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Action and Research Centre

Technical note for RSA pension tax relief modelling

April 2018



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Our approach was largely based on existing work by the Pensions Policy Institute. The analysis can be broken down into two stages:

1. **disaggregation of HMRC figures** on the costs of registered pension scheme tax relief, to construct a distribution of that tax relief by income band
2. having done the above, recalculation of the total tax relief and its distribution under a flat rate of tax relief (30 percent).

1. Disaggregation of HMRC figures

The first part of the analysis takes HMRC figures on the total cost of pension tax relief and breaks it down by income band. This is to show which groups benefit relatively more or less under the current system. This is relevant because, in addition to saving more overall, higher earners with higher marginal tax revenues receive more tax relief on what they save.

The disaggregation takes:

- HMRC figures on the total cost of registered pension scheme tax relief (Table PEN 6¹), which breaks down those costs into occupational and personal pensions, as well as employee and employer contributions. This is the total cost we want to attribute to different income bands. In 2015/16, these costs were:
 - for tax relief on occupational scheme contributions: £23.1bn
 - for tax relief on personal pension scheme contributions: £7.4bn.
- HMRC figures on taxpayer deductions and reliefs (Table 3.8²), which has estimates of various deductions and reliefs by income band. In 2015/16, total:
 - occupational scheme contributions were estimated to be £13.8bn
 - personal pension scheme contributions were estimated to be £8.5bn

1. HMRC. PEN 6 Registered pension schemes: cost of tax relief. Available at: www.gov.uk/government/statistics/registered-pension-schemes-cost-of-tax-relief

2. HMRC. Survey of Personal Incomes Table 3.8, 2015-16. Deductions and reliefs. Available at: www.gov.uk/government/statistics/deductions-and-reliefs-2010-to-2011

- HMRC data on income tax liabilities by income range.³ The figures of specific interest are those for the number of taxpayers (by band) earning between £30,000 and £50,000, to calculate a composite tax rate. In 2015/16:
 - there were 6.9 million taxpayers with total income between £30,000 and £50,000; of which 1.4 million were higher-rate taxpayers
 - this gives a ratio of about 4:1 between all other taxpayers and higher-rate taxpayers
 - combined with basic and higher income tax rates of 20 percent and 40 percent, respectively, we get a composite/blended rate of 24 percent for the tax band.
- Information compiled by the IFS on personal income tax allowances and rates/bands to match up the marginal tax rates for each income band.⁴ In 2015/16, the relevant rates were:
 - basic rate: 20 percent on the first £31,785 (and after the personal allowance, of £10,600)
 - higher rate: 40 percent on earnings between £31,785 and £150,000
 - additional rate: 45 percent on anything above £150,000.

One critical assumption is that the contributions listed in Table 3.8 (deductions and reliefs by income band) equate to the gross pension contributions made by individuals, such that:

$$\begin{aligned} \text{gross contribution} &= \text{net contribution} + \text{tax relief} \\ \text{tax relief} &= \text{tax relief rate (equivalent to marginal tax rate)} \\ &\quad \times \text{gross contribution} \end{aligned}$$

or, alternatively:

$$\text{tax relief} = \text{relief/‘bonus’ rate} \times \text{net contribution}$$

The relationship between the tax relief rate and the relief/‘bonus’ rate is then:

$$\text{relief/‘bonus’ rate} = \text{tax relief rate} / (1 - \text{tax relief rate})$$

For example, if the gross contribution by a basic rate taxpayer is £100, then, for a marginal tax rate of 20percent:

$$\text{relief/‘bonus’ rate} = 20 \text{ percent} / (1 - 20 \text{ percent}) = 25 \text{ percent}$$

Then:

$$\begin{aligned} \text{tax relief} &= 25 \text{ percent} \times \text{net contribution} = 25 \text{ percent} \times £80 = £20 \\ \text{gross contribution} &= \text{net contribution} + \text{tax relief} = £80 + £20 \end{aligned}$$

Put differently, the saver equivalently:

