What is the relationship between financial satisfaction and happiness among older people?
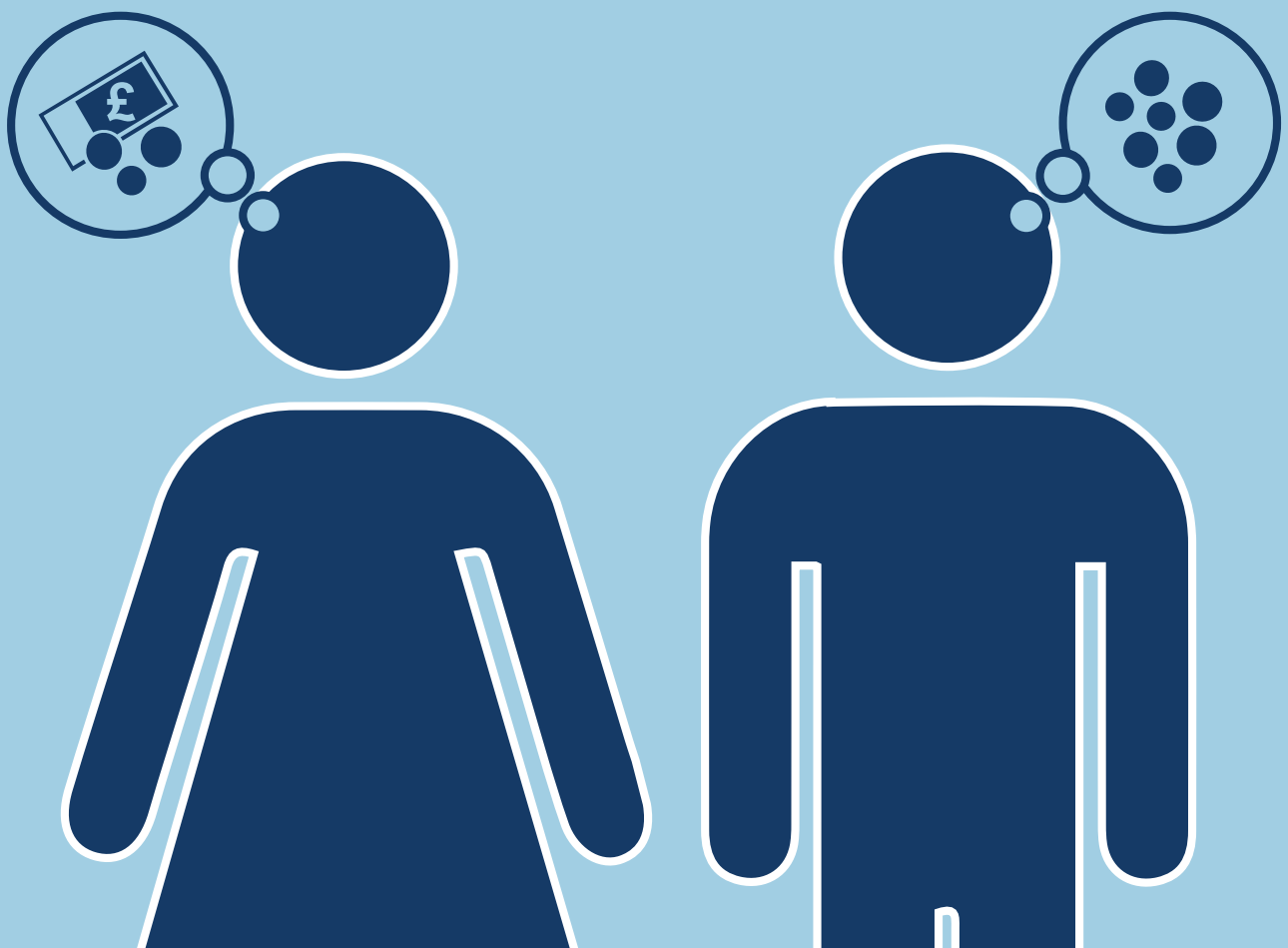
An analysis using the World Values Survey 1981-2008

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Summary

- Countries where those aged 50 and above report high levels of financial satisfaction are also likely to report high levels of happiness - of the ten countries reporting the highest levels of financial satisfaction, eight also feature among the ten 'happiest'.

- There is a continuous relationship between increasing age and both increasing financial satisfaction and decreasing happiness (without controlling for other factors).

- Significant proportions of the variation in both self-reported financial *dis*satisfaction and *un*happiness among the over 50s can be attributed to the country that an individual lives in (both before and after controlling for individual-level predictor variables).

- New Zealand and Sweden were the 'happiest' nations (97%), while the Swiss were the most satisfied with their finances (87%).

- The multilevel models show that being divorced or separated; being unemployed; having low levels of education; self-categorising yourself as lower class and having no savings are strong predictors of both being dissatisfied with your household's financial situation and reporting being unhappy.

- Over-50s who see themselves as lower-class have almost three times the odds of being unhappy, and are five times more likely to be dissatisfied with their financial situation.

