forecasts of the type presented here are subject to enormous uncertainty, it is important to vary the assumptions used in Section 4 to see if the resulting scenario is altered significantly. In this section, we investigate two alternative assumptions. First, we assume a higher rate of net inward migration to establish the extent to which migration can ease the age-related fiscal pressures. Second, we increase the rate at which withdrawals are made from the NPRF. Rather than imposing each new assumption individually on the baseline, we will add them sequentially. We then ask what tax share would be needed in 2006 to achieve a sustainable public finance path, just as we did above.

5.1 HIGHER MIGRATION

Under our alternative migration assumption, the inflows are incorporated into the demographic model as follows: we assume that net inflows will be 30,000 in 2005 and 2006; 30,000 annually between 2006 and 2010 (earlier this was 20,000); 30,000 also annually between 2011 and 2015 (as opposed to 10,000 earlier); 20,000 annually to 2025 and 15,000 thereafter (our earlier assumption was 5,000 from 2016 onwards). We present the results under the new (higher) net migration assumption in Table 9.

If we compare the Gross Current Expenditure figure with that in Table 7, we get a sense of the contribution which higher immigration can make in alleviating the fiscal pressures associated with population ageing. Whereas in the lower immigration scenario, gross current spending would reach 44 per cent of GNP in 2050, under the higher immigration scenario, the corresponding figure is 41.5 per cent. While this shows that immigration can contribute to solving the problem, it also shows that immigration is likely to play only a partial role.

As before, we can ask what current tax share, if held constant from 2005 onwards, would lead to sustainable public finances as defined above. A tax share of 32 per cent leads to an Exchequer deficit of just under 55 in 2050.

Table 9: Public Spending Projections 2005-2050 Under a Higher Migration Assumption (as Per Cent of GNP)

Year	2005	2010	2020	2030	2040	2050
Health	7.7	7.4	7.6	8.2	9.2	10.3
Long-term care	0.8	0.8	1.0	1.3	1.7	2.2
Education	5.1	4.6	4.7	4.5	4.3	4.3
Non-SIF Social Welfare	4.9	4.8	5.0	5.3	5.7	6.3
Expenditure from SIF	4.3	4.3	5.0	5.9	7.1	8.6
Public sector pensions	1.0	1.0	1.3	1.4	1.3	1.1
Rest of gross voted	5.7	5.7	5.7	5.7	5.7	5.7
Central Fund (2005 value assumed throughout)	3	3	3	3	3	3
Gross current exp	32.5	31.6	33.3	35.3	38	41.5

5.2 HIGHER NATIONAL PENSION RESERVE FUND CONTRIBUTIONS

In the baseline projection, we assumed the 3 per cent of the NPRF was withdrawn each year after 2025. In this scenario, we double this withdrawal rate and ask once again what current tax share, if held constant from 2005 onwards, would lead to sustainable public finances. The figure this time is 31.7 per cent and the resulting paths of the deficit, debt and NPRF figures are shown in Table 10.

Table 10: Deficit, GGB, Debt and NPRF Figures Under Higher Immigration, a Higher NPRF Withdrawal Rate and a 31.7 Per Cent Tax Share

	2005	2010	2020	2030	2040	2050
Exchequer balance	-2.3	0.0	-1.1	2.0	-0.1	-5.0
General Government Balance (GGB)	-0.8	1.9	1.3	3.0	0.9	-4.0
National debt	28.2	21.3	15.0	-3.6	-11.0	16.3
NPRF	9.4	13.9	24.9	29.9	28.2	27.6

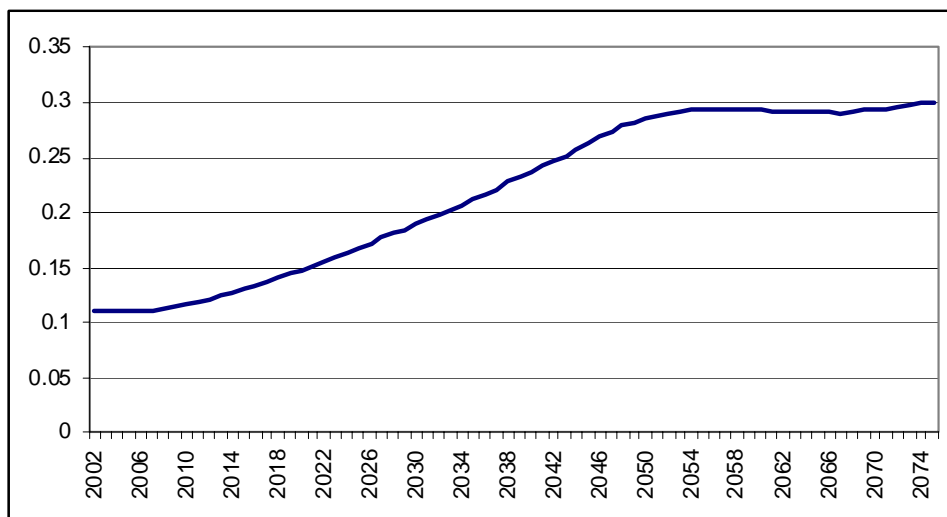
Before ending this section, we should report that we looked at the implications of altering one more assumption, namely, fertility. In our baseline forecasts, the total fertility rate is assumed to fall to 1.85 by 2011 and to remain constant thereafter. In our alternative fertility scenario, we keep the total fertility rate constant at 2. The impact turns out to be limited. For example, in the baseline, health spending is projected to rise to 11.2 per cent of GNP in 2050; in the higher fertility scenario, the figure is 10.9 per cent.

6. Summary and Conclusions

Before recapping on the results, it is useful to consider one additional item, namely, what happens post-2050. In order to take a brief look at this issue, we ran our population projections out to 2075 to see if the process of population ageing continues. In Figure 3, we show the projected percentage of the population aged 65 years and over, where the assumptions are those in our baseline. It can be

seen in the figure that while the process of population ageing ceases around 2050, the percentage of people aged 65 years and over settles at a level of 30 per cent. Hence, while the process of population ageing may not continue after 2050, neither will it go into reverse.

Figure 3: Per Cent of Population Aged 65 years and Over, 2002 to 2075



The results from our projections suggest that spending on health, long-term care and social welfare combined could rise from 17.7 per cent of GNP in 2005 to 29.6 per cent in 2050 (under the higher migration assumption, the figure for 2050 is 27.4 per cent). While contributions from the NPRF will contribute to funding this age-related additional spending, a gap will still remain. In the context of higher migration and 6 per cent withdrawals from the NPRF every year from 2026 on, an increase in current receipts from 29 per cent of GNP to 31.7 per cent would keep the public finances on a sustainable path out to 2050. It should be noted that all of these figures are based on annual productivity increases of 2 per cent in the long run and increasing female participation.

Although Ireland is facing age-related fiscal challenges it is in a relatively good position to deal with these challenges. With a low debt level and low rates of taxation, the public finance base is solid. However, it will be important to maintain these features so that the age-related pressures do not destabilise the public finances or lead to tax increases at a level that could depress economic activity. With this in mind, we would argue that, at a minimum, the current level of contribution to the NPRF be maintained.

While care should be exercised in maintaining the quality of the public finances generally, the figures presented in this paper suggest that the Government should be mindful of the potential long-run costs of entering commitments. In this context, it is instructive to consider the cost in 2005 of increasing old age pensions and to project the cost implications in 2050. The weekly payment under the

old-age contributory pension is currently about 32 per cent of gross average industrial earnings. Were this to be increased to 40 per cent (and all the other social welfare pension payments raised accordingly), we estimate that the cost in 2005 would increase by 0.8 per cent of GNP. In 2050, the extra cost would be 2.3 per cent of GNP.

As a final note, we should point to three limitations in our analysis that could result in the age-related fiscal pressures being stronger than suggested. First, we have made no adjustment for the possibility of productivity rising less rapidly in an ageing population. To the extent that older workers may have skills that are obsolete, our GNP projections may be overly optimistic. Second, we have assumed that immigrants are as productive as domestic workers and this may not be true, at least in the years immediately after immigrants arrive when they may have lower levels of location-specific human capital. Third, when we imposed a higher tax share to achieve a sustainable path for the public finances, we made no allowance for the potential negative impact of such tax rises on economic activity. Were such impacts to be significant, our GNP projections would again be overly optimistic and hence our estimate of fiscal pressures and percentages of GNP may be understated.

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PERSPECTIVES ON RETIREMENT SAVING POLICIES IN IRELAND

*John McHale**

1. Introduction

There is a danger of Irish households becoming deaf to the persistent clamour telling them they are not saving enough for retirement. But with overall economic growth showing remarkable robustness, not having put aside enough during working years may now be the single biggest threat to living standards many Irish people face. Of course, under-saving for retirement is by no means a uniquely Irish problem. Large-scale studies of households in the United States, for example, show that the median household reaches retirement with very low levels of financial wealth.¹ And the recent Pensions Green Paper in the United Kingdom has pointed a large savings shortfall for a significant minority of the workforce.²

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¹ Poterba, Venti, and Wise (1996) report that median level of all personal financial assets of families with heads between 55 and 64 years was just \$8,300 in 1991. Almost 20 per cent of families had no financial assets at all. It should be noted that not all experts agree that there is widespread under-saving for retirement in the United States. Scholz *et al.* (2004) use a rich life-cycle model to argue that fewer than 20 per cent of households have less wealth than their inferred optimal targets. One criticism of their approach is that they include the equity in homes as part of household wealth, since many households are unwilling or unable to run down this equity to finance their retirement (see, for example, Venti and Wise (2001)).

² The Green Paper notes that there is no "right" replacement rate. Instead, two different benchmarks are used for assessing the adequacy of the gross replacement rate: one-half and two-thirds. The paper finds that around 3 million people appear to be seriously undersaving for retirement, with projected gross replacement rates of under 50 per cent, and there are "a further 5 to 10 million people with estimated replacement rates at the lower end of our range of half to two-thirds" (Annex 4, p. 157).

Interestingly, surveys indicate that many individuals recognize they are not saving enough and wish to save more.³

There is one reason for being especially concerned about post-retirement living standards in Ireland, however. The country is almost unique in the OECD in not having an earnings-related state pension or mandatory earnings-related private provision.⁴ The flat-rate state pension provides a relatively low level of replacement for a worker with average earnings.⁵ Of course, many households are not solely reliant on the state pension for their retirement income needs. Yet just over half the workforce had pension coverage in 2004.⁶ For recent retirees, Hughes and Watson (2005) have calculated gross replacement rates averaging 51 per cent for couples and 43 per cent for singles in the year following retirement based on *all* income sources.⁷

These numbers suggest that many Irish households experience a significant drop in consumption at retirement.⁸ On the basis of US

³ Choi *et al.* (2001), for example, report the results of a survey where a sample of employees at a large US food company were asked about their views on the adequacy of their own savings. When they asked the employees how much they should *ideally* be saving for retirement answer averaged 13.9 per cent. When asked to evaluate the adequacy of their own *actual* savings rate, two-thirds reported that they their savings were too low relative to their ideal rate, one-third thought their saving was about right, and just 1 employee (out of 195) thought their savings rate was too high.

⁴ New Zealand is the other exception.

⁵ In a comparative analysis of state pension systems, the OECD (2005) finds that a worker on average earnings has a lower replacement rate in Ireland (31 per cent) than in any other OECD country. The OECD average is 57 per cent. The OECD also reports that the net replacement rate is 37 per cent, which compares with an OECD average of 64 per cent.

⁶ Based on estimates from the Quarterly National Household Survey, 52.4 per cent of all persons between the ages of 20 and 69 years in employment had pension coverage. This compares with a figure of 51.2 per cent in the first quarter of 2002. This small increase probably reflects the introduction of Personal Saving Retirement Accounts. These accounts will be discussed later in the paper.

⁷ Their data combines from all waves of the Living in Ireland Survey between 1994 and 2001. Unfortunately, despite the pooling from different waves the number of cases is small, with 200 pensioner couples and 60 single pensioners. Interpreting these rates is complicated by the fact that some people – often those with relatively generous occupational or personal pensions – retire before reaching 65 years. Hughes and Watson also report that in 2001 the median income of people 65 years and over was just 62 per cent of the median income of those aged less than 65 years in Ireland, which compares with an average of 83 per cent in the EU-15.

⁸ I thank the referees for pointing out that drops in consumption can be quite different from drops in income. In addition to reductions in working-related expenses, Irish retirees receive a valuable package of non-cash benefits (free telephone, free travel, etc.). Retirees are also likely to have relatively low housing-related expenses. Work by Layte *et al.* (1999) finds that many elderly avoid severe deprivation despite having relatively low incomes. But the authors also find that a significant number of households experience both severe deprivation and have low incomes. Short of such severe deprivation, having a low replacement rate is bound to force changes to how lives are lived for many households that must rely exclusively on the state pension. This is likely to be especially true for households who experience rapid growth in earnings during their working life, so that their final

data, Bernheim *et al.* (2001) argue that it is difficult to reconcile observed drops in consumption at retirement with models of rational, farsighted life-cycle planners.⁹ To properly understand savings behaviour, it seems necessary to introduce certain behavioural tendencies – such as bounded rationality when faced with complex life cycle planning problems and the problems of self control when faced with the lure of instant gratification – that lie outside the rational choice framework.¹⁰

In this paper, I examine a number of policy initiatives designed to increase collective and individual saving in Ireland. The resulting alphabet soup of policies – the National Pensions Reserve Fund (NPRF), Personal Retirement Savings Accounts (PRSAs) and Special Savings Investment Accounts (SSIAs) – suggest that this has been an active area of public-policy innovation. I will briefly review what I see as the merits of these programmes, and offer a suggestion for an additional policy that I believe will help households move closer to their desired saving rates without having to resort to heavy-handed government compulsion.

From an analytical perspective, the paper makes use of two relatively non-standard (but increasingly discussed) literatures. The first relates to the *political risk* that exists in all state-run pension systems. This is the risk that benefit rules will be made less generous before or during your retirement, typically due to an ageing-induced increase in the total cost to future generations of funding the benefits. Drawing on the idea of political risk, I argue that the NPRF can be viewed as a mechanism to help ensure that today's levels of benefit generosity can be sustained. The fund also makes it easier for a prudent government to increase benefit generosity for *current* retirees, despite the fact that those increases become very expensive as the elderly dependency rate rises. The second is work in behavioural economics that studies the *present bias* that hinders many of us in making the private retirement provision that we know is right for us when we adopt a more “temporally detached” perspective. The findings from this research help shed light on the surprising popularity of the SSIAs, and also provide clues to other policies for increasing retirement saving.

income is far higher than their average income (and thus capacity to save) over that life.

⁹ Banks *et al.* (1998) also find evidence of significant drops in consumption at retirement in the United Kingdom. They find that part of the drop can be explained by the complementarity between working and consumption. They argue that the only way to reconcile the unexplained fall in consumption with the life-cycle hypothesis is to assume a systematic arrival of unexpected adverse information at retirement. Hurd and Rohwedder (2003) provide evidence that consumption changes at retirement are fully anticipated. They infer that the observed declines must be due to the ending of work-related expenses and the substitution of home production for market-purchased goods and services. An alternative explanation is the declines were anticipated, but behavioural failings made it difficult for households to put the necessary saving adjustments in place.

