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Automatic enrolment contribution scenarios post 2017

Commissioned by the TUC

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Published by the Pensions Policy Institute

ISBN 978-1-906284-38-1
www.pensionspolicyinstitute.org.uk

Introduction

Background

The Pensions Act 2008 requires a review of National Employment Savings Trust (NEST) in 2017. The requirement is to review the effect of restrictions on transfers in and out of NEST and the annual contribution limit and any other matters the Secretary of State may direct. The previous Government has legislated to lift the transfer restrictions and annual contribution limit from April 2017. Successive Governments have also signalled that 2017 is the appropriate time to consider a wider review of the operation of automatic enrolment.

Project purpose

The TUC is looking to inform the 2017 review aiming to help improve the discussion and debate on participation and contribution levels.

Scope of PPI work

The TUC commissioned the PPI to model a selection of scenarios that vary contribution levels and methods of increasing contributions, and to consider their impact upon aspects such as the size of the accumulated pension pot and the amount of income available in retirement for an individual. Each scenario is applied to four individual profiles, identified by the TUC.

The research does not make recommendations as to the appropriate direction of future policy, but is designed to provide independent evidence to allow policy development to be well informed.

Summary of findings

The PPI modelled a range of individuals and their post-retirement income under a variety of policy options that affect automatic enrolment pensions through varying the level of contributions and in particular options which increase contributions automatically in some way. This is sometimes known as auto-escalation. For each option, a broad-brush estimate of the cost to the Exchequer is calculated.

Impact upon individuals

Currently legislation requires automatic enrolment contribution rates to increase to 8% of band earnings (earnings between £5,824 and £42,385 in 2015/16). This equates to a lower percentage of actual earnings: 6.3% for a median earner; 3.3% at the automatic enrolment trigger income (£10,000 for 2015/16). This reduction is due to contributions not being made on earnings below the lower threshold (£5,824 for 2015/16). These levels are lower than the contribution level required to achieve a good chance of an adequate level of retirement income.[1]

The scenarios modelled represent varying contribution levels between 8% and 15% of band earnings. Each represents at least the current contribution rates and therefore all the retirement outcomes are at least of the value achieved under the current system. Factors that are used as triggers for increasing contributions for the scenarios are:

- Age – the contribution rate increases as the individual becomes older.
- Job tenure – the longer an individual remains in a job the higher the contribution rate is set.
- Pay increase – as an individual's pay rises a part of it is used to fund an increase in contribution level.
- Pay level – the contribution rate is linked to the earnings of the individual. Earnings are compared to National Average Earnings (NAE) to set the contribution rate.

The different outcomes achieved through these escalation patterns vary by individuals and reflect the characteristics of the mechanism. For example:

- Job churn results in lower overall outcomes when escalation is linked to job tenure.
- Low earners will only achieve low contribution rates when escalation is linked to pay level, resulting in relatively low outcomes.

A further scenario of a flat rate bonus of £500 to contributions, paid for by the Government, was also modelled. This flat rate bonus has proportionally greater impact for lower earners, being larger relative to their pension contributions. As a bonus would not have an impact upon take home pay it is less likely to lead to higher opt out rates. This would cause a further increase in the cost to the Exchequer.

Lower income individuals, who receive more of their post-retirement income from the state, see a smaller proportionate increase in total income post-retirement.

[1] PPI (2013)

Cost to the Exchequer

All of the options modelled would increase the cost to the Exchequer as more tax relief would be payable upon higher contributions.

- Under the current system of 8% contributions of banded earning for automatic enrolment schemes the cost of tax relief is £3.3bn per year.
- The cost of tax relief is £0.4bn for each additional 1% of contribution.
- An increase in automatic enrolment contributions by 25% would cost £0.8bn in additional tax relief per year.
- Two thirds of the current tax relief cost on automatic enrolment contributions is spent upon basic rate taxpayers.