New Zealand   **Sweden**

Happiest
European nations

97%

Switzerland

Most financially
satisfied nation

87%

- After taking account of individual-level predictor variables, both GDP per capita and geographical grouping are significant country-level predictors of both self-reported happiness and self-reported financial satisfaction.

- European countries that have previously had communist regimes are likely to report low levels of both self-reported financial satisfaction and happiness, with older Georgians feeling the least financially satisfied (12%), and Moldova ranking as the unhappiest nation for older people (33%).

Moldova

Unhappiest european nation for older people

33%

Georgia

Least financially satisfied european nation

12%

Contents

The relationship between financial satisfaction and happiness among older people

In the 56 countries included in the first stage of this research (for preliminary analysis see our blog), over half (55 per cent) of older people, defined as those individuals aged 50 and above, reported being satisfied with their household's financial situation. [1] [2] However, this varied dramatically depending on both individual circumstances and which country the individual resided in. This paper explores levels of both self-reported financial satisfaction and happiness that exist among older individuals within-and-between countries, and the interactions that exist between financial satisfaction and self-reported happiness. It uses data from the World Values Survey,[3] taking advantage of its breadth and durability (containing around 65,000 over-50s from five waves of data from 1981-2008). The analysis is weighted to be nationally representative, accurately reflecting the societal diversity that exists within each country.

This paper starts by looking at how levels of financial satisfaction vary between countries in the latest wave of data (2005-2008). It goes on to explore the relationship between age and financial satisfaction, and looks at how this variation differs by country. The paper then looks at self-reported happiness by country, and examines how this compares to self-reported financial satisfaction among the over-50s. Multilevel models are used to explore the individual and country-level predictors of self-reported financial dissatisfaction and unhappiness (we look at dissatisfaction and unhappiness here for methodological reasons), and also how country of residence impacts upon these, above and beyond individual circumstances. Finally, we examine the common predictors of both self-reported financial dissatisfaction and self-reported unhappiness among the over-50s.

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[1] Blog available at: http://www.bristol.ac.uk/geography/research/pfrc/esrc/blog/2013-10-30-international-comparison-of-finan-cial-satisfaction.html

[2] This research focuses on those aged 50 and above. The terms '50 and above' and the 'over-50s' are used interchangeably in this paper.

[3] For further details see page 16.

A country-level comparison of financial satisfaction

Table 1: Satisfaction of all those aged 50+ with their household's financial situation, grouped by country

Rank	Country	Percentage satisfied (%)	Rank	Country	Percentage satisfied (%)	Rank	Country	Percentage satisfied (%)
1	Switzerland	87	19	Trinidad and Tobago	65	37	Ghana	45
2	Norway	85	20	Hong Kong	65	38	Iran	44
3	Sweden	84	21	United States	64	39	Chile	39
4	Finland	83	22	Taiwan	63	40	Egypt	38
5	Canada	83	23	Germany	62	41	Morocco	36
6	Netherlands	82	24	China	61	42	Poland	35
7	Great Britain	80	25	Uruguay	61	43	Romania	31
8	Malaysia	78	26	Andorra	60	44	Ethiopia	29
9	New Zealand	76	27	Jordan	60	45	Serbia	29
10	Italy	76	28	Turkey	59	46	India	28
11	Japan	73	29	Brazil	56	47	Burkina Faso	27
12	Mexico	72	30	Spain	54	48	Iraq	27
13	Australia	71	31	Slovenia	54	49	Ukraine	26
14	Thailand	70	32	South Korea	52	50	Russia	26
15	Vietnam	69	33	Guatemala	52	51	Rwanda	24
16	Argentina	68	34	Mali	47	52	Moldova	23
17	Indonesia	68	35	Peru	47	53	Bulgaria	16
18	France	65	36	Zambia	46	54	Georgia	12

Source: World Values Survey 2005-2008. Base is all individuals aged 50 and above. Percentages are rounded to the nearest integer. Note that Cyprus and South Africa are omitted from this table due to small bases (>100).

The Swiss had the highest level of financial satisfaction among older people (87 per cent) followed by three Nordic countries – Norway, Sweden and Finland (85, 84, and 83 per cent respectively). Over 80 per cent of Britons aged 50 and above reported that they were satisfied with the financial situation of their household. This was the seventh-highest percentage among all countries included in this research.

Former communist states dominate the bottom of the ranking, with Georgia displaying the lowest levels of financial satisfaction among older citizens (12 per cent), followed by Bulgaria and Moldova (16 and 23 per cent respectively). Indeed, six of the ten countries with the lowest levels of financial satisfaction among individuals aged 50+ were communist regimes until the early 1990s. Along with Bulgaria, Romania is the other 'new member state' of the EU included in the survey. Although the percentage of older Romanians who reported being satisfied was double that of the Bulgarians (31 per cent), Romania still ranks in the bottom-third of countries.

France, Germany and the United States trail Great Britain in terms of older people's financial satisfaction. About two-thirds of French and German individuals aged 50+ reported being satisfied with their financial situation (65 and 62 per cent), with a similar percentage of older Americans being satisfied (64 per cent).