¹⁰ See, for example, Thaler (1994).

The rest of the paper is organised as follows. In the next section, I provide a very brief discussion of Ireland's state pension system and discuss the merits of the recent shift to pre-funding future benefit obligations via the NPRF. Section 3 then turns to tax-based inducements for retirement saving, with particular focus on the recently introduced PRSAs. This leads to a discussion of ideas from the behavioural economics literature about how people actually make saving decisions in Section 4. Section 5 then applies these ideas to help understand the reasons for the popularity of the SSIA scheme. In Section 6, I attempt to combine the lessons from the behavioural economics research and the lessons learned from the SSIA to sketch the outlines of a policy that I think would significantly increase retirement saving in low-cost financial instruments while preserving freedom of choice. Section 7 offers some concluding thoughts.

2. Pre-Funding State Pensions

2.1 THE STATE PENSION

The outstanding feature of the Irish pensions system is the absence of an earnings-related state pension. Among OECD countries, only Australia, Ireland, Mexico and New Zealand lack what is typically called a second-tier pension that links pension payments to an individual's earnings history (OECD, 2005).¹¹ Instead, the Irish system depends solely on two forms of *flat-rate* pension. Social assistance pensions are non-contributory, means-tested and payable to those aged 66 years and over.¹² Social insurance pensions are contributory, non-means-tested and payable at age 65 years.¹³

The strengths of the Irish system are that it is relatively inexpensive and it redistributes towards the lifetime poor (by combining flat rate benefits with earnings-related contributions).¹⁴

¹¹ Australia and Mexico mandate contributions to defined contribution private accounts.

¹² The maximum payment from the Old Age (Non-Contributory) Pension to a single individual is €166 per week in 2005. Benefit eligibility falls to zero if the individual has a weekly income of over €170.10 per week.

¹³ There are actually two forms of contributory pensions. The Retirement Pension is payable at age 65 years, but is conditional on actual retirement. No retirement test is applicable to the Old Age (Contributory) Pension. However, this pension is not available until age 66. The benefit payable to an individual without dependents is €179.30 from both contributory pensions in 2005. Along with other benefits, contributory pensions are funded by contributions made by employees (4 per cent of earnings up to €44,180) and employers (10.75 per cent of earnings without limit). See McHale (2002) and Hughes and Watson (2005) for more details on the Irish pensions system.

¹⁴ One problem with such a system is that the PRSI contributions are viewed as a pure tax by the employee, since additional contributions do not translate to additional benefits (assuming qualification for full benefits). This raises the overall marginal tax rate to employees who are below the contribution ceiling. The resulting additional distortion to labour supply may be significant given the well-known fact that the distortion rises with the square of the marginal tax rate.

The chief weakness of the system is that it provides low replacement rates for many workers, putting them at risk of substantial drops in living standards at retirement. Using a stylised model of the system, the OECD (2005) calculated that a worker on average earnings over their working life would have a gross replacement rate of 30.6 per cent and a net replacement rate of 36.6 per cent. A worker earning twice average earnings would have gross and net replacement rates of just 15.3 and 21.9 per cent respectively. It should be noted that some systems with complicated formulas for determining earnings-related benefits actually end up with little more differentiation in benefits than are observed in Ireland. The OECD (2005) has usefully calculated measures of benefit dispersion (measured by the Gini coefficient) as implied by their country-specific state pension models. The Gini coefficient is zero for Ireland given its pure flat-rate benefit system, which compares to an average OECD Gini of 0.16. But the mere existence of a complicated earnings-related state pension does not guarantee differentiation in benefits. Canada, for example, has a relatively complicated earnings-related system, but ends up with a Gini coefficient not much greater than Ireland's at 0.04 – the system is full of sound and fury but in the end gives all retirees roughly similar amounts. One problem with such a system is that higher earning retirees may be surprised by how little of their income the state pension replaces.¹⁵ The Irish system at least has the virtue of transparency: workers can form reasonably accurate expectations of future state benefits based on widely known benefit levels for current retirees. I will return below to the question of whether this is likely to be enough to induce the saving necessary to sustain living standards in retirement.

2.2 THE NATIONAL PENSION RESERVE FUND

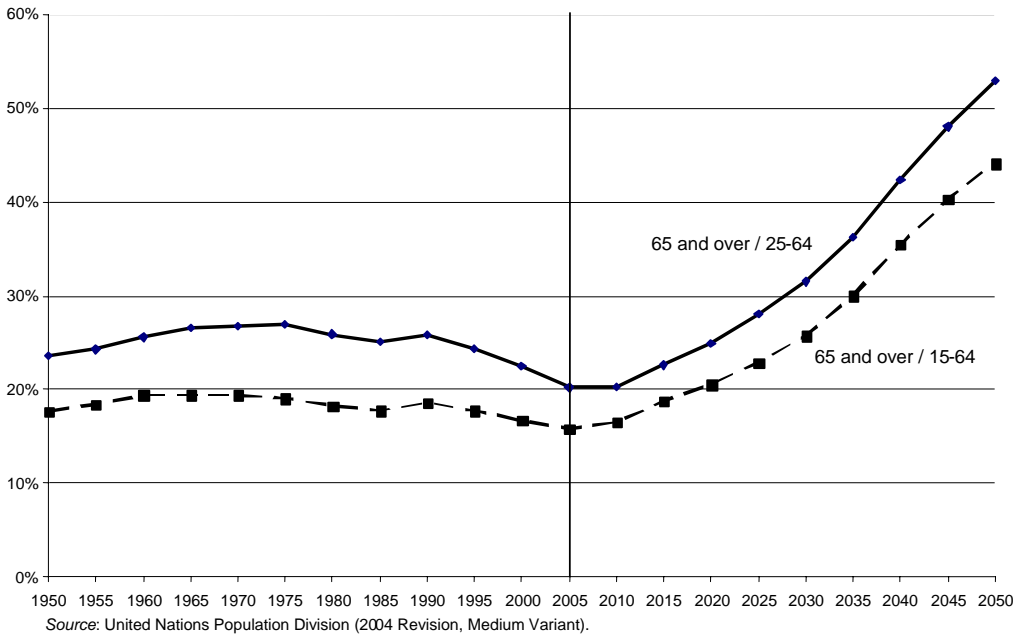
In common with all industrialised countries, Ireland faces a significant ageing of its population structure in coming decades. The resulting increases in old age dependency rates are generally very good news, reflecting as they do the fact that people are living longer. Of course, the coming surge in dependency rates also reflects the retirement of the post-WWII baby-boom generation in most countries. Helpfully, Ireland's baby boom came later than in other countries, giving the government some additional time to deal to prepare for ageing-related fiscal costs.

Figure 1 shows the evolution of two measures of the old age dependency rate in Ireland: the ratio of the population aged 65 years and over to the population aged between 15 and 64 years, and the ratio of the population aged 65 years and over to the population aged between 25 and 64 years. With an increasing proportion of the

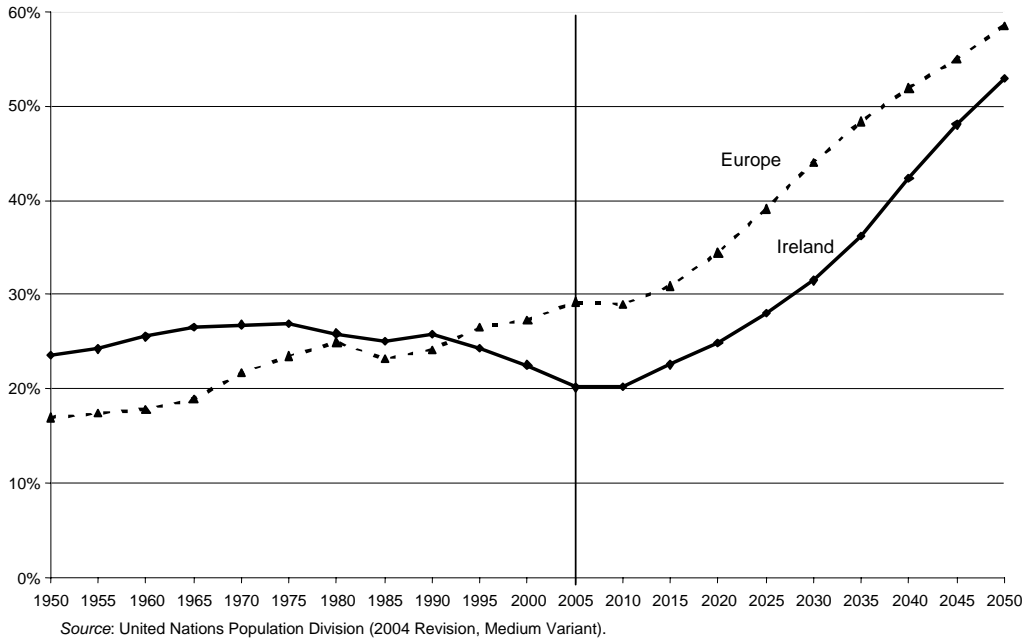
¹⁵ In the case of Canada, the OECD estimates a gross replacement rate of 42.5 per cent for someone on average earnings, a rate which falls to 21.3 per cent for someone at twice average earnings.

population now staying in school until their early twenties, the latter is probably a better measure of the old age dependency “burden.”

Figure 1: Old Age Dependency Rates in Ireland

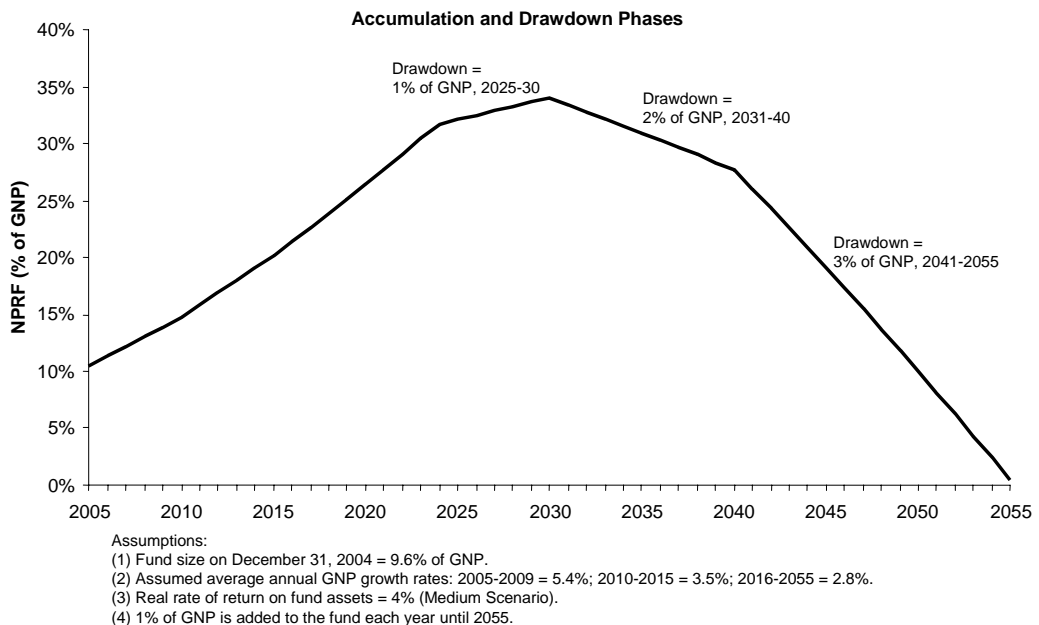


Using the latter measure also highlights the favourable demographic window that the government has to prepare for the fiscal costs of an ageing population. The dependency rate dropped after 1990 and is not projected to return to the 1990 level until after 2020. Figure 2 shows how dependency rates in Ireland have deviated from those in Europe as a whole. European dependency rates have been increasing since 1990, with the rate of increase set to rise markedly after 2010. The figure also shows the Irish dependency rate converging to the European rate by mid-century. Thus the delayed Irish baby boom only postpones the fiscal crunch. It is well known that in a pure pay-as-you-go pension system an increasing dependency rate must mean either higher contribution rates or lower benefits rates (expressed as a share of average earnings). The only way to avoid this unpleasant arithmetic is to pre-fund part of the future benefits. In effect, the current generation of workers are partly paying for themselves a part of what future workers were to have paid for.

Figure 2: Old Age Dependency Rates in Ireland and Europe, 65+ / 25-64 Years

In its effort to take advantage of the demographic window, the Irish government is pre-funding part of the cost of future benefits with the National Pension Reserve Fund (NPRF). Starting in 1999, the plan was to put aside 1 per cent of GNP each year until 2055 regardless of the state of the economy.¹⁶ Disbursements of the fund are prohibited until 2025. The value of the fund had already reached 9.6 per cent of GNP by the end of 2004. Figure 3 shows the hypothetical evolution of the fund based on given GNP growth assumptions, a real rate of return on the fund of 4 per cent, and a drawdown schedule that would exhaust the fund by 2055. These simple calculations show that the fund should significantly ease the burden on future generations of funding the pensions of today's younger workers.

¹⁶ In addition, the proceeds from the privatisation of Eircom were invested in the fund.

Figure 3: Hypothetical Evolution of the National Pensions Reserve

Is the NPRF good policy? The most common rationale for pre-funding is intergenerational equity. The argument is simply that it is unfair to place the burden of ageing-related costs on future workers. This rationale has been strongly questioned by the ESRI in its 2003 *Medium-Term Review* (see also Fitz Gerald, 2004). The *Review* authors point out that today's workers already face a high burden from the direct monetary and disruption costs of closing the infrastructure deficit. The benefits of this infrastructure will be enjoyed by future workers (who hopefully will also be earning substantially higher incomes), so that having these workers meet the higher pension burden does not seem like an unreasonable quid pro quo.

This argument raises serious doubts about the intergenerational equity rationale. But there is another possible rationale for the pre-funding of future benefit obligations that is addressed directly to the self-interest of current workers: pre-funding can be a means of securing promised benefits from younger generations. The key issue here is what is referred to as *political risk* in intergenerational transfer systems. This is the risk that future politicians will change the rules that govern pension entitlement and generosity. A number of OECD governments have already substantially changed the rules applying to future retirees, resulting in substantial reductions in

pension wealth (see, for example, McHale, 2001). Most of the changes have taken place in earnings-related systems, and have involved such reforms as changed indexing rules, later retirement ages and altered formulas for linking past earnings to pension benefits.

