# PENSIONS POLICY INSTITUTE

Policies for increasing long-term saving of the self-employed

This report has been sponsored by Old Mutual Wealth



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# **Automatic Enrolment Changes**

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# **Executive Summary**

In recent years, there has been a significant increase in the number of individuals in the labour market classified as self-employed, particularly since the 2008 Global Financial Crisis. There is also evidence that the nature of selfemployment is changing over time, with some jobs which historically have been undertaken by employees now becoming self-employed. However, this increase in self-employment has been accompanied by a decline in the proportion of this group who are contributing to pensions.

The scope of the 2017 automatic enrolment review announced on 12th December 2016 includes a specific question as to how the self-employed could be encouraged and enabled to save more for later life.<sup>1</sup> The Conservative Party also committed to tackling the issue in their manifesto.<sup>2</sup> Old Mutual Wealth sponsored this report to look at recent trends in self-employment and to consider alternative policy options for increasing the long-term savings level of the self-employed, with the intention that the output feeds into the automatic enrolment review.

Analysis of the self-employed population from different sources identifies their characteristics, behaviours and savings levels, specifically:

- Currently there are almost 5 million self-employed in the UK labour market.
- There are 1 million more self-employed since the 2008 Global Financial Crisis.
- The largest group has spent between 7-11 years in self-employment.
- During 2016, the number of self-employed increased by 83,000. This includes a net increase in the number of women in self-employment of 81,000.
- Despite the number of women in self-employment increasing faster than men over this period, men account for two out of every three self-employed.
- The largest number of people entering self-employment come from the millennial group.
- The self-employed are not a homogeneous group; they are comprised of a number of groups who have different characteristics, attitudes and needs:
  - The self-employed appear to have overall total wealth equivalent to employed, however the sources of this wealth differ from the employed.
  - The self-employed are less reliant on pensions, and only 28% of them believe pensions are the safest way to save (compared with 52% of employees).
  - > 7% of the self-employed believe the largest part of their retirement income will come from their business.
  - The self-employed have a more positive perception of property than their employed peers, both in terms of its safety and its profitability. 53% believe property will make the most of their money (compared with 40% of employees).

<sup>1</sup> GOV.UK (2017c)

<sup>&</sup>lt;sup>2</sup> The Conservative Party Manifesto (2017)

To support the self-employed saving into longer term products, such as pensions, their main concerns need to be addressed. That is, the volatility of their income stream and the inflexibility of current pension products.

Three different policy alternatives which could meet the various needs of the self-employed have been explored, along with the potential impact each could have:

- 1. Defaulting in: an automatic enrolment style system for the self-employed;
- 2. Maintaining workplace pensions: transition from workplace pensions to individual/personal pensions;
- **3.** Alternative products: engaging the self-employed with alternative products for long-term saving, such as Lifetime ISAs.

Key findings from the potential impacts show that the various options will appeal to different self-employed groups due to their heterogeneity:

- Around 2 million self-employed have been identified as meeting the current eligibility thresholds for an automatic enrolment type approach.<sup>3</sup> Of this 2 million, 77% of them are male and the biggest generation is represented by Generation X.
- Many within the self-employed population who would be eligible for an automatic enrolment style option (using the current criteria) share many traits with their employed peers. However, a larger proportion of lower paid and part-time self-employed workers would be excluded unless the earnings trigger and qualifying earnings band were removed.
- The implementation of such an option would need careful consideration as a single point of contact, equivalent to an employer, would be required.
- As for the existing automatic enrolment system, opting out could be a useful feature.
- For 0.5 million of the self-employed, maintaining a workplace pension is a possible alternative. This group of self-employed have previously been employed and had access to a workplace pension. In the future, growing numbers of individuals joining self-employment will have had access to a workplace pension. Almost half of this group are Baby Boomers, not too far from State Pension age, and may have already thought about their future and their income in retirement.
- The alternative products policy option could potentially reach 1 million selfemployed. Most of these individuals are split between Millennials and Generation X.

<sup>&</sup>lt;sup>3</sup> For a further 1 – 1.5 million self-employed individuals there is insufficient information to determine potential eligibility.

These policy options focus on groups most at risk of having insufficient income in retirement. It should be noted that the three options are not mutually exclusive and there is an overlap between the applicable groups.

Additionally, consideration would need to be given to how any policy option addresses:

- The issue of volatile incomes and the potential need for more flexible savings;
- Proposals for change from other work such as the Taylor Review.

# **Introduction**

#### Background

The number of self-employed has been increasing steadily since the 2008 Global Financial Crisis. Since then the increase in self-employment has accounted for 45% of all UK employment growth.<sup>4</sup>

In the last year the number of self-employed has increased by 83,000, including 81,000 more women, to nearly 5 million.

The nature of self-employment has been changing in recent years with some jobs which historically have been undertaken by employees now being filled by the self-employed. While the number of people on employment terms such as zero hours contracts has increased in recent years the total number is still smaller than more traditional forms of self-employment. Although the number of selfemployed has increased, the proportion of the self-employed who are contributing to pensions has decreased.

The most effective recent policy to increase levels of pension saving has been the introduction of automatic enrolment. Although the self-employed are able to opt-in to a qualifying pension scheme, they are not placed into a scheme by default and will not benefit from an employer's contribution. There is evidence to suggest that very few self-employed individuals are opting in.<sup>5</sup> The scope of the 2017 automatic enrolment review announced on 12<sup>th</sup> December 2016 includes the self-employed within the coverage theme, asking within the review's initial questions:<sup>6</sup>

# How can self-employed people be encouraged and enabled to save more for later life/ for retirement?

The self-employed are at the forefront of key debates about the future of UK employment, with the publication of Matthew Taylor's independent report for the Department for Business, Energy and Industrial Strategy: Good work: the Taylor review of modern working practices.<sup>7</sup>

Taylor's report calls for greater clarity in employment law to distinguish workers from those that are truly self-employed, so that individuals are not left in the position of not knowing their employment status and rights. The review suggests creating a new category, a "*dependent contractor*", who would have access to a "*more limited set of key employment rights*". The implications for the extension of certain employee benefits, including access to workplace pensions, are significant.<sup>8</sup>

- <sup>4</sup> Resolution Foundation (2017)
- <sup>5</sup> Resolution Foundation (2015)
- <sup>6</sup> GOV.UK (2017c)
- <sup>7</sup> Taylor Review (2017)
   <sup>8</sup> OMW (2017)

## The quantitative analysis approach

This report looks at recent trends in self-employment and analyses the impact of alternative policy options for increasing their long-term savings levels. The report is intended to inform the automatic enrolment review and to improve the evidence base for policy discussion of the self-employed and pension saving.

This report constructs a picture of the self-employed, their characteristics and savings levels based upon quantitative analysis of multiple datasets. The key datasets that have been used are:

**Wealth and Assets Survey (WAS) – wave 4, 2012/2014** (*The only dataset with attitudinal and wealth questions*)

**Labour Force Survey (LFS) – Q4 2016/Q1 2017** (*Most up to date dataset*)

**Family Resource Survey (FRS) – 2015/2016** (Most recent dataset with income)

To reflect the varying stages of both career trajectory and long-term savings accumulation over a working lifetime, the self-employed have been broken down by generation, based on age at the time of Survey (Chart I.1):

- Millennials (age 15-34)
- Generation X (age 35-49)
- Baby Boomers (age 50-69)
- Silent Generation (age 70+)



Different expectations of retirement income and savings beliefs were analysed by performing cluster analysis on the self-employed around key characteristics including savings, income and housing tenure.