Of the African countries included in the survey, the picture is one of general dissatisfaction. Less than a quarter of Rwandans aged 50 and above reported being satisfied with their household's financial situation (24 per cent), while levels of financial satisfaction among older people were also relatively low in Burkina Faso, Ethiopia, Morocco and Egypt (27, 29, 36 and 38 per cent respectively).

Finally, to add some context, the 'global' average of financial satisfaction among younger individuals (aged 16-49) was 52 per cent, slightly lower than the figure for those aged 50 and above (55 per cent). However, in some countries there was a substantial and highly significant difference. For example, while 80 per cent of older Britons reported being satisfied with their financial situation, only two-thirds (66 per cent) of those aged under 50 felt the same.

Age and financial satisfaction

Figure 1 shows a statistically significant relationship ($p<0.001$) between increasing age and increasing financial satisfaction. This is particularly noticeable among those aged over 80, where 60 per cent were satisfied with their household's financial situation, compared to 55 per cent of all those aged 50 and above.

Figure 1: Satisfaction of all those aged 50+ with their household's financial situation, grouped by age
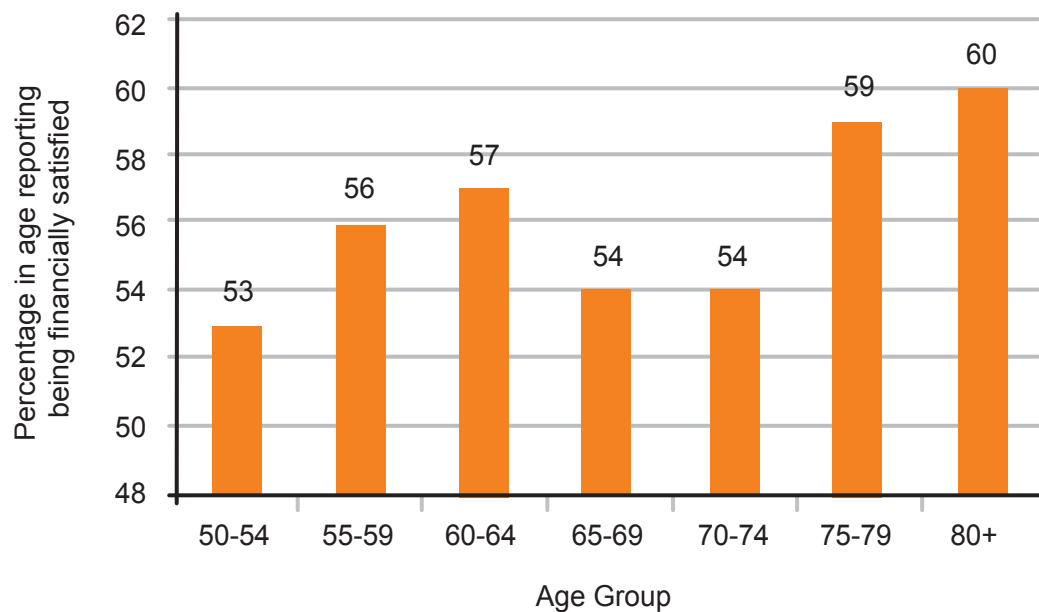
Source: World Values Survey 2005-2008. Base is all individuals aged 50 and above. Percentages are rounded to the nearest integer.

However, this relationship did not hold true in all countries. While countries including Australia, the United States, Japan, and Great Britain exhibited this relationship, the picture was far less clear in many African, Asian and South American countries, where there was no relationship between financial satisfaction and age (for example, Thailand; Turkey; Egypt and Brazil). In fact, in several countries, there was a significant relationship between increasing age and *decreasing* financial satisfaction (Moldova and Poland, for example). Clearly, the relationship between age and financial satisfaction is complex and, as would be expected, heavily influenced by other factors, at both an individual and macro level. Multilevel models will be used later in this paper to help unpack the interactions between age and other key predictors of financial satisfaction.

A country level comparison of self-reported happiness

Across the 56 countries and more than 23,000 people included in wave five of the data, 79 per cent of over 50s report being either 'quite happy' or 'very happy'[4]. This is much higher than the 55 per cent who reported being satisfied with their financial situation, suggesting that, while satisfaction with their financial situation *may* play a role in determining how happy people are, it is not the only factor.