The changeable parameters are obviously far less for Ireland's flat rate system. One possible change would be to shift from the current implicit indexation to earnings to indexation to prices. This would amount to an effective and growing benefit rate cuts assuming positive real wage growth. But with the current relatively low replacement rate and the Government's intention to see it rise, it is hard to imagine significant cutbacks in the Irish case. Having said that, *improvements* to benefit generosity are difficult for prudent governments facing rising dependency rates because they impose heavy *future* fiscal burdens even if they are quite affordable today. Thus population ageing is likely to constrain needed near-term benefit increases. The ability to pre-fund gives the government more room to increase benefits. I will argue later that it is important private provision for retirement increases so that there is less dependence on the state pension. But the state pension – limited though it is – is likely to remain a key (and for some the only) source of retirement income. The NPRF strikes me, as a helpful device in securing and sustaining needed increases in its generosity.

3. Tax-Based Inducements to Save for Retirement

3.1 TAX-FAVOURED SAVING IN IRELAND

Practically all OECD countries provide some form of tax inducement to encourage saving for retirement. The absence of earnings-related state pensions makes such inducements all the more central in the Irish case, as they serve as the primary public policy tool for ensuring adequate income replacement. The tax deferral mechanisms are available for employer and employee contributions to occupational pensions, and also individual contributions to personal pensions such as Registered Annuity Contracts (RACs) and Personal Retirement Savings Accounts (PRSAs). Moreover, tax relief is provided at an individual's marginal tax rate, so the value of the relief is greater for higher earners.

These inducements do not come cheap. Hughes and Watson (2005) note that the tax foregone in 2000/1 was equal to €1.5 billion – almost as much as the direct spending on the pension system of €1.6 billion. One complication in determining the cost is that taxes on contributions and fund accruals are generally deferred to the withdrawal phase rather than forgiven altogether. Thus the tax revenue sacrifice now leads to a tax revenue windfall later. Yoo and de Serres (2004) have usefully applied a common methodology for a number of OECD countries to determine the present discounted value of the net tax loss from a euro's worth of contribution.¹⁷ In the

¹⁷ The benchmark is a euro contribution to non-tax favoured savings.

Irish case, they find that a euro contribution leads to a tax loss of 21 cents on the contribution, 19 cents of tax loss on accrued income over the lifetime of the investment, and 11 cents of tax gain when the money is withdrawn. This gives a net loss of 29 cents in present value terms. Although substantially higher tax losses are found for a number of other countries, the overall budgetary costs (1.9 per cent of GDP) are higher for Ireland than for any of the other countries considered. The reason is that the average contribution as a share of average earnings (37.6 per cent) is higher for Ireland than for any of the other countries, which in turn is the result of the absence of a state earnings-related pension.

The biggest criticism of Ireland's tax-favoured savings regime is that the benefits go disproportionately to the better off. Based on data from 2000, Hughes and Watson (2005) find that occupational and personal pensions provide "virtually no income during retirement for pensioners in the bottom three-fifths of the income distribution" (General Summary, p. III). They stress the inequity of government providing far more support to the average holder of an occupational or personal pension than to an average recipient of the state pension.

How serious an objection is the regressivity of these tax inducements? Most people would agree that regressivity is a serious mark against a fiscal system taken in its entirety. But it is less obvious that regressivity of a component part of a fiscal system is such a damning objection. One could argue that these inducements are largely aimed at higher income individuals who, as a result of behavioural failings to be discussed in the next section, have difficulty putting aside enough for their retirement, and are thus likely to suffer significant drops in their living standards given the austerity of the state pension. To see this, suppose that these inducements were not initially present and are now introduced. Suppose further that they are paid for by having a higher top marginal income tax rate. In that case, the full burden of paying for the inducements falls on higher earners. The combined effect of the inducements (which partly go to those on the standard rate) and the means of paying for them (a higher top rate) is actually progressive. In reality, it is of course hard to determine where the burden of paying for the inducements actually falls. But to the extent that tax-favoured savings instruments are meeting an important need for higher earners – and are paid for by higher earners – they need not be objectionable on equity grounds.

What need do these tax-favoured instruments meet? One possibility is that they increase the after-tax return to saving and thus increase the amount people save. However, the international evidence generally shows savings is quite insensitive to the after-tax return (see Bernheim (1997), for an excellent survey). A more important rationale is probably that they help people overcome the behavioural dispositions that make it difficult to save for retirements that seem a long way off (again see Bernheim, (1997)). One way they might do this is by encouraging people to put their savings on autopilot to avail of the tax breaks period by period; a second benefit

is that they help people put their retirement funds off limit for current consumption by imposing large tax penalties for early withdrawal. The next section will review important lessons from recent behavioural economics research in more detail. First, however, I review one tax-favoured savings instrument that, though still very new, has not proved popular with savers.

3.2 PERSONAL RETIREMENT SAVINGS ACCOUNTS

Introduced in 2003, PRSAs were designed to make well-regulated, tax-favoured retirement savings products broadly available to a dynamic workforce. The accounts are portable, thus allowing individuals to continue to build retirement wealth as they move from job to job, between from paid employment and self employment, or between employment and non-employment. Maximum tax free contributions rise from 15 per cent of non-pensionable earnings for those under 30 years, to 30 per cent for those aged 50 years and above. Employer contributions are aggregated with employee contributions in determining the maximum tax-free contributions. At the withdrawal phase, one-quarter of benefits can be taken tax free, with further withdrawals subject to income tax at the individual's marginal rate. Benefits can be taken after age 60 years and must commence before age 75 years. Restrictions on withdrawals apply for those without an annuity income of a least €12,700 per year.¹⁸ At death, the remaining funds pass to the person's estate and are subject to normal inheritance taxation. In terms of product choice, PRSA offerings can come in both standard and non-standard varieties. Standard PRSAs are limited to a restricted range of investment instruments and are subject to maximum charges. Employers without an occupational pension scheme or with waiting periods to join the scheme are required to designate at least one PRSA provider.

Although still relatively new, PRSAs appear to have gotten off to a slow start. The negligible increase in overall private pension coverage from 51.2 per cent in the first quarter of 2002 to 52.4 per cent in the first quarter of 2004 represents limited progress toward the Pensions Board's goal of 70 per cent by 2006. Only 50,000 accounts had been opened by May of 2005. Part of the reason may be that even the standard accounts with their regulated charges do not seem particularly good value. A review of the charges charged by the companies offering the accounts shows that they tend to set their charges at the maximum levels – 5 per cent of initial contributions and an on-going 1 per cent of assets under management. These charges will substantially erode fund accumulation over time. But possibly more important than the direct cost is the fact that

¹⁸ €63,500 must be used to purchase an annuity or this amount must be kept in the PRSA until age 75 years. Alternatively, the value of the assets in the PRSA can be transferred to an Approved Retirement Fund (ARF). But again €63,500 must be used to purchase an annuity or kept in an Approved Minimum Retirement Fund (AMRF) until age 75 years.

4.
Selected
Lessons
Learned From
Behavioural
Economics
Research

employers and employees find the setting up of the accounts to be onerous, contributing to the already substantial inertia that prevent people from getting their savings plans off the ground. I next turn to work in behavioural economics that helps us understand this inertia and other saving-impeding dispositions.

Economists are increasingly concluding that the rational choice model of savings (as embodied in the life cycle model, say) does a poor job in explaining actual savings behaviour. As a result of this work, there is good reason to believe that public policy towards retirement savings that does not allow for human foibles is likely to produce less than ideal results.¹⁹ This section will just touch on some of the lessons from recent behavioural research that bear on the design of savings policies. The next two sections then apply these lessons, first to the success of the SSIA scheme, and then to a proposal for a significant new state-sponsored savings instrument.

LESSON 1: WE EXHIBIT A PRESENT BIAS IN OUR CONSUMPTION DECISIONS

Many of us are saving less for our retirements than we know we should. To fix ideas, suppose we are weighing the value of an extra euro's worth of consumption 10 years from now compared with an extra euro's worth 15 years from now. Both dates are sufficiently far off that we can be reasonably impartial between the two. Now fast forward 10 years so that the first date is *now*. The value of additional consumption today relative to 5 years from now is likely to be higher than the perceived relative value from the perspective of 10 years back. The problem is that we tend to be highly partial to the present – we like instant gratification – leading to what economists call intertemporally inconsistent (or hyperbolic) preferences. This is what leads us to put aside less of our income for retirement than we know (at least in our more detached moments) we should. Laibson *et al.* (1998, p. 95) point to the negative consequences of the lure of instant gratification as well as to means for strengthening one's self control:

[H]yperbolic consumers will report a gap between what they feel they should save and what they actually do save. Normative saving rates will lie above actual saving rates, since short-run preferences for instantaneous gratification will undermine a consumer's effort to implement long-run

¹⁹ Richard Thaler tells a story (where I cannot remember) of a conference where he noted that the difference between himself and Robert Barro – who works very much within the rational choice paradigm – is that he (Thaler) thinks everyone else is as dumb as he is, whereas Barro thinks everyone is as smart as he is. Robert Barro purportedly agreed with this assessment. In emphasising behavioural failings, I too run the risk of generalising too much based on introspection. The evidence from the behavioural literature gives me some small confidence that I am not entirely alone.

optimal plans. However, the hyperbolic consumer is not doomed to be an underachiever. Commitment devices such as pensions and illiquid assets can help the hyperbolic consumer commit to the patient, welfare enhancing course of action. The availability of illiquid assets is thus a critical determinant of national savings rates, as well as of consumer welfare.

LESSON 2: WE PROCRASTINATE IN TAKING POSTPONABLE ACTIONS THAT REQUIRE UP-FRONT EFFORT

The tendency to procrastinate is really a special form of present bias where we must incur some up-front effort – say going to the trouble of opening up an investment account – to secure an important benefit in the future. Many of us procrastinate when we have the option of postponing a burdensome action – say writing a paper – until tomorrow, especially where the costs of a short delay are small. After all, why do today what you can just as well do tomorrow? The problem is that when we have ongoing opportunities for delay we continue to take them. And the small per-period costs of delay can then add up to a big cost; such as when the editors turn out to be surprisingly insistent on the paper’s deadline, or – more seriously – reaching retirement and realising that you have saved so little that you cannot sustain anything close to your old standard of living.

Choi *et al.* (2001) provide intriguing evidence that individuals choosing savings plans tend to follow the “path of least resistance” – that is, they do what requires the least amount of *current* effort. In most cases, the least-effort action involves doing nothing at all, what they call the “passive decision.” They find that the nature of the default – what will happen if no active choice is made – significantly impacts the actual “choice” that is made. In their study, participation in a tax-preferred saving plan was significantly higher when the default was automatic enrolment. This raises the possibility that the damage done by procrastination can be lessened – or procrastination can even be turned into a positive force offsetting other broader present biases – by an appropriate choice of default.²⁰

²⁰ A possible drawback of active defaults is that the individual would have gotten around to participating eventually. And when they finally do participate, they will choose the optimal form of participation in terms of such parameters as contribution rates and asset allocation. The danger with the enrolment default is that the procrastinating participant considers it good enough, and never gets around to choosing their optimal parameters. Choi *et al.* (2005) consider an alternative to defaults called active decisions. In this case, the individual is forced to make a choice by some specified date, with one of the available choices being “no participation.” In the context of their model, they show that active decisions are likely to be best where individuals have a strong propensity to procrastinate and savings preferences are highly heterogeneous.

LESSON 3: WE ARE SENSITIVE TO THE WAY OPTIONS ARE FRAMED

Rational decision makers should not be affected by inconsequential details of how options are framed. In fact, many experimental studies have shown that actual decisions can be quite sensitive to details economists would typically view as inconsequential.

Consider the following hypothetical example: Mr. A earns €100, faces an income tax rate of 20 per cent, and earns a zero per cent real interest rate on any savings. The government gives him the following option: Save €20 from his after tax income of €80 and receive a government match of 25 per cent. This allows him to have €60 worth of consumption today and €25 of additional consumption in the future. This compares with a status quo €80 today and €0 in the future when the policy is not chosen. Now consider an alternative option offered by the government: Save €25 from pre-tax income and receive tax relief on the saved income. This again allows him to €60 worth of consumption today and €25 of additional consumption in the future. Once again the status quo is €80 today and €0 in the future. So both policies have the same monetary consequences for Mr. A. If he would take advantage of the first policy when it is the one on offer, then he should also take advantage of the second policy if it were offered in its place.

Clearly, the two options – though monetarily equivalent – are framed differently. In the first case, Mr. A has to save €20 and then gets €5 added to his savings account for free by the government. In the second case, Mr. A gets to avoid income tax on €25 of his income if he allocates it to saving. As noted above, numerous behavioural experiments have shown that decisions can be strongly affected by the way they are framed. In our example, an individual facing the first option might experience some pain from the €20 of saving, but feel quite good about getting the windfall of €5 (even though it cannot be consumed until later). For the second option, the saving-related sacrifice might seem greater given the need to save €25 up front, and the feeling of gain from the tax relief might be muted by a sense that it was their own money in the first place. The point of this example is not proven that an individual will view these options differently – most of us would claim to be too smart to be so confused – but rather to raise the possibility in the reader's mind that there are people out there who would be sensitive to such framing.

LESSON 4: OUR INCOME IS NOT FUNGIBLE DUE TO THE EXERCISE OF MENTAL ACCOUNTING

In the life-cycle model, the propensity to consume out of a given increase in income should not depend on the source of that income. For instance, a €100 bonus at work should be treated the same as a €100 capital gain on your stock portfolio. That is, income is supposed to be *fungible*. In a series of papers, Richard Thaler has emphasised the tendency for people to allocate their funds to different mental accounts. Dedicated accounts are established for

particular purposes. The implications of a given income gain or loss for consumption behaviour will then depend on which account that income is in. If the stock portfolio is set aside as a retirement fund, then a capital gain will mean more funds for retirement.

Thaler (1999, p. 196) points to the relevance of such mental accounting for the design of savings policies.

A powerful prediction of the mental accounting model is that if funds can be transferred to less tempting mental accounts they are more likely to be saved. This insight can be used in designing government programmes that are used to stimulate saving. According to the behavioural lifecycle model, if households can be persuaded to move some of their funds from the current income account to future income accounts, long-term saving will increase... My reading of the literature on this topic is that this prediction is borne out. Households who contribute to retirement savings plans display steady increases in the funds in these accounts with no apparent reduction in the funds in other accounts. That is, they save more.

LESSON 5: OUR SAVINGS DECISIONS ARE SUSCEPTIBLE TO SOCIAL INFLUENCES

The decision maker in the rational choice model tends to make his/her choice in splendid isolation. Decision makers in the real world may be influenced by what other people are doing. In particular, saving levels within a social group may be “strategic complements” – I want to save more if you are saving more and vice versa. One reason for such behaviour might be that neither of us wants to be struggling while the Joneses next door are enjoying a comfy retirement. Another is that it is easier to keep up with the Joneses now, if the Joneses are socking it away for retirement.²¹

Suggestive evidence on the power of social influence is provided by Duflo and Saez (2003). They conduct an experiment whereby they provide a small financial incentive to selected employees from selected departments in a certain organisation to attend an informational session on tax-deferred savings plans, finding that attending the session does increase participation in these plans. Interestingly, participation increased just as much for non-attendees in the selected departments. This suggests a strong social interaction effect, whereby the knowledge and/or example of peers has significant effects on saving behaviour.