The report looks at the aggregate savings levels across the self-employed population and the saving gap that has developed between them and their employed peers, in particular in relation to an adequate retirement income.

A range of possible policy responses leading to better engagement and/or higher levels of saving amongst the self-employed have been developed reflecting approaches such as compulsion, nudges and incentives through a range of contact points, including National Insurance and self-assessment tax returns. To help inform these policy options, the Pension Policy Institute and Old Mutual Wealth held a roundtable with participants from across government, industry and self-employed groups. The aim of the roundtable was to encourage debate and contributions from participants to understand the longterm savings needs of the self-employed and how these may be better met through policy and industry responses. Comments from the roundtable have been used to inform this report.

The potential outcomes of such policy interventions are illustrated using representative individuals derived from the cluster analysis. This results in outcomes which reflect the reality of the current self-employed population, both

<sup>9</sup> PPI analysis of WAS wave 4 (2012/2014)

in terms of the scale of the impact and the coverage that may be achieved. These illustrations have been performed using the PPI Individual model (Appendix one).

# Chapter one: the self-employed population

This Chapter analyses the evolving self-employed labour market to describe who they are, what they look like and what their attitudes are. By grouping them around key characteristics, a more detailed understanding of their situation and needs can be developed. This analysis is used in Chapter three to illustrate the potential impacts of policy alternatives.



#### The self-employed characteristics

Analysis of the Wealth and Assets Survey suggests the average self-employed individual would be:10

- Male (67%)
- Married (76%)
- Aged between 40 and 69
- Working full-time (69%)
- Homeowner (maybe with a mortgage)
- Not contributing to private pension

This average gives us a stereotype of the self-employed. However, the reality is far more nuanced and complex; there is no standard self-employee but there are many variations and classifications.<sup>11</sup>

This Chapter considers the self-employed by generation as well as up to State Pension age (SPa). The Baby Boomer generation crosses State Pension age and therefore where analysis is limited to working ages this results in the restriction of this generation.

Other characteristics explored include length of time self-employed, education level, job sector and multiple jobs.

<sup>10</sup> PPI analysis of WAS wave 4 (2012/2014) <sup>11</sup> RSA (2014) Over the last 20 years, the number of people becoming self-employed has been growing, accelerating since the Global Financial Crisis in 2008. There are 4.7 million individuals categorised as self-employed at the end of 2016 (Chart 1.1).



The trend of growing self-employment is set to continue, with most of the growth accounted for by Baby Boomers and Generation X (Chart 1.2).



Partial data for 2017 shows this trend continuing. Baby Boomers are the largest group with about 1.9 million self-employed, followed by Generation X with about 1.7 million, then 1 million Millennials and 200,000 of the Silent Generation.

Analysis shows that the largest group has spent between 7–11 years in selfemployment, the majority of which are baby boomers.<sup>14</sup>

#### Education patterns of the self-employed

Men who have lower levels of educational attainment are more likely to join selfemployment at a younger age than those with degree-level qualifications. Selfemployed women, on the other hand, are more likely to be educated to degree level than men (Chart 1.3). This is partially accounted for through the very small number of women who are self-employed and participate in manual industries, such as construction, where individuals are less likely to have obtained a degree. These trends are particularly highlighted later when considering the new selfemployed joining different industry sectors.

<sup>13</sup> PPI analysis of LFS (Q4, 2016)

<sup>14</sup> PPI analysis of WAS wave 4 (2012/2014)



People who are self-employed have a wide salary range and different levels of educational attainments. This variation results in wide variation of lifetime earnings and financial security. There is a correlation between education level and earnings potential,<sup>16</sup> with a degree estimated to confer a net increase of £168,000 and £252,000 in lifetime earnings for men and women respectively.<sup>17</sup>

## The industries within the self-employed labour market

The self-employed work in a wide variety of industries and looking at averages will not allow for sufficient analysis (Chart 1.4). These roles have previously been split between 'Precarious' and 'Privileged' jobs.<sup>18</sup> This is based upon the financial security they generally confer and it is assessed through two factors:

- The average income associated with industry sectors.
  - > Higher paying industries confer a higher degree of financial security.
- The qualifications held by the individuals.
  - Individuals who hold a degree level qualification are more likely to have a higher income across their working life.

A higher paying role, which is more likely to be occupied by a higher qualified individual, is seen to be more 'Privileged'. Those roles considered to be 'Precarious' represent the majority of the self-employed. Many of the more precarious sectors include those who enter self-employment earlier in their

<sup>&</sup>lt;sup>15</sup> PPI analysis of WAS wave 4 (2012/2014)

<sup>&</sup>lt;sup>16</sup> PPI (2014)

<sup>17</sup> GOV.UK (2013)

<sup>&</sup>lt;sup>18</sup> Resolution Foundation (2017)

working life, while those working in the more privileged sectors may often have spent time in conventional employment prior to becoming self-employed.



Some of the self-employed may be engaged with employers, however the majority are not

Distinguishing between employees and self-employed can be difficult as individuals do not always fall into a single category.<sup>20</sup> More than 80,000 of the self-employed population have a second job as employees and around 350,000 employees have a second job which is self-employed (Chart 1.5). This second group, though not classified as self-employed, undertakes a portion of their current work as self-employment and this part will be impacted by changes that affect self-employment practices.

As both groups are also employees in one of their jobs they will be subject to workplace pension saving through automatic enrolment and have access to a workplace pension. However, as a multiple jobholder, it is likely that their employment is on a part-time basis, and as a result, they are less likely to meet the earnings trigger for automatic enrolment.

<sup>19</sup> Resolution Foundation (2017)<sup>20</sup> Taylor Review (2017)



In addition, 117,000 self-employed have a second self-employed job, while the remaining 4.6 million have a single self-employed role. These self-employed have no traditional employer-employee relationship, and with no employer led saving, such as automatic enrolment, they may be less likely to save.

## The recently self-employed

In recent years there has been a net increase in the number of self-employed and nearly 0.5 million self-employed individuals have been in their current situation for less than one year.<sup>22</sup> These recently self-employed, where "recently" means those within the last 12 months, join at all ages, although the largest increase is amongst the millennial group:<sup>23</sup>

- 23% Millennials
- 11% Generation X
- 6% Baby Boomers
- 2% Silent Generation

Over their working lives, men and women will follow different working age trajectories as a result of behavioural and societal effects. This results in savings needs which vary both by gender and within gender. It is, therefore, important to consider men and women independently when considering the development of the self-employed population as this can inform their changing needs (Table 1.1).