Paying a flat rate of bonus (paid by the Exchequer, not the individual) on top of the cost of tax relief at current contribution levels would have the following impact:

- A bonus of £500 p.a. would cost the Exchequer an additional £4.5bn per year. The total cost of tax relief plus the bonus approximately equates to the tax relief cost upon a contribution level of 19% of band earnings.
- 88% of the cost of the bonus payments is spent upon basic rate taxpayers.
- With a bonus rate of £500 p.a. approximately 80% of the total cost (of tax relief on contributions and the bonus to contributions) would be spent upon basic rate tax payers. This is more redistributive than the current system.
- This incentive may reduce opt-out rates increasing costs further.

Potential behavioural impacts

Individual behaviours have been assumed to not change under the various systems modelled. Changing contribution rates is likely to impact opt-out rates, both the total level and their distribution.

A rapid or step change to contribution levels rather than a more gradual tapering might be more likely to increase opt-out rates. Given the desire to improve post-retirement outcomes for individuals increasing contribution levels whilst mitigating the risk of individuals opting out is an important consideration.

Increasing employee contribution levels for those on lower incomes might increase their opt-out rates, as those are the individuals least able to afford the impact upon their income from increasing their level of saving. As such increasing employee contribution levels may have the effect of further widening the difference in post-retirement outcomes across income levels.

A contribution bonus is assumed to not come at a cost to the employee. This may reduce opt-out rates as those who are currently opting out may reconsider their position in light of greater financial incentives at no further cost to themselves.

Chapter one: individual projections

The Individuals modelled

Four individuals were selected to illustrate the impact of the different accumulation patterns. These are summarised in Table 1. The accumulation patterns are applied over the entirety of their working lives, assumed to be from age 22 (the lower automatic enrolment age threshold) until state pension age (SPA) (currently legislated as age 68). Contributions are made upon band earnings (earnings between £5,824 and £42,385 in 2015/16).

Earnings profiles

The individuals modelled use the distribution of earnings profiles derived from the Labour Force Survey (LFS), broken down by age and sex.

Working profiles

Males are assumed to work throughout their lives with no break. Females have been assumed to take a break between the ages of 30 and 40 to care for children.

Table 1: Summary of individuals modelled

	Attributes	
Individual	**Earnings profile**	**Career profile**
Median male	Median male	Continuous working
Low earning male	10th percentile male	Continuous working
Median female	Median female	Career break for caring for children
Low earning female	10th percentile female	Career break for caring for children

The impact upon individuals of different contribution patterns

The current system

Outcomes based on the current automatic enrolment system are used as a benchmark for each individual under the different contribution scenarios, Table 2. These outcomes demonstrate the accumulated pot size at retirement and the income it can buy. It is assumed that at retirement individuals will take 25% of their pot in tax-free cash. The remaining pot is used to purchase a level annuity, which contributes to their retirement income alongside the State Pension and other benefits payable. This is then subject to income tax to calculate the total post-retirement income.

Table 2: Retirement outcomes under the current system

£s, 2015 earnings terms	Median male	Low earning male	Median female	Low earning female
Pot size	79,361	32,571	43,620	14,694
Tax-free cash	19,840	8,143	10,905	3,673
Potential weekly annuity level	74	30	40	14
Total weekly post-retirement income	245	211	219	196

Flat accumulation patterns have a proportional impact upon the scale of the automatic enrolment pension pot accumulated at retirement, when compared to the current system (S.Q.). All contributions made throughout the working life are made at the new rate. Increasing the contribution rate from 8% to 12% improves automatic enrolment outcomes by 50%. However the impact upon total post-retirement income (allowing for State Pension and other benefits) depends on income level. Lower income individuals, who receive more of their post-retirement income from the state, see a smaller proportionate increase in total income post-retirement. The outcomes under 10%, 12% and 15% contributions levels are detailed in Tables 3 - 5.