²¹ Such other-referencing behaviour can lead to social multipliers, whereby an exogenous increase in one household’s savings can set off a cycle of increasing saving rates until saving rates settle back into a new (higher) equilibrium. When saving decisions are strategic complements, there is also the possibility of having both a low saving equilibrium where everyone saves little given that everyone is saving little and a high saving equilibrium where everyone saves a lot because everyone is saving a lot.

Thaler and Benartzi (2004) describe a real world programme called Save More Tomorrow™ (or SMarT) with a design that is rooted in the lessons of behavioural economics research. The plan has four ingredients. First, potential participants are approached about increasing their contributions well ahead of the time those increases would take effect. This increases the chance that employees make their decision in a more temporally neutral way. Second, the increases are timed to coincide with scheduled pay increases, minimising the chance that the employees perceive the increased contribution as a loss. Third, the contribution rate continues to rise with scheduled pay increases until it reaches a preset maximum, where it is hoped that inertia will keep people in the plan despite the rising current sacrifice. Fourth, employees are allowed to opt out of the plan at any time. Although the plan is still quite new, early results indicate that it has been successful in increasing saving. Significant majorities of those offered the SMarT plan chose to join, and most stayed with the plan over successive contribution increases. Most important, participants have on average quadrupled their saving rates. I will later draw on elements of the SMarT program design in suggesting a new government-backed saving programme. First, however, I turn to the example of an existing government savings policy that seems especially well-designed to counteract behavioural obstacles to more rational savings choices.

5. Special Savings Incentive Accounts

The SSIA scheme opened on May 1, 2001 and closed for new subscribers on April 30, 2002. Under the scheme, individuals can contribute up to €254 a month to accounts operated by a large number of registered managers for a period of five years. The sweetener is a combination of a 25 per cent government match on all contributions and a 23 per cent exit tax that is levied only on the accumulated investment profits. However, all withdrawals made before the 5-year term is up are subject to the exit tax on principal and interest. The scheme was introduced to counter the perceived under-saving of Irish households. It is interesting to note that it was introduced at a time of significant budget surpluses, an overheating economy and strains in social partnership due to the erosion of wage gains by inflation. The scheme was thus seen as being fiscally affordable, macroeconomically justified, and a means of shoring up the partnership deal.

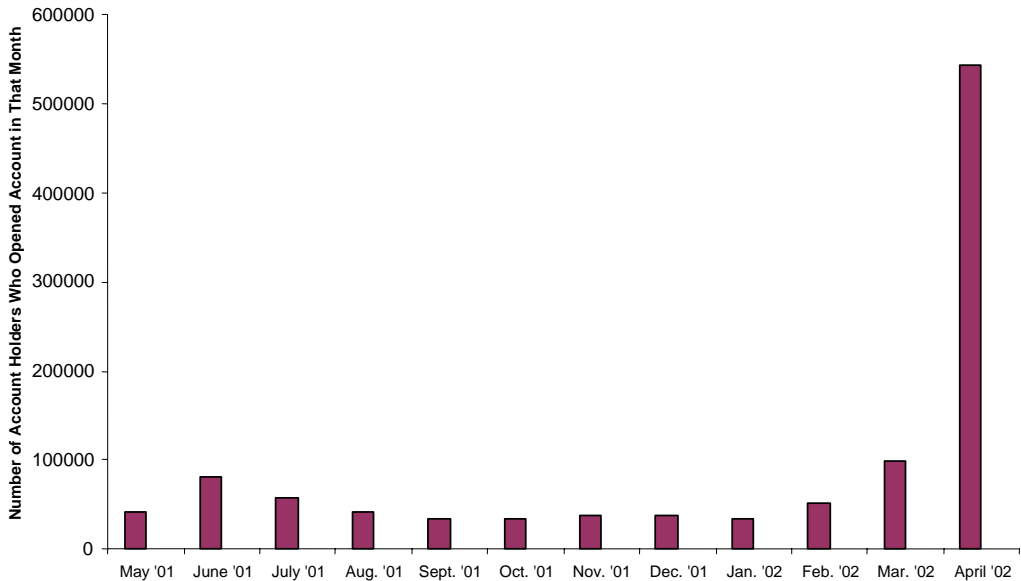
It is fair to say that the popularity of the SSIA's has taken most observers by surprise. Based on analysis by the Revenue Commissioners, the Department of Finance (2005) reports there were 1,170,208 subscribers on the closing date for entries on April 30, 2002, and 1,094,294 members were still in the scheme at the end of 2004. Total contributions were almost €2.3 billion in 2004, with a net cost to the government (netting out taxes on early withdrawals) in 2004 of €548 million. The average monthly subscription was €175 in December 2004, with close to 44 per cent of subscribers contributing the maximum monthly amount. Interestingly, 28 per cent of subscribers had incomes below €20,000, showing that the

scheme was certainly not just availed of by the better off. Moreover, a survey of subscribers by the Bank of Ireland found that 76 per cent of SSIA accounts were held by first-time savers, so it seems reasonable to assume that much of the money put into the SSIA is indeed new saving.

Why has the SSIA scheme been so successful? I think that our review of selected lessons from behavioural economics research shows how a number of the scheme's features were well-designed to help people make the difficult decision to sacrifice current consumption.

- Overcoming present bias. Although people were free to reduce or even eliminate contributions once they had joined the scheme, the scheme's design – and especially its month-by-month based limits – encouraged people to make advance commitments to automatically contribute fixed monthly amounts to their accounts. This allowed for more “temporally neutral” decisions about how much to save. It is also likely that by giving the scheme a medium-term focus, subscribers were better able to imagine the benefits of their saving, thereby providing some counterforce to their bias towards present consumption. The relative lack of interest in PRSAs despite their generous tax treatment suggests the retirement consumption does not have quite the same lure.²²
- Overcoming procrastination. The April 30, 2002 deadline for new subscribers appears to have been a master stroke in getting people to shake off the inertia that stops them putting their saving plan in place. The deadline meant that eventually there was “no tomorrow” for those who wanted to avail of the free government money. If one needs any confirmation that many of us wait until the last minute to do unpleasant tasks, then Figure 4 should be it. The figure shows that as many people signed up for the SSIA scheme in April 2002 as signed up in the entire preceding 11 months that subscriptions were open.
- Effective framing. In Section 4, I pointed to the equivalence for taxpayers of giving tax relief at the standard income tax rate of 20 per cent for contributions to a scheme such as SSIA and the 25 per cent government subsidy. But the two do not sound the same. Although a careful experimental study would be needed to prove people perceive the two offers differently, my guess is that framed as a 25 per cent subsidy from the government, the SSIA were perceived as an especially good deal.

²² In this regard, it is interesting that an age analysis of SSIA subscribers in 2004 shows that 43 per cent were under the age of 40 years.

Figure 4: Number of SSIA's on December 2004 by Month of Commencement

- Establishing mental accounts. As noted above, survey evidence suggests that a significant majority of account holders are first-time savers. Work on mental accounting suggests many people cordon off certain monies for particular purposes using various devices. Such cordoning off for saving is certainly facilitated by having real world accounts that can only be “raided” for other purposes at high cost – a large tax penalty in the case of the SSIA's.
- Social reinforcement. In the early days of the scheme, I recall asking a few people if they had signed up for the scheme. The answer was always that they would be stupid not to. With a 25 per cent subsidy on offer, it is hard to disagree. But it is likely that the fear of feeling stupid was heightened by the fact that so many others were signing up (not to mention the fact that experts were saying the accounts were a great deal). The spouse with responsibility for household finances would have some explaining to do if the Joneses next door were seen building up a nice government-sponsored nest egg, but their

family's financial wizard could not get their act together to set up an account in time.

With the first accounts set to mature in May 2006, there is not surprisingly considerable interest in a successor to the scheme. One concern is the maturation of accounts worth a total of €14-€15 billion will cause a disruptive overheating of the economy. These fears are given some credence by surveys that suggest many people are planning significant consumption sprees.

A related concern is that people will lose the savings habit. I think that there is a very real danger that this will happen since the current savings are supported by a very particular institutional mechanism. If the accounts were closed and the direct deposit facilities cancelled, there is a danger that many people will simply revert to consuming the funds that they had been contributing to SSIA's. For many contributors, it is probably true that there is no real savings "habit," just a mechanism working in the background that transfers funds to their SSIA accounts on a monthly basis. Take the mechanism away, and the saving will end.

The behavioural economics literature suggests ways to minimise the savings loss from the end of the scheme. At a minimum, it seems wise to get rid of the current bureaucratic requirement to make a maturity declaration at the end of the scheme. The declaration has the understandable intent to make sure that people have kept to the terms of the scheme – e.g., that they did not pledge the assets as security for a loan; but whatever benefit comes from such a declaration, it is likely to be outweighed by the cost of interfering with the inertia that will keep many people contributing to their account even after the formal scheme ends.²³ This inertial effect is likely to be quite strong, since accounts can continue exactly as before, just without the government match.

Another sensible proposal is to allow people to transfer their accumulated funds to a PRSA without tax liability. The fiscal loss to the government is likely to be quite small, since the 23 per cent tax only applies on the investment returns. By one calculation, the tax liability on a deposit-based SSIA paying 4 per cent interest over the full 5-year term with maximum monthly contributions is €440, or just 2 per cent of the account's value.²⁴

There have also been proposals for a more formal successor to the scheme. One interesting proposal has come from the Irish Association of Investment Managers (IAIM – admittedly not a wholly disinterested party). They propose what they call a 'Lifetime Flexi Investment Account'. This product is designed as a retirement savings vehicle and it attracts a government subsidy on up to €250 of contributions (to be indexed to either wage or price inflation). Those

²³ Requiring this declaration reminds me a bit of a strategy used by an old school master of mine when he could not identify the culprit of some misdeed. He would ask everyone in the class if they were the culprit; and he seemed to get great satisfaction out of the fact he had made a liar out of one of us.

²⁴ See Irish Association of Investment Managers (2005).

outside the tax net would receive the subsidy equal to 20 per cent of their contributions. Taxpayers would receive tax relief at the standard rate (presumably in addition to the tax relief that they are entitled to on other pension-related saving.) Every 5 years contributors would have access to 30 per cent of the previous 5 years' contributions subject to a 23 per cent exit tax.

While I see merit in trying to help people avail of their SSIA's for retirement provision, I think it is also worth exploring other government policies that are more specifically focused on this goal. I describe one possible instrument in the next section. My aim is to find an instrument that is "behaviourally realistic" in the sense that it recognises the difficulties we face with voluntary retirement saving, while at the same time avoids having the government compel people to save.

6. Universal Retirement Savings Accounts

6.1 BASIC DESIGN

The proposal involves the establishment of a new type of account, tentatively called a Universal Retirement Savings Account (URSA or Your Savings Account). The accounts would be available to all adults with a Personal Public Service (PPS) number, and individuals would have full control over the size of their contributions and some control over their asset allocations. In what follows, I do not try to describe a fully worked out plan, but rather sketch the elements that I think a workable plan might include.

A key element of the proposal is that, like the SMarT program, there is a *default contribution rate* and a *low-cost default investment vehicle* for individuals subject to withholding. In other words, unless these individuals opt to do otherwise, there would be automatic investment of a given fraction of gross earnings into a default investment vehicle. To be more concrete, 3 per cent of gross earnings is sent to their account via direct withholding. Importantly, individuals have the opportunity to change their contribution rates – including the option of contributing nothing – at regular intervals (say once a year). Opting out would require some paperwork on the part of the saver. The default contribution rate would rise by 0.5 percentage points a year, so that it reaches 6 per cent after 6 years. Individuals not subject to withholding would be free to contribute to their accounts in whatever amounts they wish. These contributions could be made by direct deposit.

In the first year, the government provides a 25 per cent match on contributions up to €254 a month. This is obviously designed to replicate the SSIA accounts. The size of the government match could be scaled back over time and possibly phased out altogether to limit the fiscal cost.

The default investment is a low- (or even zero-) cost investment product linked to the NPRF. Individuals are free to withdraw their funds and place them in an approved PRSA account (possibly extended to other approved retirement investment vehicles). Amounts transferred to PRSA accounts would not be counted

against the normal limits on tax-favoured contributions. All other withdrawals are subject to an exit tax of 20 per cent (which effectively claws back the government match plus interest).²⁵

6.2 WHY THESE ACCOUNTS WOULD RAISE SAVING

The accounts are designed with the lessons of behavioural economics and the success of the SSIA in mind.

- Present bias and procrastination. The accounts would pit one aspect of the self control problem – i.e., the desire for instant gratification – against another – the tendency to procrastinate when engaging in presently costly actions such as the hassle of changing the default. The evidence from the SMarT programme shows that inertia can win out over the lure of greater current consumption, so that a well-chosen default can move people closer to their optimal savings rate. This effect could be reinforced setting an advance deadline for changing the default for the coming year. When forced to choose in advance, present-biased individuals will tend to be less biased towards sooner over later gratification.
- Framing and mental accounts. By initially adopting the matching feature of the SSIA, the accounts would be framed as being “SSIA-like.” This suggests a double advantage: the framing of the matching rule for the SSIA has already been shown to be effective; and the new accounts gain by association with the popular SSIA scheme. Moreover, by clearly labelling the accounts as being for retirement and by imposing a penalty for early withdrawal – i.e., the loss of the government match – the design helps individuals mentally cordon off the accounts as being for retirement.
- Social multipliers. The experience of the PRSAs shows the difficulty of building participation in purely voluntary accounts. The proposed accounts are likely to start off with a relatively high level of participation simply because the default is to contribute. To the extent the individuals are more likely to want to contribute when others do likewise, high participation is likely to be self reinforcing, so that there is a greater chance of settling into a high participation equilibrium.

6.3 LIMITATIONS OF THE SCHEME

Although I believe the plan is likely to achieve higher saving without resorting to government compulsion, it is not without drawbacks. First, some procrastinating individuals who would eventually have

²⁵ The size of the exit tax should fall over time based on how the government scales back its matching rate.

gotten around to setting up a retirement saving plan are likely to view the default as “good enough.” Thus, although the default may get them to start saving earlier, the default plan may induce them to stick with a non-optimal savings plan for longer than they otherwise would.

Second, the plan places additional administrative and fiscal burden on the government. The design of the plan attempts to minimise this burden by tying the contribution mechanism to the current withholding system, piggy-backing on the NPRF for asset management, and allowing for a phase-down of the government match. I have not attempted to cost any of this, but the overall burden is clearly substantial.

Third, the plan is likely to be opposed by several vested interests. As outlined, the plan minimises the involvement of the private financial sector, although it is possible to increase their role by allowing for a greater range of eligible investment options. It is easy to imagine the plan also being opposed by the NTMA, who might plausibly fear the complexity and political ramifications of being responsible to millions of small account holders. (Note, however, that the management of the accounts could be separated from the management of the fund.)

