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CAPABILITIES AND WELL-BEING: EVIDENCE BASED ON THE SEN–NUSSBAUM APPROACH TO WELFARE[1]

ABSTRACT. One of the most significant theoretical contributions to welfare analysis across a range of disciplines has been the development of the capabilities framework by Sen and others. Motivated by the claim that freedom should play a key role in social evaluation, the capabilities framework suggests that we consider what it is that people are free to do, as well as what they actually do. Using data from the British Household Panel Survey in conjunction with a list of substantial values posited by Martha Nussbaum, we contribute to the operationalisation and testing of this approach. Specifically, we suggest that commonly used secondary data sources do provide some information about the capabilities people have and that this can be incorporated into models of (subjective) well-being such as those used by a growing number of labour and health economists. We find evidence that a wide range of capabilities exhibit statistically significant relations to well-being that the relations are complex and slightly different for men and women, and conclude with suggestions for future developments.

KEY WORDS: capabilities, happiness, Nussbaum, Sen

INTRODUCTION

Whilst the concept of value lies at the heart of economics, it might be thought surprising that there is no satisfactory account of utility at the individual[2] or social level. In part, the difficulty with the concept of utility arises from the fact that consumer theorists have come to rely on the concept of revealed preference which uses only the information that rational, but 'fixed preference', consumers make under different price and income scenarios. By contrast, it has been argued, for example (Easterlin, 2001), that the aspirational content of preferences, are not fixed as traditional theory assumed and that instead,

preferences change alongside income thus undercutting any potentially beneficial effects of income growth on human happiness.

In the face of these difficulties, Sugden (1993) has argued that we should abandon the idea of evaluating the good of society, and even of evaluating the good of individuals. Instead, within rules which govern collective choice and social interaction, judged against procedural criteria such as fairness, agreement, or the non-violation of rights, society should allow individuals to act on their own preferences, without asking what lies behind those preferences. An alternative approach favoured by Sen (1977, 1979, 1999), is to argue that the informational basis of welfarism, which defines efficient social states as those in which no individual can be made better off without an offsetting loss to another individual, is too thin. Instead, he suggests, we should accept the relevance of information about features of the world other than individuals' revealed preferences. We should start from a conception of what makes a good life for a human being, and build up from this to a theory of the social good. In answer to the question ''who decides what makes a good life?'' Sen contends that there are some significant cases in which everyone can agree about the nature of well-being whatever their more general commitments and that debate about others is part of what makes a good life in a good society. The argument is, that it is the opportunity to live a good life,[3] rather than the accumulation of resources, that matters most for well-being, and that opportunities result from the capabilities that people have. This so-called 'capability' approach thus focuses more on people and less on goods. In it resources do not have an intrinsic value; instead their value derives from the opportunity that they give to people.

Our paper does not need to choose between the ideas of Sen and Sugden. For one thing, Sen's account is not inherently linked to an interventionist conception of the economy though some people have sought to make such a link. What it does well, we believe, is emphasise the fact that *if* one is going to intervene, then the significant life chances that people have, constitute a key variable on which the state should focus. Alternatively, if it turned out that there was no empirical link

between subjective well-being and the opportunities that people faced, then Sugden's emphasis on choice might seem to be rather paradoxical. At the very least, it would seem incumbent on him to construct a justification of his Nozickian account of the state compatible with the absence of any empirical relation between choice and well-being. Empirical work on choice need not necessarily be seen as a Popperian test of theory in order for it to make a contribution to theoretical debates and furthermore, once one begins to do empirical work the priority of issues may even begin to change. Indeed this is one of the lessons that we believe that emerges from exercises such as that reported here, which attempt to link relatively psychological and philosophical areas of economic analysis.

The rest of the paper is structured as follows. In section 'The Capabilities of Framework', we outline the capabilities approach focusing on the multi-dimensional approach to well-being that it encourages. Section 'Nussbaum's List of Capabilities and Secondary Data' then goes on to discuss our data source and the link with the capabilities framework that we propose. Section 'Empirical Analysis' describes the analysis strategy used to minimise the impact of endogeneity in estimating a model of the relationship between capabilities and well-being. Section 'Discussion of Results' presents some descriptive statistics of the data, the main results of the analysis and our discussion of them whilst concludes with section Concluding Remarks.