Table 3: Retirement outcomes under 10% flat rate contributions

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	99,201	40,714	54,525	18,367
	Increase on current system	*19,840*	*8,143*	*10,905*	*3,673*
		25.0%	*25.0%*	*25.0%*	*25.0%*
Tax-free cash	Value	24,800	10,179	13,631	4,592
	Increase on current system	*4,960*	*2,036*	*2,726*	*918*
		25.0%	*25.0%*	*25.0%*	*25.0%*
Potential weekly annuity level	Value	92	38	51	17
	Increase on current system	*18*	*8*	*10*	*3*
		25.0%	*25.0%*	*25.0%*	*25.0%*
Total weekly post-retirement income	Value	259	217	227	199
	Increase on current system	*14*	*6*	*8*	*3*
		5.9%	*2.8%*	*3.6%*	*1.7%*

Table 4: Retirement outcomes under 12% flat rate contributions

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	119,041	48,857	65,430	22,041
	Increase on current system	*39,680* *50.0%*	*16,286* *50.0%*	*21,810* *50.0%*	*7,347* *50.0%*
Tax-free cash	Value	29,760	12,214	16,358	5,510
	Increase on current system	*9,920* *50.0%*	*4,071* *50.0%*	*5,453* *50.0%*	*1,837* *50.0%*
Potential weekly annuity level	Value	110	45	61	20
	Increase on current system	*37* *50.0%*	*15* *50.0%*	*20* *50.0%*	*7* *50.0%*
Total weekly post-retirement income	Value	273	223	235	203
	Increase on current system	*29* *11.7%*	*12* *5.6%*	*16* *7.2%*	*7* *3.5%*

Table 5: Retirement outcomes under 15% flat rate contributions

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	148,801	61,071	81,788	27,551
	Increase on current system	*69,441* *87.5%*	*28,500* *87.5%*	*38,168* *87.5%*	*12,857* *87.5%*
Tax-free cash	Value	37,200	15,268	20,447	6,888
	Increase on current system	*17,360* *87.5%*	*7,125* *87.5%*	*9,542* *87.5%*	*3,214* *87.5%*
Potential weekly annuity level	Value	138	57	76	26
	Increase on current system	*64* *87.5%*	*26* *87.5%*	*35* *87.5%*	*12* *87.5%*
Total weekly post-retirement income	Value	295	232	247	207
	Increase on current system	*50* *20.5%*	*21* *9.8%*	*28* *12.6%*	*11* *5.8%*

Escalating contribution rates

Escalating contribution rates provide an alternative to a step change in contribution rates to a higher, flat rate. The escalation of contribution rates can be achieved in practice through auto-escalation mechanisms. These introduce default contribution options linking the rate and timing of escalations to certain circumstances. The modelled escalation patterns increase contribution rates based upon individual circumstances, specifically:

- Age – the contribution rate increases as the individual becomes older.
- Job tenure – the longer an individual remains in a job the higher the contribution rate is set.

- Pay increase – as an individual's pay increases a part of that increase is used to fund an increase in contribution level.
- Pay level – the contribution rate is linked to the earnings of the individual. Earnings are compared to National Average Earnings (NAE) to set the contribution rate.

These scenarios link higher contribution rates to when an individual may be better able and willing to make an increased level of contribution. This should reduce the risk of opting out against a step change in contributions.

Escalating contribution patterns are designed to increase the accumulated pot at retirement. The scenarios modelled increase the contribution level from the current level of 8% up to a maximum of 15%.

The impact of each scenario upon an individual reflects the rate of increase in the contribution level and whether the higher level is maintained or not as in the case of linking contribution levels to job tenure.

By age

Escalation by age raises the contribution level to 15% by the individuals 30th birthday. Therefore, they spend most of the accumulation period with a contribution rate of 15%.

The impact is not uniform across the individuals modelled, where they may earn relatively more or less before the contribution level has fully increased. For the lower paid, such as in the case of the low earning female, for some of their working life, their earnings may be below the automatic enrolment trigger level resulting in substantially lower pot sizes (Table 6).

Table 6: Retirement outcomes with contributions varying by age

£s, 2015 earnings terms		**Median male**	**Low earning male**	**Median female**	**Low earning female**
Pot size	Value	141,498	57,903	75,944	26,438
	Increase on current system	*62,138* *78.3%*	*25,332* *77.8%*	*32,324* *74.1%*	*11,744* *79.9%*
Tax-free cash	Value	35,375	14,476	18,986	6,609
	Increase from S.Q.	*15,534* *78.3%*	*6,333* *77.8%*	*8,081* *74.1%*	*2,936* *79.9%*
Potential weekly annuity level	Value	131	54	70	25
	Increase on current system	*58* *78.3%*	*23* *77.8%*	*30* *74.1%*	*11* *79.9%*
Total weekly post-retirement income	Value	290	229	242	207
	Increase on current system	*45* *18.4%*	*18* *8.7%*	*23* *10.7%*	*11* *5.4%*

By job tenure

Escalation by job tenure increases the contribution rate whilst the individual remains within a job. With the average duration of a job assumed to be approximately five years, the impact is to produce an average contribution rate over the accumulation period close to 12% of band earnings and as such the final results, Table 7, are close to those achieved with a flat rate of contribution at 12% as shown in Table 12.

