



Income Security and a Good Retirement



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SOCIETY CENTRE
ANALYSIS • EVIDENCE • POLICY

Dr Will Parry and James Lloyd

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- ▶ Department for Communities and Local Government;
- ▶ Department for Transport;

- ▶ National Institute on Aging;
- ▶ Department of Health;
- ▶ Department for Work and Pensions;
- ▶ HM Revenue and Customs;
- ▶ Office for National Statistics.

The data creators, depositors, copyright holders and funders of the ELSA bear no responsibility for the analysis or interpretation of the data presented here.

All responsibility for content and errors in this report rest solely with the authors.

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Executive Summary

This report describes the results of explorative, quantitative research into the association between level of secure income and a range of retirement outcomes, for retirees in England with some form of private pension income.

The research was undertaken in the wake of the April 2015 changes to rules on 'Defined Contribution' (DC) pension savings, which broke with the previous regime – known as the 'annuities deal' – which required DC pension savers to convert their savings into a secure income at retirement.

Given the limited evidence available on the link between level of secure income and people's experience of retirement, the Strategic Society Centre undertook this research, which was made possible by the support of **Just Retirement** and the **Joseph Rowntree Foundation**.

The study analysed data from Wave 6 (2012-13) of the English Longitudinal Study of Ageing (ELSA), which is a longitudinal, multidisciplinary social survey undertaken every two years, of a representative sample of the English population aged 50 and older.

The sample used in the research comprised individuals or couples in receipt of a private pension income. Any individuals or couples who were earning through employment or self-employment were removed. The dataset was further reduced according to level of income and wealth by removing those respondents within the top and bottom deciles in both cases. This provided some assurance that any respondents with unusually low or high income and wealth would not unduly skew results.

The explanatory variables deployed in the study comprised:

- ▶ Income – in the form of guaranteed, annuitised income streams, including state and private pension income, benefit income and income from savings and investments;
- ▶ Wealth – in the form of non-housing wealth, including current/savings accounts, TESSAs, Cash and other ISAs, Premium Bonds, National Savings accounts, etc.

The results are grouped according to the substantive area to which the modelled outcomes relate:

- ▶ Health and mental wellbeing
- ▶ Giving money to family and charity
- ▶ Financial security
- ▶ Participation in leisure activities
- ▶ Civic participation, and
- ▶ Life satisfaction and quality.

Level of secure income was inversely associated with people reporting that “I feel what happens in life is often determined by factors beyond my control”, and “In general, I have different demands that I think are hard to combine”.

In relation to giving money to other people and charity, significant associations for both secure income and non-housing wealth were identified for whether people had given money at all. However, only income was associated with respondents giving money to their children and to charity.

Multiple significant associations were found between income/wealth and different aspects of financial security. Overall, these associations suggest that wealth has a stronger impact on financial security than income. Nevertheless, income seems to play a crucial role, and in many cases, its effects are comparable to those of wealth.

Level of secure income appears strongly associated with participation in leisure activities, unlike wealth. Relevant activities include going to the cinema, eating out, taking a holiday or reading a newspaper. It seems likely that the regularity of a secure income provides an impetus for expenditure on leisure activities, which is not provided by wealth.

Both income and wealth were associated with civic participation. However, income alone was associated with being a member of “tenants groups, resident groups, etc.”, a “political party, trade union or environmental groups” or “education, arts or music groups or evening classes”. The associations tended to be larger for income than for wealth, for the respective organisations. As with participation in leisure activities, it seems that income is able to provide better support for participation in various classes, organisations, and civic and social groups.

Income, but not wealth, was associated with people’s sense of satisfaction with life, specifically, whether they report “the conditions of my life are excellent” and “so far I have got the important things I want in life”.

Overall, despite multiple control variables and a restricted sample, the research was able to identify a number of significant associations between level of secure income and retirement outcomes. Significant associations were also found with non-housing wealth; however, the associations with income seemed to be more wide ranging and often stronger, affecting a greater number of the outcome domains investigated.

For those with good incomes and wealth, it would appear income is of more practical importance in encouraging an active and engaged lifestyle, with greater life satisfaction and quality. In contrast, wealth provides financial security.

1. Introduction

1.1. Background to the study

This report describes the results of exploratory, quantitative research into the association between level of secure income and a range of retirement outcomes, for retirees in England with some form of private pension income.

The research was undertaken in the wake of the April 2015 changes to rules on ‘Defined Contribution’ (DC) pension savings, which broke with the previous regime – known as the ‘annuities deal’ – which required DC pension savers to convert their savings into a secure income at retirement.

Since April 2015, individuals retiring with DC pension savings have been able to cash-in or withdraw as much of their savings as they wish from the age of 55, paying only their marginal rate of income tax on any withdrawals.

In this way, the UK has moved from a ‘compulsory annuitisation’ framework to a ‘voluntary annuitisation’ framework for DC pension savings. However, the experience of other countries with voluntary annuitisation systems for DC savers is typically of very low rates of annuitisation. If the UK experience is similar, this may result in lower average retirement incomes across the older population.

1.2. Income Security and a Good Outcomes

Given the limited evidence available on the link between level of secure income and people’s experience of retirement, the Strategic Society Centre undertook exploratory, quantitative research entitled **Income Security and a Good Retirement**, which was made possible by the support of **Just Retirement** and the **Joseph Rowntree Foundation**.

This research provided evidence for inclusion in a related policy report entitled **Income, Security and Wellbeing – Helping savers choose a good retirement**.

In the next chapter, a brief review of relevant research literature is set out, in particular, on research into income and subjective wellbeing.

Chapter 3 sets out the data and methodology used in the research. The fourth chapter sets out the results of descriptive analysis of the core sample used in the research.

Chapter 5 sets out the results of regression analysis into level of secure income and a range of retirement outcomes.

Chapter 6 concludes the report.

2.Literature Review: Income and wellbeing

Key points:

- ▶ **Previous research has identified associations between level of income and subjective wellbeing.**
- ▶ **A limited number of studies have found a positive association between level of secure income and wellbeing among retirees.**

2.1. Introduction

As the previous chapter noted, the April 2015 changes to rules on DC pension savings may result in many individuals having a lower secure income in retirement because they have opted to cash-in their savings, with potential consequences for their experience of retirement and wellbeing.

The relationship between income and wellbeing has been the subject of extensive academic research, alongside research on what factors are associated with a positive retirement. This chapter provides a brief review of this evidence and explores:

- ▶ What is the relationship between income and wellbeing?
- ▶ What effect does income security have in later life?
- ▶ What other factors influence wellbeing in later life?
- ▶ What is the relationship between wealth and wellbeing?

2.2. What is the relationship between income and wellbeing?

There is longstanding academic research into whether **level of income influences subjective wellbeing (SWB)**.

In 1974, Easterlin argued that income affects SWB, but only relative to other changeable factors such as expectations, adaptation levels and social comparisons; i.e. people are happier if they are richer than their neighbours. Therefore, if the GDP of a nation increases this will have an insignificant effect on average SWB because the population's position relative to each other will have remained the same (this is known as Easterlin's paradox).¹

In contrast to Easterlin's 'relativist' thesis, Veenhoven (1988) suggested an 'absolutist' explanation,² arguing that income affects SWB by allowing individuals to meet certain universal needs, though once these needs are met income becomes less important for SWB due to declining marginal utility of money. This position is supported by a 1993 study,³ which

¹ Easterlin R (1974) "Does economic growth improve the human lot? Some empirical evidence" in David O and Melvin W (eds.) *Nations and Households in Economic Growth*, Stanford University Press

² Veenhoven R (1988) "The utility of happiness" in *Soc Indic Res*, Vol. 20, No. 4, p333-354

³ Diener E et al. (1993) "The relationship between income and subjective well-being: Relative or absolute?" in *Soc Indic Res*, Vol. 28, No. 3, p195-223

examined cross-country data across 39 diverse countries and within-country data for the US, and Sacks et al.'s (2012) study, which uses data from the Gallup World Poll.⁴ This study found that citizens of rich countries have higher wellbeing on average than citizens of poor countries. The “strikingly linear” correlation between average wellbeing and log GDP per capita in 2010 is 0.74. They also found that there is no satiation point beyond which the relationship between income and wellbeing diminishes. An ONS report in 2014 also found that individuals in households with higher incomes report higher life satisfaction and happiness, and lower anxiety, holding other factors fixed. However, higher household income is not significantly related to people’s sense that the things they do in life are worthwhile.⁵

Nevertheless, it is difficult to say with certainty whether correlation between GDP and SWB is due to causation. Income is also highly correlated with human rights and democracy, which may themselves affect SWB, and so these various influences become difficult to disentangle.⁶

It is also important to note that income loss has been associated with drops in SWB. This was observed in former Soviet nations at the end of communism, and at a micro-level, research has found that income loss has also been shown to have a greater impact on SWB than gaining income.⁷

Such research findings suggest that level of income in retirement may indeed affect people’s wellbeing, raising important questions about the implications of more retirees in the UK having lower incomes owing to changes to rules on DC pension savings.

2.3. What effect does income security have in later life?

A limited number of US studies have sought to unpick the relationship between people’s experience of retirement and secure (annuitised) income.