<sup>21</sup> PPI analysis of WAS wave 4 (2012/2014)

<sup>&</sup>lt;sup>22</sup> ONS (2017)

<sup>&</sup>lt;sup>23</sup> PPI analysis of LFS (Q1, 2017)

-	Men				Women			
	Number	<1	1 to 5	> 5	Number	<1	1 to 5	> 5
	of people	year	years	years	of people	year	years	years
Millennials (16-34)	632,000	18%	51%	31%	309,000	29%	50%	20%
Generation X (35-49)	1,090,000	9%	29%	63%	602,000	12%	32%	56%
Baby Boomers (50-SPa)	1,100,000	6%	16%	78%	495,000	7%	21%	72%
Over SPa	344 000	2%	6%	91%	172 000	2%	15%	83%

Table 1.1: Amount of time spent in current self-employed position by gender and generation<sup>24</sup>

 Over SPa
 344,000
 2%
 6%
 91%
 172,000
 2%
 15%
 83%

 Some individuals have not provided a response to this question. The total number of self-employed is approximately 1% higher than the respondents to this question.
 The total number of self-employed is approximately 1%

Men are more likely to be self-employed at younger ages than women, although this reverses as age increases, resulting in the need for different policy alternatives, as explored in Chapter three.

The number of people in self-employment increased by just over 80,000 to 4.8 million (15% of all people in work) in the past year, just below 2%. This recent figures show that while men are growing very little, less than 1%, women are growing faster, more than 5% (Table 1.2).

Table 1.2: Comparing the estimates of growth by gender for January/March2017 with January/March 201625

Growth in the number of Self-Employed							
Men Women Total							
January / March 2017	3,211,000	1,586,000	4,797,000				
January / March 2016	3,209,000	1,505,000	4,714,000				
Growth	2,000	81,000	83,000				
Growth %	0.08%	5.36%	1.77%				

In particular, there has been a big increase in the number of females from Generation X, as well as women over age 50 who joined self-employment (Table 1.3).

Table 1.3: Comparing the estimates of growth by women generation for January/March 2017 with January/March 2016<sup>26</sup>

Generation growth between 2016 and 2017					
Women					
Millennials (16-34)	+8,000	3%			
Generation X (35-49)	+28,000	5%			
Baby Boomers (50-SPa)	+43,000	9%			
Over SPa	+2,000	1%			

The largest number of new self-employed are young men in the construction industry, while those joining at older ages are more likely to be in banking and financial services (Chart 1.6).

<sup>24</sup> PPI analysis of LFS (Q1, 2017)
 <sup>25</sup> PPI analysis of LFS (Q1, 2017)
 <sup>26</sup> PPI analysis of LFS (Q1, 2017)



As well as an increase in people joining the self-employed workforce there is also a high turnover with many individuals also leaving self-employment:

- 140,000 currently employed were self-employed last year;
- 110,000 are now economically inactive;<sup>28</sup>
- 40,000 are unemployed.

#### The longevity of self-employment roles varies by industry

Some industries are more associated with self-employment. These more 'traditional' industries generally have longer serving self-employed individuals, for example agriculture and construction. This reflects a lower turnover throughout working ages as people employed within these industries are more likely to treat it as a job for life. As a result, a sizable portion of these self-employed will not have previously been and are unlikely to become employees. Construction and banking/finance have the largest numbers of people in self-employment. Breaking down the amount of time the self-employed spend in their job position helps to understand the turnover for each sector (Table 1.4).

<sup>28</sup> ONS definition: People not in employment who have not been seeking work within the last 4 weeks and/or are unable to start work within the next 2 weeks.

Amount of time spent in current position by industry							
Industry sector	Number of people	< 1 year	1 to 5 years	> 5 years			
Agriculture, forestry and fishing	198,000	3%	13%	84%			
Energy and water	31,000	10%	36%	54%			
Manufacturing	200,000	11%	27%	62%			
Construction	953,000	7%	25%	67%			
Distribution, hotels and restaurants	561,000	12%	25%	63%			
Transport and communication	530,000	12%	33%	55%			
Banking and finance	1,090,000	11%	29%	60%			
Public admin, education and health	608,000	11%	30%	59%			
Other services	564,000	11%	30%	59%			

#### Table 1.4: Amount of time spent in current position by industry<sup>29</sup>

#### **Segmentation**

To segment the population, the Wealth and Assets Survey (WAS) dataset was used as it has all the necessary features:<sup>30</sup>

- Sufficient sample size to enable segmentation;
- Work type;
- Individual characteristics;
- Pension saving;
- Financial wealth and other assets.

Analysis was carried out to look for trends, to identify key variables and understand more about the self-employed population.<sup>31</sup>

#### **Details of clustering**

As the self-employed are not a homogeneous group, segmentation helps understand where they may be in their work trajectory. Using an iterative approach, cluster analysis has been performed to group individuals with similar attributes and identify the significant variables. The characteristics used for the clustering are:

- Housing tenure
- Marital status
- Part-time / full-time
- Pension contributions
- Forms of wealth:
  - > Property
  - > Pension
  - > Other

<sup>29</sup> PPI analysis of LFS (Q1, 2017)

<sup>30</sup> PPI analysis of WAS wave 4 (2012/2014)

<sup>&</sup>lt;sup>31</sup> PPI analysis of WAS wave 4 (2012/2014)

To understand self-employed behaviours, the following descriptors were taken from the WAS survey:

- Length of self-employment
- Income
- Reasons for saving
- Reasons for not saving
- Expectations of retirement income:
  - How to make the most of their money?
  - > What are the sources of income?

The population in the clusters is divided by generation and sex. The evolution between generations has guided the clusters, particularly in relation to the housing tenure variable. The trend is shown below:



Younger people are more likely to rent the place where they live (37% of Millennials), whereas a few years later they are able to pay a mortgage (68% of Generation X), and at older ages they own a property (56% of Baby Boomers and 78% of Silent Generation).

The split by generation and gender produces a breakdown of different expectations of retirement income and savings beliefs. For example, a large proportion of self-employed do not believe they are saving enough for retirement. The analysis show this proportion is correlated with the age of the self-employed. Older generations seem more prepared for retirement than younger generation, probably because they are approaching State Pension age.

## Box 1.1: Key trends from the self-employed clustering<sup>32</sup>

#### Millennials:

- > They don't believe they are saving enough;
- > The married are more likely to expect support from their spouse;
- *Lower wealth clusters expect to be more reliant on the state;*
- Low levels of pension saving, where it exists it is dominated by occupational pensions;
- > Those who are single and classified as owners, may still live with their parents and the property in question belongs to them.

#### **Generation X**

- Those with higher wealth levels, married, owners of their property and part-time workers typically don't expect to rely on private pension income;
- Those with property expect it to generate income;
- > Only small segments have pension wealth.

#### **Baby Boomers**

- > Part-time workers typically have more pension wealth than their full-time counterparts, may rely on the partner;
- > Pension wealth dominated in the wealthiest groups;
- > Those with mortgages are more likely to expect their property to form a larger part of their retirement income.

#### **Silent Generation**

- *Those who have their own property;*
- More likely to be part-time worker if women;

More information about the cluster analysis and how the single clusters are structured are provided in the Appendix two.

