Wellbeing Over 50

Paul Anand[1,2, 5]

Alastair Gray[2]

Federica Liberini[3]

Laurence Roope[2]

Ron Smith[4]

Ranjeeta Thomas[6]

Abstract

Drawing on the Senian capability approach to welfare economics and using panel data from the English Longitudinal Survey of Ageing (ELSA), this paper illustrates how the approach can be used to shed light on wellbeing in older age. Specifically, we estimate models of variables related to three aspects of a person's wellbeing: daily activities, happiness and capabilities. Results indicate that the production of activities depends significantly *inter alia* on education, health and gender; that happiness is related to a wide variety of activities and that there are potentially significant gender inequalities in some of the constraints that older people face and which impinge upon their wellbeing. The paper concludes by suggesting that the capabilities approach is a workable tool for exploring the production and distribution of wellbeing in older age.

Keywords: Sen's capabilities approach; happiness; daily activities; constraints; inequalities; older age

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1: The Open University; 2: University of Oxford; 3: ETH Zürich; 4: Birkbeck, University of London; 5 London School of Economics; 6: Imperial College London

Correspondence: Paul Anand: Open University Milton Keynes MK7 6AA or Wolfson College Oxford OX2 6UD.

Wellbeing Over 50[1]

1. Introduction

The Beatle's song, whose refrain asks 'will you still need me, will you still feed me, when I'm 64?' raises an interesting and practical question about the nature of welfare outcomes in later life. Economists perhaps know less about this than we might, though some research has been done even if collectively it is far from conclusive – see for example the wide-ranging survey by Ulloa et al. (2013) on the u-shaped relationship between age and life satisfaction. Against that backdrop, this paper uses Sen's capabilities approach, drawing particularly on its conceptual and multi-dimensional structure to investigate the distribution and drivers of life quality in older age. The capabilities approach, when used in economics to date, has tended to be applied to the measurement of national progress (Stiglitz et al. (2009)), to working age adults (Anand et al. (2011)) and to children (Cunha and Heckman (2010) and Cunha, Heckman and Schennach (2010)).[2] Yet we believe that, potentially, it is also well suited to aiding understanding of quality of life in older age, when physical and cognitive changes have profound impacts on the conduct of daily economic and social activities.

In this paper, therefore, we seek to both extend the reach of the approach as a useful tool in the economic analysis of wellbeing and shed some empirical light on happiness and other quality of life issues in older age. To illustrate the point, we draw on data from the English Longitudinal Survey of Ageing (ELSA) which has variables relating to all the relations that we wish to explore. More specifically, in what follows, we combine data on happiness and 11 daily activities (functionings in Sen's language) from three waves of the dataset to explore evidence concerning the drivers of happiness in older age. Using a panel ordered probit specification, we

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[2] For other applications in economics see Basu (1987), Brandolini and D'Alessio (1998), Desai and Shah (1988), Fleurbaey (2006, 2009), Herrero (1996), Kingdon and Knight (2006), Klasen (2000), Krishnakumar (2007), Schokkaert (2009), Schokkaert and Van Ootegem (1990) and Volkert and Schneider (2012). The capabilities approach is also popular within health economics. In particular, a capability-based measure of general quality of life known as the ICEPOP CAPability (ICECAP-O) instrument (http://www.icecap.bham.ac.uk/) has been developed for use with older people and is increasingly employed in the evaluation of health and social care interventions.

find, *inter alia*, that a range of activities have a detectable connection with happiness. Guided by Sen's theoretical set-up, we then examine the production of these activities themselves and find that educational status and gender appear to be significant determinants in most, if not all, cases. Health is also a significant factor in the production of a number of the activities considered. Finally, we use data on whether respondents wish to engage in activities more often than they do as indicators of constraint (lack of capability) and find evidence of connections both with wealth and with a number of non-monetary dimensions. We suggest that these findings, together with the data on actual activity involvement, point to a potentially significant aspect of gender inequality in older age.

The rest of this paper is organised as follows. Section 2 describes the capabilities approach to welfare economics and our application of its main ideas to understanding quality of life in older age. Section 3 then discusses the empirical approach, the main results of which are presented in Section 4. A final section offers some additional discussion and concluding remarks.

2. The Capabilities Approach, Welfare Economics and Ageing

The capabilities approach started life as a constructive response to some deep foundational problems in social choice and welfare (Sen, 1979) and a particularly useful discussion for economic analyses can be found in Sen (1985a). This section provides an overview of the theory and an indication of how it might be applied to the understanding of wellbeing in older age.

A basic building block of the approach is the concept of functionings, which are typically defined as 'doings or beings'. Functionings might, for example, range from activities such as attending a football match or reading a novel, through to aspects of socio-demographic status, such as being married or being a parent. So, at any one point in time *t*, the *i*th individual could be described as having a vector of functionings in an *n*-dimensional space given by $\boldsymbol{f}_{it} \in \mathbb{N}^{\boldsymbol{n}}$.[3]

Functioning vectors are produced by individuals from the vector of resources, $\boldsymbol{r}_{it}$, with which they are endowed. The approach also emphasises the fact that there is significant heterogeneity in the way people convert resources into functionings. Typically these points are summarised by describing doings and beings as an *n*-dimensional vector function of resources related to characteristics of the individual, i.e. $\boldsymbol{f}_{it} = \boldsymbol{g}_i(\boldsymbol{r}_{it})$. As an approach to welfare economics, it views financial resources as an input to the production of welfare outcomes and recognises that

[3] A richer domain such as $\mathbb{R}^{\boldsymbol{n}}$ could also be employed but given the ordinal nature of our data on functionings there is no need to do so here.

the resources upon which people draw may be non-financial. This relationship is used to highlight the fact that people are heterogeneous in their abilities to convert resources into the functionings they seek out. This heterogeneity has been applied empirically in the context of disability by Kuklys (2005), who used data for the UK to quantify the 'conversion handicap' which disabled people suffer through not being able to live as good a life as their able-bodied counterparts with the same income level.

A second core idea in the theoretical setup is the view that utility, or happiness, depends on a person's functionings, i.e. $u_{it} = g_i(\boldsymbol{f}_{it})$ for some function $g_i(\cdot)$, where the subscript i allows for the (realistic) possibility that different people obtain utility from functionings in different ways. [4]

Happiness might depend on other things too, and some aspects of a person's being might plausibly not be reflected in their measured happiness, but as a first order approximation this happiness equation makes an important point. Happiness can be estimated as a function of income but in this theoretical framework, it is estimated also as a function of the activities that a person undertakes, or some of the states that they find themselves in. In general, we have been guided by the view that the main causal route is from functionings to happiness. Evidence from a number of studies on the impact of negative shocks from widowhood to becoming unemployed (changes in 'beings') seems to support this view. That said, there is a smaller but developing literature interested in relations going the other way. For example, Lyubomirsky et al. (2005) argue that the personal traits that make people happier also make it more likely that they will have a job, a partner, better health, and so on. It would certainly be interesting, and potentially of practical value, to explore in more depth the relative sizes of this two-way causality. For now, we address the issue by relying on the longitudinal structure of our data, to study connections between doings and beings and life satisfaction, while accounting for unobserved heterogeneity in all model specifications.

The third and final relationship in Sen's set-up is based on the observation that what a person is free to do is of importance when evaluating their overall position. A person who fasts by choice is in a different position to one who is undernourished because they are having difficulty making ends meet. To reflect this aspect of wellbeing, Sen defines an individual's capability set as being the set of all the things that person could do or be, given the resources with which they are

[4] In this study we equate utility with happiness, as in Sen (1985a, pp. 11-14). As discussed by Sen (1985b, p. 220), happiness is one "…of the three main interpretation of utility…" alongside "choice" and "desire fulfilment."

endowed.[5] For any individual *i* with a finite endowment, their capability set at time *t* might be defined as:

$$Q_{it} \stackrel{\text{def}}{=} \{\boldsymbol{f}_{it,1}, \cdots, \boldsymbol{f}_{it,m}\}$$

Typically a person's capabilities, represented by this set, cannot be directly or completely observed, but one strategy for estimation derives from the multi-dimensional nature of the elements of Q_{it}. The idea is just that any particular capability set can be viewed as defining a maximum level of functioning on each dimension. The set of such maxima define a perimeter estimate of Q_{it} and, with obvious notation, we can therefore define a capability boundary as $\tilde{Q}_{it} \stackrel{\text{def}}{=} \{d_{it}^{1max}, \ldots, d_{it}^{nmax}\}$. The idea is that the higher one's capability boundaries are, the less constrained they are. A person cannot achieve combinations of functionings which lie outside the capability set and are, therefore, constrained by this. Or, to put it the other way, the tighter the constraints people face, the less capability they have. The dataset we analyse contains responses to questions about the extent to which people would like to engage more frequently in an activity than is currently the case and we shall use these as indicators of the extent to which a person's capabilities are constrained. [6]

We hypothesise that happiness of older people, when regressed directly on activities that might plausibly produce it, will be found to have multiple and diverse drivers, as seems to be the case for adults. If people only responded to life satisfaction questions based on an internally fixed measure of happiness and adapted to shocks instantaneously and completely, we would not expect to observe a relationship between happiness and functionings. However, recent work on the adaptation of happiness to shocks indicates that this is not the case, so we should expect to empirically observe significant relations.[7] Beyond this, the health and gerontology literature (Gabriel and Bowling, 2004) suggests that social activities are particularly important for life quality in older age, whilst recent economics work on relational goods by Becchetti et al. (2008)

[5] See, for example, Sen (1993, pp. 30-31).