Panis (2004) used the US Health and Retirement Survey (HRS) to examine the role of annuities and wealth on retirement satisfaction and mental health. The study found that **annuity income from pensions increases retirement satisfaction and reduces the number of depression symptoms**, while Social Security reliance (measured by how much Social Security contributes to total income) has no statistically significant effect on either wellbeing measure, suggesting the wellbeing effect of incomes may be focused on those with mid-to-higher income.⁸

A 2012 study by Nyce and Quade for actuarial consultants Towers Watson examined the role

⁴ Sacks D et al. (2012) “The new stylized facts about income and subjective well-being” in *Emotion*, Vol. 12, No. 6, p1181-1187

⁵ Lewis J (2014) *Income, Expenditure and Personal Well-being*, Office for National Statistics, London

⁶ Diener E and Seligman M (2004) “Beyond Money: Toward an Economy of Well-Being” in *Psychological Science in the Public Interest*, Vol. 5, No. 1, p1-31

⁷ Kahneman D and Deaton A (2010) “High income improves evaluation of life but not emotional well-being” in *Proceedings of the National Academy of Sciences*, Vol. 107, No 38, p16489-16493

⁸ Panis C (2004) “Annuities and Retirement Well-Being” in Mitchell O and Utkus S (eds.) *Pension Design and Structure: New Lessons from Behavioral Finance*, Oxford University Press, cited in Bender K (2012) “An analysis of well-being in retirement: The role of pensions, health, and ‘voluntariness’ of retirement” in *The Journal of Socio-Economics*, Vol. 41, Issue 4, p 424–433

of annuitised wealth in shaping retirement satisfaction.⁹ Using the 2010 Health and Retirement Survey (HRS), the study found that 48% of the sample had annuitised income other than Social Security benefits, and 27% received 30% or more of their income in the form of an annuity.

The analysis found that over time satisfaction scores were significantly lower for those without annuities, and retirees with less than 30% of their income annuitised were less satisfied than the highly annuitised group.

To isolate the effects of annuities from cohort and age factors, the researchers divided the full sample into groups at various stages of retirement. At each wealth level, annuitants were consistently more satisfied, with the effect particularly strong among families with less wealth. Even after controlling for wealth, health, income, age, education and other factors, annuitised income was still found to boost retirement satisfaction.

It could be expected that the 'satisfaction effect' of annuities would be stronger during periods of economic uncertainty and instability. Longitudinal analysis found that less affluent retirees with annuitised income were more than 50% more likely to be highly satisfied in 2010 than their peers without annuitised income, compared with only 30% more likely in 1998 during a period of relative economic stability.

2.4. What factors influence wellbeing in later life?

In addition to income, various academic studies have investigated what other factors are associated with variations in wellbeing in retirement.

Overall, it is important to note that multiple studies have found that wellbeing over the life course is 'U-shaped' and often increases in old age. For example, Blanchflower and Oswald (2007) developed models using data from several different countries and found a generally robust U-shape pattern of reported wellbeing across age groups.¹⁰

Butrica and Schaner (2005) found that retirees who work or volunteer have higher levels of subjective wellbeing than those who are not similarly engaged, although wellbeing declines after 1,000 annual hours in work or volunteering activities.¹¹

Bender (2012) used the Health and Retirement Survey (HRS) to explore what factors determine responses to: "All in all, would you say that your retirement has turned out to be very satisfying, moderately satisfying, or not at all satisfying?"¹² The analysis found that over 60% of retirees were very satisfied with their retirement, a third were moderately satisfied and

⁹ Nyce S and Quade B (2012) "Annuities and Retirement Happiness" in *Insider*, Issue: September, Towers Watson

¹⁰ Blanchflower D and Oswald A (2007) *Is Well-Being U-Shaped over the Life Cycle?*, Institute for the Study of Labor (IZA), Bonn

¹¹ Butrica B and Schaner S (2005) "Satisfaction and Engagement in Retirement" in *Perspectives on Productive Aging 2*, Washington, DC: Urban Institute, cited in Bender K (2012) "An analysis of well-being in retirement: The role of pensions, health, and 'voluntariness' of retirement" in *The Journal of Socio-Economics*, Vol. 41, Issue 4, p 424-433

¹² Bender K (2012) "An analysis of well-being in retirement: The role of pensions, health, and 'voluntariness' of retirement" in *The Journal of Socio-Economics*, Vol. 41, Issue 4, p 424-433

8% were not satisfied with their retirement. The analysis found that male retirees have lower retirement satisfaction than female retirees, and being married increases the probability of being in the highest category of satisfaction. Ethnicity and education did not show statistically significant effects. Older retirees had higher retirement satisfaction than those under 62 years.

In relation to financial characteristics, the Bender study found that income and wealth tended to increase retirement satisfaction. Having no pension decreased the probability of being in the highest satisfaction category, compared to those with only 'Defined Benefit' (DB) pensions. Interestingly, having just a DC pension reduced the probability of being in the highest satisfaction category but there was no statistically significant difference to those with just DB plans.

Overall, the analysis found a relatively small impact of income on retirement satisfaction. The results showed that while economic wellbeing (as measured by income and wealth) did increase overall wellbeing, the effect of income is a nuanced one. On the one hand, the effect of an increase in income on retirement satisfaction was quite small, even for relatively large increases in income, suggesting that since many of the elderly are not at poverty levels, the increased income does not generate large increases in wellbeing. However, relative income does play a significant role. Retirees seem to value having income above the typical amount, particularly in terms of relative pension income, but also for Social Security income. The analysis found that **whether retirement was voluntary**, and **health status**, was also associated with satisfaction.

A 2014 Canadian study by Boodoo et al. found that absolute personal income does have a small positive relationship with life satisfaction but only for retirees and not for the non-retired, and the relationship between relative income and happiness is much stronger for the non-retired than retired persons, likely reflecting the importance of comparisons among peers at the workplace.¹³

A 2014 study by Asebedo and Seay explored the relationship **between psychological attributes** and retirement satisfaction. It found that 'dispositional optimism', family support, purpose in life, and perceived mastery of day-to-day affairs were each positively associated with retirement satisfaction.¹⁴

2.5. What is the relationship between wealth and wellbeing?

In addition to income, various studies have explored the relationship between wealth and levels of wellbeing.

A 2004 study of five countries – Australia, Britain, Germany, Hungary and the Netherlands – found that wealth affects life satisfaction more than income.¹⁵ Results from panel regression

¹³ Boodoo U et al. (2014) "Relative income, absolute income and the life satisfaction of older adults: do retirees differ from the non-retired?" in *Industrial Relations Journal*, Vol. 45, Issue 4, p281-299

¹⁴ Asebedo S and Seay M (2014) "Positive Psychological Attributes and Retirement Satisfaction" in *Journal of Financial Counseling and Planning*, Vol. 25, Issue 2, p161-173

¹⁵ Headey B et al. (2004) *Money Doesn't Buy Happiness... Or Does It? A Reconsideration Based on the Combined Effects of Wealth, Income and Consumption*, Institute for the Study of Labor (IZA) in Bonn

fixed effects models indicated that changes in wealth, income and consumption all produce significant, though not large, changes in satisfaction levels.

Yadama and Sherraden noted that assets have a positive effect on expectations and confidence about the future; influence people to make specific plans with regard to work and family; induce more prudent and protective personal behaviours; and lead to greater social connectedness with relatives, neighbours, and organisations.¹⁶ A UK study found that asset holding is associated with positive health outcomes.¹⁷

2.6. Conclusion

The research reviewed in this chapter suggests that a relationship between income and wellbeing exists. Previous research also suggests a link between levels of secure income and wellbeing in retirement; however, the availability of evidence is limited owing to the small number of studies that have been undertaken.

Nevertheless, the determinants of wellbeing in retirement in old age are complex and multiple, and must take account of a U-shape in levels of wellbeing found across age groups. In addition, income is not the only economic determinant of wellbeing, and various studies have highlighted a wellbeing effect associated with assets and wealth.

Such research was used to inform the design of the exploratory, quantitative research presented here.

¹⁶ Yadama G and Sherraden M (1996) "Effects of Assets on Attitudes and Behaviors: Advance Test of a Social Policy Proposal" in *Social Work Research*, Vol. 20, p3-11, cited in Lerman R and McKernan S (2008) *The Effects of Holding Assets on Social and Economic Outcomes of Families: A Review of Theory and Evidence*, The Urban Institute

¹⁷ Bynner J and Despotidou (2001) *The Effects of Assets on Life Chances*, Center for Longitudinal Studies, Institute for Education

3.Data and methodology

3.1. Data

This study analysed data from Wave 6 (2012-13) of the English Longitudinal Study of Ageing (ELSA), which is a longitudinal, multidisciplinary social survey undertaken every two years, of a representative sample of the English population aged 50 and older.

ELSA was designed to understand the unfolding dynamics of ageing and the relationships between economic circumstances, social and psychological factors, health, cognitive function and biology as people move through retirement into older age. The original sample, first assessed in 2002, included more than 11,000 participants. Sample members have been re-interviewed every two years since then.

Only individuals who live in non-institutional settings participate in the ELSA sample, i.e. it is essentially representative of older people who live 'at home' in the community.

ELSA data are designed to be used for the investigation of a broad set of topics relevant to understanding the ageing process. These include:

- ▶ Health trajectories, disability and healthy life expectancy;
- ▶ The determinants of economic position in older age;
- ▶ The links between economic position, physical health, cognition and mental health; and
- ▶ Household and family structure, social networks and social supports.

The outcomes of interest to this study included measures of health and mental wellbeing, giving money to family and charity, financial security, participation in leisure activities, civic participation, and life satisfaction and quality.

Independent variables

The explanatory variables deployed in the study comprised:

- ▶ Income – in the form of guaranteed, annuitised income streams, including state and private pension income, benefit income and income from savings and investments;
- ▶ Wealth – in the form of non-housing wealth, including current/savings accounts, TESSAs, Cash and other ISAs, Premium Bonds, National Savings accounts, PEPs, Shares, Trusts, Bonds and Gilts, other savings and investments, second homes or other properties, farm or business properties, other physical assets, other business assets.

Control variables

Variables used to control for confounding in the analyses included measures of housing tenure, whether benefits were being received, sex and age of the respondent, age squared, whether they suffered from a long standing or limiting illness, marital status, level of

education, whether they had children and the size of their social circle (number of friends).