#### **Conclusions**

- The self-employed sector has grown rapidly since 2008. There were 1 million more self-employed individuals out of a segment of 5 million.
- Between January/March 2016 and 2017 the number of self-employed women grew by 81,000 out of a total increase in the self-employed population of 83,000. However, overall men still make up the majority of the self-employed population.
- Cluster analysis grouped self-employed with similar features and helped understanding of "who they are", "what they believe in" and "which decisions they have made for their future".
- The self-employed are not a homogenous group; segments vary by characteristics, attitudes and needs. The main groups include:
  - Older men going into banking and financial services allowing them to wind down their career into retirement;
  - Middle aged women, probably working around caring;
  - Younger men entering the construction industry;
  - Younger women entering banking and other services.

<sup>&</sup>lt;sup>32</sup> PPI analysis of WAS wave 4 (2012/2014)

# Chapter two: the self-employed and savings

The second Chapter looks at the saving of the self-employed, how and where they are saving for the future and for retirement.



How self-employed savings compare with the employed population

The self-employed have been benchmarked against employees to better measure the gaps in their saving and to be able to compare them against a known quantity.

## **Total wealth**

Wealth is composed of different sources: pension, property, financial and physical wealth. In this Chapter, consideration is given to the two largest sources, 'pension' and 'property', looking at how employees and the selfemployed treat them and their attitudes to each source. More information on the other sources can be found in the Appendix three.



The percentile points represent the 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentiles of total wealth within the employed and self-employed populations by age. E.g., the 50<sup>th</sup> percentile refers to the median wealth of the population.

There seems to be little difference in the ability to accumulate wealth between the self-employed and employed groups; the self-employed over age 55 tend to have slightly higher levels than their counterparts (Chart 2.1).

At younger ages, the self-employed seems to have a higher total wealth than in their 30s. The spike around age 20-24 is probably due to the self-employed still living with their family since total wealth is considered on a household basis. There is a drop-off in wealth as people move into later life and slow down or stop working.

Whether employed or self-employed, the wealthiest generation is the Baby Boomers, although the proportions of pension wealth and property wealth differs between employees and self-employed (Chart 2.2). Younger people may be more likely to have pension wealth in the future due to the impact of autoenrolment in a previously employed job.

<sup>&</sup>lt;sup>33</sup> PPI analysis of WAS wave 4 (2012/2014)



## The savings concerns of the self-employed

When an individual first becomes self-employed, they are more likely to have cash flow concerns including issues around a smooth income. A 2016 Family Resource Survey (FRS) suggested that the biggest challenges facing the self-employed is a lack of both certainty and security of income.<sup>35</sup> This represents heightened financial insecurity that could increase concern about short-term finances or income smoothing.

Pension saving is therefore less of a priority given how inaccessible it is. This could lead to a desire for savings that are more liquid to protect against shocks, and at the same time helps smooth income by providing an alternative income stream (e.g. a second property providing rental income).

#### Pension wealth

Research shows that only 12% of self-employed are actually saving into a private pension.<sup>36</sup> As this is lower than the savings rate for employees, it has resulted in the build-up of a "*pension savings gap*" between the two groups.

The gap is not necessarily quantified by the amount, but in the age lag in the accrual of pension savings throughout the accumulation period (Chart 2.3):

• Median pension wealth for a self-employed person approaching retirement (aged 60-64) is £53,000, while an employee may have expected to accrue this

<sup>34</sup> PPI analysis of WAS wave 4 (2012/2014)

35 FSB (2016)

<sup>&</sup>lt;sup>36</sup> PPI analysis of WAS wave 4 (2012/2014)

pension wealth ten years earlier (median pension wealth of employees 50-54 is  $\pounds$ 54,000).

• A self-employed individual aged 45-49 has a median pension wealth of £11,000, which an employee can expect to have accrued by their late 30s (median pension wealth of employees is £11,000 at age 35-39).

This 10 year time lag for the self-employed reflects a later entry into pension saving and a lower rate of accumulation throughout working life.





The percentile points represent the  $25^{\text{th}}$ ,  $50^{\text{th}}$  and  $75^{\text{th}}$  percentiles of pension wealth within the employed and self-employed populations by age. E.g., the  $50^{\text{th}}$  percentile refers to the median wealth of the population.

The lag appears to be due to the volatility of self-employed income and the uncertainty that comes from it. They therefore seek accessibility and tangibility to their savings, which is not always possible with current pension products.

The analysis shows the self-employed who contribute to pensions do not do so until later in their working life. This is probably when they or/and their business are financially stable and therefore they do not mind 'locking away' money in a pension because they could access other accrued savings.

#### How the self-employed expect to meet this savings gap in retirement

The self-employed expect to be less reliant on pensions in retirement than employees (Table 2.1). Although the self-employed have many different characteristics there is a common denominator: the self-employed are less likely than employees to believe that pensions either make the most of their money or

<sup>37</sup> PPI analysis of WAS wave 4 (2012/2014)

are the safest way to save for retirement (Tables 2.2 and 2.3) and as such would appear to be not as keen to contribute to private pension.

Table 2.1: Proportion of people	expecting	private	pension	to be	the	largest
part of income in retirement <sup>38</sup>						

Expectation of private pension to be the largest part of income in retirement							
	Self-e	Self-employed Employees					
	Men	Men Women Men Women					
Millennials	15%	15%	44%	41%			
Generation X	19%	20%	49%	39%			
Baby Boomers	31%	31%	50%	33%			

Analysis seems to show a heavy reliance on the State Pension for the selfemployed: 82% of women and 81% of men. A third of Millennials do not expect to receive State Pension, however this may be a misperception.<sup>39</sup> Only 5% of recently retired self-employed are not entitled.<sup>40</sup> DWP projections also suggest that less than 1% of people retiring in the 2040's will not be entitled to the State Pension.





The self-employed, and particularly women, tend to expect to rely on income derived from property or support from others. Such support could come from a spouse or, more often in the case of younger generations, from other family members and may include an expectation of future inheritance (Chart 2.4). Men

<sup>38</sup> PPI analysis of WAS wave 4 (2012/2014)

39 GOV.UK (2016)

40 GOV.UK (2017b)

 $<sup>^{\</sup>rm 41}$  PPI analysis of WAS wave 4 (2012/2014)

are more interested in saving for a retirement income than women, in particular at older ages (Chart 2.5).





The older generations, Baby Boomers and Silent Generation, who may have had a previous employed job in their careers, seem to expect some income from private pension, especially if they are male (Chart 2.5).

It is commonly believed that the self-employed will be able to rely on their business to support them in retirement. This however seems to be dispelled by analysis of the attitudes of self-employed people. Approximately 7% of the self-employed expect their business to provide their main income in retirement, and less than 20% expect it to provide any income at all. Many self-employed do not have a business with assets, and professionals' and consultants' intellectual property may be the only asset to their business.

#### **Property wealth**

Property wealth is a combination of the main property, renting out rooms in the main house and the second property, which could be sold or rented out.

While there is a low take up of pension saving amongst the self-employed, they still appear to accumulate wealth at a similar rate to employees. An average self-employed person has £200,000 in property wealth at age 50-54, whereas the average employed person only has £125,000. For the self-employed, property wealth is accumulated at a greater rate than for their employed counterparts (Chart 2.6).