[6] There has been considerable discussion by Nussbaum (2000) notably – and see also a review by Robyns (2006) – of 'the selection' of capabilities. Nussbaum was concerned about the selection of capabilities by states that should support by virtue of the rights a person had. For our empirical analysis of behavioural relations, this debate is less relevant as we are estimating relations for which we have data focussing on variables that might relate to wellbeing as indicated by research literatures, common sense and/or suggested by empirical results. The data in the ELSA survey support only a small number of capability (constraint) indicators though a larger number of variables on activities are available. Our approach is more consistent with that of Sen who does not propose a list of variables but argues that the choice of variables should depend on the question in hand.

[7] See, for example, Di Tella et al. (2010) and Oswald and Powdthavee (2008).

also provides a general case for the inclusion of social activities in the understanding of happiness. These considerations lead us to hypothesize that activities with a social component are particularly likely to be significant in models of happiness.[8]

In our analysis of how activities are themselves produced, we shall be particularly interested in the impact of both financial and non-financial resources. It is natural to hypothesise a connection between wealth and the activities for which we have data. But human capital, in the form of health and education, may also be important, as too might gender and age for reasons to do with either physical capacity or unequal treatment.

Finally, we shall report a rather similar analysis of the way in which constraints are produced. Given that the freedom aspect of the capabilities approach has encouraged and engaged with work on equality of opportunity (e.g. Bourguignon et al. 2003; Peragine, 2004), we might hypothesise that there will be evidence of inequalities in our data. The possible causes of frustration rise as people get older, even if they adjust to them, but they may be experienced differently in particular socio-economic groups, and potentially this suggests new evidence on inequality.

3. Empirical Analysis: Data and Models

3.1 Data

The ELSA is designed as an interdisciplinary data resource on health, economic position and quality of life as people in England age. It contains objective and subjective data relating to health and disability, biological markers of disease, economic circumstances, social participation, networks and, of central importance to this study, well-being.

The ELSA survey is conducted bi-annually. At the time of analysis, it was comprised of four waves, covering the period 2002-2009. Sample members are drawn from respondents to the Health Survey For England and the process results in a representative sample of the English

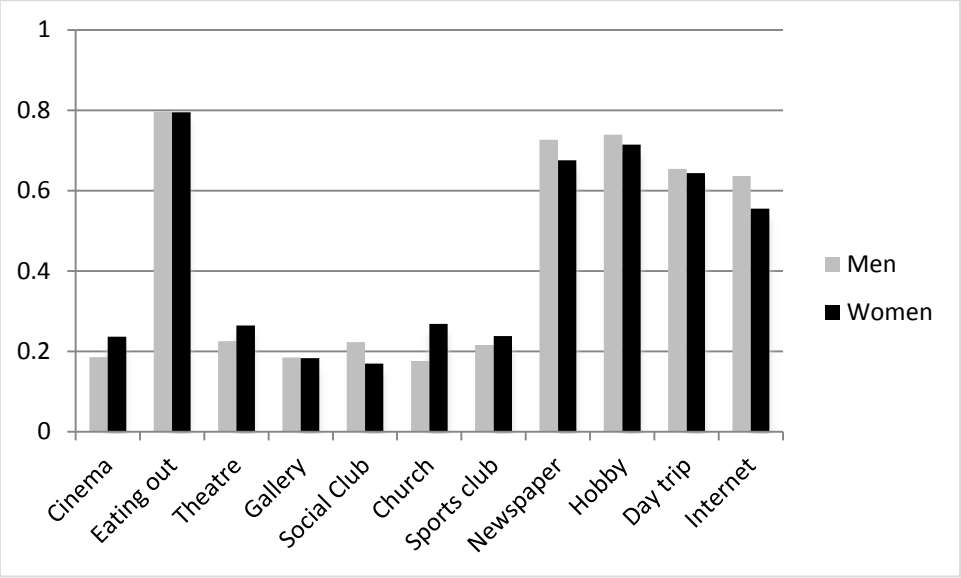
[8] In this paper, we analyse activities and regard them as examples of 'doings' in the language of the capability approach. There are many excellent overviews of the area but see, for example, Schokkaert (2009) or Basu and López-Calva (2010). The literature on daily activities is also relevant and a good overview can be found in White and Dolan (2009). There are relatively few papers that deal with activities or functionings in older age but see Volkert and Schneider (2012) for a relevant discussion.

population aged 50 and over. Application of Sen's capabilities approach requires data on all three of the key aspects of life quality he describes – happiness, daily activities and capabilities. The ELSA is a natural choice of dataset to illustrate the approach, not only because it is specifically orientated towards elderly people, but because it has data pertaining to each of these three aspects. In the case of activities, it has information on whether people would like to engage in certain activities more frequently than they do.

Our analysis is restricted to waves 2 to 4 as the questions pertaining to life satisfaction, activities and constraints were not included in wave 1. Our dataset contains information from a self-complete module on the frequency of 11 daily activities and the variables used are summarised in Table 1. In general, these activities are measured as either binary or categorical variables.

Sen includes 'beings' in his account of functionings so we also use responses on questions about marital status, age when education was completed and whether or not the respondent is a grandparent. We also include variables related to 'doings' which are based on binary indicators relating to membership of a sports club, social club or church, reading a daily newspaper, having a hobby, having gone on a day trip in the last 12 months and using the internet or e-mail (see also Figure 1 for a breakdown by gender).

Figure 1: Mean activity involvement by gender



NOTE: (i) Cinema, eating out, theatre and gallery based on cut-offs of participating in these activities 'every few months' or 'once a month or more'.

Given that the average age of our sample increases from 63.9 to 67.9 years over the three waves, it is perhaps not surprising that there is a marked decline in the number who report involvement in certain activities, such as having a hobby, or having gone on a daytrip in the last 12 months.[9] We also make use of four categorical variables relating to the frequency of eating out, going to the cinema, visiting the theatre and visiting a gallery or museum.

Table 1: Variable means by wave: balanced panel

Variable	2004/05	2006/07	2008/09
Doings:			
Go to the Cinema			
Never	0.3451	0.3600	0.3593
Once/twice a year or less	0.4225	0.4303	0.4281
Every few months	0.1574	0.1438	0.1466
About once a month or more	0.0751	0.0660	0.0659
Eating Out			
Never	0.0547	0.0538	0.0610
Once/twice a year or less	0.1472	0.1323	0.1449
Every few months	0.2359	0.2278	0.2220
About once a month or more	0.5622	0.5863	0.5721
Go to Art Gallery			
Never	0.3275	0.3328	0.3641
Once/twice a year or less	0.4867	0.4698	0.4578
Every few months	0.1349	0.1428	0.1371
About once a month or more	0.0510	0.0548	0.0410
Go to Theatre			
Never	0.2790	0.2815	0.2925
Once/twice a year or less	0.4686	0.4628	0.4677
Every few months	0.1789	0.1813	0.1774
About once a month or more	0.0735	0.0745	0.0624
Member of sports club	0.2343	0.2335	0.2260
Member of social club	0.1995	0.1895	0.1907
Member of church	0.2283	0.2253	0.2303
Daily newspaper	0.6549	0.6680	0.7721
Hobby	0.7798	0.8295	0.5927
Day trip in the last 12 months	0.7082	0.7290	0.5363
Use internet/e-mail	0.4730	0.5178	0.8136

[9] Conversely, there is a dramatic increase in the number who report using internet or e-mail. This, however, likely reflects mainly the considerable increase in internet penetration and use during this particular period, rather than a phenomenon specific to ageing.

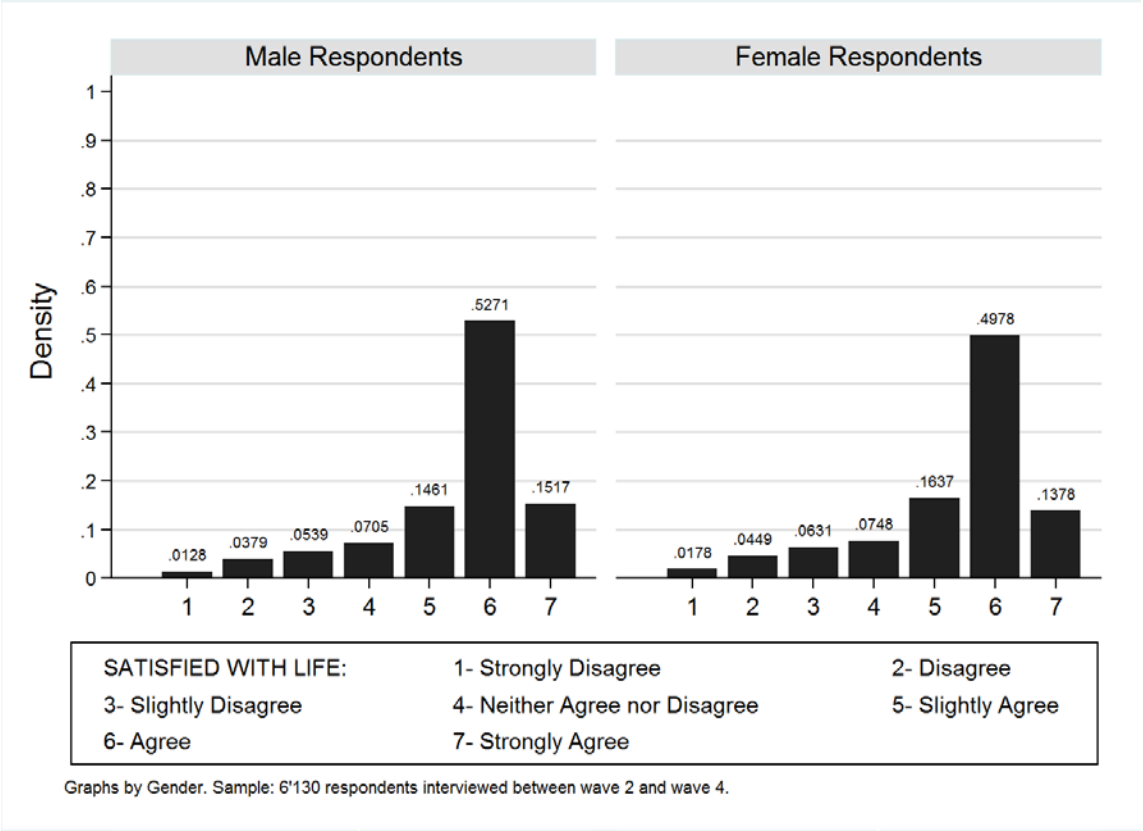
Resources:				
No cardiovascular condition		0.5140	0.3525	0.3380
No chronic health condition		0.4570	0.4813	0.4412
Has good eyesight		0.9022	0.8853	0.8824
Beings:				
Marital Status				
	Single	0.0510	0.0523	0.0489
	Married	0.7038	0.7040	0.6890
	Divorced	0.1061	0.0983	0.0989
	Widowed	0.1390	0.1455	0.1632
Age finished Education		16.2231	16.2231	16.2231
Age		63.8728	65.5348	67.8503
Is a grandparent		0.6220	0.6565	0.6990
Net Financial Wealth		71'248	79'140	84'508
Constraints:				
Cinema more		0.2994	0.2968	0.2714
Eating out more		0.3955	0.4009	0.3816
Gallery more		0.2948	0.3177	0.2675
Theatre more		0.4538	0.4802	0.4322
Number of Male Respondents		**2,673**	**2,673**	**2,673**
Number of Female Respondents		**3,456**	**3,456**	**3,456**

