

what if? Technical paper

Who Would Buy an
Annuity? An empirical
investigation

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W W W . W A T S O N W Y A T T . C O M

Abstract

The debate around annuity compulsion and proposed pension reforms provides an appropriate context for exploring consumer attitudes to annuitisation. A substantial sample of those approaching or just into retirement were polled as to willingness to annuitise and preferred timing. Questions allowed choices between lump sums and annuities which increased with age of inception. Results were analysed according to the characteristics of respondents. A majority emerged against annuitisation and among those that were willing to annuitise, there were more preferences for doing so at younger ages. Those with poorer education, incomes or health were more likely to be opposed to annuitisation. Some policy issues and areas for future research were identified.

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Recent work has included development of vehicles for defined contribution pensions, market entry studies for pension markets in continental Europe and innovative annuity design. He co-authored an award winning paper 'Reinventing Annuities' published in January 2001 in the UK, and subsequent publications include 'The Future of the Pension Annuity Market' prepared for the Association of British Insurers in the UK and 'A Conceptual Framework for Retirement Products: Risk Sharing Arrangements between Providers and Retirees' (jointly written with the World Bank). He has been a member of the partnership board of Watson Wyatt LLP and is a non executive director of 2 retail financial services companies. He is a graduate of Oxford University and a Fellow of the Institute of Actuaries.



1 The great annuity puzzle

1.1 Much interesting work has been undertaken by economists to understand or rationalise the annuity ‘puzzle’. The puzzle is that in financial markets where annuity purchase is not mandatory, volumes written appear relatively small compared with the predictions of many of the models. The United Kingdom, as a consequence of the requirement to purchase an annuity with the main part of the proceeds from a ‘money purchase’ pension [where contributions are accumulated in an account prior to drawing the proceeds], is the largest annuity market in the world with current annual volumes of around £8 billion increasing by around 10% pa. Within the UK, there has been vociferous criticism of the compulsory purchase obligation and, arguably as a result, some modest softening of the requirement is emerging in Government proposals for

pension tax reform effective from April 2005.

1.2 In this context, the authors decided that it would be interesting to explore attitudes to annuitisation among those individuals in the UK approaching retirement and consumer research was carried out by the YouGov polling agency during October/November 2003.

The key characteristics of the sample were:

Respondents : 3511
Age range : 50 – 64
Economic status : 56% (working), 33% (fully or semi retired), 11% (out of work)

1.3 The aim of the research was to explore annuity preferences given the following choices:

- *Annuity versus lump sum* – the first set of questions offered



individuals a choice between buying an annuity or retaining a lump sum; the second set offered the same individuals the possibility of buying an annuity with 50% of their funds (and retaining the remainder) or simply keeping

100% of the fund as a lump sum.

- *For those electing to take annuities* – we examined at what age it was attractive to purchase an annuity (60, 65, 70 and 75) with annuity rates rising ‘realistically’ with age.

2 Key results

2.1 These were:

- Just over half the sample would, given the option, never annuitise. This outcome applied:
 - whether the option was based on 100% annuitisation or allowed only partial (50%) annuitisation
 - independent of whether the individual’s major pension provision was defined contribution or not.
- By far the dominant reason for preferring not to annuitise was a preference for flexibility. General qualitative responses also suggested a significant lack of trust/confidence in insurance companies and financial institutions more generally.
- Amongst those who would choose to annuitise, there was, on balance, a preference for annuitising earlier rather than later, the ratio being approximately 3:2 in favour of annuitising earlier.
- Factors showing a strong relationship with willingness to annuitise included:

- health (those in good health are more likely to annuitise)
- education (more likely to annuitise with higher attainment)
- household size (less likely to annuitise as household size increases)
- income (higher earners are more likely to annuitise)
- major pension provision is defined contribution or personal pension (more likely to annuitise).

3 Data and results in more detail

3.1 The instructions to respondents and the annuity questionnaire are set out in Appendix 1.

3.2 A description of the data is given in Appendix 2.

3.3 A choice was offered in relation to retirement savings, of either buying an annuity or retaining an interest earning lump sum - results are summarised in Figure 1.

The chart shows the dominance of the ‘Never annuitise’ group and for

those that are willing to annuitise a preference, on balance, for earlier rather than later annuitisation. We had expected that the improved rates of conversion, of funds into income, at later ages would have persuaded consumers to defer annuity purchase. However, these responses may indicate a concern over loss of value on premature death. Some respondents were indifferent as to the age of annuitisation (‘Always annuitise’ in the chart). Results for each age at which respondents were

allowed to annuitise are given in Appendix 3 with the response of those with defined contribution pensions identified explicitly.

3.4 Results where the option was to annuitise half the retirement funds are given in Appendix 4. Again there is a majority for never annuitising and among those that do annuitise to do so at earlier rather than later ages although some outcomes are slightly weaker than with the 100%/nil choice.

3.5 The proportions willing to annuities at any age are shown below for the 100% and 50% annuitisation options respectively. Perhaps surprisingly there is no substantive difference (Figure 2).

There is also relatively little difference in attitudes by respondents main pension type, with the greatest hostility to annuitising among those with no private pension (Table 1).

Figure 1: Willingness to annuities.

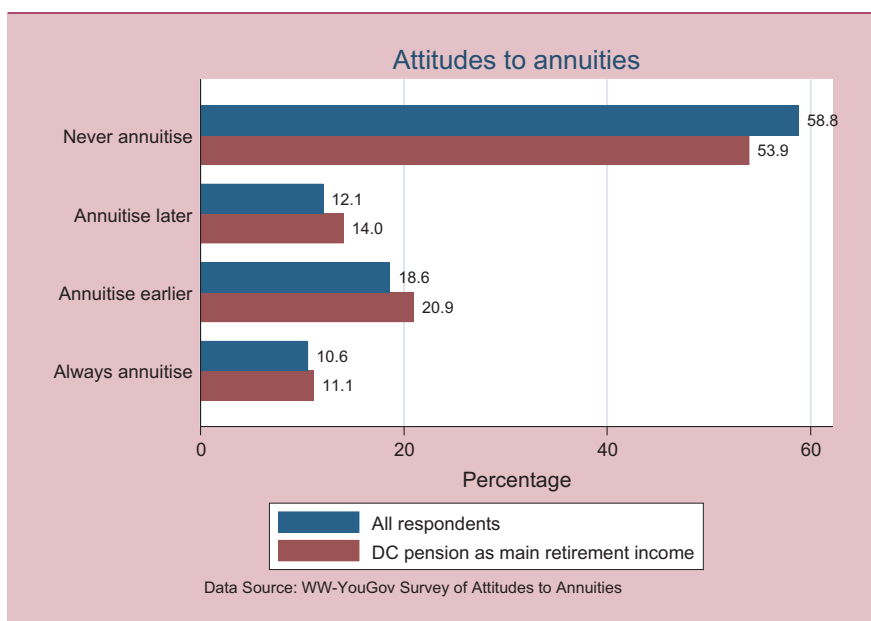




Figure 2: Willingness to annuities at any age?

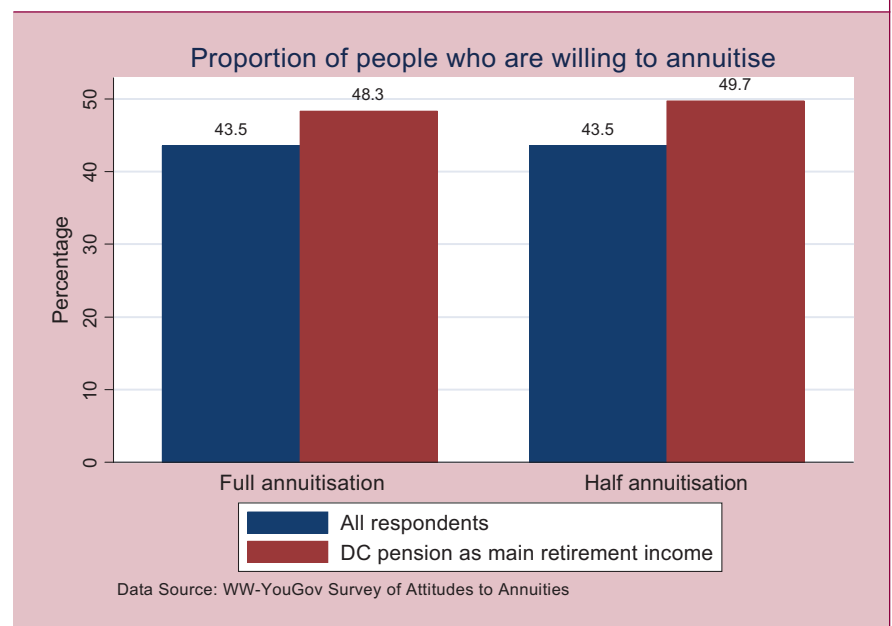


Table 1: Percentage of respondents who are ever willing to annuities (full fund)?

By main pension type

| Ever willing to annuities | DB pension | DC pension | Personal pension | No private Pension |
|------------------------------|------------|------------|------------------|--------------------|
| Yes | 43.8 | 46.3 | 49.4 | 37.8 |
| No | 56.2 | 53.7 | 50.6 | 62.2 |
| Total number of observations | 1,553 | 354 | 617 | 603 |

3.6 Characteristics affecting willingness to annuities were investigated and the observed relationships included:

- not material:
 - age
- negative:
 - larger household size
- positive:
 - health
 - education
 - household income
 - patience
 - reliance on defined contribution/personal pensions
 - an annuitant within the household (for those with defined contribution/personal pensions).

(See Charts in Appendix 5.)