Sample

The dataset was reduced in order to focus on those individuals who were retired, or part of a couple where both were retired.

Any respondents who were earning through employment or self-employment, or part of a couple where one was earning, were also removed. Any respondents older than 90 years of age were removed as ELSA does not record the actual age of these respondents for data protection reasons.

Any respondents with no private pension income were also removed as private pension income is a central focus of this study.

The dataset was further reduced according to level of income and wealth by removing those respondents within the top and bottom deciles in both cases. This provided some assurance that any respondents with unusually low or high income and wealth would not unduly skew results.

These steps resulted in a sample size of 2,420 respondents. Due to missingness in variables (in particular, those from the self-completion survey instrument) the final results are based on samples of approximately 2,000 respondents.

3.2. Methodology

Regression models were estimated in order to identify the effect of income on a variety of outcomes, whilst controlling for a range of confounding factors¹⁸. The model specifications depended on the measurement scale of the outcome being modelled (continuous, count, ordinal, binary). For continuous outcomes, ordinary least squares models were employed; for count outcomes, Poisson models were employed; for ordinal outcomes, ordered probit models were employed; and for binary outcomes, binary probit models were employed. These different model specifications are necessary when using outcomes with specific measurement levels – i.e. binary (yes/no), ordinal (strongly disagree/disagree/agree/strongly agree), count (1, 2, 3, 4...), continuous (e.g. psychometric scale values). Where outcome measures were binary or ordinal they have been recoded so that a positive model coefficient indicates a positive outcome – i.e. as income increases, a positive coefficient would imply that income has a positive/beneficial effect on the outcome.

The ELSA sampling methodology is complex (clustered and stratified), and there are idiosyncratic missing data at each wave and for particular survey instruments (e.g. the self-completion instrument). As a result of this, the models were weighted to compensate for missingness (attrition, refusals, non-contacts, etc.), and incorporated adjustments to standard

¹⁸ In this research, for example, differences in wellbeing might be due to education rather than income. By controlling for the influence of education in the models, we can identify how wellbeing is associated with income, for people with the same level of education. In this example, education is a confounding factor.

errors to compensate for the non-independence of respondents within households (clustering) and stratification by government office region.

The measures of income and wealth were transformed to a logarithmic scale using natural logarithms in order to reduce positive skew. Income is typically highly skewed: most people have low and medium incomes; far fewer have very high incomes. Estimates from regression models tend to be more stable where variables are approximately normally distributed. Also, transforming monetary variables in this way compensates for the relative nature of differences in value. For example, a £50 per week increase in income is large for a person who currently receives £200 per week. In contrast, for someone who has an income of £500 per week, a £50 per week increase is relatively smaller. Where 'income' or 'wealth' are used in the remainder of this report, they refer to the natural logarithms of secure income and non-housing wealth.

Control variables were included as dummy variables where they were categorical:

- ▶ Housing tenure – whether renting (compared to a reference category of being an owner)
- ▶ Benefits – whether the respondent or couple were in receipt of benefits (compared to a reference category of non-receipt)
- ▶ Sex – whether the respondent was female (compared to a reference category of male)
- ▶ (Limiting) long standing illness – whether the respondent had a long standing illness, that (a) was or (b) was not limiting (compared to a reference category of no long term/limiting illness)
- ▶ Marital status – whether the respondent was (a) single, (b) widowed or (c) divorced (compared to a reference category of married)
- ▶ Level of education – whether the highest level of qualification the respondent has achieved is (a) higher education or A-level, (b) O-level or GCSE or CSE, or (c) has no qualifications (compared to a reference category of degree level education).

Three control variables were included as continuous variables:

- ▶ Age – the age in years of the respondent
- ▶ Age squared – the square of the age in years of the respondent
- ▶ Size of social circle – the number of friends the respondent had.

The standard approach of using a significance level of $p \leq 5\%$ (to reject the null hypothesis of no association) was used to judge whether estimates related to income and wealth were likely to be present in the wider population relevant to the study.

4. Descriptive analysis

4.1. Introduction

To provide context for the findings of the regression analysis, this chapter sets out descriptive analysis of the sample used in the research.

4.2. Income

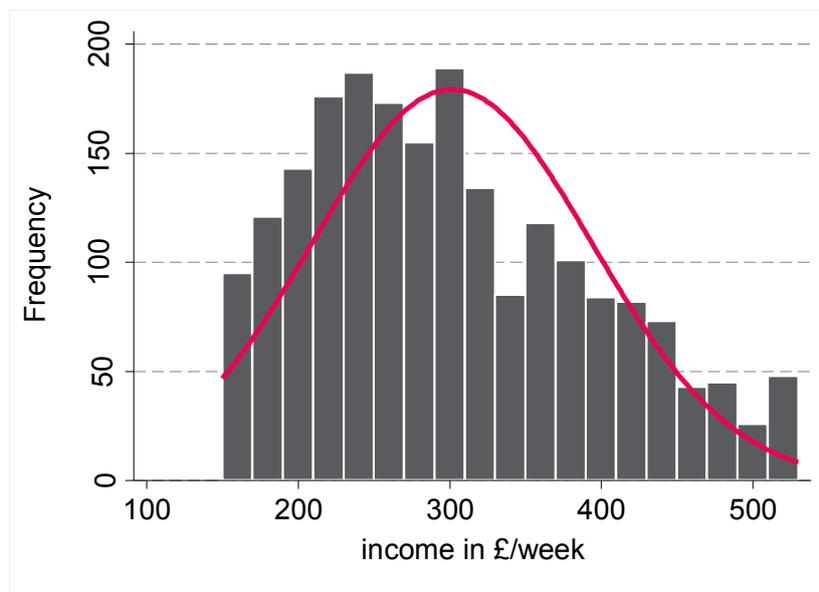
As noted, the sample used in the research (the 'study sample') comprised retirees aged <91, in receipt of private pension income, excluding individuals in employment and those in the top and bottom income and wealth deciles.

For income, the percentiles of the resulting sample were as follows (2012-13 prices):

- ▶ 25th: £228.30
- ▶ 50th: £288.32
- ▶ 75th: £367.87
- ▶ 95th: £477.02

The following chart comprises a histogram of equivalised secure income in £/week for the study sample, with a normal density curve overlay.

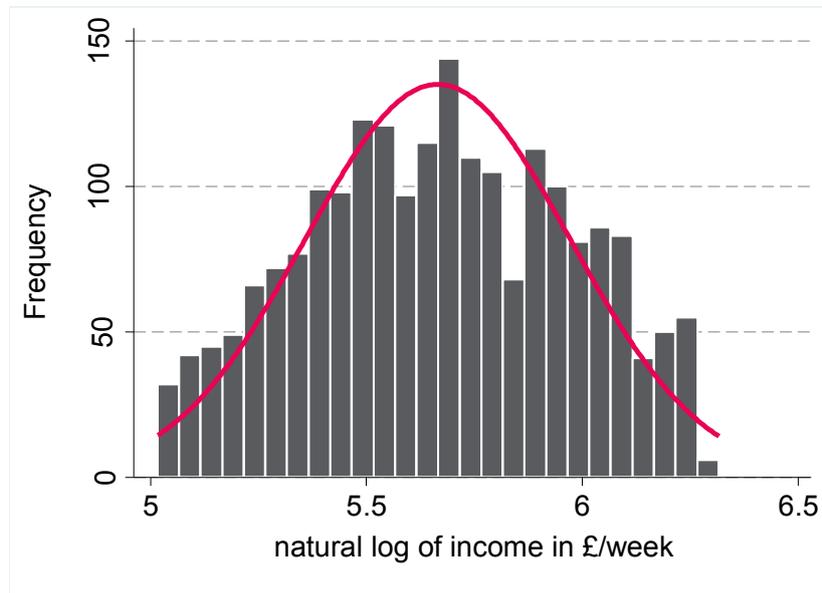
Figure 1: Histogram of equivalised secure income for study sample



As noted in the Methodology section, the measures of income were transformed to natural logarithms in order to reduce positive skew.

The following chart shows a histogram of the natural log of equivalised secure income in £/week for the study sample, with a normal density curve overlay.

Figure 2: Histogram of log of equivalised secure income for study sample



4.3. Wealth

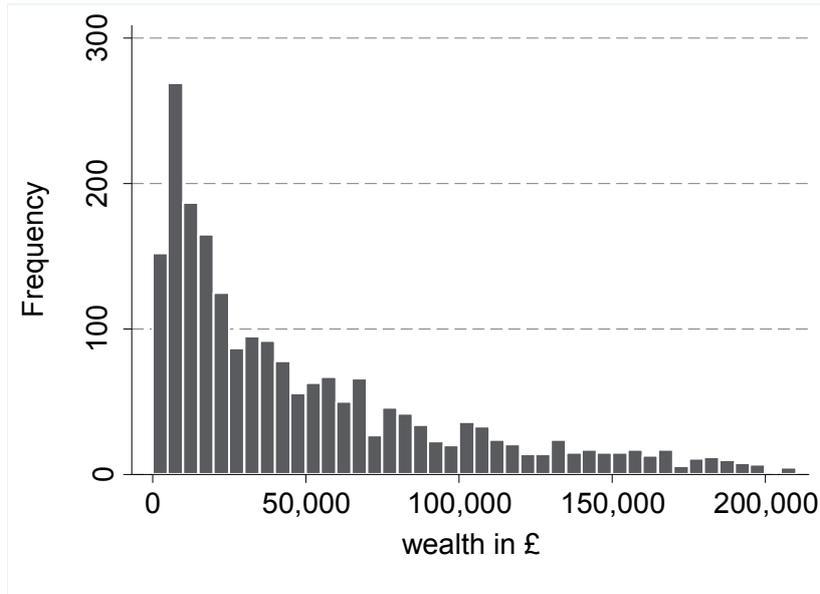
As noted above, non-housing wealth comprised current/savings accounts, TESSAs, Cash and other ISAs, Premium Bonds, etc.