THE CAPABILITIES FRAMEWORK

Sen (1985) and many writings subsequently, defines capabilities as what people are able to do or able to be – the opportunity they have to achieve various lifestyles and as a result, the ability to live a good life. He differentiates this from what he calls functionings – the things a person actually does and experiences. Functionings may vary from the elementary, such as being adequately nourished and being free from avoidable disease, to complex activities or personal states, such as taking part in the life of the community and having self-respect.

"Capability" refers to the feasible alternative combinations of these functionings. Sen differentiates the capabilities approach (see for instance Sen (1999)) from the more traditional practical and economic policy analysis which he considers has, an "economic" concentration on the primacy of income and wealth (rather than on the characteristics of human lives and substantive freedoms), a "utilitarian" focus on mental satisfaction (rather than on creative discontent and constructive dissatisfaction) and a "libertarian" preoccupation with procedures for liberty (with deliberate neglect of consequences that derive from those procedures). Formally, we might represent this idea with a function of the form:

$$f : R^n \rightarrow R$$
$$\mathbf{c} \mapsto \sum c.$$

Here we read the vector **c**, as an *n*-dimensional measure of capabilities which gives rise to a value measured by a real scalar. This is already a dramatic simplification of the architecture of the capabilities approach but it is one that will nonetheless makes clear our approach as well as its limits. For one thing, although it probably does make sense to add physical capabilities, the value of people's capabilities might plausibly take a non-additive form.[4] More importantly, Sen (and conventional welfare economists for that matter) emphasise the fact that for different agents (individuals or households) the function *f*, which represents the way capabilities are transformed into values, may vary. This paper explores one such source of variation, namely that due to sex. Finally, it is worth pointing out that, from the perspective of the capabilities framework, the function proposed is a *reduced form* of analysis. It may be that what people do or achieve plays a crucial role in determining the relation between capability and well-being, but that is not something that can be explored with this dataset at present (though it is an issue addressed elsewhere – see, for instance, Anand and van Hees, 2003).

A, if not the, substantial question for anyone trying to implement this approach directly concerns the identification of the dimensions of c. Sen has avoided giving a specific list though following her collaboration with him, Martha Nussbaum (2001) has constructed one (see Appendix A op cit p81).[5] In doing so she makes the point that "...the list is, emphatically, a list of separate components. We cannot satisfy the need for one of them by giving a larger amount of another one. All are of central importance and all are distinct in quality." Taken literally her justification for multi-dimensionality appears to depend on a non-compensatory (i.e., lexicographic) reading of the value function, which seems to us unnecessary. However, Nussbaum's list is of value to us independently on her account of the values to which it gives rise and the areas she highlights (life, bodily health, bodily integrity, thought, emotions, reason, affiliation, other species, play and control over one's environment), informed as they are by her background as a political philosopher, specify points on which we would expect most accounts of well-being (though not state activity as Sugden's work emphasises) to agree. In fact, Nussbaum recognises that functionings, not just capabilities, are what render a life fully human, but argues that capabilities should be the focus of political activity. She reasons that the respect we have for people and their choices means that even when we feel confident that we know what a flourishing life is, we would not respect people if we dragooned them into this functioning. The goal of the political process should be to set the stage and allow people to present whatever arguments they have in favour of a given choice, but the choice is up to each individual. In this sense, Nussbaum might be read as offering a bridge between the points that Sen and Sugden emphasise.

We shall say more about our linkage of Nussbaum's list to available empirical data in the next section. However, before doing so, it is worth saying a little more about the difficulties involved in doing this. One problem with the capability approach is that of identifying suitable empirical measures which can be used in its support with the result that its relevance has been questioned. Srinivasan (1994), for example, argues that the only conceptually appropriate metrics for

valuing functionings and capabilities has to be personalised prices or values, namely, sets of values that are specific to the situation, location, time and state of nature.[6] Although these would vary across individuals in different circumstances they would have to remain the same for all individuals in the same circumstance, so that they are not subjective and individually based. He concludes that this makes the capability approach conceptually weak and empirically unsound, involving as it does serious problems of non-comparability over time and space, measurement errors and biases. As a result, Srinvasen argues that meaningful inferences about the process of development and performance as well as policy implications can hardly be drawn from variations in the capability approach based United Nations Human Development Index.

Srinvasen makes some good and insightful points though it is worth pointing out that Debreuvian general equilibrium theory is not used as a conceptual basis for empirical work and that a large array of serious measurement problems beset even traditional economic approaches to the measurement of well-being. Nonetheless, it seems reasonable to suppose that such difficulties have contributed to the relative dearth of empirical applications up to now.