Table 2: Self-reported happiness of all those aged 50+, grouped by country

Rank	Country	Percentage happy(%)	Rank	Country	Percentage happy (%)	Rank	Country	Percentage happy (%)
1	New Zealand	97	19	Italy	87	37	Rwanda	76
2	Sweden	97	20	Jordan	87	38	Guatemala	75
3	Malaysia	96	21	South Korea	86	39	China	75
4	Norway	96	22	Poland	86	40	Ghana	75
5	Canada	95	23	France	86	41	Ethiopia	73
6	Indonesia	94	24	Mexico	85	42	Chile	72
7	United States	94	25	Argentina	85	43	Slovenia	71
8	Switzerland	93	26	Morocco	85	44	India	69
9	Netherlands	93	27	Turkey	85	45	Ukraine	65
10	Great Britain	93	28	Trinidad and Tobago	83	46	Zambia	61
11	Australia	92	29	Taiwan	82	47	Peru	61
12	Japan	91	30	Germany	82	48	Georgia	56
13	Brazil	91	31	Egypt	81	49	Russia	53
14	Thailand	91	32	Hong Kong	80	50	Serbia	50
15	Finland	90	33	Uruguay	80	51	Iraq	47
16	Vietnam	89	34	Burkina Faso	80	52	Bulgaria	46
17	Andorra	89	35	Mali	77	53	Romania	44
18	Spain	88	36	Iran	76	54	Moldova	33

Source: World Values Survey 2005-2008. Base is all individuals aged 50 and above. Percentages are rounded to the nearest integer. Note that Cyprus and South Africa are omitted from this table due to small bases (>100).

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[4] Citizens completing the survey were asked: 'taking all things into consideration, would you say you are 'very happy'; 'quite happy'; 'not very happy'; or 'not at all happy'. For the purposes of this work we have combined very happy/quite happy and not very happy/not at all happy to form a binary variable.

More than nine-in-ten older Britons (93 per cent) reported being happy. However, in New Zealand and Sweden, the percentage was even higher, with 97 per cent of older people reporting that they were happy. In contrast, only one-third of Moldovans reported being happy, along with less than half of the citizens in Romania, Bulgaria, Iraq and Serbia.

The similarities between Table 1 and Table 2 are striking. Of the ten countries reporting the highest levels of financial satisfaction among their over 50s, eight also feature among the ten 'happiest' countries. Furthermore, of the ten countries where the over-50s report the lowest levels of financial satisfaction, seven also feature among the ten least 'happy' countries.

Age and self-reported happiness

Figure 2 shows a statistically significant relationship ($p<0.001$) between increasing age and *decreasing* self-reported happiness. In contrast to financial satisfaction, there seems to be a noticeable drop in self-reported happiness among those aged 80 and above, where 76 per cent report being happy, compared to 80 per cent of those aged 50-54.

Figure 2: Self-reported happiness of all those aged 50+, grouped by age
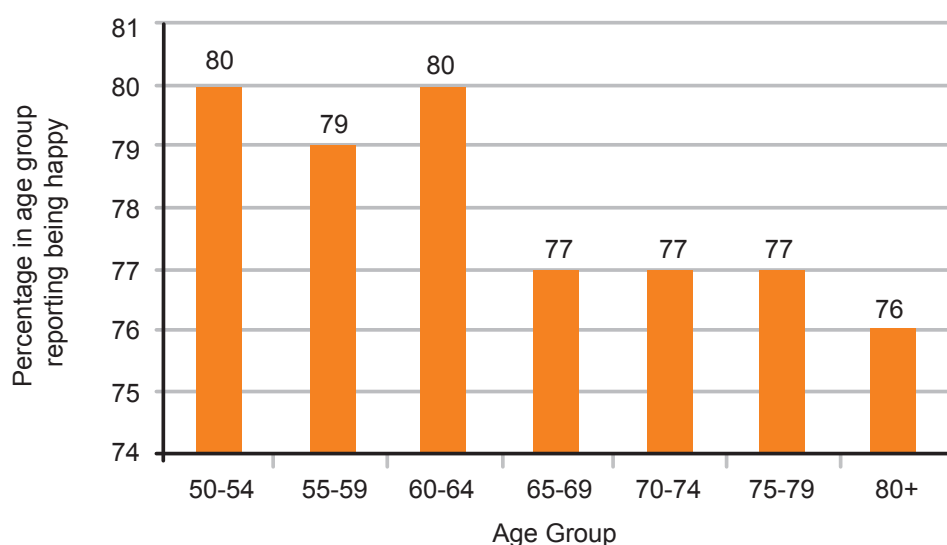
Source: World Values Survey 2005-2008. Base is all individuals aged 50 and above. Percentages are rounded to the nearest integer.

Despite the strong correlation between increasing age and decreasing happiness overall across the 56 countries (remember we are not controlling for any other factors at this stage), this relationship does not hold true in all of the individual countries, where there is often no significant relationship between age and happiness.

As we would expect, financial satisfaction and happiness are complex concepts to try and unravel. The next part of this paper uses multilevel models to explore the determinants of both characteristics, and establish the extent to which country-level determinants (above and beyond these individual-level predictors), may contribute to differing levels of financial satisfaction and self-reported happiness.

Predictors of financial dissatisfaction: a multilevel approach

In this section we will look at the over 50s from all five waves of the World Values Survey, going back to the early 1980s, controlling for the different time periods within the model. Due to including more cases and countries, the overall percentage of those reporting being satisfied with their household's financial situation differs slightly from our analysis above, with 50 rather than 55 per cent reporting being financially satisfied.

In this part of the paper (for methodological reasons) we will be modelling financial *dissatisfaction* and *unhappiness*, therefore looking at those people who report being dissatisfied with their household's financial situation, and those who are unhappy, and using those who are satisfied/happy as a base for comparison.