Fourth, and related to the previous point, the accounts run the risk of politicising the investment strategy for the NPRF. At present, the fund appears to be well insulated from political pressures, but this could change if people’s wealth was directly tied to its performance.²⁶

Fifth, tying both the pre-funding of state pensions and the default accounts to the performance of the NPRF makes retirement income overly dependent on the performance of a specific asset portfolio. Poor performance of the NPRF would increase both the political risk of lower state-pension benefits at the same time that the NPRF-linked investment accounts yielding poor returns. One way around this problem is to establish a separate fund for the default URSA that is relatively uncorrelated with the NPRF.

This list of problems shows that URSA would be a complex administrative and political undertaking. But I think the potential for helping households deal with their under-saving without resorting to one-size-fits-all compulsion makes them worth considering.

6.4 LIBERTARIAN PATERNALISM

Believing that individuals are usually the best judge of their own interests, economists are usually loath to advocate paternalistic policies to protect people from their own bad decisions. When it comes to retirement saving decisions, however, the findings of behavioural economics show that our partiality to present consumption often trumps the savings plans that we recognise as

²⁶ On the positive side, tying individual wealth to the performance of the fund should be a counterweight to pressures for more domestic or socially responsible investments.

desirable in our more impartial moments. Recently, a number of authors have explored the merits of a light-handed paternalism that would help people avoid the often severe costs of our behavioural failings, while still leaving the fullest possible menu of choices for those who might want to exercise them. I think that the proposed URSAs with default contributions fit this bill. The accounts should help under-savers come closer to their own optimal retirement savings plans, while imposing little constraint on those who want to make their own choices about how much to save and in what form they want to hold their savings.

This type of policy has been labelled “libertarian paternalism” by Thaler and Sunstein (2003). With regard to the URSAs, the libertarian part is the complete freedom to override the default. The paternalism part recognises that the choice of default matters for saving behaviour – and this includes today’s default of no contribution – and responsible governments have a duty to recognise this when they design savings policy. Camerer *et al.* (2003) use the term “asymmetric paternalism” in defending a similar idea.²⁷ Again in the specific context of the URSAs, the asymmetry would be in the likely large benefits for those who are now saving far too little to sustain their living standard in retirement, while imposing small costs on those wishing to opt-out of the programme because they do not need or desire the policy help.

Under current policies, it is doubtful that the government will reach its private pension coverage target of 70 per cent for some years. This is likely to lead to serious consideration of a mandatory coverage plan. Mandatory coverage is not without merit where the alternative is a significant number of households experiencing substantial falls in their living standards at retirement. But it certainly is a blunt instrument. As reviewed in this paper, retirement saving innovations by paternalistic employers in the private sector may point the way for alternative public policy approaches that better balance the need to achieve retirement income adequacy and desire to preserve freedom of choice.

7. Concluding Comments

Retirement income provision is often referred to as a “three-legged stool”, with retirees receiving support from state benefits (cash and non-cash), employer-sponsored pensions, and voluntary private savings. This paper has reviewed recent policy efforts to shore up the various legs. I have argued that the National Pensions

²⁷ Camerer *et al.* (2003, p. 1212) describe what they mean by asymmetric paternalism as follows:

Our purpose in this Article is to argue that in many cases it is possible to have one’s cake and eat it too. We propose an approach to evaluating paternalistic regulations and doctrines that we call “asymmetric paternalism.” A regulation is asymmetrically paternalistic if it creates large benefits for those who make errors while imposing little or no harm on those who are fully rational. Such regulations are relatively harmless to those who reliably make decisions in their best interest, while at the same time advantageous to those making suboptimal choices.

Reserve Fund helps secure existing levels of pension generosity for current and future generations of workers in the face of anticipated population ageing. It also increases the scope for prudent, forward-looking governments to provide needed increases in pension generosity for current retirees despite the high long-term cost of such commitments. Turning to tax-favoured saving vehicles, I argued that, while well-designed tax inducements for regular retirement saving can help people get closer to their own desired saving targets, the recently introduced Personal Retirement Savings Accounts seem poorly designed from a behavioural perspective. In contrast, the success of the Special Savings Incentive Accounts shows the potential for a well-designed package of savings inducements to help overcome the lure of instant gratification. Finally, I outlined the broad elements of a proposal called Universal Retirements Savings Accounts that incorporate key lessons from behavioural economics and the success of the SSIA's. The central idea is to make retirement saving the default option, but to preserve maximum freedom of choice for a diverse population with different preferences and needs. Experimental research from the private sector has shown this to be effective in moving savings rates closer to desired levels. Although there are a number of ways this basic idea could be implemented, I have sketched an approach that leverages the current tax-withholding system and low-cost asset management through the NTMA. I believe the broad approach would yield substantial increases lifetime welfare for many households, while not forcing more saving on those who do not want or need the policy help.

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TAX EXPENDITURES

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1. Introduction

During the run-up to Budget 2005 considerable attention was focused on the operation of certain tax reliefs. Particular attention centred on the fact that the some high earners had used property-based reliefs to reduce, or in some cases eliminate, their tax liabilities (Revenue Commissioners, 2002). A review of property-based and area-based tax reliefs was announced by the Minister for Finance in Budget 2005 and is currently under way. In this paper we take a broader look at tax reliefs and exemptions, and draw on some international evidence as to how best to assess and review such measures on an ongoing basis.

One aspect of the review of selected tax expenditures is that mechanisms to ensure that all taxpayers pay some minimum contribution are to be considered. For this reason we review the US experience with a minimum income tax, and consider whether an approach based on a minimum tax is the best way to deal with the problems associated with intensive use of tax expenditure schemes by high income taxpayers.

2. Tax Reliefs Versus Direct Expenditures

The term “tax expenditure” is designed to draw attention to the fact that tax reliefs aiming to favour particular industries, activities or classes of persons have close parallels with explicit expenditures designed to achieve the same goals.¹ Tax expenditures can only be defined and measured against a background of a “normal” or “undistorted” tax structure which has no such special features. The question of which aspects of a tax system form part of this “normal” structure, and which represent special departures, to be treated as tax expenditures, can be contentious. Nevertheless, the tax expenditure concept has been applied in a range of countries. A key concern of this approach is to ensure that the standards by which tax expenditures and direct government expenditures are evaluated, both *ex ante* and *ex post*, are consistent. Tax expenditure analysis is also used to ensure that what Howard (1997) terms the “hidden welfare state” receives equal prominence in public debate on policy choices with direct expenditure.

¹ For the origins of the terms see Surrey and McDaniel (1985) and Burman (2003).

For individual items, there can be specific factors making a tax relief or a direct expenditure more efficient (e.g., income support for low income families provided via direct transfers may be associated with lower take-up of the benefit than under a tax credit system).² Here we focus on a few more general factors which distinguish tax reliefs from expenditures. Typically, expenditure proposals arise from line departments, but for proposals to succeed they must pass tests set by the finance department. This may also be the case for some tax expenditure proposals; but the costs involved are often a good deal more uncertain. Other tax expenditures fall within the remit of the finance department (e.g., the treatment of savings) and therefore do not get the element of “cross-departmental” examination which is inherent in the expenditure area.

Expenditures have to be voted on regularly, as money is provided through the estimates for the services and subsidies involved. While some tax reliefs are time limited, most are not, so that tax expenditures roll on from one year to the next without an automatic opportunity for re-examination. Expenditure programmes are highly visible and subject to audit and review. Tax expenditures are less visible and transparent.

There has been official recognition of such arguments in recent years. The Comptroller and Auditor General (2001) concluded that “... the scope of the Expenditure Review Initiative should also be broadened to include tax expenditures”. The Department of Finance (2002) report for the Tax Strategy Group indicated a need to examine existing and potential new tax incentives/expenditures in terms of value-for-money. The need for better data, the possibility of using time limits, and making renewal subject to a case by case examination were all mentioned.

The second report of the Commission on Taxation (1984) examined tax incentive schemes then in place, and some possible new incentives. In most cases they recommended that the reliefs be abolished, or that new reliefs not be introduced. They stated that

This should not be interpreted as implying that we are unsympathetic to the activities which such incentives would encourage. In considering the introduction of such an incentive, it is not sufficient to show that the activity at which the incentive is directed is worthy and would benefit. If this criterion were accepted to justify incentives, virtually all items would qualify for incentives. This is because there is almost no activity which cannot be shown to benefit from a selective reduction in taxation.....In considering the introduction of incentives for one sector, account must be taken of the disincentive effects on other sectors which bear the cost. Incentives must be provided on a limited basis for priority areas.

The key areas identified by the Commission were tax incentives

- to correct market failure;
- to attract desirable internationally mobile capital investment;

² Recent findings regarding overpayment of tax credits suggest that there are countervailing factors in terms of administrative effectiveness.

- and as a “second-best” option to offset shortcomings in other policy areas.

In terms of the mode of intervention, the Commission concluded that “Though there is no definitive argument for or against tax-based incentives, we have concluded that direct aids are more likely to be cost-effective than tax reliefs. They also have the merit of greater flexibility and can be applied more selectively”.

A parallel argument was made by Corden (1984) concerning trade policy: the guiding principle should be to intervene to offset a distortion, with the intervention coming as close to the point of the distortion as possible. In this context, the default policy option should be a subsidy – so a policymaker would need to examine first the need for any intervention, and second, consider whether there were any compelling reasons to depart from a subsidy. In the same way it can be helpful to think of tax expenditures as if they were ordinary expenditures, to be financed by other tax revenues. This points up the need to ask whether direct expenditures might not achieve the objectives of the (proposed) tax expenditure in a more effective and/or efficient manner.

3. Tax Expenditures: How Much Do They Cost?

The Revenue Commissioners regularly produce estimates of the costs of various tax reliefs and exemptions, using the “revenue foregone” approach. This asks how much higher tax liabilities would be if the tax reliefs did not exist and taxpayers made no change in their behaviour. This can be contrasted with a “revenue gain” approach (Brixi *et al.*, 2003) which seeks to identify the increase in revenue that could be expected if a particular tax concession were abolished. The revenue gain approach requires estimates of the behavioural responses to the abolition of the relief. Given the range and diversity of expenditures qualifying for tax relief, empirical estimation of the responsiveness of relevant behaviours and decisions to the tax reliefs offered involves many and different challenges. But in the absence of solid empirical evidence on these issues, decisions regarding the institution or continuation of reliefs have to be made on a less than satisfactory basis.

One example of the difference between these approaches is in the costing of the exemption of interest on national savings schemes (Savings Certificates and Bonds and National Instalment Savings). The revenue foregone approach indicates a cost in the order of €100 million for this relief. But this exemption allows the state to obtain funds at a lower rate of interest than would otherwise be possible. If the relief were abolished, few could be expected to invest in these schemes at the interest rates currently in force – these are at a discount to more general interest rates precisely because of the relief. Thus, either the state would see little or no revenue gain from abolishing the relief, or the gain would be offset by the need to raise the interest rate offered to compete with rates generally available.

An accurate comparison of the aggregate values of tax reliefs and direct expenditures requires a further adjustment: the question asked in this context is how much direct expenditure, in pre-tax terms,

would be required to achieve the same net-of-tax impact if a tax expenditure were to be replaced by a direct expenditure. This “outlay equivalent” approach is needed if the scale and cost of tax expenditures is to be measured on the same scale as direct expenditures. For example, if a tax expenditure increases disposable income of a household by €80 per week, it may be that a direct expenditure of €100 to the household would be required to achieve the same impact on disposable income, because the direct transfer could increase tax liability.

To our knowledge, only the “revenue foregone” approach has been applied in official analysis of Irish tax expenditures. “Revenue foregone” calculations for each of the main allowances/credits/exemptions/reliefs in the system are included in the annual *Statistical Report of the Revenue Commissioners*. This does not correspond exactly with the tax expenditure approach (e.g., personal allowances or credits are an integral part of the “normal” tax structure, and would not be costed as a tax expenditure, but are included in the Revenue listing). Nevertheless, the information provided is helpful in arriving at an understanding of the nature of tax expenditures in Ireland.

Table 1 reorganises the latest published information provided by the Revenue Commissioners (2003) in order to understand the scale and nature of current tax expenditures.³ The period reported is the last nine months of 2001, the short tax year arising from the

Table 1: Costs (Revenue Foregone) of Tax Reliefs, 2001

Group of reliefs	Cost in 2001 (short tax year)
	€
PAYE Allowance	478
Other personal allowances	237
Health insurance & expenses	206
Tax treatment of pensions	1,995
Mortgage and rent	218
Savings	246
Exempt social welfare income	159
Other exempt income	36
Profit-sharing, Options, BES etc.	60
Income adjustments (double taxation relief, group relief, employee expenses)	677
Charities	22
Miscellaneous	11
Capital Allowances	1,833
10 per cent Corporation Tax	1,916

Source: Revenue Commissioners *Statistical Report 2003*, Table IT6.

³ The detailed table from the Revenue Commissioners report is reproduced in Appendix 1.

transition from an April-to-April fiscal year to a calendar year. As our main focus is on comparisons of cost across items within this “year”, no adjustment has been made for the fact that it refers to a nine month period.

There are, of course, interdependencies between these items which mean that the sum of the individual cost estimates is not necessarily equal to the total cost. Nevertheless, it is clear that a small number of components account for a large share of the total cost. As basic personal allowances are part of the structure of the normal tax system, we have excluded them from the above table. This leaves three items which account for over 70 per cent of the sum of the individual cost estimates:

- Tax treatment of pensions: the counterfactual here is that contributions are charged to tax, pension fund income is taxed, and then pension payments are taxed as income.⁴
- Capital allowances – where the revenue foregone is calculated on all capital allowances, and not just those with an accelerated element.
- Corporation tax, where the 10 per cent tax rate for manufacturing is contrasted with the higher “standard” rate for other industries.

The issues concerning each of these major components of the “revenue foregone” are worthy of detailed investigation, but are not the subject of the current paper. (On pensions see Hughes(2001) and Hughes and Sinfield (2004)). A key point in relation to corporation tax, however, is that the response of firms (both foreign and domestic) to changes in the corporation tax is critical. It may be more productive to consider this issue in the context of marginal changes to the current rate of tax, rather than a context in which the implied change in the tax rate is a very large one. There are also issues concerning the design of state aids to industry, in the context of EU regulation, which are again beyond our remit. These issues will continue to be important, even when the unification of the corporation tax rate at 12.5 per cent means that in effect, there will be no measured tax expenditure from this source.

Table 2 below lists reliefs identified by the Revenue Commissioners for which costs are either not quantifiable, negligible or not identifiable within total aggregates.⁵ Some of this arises from the fact that taxpayers were not required to give details on their returns of the particular schemes under which capital allowances were claimed (Comptroller and Auditor General, 2002). The Comptroller and Auditor General expressed concern about “the lack of information available on the cost to the Exchequer of many tax expenditure schemes”. The Department of Finance and Revenue

⁴ Such a configuration is uncommon internationally, but does operate in New Zealand.