The percentiles of wealth for the study sample were:

- ▶ 25th: £12,333
- ▶ 50th: £33,167
- ▶ 75th: £72,333
- ▶ 95th: £156,000

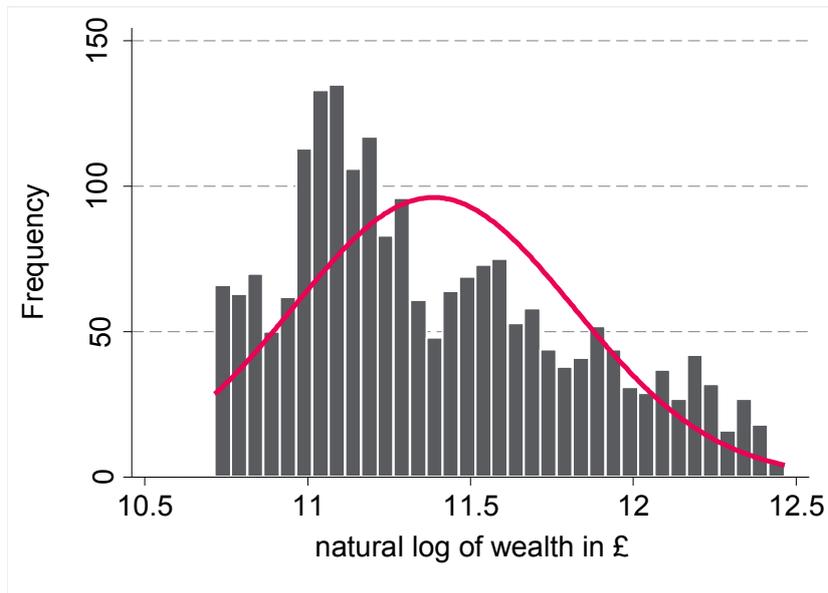
The following chart shows a histogram of equivalised non-housing wealth in £ for the study sample.

Figure 3: Histogram of equivalised non-housing wealth for study sample



As with income, the measure of non-housing wealth was transformed to the logarithmic scale using natural logarithms in order to reduce positive skew. The following chart shows a histogram of the log of equivalised non-housing wealth in £ for the study sample, with a normal density curve overlay.¹⁹

Figure 4: Histogram of log of equivalised non-housing wealth for study sample



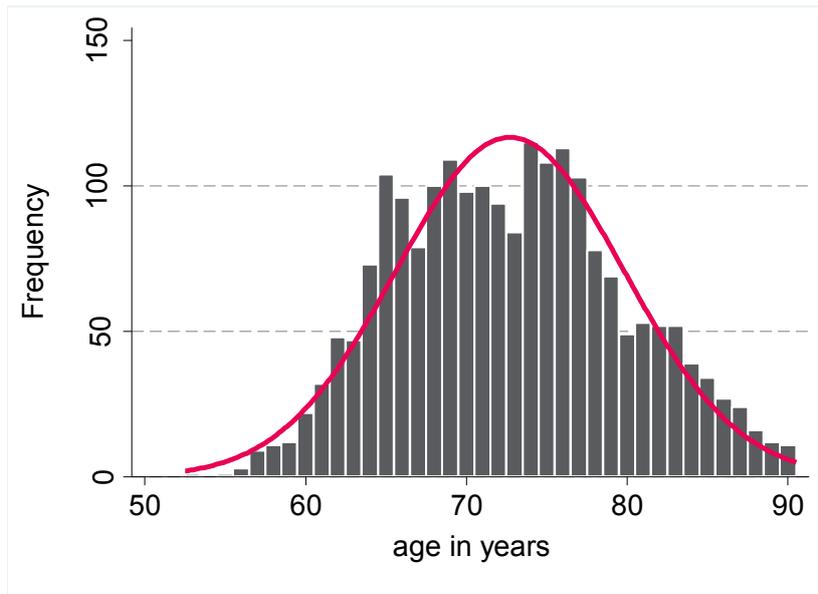
¹⁹ Before taking logs, £60,000 was added to all of the values in the original dataset, in order to account for debtors. This step was taken because logs of negative numbers are not defined. This does not affect estimates of association related to the explanatory variables in the regression models.

4.4. Control variables

A number of control variables were used in the regression analysis. Univariate descriptive analysis of these variables is presented below.

The following chart shows a histogram of age in years for the study sample, with a normal density curve overlay.

Figure 5: Histogram of age in years of study sample



The following tables described the remaining control variables for the study sample. There were more women than men in the sample.

Table 1: Sex of respondents in the study sample

Sex	Freq.	Percent
male	874	42.06
female	1,204	57.94
Total	2,078	100.00

A majority had a limiting or long standing illness.

Table 2: Limiting and long standing illness in the study sample

Has (limiting) long-standing illness	Freq.	Percent
none	750	36.09
yes, long standing	492	23.68
yes, limiting long standing	836	40.23
Total	2,078	100.00

A majority of the respondents were married, but there were also many widowed respondents.

Table 3: Marital status of respondents in the study sample

Marital status	Freq.	Percent
married	1,267	60.97
single	114	5.49
widowed	516	24.83
divorced	181	8.71
Total	2,078	100.00

The vast majority of the respondents owned their homes.

Table 4: Housing tenure of respondents in the study sample

Housing tenure	Freq.	Percent
owned	1,870	90.03
rented	207	9.97
Total	2,077	100.00

Likewise, most of the respondents had children.

Table 5: Respondents who have children in the study sample

Has children	Freq.	Percent
No	280	13.47
Yes	1,798	86.53
Total	2,078	100.00

Around a fifth of respondents received some form of benefit payment, or were part of a couple that did.

Table 6: Receipt of benefits in the study sample

Receiving benefits	Freq.	Percent
no	1,660	79.88
yes	418	20.12
Total	2,078	100.00

There was a wide distribution in the size of respondents' social circles. A majority had fewer than four close friends.

Table 7: Number of friends of respondents in the study sample

Number of close friends	Freq.	Percent
none	250	12.03
1	223	10.73
2	445	21.41
3	315	15.16
4	319	15.35
5	137	6.59
6	171	8.23
7+	218	10.49
Total	2,078	100.00

There was also wide variation in the highest educational qualification the respondents had received.

Table 8: Highest educational qualification of respondents in study sample

Highest qualification	Freq.	Percent
degree	269	12.99
highered	508	24.53
olevel	768	37.08
noqual	526	25.40
Total	2,071	100.00

5. Regression analysis

5.1. Overview

The results are grouped according to the substantive area to which the modelled outcomes relate:

- ▶ Health and mental wellbeing
- ▶ Giving money to family and charity
- ▶ Financial security
- ▶ Participation in leisure activities
- ▶ Civic participation, and
- ▶ Life satisfaction and quality.

The results presented in this chapter relate only to the variables of interest (income and wealth) and their association with the outcomes. Where possible, comparisons are made between the estimates for income and wealth.

5.2. Health and mental wellbeing

The health and mental wellbeing outcomes included:

- ▶ Self-rated health
- ▶ How young the respondent felt
- ▶ Whether the respondent had been diagnosed with cardiovascular disease (CVD) in the last two years
- ▶ Questions measuring depressive symptoms over the past week (adapted from the Center for Epidemiologic Studies Depression Scale (CES-D))²⁰
- ▶ Questions measuring autonomy and perceived control, and
- ▶ Questions measuring social isolation.

Very few significant associations were identified for these outcomes. Both income and wealth seemed to have little effect on the health and mental wellbeing measures.

The only significant associations which were identified for wealth related to an item from the CES-D scale – “I felt that everything I did in the past week was an effort” – and an association with the total score for this scale for the respondent. A one standard deviation (1sd) increase in wealth was associated with a 0.150sd ($p=0.001$) decrease in the probit of the CES-D item and a 7.9% decrease in the count rate (0.921, $p=0.037$).

²⁰ Eaton W et al. (2004) “Center for Epidemiologic Studies Depression Scale: Review and revision (CESD and CESD-R)” in Maruish ME, ed. *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment* 3rd ed. Mahwah, NJ: Lawrence Erlbaum, pp.363-377

In contrast, there were three significant associations of income with items measuring autonomy and perceived control. Two items – “I feel what happens in life is often determined by factors beyond my control”, and “In general, I have different demands that I think are hard to combine” – were associated with income, as well as the total score for this scale for the respondent. A 1sd increase in income was associated with a 0.064sd ($p=0.022$) decrease in the probit of the first item, a 0.105sd ($p<0.000$) decrease in the probit of the second item and a 0.272 ($p=0.006$) decrease in the total score for the scale.

Overall, there was evidence that wealth and income had small effects on mental wellbeing, when controlling for sex, age, age squared, and long-standing/limiting illnesses (and the other control variables). Wealth seemed to have a subtle effect on indicators of depressive symptoms, and income seemed to have a subtle effect on perceptions of autonomy and control.

5.3. Giving money to family and charity

The outcomes related to giving money to family and charity included:

- ▶ Whether the respondent gives money at all (to friends and family or charity)
- ▶ How much money the respondent gives
- ▶ Whether the respondent gives money to children
- ▶ Whether the respondent gives money to grandchildren
- ▶ Whether the respondent gives money to other relative
- ▶ Whether the respondent gives money to other non-relative
- ▶ Whether the respondent gives money to charity, and
- ▶ Self-perceived chances the respondent will leave an inheritance of £50,000 or more

Significant associations for both income and wealth were identified for giving money at all (to friends and family or charity) and the amount given. For giving money at all, the associations were of comparable size: 0.102sd ($p=0.014$) for income and 0.097sd ($p=0.031$) for wealth on the probit scale. However, income seemed to have a stronger effect on the amount given than wealth, with a 1sd increase in income associated with a 23.4% increase in amount given (1.234, $p<0.000$), and a 1sd increase in wealth associated with a 16% increase in amount given (1.161, $p=0.006$).