3.7 For those that would annuities, income unsurprisingly had a material influence on timing – later annuitisation increased with income (Table 2).

3.8 Reasons given by those who would never annuities, for not wanting to do so, are shown in Table 3.

These reasons for not annuitising are analysed by education level and time preference in Appendix 6.

A selection (not necessarily representative) of quotations given in response to these questions, ie

Table 2: Percentage of respondents who annuitise at a given age (half fund)*
By household income level

| When annuitise | <£20,000 pa | £20-30,000 pa | £30-50,000 pa | £50,000 pa or more |
|-------------------------------------|-------------|---------------|---------------|--------------------|
| 60 | 36.0 | 33.8 | 23.4 | 21.1 |
| 65 | 26.1 | 29.6 | 27.2 | 26.7 |
| 70 | 19.6 | 22.0 | 26.6 | 28.0 |
| 75 | 18.4 | 14.6 | 22.8 | 24.1 |
| Total number of observations | 353 | 287 | 368 | 232 |

* Note only those individuals willing to annuitise (half fund).

Table 3: Reasons why never annuitise

| Reason why not annuitise? | Percentage |
|------------------------------|------------|
| Would like flexibility | 74.0 |
| Could do better myself | 45.9 |
| Income too low | 45.4 |
| Bequest motive | 38.3 |
| Not live long enough | 36.8 |
| Other | 5.0 |
| Did not understand questions | 2.0 |

* Note only those individuals willing to annuitise (full fund).

reasons for not annuitising, is given in Appendix 7. These qualitative responses suggest that there may be a material level of distrust of insurance companies and financial institutions in general. This is an interesting area for further investigation, as high levels of distrust would have implications for the acceptability of a policy of mandatory annuitisation.

3.9 Appendices 8-15 provide summaries of the results of regression analysis as follows:

- willingness to annuities
 - all respondents (8)
 - respondents whose main pension is DC (9)
- timing of annuitising (100%, nil choice)

- all respondents (10)
- respondents whose main pension is DC (11)
- timing of annuitising (50%, 50% choice)
- all respondents (12)
- respondents whose main pension is DC (13)
- why not annuities
- all respondents (14)
- respondents whose main pension is DC (15).

Stronger relationships identified in each regression have been highlighted.

4 Conclusions

4.1 Based on this research, there appears to be a substantial core of potential retirees that are hostile to annuities. The hostility appears to reflect a combination of:

- dislike of the annuity proposition
- distrust of the institutions issuing annuities.

4.2 Some of the hostility may reflect misunderstanding and if so, an appropriate policy response would include consumer education. However, dislike of the proposition seems to reflect a low regard for the positive features of annuities (security and sustainability of income) with concerns about possible weaknesses (loss of flexibility and exposure to loss of value on early death). It is possible that research among older lives would identify a more sympathetic audience for the product and this would be a suitable area for further investigation. In addition, market and regulatory

changes may meet some of the objections identified in this research. For example, growth in the availability of annuities whose rates reflect longevity that varies with the characteristics of consumers may meet the requirements of at least some of those with poorer life expectations, through such factors as health, lifestyle or location. Regulatory change in the form of greater flexibility for forms of retirement income and capital protection, as in the Government proposals for simplifying the taxation of pensions, may also help. This research could be repeated in the future to assess the impact of such changes.

4.3 However:

- opposition to annuitisation is remarkably consistent across the various characteristics measured
- to the extent that there are differences, the strongest opposition appears to

be focused on those in lower income/education/health groups which are potentially most exposed to a poor deal when pooling life risk with others

- if rating in the free market becomes more precise so as to link characteristics and longevity, the terms for annuities for higher income/education/health groups are likely to deteriorate, perhaps increasing the level of opposition in these groups.

Consequently it seems likely that popular pressure for movement towards a less prescriptive regime for the proceeds of pension savings will continue. A justification sometimes advanced for prescription is the favourable tax treatment of pension savings. It may be that a useful further area for investigation is the extent to which those seeking reduced prescription would be willing to accept reduced tax privileges.

Appendix

Appendix 1 The Annuity Questions

In the following sections we pose a few hypothetical situations and ask you make a choice based on your understanding of these situations.

The next hypothetical situation concerns retirement options. We ask that you make a choice between buying a pension income for the rest of your life, or living off your retirement savings.

Please read all of the introductory information - you can only answer each question having read this.

Imagine that by the time you retire you have saved £100,000. With this £100,000 you face a choice:

(A) Save the £100,000 and earn interest on it (e.g. £5,000 per year) from a savings account. However, using part of your savings will reduce the interest you could earn in the future (in proportion to the amount of savings you use).

If, for example, you spend half of the £100,000, interest on the remaining £50,000 will be reduced to £2,500 each year.

Should you live for a long time and you spend most of your £100,000 savings, your retirement income will be reduced. Without other sources

of income you would be reliant on the State pension, currently £77.45 per week for a single person with full entitlement.

Alternatively, if you have money left over when you die, this would be passed to your family or friends according to your choice as an inheritance. This may be taxed, especially if you plan to leave your house as an inheritance as well. Inheritance tax is currently 40%.

(B) You can spend this £100,000 and purchase a product (an annuity) that pays you a fixed sum each year until you die (e.g. £7,000 per year).

If you live for a long time after retirement you the total amount of income you receive from the annuity will be MORE than its original cost (£100,000).

However, if you live for only a short time the total amount of income you receive from the annuity will be LESS than its original cost (£100,000). In this case the remaining money cannot be passed on to family or friends as an inheritance.

All respondents

1. Bearing in mind the information above, if you were faced with the following choice at age 60 which of the following do you think you would choose:

- (a) Exchange £100,000 for a fixed income each year of £6,500
- (b) Keep the £100,000 to live off in retirement
- (c) Don't know

All respondents

2. And if you retired at age 65, which of the following do you think you would choose?

- (a) Exchange £100,000 for a fixed income each year of £7,500
- (b) Keep the £100,000 to live off for the rest of retirement
- (c) Don't know

All respondents

3. And if you retired at age 70, which of the following do you think you would choose?

- (a) Exchange £100,000 for a fixed income each year of £9,000
- (b) Keep the £100,000 to live off for the rest of retirement
- (c) Don't know

All respondents

4. And if you retired at age 75, which of the following do you think you would choose?

- (a) Exchange £100,000 for a fixed income each year of £11,000
- (b) Keep the £100,000 to live off for the rest of retirement
- (c) Don't know

Respondents who answer “keep the £100,000” in each of the questions above

5. For which of the following reasons would you prefer to keep the £100,000 and not buy an annuity? (Please tick all that apply)

- (a) I do not think the income I would receive each year is sufficiently high
- (b) I think I could do better by investing the money myself
- (c) I do not think I would live long enough for it to be worthwhile
- (d) I would like the flexibility of keeping the £100,000
- (e) I would prefer to keep some money to leave to my family, friends, etc
- (f) I did not understand the choices well enough to make a decision
- (g) Other (Please specify)

All respondents

6. Of the following, which do you think you would you be most likely to choose?

- (a) At age 60, exchange £50,000 for a fixed income of £3,250 for every remaining year of life and keep the remaining £50,000 as a lump sum
- (b) At age 65, exchange £50,000 for a fixed income of £3,750 for every remaining year of life and keep the remaining £50,000 as a lump sum

(c) At age 70, exchange £50,000 for a fixed income of £4,500 for every remaining year of life and keep the remaining £50,000 as a lump sum

(d) At age 75, exchange £50,000 for a fixed income of £5,500 for every remaining year of life and keep the remaining £50,000 as a lump sum

(e) Would never want to buy an annuity - would keep the entire £100,000 as a lump sum

(f) Don't know

Appendix 2 Annuity survey

The data This study uses data from an especially commissioned survey that was carried over a two-week period spanning the end of October and the start of November 2003. The fieldwork was conducted via a web-based survey using the YouGov polling agency. This organisation has an active pool of respondents numbering nearly 60,000, for whom various demographic and economic status data are known. The current active pool includes approximately: 30,000 men and 28,000 women; and 16,800 individuals aged 18-29, 20,000 individuals aged 30-44, 12,200 individuals aged 44-59, and 4,400 individuals aged 60 or over.

In studying individuals' attitudes to annuities we focussed on individuals close to the retirement window, either nearing retirement or in the early stages of retirement, who are likely to be most relevant for the

annuity market over the next 10 years. We then restricted attention to individuals aged 50 to 64. A total of 3,511 productive interviews with individuals in this age range were obtained.

Of the survey participants 56 percent were observed to be working, 33 percent were retired or semi-retired (where an individual is retired from their main employment but are now working part-time) and 11 percent reported that they were not retired but were also not working. With regards pension provision, 20 percent had no private pension, and were hence relying on the state for their income in retirement, 45 percent reported they had one private pension, 23 percent two private pensions, 9 percent three, and 4 percent four or more. When we instead examine just the main source of pension income in retirement, again 20 percent had no private pension, with 50 percent relying on an employer defined benefit (DB) pension as their main source of retirement income, and 30 percent relied on a defined contribution pension. (Of which 11 percent were employer DC pensions and 19 percent money purchase or personal pensions.)

The survey also included questions regarding: demographics and economic status (for both the individual respondent and their spouse), health status, subjective discount rates (how patient individuals are with respect to the

receipt of money), whether the individuals have recently seen an IFA, and household income. These responses were matched to pre-existing data on individual characteristics.