<sup>42</sup> PPI analysis of WAS wave 4 (2012/2014)



The percentile points represent the 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentiles of property wealth within the employed and self-employed populations by age. E.g., the 50<sup>th</sup> percentile refers to the median wealth of the population.

Attitudinally, 53% of the self-employed believe that property will make the most of their money and 43% believe it is the safest way to save for retirement. This is in contrast to pension attitudes, where 18% believes that pensions make the most of their money and 28% believe that it is the safest way to save (Tables 2.2 and 2.3).

Which will make most of your money						
	Self-Employed	Employee				
Pension scheme	18%	32%				
Property	53%	40%				
Financial saving	21%	22%				
Other (includes does not know)	7%	7%				

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Safest way to save for retirement						
Self-Employed Employee						
Pension scheme	28%	52%				
Property	43%	25%				
Financial saving	21%	17%				
Other (includes does not know)	7%	6%				

#### Table 2.3: Attitude towards property of self-employed versus employees<sup>45</sup>

Overall, the self-employed have a more positive perception of property than their employed peers both in terms of its safety and its profitability. In some cases, this may be due to their ability to maximize the potential income of the property through rental and/or via home improvements that add value to it, in particular when individuals may be employed within construction industries.

#### The savings gap between the self-employed and employees

The gap in savings between self-employed and employees is not large across working ages. However when considering three categories: second property, pensions and financial wealth, which are most available to provide for income in retirement, a savings gap becomes more apparent.

As seen at the beginning of this Chapter, it does not matter which generation the self-employed are in, they are more interested in investing in property wealth than their employed peers, and less interested in investing in pension wealth. This applies to both a main residence as well as second or other properties (Table 2.4).

The breakdown of median wealth reflects the proportions of the total wealth within the population. As a result, some of the forms of wealth are concentrated in a small part of the population. Analysis of the clustering from the Wealth and Assets Survey has shown that the pension wealth observed is highly concentrated in a small proportion of individuals who have accumulated occupational pension wealth prior to becoming self-employed.

		Self-employed	Employee	Gap
	Number of people	746,000	10,097,000	
	Median wealth available	24,000	28,000	-16%
Millennials	2 <sup>nd</sup> property*	15%	8%	83%
	Pensions*	69%	76%	-9%
	Financial*	16%	16%	2%
	Number of people	1,442,000	10,605,000	
	Median wealth available	61,000	89,000	-32%
Generation X	2 <sup>nd</sup> property*	25%	9%	178%
	Pensions*	55%	73%	-24%
	Financial*	19%	18%	7%
	Number of people	1,984,000	12,266,000	
	Median wealth available	227,000	266,000	-15%
Baby Boomers	2 <sup>nd</sup> property*	17%	6%	188%
	Pensions*	59%	74%	-20%
	Financial*	23%	20%	16%
	Number of people	865,000	6,234,000	
	Median wealth available	134,000	104,000	28%
Silent Generation	2 <sup>nd</sup> property*	16%	5%	233%
	Pensions*	49%	58%	-16%
	Financial*	35%	37%	-5%

Table 2.4: The gap between self-employed and employed on available wealth<sup>46</sup>

\* '2<sup>nd</sup> property', 'Pensions' and 'Financial' are proportion of the median wealth available

## **Conclusions**

- The self-employed appear to have overall total wealth equivalent to the employed. However, they are less reliant on pension wealth and more reliant on property wealth.
- The self-employed have a more positive perception of property than their employed peers, both in terms of its safety and its profitability.
- There appears to be a 10-year time lag in terms of accumulated pension wealth for the self-employed compared to their employed peers. This reflects the uncertainly of self-employed income and the need for flexible and accessible savings.
- They don't generally believe that their business will support them in retirement; approximately 7% of them expect their business to provide their main income.

# <u>Chapter three: potential long-term saving policies for</u> <u>the self-employed</u>

This Chapter explores how policy alternatives could meet the different needs of various groups within the self-employed labour market. For each policy alternative, its impact is illustrated using case studies.



#### **Policy objectives**

There are different policy objectives to consider, from ensuring an adequate income in retirement, overcoming barriers to saving and providing appropriate safety nets. Any policy would need to:

- Generate better engagement and/or higher levels of saving amongst the self-employed.
- Reflect the varying needs of the different self-employed groups.
- Leverage existing mechanisms/architecture to make implementation more straightforward.
- Be aware of the volatility and fluctuation in self-employed earnings.
- Consider the lower paid or part-time self-employed as well as those who have periods without work.

#### **Policy targets**

This research aims to understand who the self-employed are, what their pensions needs are and how policy may help them to meet their needs. The primary target groups for the policies are the Millennial and Generation X self-employed who have small amounts of wealth and limited pension savings (Chart 2.2, on self-employed side). These people could be eligible for automatic enrolment if employed, or they may already be saving for the future but not into a private pension. These individuals have sufficient time available to make a significant impact to their retirement outcomes through changes to saving behaviour.

Each policy option has its own target groups and gender differences need to be considered.

## **Policy alternatives**

The policy alternatives this report analyses reflect different behavioural features and possible contact points and engagement routes.

## **Behavioural features used:**

- Inertia reflects the successful increase in coverage of workplace pensions through automatic enrolment, the most successful recent policy to increase levels of pension saving;<sup>47</sup>
- Nudges for example, framing pension contributions as a way to reduce tax bills or using an online approach in relation to the tax system;48
- Incentives for example, the bonus paid on Lifetime ISAs.

## **Contact points:**

- Professional Services such as accountants and independent financial advisors;
- Tax system include VAT returns;49
- National Insurance;
- Others self-employed who act as employer of others or contracting companies.

Each of the three policy alternatives is linked with one or more behavioural aspects and contact points, particularly for reaching the more 'precarious' groups (Chart 1.4):

Three policy alternatives

- **1. Defaulting in:** *An automatic enrolment style system for the self-employed*
- **2. Maintaining workplace pensions:** *Transition from workplace pensions when employed to personal pensions when self-employed*
- **3.** Alternative products: Engaging the self-employed with alternative products

Based on a small number of 'typical' self-employment work histories, this report illustrates the potential outcomes for the self-employed under a range of different savings and policy scenarios using the PPI Individual Model.

Individual histories are derived from cluster analysis of the Wealth and Assets (WAS) dataset and reflect age, expected sources of income in retirement, and current income levels in order to illustrate relevant individuals who could be typically representative of the policy scenario considered.

#### **Defaulting in**

The first policy alternative considers leveraging the successful features of automatic enrolment in order to default eligible self-employed people into a pension saving scheme, and requiring a minimum contribution level. This default could apply to sole operators or organisations who employ others who are considered self-employed.

#### Who is the target?

The target of this policy option is people who may wish to rely upon private pension income but have low wealth are not currently saving into a pension. This could include people who say that they are not able to plan for the future or the lifetime self-employed. Many of the self-employed expect to receive private pension income but have not started saving, hence the 10 year lag between this group and the employed (Chart 2.3). Additionally, self-employed attitudes show that saving for retirement is not their highest priority. Leveraging inertia by defaulting them into pension saving sooner, from which they could opt-out, could result in better outcomes.