Only income was associated with giving money to the respondents' children and to charity. A 1sd increase in income was associated with a 0.113sd ($p=0.028$) increase in the probit of respondents giving money to their children, and a 0.084sd ($p=0.033$) increase in the probit of giving money to charity. It seems that the security provided by an income increased the chances of respondents feeling able to give money.

As might be expected, only wealth was associated with self-perceived chances of leaving an inheritance of £50,000 or more. A 1sd increase in wealth was associated with a large increase of 0.542sd ($p<0.000$) on the probit scale. This may reflect a tendency of respondents with wealth to preserve it, both in order to provide for their family when they are gone and more generally.

There were no significant associations of income or wealth with giving money to grandchildren, other relatives (not children), and other non-relatives.

5.4. Financial security

The outcomes related to financial security included:

- ▶ Questions measuring whether the respondent feels that having too little money stops them from doing/buying particular things
- ▶ How often the respondent feels they have too little money to spend on their needs, and
- ▶ Self-perceived chances the respondent will not have enough money in the future to meet their needs

There were many significant associations between income/wealth and the financial security outcomes. The only item from the first set of questions which was not associated with either income or wealth was the item “treat yourself from time to time”.

There were other items, however, only associated with wealth:

- ▶ “have family and friends round for a drink or a meal”
- ▶ “keep your home in a reasonable state of decoration”
- ▶ “pay for fares or other transport costs to get to and from places you want to go”, and
- ▶ “buy presents for friends or family once a year”.

The table below shows the change (decrease) in probits associated with a 1sd increase in income or wealth for each of the questions. Generally, the significant associations were larger for wealth, but all fell between 0.1sd and 0.3sd on the probit scale. These effects suggest that both income and wealth have moderate but important effects on reducing financial insecurity, but that wealth may provide a slightly stronger psychological reassurance.

Table 9: Estimates for income and wealth related to questions measuring whether the respondent feels that having too little money stops them from doing/buying particular things

Item	Income			Wealth		
	Estimate	P-Value		Estimate	P-Value	
Buy first choice food items	0.207	0.005	**	0.287	0.002	**
Have family and friends round for drink/meal	0.138	0.095		0.171	0.040	*
Have outfit to wear for social/family occasions	0.173	0.016	*	0.243	0.028	*
Keep home in a reasonable state of decoration	0.113	0.063		0.239	0.001	***
Replace or repair broken electrical goods	0.292	0.006	**	0.239	0.002	**
Pay for fares or other transport costs	0.134	0.118		0.208	0.036	*
Buy presents for friends/family once a year	0.041	0.620		0.312	0.001	***
Take the sorts of holidays you want	0.189	0.000	***	0.190	0.000	***
Treat yourself from time to time	0.028	0.667		0.137	0.065	
None of these	0.213	0.000	***	0.253	0.000	***

Note: estimates in probits associated with a 1sd change in log of income or log of wealth

The items were also counted in order to produce a total score for this scale. This score was associated with both income and wealth. A 1sd increase in income was associated with a 24% reduction in the count rate (0.761, $p < 0.000$), whereas a 1sd increase in wealth was associated with a 35% reduction in the count rate (0.652, $p < 0.000$). Unsurprisingly, income and wealth seem to have relatively strong associations with financial security.

Both income and wealth were associated with the outcome measuring how often the respondent feels they have too little money to spend on their needs. A 1sd increase in income was associated with a 0.191sd ($p < 0.000$) decrease on the probit scale, whereas a 1sd increase in wealth was associated with a 0.252sd ($p < 0.000$) decrease.

Only wealth was associated with the respondents' self-perceived chances they will not have enough money in the future to meet their needs. A 1sd increase in wealth was associated with a 0.258sd ($p = 0.028$) decrease in self-perceived chances on the probit scale.

Overall, these associations suggest that wealth has a stronger impact on financial security than income. Nevertheless, income seems to play a crucial role, and in many cases, its effects were comparable to those of wealth.

5.5. Participation in leisure activities

The outcomes related to participation in leisure activities included:

- ▶ How often the respondent...
 - Went to the cinema
 - Ate out of the house
 - Went to an art gallery or museum, and

- Went to the theatre, a concert or the opera
- ▶ Which of these activities the respondent would like to do more, and
- ▶ Whether the respondent...
 - Reads a daily newspaper
 - Has a hobby or pastime
 - Has taken a holiday in the UK in the last 12 months
 - Has taken a holiday abroad in the last 12 months
 - Has gone on a daytrip or outing in the last 12 months
 - Owns a mobile phone
 - Or, none of these statements apply to the respondent

Participation in the first set of activities was consistently associated with income, but not wealth. A 1sd increase in income was associated with an increase on the probit scale of 0.10 to 0.15sd ($p < 0.000$) in participating in these leisure activities. The only association with wealth related to going to “the theatre, a concert or the opera” (0.075sd, $p = 0.015$).

In terms of wanting to do these activities more, the only significant association was that of income with wanting to eat out of the house more. A 1sd increase in income was associated with a reduction on the probit scale of 0.126sd ($p = 0.001$) in wanting to eat out more.

Income was also associated with most of the final set of questions, relating to reading a newspaper, etc. The only questions it was not associated with were going on a “daytrip or outing in the last 12 months” and the respondent answering that “none of these statements apply”. For the rest, a 1sd increase in income was associated with an increase of 0.08 to 0.12sd on the probit scale. In contrast, wealth was associated only with having “a hobby or pastime”, associated with an increase of 0.107sd ($p = 0.018$) on the probit scale for a 1sd increase in wealth.

The table below shows the change in probits associated with a 1sd change in income or wealth for the questions relating to participation in leisure activities (excluding those asking the respondent which of the activities they would like to do more). These associations suggest that income has an important effect on regular participation in leisure activities. It seems likely that the regularity of a secure income provides an impetus for expenditure on leisure activities, which is not provided by wealth.

Table 10: Estimates for income and wealth related to questions measuring participation in leisure activities

Item	Income			Wealth		
	Estimate	P-Value		Estimate	P-Value	
Go to the cinema	0.119	0.000	***	0.019	0.600	
Eat out of the house	0.127	0.000	***	0.041	0.174	
Go to an art gallery or museum	0.124	0.000	***	0.024	0.452	
Go to the theatre, a concert or the opera	0.152	0.000	***	0.075	0.015	*
Read a daily newspaper	0.083	0.024	*	-0.008	0.839	
Have a hobby or pastime	0.125	0.002	**	0.107	0.018	*
Have taken a holiday in UK in last 12 months	0.099	0.009	**	0.045	0.259	
Have taken a holiday abroad in last 12 months	0.112	0.005	**	0.057	0.153	
Have gone on daytrip/outing in last 12 months	0.026	0.504		0.068	0.088	
Own a mobile phone	0.120	0.005	**	-0.065	0.103	
None of these statements apply	0.116	0.243		0.067	0.555	

Note: estimates in probits associated with a 1sd change in log of income or log of wealth

5.6. Civic participation

The outcomes related to civic participation included a range of questions asking about membership of particular classes, societies, organisations and groups:

- ▶ Political party, trade union or environmental groups
- ▶ Tenants groups, resident groups, neighbourhood watch
- ▶ Church or other religious groups
- ▶ Charitable associations
- ▶ Education, arts or music groups or evening classes
- ▶ Social Clubs
- ▶ Sports clubs, gyms, exercise classes
- ▶ Any other organisations, clubs or societies
- ▶ Or, the respondent is not a member of any organisations, clubs or societies

Both income and wealth were associated with civic participation. Income was associated with being a member of a “political party, trade union or environmental groups”, “tenants groups, resident groups, neighbourhood watch”, “education, arts or music groups or evening classes”, “sports clubs, gyms, exercise classes”, “any other organisations, clubs or societies” and not being a member of “any organisations, clubs or societies” (this question was reverse coded). Wealth was associated with being a member of a “church or other religious groups”, “charitable associations”, or “sports clubs, gyms, exercise classes”.

The associations tended to be larger for income than for wealth, for the respective organisations. The table below shows the change in probits associated with a 1sd change in income or wealth for the questions relating to civic participation. As with participation in leisure

activities, it seems that income is able to provide better support for regular participation in various organisations. Considering the importance the government has previously placed on civic participation and creating ‘the Big Society’²¹ – the estimates related to “political party, trade union, environmental groups” and “tenants group, resident groups, etc.” are particularly interesting. If government policy reduces levels of secure income, it could also reduce civic participation, hindering the aims of the Big Society policy. Likewise, the association with “education, arts, music groups or evening classes” would be of particular interest to policy makers interested in lifelong learning. Government research has found that participation in learning by older adults is associated with higher levels of wellbeing.²²

Table 11: Estimates for income and wealth related to civic participation

Item	Income			Wealth		
	Estimate	P-Value		Estimate	P-Value	
Political party, trade union, environmental groups	0.199	0.000	***	-0.004	0.933	
Tenants groups, resident groups, etc.	0.134	0.003	**	0.012	0.803	
Church or other religious groups	0.002	0.964		0.089	0.042	*
Charitable associations	0.068	0.086		0.098	0.013	*
Education, arts, music groups or evening classes	0.152	0.002	**	0.049	0.301	
Social clubs	0.017	0.685		0.028	0.504	
Sports clubs, gyms, exercise classes	0.112	0.003	**	0.091	0.019	*
Any other organisations, clubs or societies	0.113	0.002	**	0.067	0.058	
Not a member of any organisations, etc.	0.137	0.001	***	0.080	0.055	

Note: estimates in probits associated with a 1sd change in log of income or log of wealth

The answers to the questions were also tallied in order to produce a total count of the number of organisation types the respondent was a member of. The count was associated with both income and wealth. A 1sd increase in income was associated with a 13% increase in the count rate (1.127, $p < 0.000$), whereas a 1sd increase in wealth was associated with an 8% increase in the count rate (1.077, $p = 0.001$). This suggests that income has a stronger effect than wealth on the number of classes, societies, organisations and groups that older people participate in.