Job churn has the impact of reducing the contribution rate back to 8% of band earnings every time the individual starts a new job.

Table 7: Retirement outcomes with contributions varying by job tenure

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	119,482	49,057	63,879	21,668
	Increase on current system	*40,122* *50.6%*	*16,486* *50.6%*	*20,259* *46.4%*	*6,974* *47.5%*
Tax-free cash	Value	29,871	12,264	15,970	5,417
	Increase from S.Q.	*10,030* *50.6%*	*4,121* *50.6%*	*5,065* *46.4%*	*1,744* *47.5%*
Potential weekly annuity level	Value	111	45	59	20
	Increase on current system	*37* *50.6%*	*15* *50.6%*	*19* *46.4%*	*6* *47.5%*
Total weekly post-retirement income	Value	274	223	234	202
	Increase on current system	*29* *11.9%*	*12* *5.6%*	*15* *6.7%*	*6* *3.3%*

By pay increase

Escalation by pay increase increases the contribution rate as the individual's income increases. For every 1% pay increase the individual gains in salary, their contribution rate is assumed to increase by 0.25%.

Pay escalation rates are higher at younger ages and as such the maximum contribution rate of 15% is achieved by age 25 for all individuals modelled. The impact of this is demonstrated in table 8.

In the case of the low earning female the final result is the same as applying a flat rate of 15%. This is due to the earnings trigger only being met after the maximum contribution rate would apply. However the impact upon her outcome is still lowest owing to her small pot size.

Table 8: Retirement outcomes with contributions varying by pay increase

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	147,054	60,262	80,359	27,551
	Increase on current system	*67,693* *85.3%*	*27,691* *85.0%*	*36,739* *84.2%*	*12,857* *87.5%*
Tax-free cash	Value	36,763	15,065	20,090	6,888
	Increase from S.Q.	*16,923* *85.3%*	*6,923* *85.0%*	*9,185* *84.2%*	*3,214* *87.5%*
Potential weekly annuity level	Value	136	56	74	26
	Increase on current system	*63* *85.3%*	*26* *85.0%*	*34* *84.2%*	*12* *87.5%*
Total weekly post-retirement income	Value	294	231	246	207
	Increase on current system	*49* *20.0%*	*20* *9.5%*	*27* *12.1%*	*11* *5.8%*

By pay level

Linking the contribution level to the proportion of National Average Earnings (NAE) of the individual's current earning level means that the lowest paid contribute at a lower rate. Under 50% of the median earning contributions are set at the current level of 8%. At over 75% of the median wage, contributions are made at 15%.

In this scenario, the median male achieves the best outcome, compared to the other individuals. He achieves the maximum contribution level after 10 years, at age 32. However the contribution level reduces towards the end of the accumulation period from age 57 as relative income levels drop. This yields a pension pot similar to one which would be accumulated with a flat contribution rate of approximately 14% over the entire accumulation period and is 75.9% higher than under the current system (Table 9).

The median female has a lower expected income than the median male, and does not achieve the maximum contribution rate of 15%. The impact of this is to generate a pension pot equivalent to that which would be achieved with a flat rate of contribution of approximately 11%.

Low earning individuals do not meet the lower threshold level and remain at the minimum contribution rate of 8%.