However, an example of a growing body of quantitative research which does try to employ the capabilities framework, is Martinetti (2000) who has used fuzzy set theory to carry out a multi-dimensional assessment of well-being in Italy. She found that the relationships between subjective well-being and her indicators of functionings were substantial in the areas of housing and health but less so for education, knowledge and social relationships. Martinetti's rationale for evaluating functionings rather than capabilities resulted simply from the difficulty she found in obtaining the necessary data. Her view was that the entire capability set of available options is not easily or directly observable, and so it can only be estimated on a presumptive basis. Separately, Bank of Italy researchers Brandolini and D'Alessio (1998) appear to agree. However, by concentrating on functionings alone, the analysis might do no more than multivariate work on poverty does already and it

fails to exploit one of the most distinctive elements of the capabilities approach.

One response to this secondary data problem, taken in a project by one of the authors of this paper, is to develop a new instrument that enables researchers to fill the gaps left by available sources. The approach has the merit of allowing one to specify the questions asked and it has generated evidence that indicates a link between capabilities and well-being, even after controlling for satisfaction with achievements. However, our sample of voters although random was small, and the design was subject to concerns about endogeneity, in that case arising from the application of dependency analysis techniques to data that includes subjective estimates on both sides of the equation. These, then are the considerations that lead us to the design of this current investigation: we look for questions that are widely available to researchers in the form of secondary datasets commonly used which are closely related to the distinctive aspects of the capabilities approach and we attempt an analysis that addresses statistical issues, (mainly sample size and endogeneity).

NUSSBAUM'S LIST OF CAPABILITIES AND SECONDARY DATA

Following a trawl of possible secondary data sources, we determined to use data for the analysis from the British Household Panel Survey (BHPS), an annual survey of each adult (16+) member of a nationally representative sample of more than 5000 households, comprising a total of approximately 10 000 individual interviews. The survey presents a major collaboration between statisticians and social scientists, is constantly revised and can reasonably be taken as reflecting good practice in terms of questionnaire design. The main method of data collection at each wave is by face-to-home in-home interviewing and this paper draws on data from the 10th wave of interviews carried out in the year 2000. Many, if not most high income countries have similar surveys and it is likely, therefore, that our methodology could be applied widely to a large range of countries without too much difficulty.

Our aim in selecting questions for analysis from this survey was to find items that were related to those substantive values reflected in Nussbaum's (op cit) paper. As we noted in the previous section, the distinction between functionings and capabilities is a difficult one to make with real data in that whilst functionings focus on what a person is or actually chooses to do, capabilities focuses on the set of alternatives she has (her real opportunities). However, at least some of the questions in the BHPS do appear to go beyond asking about mere functionings. Two sorts of questions are worth drawing attention to. First, there are those that ask directly about functionings or achievements in particular areas, which clearly will have implications for what we *can* do in other areas of life. Health and educational status are two obvious examples and the survey provides information on both. Second, there are questions that directly ask about capabilities in particular dimensions, or their absence. For example, one question is 'Would you like to pay for a week's annual holiday away from home, but must do without because you cannot afford it?' This exemplifies the merit of the distinction between capabilities and functionings – a simpler question about whether a person went on holiday or not would be less indicative of capability as some people do not wish to go on holiday every year.[7] It might be thought that this division corresponds to the distinction between instrumental freedom and the intrinsic value of freedom which has been the subject of some discussion by philosophers and economic theorists (see for instance Carter (1999)[8]). However, one important point to which we shall return is that in practice, questions asked in the BHPS often relate to capabilities and functionings or achievements. Twenty-eight questions with links to Nussbaum's list appear in the BHPS, and the relation between the survey question and her account is summarised in Appendix A.