The annuity questions are listed in Appendix 1. These questions examine individuals willingness to annuitise a hypothetical sum of £100,000 at various ages. For those who are never willing to annuitise this sum, we then ask for reasons. Finally, we then examine whether being able to partially annuitise (here 50 percent of the fund) affects the incidence of annuitisation. To be clear, we have focussed on a hypothetical question, with a hypothetical fund value and, in this situation, we allow individuals to draw down on their fund indefinitely and never annuitise (ignoring mandatory annuitisation at age 75). In doing so we attempt to elicit preferences over annuities. We also

pursue the analysis for all individuals, rather than just examining the attitudes of those who are likely to annuitise in the future. This more general examination of attitudes to annuities was motivated by a number of factors. First, as the pension world shifts to DC products the pool of annuitants will expand to incorporate groups of workers who may previously have had DB pensions. Secondly, within this age bracket, those with DC pensions are likely to be a self-selected group, who are more comfortable with risk and investment decision making, so examining the general population may provide a better representation of the prevailing view of the annuity proposition. The approach in this paper is then to pursue two analyses, one, for those individuals whose main pension income is likely to derive from a DC product, who are likely to enter the annuity market in the near future, and, two, for the general population.

A potential weakness of this study is that we do not know the amounts individuals have saved or their other wealth¹, though we do observe some information with regards, income, education, and pension status that may allow us to infer the influence of wealth. Nor do we know the split between pension and non-pension investments, or the division in asset allocations between equities and bonds. Nevertheless, the analysis has the advantages that it is relatively easy for people to understand and comprehend, facilitating more accurate responses and less question non-response. The questions are obviously subjective and individuals may evaluate their responses in very different ways, with differing degrees of certainty. However, such issues will only bias estimates if individuals systematically respond in different ways, for unobserved reasons, and it remains difficult to see how these issues can be tackled in other ways.

Appendix 3 Percentage of respondents who would annuities at various ages?

All respondents

| Annuitise £100,000 | Age 60 | Age 65 | Age 70 | Age 75 |
|------------------------------|--------|--------|--------|--------|
| Yes | 26.1 | 25.6 | 21.8 | 21.8 |
| No | 63.5 | 65.9 | 71.3 | 72.0 |
| Don't know | 10.4 | 8.5 | 6.9 | 6.2 |
| Total number of observations | 3,505 | 3,505 | 3,505 | 3,505 |

¹ Previous experience suggested non-response, and errors, with regards these questions would be high.

Percentage of respondents who would annuities at various ages?

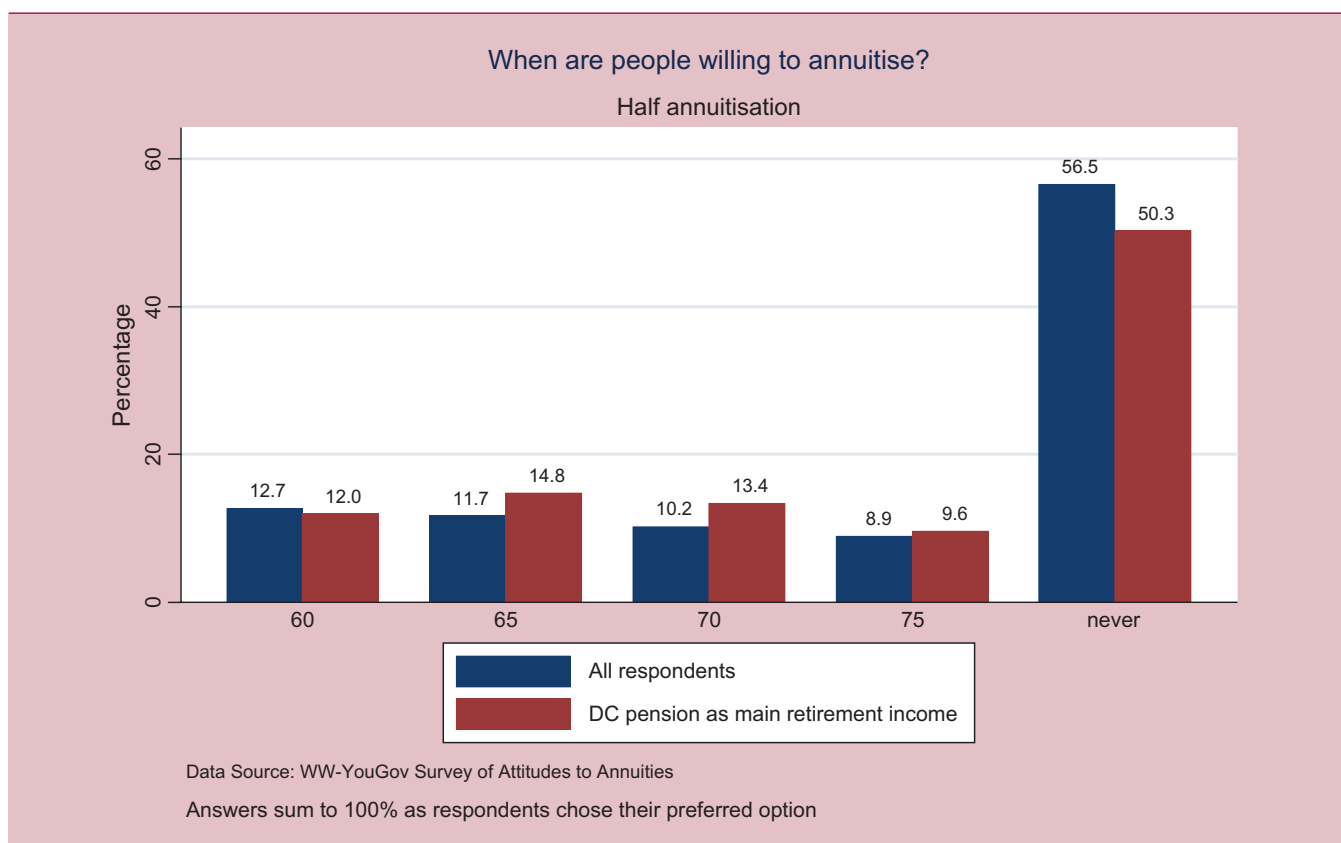
Those with DC pensions as main source of retirement income

| Annuitise £100,000 | Age 60 | Age 65 | Age 70 | Age 75 |
|------------------------------|--------|--------|--------|--------|
| Yes | 29.3 | 28.0 | 24.1 | 24.7 |
| No | 61.2 | 64.4 | 70.2 | 70.7 |
| Don't know | 9.6 | 7.7 | 5.8 | 4.7 |
| Total number of observations | 1,005 | 1,005 | 1,005 | 1,005 |

Note: Respondents could elect to annuitise at more than one age.

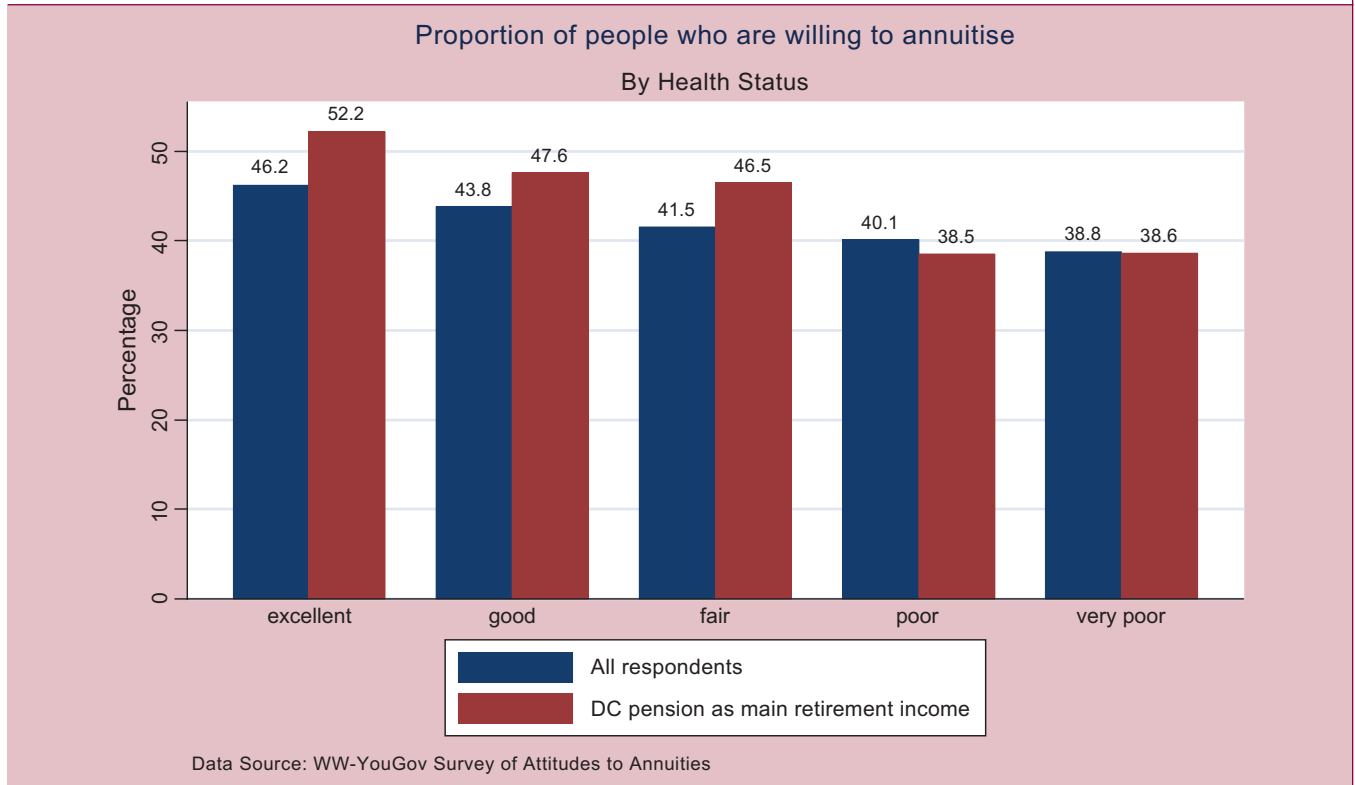
Appendix 4

Willingness to annuitise at various ages – half fund?