Multilevel modelling is used to analyse hierarchies. In this work, the hierarchy is individuals within countries. This methodology allows the exploration of complex data structures, analysing changes in financial satisfaction and happiness, and the associated explanatory variables, at different levels of the dataset (i.e. at individual *and* country level). The models we run are two-level binomial logit models, using Markov chain Monte Carlo estimation procedures.[5]

When financial dissatisfaction is entered into a model with no predictors (a 'null' model), the variation in financial satisfaction is partitioned between the individual level and the country level.[6] As would be expected, most of the variation in financial dissatisfaction is attributable to individual circumstances. However, almost a quarter of the variation (23 per cent) in financial dissatisfaction can be explained by the country that an individual lives in. In other words, above and beyond individual circumstances, the country that an individual resides in has a highly significant effect on whether or not they report being satisfied with their financial situation.

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[5] The Centre for Multilevel Modelling website provides a good introduction to these techniques: http://www.bristol.ac.uk/cmm/. Other references that provide a good grounding in multilevel modelling, logistic regression and MCMC estimation methods include: Goldstein (1987), Jones and Duncan (1998), Hosmer and Lemeshow (2000), Spiegelhalter et al (2002), Snijders and Bosker (2004), Browne (2005), Rasbash et al (2006), Gelman and Hill (2007), Gill (2008) and Deeming and Hayes (2012).

[6] The variance at level-two (country) is estimated in the model; while, assuming an underlying binomial distribution, "the logistic distribution for the level-one residual implies a variance of $\varpi^2 / 3 = 3.29$." (Snijders and Bosker, 2004: 224). This figure is used as the level-one variance figure, and is therefore used to calculate the proportions of variation at each level.

Determinants of financial dissatisfaction

Table 3: The effects of individual and country-level characteristics on self-reported financial satisfaction

		Odds		Significance (p-value)
Wave	**1981-1984**			
	1989-1993	1.5		**
	1994-1999	2.1		***
	1999-2004	2.1		***
	2005-2007	1.7		***
Gender	**Male**			
	Female	1.0		NS
Age group	**50-54**			
	55-59	1.0		NS
	60-64	0.9		***
	65-69	0.8		***
	70-74	0.7		***
	75-79	0.7		***
	80+	0.6		***
Marital Status	**Married**			
	Living together as married	1.0		NS
	Divorced	1.7		***
	Separated	1.7		***
	Widowed	1.3		***
	Single/Never married	1.3		***
Employment Status	**Full time**			
	Part time	1.2		***
	Self employed	1.1		*
	Retired	1.2		***
	Housewife	1.1		NS
	Students	1.6		***
	Unemployed	2.0		***
	Other	1.8		***
Number of children	**No children**			
	1 child	1.0		NS
	2 children	1.0		NS
	3 children	1.0		NS
	4 or more children	1.0		NS
Education	**Incomplete elementary education**			
	Completed elementary education	1.0		NS
	Incomplete secondary school	0.8		***

	Complete secondary school	0.8		***
	Incomplete further education	0.8		***
	Complete further education	0.8		***
	Lower-level tertiary certificate	0.7		***
	University with degree	0.6		***
Self-reported social class	**Upper class**			
	Upper middle class	1.2		NS
	Lower middle class	2.0		***
	Working class	2.8		***
	Lower class	4.7		***
Savings	**Save money**			
	Just get by	2.6		***
	Spent some savings and borrowed money	2.8		***
	Spent savings and borrowed money	4.7		***
Gini Income Inequality	**Below 35 (high equality)**			
	35 - 44 (mid equality)	0.9		NS
	45 and above (high inequality)	0.7		NS
GDP per capita	**More than $34,977 GDP per capita**			
	Less than $4,430 GDP per capita	2.2		*
	Between $4,431 and $9,501 GDP per capita	1.5		NS
	Between $9,502 and $34,977 GDP per capita	1.6		NS
Geography	**Europe**			
	South America	1.1		NS
	North and Central America	0.8		NS
	Africa	1.9		*
	Oceania	1.0		NS
	Asia	1.2		NS
	Eastern Bloc countries	4.1		***

Source: World Values Survey 1981-2008. Base is all individuals aged 50 and above.

Notes: The p-value indicates how likely the results are to have occurred by chance. Therefore, a p-value of <0.05 indicates that the results could have occurred by chance less than five times in a hundred. Significance (p) levels: *<0.05; **<0.01; *** <0.001. NS Not significant. **BOLD** – base category.

Individual-level predictors of financial dissatisfaction among the over-50s

Table three shows us that, after controlling for the other factors in the model, the gender of respondent and number of children does not have a significant impact on their financial dissatisfaction. However, other predictors including age, marital and employment statuses, self-reported class and savings are highly significant predictors of financial dissatisfaction among the over-50s.[7]

The odds of reporting being dissatisfied with the household's financial situation decreases with age, to the extent where those aged 50-54 are almost twice as likely

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[7] The model also shows that the wave (year of data) is significant. However, due to different countries being included in different waves, along with the first wave comprising only European countries, we do not discuss this further in this paper.

as those aged over 80 to be dissatisfied, after controlling for other characteristics.[8] For people who are separated or divorced the odds of reporting dissatisfaction are 1.7 times higher than those who are married, while single people also have higher odds of being dissatisfied with their financial situation (1.3 times higher).