NOTES: (i) "No cardiovascular condition" means that the respondent reports that a doctor has never told them that they have (or have had) any of the following conditions: high blood pressure or hypertension; angina; a heart attack (including myocardial infarction or coronary thrombosis); congestive heart failure; a heart murmur; an abnormal heart rhythm; diabetes or high blood sugar; a stroke (cerebral vascular disease) or "any other heart trouble." (ii) "No chronic health condition" means that the respondent reports that a doctor has never told them that they have (or have had) any of the following conditions: chronic lung disease such as chronic bronchitis or emphysema; asthma; arthritis (including osteoarthritis, or rheumatism); osteoporosis; cancer or a malignant tumour (excluding minor skin cancers); Parkinson's disease; any emotional, nervous or psychiatric problems; Alzheimer's disease; dementia, organic brain syndrome, senility or any other serious memory impairment. (iii) "Net financial wealth" is calculated by deducting financial debts from the sum of savings and investments. It is calculated at the "benefit unit" level, i.e. a couple or single person plus any dependent children.

To measure happiness, we use responses to a question about life satisfaction: '*Please say how much you agree or disagree with the following statement: I am satisfied with my life: strongly agree/agree/slightly agree/neither agree nor disagree/disagree/strongly disagree*'. This measure of satisfaction (see Figure 2) is now widely used in economics and has been shown to be positively correlated with other more objective measures of personal well-being.[10]

[10] See Dolan and White (2007) for a discussion of how measures such as this can be used to inform public policy. There is in fact a significant literature on happiness, more often referred to as life satisfaction, that

Figure 2: Distribution of Life Satisfaction



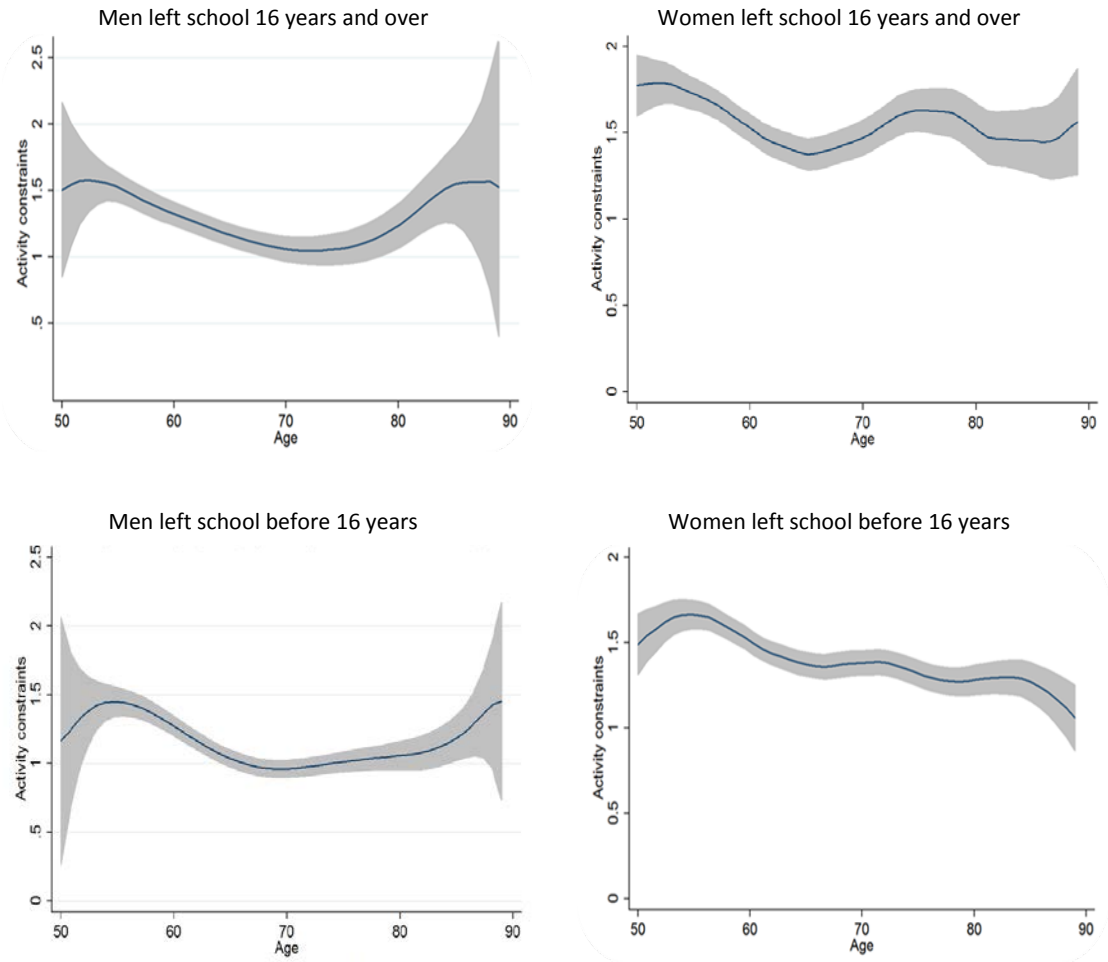
In our final set of equations we study four sets of constraints (frequency of eating out/going to the theatre/going to the cinema/going to the art gallery/museum) measured by the question: '*Would you like to engage in [activity] more often: Yes/No*' and analyse the determinants of these constrained activities (see Figure 3).

The non-parametric visual plots suggest, for men in this over 50 age group, a u-shaped pattern of constraint or frustration that is lowest around the age of 70, perhaps reflecting the falling away of work-based constraints before the onset of those imposed by health. This pattern is broadly consistent both for men who left school before 16 years of age and those who remained in education. On the other hand, and again only based on the descriptive plots, there seems to be a greater difference between the small group of women who remained in school beyond 16 and the vast majority who did not. Women who did not remain in school beyond 16, appear, over the

continues to flourish. (See for instance, Clark and Oswald, 1994; Clark and Senik, 2011; Daly and Wilson, 2009; Deaton, 2012; Ferrer-i-Carbonell and van den Bergh, 2007; Frey and Stutzer, 2002; Kahneman et al., 1997; Layard, 2011; Metcalfe et al., 2011; Winkelmann and Winkelmann, 1998)

same period, to be decreasingly frustrated whereas the pattern for those who remained in school is more similar to that observed for men.

Figure 3: Activity Constraints by Age and Education[11]



NOTE: Graphs obtained from local polynomial regressions.

[11] Over time, the pattern of activity constraints for women with low education appears significantly different to those for other groups.

3.2 Models and Specifications

The analysis examines aspects of all three components of welfare outcomes identified in the capabilities approach. We model happiness (u^h) as a function of 'doings and beings' using a suite of random effects models which allow for unobserved heterogeneity. We start by treating happiness as an ordered discrete variable, and estimate ordered probit models. We then proceed with the estimation of linear probability models (see Appendix, Table A1), where our dependent variable is treated as a continuous variable. This approach is in line with the existing literature on subjective wellbeing. Ferrer-i-Carbonell and Frijters (2004) discuss a number of methodological issues relating to the analysis of life satisfaction and specifically identify the influence of unobservables on reported life satisfaction. The underlying latent variable specification common to discrete choice models can be written as:

$$u_{it}^{h*} = \boldsymbol{\beta}'\boldsymbol{f}_{it} + \alpha_i + \varepsilon_{it} \quad (i = 1 \dots N,\ t = 2 \dots T_i) \qquad (1)$$

where $\boldsymbol{f}_{it}$ is the vector of observed variables, α_i is an individual-specific time invariant component and ε_{it} is a time and individual-specific error term. The probability of reporting a particular category of u_{it}^h can be written as:

$$P(u_{it}^h = j) = \Phi(\mu_j - \boldsymbol{\beta}'\boldsymbol{f}_{it} - \alpha_i) - \Phi(\mu_{j-1} - \boldsymbol{\beta}'\boldsymbol{f}_{it} - \alpha_i) \qquad (2)$$

allow for correlation between the individual unobserved heterogeneity and the observed covariates we follow Chamberlain (1984) and choose to parameterize the α_i. We specify a distribution for this unobserved heterogeneity, conditional on a set of time-invariant individual characteristics. Following Mundlak (1978), we choose the individual within mean of all explanatory regressors as conditioning variables for the distribution of the unobserved heterogeneity.[12] To estimate our models on functionings and constraints we use a static correlated random effects model similar in specification to equation (2). Of the eleven activities and four constraints analysed, four are ordered responses while the remainder are binary; these are modelled using ordered probit and binary probit specifications respectively. An alternative approach would be to treat the dependent variable as continuous and estimate a

[12] As a robustness check, we then re-specify the distribution of the unobserved heterogeneity as conditional on a different set of time-invariant individual observables. (As Arulampalam and Stewart (2009) explain, the distribution of the α_i can be conditional on any time-invariant regressor that explains the correlation between the α_i and the other variables in the main model). Tables A2 and A3, in the Appendix, present results analogous to those in Tables 2 and 3 of Section 4, where the individual within means are substituted with within "modes" for all categorical variables. To control, for example, for the time invariant individual stand on "Eating Out" we substitute the within mean of each binary answer ("eating out less than once a year", "every few months" or "more than once a month") with a set of dummies all equal to zero, except for the one answer given most frequently over time.

linear model. For instance Powdthavee (2010) estimates linear static panel models of income on happiness, with particular attention to issues of endogeneity.