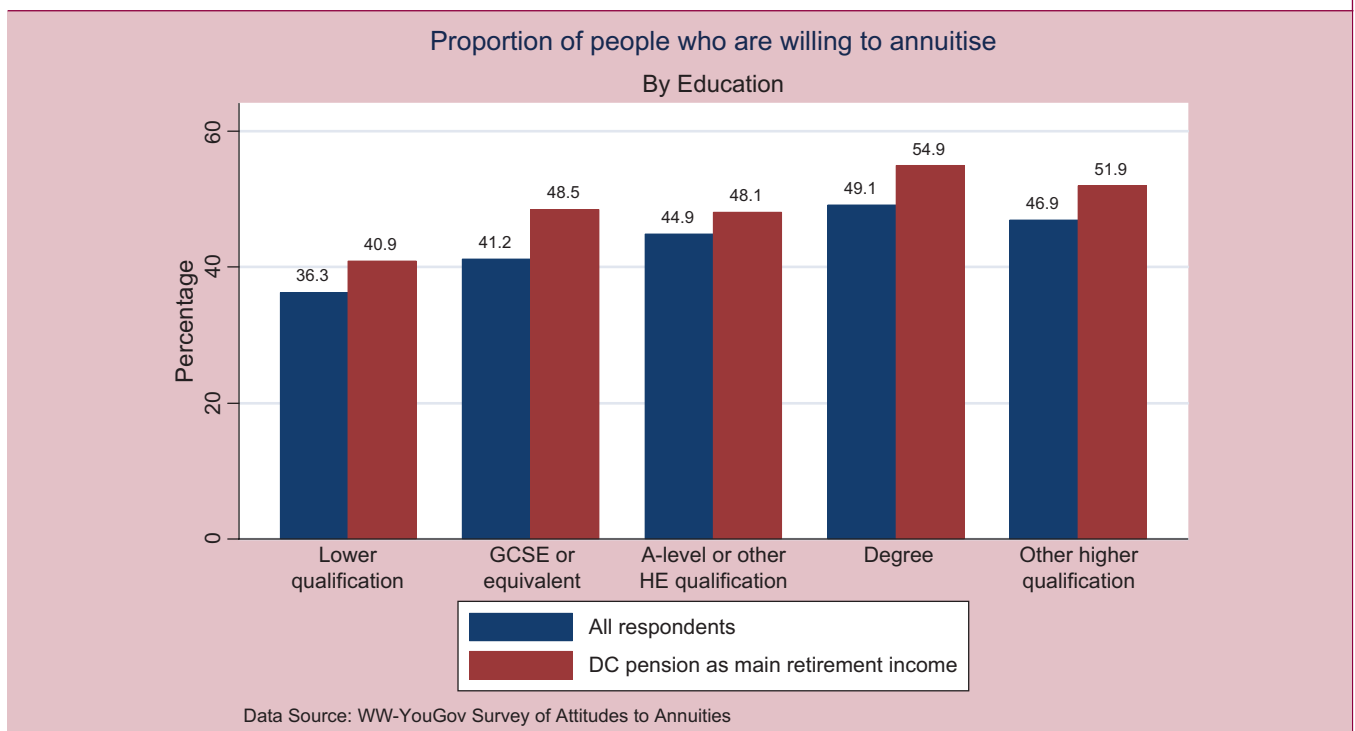


Appendix 5

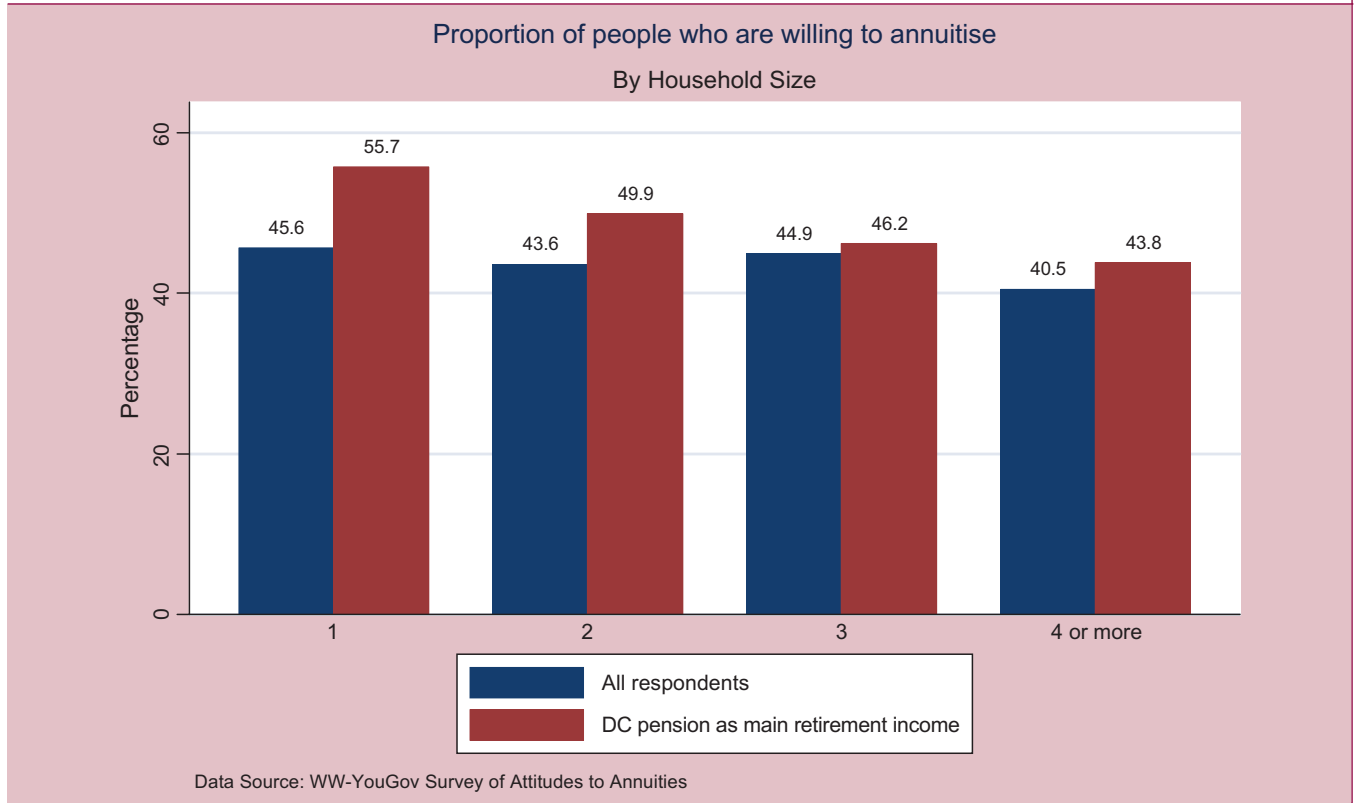
Willingness to annuitise by health status?



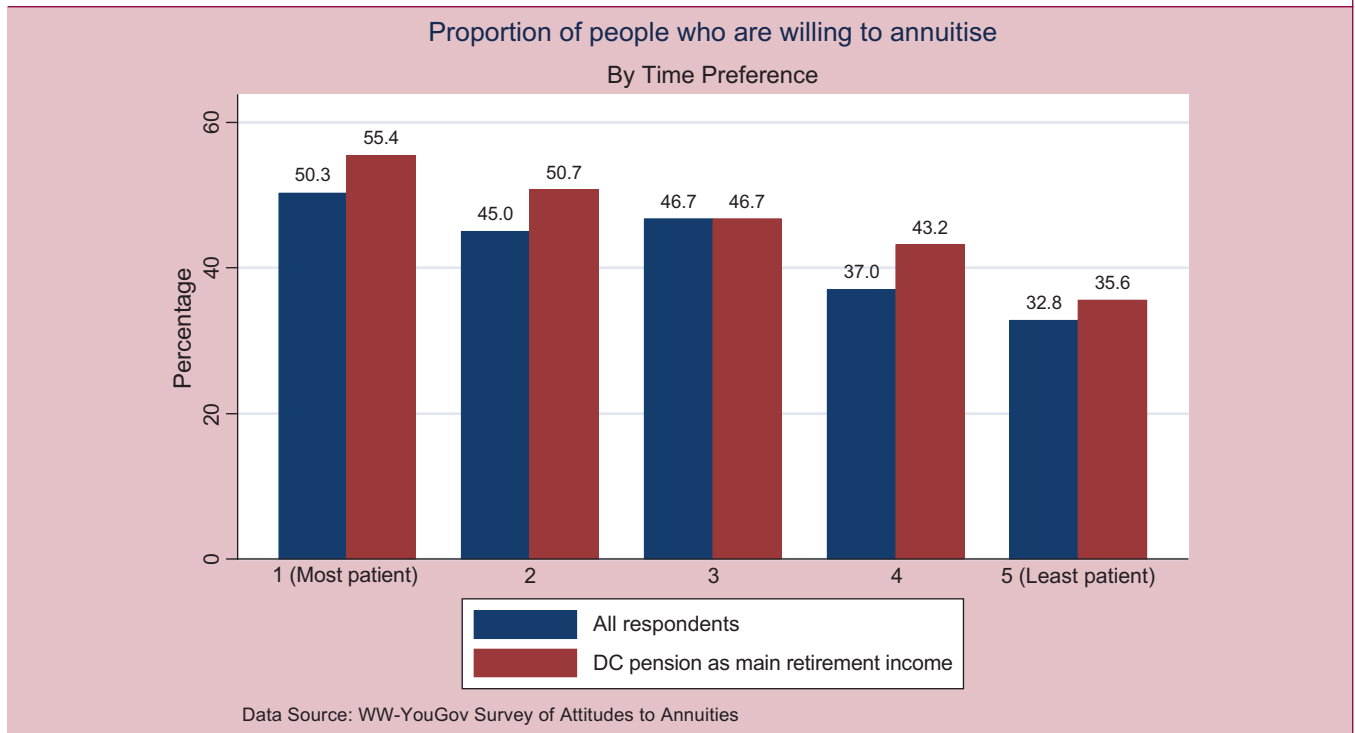
Willingness to annuitise by education?