⁵ This list would be more helpful if it identified for each relief which of these three categories was applicable.

responses to these concerns point to the competing objective of keeping compliance costs low, through simplifications of forms, procedures and regulations as a constraint on the gathering of the detailed information required for costing of the reliefs. Revenue indicate that developments in their On-Line service will help to resolve these competing demands; but it is not clear why a form-based solution cannot also be developed, which places a significant burden only on those taxpayers making use of the reliefs.

Table 2: Reliefs for Which Costs are not Quantifiable, Negligible, or Not Identifiable Within Total Aggregates

Incentives

Relief for investment in research and development;
 Exemption in respect of income arising from certain patents;
 Exemption in respect of stallion stud fees;
 Exemption of profits arising from commercially managed woodlands;
 Exemption in respect of certain income derived from the leasing of farm land;
 Incentives associated with multi-storey car parks, park and ride, enterprise areas, hotels, holiday cottages, nursing and convalescent homes, housing for the elderly or infirm, private hospitals, sports injury clinics, buildings used for childcare purposes and various schemes for urban, town and rural renewal *;
 Renewal scheme for traditional seaside resorts;
 Expenditure on certain buildings in designated inner city areas;
 Reliefs for activities related to the Customs House Docks Area and Shannon Airport Customs-Free zone;
 Relief for new shares purchased on issue by employees;
 Relief from averaging of farm profits;
 Relief for various business-related expenses such as staff recruitment, rent, legal fees, and other general expenses;

Tax privileged savings and investments

Exemption of income from foreign trusts;
 Reduced tax rate of 10 per cent for authorised unit trust schemes;
 Reduced tax rate of 10 per cent for special investment schemes;
 Exemption in certain circumstances on quoted bearer Eurobonds;
 Relief for investment income reserved for policy holders in life assurance companies;
 Exemption of certain grants made by Údarás na Gaeltachta;
 Exemption of lump-sum retirement payments;
 Exemption of payments made as compensation for loss of office;

Awards for health/injuries

Exemption for income arising from payments in respect of personal injuries;
 Exemption of certain payments made by Haemophilia HIV Trust;

Charitable gifts and donations

Donations to Third Level Institutions;
 Certain payments to an Irish university, made by a person carrying on a trade or profession;
 Exemption of scholarship income;
 Donations to Public Libraries;
 Donations made to certain bodies engaged in the promotion of the arts;
 Relief for gifts to The Enterprise Trust Ltd.;
 Relief for donations made to "Cospoir" The National Sports Council;
 Relief for donations made by companies to First Step Ltd.;

Miscellaneous

Relief for allowable motor expenses;
 Tapering relief allowable for taxation of car benefits-in-kind;
 Exemption in respect of payments made under the Enterprise Allowance Scheme.

Notes: *See estimated cost included for capital allowances under the heading "Income Tax and/or Corporation Tax".

Source: Revenue Commissioners (2003) *Statistical Report of the Revenue Commissioners 2003*, p.66.

In examining the cost of tax reliefs, the revenue foregone approach mainly used in official statistics is a good starting point, but needs to be complemented by analyses which take into account

likely behavioural responses to the existence or abolition of the relief. Even if the response is such that a particular activity would only be located in Ireland with a subsidy or tax relief, this does not in itself constitute a firm case for such a subsidy. In the context of an economy operating at or near full-employment, one must consider the best alternative use of the resources which would be employed in the activity. For broader policy issues, such as the rate of corporation tax, estimation of the elasticity of response to a small change in the rate may be more informative than attempting to construct a “counterfactual” with a very different tax rate.

4. Tax Expenditures: Who Benefits?

Who benefits from the various tax expenditures, and to what extent? Here, the available information is somewhat limited. Some reliefs may be used mainly by a relatively small number of high net worth individuals – but confidentiality considerations may limit the extent to which this can be analysed or discussed. Other reliefs, such as that for health insurance premia and mortgage interest relief are widely used by taxpayers. For such reliefs, survey data can capture the extent to which they are used by different individuals and families, and the *SWITCH* model can simulate the distribution of the “tax expenditure” as measured by revenue foregone.

Mortgage interest tax relief is one of the most widely used reliefs. It has been “standard-rated” for several years, so that top rate taxpayers receive no greater benefit than standard rate taxpayers. Furthermore, the introduction of mortgage interest relief at source means that, in effect, it operates in the same way as a *refundable* tax credit: even those with no income tax liability see a benefit, as their payments to banks or building societies are reduced directly and not via an income tax reduction. All of these factors suggest that the distributive pattern of the tax expenditure from mortgage interest relief will tend to be a good deal more equal than that for many other reliefs.

Table 3 shows the estimated distributive pattern for mortgage interest tax relief in 2000, and for the year 2005.⁶ In the year 2000, we estimate that over 90 per cent of the benefit from mortgage income tax relief accrued to the top four deciles of the income distribution. The introduction of mortgage interest relief at source in 2002 meant that individuals and families without a tax liability, who previously gained no benefit from the scheme, now gained directly from a reduction in their mortgage repayments. This was a key factor in raising the share of the benefit accruing to the bottom half of the distribution from less than 10 per cent to close to 20 per cent. Nevertheless, even with this modification, the mortgage interest tax relief accrues predominantly to the top half of the distribution, with

⁶ The Living in Ireland Survey 2000 provides the initial database for the *SWITCH* model. The database for the year 2005 has been updated and adjusted to take into account key developments over that time.

the top one-fifth of households accounting for close to half of the tax foregone.

Table 3: Distribution of Tax Foregone from Mortgage Interest Relief Classified by Deciles of Income Per Adult Equivalent

Decile	2000	2005
	%	%
Bottom	0	0.8
2 nd	0	0.6
3 rd	0	1.6
4 th	1.9	5.9
5 th	6.5	9.6
6 th	7.9	11.6
7 th	12.6	10.3
8 th	15.2	13.6
9 th	21.0	20.0
Top	35.0	26.0
All	100.0	100.0

Thus, even one of the commonest and most widely used forms of tax relief, that for mortgage interest, involves a distributive pattern which is strongly skewed towards the upper reaches of the income distribution.

5. A Minimum Tax?

5.1 ALTERNATIVE MINIMUM TAX (AMT) IN THE US

Recent reports on the tax paid by high earners, such as the Revenue Commissioners (2005) study, which showed that 29 of Ireland's top 400 earners paid no tax. Property-based reliefs were identified in the report as a major factor contributing to this situation. As noted earlier, this has led to a review of the operation of property-based reliefs. Included in its remit is the possibility of a "minimum tax" designed to ensure a greater tax contribution from high earners.

Similarly in the USA in the late 1960s, anger sparked by the Treasury Secretary's testimony that 155 high-income households had paid no income tax in 1966 led to the imposition of a minimum tax that first took effect in 1970. That minimum tax was intended to increase tax payments from taxpayers who, under the rules of the regular tax system, were believed to pay too little tax relative to a more standard measure of their income. The individual Alternative Minimum Tax (AMT) that is still in place today evolved from that tax.

Before considering the US experience with a minimum tax, it should be noted that policy in this area may have two quite distinct objectives:

- Objective 1: individual equity/perceived fairness of the system.

- Objective 2: control of amounts of tax expenditures.

The weight attached to these two objectives is a matter for policymakers. But it should be noted that pursuing either objective on its own does not guarantee any improvement in terms of the other objective. For example, limiting the individual gain from tax reliefs so that high-income taxpayers must pay some income tax leaves open the possibility that the total cost of the tax relief will be just as great, with the relief simply spread over a larger number of people. On the other hand, limiting the total relief by eliminating certain reliefs and reducing others may help to attain objective 2, but could still leave some high income taxpayers paying little or no tax.

5.2 HOW THE US ALTERNATIVE MINIMUM TAX (AMT) WORKS

The individual⁷ Alternative Minimum Tax (AMT) was originally intended to ensure that high-income people could not use reliefs to shelter all their income from tax. The AMT operates parallel to the regular income tax, with a different income definition, rate structure, and allowable deductions, exemptions and credits. In essence, it is an alternative tax structure which has fewer deductions, but a higher exemption limit and higher rates than the ordinary system.

Taxpayers who may be subject to the AMT must make two calculations of tax liability: once under the regular income tax rules and again under AMT. If AMT liability proves higher, taxpayers pay the difference as a surcharge on their regular income tax. The total tax paid can then be partitioned into two parts: that arising under the ordinary tax system, and the additional part which arises from the minimum tax calculated under AMT rules.

The regular income tax rules allow taxpayers to claim certain exemptions, deductions, exclusions and credits. These include personal exemptions, the standard deduction, and itemised deductions for state taxes and miscellaneous expenses. These fall into the 'exemption preference' category and are most likely to affect middle-income taxpayers. These are not allowed in the AMT, even though they have little to do with tax sheltering. The second category are 'deferral preferences' which allow taxpayers to postpone regular income tax payments or shelter income by hastening deductions or delaying income recognition. The AMT limits the extent to which taxpayers can use deferrals by, for example, allowing less generous depreciation deductions. Compared with exemption preferences, deferral preferences are more consistent with the original goals of the AMT, have a greater tendency to affect high-income individuals, but are more complex and generate less revenue (Burman, Gale and Rohaly, 2003).

To determine the amount owed in AMT, if any, the taxpayer must compute their alternative minimum taxable income (AMTI). This generally requires taxpayers to give up the benefit of tax

⁷ The US federal income tax also has a corporate AMT.

preference items to which they are entitled under the regular tax system, as outlined above. The next step is to subtract the AMT exemption. The AMT exemption amounts, which are higher than the equivalent deductions under the regular tax, are temporarily boosted to \$58,000 for married taxpayers and \$40,250 for most other taxpayers. After 2005 these exemption amounts are scheduled to drop back to \$45,000 and \$33,750 respectively. After subtracting the exemption, the first \$175,000 of remaining income is taxed at a statutory 26 per cent rate, with additional income taxed at a 28 per cent rate.⁸ So, although the exemption amounts are higher under the AMT than under the regular tax, the initial tax rate under AMT is higher than in the ordinary system.

The AMT succeeds in the objective of reducing the number of high-income filers who pay no income tax. Burman, Gale and Rohaly (2003) estimated that 600 tax filers with incomes exceeding \$1 million avoided all income tax in 2003. In the absence of AMT the number avoiding all tax would have been 2,700.

So what are the problems with the AMT? Given the very nature of the AMT as outlined above (i.e. that it operates in parallel with the regular tax code and effectively requires many taxpayers to prepare two tax returns) the AMT is widely denounced for adding to the complexity of the tax code. It is criticised as confusing and leading to taxpayer uncertainty about applicable marginal tax rates and tax incentives.

Another main fault with the AMT is that, unlike the regular tax rules, the rate brackets and the AMT exemption are not indexed for inflation. This has serious impacts on the numbers paying the tax and the amount paid. Burman, Gale and Rohaly (2003) project that by 2010 the AMT will affect 33 million taxpayers, about one-third of all taxpayers. This would be up from 1 million in 1999, making it the *de facto* tax system for 92 per cent of households with income between \$100,000 and \$500,000. Such an expansion of the AMT would mean that it applied to far more taxpayers than was originally envisaged. On these projections, by 2008 it would cost less to repeal the regular tax than to repeal the AMT.

Other problems with the AMT include the fact that it raises marginal tax rates, it penalises taxpayers who marry because it prohibits deductions for dependents and it is poorly targeted because it takes away provisions that have nothing to do with tax sheltering.

5.3 LESSONS FOR IRELAND?

Given the many problems with and criticisms of the AMT, the approach taken in the US does not seem to be the best remedy to the problem of some high-earners paying little tax. Some of the difficulties could be avoided by a simpler version of an AMT. But if

⁸ The AMT exemption is phased out at higher incomes. As it is phased out, effective tax rates can be as high as 35 per cent, dropping back to 28 per cent at even higher income levels, when the exemption has been fully phased out.

there is a political imperative to ensure that high income taxpayers pay some tax this might also be addressed by limits on the extent of benefit from any one relief, or from the set of reliefs. Rather than impose a minimum tax on income, this approach would work by limiting the value of reliefs. The limitation could be in terms of the aggregate value of the relief (an approach already in place, for example, in the BES scheme) and/or a limitation in terms of the proportion of a taxpayer's income sheltered by a relief or the set of such reliefs. An advantage of this approach is that it would tend to place any increased administrative burden on the shoulders of taxpayers availing from such reliefs, in contrast with the US Alternative Minimum Tax experience, which adds complexity and uncertainty to the tax affairs of middle income earners.

6. Conclusions

There is a need for a more systematic regular review of tax reliefs than has taken place heretofore. Reviews of this type form part of international "best practice" on tax expenditures. (See, for example, Swift 2004.) The US, Germany, France, Belgium and Austria are among those countries in which the government is legally obliged to produce a report on tax expenditures. In some other countries (e.g., Canada and the Netherlands) there is no statutory obligation, but the government has produced a tax expenditure report.

Given the difficulties which exist in removing a relief once in place, it is particularly important that proposals for tax expenditures receive a thorough and searching examination, matching that which faces expenditure proposals. Particular attention must also be given to alternative ways of achieving the objective of a tax expenditure: the transparency of direct expenditure should usually mean that it is favoured over tax expenditures.

The objective of ensuring some minimum payment from high income taxpayers can be attained with less impact on ordinary taxpayers by restrictions on the reliefs, rather than the introduction of a US-style minimum tax.

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Appendix 1: Cost (revenue foregone) of income tax and corporation tax reliefs for 6 April to 31 December 2001 (short tax year 2001)

	€m
Basic Personal Allowances	
Married Person's Allowance	1,181.4
Single Person's Allowance	897.7
Exemption Limits	
General Exemption	0.0
Child Addition	0.4
Age Exemption	6.5
Additional Personal Allowances	
Widowed Person's Allowance	71.1
Additional Allowance to Widowed Person in Year of Bereavement	4.2
Additional Bereavement Allowance to Widowed Parent	3.9
Additional Personal Allowance for Lone Parent	78.9
Homecarer Credit	57.9
Additional Allowance for Incapacitated Child	2.7
Employee (PAYE) Allowance	478.4
Dependent Relative Allowance	0.8
Person Taking Care of Incapacitated Taxpayer	0.4
Age Allowance	16.9
Blind Person's Allowance	0.5
Health Insurance and Expenses	
Medical Insurance Premia	168.0
Health Expenses Relief	36.0
Permanent Health Benefit schemes	1.5
Tax Treatment of Pensions	
Employees' Contributions To Approved Superannuation Schemes	388.7
Employers' Contributions To Approved Superannuation Schemes	497.7
Exemption of Net Income of Approved Superannuation Funds (Contributions Plus Investment Income Less Outgoings)	938.4
Retirement Annuity Premiums	170.0
Mortgage interest and rent reliefs	
Loans relating to Principal Private Residence	169.3
Other interest	11.0
Rent Paid in Private Tenancies	17.9
Rented Residential Accommodation	19.8
Income Adjustments	
Expenses Allowable to Employees Under Schedule E	54.0
Dispositions (Including Maintenance Payments made to Separated Spouses)	10.2
Allowance for seafarers	0.2
Double Taxation Relief	323.7
Group Relief	289.1

Appendix 1: Contd.