Estimation specifications are based on the underlying theoretical framework outlined in Section 2. Results for male and female respondents are presented in Tables 2 and 3, respectively. To model happiness, we begin with a specification that includes solely 'doings and beings' as possible determinants of happiness. We begin by estimating a random effects model, under the assumption of no correlation between the individual-specific effect and the regressors (column [1], Table 2 and Table 3). We then relax this assumption and allow for correlation between unobserved heterogeneity and doings and beings (Column [2], Table 2 and Table 3). Our main specification for happiness follows from these and adds to the functionings variables a variety of resources an individual may possess (Column [3], Table2 and Table 3). These resources include age, health status and net financial wealth. Following the underlying idea in the capabilities approach that functionings depend on resources, in Table 4 we then estimate a series of activity production functions, for each of the eleven functionings in Table 1. The models are estimated as a function of resources (health, net financial wealth, age), gender and marital status. In addition, for our models on constraints (Table 5), we condition the desire to participate more in an activity on current levels of participation and include this as a regressor, along with the various resources an individual possesses.

4. Results

The results for the various models outlined above are reported in this section – in the case of happiness, results for men and women are reported separately. We highlight and discuss our key findings dealing in order with happiness, the production of daily activities, and potential determinants of constraints.

4.1 Happiness

The results of our happiness models are displayed in Table 2 (males) and Table 3 (females). These include the three specifications of random effects ordered probit models described earlier. Column [1] presents a base specification of a model of happiness with no correlation between unobserved heterogeneity and observed covariates. Columns [2] and [3] relax the assumption on the heterogeneity, and parameterize the unobserved individual effect by

including the individual within mean of all time-varying regressors[13]. In all three random effects specifications, unobserved heterogeneity accounts for a large portion of the error variance. Both tables report the estimated panel-level variance component, labelled as sigma. In all specifications we find that the panel-level variance component is significantly different from zero, suggesting that the random-effects ordered probit approach should be preferred to a standard ordered probit regression.

Focussing on our main specification, column [3], for men, going to the cinema, going on day trips, using e-mail/internet and having been in a marriage for at least a portion of their life (the reference category for marital status is "Never Married") are statistically significant and positively associated with greater happiness. The same is true for men without cardiovascular or chronic health conditions. Finally, net financial wealth (Column [3]) is statistically significant and positively associated with higher levels of reported life-satisfaction, suggesting that, for men, short term economic status is also a key determinant of happiness. The results for female respondents slightly differ. Eating out, membership of a social club and absence of Cardiovascular Conditions improve happiness, but the same cannot be concluded for the other doings and for net wealth.

To provide an indication of quantitative results on the association between happiness and the covariates, average partial effects (APE), for males and females, are presented in the respective column [a] of Table A4 in the Appendix. In the ordered probit model, APEs can be calculated for each of the reported categories of happiness. In Table A4 the probability of reporting the highest category of happiness is provided for selected covariates, along with sample standard deviations; columns [a] show the APE computed on the basis of the estimates reported in Table 2 and Table 3, while columns [b] show those computed on the basis of the estimates reported in Tables A2 and A3. The APE of current financial wealth is much larger for men than for women. The APEs for men also show larger magnitudes for not having a cardiovascular or chronic health condition than those for women.

[13] We test for any attrition related bias in our happiness equations using specification 1 through a simple variable addition test (Verbeek and Nijman, 1992). Two test variables are used – an indicator of whether an individual responds in all waves and so is in the balanced panel (allwav) and an indicator which counts the number of waves an individual is in (numwav). Each of these is added to the model and estimated with the unbalanced sample giving two separate tests for attrition. The tests are estimated separately for men and women. For men: test numwav=0 has a p-value of 0.07; test allwav=0 has a p-value of 0.06. For women: test numwav=0 has a p-value of 0.39; test allwav=0 has a p-value of 0.87. These tests suggest that, at least qualitatively, our results are likely to be relatively robust.

One, rather unexpected, result is the negative effect on happiness of being a grandparent. In column [2] of Table 2 (men) and 3 (women), respectively, which allows for heterogeneity but exclude resources, being a grandparent is found to have a significant negative effect on the happiness of both genders. It is larger for men, -0.315 than for women -0.235, though the difference is not statistically significant. For both men and women the effect remains negative, though smaller and insignificant, in column [3] of the respective tables, which includes resources. Compared to a number of other 'doings and beings' being a grandparent is one over which a person has less control. It seems feasible that caring activities or other perceived obligations associated with the status, possibly unwanted, may have an adverse impact on happiness. The fact that the negative effect is reduced, and no longer statistically significant, after controlling for wealth suggests that financial constraints to carrying out such obligations could be an important mechanism for such an effect. At the very least, these results suggest that more work on the situations in which grandparenting does, or does not, contribute beneficially to happiness are warranted.

Table 2 - Happiness – Males: Random Effects Ordered Probit Models

Dependent Variable: Happiness		Doings & Beings [1]	Doings & Beings [2]	Doings & Beings & Resources [3]
Eating Out				
	≤ *Once/Twice a Year*	-0.028	-0.090	-0.101
		(0.088)	(0.109)	(0.109)
	Every Few Months	0.037	-0.111	-0.131
		(0.093)	(0.117)	(0.117)
	≥ *Once Month*	0.232***	-0.012	-0.032
		(0.090)	(0.118)	(0.118)
Cinema				
	≤ *Once/Twice a Year*	0.091	0.274***	0.268***
		(0.06)	(0.084)	(0.084)
	Every Few Months	0.032	0.299**	0.276**
		(0.085)	(0.117)	(0.117)
	≥ *Once Month*	0.129	0.375**	0.364**
		(0.119)	(0.167)	(0.165)
Art Gallery/Museum				
	≤ *Once/Twice a Year*	0.039	0.039	0.027
		(0.058)	(0.073)	(0.074)
	Every Few Months	0.076	-0.008	-0.037
		(0.086)	(0.115)	(0.116)
	≥ *Once Month*	0.077	-0.032	-0.063
		(0.132)	(0.174)	(0.175)
Theatre				
	≤ *Once/Twice a Year*	0.037	0.030	0.024
		(0.060)	(0.075)	(0.075)
	Every Few Months	0.185**	0.107	0.095
		(0.083)	(0.109)	(0.109)
	≥ *Once Month*	0.164	0.062	0.047
		(0.113)	(0.148)	(0.150)
Member of Sports Club		0.082	0.015	0.002
		(.058)	(0.073)	(0.073)
Member of Social Club		0.076	0.016	0.005
		(.057)	(0.078)	(0.079)
Member of Church		0.219***	0.073	0.053
		(0.076)	(0.152)	(0.153)
Daily Newspaper		0.110**	0.013	0.049
		(0.045)	(0.051)	(0.051)
Hobby		0.163***	0.072	0.012
		(0.048)	(0.054)	(0.055)
Day Trip (Last 2 months)		0.025	0.110**	0.109**
		(0.047)	(0.055)	(0.056)
Uses Internet/Email		-0.053	0.064	0.189***
		(0.047)	(0.057)	(0.061)

		[1]	[2]	[3]
Marital Status				
	Married	0.531***	0.904***	1.054***
		(0.126)	(0.306)	(0.314)
	Divorced	-0.089	0.455	0.580*
		(0.149)	(0.341)	(0.351)
	Widowed	0.189	0.505	0.670**
		(0.147)	(0.325)	(0.332)
Finished Education		-0.018	-0.012	-0.014
		(0.014)	(0.014)	(0.014)
Is a Grandparent		0.106*	-0.315**	-0.173
		(0.062)	(0.125)	(0.130)
No. Cardiovascular Conditions		0.200***	0.297***	0.179**
		(0.05)	(0.069)	(0.073)
No. Chronic Health Conditions		0.227***	0.144*	0.131*
		(0.052)	(0.079)	(0.079)
Has Good Eyesight		0.227***	0.087	0.069
		(0.068)	(0.080)	(0.080)
Age				-0.065
				(0.081)
Age^2				-0.000
				(0.001)
Log (Net Financial Wealth)				0.215***
				(0.070)
Within Mean of Explanatory Variables		NO	YES	YES
Number of Observations		5,617	5,617	5,617
Number of Respondents		2,277	2,277	2,277
Sigma_u		1.229***	1.220***	1.210***
		(0.033)	(0.033)	(0.034)
Rho		0.6017	0.5981	0.5942

NOTE: Dependent variable is the categorical response to the question "Please sat how much you agree or disagree with the following statement: 'I am satisfied with my life'". Possible answers are "Strongly Agree", "Agree", "Slightly Agree", "Neither Agree nor Disagree", "Disagree" and "Strongly Disagree". Sample is all male respondents interviewed between wave 2 and wave 4. The base reference category for all doings categorical variables is "Never". The percentage of unobserved variation explained by individual effect is reported by Rho ($\rho = \sigma_u^2/(\sigma_e^2 + \sigma_u^2)$). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 3 - Happiness – Females: Random Effects Ordered Probit Models