Willingness to annuitise by household size?



Willingness to annuitise by time preference?



Appendix 6
Reasons why never annuitise
By education

| Reason why not annuitise? | LOWER Percent | GCSE Percent | A-LEVEL Percent | DEGREE Percent | OTHER Percent | ALL Percent |
|---------------------------|------------------|-----------------|--------------------|-------------------|------------------|----------------|
| Would like flexibility | 69.0 | 74.0 | 74.9 | 78.9 | 76.2 | 74.3 |
| Could do better myself | 36.9 | 40.4 | 49.1 | 52.5 | 54.1 | 46.1 |
| Income too low | 39.6 | 42.0 | 47.0 | 48.5 | 50.7 | 45.2 |
| Bequest motive | 32.1 | 33.2 | 43.9 | 43.3 | 41.5 | 38.5 |
| Not live long enough | 39.6 | 37.2 | 35.2 | 36.4 | 35.7 | 37.1 |
| Other | 3.3 | 4.4 | 3.5 | 7.9 | 6.1 | 5.0 |
| Did not understand | 2.4 | 2.0 | 1.7 | 2.1 | 1.4 | 2.0 |

* Note only those individuals never willing to annuitise (full fund).

Reasons why never annuitise
By time preference

| Reason why not annuitise? | 1 Percent | 2 Percent | 3 Percent | 4 Percent | 5 Percent | ALL Percent |
|---------------------------|--------------|--------------|--------------|--------------|--------------|----------------|
| Would like flexibility | 76.5 | 75.0 | 78.5 | 71.4 | 69.2 | 74.0 |
| Could do better myself | 47.5 | 52.6 | 49.2 | 39.2 | 37.5 | 45.9 |
| Income too low | 43.7 | 47.6 | 42.0 | 52.9 | 40.6 | 45.4 |
| Bequest motive | 40.3 | 43.5 | 39.2 | 31.8 | 32.8 | 38.3 |
| Not live long enough | 34.2 | 39.5 | 39.8 | 38.0 | 33.9 | 36.8 |
| Other | 5.0 | 5.2 | 5.5 | 3.5 | 5.6 | 5.0 |
| Did not understand | 2.5 | 0.8 | 1.1 | 2.7 | 3.1 | 2.0 |

* Note only those individuals willing to annuitise (full fund).

1 = Most patient; 5 = Least patient.

Appendix 7

Reasons for not wanting to purchase an annuity – selection of quotations

Investment

- Would prefer to invest in property.
- My own investments have done better than those recommended by my financial advisor.
- Investing it myself would keep my brain going longer.
- I would value the freedom to manage the money myself.

Longevity

- My heredity suggests a relatively short life expectancy beyond 60-65 years old.
- My family do not have a long life span on the male side, so I would keep my options open.
- I may not live long enough to make it worthwhile.
- I am ill.

Flexibility

- If interest rates go up and an annuity stays the same, I could well be better off keeping the money in a building society or similar.
- I would prefer to keep the money so I could buy what I wanted when I wanted to, ie holidays.
- I don't see why at such an age I should tie my funds up as I would rather spend it before I die on myself, family and friends.
- I can think of far better places to live on that sort of money than the UK.

Trust

- Like to retain control: do not trust financial organisations.
- Lack of trust in the Pension/Investment sector.
- I think annuities are a rip-off.
- I don't trust insurance companies.
- I don't trust financial institutions.
- Better in my hands than in the hands of some thieving bastards.
- All pension providers are crooks.
- The insurance companies will, without fail, stitch you up – it's their job.

Appendix 8
Willingness to Annuitise – Marginal Effects
All respondents
Dependent variable: Ever annuitise (Yes; No)

| Regressor | (1) | (2) | (3) | (4) |
|-----------------------------------|------------------|------------------|------------------|------------------|
| Age | -0.002 (0.002) | -0.003 (0.002) | -0.003 (0.003) | -0.004 (0.003) |
| Female | -0.029 (0.021) | -0.024 (0.021) | -0.035 (0.023) | -0.031 (0.023) |
| Unmarried | -0.058 (0.032) | -0.054 (0.032) | -0.029 (0.037) | -0.027 (0.036) |
| Main pension: Employer DC | 0.040 (0.030) | 0.044 (0.030) | 0.028 (0.033) | 0.034 (0.033) |
| Main pension: Personal Pension | 0.072 (0.024)** | 0.069 (0.024)** | 0.057 (0.027)* | 0.053 (0.027)* |
| Main pension: No private pension | -0.024 (0.025) | -0.009 (0.025) | -0.015 (0.028) | -0.003 (0.028) |
| Ln(Household income) | | | 0.033 (0.015)* | 0.027 (0.015) |
| Annuitant within household | 0.039 (0.027) | 0.037 (0.027) | 0.051 (0.030) | 0.049 (0.030) |
| Lower education qual. | -0.135 (0.025)** | -0.118 (0.026)** | -0.112 (0.029)** | -0.098 (0.029)** |
| GCSE or equivalent | -0.055 (0.030) | -0.047 (0.030) | -0.045 (0.034) | -0.036 (0.034) |
| A-level | -0.034 (0.029) | -0.024 (0.029) | -0.031 (0.032) | -0.022 (0.032) |
| Other qualification | -0.029 (0.028) | -0.029 (0.028) | -0.033 (0.031) | -0.032 (0.031) |
| Household size: 1 | 0.074 (0.040) | 0.072 (0.039) | 0.070 (0.044) | 0.067 (0.043) |
| Household size: 3 | 0.002 (0.025) | 0.004 (0.025) | -0.005 (0.027) | -0.003 (0.027) |
| Household size: 4 | -0.059 (0.026)* | -0.056 (0.026)* | -0.087 (0.029)** | -0.082 (0.029)** |
| Health status: excellent | | | 0.020 (0.027) | 0.019 (0.027) |
| Health status: fair | | | -0.012 (0.027) | -0.006 (0.027) |
| Health status: poor | | | 0.003 (0.036) | 0.013 (0.036) |
| Health status: very poor | | | -0.021 (0.046) | -0.018 (0.046) |
| Time Preference: 1 (Most patient) | | 0.062 (0.024)** | | 0.040 (0.026) |
| Time Preference: 3 | | 0.038 (0.033) | | 0.042 (0.036) |
| Time Preference: 4 | | -0.056 (0.030) | | -0.066 (0.032)* |

Continued

Appendix 8: Continued

| <i>Regressor</i> | (1) | (2) | (3) | (4) |
|---|---------|------------------|---------|------------------|
| <i>Time Preference: 5 (Least Patient)</i> | | -0.087 (0.027)** | | -0.093 (0.030)** |
| Number of observations | 2952 | 2952 | 2458 | 2458 |
| Log-Likelihood | -1996.9 | -1979.7 | -1659.7 | -1647.2 |
| Pseudo R² | 0.015 | 0.023 | 0.017 | 0.024 |

Notes:

1. Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
2. All columns are estimated by logit maximum-likelihood estimation. Positive marginal effects denote the increase in the probability of being willing to annuitise.
3. The Pseudo R² is calculated according to McFadden (1974).
4. The omitted categories are (where applicable): male, married, main pension: employer DB, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.

Appendix 9

Willingness to Annuitise – Marginal Effects

*Respondents whose main pension is DC**Dependent variable: Ever annuitise (Yes; No)*

| <i>Regressor</i> | (1) | (2) | (3) | (4) |
|-----------------------------------|-----------------------|-----------------------|------------------------|------------------------|
| Age | -0.000 (0.004) | -0.000 (0.004) | -0.001 (0.005) | -0.001 (0.005) |
| Female | -0.040 (0.037) | -0.036 (0.037) | -0.055 (0.041) | -0.050 (0.041) |
| Unmarried | 0.008 (0.065) | 0.005 (0.064) | 0.010 (0.074) | 0.005 (0.073) |
| Main pension: Employer DC | -0.033 (0.034) | -0.028 (0.034) | -0.026 (0.038) | -0.016 (0.038) |
| <i>Ln(Household income)</i> | | | 0.058 (0.026)* | 0.053 (0.026)* |
| <i>Annuitant within household</i> | 0.083 (0.046) | 0.085 (0.045) | 0.122 (0.050)* | 0.128 (0.049)** |
| Lower education qual. | 0.081 (0.055) | 0.069 (0.055) | 0.093 (0.060) | 0.077 (0.060) |
| GCSE or equivalent | 0.080 (0.051) | 0.077 (0.051) | 0.052 (0.057) | 0.045 (0.057) |
| A-level | 0.129 (0.047)** | 0.113 (0.047)* | 0.074 (0.054) | 0.053 (0.054) |
| Other qualification | 0.105 (0.049)* | 0.089 (0.049) | 0.058 (0.054) | 0.040 (0.054) |
| Household size: 1 | 0.049 (0.076) | 0.047 (0.075) | 0.085 (0.084) | 0.075 (0.084) |
| Household size: 3 | -0.036 (0.044) | -0.034 (0.044) | -0.042 (0.049) | -0.041 (0.049) |
| <i>Household size: 4</i> | -0.068 (0.047) | -0.065 (0.047) | -0.111 (0.051)* | -0.105 (0.051)* |