5.7. Life satisfaction and quality

The outcomes related to life satisfaction and quality included:

► Questions from the Satisfaction with Life Scale²³

²¹ Cabinet Office (2010) “Building the Big Society”, Cabinet Office, accessed 13/07/2015, available at: <https://www.gov.uk/government/publications/building-the-big-society>

²² Jenkins A and Mostafa T (2012) “Learning and Wellbeing Trajectories Among Older Adults in England”, Department for Business Innovation & Skills, accessed 13/07/2015, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244712/bis-12-1242-learning-and-wellbeing-trajectories-among-older-adults.pdf

²³ Diener E et al. (1985) “The Satisfaction With Life Scale” in *Journal of Personality Assessment*, Vol. 49, Issue 1

- ▶ Questions from the CASP-19 scale of quality of life,²⁴ and
- ▶ Self-perceived position on a ladder measuring how well-off the respondent is compared to other people.

Income was associated with agreement to two of the questions from the Satisfaction with Life Scale: “the conditions of my life are excellent” and “so far I have got the important things I want in life”. A 1sd increase in income was associated with a 0.069sd ($p=0.025$) increase in the first, and a 0.058sd ($p=0.043$) increase in the second. None of the other questions were associated with income, and nor was the total score on the scale. Wealth was not associated with any of the questions or the total score on the scale.

In contrast, several questions from the CASP-19 scale were associated with income and/or wealth. Both income and wealth were associated with the items measuring how often the respondents “feel free to plan for the future”, think that “shortage of money stops me from doing things I want to do”, and “feel satisfied with the way my life has turned out”. Additionally, income was associated with the item measuring how often the respondents “feel full of energy these days”. Wealth was also associated with how often the respondents feel that “age prevents me from doing the things I would like to”, “look forward to each day” and “[...] look back on my life with a sense of happiness” (negative questions were reverse coded).

The table below shows the change in probits associated with a 1sd change in income or wealth for the questions relating to life satisfaction and quality. Apart from the item “shortage of money stops me from doing things I want to do”, the associations were relatively weak. Nevertheless, there seem to be subtle effects of income and wealth on life satisfaction and quality.

Both income and wealth were also associated with the total score on the CASP-19 scale. A 1sd increase in income was associated with 0.602 ($p=0.002$) increase in the score on the scale, whereas a 1sd increase in wealth was associated with a 0.556 ($p=0.005$) increase in the score. These differences are small, considering that the mean of the score was 60.2 and the standard deviation was 8.22.

There was also an association of both income and wealth with the respondents’ self-perceived position on a ladder measuring how well-off the respondent is compared to other people. A 1sd increase in income was associated with a 1.95% ($p<0.000$) increase in position, whereas a 1sd increase in wealth was associated with a 1.54% ($p<0.000$) increase. These effects are more substantial, and reflect an important influence of both income and wealth on perceptions of social standing. It is interesting that income seemed to have a stronger effect than wealth in this case, based on the point estimates.

²⁴ Wiggins R et al. (2008) "The Evaluation of a Self-enumerated Scale of Quality of Life (CASP-19) in the Context of Research on Ageing: A Combination of Exploratory and Confirmatory Approaches" in *Social Indicators Research* Volume 89, Issue 1, pp.61-77

Table 12: Estimates for income and wealth related to questions on life satisfaction and quality

Item	Income		Wealth		
	Estimate	P-Value	Estimate	P-Value	
Age prevents me from doing things I'd like to do	0.019	0.529	0.093	0.001	***
I feel what happens to me is out of my control	0.042	0.174	0.052	0.080	
I feel free to plan for the future	0.081	0.011	0.064	0.049	*
I feel left out of things	0.051	0.095	-0.017	0.551	
I can do the things that I want to do	0.039	0.225	0.048	0.144	
Family responsibilities prevent me doing what I want	0.055	0.064	-0.024	0.444	
I feel that I can please myself what I do	0.002	0.954	0.051	0.119	
My health stops me from doing things I want to do	-0.010	0.722	0.023	0.425	
Shortage of money stops me doing things I want to do	0.193	0.000	0.230	0.000	***
I look forward to each day	0.059	0.086	0.085	0.018	*
I feel that my life has meaning	0.041	0.214	-0.006	0.859	
I enjoy the things that I do	0.064	0.078	0.070	0.086	
I enjoy being in the company of others	0.049	0.145	0.005	0.889	
I look back on my life with a sense of happiness	0.057	0.089	0.069	0.050	*
I feel full of energy these days	0.068	0.020	0.040	0.176	
I choose to do things that I have never done before	0.025	0.390	0.045	0.131	
I feel satisfied with the way my life has turned out	0.064	0.046	0.091	0.005	**
I feel that life is full of opportunities	0.042	0.173	0.063	0.035	*
I feel that the future looks good for me	0.024	0.442	0.039	0.213	

Note: estimates in probits associated with a 1sd change in log of income or log of wealth

5.8. Low income analysis

An additional piece of analysis was undertaken in order to identify whether the association of secure income and non-housing wealth on the health and wellbeing outcomes was different for low income respondents. It was hypothesised that the implications of a secure income for those at the low end of the income scale may be particularly salient. The sample was split into those who had an income of less than £217 per week, and those with an income of more than £217 per week (equivalised and at the benefit unit level). Seeing as the <£217 per week sample size was relatively small, and the focus of the analysis was on low income respondents, it was decided to run the analysis using the entire sample of retirees with no employment income; i.e. the upper and lower deciles of income and wealth were retained, along with those respondents with no private pension income.

Tables containing the resulting estimates related to income and wealth for the two groups are presented in the appendices. Surprisingly, the results showed that there were virtually no

associations of level of income with the outcomes for those in the low income group. In contrast, there were many highly significant associations of the outcomes with wealth. The associations with the outcomes measuring financial security were particularly strong.

Strikingly, the associations between income and the outcomes *were* apparent in the higher income group. The associations with participation in civic and leisure activities, life satisfaction and quality tended to be larger than for wealth. Nevertheless, the impact of wealth on outcomes related to perceived financial security was strong and consistent. These results suggest that wealth has an important role to play in providing financial security. For those with good incomes and wealth, income is of more practical importance in encouraging an active and engaged lifestyle, with greater life satisfaction and quality. For those with low incomes, wealth may provide a crucial security blanket, for which small changes in (low) income cannot substitute.

5.9. Limitations of the research

It is important to note that there are several limitations with the research presented in this study. Firstly, a large number of models were run with little consideration made as to whether the models were ideally specified:

- ▶ The same explanatory variables were used in each model regardless of whether they were appropriate in that specific case;
- ▶ No model selection was undertaken, for example by dropping non-significant terms (this can cause the remaining associations to be suppressed);
- ▶ No polynomial terms were included (except for age squared), and interactions were not investigated; and
- ▶ The structure of the data (clustered and stratified) was not explicitly taken into account in the model specifications, but was instead adjusted for (multilevel modelling can be used to explicitly take account of multilevel data by allowing within and between effects to be identified).

This study is in essence exploratory, and so it was designed to rapidly identify those aspects of health and wellbeing which may be influenced to some extent by income and wealth, whilst controlling for a range of confounding factors. A more thorough investigation into each of these individual outcomes was beyond the scope of the study. Nevertheless, this study provides a good foundation on which to base further in-depth research in the future.

Second, no adjustments were made for multiple testing. Running a large number of models is bound to result in some significant findings simply through random variation in the sample data. Where significant findings were grouped according to particular types of outcome, we can be more confident that these associations will be present in the population from which ELSA was sampled. Likewise, by summarising non-significant findings and making all of the results for all of the models available (a separate Excel file is available online), transparency regarding the findings is ensured.

Third, due to focusing on specific people within ELSA (those retired, who are not earning through employment, who have a private pension income, are under 90 and do not have unusually large or small incomes and/or wealth levels), the sample size was reduced

considerably. This may have made the sample less representative of the general population than might have been the case otherwise. Also, as ELSA is a longitudinal study, it is susceptible to the types of bias that occur when sample attrition selectively affects participation by particular respondents. By weighting the analyses (using the self-completion weight available in ELSA wave 6), we have tried to account for this.

Finally, this study was based on wave 6 of ELSA and so is cross-sectional and specific to a particular time period. The data was collected in 2012-13 and so it is arguable that conditions in England have changed since then. Also, the models conflate age with cohort effects, and do not allow the estimation of within-individual associations. Future research could look into using more waves of ELSA in order to analyse the longitudinal impacts of changes in income and wealth on health and wellbeing.

6. Conclusion

6.1. The research findings in context

The April 2015 changes to taxation of DC pension savings represented a fundamental break with the preceding ‘annuities deal’, which had shaped UK pension policy since 1921. The experience of other countries with voluntary annuitisation frameworks suggests that in the wake of the April 2015 changes, rates of annuitisation – and ultimately, average retirement incomes – may decline significantly.

In this context, the statistically significant associations between level of secure income and retirement outcomes identified in this research can be considered important, and a potential clue as to the longer-term, wider impact of the April 2015 changes.