3. HMRC Table 2.5a Income tax liabilities by income range. Historical (1990-00 to 2013-14). Available at: www.gov.uk/government/statistics/income-tax-liabilities-by-income-range--2. Recent (2014-15 to 2017-18). Available at: www.gov.uk/government/statistics/income-tax-liabilities-by-income-range

4. IFS. Income tax rates and limits. Available at: www.ifs.org.uk/uploads/publications/ff/income.xlsx

- (net) contributes £80 and receives a ‘bonus’ of £20 (25 percent)
- wishes to make a gross contribution and receives tax relief of £20 (20 percent), reducing their net contribution to £80

The steps are then:

1. for each income band, identify the corresponding marginal tax rate (the tax relief rate)
 - the way the table is structured, the only complication is the blended rate for those earning £30,000-£50,000: 24 percent
2. apply these rates to the contributions from Table 3.8 to get the implied tax relief.

However, the totals implied by the tax reliefs do not necessarily sum to the totals in Table PEN 6. This requires a scaling factor to reconcile the two figures. That scaling factor is the multiplicative value to apply to the figures from to recover the Table PEN 6 totals.

3. calculate the scaling factors for occupational pensions and personal pensions separately
4. apply the scaling factors to the implied tax reliefs to get a set of tax relief figures that sums to the official Table PEN 6 figures while also preserving the shares in the Table 3.8 figures
 - the separation of occupational and personal pensions preserves the relative weighting of the two from Table PEN 6.
5. calculate the shares and aggregate to match the PPI figures.

Results

A comparison of this method for 2012/13 with earlier PPI work shows that the method gets similar results for that year.⁵

	RSA	PPI	Difference
Less than £20,000	6%	6%	0%
£20,000-30,000	11%	10%	1%
£30,000-50,000	29%	29%	0%
£50,000-70,000	21%	19%	2%
£70,000-100,000	12%	12%	0%
£100,000-150,000	8%	9%	-1%
£150,000-200,000	5%	5%	0%
£200,000-300,000	3%	4%	-1%
£300,000-500,000	3%	3%	0%
Over £500,000	3%	2%	1%

The figures for 2015/16 are as follows:

⁵ Pensions Policy Institute. 2015. *Comparison of pension outcomes under EET and TEE tax treatment*. Available at: www.abi.org.uk/globalassets/sitecore/files/documents/publications/public/2015/pensions/tax-relief/abi-consultation-response-ppi-tax-relief-report.pdf

Range of total income (lower limit)	Occupational pensions	Personal pensions	Total
Less than £20,000	7%	2%	5%
£20,000-30,000	13%	3%	10%
£30,000-50,000	30%	7%	25%
£50,000-70,000	23%	14%	21%
£70,000-100,000	13%	16%	14%
£100,000-150,000	8%	19%	10%
£150,000-200,000	3%	12%	5%
£200,000-300,000	2%	11%	4%
£300,000-500,000	1%	8%	3%
Over £500,000	1%	8%	3%

2. Recalculation of the total tax relief and its distribution under a flat rate (30 percent)

This part of the analysis asks how the cost and distribution of tax relief might differ were the tax relief schedule to differ. While we have avoided making too many behavioural assumptions (how might individuals move savings around as tax rates change?), there are two ways of assessing a largely static effect:

- fix net contributions on the assumption that individuals save a certain amount of income regardless. Individuals gain/lose from the size of the ‘bonus’
- fix gross contributions on the assumption that individuals target a certain amount of pensions savings. Pension pots remain unchanged but the balance shifts between individuals’ contributions and what the state pays.

Results

The results for the distribution of tax relief across income bands, and the change in total cost, are as follows:

	Current rates	30% flat rate	
		Fixed net	Fixed gross
Less than £20,000	5%	10%	8%
£20,000-30,000	10%	18%	16%
£30,000-50,000	25%	34%	31%
£50,000-70,000	21%	14%	16%
£70,000-100,000	14%	9%	10%
£100,000-150,000	10%	7%	8%
£150,000-200,000	5%	3%	4%
£200,000-300,000	4%	2%	3%
£300,000-500,000	3%	1%	2%
Over £500,000	3%	1%	2%
Cost (£bn)	30.5	29.5	29.8

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