Even after controlling for other characteristics, unemployed people have twice the odds of those in full-time work to be dissatisfied with their financial situation, while those who work part-time or on a self-employed basis also have slightly higher odds. Education is another highly significant predictor of financial satisfaction: the higher the educational attainment, the less likely a person is to report being dissatisfied with their financial situation, all other things being equal.

Over-50s who see themselves as lower-class have almost five times the odds of being dissatisfied with their situation as those who think of themselves as upper class, after taking other characteristics into account. Finally, whether someone saves or not is a highly significant predictor of financial dissatisfaction, with those who had to spend their savings *and* borrow money 4.7 more likely to be dissatisfied with their household's financial situation.

Country-level predictors of financial dissatisfaction among the over-50s

Table three also shows country-level predictors of financial dissatisfaction among those aged 50 and above. After controlling for individual-level characteristics, GDP per capita is a significant predictor of financial dissatisfaction among over-50s. Those who live in a country where the GDP is in the lowest quartile of the countries included (less than $4,430) have 2.2 times the odds of reporting dissatisfaction than those in countries where GDP per capita is in the top quartile (above $34,977).

The 'geographical' grouping of a country (appendix one) also plays an important role in determining the financial dissatisfaction of an individual. [9] For example, over-50s from the African countries represented in the survey have 1.9 times the odds of reporting financial dissatisfaction compared to those in Western Europe. However, this pales compared to those in European former communist countries, who, after controlling for all of the other factors listed in table three, have four times the odds of reporting financial dissatisfaction as those in the rest of Europe.

The Gini[10] index "measures the extent to which the distribution of income or consumption expenditure among households within an economy deviates from a perfectly equal distribution," (World Bank, 2013). Interestingly, living in a country where there is high income inequality was not a significant predictor of financial satisfaction (after taking account of individual-level characteristics, as well as GDP per capita and geographical grouping).

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[8]The odds ratio represents the size of the effect of a category of a characteristic in relation to a reference category for that characteristic (which is set by the analyst). The odds ratio takes the probability of an event occurring divided by the probability that it will not occur. An odds ratio greater than 1 indicates an increased likelihood of the outcome of interest compared with the reference category and a ratio smaller than 1 indicates a reduced likelihood of the outcome compared with the reference category.

[9] The European countries are split into those that formerly had communist regimes, and others (i.e. Western Europe).

[10] Both the Gini coefficient and GDP per capita variables that are included in this model have been recoded into categories. Three categories with similar numbers of countries are formed for income inequality (Gini coefficient); while countries are grouped into quartiles based on their GDP per capita.

Predictors of self-reported unhappiness: a multilevel approach

When self-reported unhappiness is entered into a model with no predictors (a 'null' model), much of the variation is attributable to individual circumstances. However, 21 per cent of the variation can be explained by the country that an individual lives in. In other words, above and beyond individual circumstances, the country that an individual resides in has a highly significant bearing on whether or not they report being happy. There are clear parallels with financial satisfaction here, where a very similar amount of the variation (23 per cent) was attributable to the country-level.

Determinants of unhappiness

Table 4: The effect of individual and country-level characteristics on self-reported unhappiness

		Odds		Significance (p-value)
Wave	**1981-1984**	0.0		
	1989-1993	3.7		***
	1994-1999	2.9		***
	1999-2004	2.4		***
	2005-2007	2.4		***
Gender	**Male**			
	Female	0.9		**
Age group	**50-54**			
	55-59	1.1		NS
	60-64	1.0		NS
	65-69	1.0		NS
	70-74	1.0		NS
	75-79	1.0		NS
	80+	1.0		NS
Marital Status	**Married**			
	Living together as married	1.3		***
	Divorced	2.1		***
	Separated	2.3		***
	Widowed	1.9		***
	Single/Never married	1.8		***
Employment Status	**Full time**			
	Part time	1.1		NS
	Self employed	1.1		NS
	Retired	1.1		***
	Housewife	1.0		NS
	Students	1.1		NS
	Unemployed	1.7		***
	Other	1.4		***
Number of children	**No children**			
	1 child	0.9		NS
	2 children	0.8		***
	3 children	0.8		***