Dependent Variable: Happiness	Doings & Beings [1]	Doings & Beings [2]	Doings, Beings & Resources [3]
Eating Out			
≤ *Once/Twice a Year*	-0.128	0.056	0.041
	(0.084)	(0.104)	(0.104)
≥ *Once Month*	0.256***	0.393***	0.386***
	(0.089)	(0.115)	(0.115)
Every Few Months	0.076	0.252**	0.241**
	(0.091)	(0.116)	(0.116)
Cinema			
≤ *Once/Twice a Year*	-0.054	0.016	0.012
	(0.055)	(0.072)	(0.072)
≥ *Once Month*	0.024	0.116	0.103
	(0.097)	(0.127)	(0.127)
Every Few Months	0.011	0.094	0.082
	(0.073)	(0.099)	(0.099)
Art Gallery/Museum			
≤ *Once/Twice a Year*	0.141**	0.052	0.043
	(0.056)	(0.073)	(0.073)
≥ *Once Month*	0.215*	0.018	0.003
	(0.113)	(0.142)	(0.143)
Every Few Months	0.227***	0.138	0.138
	(0.083)	(0.102)	(0.102)
Theatre			
≤ *Once/Twice a Year*	0.024	-0.010	-0.028
	(0.058)	(0.073)	(0.073)
≥ *Once Month*	0.007	-0.162	-0.187
	(0.106)	(0.135)	(0.136)
Every Few Months	0.125	0.073	0.056
	(0.078)	(0.100)	(0.100)
Member of Sports Club	0.116**	0.098	0.096
	(0.054)	(0.071)	(0.072)
Member of Social Club	0.149***	0.177**	0.174**
	(0.056)	(0.070)	(0.070)
Member of Church	0.243***	-0.009	-0.011
	(0.059)	(0.113)	(0.113)
Daily Newspaper	0.040	-0.025	-0.001
	(0.039)	(0.045)	(0.045)
Hobby	0.130***	0.053	0.020
	(0.041)	(0.047)	(0.048)
Day Trip (Last 2 months)	-0.000	-0.032	-0.054
	(0.039)	(0.044)	(0.046)
Uses Internet/Email	-0.135***	-0.134***	-0.032
	(0.038)	(0.046)	(0.051)

		[1]	[2]	[3]
Marital Status				
	Married	0.641***	0.775*	0.755
		(0.126)	(0.459)	(0.468)
	Divorced	-0.169	0.396	0.373
		(0.140)	(0.458)	(0.465)
	Widowed	0.148	0.090	0.143
		(0.136)	(0.467)	(0.476)
Finished Education		-0.002	-0.009	-0.023
		(0.014)	(0.015)	(0.015)
Is a Grandparent		-0.019	-0.235*	-0.134
		(0.059)	(0.121)	(0.123)
No. Cardiovascular Conditions		0.157***	0.202***	0.138**
		(0.045)	(0.060)	(0.063)
No. Chronic Health Conditions		0.314***	0.050	0.042
		(0.049)	(0.076)	(0.077)
Has Good Eyesight		0.193***	0.106*	0.101
		(0.055)	(0.063)	(0.063)
Age				-0.042
				(0.072)
Age^2				-0.000
				(0.001)
Log (Net Financial Wealth)				0.067
				(0.059)
Within Mean of Explanatory Variables		NO	YES	YES
Number of Observations		6,914	6,914	6,914
Number of Respondents		2,887	2,887	2,887
Sigma_u		1.242***	1.236***	1.221***
		(0.029)	(0.030)	(0.030)
Rho		0.6067	0.6044	0.5985

NOTE: Dependent variable is the categorical response to the question "Please sat how much you agree or disagree with the following statement: `I am satisfied with my life'". Possible answers are "Strongly Agree", "Agree", "Slightly Agree", "Neither Agree nor Disagree", "Disagree" and "Strongly Disagree". Sample is all female respondents interviewed between wave 2 and wave 4. The base reference category for all doings categorical variables is "Never". The percentage of unobserved variation explained by individual effect is reported by Rho ($\rho = \sigma_u^2/(\sigma_e^2 + \sigma_u^2)$). Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 4: Activity Production Functions

VARIABLES	(1) Eating out	(2) Cinema	(3) Gallery	(4) Theatre	(5) Sports club	(6) Social club	(7) Church	(8) Newspaper	(9) Hobby	(10) Day trip	(11) Internet
No cardiovascular condition	-0.088*	0.087*	0.049	-0.031	-0.199**	-0.077	-0.080	-0.021	-0.164***	-0.068	0.174***
	(0.051)	(0.052)	(0.052)	(0.050)	(0.078)	(0.077)	(0.120)	(0.054)	(0.055)	(0.053)	(0.067)
No chronic health condition	0.008	0.086	0.145**	-0.006	0.079	0.037	0.214	-0.022	0.150**	0.116*	-0.001
	(0.059)	(0.060)	(0.060)	(0.058)	(0.090)	(0.090)	(0.141)	(0.063)	(0.063)	(0.062)	(0.076)
Has good eyesight	0.061	0.133**	-0.052	0.043	-0.174*	0.064	-0.148	-0.025	0.004	-0.110*	0.083
	(0.053)	(0.063)	(0.063)	(0.060)	(0.097)	(0.085)	(0.136)	(0.057)	(0.056)	(0.057)	(0.070)
Net financial wealth (log)	0.061	0.009	-0.000	0.053	-0.049	0.065	-0.164	-0.029	-0.072	0.028	-0.101
	(0.048)	(0.045)	(0.045)	(0.044)	(0.069)	(0.074)	(0.106)	(0.050)	(0.052)	(0.050)	(0.063)
Gender (male=1)	-0.156***	-0.460***	-0.153**	-0.557***	-0.289***	0.427***	-1.053***	0.102***	0.013	-0.032	0.313***
	(0.056)	(0.066)	(0.060)	(0.060)	(0.079)	(0.072)	(0.113)	(0.037)	(0.034)	(0.033)	(0.050)
Age	0.150***	0.020	0.221***	0.298***	0.126	0.115	0.086	0.720***	0.000	0.874***	-0.016
	(0.056)	(0.061)	(0.060)	(0.057)	(0.093)	(0.088)	(0.134)	(0.060)	(0.060)	(0.062)	(0.080)
Age^2	-0.001***	-0.000	-0.002***	-0.003***	-0.001*	-0.001	-0.001	-0.005***	-0.001***	-0.008***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)
Age finished education	0.097***	0.233***	0.277***	0.252***	0.097***	-0.100***	0.267***	0.027***	0.066***	0.102***	0.188***
	(0.013)	(0.013)	(0.013)	(0.012)	(0.017)	(0.016)	(0.027)	(0.008)	(0.008)	(0.008)	(0.012)
Married	0.003	-0.906***	-0.455	-0.485	-0.463	-0.345	1.437	0.043	0.044	-0.415	-0.133
	(0.333)	(0.306)	(0.307)	(0.318)	(0.532)	(0.567)	(0.986)	(0.343)	(0.350)	(0.349)	(0.435)
Divorced	0.189	-0.814**	-0.230	-0.222	-0.720	-0.450	2.178**	-0.065	-0.277	-0.434	-0.423
	(0.334)	(0.322)	(0.316)	(0.326)	(0.551)	(0.574)	(1.054)	(0.346)	(0.351)	(0.354)	(0.436)
Widowed	0.349	-0.648**	-0.025	-0.109	-0.219	-0.181	1.378	-0.200	-0.263	-0.423	-0.041
	(0.346)	(0.325)	(0.328)	(0.335)	(0.556)	(0.581)	(1.016)	(0.354)	(0.362)	(0.362)	(0.446)
Mean of time-varying regressors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Thresholds	Not reported				-	-	-	-	-	-	-
Constant					-21.980***	-11.132***	-18.852***	-6.937***	-9.844***	-4.525***	-3.126*
					(2.532)	(2.267)	(3.524)	(1.135)	(1.068)	(1.048)	(1.595)
Rho[a] (intraclass correlation coefficient)	0.741***	0.809***	0.766***	0.776***	1.422***	1.220***	3.261***	-0.328***	-0.660***	-0.724***	0.462***
	(0.007)	(0.005)	(0.007)	(0.006)	(0.060)	(0.062)	(0.045)	(0.063)	(0.073)	(0.074)	(0.060)
Observations	14,619	13,793	13,486	13,956	14,263	14,263	14,263	14,845	14,845	14,845	14,845

NOTE: Columns (1)-(4): Random effects ordered probit models. Outcome variable has 4 categories: never (0), once/twice a year or less (1), every few months (2), - about once a month or more (3) Columns (5)-(11): Random effects probit models. [a] Percentage of unobserved variation explained by individual effect. Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

4.2 Functionings

Our attention turns now to the production of our eleven daily activities, the main results for which appear in Table 4. It is noticeable that being male is negatively associated (and statistically significant) with several activity levels, the notable exceptions being newspaper reading, social clubs and usage of the internet/e-mail. Likewise, the age at which a person finishes education tends to be a strong discriminator, with finishing education at higher ages being positively and statistically significantly associated with participation in a number of activities. Given the cultural aspects inherent in these activities, the results seem very much in line with what one might expect.

Having a cardiovascular condition is positively and statistically significantly associated both with membership of a sports club (5) and with having a hobby (9), perhaps suggesting that these activities play a remedial role. An alternative possibility is that they serve as substitutes for other activities for individuals with cardiovascular conditions. For almost all activities the quadratic specification of age is negative and statistically significant, indicating that participation in activities generally declines at older ages.