Continued

Appendix 9: Continued

| <i>Regressor</i> | (1) | (2) | (3) | (4) |
|---|------------|-------------------------|----------------|-------------------------|
| Health status: excellent | | | 0.033 (0.047) | 0.038 (0.047) |
| Health status: fair | | | -0.009 (0.049) | -0.006 (0.049) |
| Health status: poor | | | -0.067 (0.066) | -0.064 (0.066) |
| Health status: very poor | | | -0.076 (0.084) | -0.070 (0.084) |
| Time Preference: 1 (Most patient) | | -0.055 (0.043) | | -0.037 (0.047) |
| Time Preference: 3 | | -0.081 (0.055) | | -0.045 (0.062) |
| Time Preference: 4 | | -0.116 (0.054)* | | -0.116 (0.060) |
| <i>Time Preference: 5 (Least Patient)</i> | | <i>-0.178 (0.050)**</i> | | <i>-0.191 (0.054)**</i> |
| Number of observations | 921 | 921 | 747 | 747 |
| Log-Likelihood | -628.7 | -622.0 | -503.0 | -496.4 |
| Pseudo R ² | 0.015 | 0.025 | 0.027 | 0.040 |

Notes:

1. Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
2. All columns are estimated by logit maximum-likelihood estimation. Positive marginal effects denote the increase in the probability of being willing to annuitise.
3. The Pseudo R² is calculated according to McFadden (1974).
4. The omitted categories are (where applicable): male, married, main pension: personal pension, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.

Appendix 10
When Annuitise – Marginal Effects
All respondents
Dependent variable: When Annuitise (Later; Earlier; Always; Never)

| <i>Regressor</i> | <i>Annuitise Later</i> | <i>Annuitise Earlier</i> | <i>Always Annuitise</i> | <i>Never Annuitise</i> |
|---|----------------------------|------------------------------|-----------------------------|----------------------------|
| Age | 0.001 (0.002) | -0.001 (0.002) | -0.004 (0.002)* | 0.004 (0.003) |
| Female | <i>-0.031 (0.016)*</i> | <i>-0.044 (0.019)*</i> | <i>0.041 (0.016)*</i> | <i>0.034 (0.024)</i> |
| Unmarried | 0.015 (0.027) | -0.034 (0.029) | -0.012 (0.023) | 0.030 (0.038) |
| Main pension: Employer DC | 0.031 (0.024) | 0.013 (0.029) | -0.009 (0.021) | -0.035 (0.035) |
| <i>Main pension: Personal Pension</i> | <i>0.042 (0.021)*</i> | <i>-0.001 (0.023)</i> | <i>0.017 (0.019)</i> | <i>-0.057 (0.029)*</i> |
| <i>Main pension: No private pension</i> | <i>0.044 (0.021)*</i> | <i>-0.048 (0.019)*</i> | <i>-0.003 (0.019)</i> | <i>0.007 (0.029)</i> |

Continued

Appendix 10: Continued

| <i>Regressor</i> | <i>Annuitise Later</i> | <i>Annuitise Earlier</i> | <i>Always Annuitise</i> | <i>Never Annuitise</i> |
|---|----------------------------|------------------------------|-----------------------------|----------------------------|
| Ln(Household income) | 0.021 (0.011) | 0.019 (0.013) | -0.002 (0.010) | -0.038 (0.016)* |
| Annuitant within household | -0.020 (0.020) | 0.079 (0.027)** | -0.005 (0.020) | -0.054 (0.031) |
| Lower education qual. | -0.051 (0.019)** | -0.017 (0.024) | -0.033 (0.018) | 0.101 (0.031)** |
| GCSE or equivalent | -0.017 (0.025) | -0.012 (0.028) | -0.011 (0.022) | 0.040 (0.036) |
| A-level | 0.014 (0.025) | -0.013 (0.026) | -0.021 (0.020) | 0.020 (0.033) |
| Other qualification | -0.050 (0.020)* | 0.011 (0.027) | 0.005 (0.021) | 0.034 (0.032) |
| Household size: 1 | 0.004 (0.031) | 0.015 (0.039) | 0.049 (0.034) | -0.069 (0.046) |
| Household size: 3 | -0.019 (0.018) | 0.008 (0.023) | -0.004 (0.017) | 0.015 (0.028) |
| Household size: 4 | -0.024 (0.020) | -0.044 (0.023) | -0.023 (0.017) | 0.092 (0.030)** |
| Health status: excellent | 0.004 (0.019) | 0.011 (0.022) | -0.000 (0.018) | -0.014 (0.018) |
| Health status: fair | -0.024 (0.018) | 0.034 (0.023) | -0.014 (0.017) | 0.003 (0.028) |
| Health status: poor | 0.004 (0.027) | 0.042 (0.033) | -0.019 (0.022) | -0.028 (0.038) |
| Health status: very poor | 0.002 (0.034) | 0.042 (0.042) | -0.035 (0.025) | -0.009 (0.048) |
| Time Preference: 1 (Most patient) | -0.010 (0.019) | 0.019 (0.023) | 0.035 (0.018) | -0.044 (0.028) |
| Time Preference: 3 | 0.031 (0.029) | -0.025 (0.029) | 0.032 (0.025) | -0.038 (0.038) |
| Time Preference: 4 | -0.023 (0.023) | -0.013 (0.028) | -0.018 (0.018) | 0.054 (0.034) |
| Time Preference: 5 (Least Patient) | -0.053 (0.018)** | -0.071 (0.022)** | 0.036 (0.022) | 0.088 (0.031)** |
| Number of observations | 2190 | | | |
| Log-Likelihood | -2395.7 | | | |
| Pseudo R² | 0.032 | | | |

Notes:

- Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
- All columns are estimated by multinomial maximum-likelihood estimation. Positive marginal effects denote an increase in the probability of reporting that category relative to all other categories.
- The Pseudo R² is calculated according to McFadden (1974).
- The omitted categories are (where applicable): male, married, main pension: employer DB, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.
- We only focus upon those with consistent responses here.
- The marginal effects sum to 1 as the categories are exhaustive.

Appendix 11
When Annuitise – Marginal Effects
Respondents whose main pension is DC

Dependent variable: When Annuitise (Later; Earlier; Always; Never)

| Regressor | Annuitise Later | Annuitise Earlier | Always Annuitise | Never Annuitise |
|------------------------------------|----------------------------|------------------------------|-----------------------------|----------------------------|
| Age | -0.001 (0.004) | -0.002 (0.004) | 0.00-0 (0.003) | 0.003 (0.005) |
| Female | -0.057 (0.028)* | -0.049 (0.034) | 0.057 (0.031) | 0.050 (0.044) |
| Unmarried | 0.027 (0.058) | -0.076 (0.056) | 0.066 (0.056) | -0.018 (0.077) |
| Main pension: Employer DC | 0.001 (0.028) | 0.004 (0.033) | -0.028 (0.025) | 0.024 (0.040) |
| Ln(Household income) | 0.056 (0.021)** | -0.001 (0.023) | 0.004 (0.018) | -0.058 (0.028)* |
| Annuitant within household | -0.023 (0.037) | 0.125 (0.049)* | 0.034 (0.037) | -0.136 (0.053)* |
| Lower education qual. | 0.039 (0.045) | 0.006 (0.050) | 0.013 (0.040) | -0.058 (0.063) |
| GCSE or equivalent | 0.068 (0.048) | 0.010 (0.049) | -0.004 (0.037) | -0.075 (0.062) |
| A-level | 0.020 (0.041) | 0.039 (0.049) | -0.020 (0.033) | -0.039 (0.058) |
| Other qualification | -0.046 (0.032) | 0.058 (0.050) | 0.033 (0.040) | -0.045 (0.058) |
| Household size: 1 | 0.006 (0.065) | 0.026 (0.086) | 0.049 (0.062) | -0.082 (0.090) |
| Household size: 3 | -0.049 (0.032) | -0.023 (0.042) | 0.017 (0.034) | 0.055 (0.052) |
| Household size: 4 | -0.008 (0.040) | -0.080 (0.041)* | -0.029 (0.030) | 0.118 (0.055)* |
| Health status: excellent | -0.002 (0.036) | 0.012 (0.040) | 0.051 (0.036) | -0.061 (0.050) |
| Health status: fair | -0.043 (0.034) | 0.060 (0.045) | -0.018 (0.031) | 0.001 (0.052) |
| Health status: poor | -0.011 (0.054) | 0.051 (0.063) | -0.062 (0.030)* | 0.022 (0.073) |
| Health status: very poor | 0.026 (0.074) | -0.033 (0.062) | -0.032 (0.044) | 0.038 (0.087) |
| Time Preference: 1 (Most patient) | 0.015 (0.038) | -0.021 (0.042) | -0.025 (0.031) | 0.031 (0.051) |
| Time Preference: 3 | 0.028 (0.051) | -0.088 (0.047) | -0.005 (0.044) | 0.065 (0.066) |
| Time Preference: 4 | -0.042 (0.040) | -0.044 (0.051) | -0.032 (0.038) | 0.118 (0.063) |
| Time Preference: 5 (Least Patient) | -0.090 (0.029)** | -0.077 (0.044) | -0.021 (0.038) | 0.187 (0.057)** |

Continued

Appendix 11: Continued

| <i>Regressor</i> | <i>Annuitise Later</i> | <i>Annuitise Earlier</i> | <i>Always Annuitise</i> | <i>Never Annuitise</i> |
|------------------------|------------------------|--------------------------|-------------------------|------------------------|
| Number of observations | 652 | | | |
| Log-Likelihood | -720.4 | | | |
| Pseudo R ² | 0.061 | | | |

Notes:

1. Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
2. All columns are estimated by multinomial maximum-likelihood estimation. Positive marginal effects denote an increase in the probability of reporting that category relative to all other categories.
3. The Pseudo R² is calculated according to McFadden (1974).
4. The omitted categories are (where applicable): male, married, main pension: personal pension, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.
5. We only focus upon those with consistent responses here.
6. The marginal effects sum to 1 as the categories are exhaustive.