Table 9: Retirement outcomes with contributions varying by pay level

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	139,572	32,571	58,900	14,694
	Increase on current system	*60,212* *75.9%*	*0* *0.0%*	*15,280* *35.0%*	*0* *0.0%*
Tax-free cash	Value	34,893	8,143	14,725	3,673
	Increase from S.Q.	*15,053* *75.9%*	*0* *0.0%*	*3,820* *35.0%*	*0* *0.0%*
Potential weekly annuity level	Value	129	30	55	14
	Increase on current system	*56* *75.9%*	*0* *0.0%*	*14* *35.0%*	*0* *0.0%*
Total weekly post-retirement income	Value	288	211	230	196
	Increase on current system	*44* *17.8%*	*0* *0.0%*	*11* *5.0%*	*0* *0.0%*

Bonus Accumulation Patterns

The addition of a flat rate of bonus to current pension contribution levels directs government spending and support to the lower paid as the bonus is made regardless of the size of the individual's own contribution. The difference in the value of the impact on the four individuals is based upon the number of qualifying contributions made, as contributions, and therefore bonuses, are not made when the individual is either assumed to be undergoing a career break or they do not meet the income threshold.

Current system with £500 per year flat rate bonus

The relative impact of a flat rate bonus is greatest for the lowest earners. For example for a low earning female the pension pot attained is the same as that achieved with a contribution level of 18%.

The absolute impact is highest for those individuals assumed to make qualifying payments throughout the entirety of the accumulation period, which applies to both the male cases modelled (Table 10).

Table 10: Retirement outcomes with a £500 p.a. bonus

£s, 2015 earnings terms		Median male	Low earning male	Median female	Low earning female
Pot size	Value	105,284	58,495	63,437	32,487
	Increase on current system	*25,923* *32.7%*	*25,923* *79.6%*	*19,816* *45.4%*	*17,793* *121.1%*
Tax-free cash	Value	26,321	14,624	15,859	8,122
	Increase from S.Q.	*6,481* *32.7%*	*6,481* *79.6%*	*4,954* *45.4%*	*4,448* *121.1%*
Potential weekly annuity level	Value	98	54	59	30
	Increase on current system	*24* *32.7%*	*24* *79.6%*	*18* *45.4%*	*16* *121.1%*
Total weekly post-retirement income	Value	264	230	233	211
	Increase on current system	*19* *7.7%*	*19* *8.9%*	*14* *6.5%*	*15* *7.7%*

Summary of key individual results

Outcomes are broadly consistent across individuals for all escalating patterns, except in the case of the increase by pay level. In that scenario, contributions for those with higher incomes increase at a greater rate, thus having the greatest impact upon their retirement outcome (Tables 11 and 12).

The impact of applying a bonus is to give a relatively better outcome to the lower paid individuals, modelled here as the low earning male and female.

Results are expressed relative to the outcomes achieved under the current system (S.Q.). This demonstrates the potential impact upon retirement outcomes for the different scenarios.

Table 11: Increase in projected automatic enrolment pot sizes for individuals against the current system.

Increase in automatic enrolment pension pot size (% above current system outcome)		Median male	Low earning male	Median female	Low earning female
Current system **(8%)**		0%	0%	0%	0%
Flat contribution levels	**10%**	25%	25%	25%	25%
	12%	50%	50%	50%	50%
	15%	88%	88%	88%	88%
Escalation by age		78%	78%	74%	80%
Escalation by job tenure		51%	51%	46%	47%
Escalation by pay increase		85%	85%	84%	87%
Escalation by pay level		76%	0%	35%	0%
Current system with bonus		33%	80%	45%	121%
Key	≥ Current system ≤10% flat rate	>10% flat rate ≤12% flat rate	>12% flat rate ≤15% flat rate	>15% flat rate	

Table 12: Projected post-retirement weekly income levels for individuals

Increase in post-retirement income (% above current system outcome)		Median male	Low earning male	Median female	Low earning female
Current system **(8%)**		0%	0%	0%	0%
Flat contribution levels	**10%**	6%	3%	4%	2%
	12%	12%	6%	7%	3%
	15%	21%	10%	13%	6%
Escalation by age		18%	9%	11%	5%
Escalation by job tenure		12%	6%	7%	3%
Escalation by pay increase		20%	9%	12%	6%
Escalation by pay level		18%	0%	5%	0%
Current system with bonus		8%	9%	7%	8%
Key	≥Current system ≤10% flat rate	>10% flat rate ≤12% flat rate	>12% flat rate ≤15% flat rate	>15% flat rate	

Chapter two: cost and behaviour analysis

Impact to the Exchequer

The impact to the Exchequer relates directly to the value of contributions made, due to the tax relief that they attract. For the bonus scenario, there is a further cost of any bonus payments that are made.