Table A5 in the online Appendix presents average partial effects for the eleven activity variables. In the case of the four ordered frequency variables - eating out and visiting the cinema, gallery and theatre - the APEs display the probability of reporting the highest frequency of participation in these activities, i.e. once a month or more. For the remaining binary variables they represent the probability of being a member or of participating in the respective activity. Across most activities the APE of mean net financial wealth is much larger than current net financial wealth, indicating that activity participation depends to some extent on long term financial status. The APEs for education are stable across most activities, the largest being for day trips and using the internet.

4.3 Activity Constraints

Finally, we report the results of four models of activity constraints in Table 5. Here, in order to accommodate heterogeneity of tastes, we include current levels of functioning. Perhaps the single most robust point to emerge from these models is that men are less likely than women to report wanting to engage more frequently in the four activities considered. In our sample, given their current levels of these activities, older individuals are less likely to want to engage in these activities more, as reflected by the negative and statistically significant coefficients of age. Table A6 in the online Appendix presents APEs for the four constraints models representing the probability of reporting ‘wanting to participate more’ in each activity. The results show that apart from current participation levels, mean net financial wealth has the greatest effect on reporting being constrained whilst those with a higher long term socioeconomic status are less likely to report a constraint. Moreover, a gradient is visible for three of the activities - visiting the cinema, gallery and theatre - with those already participating in the activities once a month or more being less likely to want to participate more. Such a gradient is not apparent, however, for eating out.

Table 5: Activity constraints

VARIABLES	(1) Cinema [a]	(2) Eating out [a]	(3) Gallery [a]	(4) Theatre [a]
Current frequency- once/twice a year or less*	0.315***	0.425***	0.364***	0.431***
	(0.083)	(0.117)	(0.079)	(0.070)
Current frequency - every few months*	0.190*	0.331***	0.124	0.279***
	(0.109)	(0.124)	(0.106)	(0.092)
Current frequency - about once a month or more*	-0.308**	0.076	-0.126	-0.220*
	(0.142)	(0.125)	(0.154)	(0.127)
No cardiovascular condition	0.002	0.043	-0.075	-0.223***
	(0.071)	(0.062)	(0.071)	(0.062)
No chronic health condition	-0.035	0.056	0.130	0.041
	(0.083)	(0.073)	(0.082)	(0.072)
Has good eyesight	-0.089	0.001	0.016	-0.015
	(0.081)	(0.069)	(0.082)	(0.071)
Married	-0.189	-0.129	-0.009	-0.157
	(0.422)	(0.414)	(0.426)	(0.417)
Divorced	-0.291	-0.266	-0.090	-0.065
	(0.435)	(0.424)	(0.444)	(0.439)
Widowed	-0.515	-0.638	-0.076	-0.513
	(0.441)	(0.429)	(0.450)	(0.435)
Net financial wealth (log)	-0.082	-0.144**	-0.098	-0.092
	(0.068)	(0.063)	(0.066)	(0.057)
Age	-0.041***	-0.007	-0.042***	-0.031***
	(0.011)	(0.009)	(0.011)	(0.009)
Age finished education	0.007	-0.047***	0.056***	0.050***
	(0.013)	(0.011)	(0.013)	(0.011)
Gender (male=1)	-0.383***	-0.151***	-0.138**	-0.441***
	(0.061)	(0.049)	(0.059)	(0.052)
Mean of time-varying regressors	Yes	Yes	Yes	Yes
Constant	6.407***	11.417***	4.116***	5.784***
	(0.855)	(0.748)	(0.825)	(0.727)
Rho[b] (intraclass correlation coefficient)	0.817***	0.455***	0.743***	0.541***
	(0.063)	(0.058)	(0.064)	(0.057)
Observations	12,621	13,160	12,205	13,231

NOTES: [a] Dependent variable: response to "Would you like to engage in [activity] more often": Yes=1 No=0
Columns (1)-(4): Correlated random effects ordered probit models*Base reference category –'Never'. [b] Percentage of unobserved variation explained by individual effect. Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

5. Discussion and Concluding Remarks

Here we have sought to explore the extent to which Sen's capabilities approach to welfare economics can be used to shed light on quality of life in older age, when changes in capabilities may be increasingly pronounced and exogenous.

The formal version of the capabilities approach emphasises three classes of dependent variables, each of which we have tried to operationalize using a relatively novel panel dataset on life in older age for the over 50s (ELSA). Our estimation approach is inevitably limited by the data available but controls for unobserved heterogeneity using random effects.

Sen's approach posits that happiness depends on what a person does or is, arguably particularly appropriate for the retired. The evidence we find tends to confirm this structural feature. Indeed, a wide range of different kinds of activities are associated with utility, as measured by life satisfaction scores, for both men and women. In some cases partial effects suggest different quantitative effects between the sexes. There is also some evidence that *social activities* and relations are important for both sexes, possibly more so for women, and that internet use is positively related to life satisfaction for men and negatively for women. It is noticeable that chronic health problems cease to be statistically significant in models with specifications which allow for unobserved heterogeneity being correlated with explanatory variables. This might suggest that, to some extent, other unobserved factors can jointly determine the two. The overall picture we develop is that happiness in older age is related to many different facets of life. It depends on health, marital status, how people spend their time and is also related to involvement in social processes, especially for women.

The second element of the approach holds that the 'doings' and activities a person engages in depend on the resources to which they have access. Here we have estimated production functions for eleven activities using random effects ordered probit models, controlling for unobserved heterogeneity and taking a broad conception of resources. We again find evidence of gender differences, even after controlling for health and income. Age at which education was completed proves to be related to the production of all the activities modelled and, although this speaks to the consistency of human capital as an indicator of social involvement or inclusion, we should note that a small number of those who did not study after 16 years of age (e.g. those with learning disabilities) would not have been in a position to benefit from further formal education. Perhaps the key point to note here is the role that education in the teens and beyond may play in promoting a person's social inclusion some 30 to 70 years later. Effects are very long lasting and not confined to income and work.

Finally, we analyse data that pertain to a person's capabilities themselves. Our approach was to use responses to the question as to whether people would like to engage more frequently with an activity to model capability restriction. Admittedly, there is an element of noise in this approach. For example, someone might report not wanting to go to the cinema more often because their state of health is such that they find it too tiring. One might then argue that such an individual is in fact constrained and does not have the capability of going to the cinema more often. Certainly more data that speak directly of the opportunity and constraint aspects of capabilities would be valuable. Nevertheless, our claims and concerns about being constrained derive not from the actual answers to questions about wanting to go out more, but rather from models of this variable which include controls for human capital, including health, various other resources and also actual frequency of activity. Our analyses of what drives capability constraint is then based on wishing to engage more in an activity, conditional on a wide variety of resources and the actual level of activity engaged in.

Descriptive data, as well as subsequent analysis, indicate the existence of two peaks of frustration for men and three for women within the age range studied. More importantly, models of frustration suggest that women would like to be more involved in all four activities monitored in this dataset. Given that the models controlled for financial resources and tastes, albeit imperfectly, through actual values of activity involvement, this evidence suggests a potentially new aspect of gender inequality with respect to welfare outcomes in older age. We find some evidence of a u-shape in frustration, or constraints, for males and a seemingly different pattern for females who did not remain in education beyond 16..

We conclude by suggesting that Sen's approach has generated some fairly novel insights into life in old age. These results may ultimately lead to implications for the design and regulation of care homes, for example, arising from the value of activities and existence of gender differences. In any case, we think they support the arguments of Layard (2011) who argues that happiness should be a more important element in economic thinking and policy - whilst also indicating that aspects other than happiness and income potentially have important contributions to make.

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Online Appendix

Table A1 – Happiness: Linear Probability Model, Using Fixed Effects

Happiness	Male Respondents		Female Respondents	
	Doings & Beings [a]	Doings, Beings & Resources [b]	Doings & Beings [a]	Doings, Beings & Resources [b]
Eating Out				
≤ *Once/Twice a Year*	-0.015	-0.022	-0.110	-0.118
	(0.097)	(0.097)	(0.101)	(0.100)
≥ *Once Month*	0.280***	0.275***	-0.012	-0.023
	(0.106)	(0.106)	(0.110)	(0.110)
Every Few Months	0.168	0.162	-0.105	-0.116
	(0.104)	(0.104)	(0.108)	(0.107)
Cinema				
≤ *Once/Twice a Year*	0.017	0.012	0.177***	0.174***
	(0.056)	(0.056)	(0.058)	(0.057)
≥ *Once Month*	0.072	0.060	0.308***	0.300***
	(0.099)	(0.098)	(0.115)	(0.115)
Every Few Months	0.061	0.049	0.224***	0.210**
	(0.077)	(0.076)	(0.084)	(0.084)
Art Gallery/Museum				
≤ *Once/Twice a Year*	0.040	0.035	0.030	0.021
	(0.053)	(0.053)	(0.054)	(0.054)
≥ *Once Month*	0.048	0.037	0.005	-0.018
	(0.111)	(0.111)	(0.119)	(0.119)
Every Few Months	0.119	0.119	0.017	-0.002
	(0.076)	(0.076)	(0.078)	(0.077)
Theatre				
≤ *Once/Twice a Year*	0.018	0.005	0.037	0.032
	(0.059)	(0.059)	(0.055)	(0.055)
≥ *Once Month*	-0.102	-0.119	0.062	0.049
	(0.106)	(0.105)	(0.114)	(0.114)
Every Few Months	0.070	0.056	0.082	0.072
	(0.077)	(0.077)	(0.078)	(0.078)
Member of Sports Club	0.070	0.068	0.035	0.027
	(0.049)	(0.049)	(0.057)	(0.056)
Member of Social Club	0.120**	0.118**	0.031	0.025
	(0.052)	(0.052)	(0.054)	(0.054)
Member of Church	0.015	0.014	0.072	0.057
	(0.083)	(0.083)	(0.099)	(0.100)