Appendix 12

Preferred age to annuitise half-fund

All respondents

Dependent variable: When Annuitise (60; 65; 70; 75)

| <i>Regressor</i> | <i>60</i> | <i>65</i> | <i>70</i> | <i>75</i> |
|----------------------------------|------------------|------------------|------------------|------------------|
| Age | -0.004 (0.003) | -0.001 (0.001) | 0.002 (0.001) | 0.003 (0.002) |
| Female | -0.052 (0.027) | -0.011 (0.006) | 0.024 (0.012) | 0.039 (0.021) |
| Unmarried | -0.076 (0.047) | -0.016 (0.010) | 0.035 (0.021) | 0.058 (0.035) |
| Main pension: Employer DC | 0.002 (0.035) | 0.000 (0.007) | -0.001 (0.016) | -0.002 (0.026) |
| Main pension: Personal Pension | -0.082 (0.029)** | -0.017 (0.007)* | 0.037 (0.014)** | 0.062 (0.022)** |
| Main pension: No private pension | -0.002 (0.037) | 0.000 (0.008) | 0.001 (0.017) | 0.001 (0.028) |
| Ln(Household income) | -0.054 (0.018)** | -0.011 (0.004)** | 0.024 (0.008)** | 0.041 (0.014)** |
| Annuitant within household | 0.129 (0.034)** | 0.027 (0.009)** | -0.059 (0.016)** | -0.097 (0.026)** |
| Lower education qual. | 0.057 (0.034) | 0.012 (0.008) | -0.026 (0.016) | -0.043 (0.026) |
| GCSE or equivalent | 0.031 (0.039) | 0.007 (0.008) | -0.014 (0.018) | -0.024 (0.030) |
| A-level | -0.003 (0.034) | -0.001 (0.007) | 0.001 (0.016) | 0.002 (0.026) |
| Other qualification | 0.014 (0.033) | 0.003 (0.007) | -0.006 (0.015) | -0.010 (0.025) |
| Household size: 1 | 0.043 (0.054) | 0.009 (0.012) | -0.020 (0.025) | -0.033 (0.041) |

Continued

Appendix 12: Continued

| Regressor | 60 | 65 | 70 | 75 |
|------------------------------------|------------------|------------------|-----------------|-----------------|
| Household size: 3 | -0.100 (0.031)** | -0.021 (0.008)** | 0.045 (0.015)** | 0.076 (0.024)** |
| Household size: 4 | -0.015 (0.034) | -0.003 (0.007) | 0.007 (0.015) | 0.012 (0.026) |
| Health status: excellent | -0.051 (0.029) | -0.011 (0.007) | 0.023 (0.014) | 0.038 (0.022) |
| Health status: fair | 0.046 (0.031) | 0.010 (0.007) | -0.021 (0.014) | -0.035 (0.023) |
| Health status: poor | 0.072 (0.042) | 0.015 (0.009) | -0.033 (0.019) | -0.055 (0.032) |
| Health status: very poor | 0.076 (0.063) | 0.016 (0.014) | -0.035 (0.029) | -0.058 (0.048) |
| Time Preference: 1 (Most patient) | -0.005 (0.028) | -0.001 (0.006) | 0.002 (0.013) | 0.004 (0.021) |
| Time Preference: 3 | -0.042 (0.039) | -0.009 (0.008) | 0.019 (0.018) | 0.032 (0.030) |
| Time Preference: 4 | -0.079 (0.039)* | -0.017 (0.009) | 0.036 (0.018)* | 0.060 (0.030)* |
| Time Preference: 5 (Least Patient) | 0.004 (0.041) | 0.001 (0.009) | -0.002 (0.009) | -0.003 (0.031) |
| Number of observations | 1053 | | | |
| Log-Likelihood | -1412.3 | | | |
| Pseudo R ² | 0.026 | | | |

Notes:

1. Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
2. All columns are estimated by logit maximum-likelihood estimation. Positive marginal effects denote the increase in the probability of reporting that category relative to all other categories.
3. The Pseudo R² is calculated according to McFadden (1974).
4. The omitted categories are (where applicable): male, married, main pension: employer DB, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.
5. The marginal effects sum to 1 as the categories are exhaustive.
6. We only focus upon those who are willing to annuitise.

Appendix 13

Preferred age to annuitise half-fund

Respondents whose main pension is DC

Dependent variable: When Annuitise (60; 65; 70; 75)

| Regressor | 60 | 65 | 70 | 75 |
|---------------------------|----------------|----------------|-----------------|-----------------|
| Age | 0.002 (0.004) | 0.001 (0.002) | -0.001 (0.003) | -0.002 (0.004) |
| Female | -0.024 (0.039) | -0.012 (0.019) | 0.016 (0.026) | 0.020 (0.033) |
| Unmarried | -0.042 (0.076) | -0.021 (0.037) | 0.027 (0.049) | 0.035 (0.063) |
| Main pension: Employer DC | 0.080 (0.034)* | 0.039 (0.018)* | -0.052 (0.023)* | -0.067 (0.029)* |

Continued

Appendix 13: Continued

| Regressor | 60 | 65 | 70 | 75 |
|---|------------------|-----------------|------------------|------------------|
| <i>Ln(Household income)</i> | -0.064 (0.025)** | -0.031 (0.013)* | 0.042 (0.017)* | 0.054 (0.020)** |
| <i>Annuitant within household</i> | 0.149 (0.046)** | 0.072 (0.026)** | -0.096 (0.032)** | -0.124 (0.038)** |
| Lower education qual. | 0.010 (0.049) | 0.005 (0.024) | -0.006 (0.032) | -0.008 (0.041) |
| GCSE or equivalent | -0.013 (0.056) | -0.006 (0.027) | 0.008 (0.036) | 0.011 (0.047) |
| A-level | -0.072 (0.050) | -0.035 (0.025) | 0.047 (0.033) | 0.060 (0.042) |
| Other qualification | 0.018 (0.048) | 0.009 (0.023) | -0.012 (0.031) | -0.015 (0.040) |
| Household size: 1 | -0.088 (0.085) | -0.042 (0.042) | 0.057 (0.056) | 0.073 (0.071) |
| Household size: 3 | -0.070 (0.045) | -0.034 (0.022) | 0.045 (0.030) | 0.058 (0.037) |
| Household size: 4 | -0.045 (0.047) | -0.022 (0.023) | 0.030 (0.031) | 0.038 (0.039) |
| Health status: excellent | -0.042 (0.041) | -0.020 (0.020) | 0.027 (0.027) | 0.035 (0.034) |
| Health status: fair | 0.038 (0.044) | 0.019 (0.022) | -0.025 (0.029) | -0.032 (0.037) |
| Health status: poor | 0.092 (0.061) | 0.044 (0.031) | -0.059 (0.040) | -0.076 (0.051) |
| Health status: very poor | 0.159 (0.095) | 0.077 (0.048) | -0.103 (0.063) | -0.133 (0.080) |
| Time Preference: 1 (Most patient) | -0.072 (0.040) | -0.035 (0.021) | 0.047 (0.027) | 0.060 (0.034) |
| Time Preference: 3 | 0.006 (0.055) | 0.003 (0.026) | -0.004 (0.036) | -0.005 (0.046) |
| Time Preference: 4 | 0.010 (0.056) | 0.005 (0.027) | -0.006 (0.036) | -0.008 (0.047) |
| Time Preference: 5 (Least Patient) | -0.032 (0.057) | -0.015 (0.028) | 0.021 (0.037) | 0.026 (0.048) |
| Number of observations | 363 | | | |
| Log-Likelihood | -471.7 | | | |
| Pseudo R² | 0.054 | | | |

Notes:

1. Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
2. All columns are estimated by ordered probit maximum-likelihood estimation. Positive marginal effects denote the increase in the probability of reporting that category relative to all other categories.
3. The Pseudo R² is calculated according to McFadden (1974).
4. The omitted categories are (where applicable): male, married, main pension: personal pension, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.
5. The marginal effects sum to 1 as the categories are exhaustive.
6. We only focus upon those who are willing to annuitise.