Under the current system, the annual cost to the Exchequer of the tax relief on employee and employer contributions associated with the automatic enrolment of the 9 million individuals expected to join a scheme is £3.3bn per year. This assumes a contribution level of 8% of band earnings.

The cost of the tax relief scales directly with the contribution level for flat contribution rates, table 13. This is due to assuming that the distribution of tax relief by rate remains unchanged.

Table 13: Impact to the Exchequer

(£bns, 2012/2013 earnings terms)	Cost to the Exchequer	Impact against the current system	
Current system (8%)	3.3	*n/a*	*n/a*
Flat rate 10%	4.2	*0.8*	*25%*
Flat rate 12%	5.0	*1.7*	*50%*
Flat rate 15%	6.2	*2.9*	*88%*
Current system + £500 p.a. bonus	7.8	*4.5*	*135%*

The cost of the different escalating contribution level scenarios increases over time with the increase in contribution rates. Escalations by age and by pay increase scenarios trend towards 15% contributions, hence the annual cost of tax relief will also towards that over the escalation period. 'Escalation by job tenure' will trend to a cost approximating the flat rate of 12% in line with the average contribution rate.

The cost of implementing a £500 p.a. bonus is included alongside the tax relief as an identified cost to the Exchequer. This would be the equivalent of supporting a flat rate of 19%. This assumes that opt-out rates are consistent across the scenarios.

Opting out

Why people opt out have been classified into six types by the Department for Work and Pensions (DWP).[2] The reasons relating to contribution levels are:

- **Concern about affordability** – Increasing contribution levels will drive the barrier of affordability higher if the increase in contribution rate is achieved through higher employee contributions.

  This largely impacts younger people on lower earnings. To mitigate the impact of people opting out for this reason an escalation pattern by age or

[2] DWP (2014)

pay level may have a lower impact upon opt out rates if employee contribution levels are to be increased.

- **Insufficient time to build up pension savings –** Increasing contribution levels for these individuals would give greater pension savings at retirement.

  This largely relates to people at a late stage in their career. An escalation pattern for such individuals would eat into the potential accumulation period, however the short timeframe will mean that the absolute value of the pension pot will remain low.
- **Contribution rate perceived to be too low –** Increasing contribution levels for these individuals would improve the outcome at retirement and may help produce a perceived adequate level of post-retirement income.

  This largely impacts older people who are not on low earnings. Increasing the contribution rate for schemes would make them more appealing to such individuals.

Therefore increasing employee contribution rates for young workers and the low paid may increase opt-out rates, whilst for older workers on higher incomes an increase in contribution levels may be seen in a positive light.

Appendix 1: Modelling; methodology, assumptions and limitations

Methodology

Model

The individual impact modelling used the PPI's Individual Model. This model produces illustrative projections of an individual's future income in retirement.[3]

The impact upon the cost to the Exchequer uses custom modelling and data analysis upon the Wealth and Assets Survey (WAS) data to understand the distribution of incomes of those eligible for automatic enrolment.

Accumulation paths

The accumulation paths modelled by the PPI for automatic enrolment schemes assume individuals will make contributions where eligible from age 22 in 2017 until state pension age (SPA), currently legislated to be 68. These paths are designed to represent potential policy styles.

The contribution patterns modelled are laid out in Table A1.

Table A1: Accumulation patterns modelled for individual projections

		Contribution levels	
Description		**Percentage of salary**	**Additional**
Current system *(Baseline)*		8%	-
Flat contribution levels		10%	-
		12%	-
		15%	-
Escalation by age	22-25	8%	-
	25-30	12%	-
	30+	15%	-
Escalation by job tenure	1st Year	8%	-
	2nd Year	10%	-
	3rd Year	12%	-
	4th+ Year	15%	-
Escalation by pay increase	Initial level	8%	-
	Increased rate	8% + 0.25% per 1% salary increase	-
	Maximum level	15%	-
Escalation by pay level	<50% NAE[4]	8%	-
	50% – 75%	Interpolated	-
	>75% NAE	15%	-
Current system with bonus		8%	£500 p.a.