	[a]	[b]	[a]	[b]
Daily Newspaper	0.028	0.046	0.015	0.043
	(0.035)	(0.036)	(0.038)	(0.038)
Hobby	0.074**	0.049	0.042	0.002
	(0.036)	(0.037)	(0.038)	(0.039)
Day Trip (Last 2 months)	-0.009	-0.028	0.077**	0.078**
	(0.036)	(0.037)	(0.038)	(0.039)
Uses Internet/Email	-0.107***	-0.034	0.062	0.143***
	(0.038)	(0.042)	(0.043)	(0.045)
Marital Status	0.278	0.280	0.841***	0.932***
Married	(0.378)	(0.377)	(0.250)	(0.250)
	-0.091	-0.082	0.474*	0.541*
Divorced	(0.376)	(0.375)	(0.278)	(0.277)
	-0.270	-0.211	0.486*	0.597**
Widowed	(0.388)	(0.388)	(0.284)	(0.283)
Finished Education	-0.150*	-0.079	-0.151*	-0.047
	(0.086)	(0.089)	(0.088)	(0.091)
No. Cardivascular Conditions	0.118**	0.072	0.181***	0.100**
	(0.047)	(0.048)	(0.049)	(0.051)
No. Chronic Health Conditions	0.058	0.053	0.075	0.066
	(0.058)	(0.058)	(0.056)	(0.056)
Has Good Eyesight	0.076	0.069	0.043	0.030
	(0.055)	(0.055)	(0.062)	(0.061)
Age		-0.019		-0.074
		(0.056)		(0.061)
Age^2		-0.000		0.000
		(0.000)		(0.000)
Log (Net Financial Wealth)		0.049		0.135***
		(0.042)		(0.046)
Constant	4.901***	6.149***	4.407***	6.703***
	(0.385)	(1.893)	(0.279)	(2.068)
Number of Observations	6,914	6,914	5,617	5,617
Number of Respondents	2,887	2,887	2,277	2,277
R-squared	0.024	0.029	0.018	0.029
Hausman Test	64.17	75.23	95.35	124.21
Prob>chi2	0.000	0.000	0.000	0.000

NOTE: Dependent variable is the categorical response to the question "Please sat how much you agree or disagree with the following statement: `I am satisfied with my life'". Possible answers are "Strongly Agree", "Agree", "Slightly Agree", "Neither Agree nor Disagree", "Disagree" and "Strongly Disagree". These answers are assigned values from 7 to 1, respectively, and the dependent variable is here treated as continuous. Sample is males and females respondents interviewed between wave 2 and wave 4. Model specification [a] and [b] for male (female) respondents replicate model specifications [1] and [3] from Table 2(3), respectively. The base reference category for all doings categorical variables is "Never". All specification from this table are estimated using a linear FE-OLS model. The table also reports results from a Hausman Test for the difference in parameters estimated with this approach versus those estimated with the linear RE alternative. Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A2 - Happiness – Males: Random Effects Ordered Probit Models

Dependent Variable: Happiness		Doings & Beings [1]	Doings & Beings [2]	Doings & Beings & Resources [3]
Eating Out				
	≤ *Once/Twice a Year*	-0.028	-0.216**	-0.225**
		(0.088)	(0.109)	(0.109)
	≥ *Once Month*	0.232***	-0.142	-0.165
		(0.090)	(0.118)	(0.118)
	Every Few Months	0.037	-0.249**	-0.267**
		(0.093)	(0.117)	(0.117)
Cinema				
	≤ *Once/Twice a Year*	0.091	0.205***	0.216***
		(0.06)	(0.079)	(0.078)
	≥ *Once Month*	0.129	0.273*	0.274*
		(0.119)	(0.160)	(0.158)
	Every Few Months	0.032	0.202*	0.199*
		(0.085)	(0.112)	(0.112)
Art Gallery/Museum				
	≤ *Once/Twice a Year*	0.039	0.088	0.070
		(0.058)	(0.072)	(0.072)
	≥ *Once Month*	0.077	0.014	-0.033
		(0.132)	(0.175)	(0.175)
	Every Few Months	0.076	0.037	0.003
		(0.086)	(0.111)	(0.112)
Theatre				
	≤ *Once/Twice a Year*	0.037	0.085	0.077
		(0.060)	(0.071)	(0.071)
	≥ *Once Month*	0.164	0.028	-0.012
		(0.113)	(0.142)	(0.143)
	Every Few Months	0.185**	0.200*	0.174*
		(0.083)	(0.102)	(0.102)
Member of Sports Club		0.082	0.048	0.033
		(0.058)	(0.074)	(0.075)
Member of Social Club		0.076	0.003	-0.008
		(0.057)	(0.080)	(0.080)
Member of Church		0.219***	0.095	0.073
		(0.076)	(0.154)	(0.155)
Daily Newspaper		0.110**	0.002	0.034
		(0.045)	(0.052)	(0.053)
Hobby		0.163***	0.074	0.019
		(0.048)	(0.055)	(0.056)
Day Trip (Last 2 months)		0.025	0.108	0.108*
		(0.047)	(0.056)	(0.057)
Uses Internet/Email		-0.053	0.055	0.181***
		(0.047)	(0.058)	(0.063)

		[1]	[2]	[3]
Marital Status				
	Married	0.531***	0.878***	1.036***
		(0.126)	(0.303)	(0.313)
	Divorced	-0.089	0.365	0.530
		(0.149)	(0.329)	(0.339)
	Widowed	0.189	0.647**	0.782**
		(0.147)	(0.321)	(0.330)
Finished Education		-0.018	-0.015	-0.018
		(0.014)	(0.014)	(0.015)
Is a Grandparent		0.1055*	-0.318**	-0.183
		(0.062)	(0.126)	(0.130)
No. Cardivascular Conditions		0.200***	0.278***	0.163**
		(0.05)	(0.071)	(0.075)
No. Chronic Health Conditions		0.227***	0.126	0.112
		(0.052)	(0.081)	(0.081)
Has Good Eyesight		0.227***	0.104	0.084
		(0.068)	(0.082)	(0.083)
Age				-0.040
				(0.083)
Age^2				-0.000
				(0.001)
Log (Net Financial Wealth)				0.211***
				(0.071)
No. Observations		5,617	5,617	5,617
No. Respondents		2,277	2,277	2,277
Sigma_u		1.229***	1.197***	1.182***
		(0.033)	(0.034)	(0.034)
Rho		0.6017	0.5890	0.5828

NOTE: Dependent variable is the categorical response to the question "Please sat how much you agree or disagree with the following statement: `I am satisfied with my life'". Possible answers are "Strongly Agree", "Agree", "Slightly Agree", "Neither Agree nor Disagree", "Disagree" and "Strongly Disagree". Sample is all male respondents interviewed between wave 2 and wave 4. The base reference category for all doings categorical variables is "Never". Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A3 - Happiness – Females: Random Effects Ordered Probit Models

Dependent Variable: Happiness		Doings & Beings [1]	Doings & Beings [2]	Doings, Beings & Resources [3]
Eating Out				
	≤ *Once/Twice a Year*	-0.128	0.082	0.068
		(0.084)	(0.106)	(0.106)
	≥ *Once Month*	0.256***	0.449***	0.437***
		(0.089)	(0.115)	(0.115)
	Every Few Months	0.076	0.289**	0.276**
		(0.091)	(0.116)	(0.116)
Cinema				
	≤ *Once/Twice a Year*	-0.054	-0.005	-0.005
		(0.055)	(0.070)	(0.070)
	≥ *Once Month*	0.024	0.050	0.039
		(0.097)	(0.122)	(0.122)
	Every Few Months	0.011	0.046	0.038
		(0.073)	(0.095)	(0.096)
Art Gallery/Museum				
	≤ *Once/Twice a Year*	0.141**	0.088	0.083
		(0.056)	(0.070)	(0.071)
	≥ *Once Month*	0.215*	0.059	0.039
		(0.113)	(0.137)	(0.138)
	Every Few Months	0.227***	0.153	0.145
		(0.083)	(0.099)	(0.100)
Theatre				
	≤ *Once/Twice a Year*	0.024	-0.047	-0.061
		(0.058)	(0.071)	(0.071)
	≥ *Once Month*	0.007	-0.155	-0.187
		(0.106)	(0.130)	(0.132)
	Every Few Months	0.125	0.052	0.032
		(0.078)	(0.096)	(0.096)
Member of Sports Club		0.116**	0.077	0.075
		(0.054)	(0.073)	(0.073)
Member of Social Club		0.149***	0.157**	0.155**
		(0.056)	(0.072)	(0.072)
Member of Church		0.243***	-0.001	-0.004
		(0.059)	(0.117)	(0.116)
Daily Newspaper		0.040	-0.030	-0.005
		(0.039)	(0.046)	(0.046)
Hobby		0.130***	0.064	0.035
		(0.041)	(0.048)	(0.049)
Day Trip (Last 2 months)		-0.000	-0.043	-0.059
		(0.039)	(0.045)	(0.046)
Uses Internet/Email		-0.135***	-0.142***	-0.044
		(0.038)	(0.047)	(0.052)

		[1]	[2]	[3]
Marital Status				
	Married	0.641***	0.991**	1.004**
		(0.126)	(0.420)	(0.460)
	Divorced	-0.169	0.396	0.415
		(0.140)	(0.416)	(0.453)
	Widowed	0.148	0.318	0.367
		(0.136)	(0.424)	(0.463)
Finished Education		-0.002	-0.008	-0.025
		(0.014)	(0.015)	(0.016)
Is a Grandparent		-0.019	-0.229*	-0.125
		(0.059)	(0.121)	(0.124)
No. Cardivascular Conditions		0.157***	0.197***	0.136**
		(0.045)	(0.061)	(0.064)
No. Chronic Health Conditions		0.314***	0.033	0.026
		(0.049)	(0.077)	(0.078)
Has Good Eyesight		0.193***	0.128**	0.125*
		(0.055)	(0.064)	(0.064)
Age				-0.076
				(0.074)
Age^2				0.000
				(0.001)
Log (Net Financial Wealth)				0.084
				(0.060)
Within Mean of Explanatory Variables		NO	YES	YES
Number of Observations		6,914	6,914	6,914
Number of Respondents		2,887	2,887	2,887
Sigma_u		1.242***	1.222***	1.26***
		(0.029)	(0.030)	(0.030)
Rho		0.6067	0.5989	0.6135