€m

Savings

Exemption of Interest on Savings Certificates, National Instalment Savings & Index Linked Savings Bonds	87.8
Special Savings Incentive Scheme	71.0
Exemption of Irish Government Securities Where Owner Not Ordinarily Resident in Ireland	87.3

Treatment of Charities

Exemption of Income of Charities, Colleges, Hospitals, Schools, Friendly societies, etc. (6)	8.3
Donations to Approved Bodies	13.3
Tax Relief for Designated Third World Charities	-
Allowance for School Donations	0.0

Exempt Income

Exemption of Certain Earnings of Writers, Composers and Artists	23.5
Exemption of Statutory Redundancy Payments	8.7
Top Slicing Relief - Reduced Tax Rate for Payments in Excess of Exemption Amounts Made as Compensation for Loss of Office	3.8
Child benefit	153.4
Maternity allowance	5.5
Exemption of Pensions, Benefits or Gratuities Payable to Veterans of the War of Independence, their Widows or Dependents	0.1

Profit-sharing, Share options, BES

Relief Under Profit Sharing Schemes	30.6
Exemption Under Approved Share Option Schemes	0.2
Investment in Corporate Trades (BES)	15.1
Investment in Seed Capital	1.2
Stock Relief	1.4
Section 84 loans (12)	0.2
Investment in Films	11.3

Miscellaneous

Relief for expenditure on significant buildings and gardens	0.4
Donation of Heritage items	2.0
Service Charges	2.4
Third Level Education Fees	4.5
Revenue Job Assist allowance	1.7

Capital Allowances:

Urban Renewal	19.5
Other	1,813.9
Effective Rate of 10 Per Cent for Manufacturing and Certain Other Activities	1,916.4

Source: Revenue Commissioners (2003) *Statistical Report*, Table IT6.

WASTE COLLECTION, DOUBLE TAXATION AND LOCAL FINANCE

Edgar Morgenroth

1. Introduction

Over recent years a vocal lobby has been campaigning against what they call the 'bin tax'. Their argument is that this is a form of double taxation and as such is not fair and should be scrapped. Indeed they claim that this is another 'stealth tax', which has increased the tax burden while not improving services. Instead, waste collection services should be funded out of general taxation. On the other hand, there has been a move towards a more market-orientated system of waste collection with local authorities outsourcing the service or fully privatising it to licensed operators. These developments have also led to changes in the nature of the charges towards weights or volume base charges. This means that in contrast to general taxation or flat charges householders are now able to reduce their waste charges through more environmentally friendly behaviour.

Changes in the way waste collection services are operated and charged for have been driven by a number of factors. First, with the increase in the population and incomes, waste generation has increased substantially. Second, EU directives have forced higher standards on landfill site, which necessarily imply higher costs. Finally, local authorities have been obliged under the Waste Management Act, 1996 to make provision for the collection of household waste, a function which they previously carried out only partially in that public household waste collection service was not available in many rural areas. Now local authorities are automatically licensed to carry out the waste collection, or in conjunction with the Environmental Protection Agency, issue licences to private operators to carry out the service.

While waste charges have been proposed by a number of studies that were concerned with methods of implementing the polluter pays principle (e.g., Barrett, Lawlor and Scott, 1997) or in research that dealt with the workings of the solid waste market (e.g., Barrett and Lawlor, 1995), the more general public choice issues and their relationship to local authority financing has not been analysed in the

Irish context. This paper addresses these issues by first considering the impact of different financing systems on efficiency and cost effectiveness of the provision of waste collection services. This involves analysing the objectives of the local authorities and householders.

On the local authority side a number of different theories have been put forward that suggests that these, as well as central government, have an inherent tendency to be inefficient either in cost terms or in terms of the quantity of goods and services supplied. The question then is whether waste collection charges could help in making local government more efficient and thereby reduce local budgets or improve services. Similarly, if the correct incentives are not available, then households will consume more or less of a good or service than optimal. In the case of household waste, they might not attempt to reduce the amount of waste that is produced and recycle less.

Since there has been a move towards a more market-based system of waste collection it is also important to consider whether the public sector should be involved in this activity at all, and this is considered using the basic concepts of public economics. This paper questions the role for government involvement in providing the service, by considering the public goods qualities of the waste collection service. In general it is not clear why governments should provide a private good or service even if a market failure exists since, as Coase (1960) has shown, this can be internalised through the market.

Apart from these theoretical considerations it is also important to analyse the trends in terms of local authority finance of waste collection. This is particularly interesting since Irish local authorities have very limited revenue raising powers that are confined to commercial rates, charging for goods and services, development levies and rent, with the bulk of funding coming in grants from central government.¹ In principle the introduction of a charge should reduce general taxation, but since general taxation is raised by central government and not by local government this need not be the case. Thus, a more important question is the degree to which local authority revenues have changed. In this respect it is useful to assess the level of revenue generated through charges as well as any change in funding of local government from central funds.

This paper is organised as follows. In Section 2 we consider the case for the public provision of waste collection services. In Section 3 the efficiency of public provision is analysed, while in Section 4 the private incentives to reduce waste are outlined. Section 5 aims to identify the local government finance implications of the introduction of waste collection charges and Section 6 summarises the main findings and draws some conclusions.

¹ While vehicle taxes are also retained for local authority funding, these are part of the Local Government Fund and County Councils do not have the power to alter the rates at which these taxes are levied.

2. Should Waste Collection be Publicly Provided?

To start with it is useful to consider whether waste collection services should be publicly provided at all. We base our analysis on the public economics literature. Here we focus particularly on the relevant function of government namely the provision of public goods² and consider whether waste collection is a public good.

It is the allocation function that is of relevance for the purposes of this paper. In particular it is important to consider whether waste collection is a public good, since the rationale for public provision is more compelling for public goods. A public good is a good or service, which if supplied to one person is still available to another person. This implies that a public good is non-rival in consumption and non-excludable (see Cornes and Sandler, 1996). If one considers waste collection against these criteria it is clear that this is not a pure public good since it is straightforward to exclude individuals from the service, as has been the case for those that have not paid their waste collection charges. Furthermore, it is not a truly non-rival service in the sense that householders are not consuming the same unit of service (i.e., different bins are collected), even though the consumption of the service does not necessarily detract from the benefits derived by others from the service.

However, waste collection is intrinsically desirable as for example there are public health reasons why waste should be collected and not be allowed to accumulate. The unsystematic disposal of waste by individuals could result in pollution and thus have externalities. This does not only apply to illegal dumping but also to the burning of refuse as this releases a high level of toxins such as dioxins. Thus, it is the irresponsible actions of individuals in the absence of waste collection that are generating an externality not the waste collection service itself. This suggests that it is more appropriate to consider waste collection a merit good – one that is seen by the majority to be beneficial to society and one that should be consumed by everyone.

If consumers are not willing to purchase the merit good then they should be compelled or encouraged to do so. The rationale for this arises out of the impact that the failure of purchasing waste collection service could have since the domestic waste that is produced has to be discarded in some way. Of course individuals could do this in a responsible manner by bringing it to a landfill site or incinerator or by increased recycling and waste reduction. On the other hand the waste could be disposed of in a way that has a negative impact on the environment and therefore generates a negative externality for the general public.

² Musgrave (1959), identified stabilisation, allocation and redistribution as the functions of government. The first function simply refers to the fact that economies are subject to cycles and thus are unlikely to have stable and high levels of output, employment and stable prices at all time. The allocation function refers to the likelihood that due to positive externalities, the market is unlikely to allocate sufficient public goods so that these would be undersupplied. Finally, the redistribution function refers to the possibility that without government there was unlikely to be an equitable distribution of income and resources.

This suggests that waste collection need not be publicly provided. Of course the private sector will only carry out such a service if they are able to make profits out of running the service. This implies that the private sector either charges the public sector or householders directly. In the latter case it is particularly important an effective disincentive to littering is in place, since as argued above, the incentives are to litter and thereby generate negative externalities.

Dobbs (1991) highlights the link between charges for waste collection and littering. He argues that user charges on their own will not yield a welfare maximising outcome and he thus argues that a cost to littering is best introduced as a subsidy (negative user charge) that should be imposed in conjunction with user charges. While this is welfare maximising in a theoretical model, in practice such a scheme is only feasible in certain circumstances, mainly confined to recyclables such as refundable deposits for bottles, which have been successfully used in many countries.

Having established that waste collection does not need to be publicly provided it is clear that charging for such a service cannot be considered taxation. Rather it is the price charged for a specific service. Of course this service was previously heavily subsidised or even fully subsidised. Furthermore, even if one were to consider waste collection charges a tax, one cannot consider them a form of double taxation, since tax relief is available for service charges including waste collection charges.³

3. Inefficiency in Public Provision of Services

While the arguments above are simply based on the nature of the service supplied, it is also important to consider whether public provision would be efficient. In this section we consider the various theoretical approaches in the public choice literature that are relevant for the analysis of waste charges. In particular we focus on factors that determine the efficiency/inefficiency of the provision of public services, which is summarised in Bierhanzl and Downing (1998).

Traditionally the public provision of services has also implied that these are provided by a public monopoly. As is well known, monopoly provision is not efficient in the sense that prices will be higher due to the market power that is exercised by the monopoly. This result assumes that monopolies aim to maximise profits. However, since bureaucrats, who do not maximise profits, run the public sector the conventional monopoly theory is not relevant. Rather, it is necessary to consider alternative aims, which might lead to an inefficient outcome.

³ Water charges and sewerage disposal are also subject to tax relief. Tax relief for service charges has been available since 1996/97, having been introduced in the 1995 Finance Act. In fact the tax relief granted is not available on arrears and thus incorporates an incentive to pay on time.

One type of theory that has been put forward is referred to as bureaucracy theory (see Niskanen, 1971). In contrast to standard monopoly theory, bureaucracy theory suggests that bureaucrats aim to maximise their budgets or other variables that determine their power such as the number of staff or the size of their budgets. This can result in competition among bureaucrats for larger budgets and larger departments. However, if only one agency has a remit to provide a particular service then competition is limited. If the demand for the service is relatively unresponsive to changes in the price of that service then it is possible to extract a significantly higher expenditure by raising the price. This higher price is achieved through lower efficiency, which is only feasible if there is no competition and if it is difficult to identify this inefficiency (ambiguous technology). It is important to note that the pricing mechanism that generates this outcome is one where all the information is held by the service provider and budgeting takes place in advance of the provision of the service. Bureaucracy theory is particularly appropriate where an agency produces multiple outputs, which implies that it is even more difficult for customers to know the true cost of the service and to be able to relate the cost to the quality and quantity of the service provided. Of course, if the cost of the service is made explicit by charging for each service separately, inefficiencies are easier to identify.

A second theory, namely agenda theory can also be applied to the issue and this again shows that an inefficient outcome is likely. The fundamental aspect of this theory is that budgets are voted on and the voting mechanism can be 'hijacked' by agenda setters. Agenda setters will seek to control the alternatives that are being voted on. In particular they will seek to offer a range of alternatives that are substantially off the median voters' reservation level. In such a scenario the least unfavourable alternative will be chosen. Again the level of information is important since if agenda setters have better information than the other representatives then the likelihood of their being successful is increased. As before the mechanism by which the service is funded is crucial to the inefficient outcome coming about, since explicit charges yield contain information about the degree of inefficiency. Once agenda setters have gained control of the agenda, we have a situation of regulatory capture, which suggests that those charged with bringing in new schemes and legislation will have little incentive to do so (see Helm (2001) for examples).

Another explanation for inefficiency in the public sector is to do with the incentives that are available to bureaucrats, since their pay is not generally related to performance⁴ (see Dixit (2002) for a review of the theoretical literature). Thus, there is little incentive to operate

⁴ Of course one can argue that in the Irish context benchmarking has introduced some degree of performance related pay increases, but importantly, the wage increases were applied across whole organisation (e.g. Government departments) rather than to individual efficient civil servants.

at an efficient level, and even less to improve efficiency. Again, the pricing mechanism is important since the inefficiency is less apparent when the service is not directly paid for.

In the literature the usual approach is to set the price that is to be charged directly equal to the long-run marginal cost of providing the service. This turns out to be an efficient user charge since it sets an incentive to householders not to over consume the service while on the other hand forcing bureaucrats away from inefficient allocations by forcing them off their inefficient price, or because control of the agenda is lost as actual costs are being made public.

3.1 EFFICIENCY EFFECTS

Whatever the source of inefficiency, an appropriate pricing scheme and competition are expected to decrease the inefficiencies. In particular a funding scheme that relies on accurate cost information will yield a more efficient outcome since this will provide all actors with the information to make the right decisions.

In relation to efficiency in waste collection, a number of studies have been published. For example, Cubbin *et al.* (1987) estimate Farrell efficiency measures for refuse collection in England and Wales. They found that the technical efficiency for contracted out refuse collection was 17 per cent higher than that for non-tendered local authority collection and that this accounted for the bulk of the cost savings which amounted to 22 per cent. If agency theory is at work then one would expect budgets to be higher and indeed, Bierhanzl and Downing (1998) show empirically that local authorities that rely more on user charges have lower budgets. This suggests that the transparency provided by user charges limits the degree of inefficiency in terms of the size of the budgets.

In the Irish context the organisation of household waste collection in Ireland has been subject to some changes and some local authorities have outsourced or even privatised this service. The effect this has had on efficiency has been investigated by Reeves and Barrow (2000). Their data which was collected through a number of surveys in 1996 was used in regression analysis. In this analysis costs are related to a range of authority specific variables such as the density of units from which waste was collected and the nature of the service provided i.e., contracted out. The analysis showed that there was a 45 per cent cost saving for contracting out the service so that the efficiency gains are very substantial.

4. Inefficiency in Consumption

The previous two examples have highlighted the role of the public sector provider in achieving an inefficient outcome. However, consumers can also be responsible for an inefficient outcome. If there is no link between the quantity of a good or service that is consumed and the payment for that good or service then the consumers have no incentive to keep the level of consumption to an efficient level (Besley, 1991).

In the case of waste collection consumers are likely to generate more waste and require more collections than would otherwise be the case, and they are unlikely to recycle waste. This is exaggerated if householders suffer from fiscal illusion, that is they systematically underestimate their tax burden, so that the consequences of this over-consumption are even less apparent. Fiscal illusion can arise if the actual tax payments are either very fragmented into lots of different taxes so that none is very large or if taxes are paid on a monthly or weekly basis so that no one payment is very large. Again the funding mechanism is crucial to the inefficiency result. Here in particular a funding mechanism that properly charges at the margin for the service that is provided is needed to overcome the inefficiency, since in the case of a flat charge for the service say €300 a year the marginal cost to the householder of creating more waste is zero. In other words, once the householder has paid his fee he has no incentive to reduce the weight or volume of the waste created – putting out an extra amount of waste will not cost him more.