Indeed, if the April 2015 changes to pension reform result in pension savers obtaining a lower secure income with their DC pension savings, it would appear that levels of wellbeing in the older population are likely to decline, for example, in relation to:

- ▶ Participation in leisure activities, such as going to the cinema, reading a daily newspaper and taking a holiday during the last year
- ▶ Owning a mobile phone, giving money to children and making charitable donations
- ▶ Life satisfaction, for example reporting that the “conditions of my life are excellent” and “I have got the important things I want in life”, and being less likely to report that “I feel what happens in life is often determined by factors beyond my control”, and
- ▶ Civic participation, for example, in classes, organisations, and civic and social groups.

As noted, these findings are independent of level of non-housing wealth, i.e. controlling for a person’s level of non-housing wealth, level of secure income is associated with variations in these outcomes.

Overall, these results suggest it would be wise for both researchers and the government to investigate the future effect of the April 2015 changes on wellbeing in the older population, and to monitor these effects closely.

7. Appendix 1: Income-poverty comparative analysis

In order to identify whether the association of secure income and non-housing wealth on the health and wellbeing outcomes was different for low income respondents, the sample was split into those who had an income of less than £217 per week, and those with an income of more than £217 per week (equivalised and at the benefit unit level). Seeing as the <£217 per week sample size was relatively small, and the focus of the analysis was on low income respondents, it was decided to run the analysis using the entire sample of retirees with no employment income; i.e. the upper and lower deciles of income and wealth were included, along with those respondents with no private pension income.

The resulting estimates are shown in the tables on the following pages. The results are spread over two tables for the low income group, and two tables for the high income group. The results showed that there were virtually no associations of level of income with the outcomes for those with a low income. In contrast, there were many highly significant associations of the outcomes with wealth. The associations with the outcomes measuring financial security were particularly strong. This suggests that differences in income do not have a strong wellbeing effect at low income levels, but that accruing wealth provides a level of security that positively impacts on wellbeing.

Strikingly, the associations with income described in the main analysis were apparent in the higher income group. The associations with participation in civic and leisure activities, life satisfaction and quality tended to be larger than for wealth. Nevertheless, the impact of wealth on outcomes related to perceived financial security was strong and consistent. These results suggest that wealth has an important role to play in providing financial security. For those with good incomes and wealth, income is of more practical importance in encouraging an active and engaged lifestyle, with greater life satisfaction and quality. For those with low incomes, wealth may provide a crucial security blanket, for which small changes in income cannot substitute.

**Table 13: Estimates for income and wealth for respondents with income <£217 per week
(table continued on next page)**

Model type	Income		Wealth		Question item / Total score
	Std.Est.	P-Value	Std.Est.	P-Value	
oprobit	0.042	0.216	0.124	0.002 **	Self-rated health
oprobit	-0.074	0.111	-0.062	0.173	How young you feel
probit	0.083	0.046 *	-0.034	0.589	Not diagnosed in last two years with CVD
probit	-0.001	0.991	0.002	0.967	Psychiatric problem
poisson	0.978	0.600	0.943	0.252	Total score
probit	0.027	0.662	0.007	0.906	you felt depressed?
probit	0.033	0.544	0.138	0.022 *	you felt that everything you did was an effort?
probit	0.060	0.232	0.112	0.028 *	your sleep was restless?
probit	-0.074	0.136	-0.061	0.303	you were happy?
probit	-0.101	0.058	0.045	0.475	you felt lonely?
probit	0.010	0.825	-0.056	0.317	you enjoyed life?
probit	0.017	0.774	0.010	0.861	you felt sad?
probit	0.039	0.459	0.068	0.202	you could not get going?
ols	0.144	0.234	0.093	0.583	Total score
oprobit	0.007	0.804	0.083	0.040 *	At home, has control over what happens in most situations
oprobit	0.022	0.477	0.013	0.811	What happens often determined by factors beyond control
oprobit	0.021	0.426	-0.001	0.982	Has different demands that thinks are hard to combine
oprobit	0.009	0.776	0.034	0.396	In general, I have enough time to do everything
oprobit	0.056	0.036 *	-0.018	0.621	Considering things has to do at home, has to work very fast
poisson	0.993	0.889	0.960	0.173	Total score
oprobit	0.013	0.816	0.063	0.170	How often do you feel you lack companionship?
oprobit	0.023	0.711	0.034	0.448	How often do you feel left out?
oprobit	0.006	0.928	0.054	0.317	How often do you feel isolated from others?
oprobit	-0.034	0.404	-0.010	0.809	How often do you feel in tune with the people around you?
oprobit	0.016	0.784	0.089	0.063	How often do you feel lonely?
probit	-0.042	0.397	0.114	0.037 *	Do you give money?
ols	0.046	0.405	0.274	0.000 ***	Log amount of money given
probit	0.069	0.295	0.072	0.260	Money given to children
probit	0.092	0.246	0.257	0.000 ***	Money given to grandchildren
probit	-0.029	0.590	0.152	0.021 *	Money given to other relative
probit	0.103	0.362	-0.090	0.390	Money given to other non-relative
probit	-0.035	0.526	0.077	0.134	Money given to charity
probit	0.077	0.140	0.734	0.000 ***	Chances of leaving £50,000 or more inheritance
poisson	0.949	0.113	0.722	0.001 ***	Total score
probit	0.011	0.825	0.254	0.007 **	Buying first choice food items
probit	-0.030	0.570	0.214	0.027 *	Have family and friends round for a drink or meal
probit	-0.099	0.136	0.323	0.011 *	Have an outfit to wear for social or family occasions
probit	0.063	0.284	0.370	0.009 **	Keep your home in a reasonable state of decoration
probit	0.023	0.723	0.316	0.051	Replace or repair broken electrical goods
probit	-0.118	0.098	0.274	0.014 *	Pay for fares or transport costs to get to and from places
probit	0.106	0.088	0.617	0.001 ***	Buy presents for friends or family once a year
probit	0.088	0.178	0.532	0.000 ***	Take the sorts of holidays you want
probit	0.144	0.020 *	0.256	0.021 *	Treat yourself from time to time
probit	0.085	0.206	0.572	0.000 ***	None of these
oprobit	-0.043	0.319	0.306	0.000 ***	Find has too little money to spend on needs
probit	0.087	0.177	0.173	0.089	Chances will not have enough money to meet needs
oprobit	-0.055	0.203	0.002	0.961	Go to the cinema
oprobit	-0.016	0.753	0.113	0.024 *	Eat out of the house
oprobit	0.034	0.442	0.023	0.597	Go to an art gallery or museum
oprobit	0.017	0.625	0.065	0.134	Go to the theatre, a concert or the opera

Note: coefficients x-standardised and exponentiated for Poisson model type

**Table 14: Estimates for income and wealth for respondents with income <£217 per week
(table continued from previous page)**

Model type	Income		Wealth		Question item / Total score
	Std.Est.	P-Value	Std.Est.	P-Value	
Count	0.997	0.920	0.933	0.140	Total score
probit	0.050	0.273	0.049	0.353	Go to the cinema
probit	-0.097	0.032 *	0.082	0.101	Eat out of the house
probit	0.073	0.123	0.127	0.053	Go to an art gallery or museum
probit	-0.008	0.852	0.037	0.414	Go to the theatre, a concert or the opera
probit	0.015	0.771	-0.056	0.254	I read a daily newspaper
probit	0.080	0.086	0.106	0.052	I have a hobby or pastime
probit	-0.011	0.795	0.152	0.004 **	I have taken a holiday in the UK in the last 12 months
probit	-0.064	0.199	0.176	0.000 ***	I have taken a holiday abroad in the last 12 months
probit	0.048	0.284	0.099	0.045 *	I have gone on a daytrip or outing in the last 12 months
probit	0.027	0.574	0.015	0.768	Own a mobile phone
probit	0.103	0.091	-0.074	0.393	None of these statements apply to me
poisson	1.034	0.437	1.107	0.000 ***	Total score
probit	0.037	0.575	-0.040	0.579	Political party, trade union or environmental groups
probit	0.004	0.945	0.121	0.010 **	Tenants groups, resident groups, Neighbourhood watch
probit	-0.018	0.715	0.067	0.202	Church or other religious groups
probit	-0.021	0.692	0.090	0.053	Charitable associations
probit	0.045	0.393	0.165	0.014 *	Education, arts or music groups or evening classes
probit	0.116	0.053	0.021	0.632	Social Clubs
probit	-0.001	0.977	0.093	0.047 *	Sports clubs, gyms, exercise classes
probit	0.105	0.054	0.088	0.037 *	Any other organisations, clubs or societies
probit	0.072	0.165	0.206	0.000 ***	Not a member of any organisations, clubs or societies
ols	-0.068	0.766	0.386	0.117	Total score
oprobit	0.013	0.663	0.088	0.030 *	In most ways my life is close to ideal
oprobit	0.016	0.614	0.106	0.009 **	The conditions of my life are excellent
oprobit	0.033	0.278	0.031	0.481	I am satisfied with my life
oprobit	0.014	0.716	0.050	0.244	So far I have got the important things I want in life
oprobit	0.003	0.933	0.016	0.675	If I could live life again, I would change almost nothing
ols	0.137	0.543	0.882	0.001 ***	Total score
oprobit	0.027	0.279	0.043	0.343	My age prevents me from doing the things I would like to
oprobit	0.050	0.062	0.037	0.394	I feel that what happens to me is out of my control
oprobit	0.030	0.219	0.146	0.001 ***	I feel free to plan for the future
oprobit	-0.019	0.584	0.061	0.080	I feel left out of things
oprobit	0.046	0.081	0.060	0.127	I can do the things that I want to do
oprobit	0.003	0.942	-0.006	0.882	Family responsibilities prevent me from doing what I want to
oprobit	0.063	0.021 *	0.000	0.995	I feel that I can please myself what I do
oprobit	0.011	0.764	0.058	0.220	My health stops me from doing things I want to do
oprobit	0.030	0.424	0.368	0.000 ***	Shortage of money stops me from doing things I want to do
oprobit	0.020	0.660	0.021	0.640	I look forward to each day
oprobit	0.005	0.889	0.034	0.454	I feel that my life has meaning
oprobit	-0.023	0.704	0.107	0.043 *	I enjoy the things that I do
oprobit	0.011	0.860	0.105	0.022 *	I enjoy being in the company of others
oprobit	0.025	0.496	0.107	0.010 **	On balance, I look back on my life with a sense of happiness
oprobit	-0.030	0.332	0.026	0.618	I feel full of energy these days
oprobit	-0.012	0.657	0.045	0.167	I choose to do things that I have never done before
oprobit	0.000	0.996	0.104	0.009 **	I feel satisfied with the way my life has turned out
oprobit	0.025	0.243	0.088	0.015 *	I feel that life is full of opportunities
oprobit	-0.004	0.879	0.102	0.007 **	I feel that the future looks good for me
ols	0.063	0.918	3.521	0.000 ***	Self-perceived position on ladder measuring affluence