Appendix 14
Why not annuitise?
All respondents

Dependent variable: Reason why not annuitise (Yes; No)

| Regressor | Income too low (1) | Could do Better (2) | Not live long Enough (3) | Like Flexibility (4) | Bequest Motive (5) |
|-----------------------------------|-------------------------------|--------------------------------|---|-------------------------------------|-----------------------------------|
| Age | -0.010 (0.004)** | 0.005 (0.004) | -0.004 (0.004) | 0.003 (0.003) | 0.002 (0.004) |
| Female | -0.032 (0.032) | -0.025 (0.031) | -0.093 (0.030)** | 0.066 (0.026)* | 0.056 (0.031) |
| Unmarried | 0.017 (0.047) | 0.019 (0.046) | 0.018 (0.046) | -0.005 (0.041) | -0.022 (0.046) |
| Main pension: Employer DC | -0.039 (0.046) | 0.020 (0.046) | -0.047 (0.044) | 0.007 (0.040) | -0.040 (0.046) |
| Main pension: Personal Pension | -0.005 (0.038) | 0.074 (0.038) | -0.018 (0.037) | 0.006 (0.033) | -0.031 (0.038) |
| Main pension: No private pension | 0.036 (0.039) | 0.017 (0.037) | -0.072 (0.035)* | -0.015 (0.035) | -0.059 (0.036) |
| Ln(Household income) | 0.015 (0.021) | 0.060 (0.021)** | -0.002 (0.021) | 0.009 (0.018) | 0.016 (0.021) |
| Annuitant within household | 0.005 (0.043) | 0.066 (0.042) | -0.073 (0.039) | 0.040 (0.036) | 0.011 (0.042) |
| Lower education qual. | -0.088 (0.041)* | -0.087 (0.041)* | 0.022 (0.041) | -0.072 (0.038) | -0.081 (0.040)* |
| GCSE or equivalent | -0.069 (0.047) | -0.081 (0.047) | -0.024 (0.045) | -0.037 (0.042) | -0.083 (0.046) |
| A-level | 0.008 (0.045) | 0.024 (0.045) | -0.010 (0.043) | -0.015 (0.038) | 0.031 (0.045) |
| Other qualification | 0.046 (0.044) | 0.043 (0.044) | -0.007 (0.042) | -0.018 (0.037) | -0.025 (0.044) |
| Household size: 1 | -0.076 (0.055) | -0.030 (0.056) | 0.041 (0.055) | 0.013 (0.047) | -0.082 (0.052) |
| Household size: 3 | -0.054 (0.038) | -0.052 (0.038) | -0.053 (0.035) | 0.030 (0.031) | 0.048 (0.038) |
| Household size: 4 | -0.099 (0.039)* | -0.114 (0.039)** | 0.004 (0.039) | -0.059 (0.037) | 0.069 (0.041) |
| Health status: excellent | -0.005 (0.038) | 0.088 (0.037)* | -0.122 (0.034)** | -0.033 (0.033) | -0.076 (0.036)* |
| Health status: fair | 0.001 (0.037) | 0.051 (0.037) | -0.015 (0.036) | -0.069 (0.033)* | -0.017 (0.036) |
| Health status: poor | -0.028 (0.049) | 0.007 (0.049) | 0.120 (0.050)* | -0.002 (0.041) | -0.031 (0.049) |
| Health status: very poor | -0.095 (0.059) | -0.036 (0.060) | 0.226 (0.059)** | -0.114 (0.057)* | -0.019 (0.060) |
| Time Preference: 1 (Most patient) | -0.070 (0.037) | -0.037 (0.037) | -0.028 (0.036) | 0.010 (0.031) | -0.053 (0.037) |

Continued

Appendix 14: Continued

| <i>Regressor</i> | <i>Income too low (1)</i> | <i>Could do Better (2)</i> | <i>Not live long Enough (3)</i> | <i>Like Flexibility (4)</i> | <i>Bequest Motive (5)</i> |
|---|-------------------------------|--------------------------------|---|-------------------------------------|-----------------------------------|
| Time Preference: 3 | -0.072 (0.051) | -0.066 (0.051) | 0.040 (0.051) | 0.040 (0.041) | -0.035 (0.051) |
| <i>Time Preference: 4</i> | 0.076 (0.044) | -0.109 (0.044)* | -0.006 (0.043) | -0.011 (0.038) | -0.125 (0.042)** |
| <i>Time Preference: 5 (Least Patient)</i> | -0.069 (0.040) | -0.142 (0.040)** | -0.059 (0.038) | -0.037 (0.037) | -0.112 (0.039)** |
| Number of observations | 1268 | 1268 | 1268 | 1268 | 1268 |
| Log-Likelihood | -849.4 | -833.7 | -801.0 | -685.1 | -822.7 |
| Pseudo R² | 0.027 | 0.048 | 0.043 | 0.025 | 0.032 |

Notes:

1. Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
2. All columns are estimated by logit maximum-likelihood estimation. Positive marginal effects denote the increase in the probability of being willing to annuitise.
3. The Pseudo R² is calculated according to McFadden (1974).
4. The omitted categories are (where applicable): male, married, main pension: employer DB, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.

Appendix 15

Why not annuitise?

*Respondents whose main pension is DC**Dependent variable: Reason why not annuitise (Yes; No)*

| <i>Regressor</i> | <i>Income too low (1)</i> | <i>Could do Better (2)</i> | <i>Not live long Enough (3)</i> | <i>Like Flexibility (4)</i> | <i>Bequest Motive (5)</i> |
|---------------------------------------|-----------------------------------|------------------------------------|---|-------------------------------------|-----------------------------------|
| Age | -0.000 (0.007) | 0.010 (0.007) | -0.004 (0.007) | -0.000 (0.006) | 0.004 (0.007) |
| <i>Female</i> | -0.080 (0.059) | -0.002 (0.057) | -0.148 (0.053)** | 0.015 (0.052) | 0.047 (0.059) |
| Unmarried | 0.040 (0.102) | 0.020 (0.096) | 0.224 (0.099)* | 0.028 (0.086) | -0.133 (0.093) |
| Main pension: Employer DC | -0.032 (0.054) | -0.053 (0.053) | -0.020 (0.052) | 0.005 (0.047) | -0.007 (0.053) |
| <i>Ln(Household income)</i> | 0.053 (0.037) | 0.118 (0.035)** | 0.036 (0.036) | 0.025 (0.031) | 0.027 (0.035) |
| Annuitant within household | -0.111 (0.076) | -0.008 (0.075) | 0.027 (0.076) | -0.037 (0.069) | -0.000 (0.076) |
| <i>Lower education qual.</i> | 0.125 (0.085) | 0.063 (0.082) | -0.032 (0.079) | 0.125 (0.061)* | -0.186 (0.068)** |
| GCSE or equivalent | 0.154 (0.084) | 0.212 (0.082)** | -0.046 (0.078) | 0.000 (0.077) | 0.070 (0.085) |

Continued

Appendix 15: Continued

| <i>Regressor</i> | <i>Income too low</i> (1) | <i>Could do Better</i> (2) | <i>Not live long Enough</i> (3) | <i>Like Flexibility</i> (4) | <i>Bequest Motive</i> (5) |
|---------------------------------------|------------------------------|-------------------------------|------------------------------------|--------------------------------|------------------------------|
| A-level | 0.120 (0.079) | 0.097 (0.077) | 0.096 (0.078) | 0.018 (0.070) | 0.063 (0.080) |
| Other qualification | 0.123 (0.078) | 0.110 (0.076) | -0.053 (0.073) | 0.079 (0.063) | -0.012 (0.076) |
| Household size: 1 | 0.104 (0.121) | 0.166 (0.107) | -0.061 (0.108) | 0.047 (0.096) | 0.101 (0.126) |
| Household size: 3 | -0.045 (0.068) | -0.020 (0.068) | -0.065 (0.065) | 0.025 (0.058) | 0.036 (0.068) |
| Household size: 4 | -0.089 (0.072) | -0.129 (0.071) | -0.075 (0.069) | -0.094 (0.072) | 0.163 (0.075)* |
| <i>Health status: excellent</i> | <i>-0.026 (0.070)</i> | <i>0.237 (0.066)**</i> | <i>-0.127 (0.062)*</i> | <i>-0.024 (0.064)</i> | <i>-0.105 (0.066)</i> |
| Health status: fair | -0.011 (0.071) | 0.062 (0.070) | -0.013 (0.068) | 0.015 (0.061) | 0.001 (0.070) |
| Health status: poor | -0.028 (0.094) | -0.015 (0.092) | 0.146 (0.094) | 0.122 (0.064) | -0.100 (0.089) |
| Health status: very poor | -0.135 (0.109) | 0.032 (0.112) | 0.114 (0.112) | -0.022 (0.102) | 0.039 (0.112) |
| Time Preference: 1 (Most patient) | 0.119 (0.072) | 0.120 (0.069) | 0.016 (0.069) | -0.067 (0.065) | 0.084 (0.072) |
| Time Preference: 3 | 0.062 (0.090) | 0.075 (0.088) | 0.133 (0.091) | 0.004 (0.074) | 0.103 (0.091) |
| Time Preference: 4 | 0.197 (0.085)* | 0.026 (0.083) | 0.121 (0.085) | -0.008 (0.070) | -0.064 (0.078) |
| Time Preference: 5 (Least Patient) | 0.096 (0.077) | -0.004 (0.074) | -0.095 (0.068) | -0.085 (0.071) | 0.038 (0.075) |
| Number of observations | 354 | 354 | 354 | 354 | 354 |
| Log-Likelihood | -229.0 | -218.9 | -214.6 | -185.5 | -221.3 |
| Pseudo R ² | 0.053 | 0.108 | 0.078 | 0.044 | 0.060 |

Notes:

- Analytical (average) marginal effects are reported with standard errors, calculated using the delta method, in parentheses. (*) denotes a marginal effect statistically significantly different from zero at the 5% level, (**) significantly different at the 1% level.
- All columns are estimated by logit maximum-likelihood estimation. Positive marginal effects denote the increase in the probability of being willing to annuitise.
- The Pseudo R² is calculated according to McFadden (1974).
- The omitted categories are (where applicable): male, married, main pension: employer DB, no annuitant in household, degree qualification, household size 2, in good health status, with a time preference score of 2.

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