Under the current automatic enrolment thresholds of £10,000 and aged between 22 and SPa, this could reach approximately 2 million self-employed people, around two-fifths of the total self-employed population. 77% of this group are male, and Generation X represents the biggest generation.

#### What are the issues?

The self-employed population who would be eligible for an automatic enrolment style option are similar to their employed peers. However, the implementation of such an option would need careful consideration.

Usually the employers are the route to assess eligible employees for automatic enrolment. All self-employed should in theory have regular interactions with HMRC. Therefore including pension contributions as part of regular tax returns could provide a possible implementation option.

An automatic enrolment style system for self-employed people would not include an employer contribution which could act as a disincentive and reduce the overall benefit from saving. Some type of matching credits from the Government could act in lieu of employer contributions.

Some self-employed are essentially contractors in large organisations such as Uber or Deliveroo; Taylor in his recent report described them as "*dependent contractors*". In such circumstances, these contracting organisations could act as a route to implementation and potentially even be required to pay an individual's employer contribution.

Lower paid employed individuals who have been automatically enrolled share many traits with the self-employed, such as income volatility and less money available to save. At present, it is not known how volatility of income would impact self-employed opt-out levels. One potential means to address this issue would be careful framing of any policy and its communication to the target group. An alternative proposal which addresses the illiquidity of pension saving and the volatility of income, is the Sidecar. This is an add-on to a conventional pension which would split contributions between a pension pot and a "rainy dars" fund. Next is developing the concert in the LW and intende to trial the product in 2018.<sup>50</sup> PPI analysis has shown a similar approach, whereby restricted fund withdrawal from an automatic enrolment pension would have only a limited impact upon the income in retirement for a low earning individual.<sup>51</sup>

Lower paid and part-time self-employed workers would be excluded unless the earnings trigger and band earnings were removed. Of those self-employed people declaring an income:

- About 1.8 million self-employed have been identified as eligible under current automatic enrolment rules (if they were employed):
  - ➢ 60.5% earn between £10,000 and £25,000;
  - > 24% are Millennials, 42% are Generation X and 34% are Baby Boomers.
- An estimated 1.6 million would be ineligible for automatic enrolment, a third of the total self-employed population. In particular:
  - 1% are ineligible due to being under the lower age limit (under 20 in WAS dataset) of which 94% are male and 6% are female;
  - 21% are ineligible due to being over the upper age limit (over 64 in WAS dataset) of which 75% are male and 25% are female.
  - 87% are ineligible due to earning below the £10,000 income trigger of which 42% are male and 58% are female.
- For over 1 million of the current self-employed population eligibility could not be determined due to gaps in the data (for example undisclosed amounts of earnings) and changes to the population since surveys were undertaken.

These numbers need to be treated as indicative rather than absolute since the age categorisation in the WAS dataset is banded from age 20, to age 64, rather than matching the eligibility criteria of automatic enrolment.

The following case studies illustrate the potential outcome for two different individuals under this policy alternative. The first case study (Case Study 3.1) gives an idea of the potential outcome for a Millennial under the current rules of automatic enrolment.

The individual considered is a single full-time worker, earning above the automatic enrolment threshold. He has no current pension wealth and he has been in the self-employed market for less than 5 years. There are 161,000 individuals matching this description in the cluster analysis of the WAS dataset.

30% of people in this cluster expect the State Pension to be the largest part of their retirement income. 20% expect to have private pension income in retirement, but haven't started saving.

This approach may help initiate private pension saving earlier, or may result in savers who would have otherwise reached pension age without any private pension savings to have an additional source of income in retirement.

The difference between the highest and lowest potential pot sizes equates to a possible private pension income in retirement of around £7,000 per year rather than £3,000 per year in current earnings terms.

This policy scenario could help reduce self-employed people's dependency on the state and reliance on others in retirement. It may help individuals attain a replacement rate target as set out in the Pensions Commissions' report.<sup>52</sup>



52 Pensionission (2004)

<sup>53</sup> PPI analysis of WAS wave 4 (2012/2014)

54 PPI individual Model

The second case study (Case Study 3.2) shows the potential outcome for a female from Generation X who is currently not eligible under the criteria for automatic enrolment, but if the earnings threshold and salary bands were removed, she would become eligible and could start saving immediately.

The individual considered is a part-time worker. Although her earnings are below the automatic enrolment threshold she is expected to make a transition to full-time working later in life at which point her increased income would result in her becoming eligible. If the earnings threshold and salary bands were removed, she would be assumed to start saving immediately rather than waiting until she works full-time. There are 117,000 individuals in this cluster from the WAS analysis.

40% of this cluster expect the State Pension to be the largest part of their retirement income. However, 30% expect to have private pension income in retirement, but haven't started saving.

The difference between the highest and lowest potential pot sizes equates to a possible income in retirement of around  $\pounds 2,000$  per year instead of  $\pounds 500$  per year.

This policy scenario could enable the self-employed to generate income from a private pension and could remove or reduce their reliance upon the State Pension, providing them with greater autonomy in retirement.



## Maintaining workplace pensions

The second policy alternative maintains contributions into a workplace pension when an individual leaves the workplace to become self-employed. This focusses on those who become self-employed after participating in some form of workplace pension saving. As part of this transition, there would be a loss of employer contributions into the pension scheme and a workplace pension would have to be converted into a personal pension.

## Who is the target?

This option targets the self-employed who were automatically enrolled in a previous job and those with other forms of workplace pension. As automatic enrolment reaches the end of the employer staging process this will reach all those who have been in employment subject to eligibility criteria.

The self-employed are less likely to favour compulsion and generally less reliant on pensions (Chart 2.3) but it is likely that individuals who have been exposed to pensions in the past may value them more, and may therefore be more amenable to continuing saving into a pension.

This alternative could possibly reach 0.5 million people typically from the Millennials and Generation X.

#### What are the issues?

There would have to be a mechanism to enable the self-employed to continue saving into an existing pension scheme.

This option assumes the loss of the employer contributions, giving several options for self-employed people:

- Continue contributing at their employed level, with a resulting lower level of total contributions.
- Increase personal contributions to or above the level of the previous combined contributions.
- Become eligible for "government credits" (if available) provided to the selfemployed in lieu of employer contributions.

Challenges for implementation would be:

- The financial ability for self-employed individuals to continue to save into a workplace pension.
- The timing of the intervention; reaching individuals as they transition directly would be easier than if they have a career break between the two jobs.
- The process of converting the workplace pension into a personal pension.

The following case studies show two potential outcomes for different individuals under this policy alternative. The first case study (Case Study 3.3) gives an idea of the potential outcome for a Generation X who has a pot from previous enrolment in a workplace pension.

This individual is a full-time worker, married and has already saved into a pension throughout his working life, probably as an employee. There are 104,000 individuals in this cluster from the WAS analysis.

People in the same cluster have some pension wealth, around a third believe that this is the safest way to save, but only 25% believe it will provide the largest part of their income. 80% of them are saving for unexpected expenditures or a rainy day and don't believe they are saving enough for retirement.