NOTE: Dependent variable is the categorical response to the question "Please sat how much you agree or disagree with the following statement: `I am satisfied with my life'". Possible answers are "Strongly Agree", "Agree", "Slightly Agree", "Neither Agree nor Disagree", "Disagree" and "Strongly Disagree". Sample is all female respondents interviewed between wave 2 and wave 4. The base reference category for all doings categorical variables is "Never". Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A4 - Happiness: Random Effects Ordered Probit Models

A.P.E. of *Prob(Happiness = Strongly Agree)* w.r.t.:	Male Respondents		Female Respondents	
	[a]	[b]	[a]	[b]
Eating Out				
≤ *Once/Twice a Year*	-0.011	-0.024	0.004	0.008
	(0.011)	(0.013)	(0.011)	(.012)
≥ *Once Month*	-0.004	-0.020	0.037	0.044
	(0.014)	(0.017)	(0.011)	(.011)
Every Few Months	-0.014	-0.029	0.027	0.033
	(0.012)	(0.016)	(0.014)	(.015)
Cinema				
≤ *Once/Twice a Year*	0.031	0.026	(0.001)	-(.001)
	(0.01)	(0.016)	0.007	0.007
≥ *Once Month*	0.050	0.038	(0.011)	(.004)
	(0.027)	(0.030)	0.015	0.013
Every Few Months	0.035	0.026	(0.009)	(.004)
	(0.017)	(0.020)	0.011	0.010
Art Gallery/Museum				
≤ *Once/Twice a Year*	0.003	0.008	0.004	0.009
	(0.008)	(0.009)	(0.008)	(.008)
≥ *Once Month*	-0.007	-0.004	0.000	0.004
	(0.018)	(0.020)	(0.015)	(.015)
Every Few Months	-0.004	0.000	0.015	0.016
	(0.013)	(0.013)	(0.012)	(.012)
Theatre				
≤ *Once/Twice a Year*	0.003	0.009	-0.003	-0.007
	(0.009)	(0.009)	(0.007)	(0.008)
≥ *Once Month*	0.005	-0.001	-0.017	-0.018
	(0.018)	(0.017)	(0.011)	(0.011)
Every Few Months	0.011	0.022	0.006	0.003
	(0.013)	(0.017)	(0.011)	(0.010)
Member of Sports Club	0.000	0.004	0.010	0.008
	(0.008)	(0.009)	(0.008)	(0.008)
Member of Social Club	0.001	-0.001	0.019	0.018
	(0.009)	(0.010)	(0.008)	(0.009)
Member of Church	0.006	0.009	-0.001	-0.001
	(0.018)	(0.020)	(0.012)	(0.012)
Daily Newspaper	0.005	0.004	-0.000	-0.001
	(0.006)	(0.006)	(0.005)	(0.005)
Hobby	0.001	0.002	0.002	0.004
	(0.006)	(0.007)	(0.005)	(0.005)
Day Trip (Last 2 months)	0.012	0.012	-0.006	-0.006
	(0.006)	(0.008)	(0.005)	(0.005)

	[a]	[b]	[a]	[b]
Uses Internet/Email	0.020	0.021	-0.003	-0.005
	(0.007)	(0.011)	(0.005)	(0.006)
Marital Status				
Married	0.081	0.080	0.065	0.084
	(0.020)	(0.023)	(.037)	(.038)
Divorced	0.091	0.085	0.048	0.056
	(0.072)	(0.080)	(.072)	(.075)
Widowed	0.109	0.139	0.016	0.046
	(0.072)	(0.102)	(.056)	(.068)
Finished Education	-0.002	-0.002	-0.002	-0.003
	(0.002)	(0.002)	(.002)	(.002)
Is a Grandparent	-0.020	-0.023	-0.014	-0.014
	(0.016)	(0.019)	(.0135)	(.014)
No. Cardivascular Conditions	0.021	0.020	0.014	0.015
	(0.009)	(0.011)	(.007)	(.007)
No. Chronic Health Conditions	0.014	0.013	0.004	0.003
	(0.009)	(0.010)	(.008)	(.008)
Has Good Eyesight	0.007	0.009	0.010	0.012
	(0.008)	(0.010)	(.006)	(.006)
Age	-0.007	-0.005	-0.004	-0.008
	(0.009)	(0.01)	(.007)	(.008)
Age^2	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(.000)	(.000)
Log (Net Financial Wealth)	0.024	0.025	0.007	0.009
	(0.008)	(0.011)	(.006)	(.006)

NOTE: the table reports the APE for the Probability of answering "Strongly Agree" to the Happiness survey question with respect to all explanatory variables introduced in our main model. All APEs reported in columns [a] are computed on the basis of the estimates reported in Column [3] of Table 2(3), whereas all APEs reported in columns [b] are based on model estimates reported in Column [3] of Table A2(A3). All APEs are computed following Wooldridge (2005), whereas the SEs are obtained using the Delta Method.

A 5: Average partial effects on probability of reporting 'participation'- Activities (Functionings)

	Eating out	Cinema	Gallery	Theatre	Sports club	Social club	Church	Newspaper	Hobby	Day trip	Internet
Net financial wealth(log)	0.011 (0.001)	0.001 (0.000)	-0.000 (0.000)	0.003 (0.002)	-0.006 (0.002)	0.009 (0.002)	-0.009 (0.001)	-0.008 (0.001)	-0.018 (0.004)	0.007 (0.002)	-0.019 (0.006)
Mean net financial wealth (log)	0.168 (0.020)	0.036 (0.024)	0.036 (0.031)	0.057 (0.041)	0.115 (0.029)	0.010 (0.002)	0.023 (0.004)	0.048 (0.006)	0.120 (0.027)	0.114 (0.025)	0.134 (0.044)
Age	0.028 (0.003)	0.001 (0.001)	0.010 (0.009)	0.017 (0.013)	0.016 (0.004)	0.015 (0.003)	0.005 (0.001)	0.186 (0.023)	0.000 (0.000)	0.236 (0.051)	-0.003 (0.001)
Age finished education	0.018 (0.002)	0.012 (0.008)	0.013 (0.011)	0.015 (0.011)	0.012 (0.003)	-0.013 (0.002)	0.015 (0.002)	0.007 (0.001)	0.017 (0.004)	0.027 (0.006)	0.035 (0.012)
Male	-0.030 (0.004)	-0.024 (0.016)	-0.007 (0.006)	-0.032 (0.023)	-0.035 (0.009)	0.060 (0.009)	-0.057 (0.008)	0.026 (0.003)	0.003 (0.001)	-0.009 (0.002)	0.058 (0.019)
No cardiovascular condition	-0.017 (0.002)	0.005 (0.003)	0.002 (0.002)	-0.002 (0.001)	-0.024 (0.006)	-0.010 (0.002)	-0.004 (0.001)	-0.006 (0.001)	-0.042 (0.010)	-0.018 (0.004)	0.032 (0.011)
No chronic health condition	0.002 (0.000)	0.005 (0.003)	0.007 (0.006)	-0.000 (0.000)	0.010 (0.0027)	0.005 (0.001)	0.012 (0.002)	-0.006 (0.001)	0.038 (0.009)	0.031 (0.007)	-0.000 (0.000)
Good eyesight	0.012 (0.001)	0.007 (0.005)	-0.002 (0.002)	0.003 (0.002)	-0.022 (0.005)	0.008 (0.001)	-0.008 (0.001)	-0.006 (0.001)	0.001 (0.000)	-0.029 (0.007)	0.016 (0.005)
Married	0.001 (0.000)	-0.055 (0.036)	-0.023 (0.019)	-0.030 (0.021)	-0.058 (0.0155)	-0.046 (0.008)	0.076 (0.014)	0.011 (0.001)	0.011 (0.003)	-0.106 (0.027)	-0.025 (0.008)

A 6: Average partial effects on probability of reporting ' constraint' for random effects probit

	Cinema	Eating out	Gallery	Theatre
Net financial wealth(log)	-0.015	-0.032	-0.018	-0.020
	(0.003)	(0.005)	(0.004)	(0.002)
Mean net financial wealth	-0.083	-0.173	-0.079	-0.117
(log)	(0.019)	(0.027)	(0.018)	(0.014)
Age	-0.007	-0.002	-0.008	-0.007
	(0.002)	(0.000)	(0.002)	(0.001)
Age finished education	0.001	-0.011	0.010	0.011
	(0.000)	(0.002)	(0.002)	(0.001)
Frequency – once/twice a	0.056	0.097	0.067	0.097
year or less *	(0.011)	(0.012)	(0.013)	(0.009)
Frequency – every few	0.034	0.075	0.023	0.062
months*	(0.007)	(0.010)	(0.005)	(0.007)
Frequency – about once a	-0.052	0.020	-0.023	-0.048
month or more*	(0.013)	(0.003)	(0.005)	(0.006)
Male	-0.068	-0.034	-0.025	-0.098
	(0.014)	(0.005)	(0.006)	(0.011)
No cardiovascular condition	0.000	0.010	-0.014	-0.049
	(0.000)	(0.002)	(0.003)	(0.006)
No chronic health condition	-0.006	0.013	0.024	0.009
	(0.001)	(0.002)	(0.005)	(0.001)
Good eyesight	-0.016	0.000	0.003	-0.003
	(0.004)	(0.000)	(0.001)	(0.000)
Married	-0.034	-0.029	-0.002	-0.035
	(0.007)	(0.004)	(0.000)	(0.004)