Note: coefficients x-standardised and exponentiated for Poisson model type

**Table 15: Estimates for income and wealth for respondents with income \geq £217 per week
(table continued on next page)**

Model type	Income		Wealth		Question item / Total score
	Std.Est.	P-Value	Std.Est.	P-Value	
oprobit	0.056	0.037 *	0.060	0.047 *	Self-rated health
oprobit	0.026	0.325	-0.041	0.130	How young you feel
probit	-0.068	0.076	0.126	0.002 **	Not diagnosed in last two years with CVD
probit	-0.045	0.303	0.090	0.071	Psychiatric problem
poisson	0.957	0.249	0.945	0.170	Total score
probit	0.007	0.895	-0.013	0.797	you felt depressed?
probit	-0.020	0.661	0.095	0.049 *	you felt that everything you did was an effort?
probit	0.031	0.344	0.001	0.975	your sleep was restless?
probit	-0.022	0.660	0.045	0.410	you were happy?
probit	0.009	0.871	0.024	0.672	you felt lonely?
probit	0.020	0.715	0.091	0.135	you enjoyed life?
probit	0.063	0.143	0.008	0.857	you felt sad?
probit	0.023	0.633	0.067	0.148	you could not get going?
ols	0.286	0.010 **	0.206	0.042 *	Total score
oprobit	0.089	0.002 **	-0.017	0.597	At home, has control over what happens in most situations
oprobit	0.074	0.036 *	0.048	0.104	What happens often determined by factors beyond control
oprobit	0.048	0.096	0.066	0.025 *	Has different demands that thinks are hard to combine
oprobit	0.042	0.163	0.035	0.227	In general, I have enough time to do everything
oprobit	0.012	0.648	0.033	0.223	Considering things has to do at home, has to work very fast
poisson	0.933	0.005 **	0.995	0.848	Total score
oprobit	0.039	0.249	0.013	0.695	How often do you feel you lack companionship?
oprobit	0.107	0.002 **	-0.027	0.467	How often do you feel left out?
oprobit	0.076	0.034 *	0.019	0.614	How often do you feel isolated from others?
oprobit	0.032	0.284	-0.003	0.926	How often do you feel in tune with the people around you?
oprobit	0.060	0.096	0.023	0.514	How often do you feel lonely?
probit	0.080	0.060	0.094	0.041 *	Do you give money?
ols	0.161	0.001 ***	0.158	0.001 ***	Log amount of money given
probit	0.119	0.012 *	-0.041	0.404	Money given to children
probit	0.049	0.353	0.053	0.312	Money given to grandchildren
probit	0.009	0.910	0.132	0.104	Money given to other relative
probit	-0.069	0.354	0.155	0.047 *	Money given to other non-relative
probit	0.105	0.007 **	0.025	0.547	Money given to charity
probit	-0.146	0.069	0.721	0.000 ***	Chances of leaving £50,000 or more inheritance
poisson	0.801	0.011 *	0.432	0.000 ***	Total score
probit	0.140	0.084	0.251	0.032 *	Buying first choice food items
probit	0.177	0.085	0.387	0.006 **	Have family and friends round for a drink or meal
probit	0.121	0.222	0.674	0.000 ***	Have an outfit to wear for social or family occasions
probit	0.088	0.206	0.342	0.000 ***	Keep your home in a reasonable state of decoration
probit	0.108	0.274	0.508	0.000 ***	Replace or repair broken electrical goods
probit	0.259	0.022 *	0.324	0.025 *	Pay for fares or transport costs to get to and from places
probit	0.159	0.087	0.648	0.000 ***	Buy presents for friends or family once a year
probit	0.125	0.026 *	0.379	0.000 ***	Take the sorts of holidays you want
probit	0.022	0.757	0.431	0.000 ***	Treat yourself from time to time
probit	0.142	0.007 **	0.398	0.000 ***	None of these
oprobit	0.105	0.004 **	0.338	0.000 ***	Find has too little money to spend on needs
probit	0.046	0.658	0.200	0.051	Chances will not have enough money to meet needs
oprobit	0.120	0.000 ***	0.044	0.162	Go to the cinema
oprobit	0.093	0.011 *	0.060	0.080	Eat out of the house
oprobit	0.104	0.001 ***	0.081	0.009 **	Go to an art gallery or museum
oprobit	0.149	0.000 ***	0.058	0.051	Go to the theatre, a concert or the opera

Note: coefficients x-standardised and exponentiated for Poisson model type

**Table 16: Estimates for income and wealth for respondents with income \geq £217 per week
(table continued from previous page)**

Model type	Income		Wealth		Question item / Total score
	Std.Est.	P-Value	Std.Est.	P-Value	
poisson	0.987	0.777	0.958	0.262	Total score
probit	-0.028	0.482	0.009	0.824	Go to the cinema more
probit	0.069	0.136	0.075	0.072	Eat out of the house more
probit	-0.022	0.586	-0.003	0.946	Go to an art gallery or museum more
probit	-0.002	0.955	0.050	0.168	Go to the theatre, a concert or the opera more
probit	0.117	0.002 **	-0.017	0.657	I read a daily newspaper
probit	0.031	0.450	0.031	0.465	I have a hobby or pastime
probit	0.041	0.369	0.070	0.095	I have taken a holiday in the UK in the last 12 months
probit	0.152	0.000 ***	0.118	0.003 **	I have taken a holiday abroad in the last 12 months
probit	0.038	0.319	0.109	0.008 **	I have gone on a daytrip or outing in the last 12 months
probit	0.093	0.037 *	0.012	0.781	Own a mobile phone
probit	0.031	0.799	0.515	0.003 **	None of these statements apply to me
poisson	1.080	0.000 ***	1.061	0.002 **	Total score
probit	0.153	0.000 ***	0.038	0.374	Political party, trade union or environmental groups
probit	0.099	0.010 **	0.038	0.372	Tenants groups, resident groups, Neighbourhood watch
probit	0.091	0.026 *	0.026	0.540	Church or other religious groups
probit	0.092	0.007 **	0.064	0.076	Charitable associations
probit	0.190	0.000 ***	0.002	0.969	Education, arts or music groups or evening classes
probit	-0.052	0.167	0.018	0.665	Social Clubs
probit	-0.005	0.897	0.085	0.016 *	Sports clubs, gyms, exercise classes
probit	0.029	0.427	0.078	0.034 *	Any other organisations, clubs or societies
probit	0.145	0.004 **	0.139	0.002 **	Not a member of any organisations, clubs or societies
ols	0.500	0.001 ***	0.244	0.136	Total score
oprobit	0.068	0.013 *	0.039	0.173	In most ways my life is close to ideal
oprobit	0.110	0.000 ***	0.088	0.005 **	The conditions of my life are excellent
oprobit	0.085	0.003 **	0.020	0.521	I am satisfied with my life
oprobit	0.065	0.021 *	0.030	0.328	So far I have got the important things I want in life
oprobit	0.081	0.005 **	0.001	0.980	If I could live life again, I would change almost nothing
ols	0.605	0.001 ***	0.564	0.005 **	Total score
oprobit	0.009	0.756	0.055	0.055	My age prevents me from doing the things I would like to
oprobit	0.088	0.006 **	-0.017	0.548	I feel that what happens to me is out of my control
oprobit	0.136	0.000 ***	0.053	0.085	I feel free to plan for the future
oprobit	0.052	0.077	-0.042	0.169	I feel left out of things
oprobit	0.048	0.125	0.049	0.135	I can do the things that I want to d
oprobit	0.042	0.145	-0.024	0.427	Family responsibilities prevent me from doing what I want to
oprobit	0.034	0.279	0.039	0.236	I feel that I can please myself what I do
oprobit	0.044	0.118	0.026	0.357	My health stops me from doing things I want to do
oprobit	0.090	0.006 **	0.339	0.000 ***	Shortage of money stops me from doing things I want to do
oprobit	0.024	0.481	0.058	0.116	I look forward to each day
oprobit	0.092	0.005 **	-0.010	0.753	I feel that my life has meaning
oprobit	0.040	0.314	0.011	0.783	I enjoy the things that I do
oprobit	0.080	0.019 *	-0.048	0.167	I enjoy being in the company of others
oprobit	0.026	0.410	0.087	0.015 *	On balance, I look back on my life with a sense of happiness
oprobit	0.058	0.033 *	0.066	0.022 *	I feel full of energy these days
oprobit	0.018	0.471	0.027	0.318	I choose to do things that I have never done before
oprobit	0.100	0.003 **	0.055	0.113	I feel satisfied with the way my life has turned out
oprobit	0.070	0.016 *	0.055	0.072	I feel that life is full of opportunities
oprobit	0.068	0.024 *	0.045	0.141	I feel that the future looks good for me
ols	2.056	0.000 ***	3.391	0.000 ***	Self-perceived position on ladder measuring affluence

Note: coefficients x-standardised and exponentiated for Poisson model type

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