This policy scenario could help them to keep resulting in access to a bigger pot at retirement.



Case Study 3.357,58

The second case study (Case Study 3.4) shows the potential outcome for a Baby Boomer who has already accumulated savings for retirement in a pension pot and continues contributing at a typical Defined Contribution rate of 8%.

This individual is a full-time worker, married and represents a self-employed worker who has accumulated private pension throughout his working life. He reached the age of 55 with a pension pot of £236,500. There are 234,000 individuals in this cluster from the WAS analysis.

Self-employed people in this cluster have some pension wealth, a third believe that this is the safest way to save and just over half believe it will provide the largest part of their income.

This policy scenario could help self-employed people who believe pensions will provide them with their retirement income to continue contributing and increase their pot size.



<sup>59</sup> PPI analysis of WAS wave 4 (2012/2014)
 <sup>60</sup> PPI individual Model

## Alternative products

The third policy option is to engage self-employed with products which are not necessarily pension schemes but designed to support long-term saving.

The availability of products, such as the recently introduced Lifetime ISA (LISA), offers an alternative to the self-employed so they may participate in longer-term savings outside of the pensions system. We have modelled outcomes based upon three different products currently on the market and available to the self-employed.

- A personal pension: This offers tax advantages to the saver through tax relief on contributions and a potential reduction in marginal tax rate in retirement. However, the savings are not accessible until age 55.
- The Individual Savings Account (ISA): This offers tax advantages upon investment return, however contributions are based upon taxed income. The savings are accessible at all times.
- The Lifetime ISA (LISA): The 25% bonus on contributions acts in a similar way to tax relief on pension contributions. The structure of the LISA doesn't require a regular commitment from the saver, however there are restrictions around eligibility for the bonus and access to the funds without penalty.<sup>61</sup>

#### Who is the target?

The target of this policy is the self-employed who can afford and wish to save. They may already be saving but not into pensions or other long-term savings products. To increase saving through such products will require an increase in engagement and will need to recognise the flexibility that is demanded to meet the financial concerns of the self-employed.

Potentially over 1 million self-employed are currently saving into financial products such as ISAs and savings accounts (Chart 3.1). Almost half of them are Baby Boomers, around State Pension age, and are likely to have already thought about their future income in retirement.



#### What are the issues?

Many products already exist to enable longer term saving, such as ISA and LISA, however, there are some specific aspects that would need to be considered if they were to be promoted as a pension alternative for self-employed people.

- Charges: Default pension funds have capped charges and are subject to regulation including the transparency of charges, whereas products such as LISAs do not.
- Eligibility: LISAs are only available to those under age 40. With many people turning to self-employment later in life, it will not be an appropriate savings vehicle for them. ISAs are open to all adults.
- Accessibility: Income volatility not only hits the self-employed when business is tough, but also when they or their family experience certain life events. The self-employed are financially worse off if they fall ill as they are not entitled to sick pay, and they also run the risk of not earning in the event that they assume caring responsibilities.<sup>62</sup>
- Investments: 77% of ISA accounts are subscribed to in cash<sup>63</sup> which provides returns that are less compatible with most long-term savings ambitions.

Having less certainty over future earnings may also make the self-employed reluctant to lock money away into long-term savings and investment products that cannot be easily accessed. LISAs cannot be accessed without incurring a

<sup>62</sup> FSB (2016) <sup>63</sup> GOV.UK (2017a) penalty before age 60 (unless using the savings for house purchase as a first time buyer) whereas Defined Contribution pension funds can be accessed from age 55 without penalty.

Concerns about income certainty, resulting from factors such as continuity of business or the potential of illness, could potentially be mitigated through additional financial products such as income protection. However, this approach would increase the complexity of the financial decision and reduce the potential investment level available for long-term savings.

Saving products which may be used for both short and long-term saving, such as LISAs, are likely to involve relatively cautious investment strategies in order to preserve capital for short-term saving ambitions. This could result in lower returns and lower pot sizes in the long-term for those using products in lieu of a pension.

The following case study (Case Study 3.5) gives an idea of the potential outcomes for a Millennial under different saving options.

The individual considered is a full-time young worker who has been chosen to illustrate the impact of life-long savings. Being single, she is unlikely to be able to rely upon financial support from a partner to help with income volatility.

This case study aims to understand what could happen if people with same profile would start saving with three alternative products: *personal pension*, *ISA*, *LISA*.



As the contributions are consistent across the alternative products, the difference in funds is dependent on the products rules and investment return net of charges (Chart 3.2).

The accessibility of these savings may influence saver behaviour. A personal pension will yield the largest fund at retirement age for self-employed who start to save at age 25, however this is not accessible until age 55 and therefore may not be as attractive. With a LISA, there is a bonus, and they can access their savings before retirement with some penalty or after age 60 with no penalty. With an ISA, they have no access limits at all and the chance to use their money when needed.





The three alternative products focus on groups most at risk of having insufficient income in retirement. It should be noted that these options are not mutually exclusive and there is overlap between the applicable groups (Chart 3.3). Self-employed people who are eligible for automatic enrolment could also be attracted by alternative products, as well as people who are keen to maintain their workplace pension. There will also be self-employed people who could be 'categorised' under all the three alternatives.



#### **Conclusions**

- Due to the heterogeneity within the self-employed, different policy options will need to be considered to cover a reasonable proportion of the selfemployed.
- Not all the self-employed population need to be reached, for example people with high levels of income who have already saved or have plans for saving an adequate amount of money for retirement.
- Any policy needs to address the savings concerns of the self-employed; the need to access savings during periods of lower or no income, and flexibility of products to accommodate variable income levels.
- There are a number of challenges to be addressed to implement the different policy options. This need to be done in a wider context, considering other changes that are occurring which will impact the likely success of such policies, for example:
  - The Taylor review conclusions that may impact employment status;
  - Ongoing work by the ABI to make transfers quicker and easier between schemes;
  - Sidecar saving proposals.

<sup>&</sup>lt;sup>67</sup> PPI analysis of WAS wave 4 (2012/2014)

# Appendix one: modelling

## The Individual Model

The Individual Model is the PPI's tool for modelling illustrative individual's income during retirement. It can model income for different individuals under current policy, or look at how an individual's income would be affected by policy changes. This income includes benefits from the State Pension system and private pension arrangements, and can also include income from earnings and equity release. It is useful to see how changes in policy can affect individuals' incomes in the future.

This model can be used in conjunction with economic stochastic scenarios derived from the PPI's economic scenario generator to produce stochastic output.

#### Key results

The key output from the model is the built-up pension wealth and entitlement over the course of the individual's work history and the post-retirement income that results from this.

The post-retirement income is presented as projected cashflows from retirement over the future lifespan of the individual. These are annual cashflows which include the following key items:

- State Pension
  - Reflects entitlement and the projected benefit level of State Pension components.
- Private pension
  - Derived from the decumulation of the pension pot, allowing for tax-free cash lump sum and the chosen decumulation style (e.g. annuity or drawdown).
- Other state benefits
  - Other benefits contributing to post-retirement income such as pension credit.
- Tax
  - Tax payable on the post-retirement income, to understand the net income available to the individual.