[3] www.pensionspolicyinstitute.org.uk/current-projects/models/overview

[4] National Average Earnings

Current system
The current system situation assumes that contributions are made at 8% of earnings throughout working life.

Flat contribution levels
Flat contribution levels are set over the working lifetime of the individual.

Escalation by age
'Escalation by age' assumes that contributions are made according to the age of the individual. The individual is assumed to be aged 22 in 2017 with an initial contribution level of 8%.

Escalation by job tenure
'Escalation by job tenure' assumes that the contribution level varies by the length of time the individual has been in their current post. This results in the contribution level being reduced each time the individual takes a new job before building up to the long term level again.

Individuals are assumed to change job every five years throughout their career starting from age 18 (which is below the lower-age bound for automatic enrolment). This is in line with current research.[5]

Escalation by pay increase
'Escalation by pay increase' varies the contribution level by the individual's increase in income over the course of their career. For every 1% increase in earnings the contribution rate is assumed to increase by 0.25% until a maximum level of 15% earnings is achieved.

Escalation by pay level
'Escalation by pay level' varies the contribution level by the individual's income when assessed against National Average Earnings (NAE). Below 50% of NAE the contribution level is 8%, this increases linearly to a contribution level of 15% at 75% of NAE.

Current system with bonus
Contribution levels are set at 8% of earnings, with an additional £500 contribution per annum on top of this. This bonus is assumed to increase in line with earnings. Where no individual contribution is made in a year, either through non-qualifying earnings or through non-working the bonus is assumed to not be paid.

Other assumptions
Other assumptions used in the modelling are in line with the PPI's current assumption set. Financial assumptions are generally taken from the most recent Office for Budget Responsibility (OBR) figures.[6]

[5] LV= (2014)

[6] budgetresponsibility.org.uk/economic-fiscal-outlook-july-2015/

Key long term assumptions include:

- Long term fund growth assumed to be 6.0%, representing a mix of assets.
- Earnings growth is assumed to be 4.4%.
- Pension fund AMC is assumed to be 0.75%.

The automatic enrolment population is assumed to be 9 million individuals, which is a government figure.

Limitations

This modelling does not take into consideration any behavioural responses an individual may have in response to their circumstances or in response to changing pension contribution levels.

There is no consideration of future policy or legislature changes.

There is no consideration given to the impact of salary sacrifice schemes upon the cost to the exchequer, and any change there may be to this in response to changing contribution levels.

Outputs

Reported figures

The results for the impact upon individuals are reported in current (2015) earnings terms. They are:

- Accrued fund value at retirement
- Retirement income, with the following items:
  - Pension commencement lump sum
    - Assumed to be taken as 25% of the private pension pot.
  - Potential weekly private pension level at retirement:
    - This is based upon the income from a level annuity purchased using the remaining DC fund value.
    - This is not taken where the pot is commuted instead.
  - Weekly total income post- retirement after tax and including State Pensions and other benefits.
  - The impact upon the cost to the Exchequer are presented in 2012/2013 terms, the potential impact of the cost of pension tax relief at varying contribution levels is assessed. The cost of NI contributions avoided through the use of salary sacrifice schemes has not been included.

Acknowledgements and Contact Details

The Pensions Policy Institute is grateful for input from many people in support of this paper, including:

John Adams
Chris Curry
Sarah Luheshi
Tim Sharp

Editing decisions remained with the author who takes responsibility for any remaining errors or omissions.

The Pensions Policy Institute is an educational charity promoting the study of retirement income provision through research, analysis, discussion and publication. The PPI takes an independent view across the entire pensions system.

The PPI is funded by donations, grants and benefits-in-kind from a range of organisations, as well as being commissioned for research projects. To learn more about the PPI, see: www.pensionspolicyinstitute.org.uk

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Published by
PENSIONS POLICY INSTITUTE

www.pensionspolicyinstitute.org.uk
ISBN 978-1-906284-38-1