	4 or more children	0.8		***
Education	**Incomplete elementary education**			
	Completed elementary education	0.9		**
	Incomplete secondary school	0.8		***
	Complete secondary school	0.7		***
	Incomplete further education	0.8		***
	Complete further education	0.7		***
	Lower-level tertiary certificate	0.7		***
	University with degree	0.6		***
Self-reported social class	**Upper class**			
	Upper middle class	1.0		NS
	Lower middle class	1.4		**
	Working class	1.9		***
	Lower class	3.1		***
Savings	**Save money**			
	Just get by	1.5		***
	Spent some savings and borrowed money	1.8		***
	Spent savings and borrowed money	2.5		***
Gini Income Inequality	**Below 35 (High equality)**			
	35 - 44 (mid equality)	0.9		NS
	45 and above (high inequality)	1.0		NS
GDP per capita	**More than $34,977 GDP per capita**			
	Less than $4,430 GDP per capita	2.2		**
	Between $4,431 and $9,501 GDP per capita	2.0		*

	Between $9,502 and $34,977 GDP per capita	1.4		NS
Geography	**Europe**			
	South America	1.1		NS
	North and Central America	0.9		NS
	Africa	0.9		NS
	Oceania	0.5		NS
	Asia	1.1		NS
	Eastern Bloc countries	3.6		***

Source: World Values Survey 1981-2008. Base is all individuals aged 50 and above.

Notes: The p-value indicates how likely the results are to have occurred by chance. Therefore, a p-value of <0.05 indicates that the results could have occurred by chance less than five times in a hundred. Significance (p) levels: *<0.05; **<0.01; *** <0.001. NS Not significant. BOLD – base category.

Individual-level predictors of unhappiness among the over-50s

Similarly to financial (dis)satisfaction, and when controlling for other characteristics, survey wave, employment status, marital status, education, social class and savings behaviour are significant predictors of happiness. Unlike financial (dis)satisfaction, however, number of children is a significant variable when it comes to happiness, with those without children more likely to report unhappiness than those with children. Also, gender becomes significant in this model, with men slightly more likely to report unhappiness than women. However, after taking account of all the other predictors in the model, age is not a significant predictor of happiness.

Country-level predictors of unhappiness among the over-50s

After taking account of individual characteristics, those who live in a country where GDP per capita is in the lowest quartile (less than $4,430) have 2.2 times the odds of reporting unhappiness. Continuing the similarities to the model of financial satisfaction, those who live in European former communist countries were much more likely (odds of 3.6) to be unhappy than those in the rest of Europe. As with the previous model, income inequality is not a significant predictor of unhappiness, when controlling for all other predictors.

Common predictors of financial dissatisfaction and unhappiness

Table five summarises tables three and four, showing variables that are significant predictors of both financial dissatisfaction and unhappiness.

Table 5: Significant variables in predicting both financial dissatisfaction and unhappiness

Variable entered into multilevel model	Significant predictor of financial dissatisfaction?	Significant predictor of unhappines	Significant predictor of both financial dissatisfaction and unhappiness?
Wave	✓	✓*	✓*
Gender	X	✓	X
Age group	✓	X	X
Marital Status	✓	✓	✓
Employment Status	✓	✓	✓
Number of children	X	✓	X
Education	✓	✓	✓
Self-reported social class	✓	✓	✓
Savings behaviour	✓	✓	✓
Gini Income Inequality	X	X	X
GDP per capita	✓	✓	✓
Geography	✓	✓	✓

*Borderline statistical significance

Of the individual-level variables, survey wave, marital status, employment status, education, self-reported social class and savings behaviour are significant predictors of both financial dissatisfaction *and* unhappiness. At the country level, GDP per capita and geographical classification also predict both of these outcomes. Clearly, there are many commonalities between the two outcome measures, and in future work we will use more advanced methodologies to simultaneously model both financial dissatisfaction and unhappiness.

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About the World Values Survey

The World Values Survey is a global assessment of social, political and economic attitudes and changes. It is the most comprehensive and wide-ranging survey of human values ever taken. "The World Values Survey (WVS) is a global network of social scientists who have surveyed the basic values and beliefs of the publics of more than 80 societies, on all six inhabited continents" (http://www.worldvaluessurvey.org/). The survey is based at Tilburg University in the Netherlands. The database of the WVS has been published on the internet with free access.