These cashflows are calculated as nominal amounts and restated in current earnings terms.

Outcomes are expressed in current earnings terms for two reasons; it improves the comprehension of the results and reduces the liability of either overly optimistic or cautious economic assumptions.

#### **Application of output**

The model is best used to compare outcomes between different individuals, policy options, or other scenarios. The results are best used in conjunction with an appropriate counterfactual to illustrate the variables under test.

#### Key data sources

The specification of a model run is based upon three areas:

#### 1. The individual

The individual to be modelled is specified based upon an earnings and career profile. Saving behaviour for private pension accumulation is considered, as well as the behaviour at retirement.

These are generally parameterised according to the project in question, designed to create vignettes to highlight representative individuals of the groups under investigation.

#### 2. The policy options

The policy option maps the pension framework in which the individual exists. It can accommodate the current system and alternatives derived through parameterisation. This allows flexing of the current system to consider potential policy options to assess their impact upon individuals under investigation.

This area has the scope to consider the build-up of pensions in their framework such as the auto-enrolment regulations for private pensions and the qualification for entitlement to state benefits.

The framework in retirement allows for the tax treatment and decumulation options taken by the individual as well as other sources of state benefits which influence the post-retirement outcomes for individuals.

#### 3. Economic assumptions and scenarios

The model is capable of running with either deterministic or stochastic economic assumptions.

The deterministic assumptions used are generally taken from the Office of Budget Responsibility (OBR) Economic and Fiscal Outlook (EFO) to ensure consistency. They cover both historical data and future projected values. Alternatively, the model can be used in conjunction with the PPI's Economic Scenario Generator (ESG) to produce a distribution of outputs based upon potential future economic conditions.

#### Summary of modelling approach

The model projects the pension features of the individual, both in accumulation (pre-retirement) and decumulation (post-retirement) phases.

It projects the pre-retirement features of the individual through the accumulation of pension entitlement, both state benefits and occupational Defined Benefit schemes.

This is done through the modelling of the career history of the individual, deriving pension contributions and entitlement from the projected earnings profile.

The entitlement to and the level of state benefits are projected such that from retirement, their contribution to the income of the individual can be calculated. Private pension income is modelled and assumes a decision about the behaviour of the individual at retirement. This allows for the chosen decumulation path of any accrued private pension wealth.

**Limitations of Model** 

The results produced by the model do not represent an actual individual and are not suitable to use as an illustration for the outcome of a particular real individual. It is important to consider an appropriate counterfactual to make an appropriate comparison.

The results from this model cannot simply be aggregated up to provide a population level result, as there is no distribution of individuals calculated. As such, it would require a considerable number of individuals to be run to understand results at a population level as well as having an appropriate knowledge of the distribution of individuals within that population.

## Material limitations of modelling

#### a) Methodology

The behaviour of the individual is set deterministically, and may not reflect the behaviour demonstrated by an actual individual. Furthermore, it only illustrates one particular pathway that an individual may take and cannot give a distribution of potential outcomes around the behaviour of the individual.

## b) Reliance upon data or assumptions

The individuals modelled may not be representative of a particular group of individuals. This is due to the issues surrounding finding appropriate career histories that are representative, as data upon entitlement to state pension is not readily available and it is complex to define a career history that includes periods out of work and part-time working. For this reason the individuals modelled should be considered vignettes rather than truly representative.

The model is dependent upon the legislative framework assumed to be in place. This remains constant and does not reflect the potential whim of future governments as this distracts from the comparisons being made.

The dependence of the results upon economic assumptions is mitigated through the reporting of results in current earnings terms. For this reason, it is important that all assumptions used are consistent as so that results which in nominal terms may have significant margins of uncertainty can be used comparatively in an effective manner.

## c) Suitability of output for other purposes

The modelling has been used as a basis for sections of others of the PPI's models as it provides a robust modelling of the pensions framework in the UK.

The model also tracks some parts of the wealth of the individual where it will influence either pension or benefit income post-retirement.

To model a larger number of individuals the PPI's dynamic model has the capacity to project the population from the English Longitudinal Study of Aging ELSA which results in a distribution of outcomes.

The functionality is based upon the UK pensions system, however it could potentially be extended to allow for the pensions framework of other countries.

## Appendix two: cluster analysis

In order to look for trends and identify the key variable to use in the cluster analysis, it is important to get to know the self-employed population before performing this kind analysis.

#### **Clustering explanation**

The cluster analysis or clustering is the task of grouping a set of objects in such a way that objects in the same group (called a cluster) are more similar to each other than to those in other groups. It is a main task of exploratory data mining, and a common technique for statistical data analysis, used in many field.

Cluster analysis itself is not one specific algorithm, but the general task to be solved. It can be achieved by various algorithms that differ significantly in their notion of what constitutes a cluster and how to efficiently find them. In this report, this has been performed by the TwoStep cluster analysis using SPSS.

#### TwoStep cluster analysis

The TwoStep Cluster Analysis procedure is an exploratory tool designed to reveal natural groupings (or clusters) within a dataset that would otherwise not be apparent. The algorithm employed by this procedure has several desirable features that differentiate it from traditional clustering techniques:<sup>68</sup>

- Handling of categorical and continuous variables by assuming variables to be independent, a joint multinomial-normal distribution can be placed on categorical and continuous variables.
- Automatic selection of number of clusters by comparing the values of a modelchoice criterion across different clustering solutions, the procedure can automatically determine the optimal number of clusters.
- Scalability by constructing a cluster features (CF) tree that summarizes the records, the TwoStep algorithm allows you to analyse large data files.

The distance measure used to determine how the similarity between two clusters is computed is the Log-likelihood. The likelihood measure places a probability distribution on the variables. Continuous variables are assumed to be normally distributed, while categorical variables are assumed to be multinomial. All variables are assumed to be independent.

#### Number of Clusters

The number of clusters has been determined automatically. This procedure will automatically determine the "best" number of clusters, using the criterion specified in the clustering criterion group. The clustering criterion is an automatic clustering algorithm which determines the number of clusters. For this cluster analysis, the Bayesian Information Criterion (BIC) has been used.

The clustering is a subjective analysis and there is no "right" answer, but more reasonable ones in relation to specific criterions. There has been various iterations through combinations to improve the clustering and refine the significance of the variables.

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# Appendix three: wealth accumulated

Chapter two considered the saving of the self-employed; how and where they are saving for the future and in particular for retirement, highlighting the main sources of wealth.

This appendix provides some additional charts to look at all of the sources of wealth and leads to the comparison between the self-employed and their employed peers based on the median values.

Each chart shows the percentiles of the distribution for the self-employed population, where the median value (darker) is in the middle and the different shades becoming lighter going to the edges (10<sup>th</sup> and 90<sup>th</sup> percentile).





<sup>70</sup> PPI analysis of WAS wave 4 (2012/2014) <sup>71</sup> PPI analysis of WAS wave 4 (2012/2014)



<sup>72</sup> PPI analysis of WAS wave 4 (2012/2014)
 <sup>73</sup> PPI analysis of WAS wave 4 (2012/2014)



<sup>74</sup> PPI analysis of WAS wave 4 (2012/2014)

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