User charges also have distributional consequences if they are implemented instead of a general taxation financed system since in the latter only those that actually pay taxes pay for the service while in the former all households pay unless there is some kind of waiver scheme. The absence of such a waiver scheme would undoubtedly result in some resistance to the introduction of a user charge system since it would negatively impact on the poor. However, a simple waiver implies that no incentive is available to the poor to reduce their level of waste. An alternative would be to increase their income (pensions, social welfare, etc.) by an amount that would pay for the socially optimum level of waste collection (see Balestrino (1999) for a similar argument). Distributional aspects are also considered from a more practical point of view in Scott and Eakins (2001) who also advise against a waiver scheme and in favour of increased rates of social welfare, pensions and family income supplement. With regard to the latter it is well known that the take up is low but this is not an argument against using this instrument in order to ensure efficiency rather it is an argument for the better implementation of that scheme.

4.1 BEHAVIOURAL RESPONSES

The introduction of taxes or charges should have an impact on the behaviour of individuals that are subject to these charges. In the Irish context this has already been shown in the case of the plastic bag tax, which has drastically reduced the usage of plastic bags. Thus, it is also interesting to consider the degree to which the waste collection charges have had an impact on behaviour. Charging, and especially volume or weights based charging should result in the reduction of waste created. This reduction can be due to increased recycling or less production of overall waste.

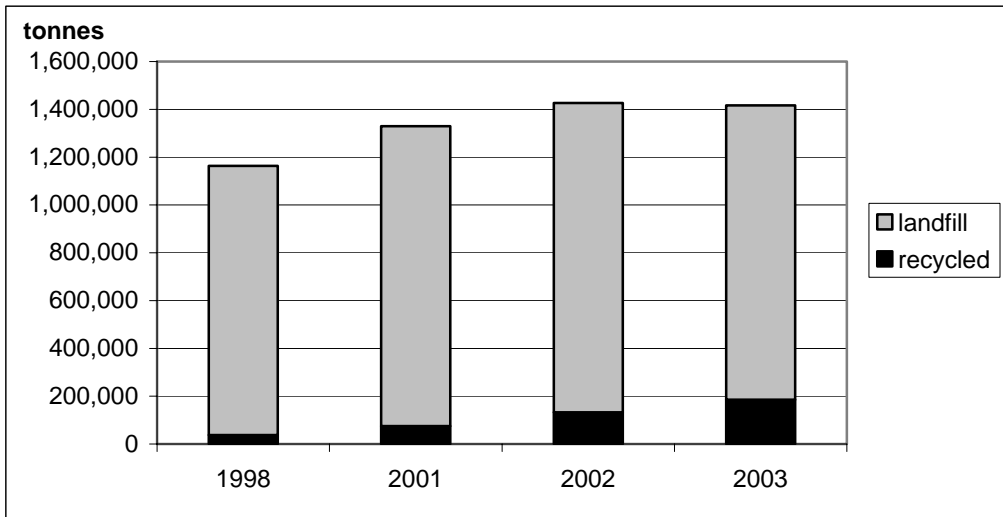
Two approaches can be used to assess the behavioural response. On the one hand one can collect data at the household level, which allows for a more thorough analysis. Thus, data on various

household characteristics can be collected which can be used to identify which households are more responsive. The second approach uses aggregate published data to identify any possible changes in waste creation trends.

At this point no completed micro-level analysis is available for Ireland but, preliminary results from ongoing research also show a substantial reduction of waste collected. However, evidence for other countries is available.⁵ Fullerton and Kinnemann (1996) investigated the impact of charging per bag in US municipalities in the early 1990s. They found that following the introduction of volume based charging the weight of waste collected per household decreased by 14 per cent and the volume decreased by 37 per cent, while the weight of recyclebales collected increased by 16 per cent. They also found that illegal dumping increased. Of course, since the charging was on a per volume basis the greatest impact was on the volume rather than the weight, so that householders compressed their waste to fit more into a bag. An analysis for a municipality in southwestern Sweden (Sternier and Bartelings, 1999), which introduced a weights-based charging system shows a reduction in weight of 29 per cent due to the introduction of the charging system. A more recent paper on the impact of weights based charging in the Netherlands was published by Linderhof *et al.* (2001). They show that in the first year after the introduction of a weights-based charging system total waste presented for collection was down by 56 per cent after three years with a particularly big reduction in the presentation of recyclable waste by 42 per cent. They also found that an effective monitoring and fining system has kept illegal dumping small. In summary this research shows that weights and volume based charging has a significant effect on the amount of waste collected. But the introduction of such a system may also result in increased illegal dumping, littering and burning of waste.

While there is no published micro-evidence on the impact of charges on Irish householders, aggregate data is available from the Environmental Protection Agency (EPA). Figure 1 shows that household waste collected has continued over the period 1998 to 2002, but that there was a slight decline from 2002 to 2003. Thus, there has been no dramatic reduction of overall waste creation even though charges have increased. However, this is not inconsistent with the literature since weights- and volume-based charging was only introduced recently so that the right incentives have so far not been available. Furthermore, there has been a very substantial increase in the amount of waste that is being recycled so that the proportion of recycled waste has grown from 3 per cent in 1998 to 13 per cent in 2003. This is of course also a behavioural response.

⁵ See Linderhof *et al.*, for a summary of the results of numerous studies.

Figure 1: Household Waste by Waste Stream

Source: EPA Waste Database various years. Note that the figure here relates to the disposal and recovery data provided by the EPA rather than the total waste arising.

5. The Local Government Finance Background

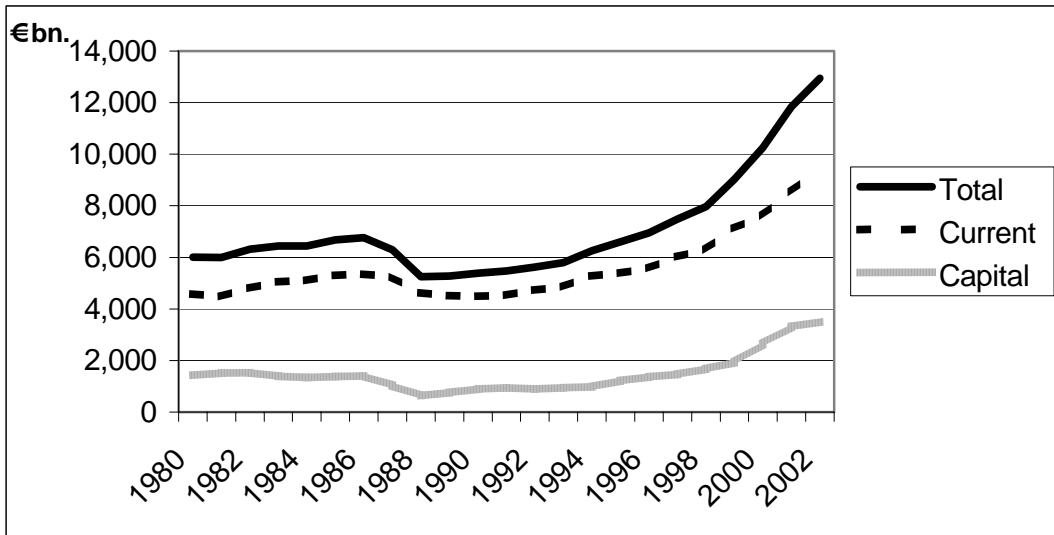
Having considered the theoretical rationale for user charges, which favours the implementation of weights- or volume-based charges for waste collection we turn to the issue of local authority finance. Clearly, the changes in the waste collection regime have implications for local finance. First, introduction of charges mean that cost recovery should be higher in local authorities, and that these will require a lower level of resources from central funds. This in turn should be reflected in lower general taxation all things being equal. Second, as the waste collection service is increasingly being provided by the private sector, local authorities are losing this source of revenue. It is, therefore, useful to consider what has happened to local authority finance.

Local Government finance has been a topic that has been discussed periodically at least since the mid-1970s when residential rates were removed, and central government paid the rates (e.g., NESG, 1985; Foundation for Fiscal Studies, 1990; Ridge, 1992). While residential rates have not been replaced as a source of direct local authority finance, as of 1997 the rates support grant, domestic water and sewerage charges have been replaced by the General fund, which was replaced by the Local Government Fund in 1999. Until 1983 a cap was in place that restricted the rate of increase of the fund. Furthermore, greater powers to charge for services were given to local authorities. But in practice central government began to reduce the rates support grant.

Overall, as Figure 2 shows, real total local government receipts (Current and Capital) increasing slightly over the first half of the 1980s, then declining strongly in the late 1980s and then rising at an accelerating pace until 2002. The graph also shows that the bulk of

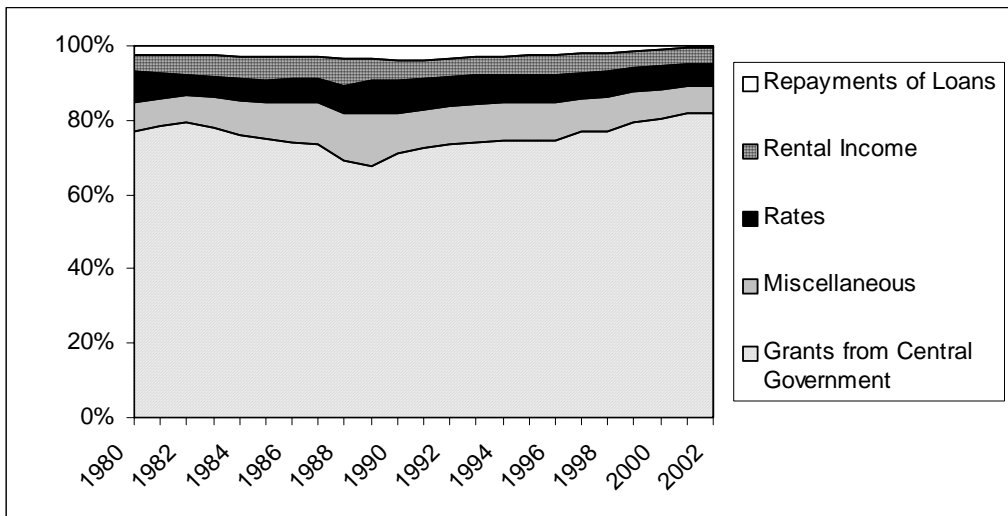
expenditure is on the current side with the capital side never exceeding 27 per cent of total receipts. Overall, the local current expenditure accounted for 36.4 per cent of government current expenditure in 1980 but this declined to less than 27 per cent in 1990. More recently the local government proportion of current government expenditure has risen again to reach 34 per cent in 2002.

Figure 2: Real Receipts by Local Government (Deflated by Public Authorities' Current Expenditure Deflator)



Source: CSO National Income and Expenditure, various issues.

While receipts have increased strongly over recent years, this might be completely unrelated to the charging for services. Considering the different revenue streams of local authorities can partly identify the importance of revenue from service charges. Specifically, miscellaneous current receipts are significantly made up of income from the provision of goods and service including waste collection charges. Figure 3 shows the importance of the different revenue streams. Most noticeable is the very high importance of grants from central government, which on average was 76 per cent of total current revenue. Interestingly, this share has been increasing over recent years so that the dependence of local authorities on central government is increasing. Thus, rather than becoming less dependent on central government, through charges for services provided, local authorities are actually becoming more dependent on central government. The miscellaneous category, which includes receipts from the provision of goods and services, increased in importance over the 1980s but has been declining over the 1990s. This might suggest that in fact the privatisation of services is reducing the importance of independent revenue streams for local authorities.

Figure 3: Sources of Local Authority Current Revenue (% of Total Current Revenue)

Source: CSO National Income and Expenditure, various issues.

Considering the specific revenues and expenditures on waste disposal by local authorities, one finds that first, those have increased strongly in real terms. These cost increases are largely due to the cost of operating landfill infrastructure, which has increased due to higher environmental and management standards as a result of the introduction of EU directives. Second, the rate of cost recovery is increasing, although, on average only 62 per cent of expenditure is met by revenues in this area so that local authorities continue to subsidise waste disposal services.

The brief analysis of the local finance implications of the changes in the waste collection service show that while cost recovery is increasing, the dependence of local authorities on central government is also increasing. Thus, the introduction of waste collection charges does not seem to have made the local authorities more financially independent.

6. Conclusions

This paper has shown that there are no strong reasons to provide a waste collection system through the public sector. Rather, than being a pure public good, waste collection is a merit good, the consumption of which should be encouraged. Thus, the charging for the public provision of this private good cannot be considered taxation and given the fact that tax relief is available for these charges it is wrong to consider waste collection charges a form of double taxation.

The private provision of the service is also supported by the literature on inefficiencies in the public sector. The inefficiency of the public sector can easily be hidden if the cost of a service is not immediately apparent. Thus, waste charges can yield more efficient services since they imply greater transparency. Substantial evidence exists that shows the efficiency benefits of contracting out waste collection services. For Ireland, Reeves and Barrow (2000) have

shown that the outsourcing and privatisation of waste collection service in Ireland has resulted in efficiency gains.

The public choice literature is very strongly supportive of user charges rather than general taxation as a funding mechanism for waste collection services. The literature highlights the importance of charging on a per-use basis rather than using flat rate charging. A flat rate leaves the marginal cost, that is the cost of an additional amount, of waste equal to zero so that there is no incentive for householders to reduce waste creation and increase recycling. Regarding the latter, the literature suggest that rather than charging for recycling services, these should be subsidised so as to create the right incentive structure.

From the average householders' point of view, user charges are clearly beneficial as this allows them to reduce their tax burden through the appropriate behaviour, assuming that general taxation is reduced accordingly. In the Irish context this means that while charges are introduced locally, central government has to reduce general taxation since local authorities have no general taxation powers. This, however, highlights the disconnect between the local charges and central taxation which could result in these benefits not being passed on to householders. The evidence available here shows that charges for goods and services are declining in importance as a source of local revenue relative to grants from central government. However, the per-capita charges for waste disposal have increased substantially over recent years even though these still do not meet the cost to local authorities to provide waste disposal services, which of course are increasingly limited to the operation of landfill sites.

Given the strong arguments in favour of waste collection charges and in particular for weights-based charging, it is surprising that there remains strong opposition to these among a small group. While this opposition might be purely on ideological grounds some studies have also considered other reasons. For example Hall, Emmerson and Brook (1998) investigated the attitudes to local taxes and local spending using data collected as part of the British Social Attitudes (BSA) survey. They found that there is little demand for additional taxing powers at the local level, but that householders preferred local authorities to be making the final spending decisions. This suggests that fiscal illusion might be a factor in the opposition to the charges. For Ireland evidence is presented by Scott and Eakins (2001). They show that the vast majority of individuals would prefer to pay for waste collection, with the more recent survey results showing that of those the majority would like to be charged by the amount.

While our focus here has been on waste collection, similar arguments apply to other use charges such as water charges, wastewater charges and congestion charges. Overall, given a choice between general taxation to fund a service, where no account is taken of the level of usage by the individual or household, and a use charge where the level is related to usage and can thus be reduced through behaviour, the latter is preferable both at the individual and societal level.

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