The first study in 1981 evolved from the European Values Survey. Initially, only 22 countries were included, and the survey was clearly Eurocentric. Recognising the need for expansion outside of Europe, four more waves have been completed, with 42 countries in the second wave, 54 in the third wave, 62 in the fourth wave and 58 in the fifth wave. Overall, 87 countries on all six continents are included.
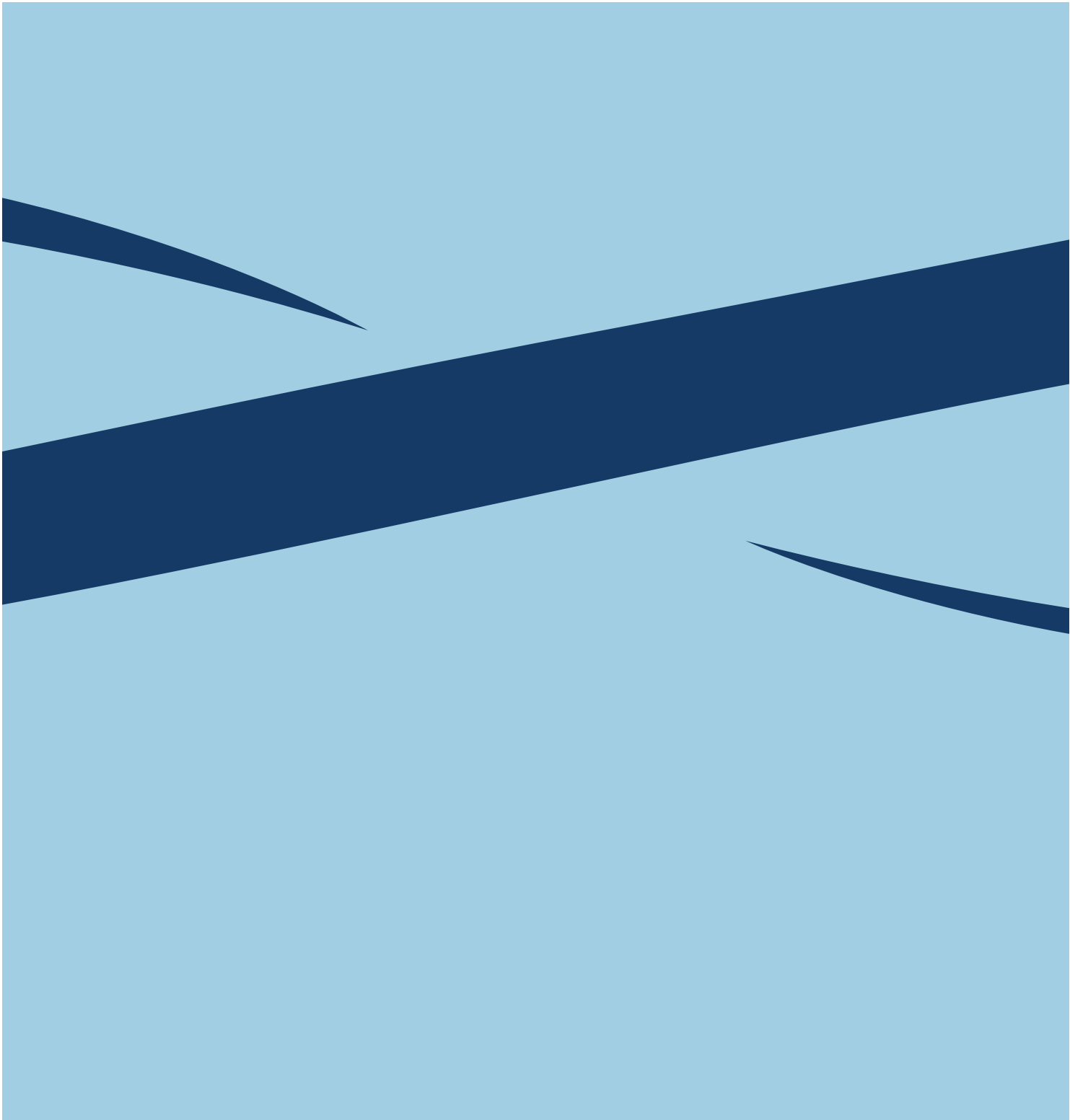
The 2005-2008 questionnaire contained about 300 questions. In each country the questionnaires are administered to a minimum target of 1,000 interviewees. Overall, around 260,000 individuals constitute the WVS, and the countries surveyed represent almost 80% of the world's population.

The questionnaires are carried out by face-to-face interview. All analysis presented here was undertaken using the World Values Survey 1981-2008 data in IBM SPSS (version21) and MLwiN (version 2.25), using data weighted to be nationally representative. Weighting takes account of age, gender, income, type of household etc, to ensure that each country and its different societal groups are correctly and fully represented.

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Appendix one: the geographical classification used in this analysis

Western Europe	South America	North and Central America	Africa	Oceania	Asia	Former European communist regimes
Andorra	Argentina	Canada	Algeria	Australia	Bangladesh	Albania
Cyprus	Brazil	Dominican Republic	Burkina Faso	New Zealand	China	Armenia
Finland	Chile	El Salvador	Egypt		Hong Kong	Azerbaijan
France	Colombia	Guatemala	Ethiopia		India	Belarus
Germany	Peru	Mexico	Ghana		Indonesia	Bosnia and Herzogovina
Great Britain	Uruguay	Puerto Rico	Mali		Iran	Bulgaria
Italy	Venezuela	Trinidad and Tobago	Morocco		Iraq	Croatia
Netherlands		United States	Nigeria		Japan	Czech Republic
Norway			Rwanda		Jordan	Estonia
Spain			South Africa		Malaysia	Georgia
Sweden			Tanzania		Pakistan	Hungary
Switzerland			Uganda		Philippines	Kyrgyzstan
			Zambia		Saudi Arabia	Latvia
			Zimbabwe		Singapore	Lithuania
					South Korea	Macedonia
					Taiwan	Moldova
					Thailand	Montenegro
					Turkey	Poland
					Vietnam	Romania
						Russian Federation
						Serbia
						Slovakia
						Slovenia
						Ukraine