The main dependent variable used in our analysis is a self-reported subjective well-being statistic of a kind often used in national social surveys, social psychology and increasingly by economists working on problems of health and labour. The psychometric properties of such measures have been studied exhaustively and will not be further discussed here (though see

Argyle (2001) for a review and Clark and Oswald (1994) for a thoughtful discussion about their use in economics)[9]. In addition to asking individuals whether they are satisfied (on a scale from 1 to 7) with their life overall, the BHPS asks individuals whether they are satisfied with; their health, their flat or house, the income of their household, their partner, their job, their social life, the amount of leisure time they have, and with their use of leisure time. The BHPS also includes the 12 question version of the General Health Questionnaire (GHQ) developed by Goldberg (1972) as a screening test for psychiatric disorder. Respondents answering 'Not at all' or ''No more than usual'' are normally scored 0 (symptom absent) those answering 'Rather More than usual'' or ''Much more than usual'' are normally scored 1 (symptom present). Those with a score of two or more are more likely to be clinically confirmed cases of psychiatric disorder than those obtaining lower scores although a high percentage of those scoring 2+ turn out to be non-cases. To allow for non-linearity in these ratings, this study uses dummy variables based on a base case for each of these answers rather than this dichotomous scoring.

EMPIRICAL ANALYSIS

Our empirical analysis attempts to measure the effects of the BHPS measures of capabilities and some demographic variables on overall life satisfaction. The difficulty is that there are likely to be consistent personality traits, e.g. a tendency to always look on the bright side, which determine overall satisfaction with life, independent of capabilities. Therefore, we have a serious omitted variable problem. Indeed, a number of researchers have concluded that objective factors, above a certain level, have little impact on satisfaction, and that individual differences in personality, as well as emotions and cognitive processes are more important. (Diener et al., 1999; Schwarz and Strack, 1999). From one study of the happiness in 1400 pairs of identical and fraternal twins, for example, Lykken and Tellegen (1996) concluded that the variance in adult

happiness is determined about equally by genetic factors and by the effects of experiences unique to each individual.

If we believed that such personality traits were constant over time and had panel data we could allow for such traits by using person specific intercepts. It is not clear that such traits are constant over time and here we are using a single year of the BHPS as a cross-section not a panel. Use of the panel dimension inevitably raises some difficult dynamic issues, which are a subject for future research. If we had instruments that influenced capabilities, but not reported satisfaction we could use Instrumental Variables or Generalised Method of Moment estimators; but such instruments are likely to be difficult to find. If the heterogeneity in personality traits were a stable function of observed demographic variables, we could remove the effect of the omitted variables using these, but this seems unlikely. Instead we proxy the unobserved personality traits by measures of satisfaction with a particular areas of life, these can then be included in the regression of overall life satisfaction on capabilities, to control for the effect of such personality traits. We assume that capabilities are uncorrelated with the personality traits. This is a strong assumption the personality traits may influence how the capabilities are reported.

We develop the model in stages, setting out each of the stages before going to a detailed discussion of the results in the next section. Our dependent variables are overall life satisfaction (rated on a seven point scale, 7 = very satisfied) for women and men, the unconditional distributions are given in Table I. The mean overall satisfaction with life is similar for women (5.23) and men (5.21). We will not distinguish women and men in our notation and denote the dependent variable for person i, $i = 1,2, \ldots ,N$, overall life satisfaction as s_i. We have observations on 6587 women and 5453 men. We also have observations on a $K \times 1$ vector a_i on satisfaction with particular areas of life, where $K = 10$. There are eight direct satisfaction measures (health, household income, house, social life, amount of leisure time, use of leisure time, job and partner). Satisfaction with partner and job raises an issue, since one can only express satisfaction (values one to seven) if one has a partner/job, not having a partner/job is coded zero in the data. Therefore we

TABLE I

Overall life satisfaction for (a) females (b) males

Value	Count	Percent	Cumulative Count	Cumulative Percent
(a) Females				
1	96	1.46	96	1.46
2	143	2.17	239	3.63
3	389	5.91	628	9.53
4	999	15.17	1627	24.70
5	1913	29.04	3540	53.74
6	2020	30.67	5560	84.41
7	1027	15.59	6587	100.00
Total	6587	100.00	6587	100.00
(b) Males				
1	50	0.92	50	0.92
2	109	2.00	159	2.92
3	314	5.76	473	8.67
4	787	14.43	1260	23.11
5	1754	32.17	3014	55.27
6	1767	32.40	4781	87.68
7	672	12.32	5453	100.00
Total	5453	100.00	5453	100.00

model the effect of satisfaction with partner, a_{pi}, as $s_i = \alpha + \cdots + \delta_p D_{pi} + \beta_p a_{pi} + \varepsilon$ where $D_{pi} = 1$ if the person does not have a partner and zero otherwise. The predicted level of satisfaction is then $\delta_p D_{pi}$ if they do not have a partner, since $a_{pi} = 0$ and $\beta_p a_{pi}$ if they do have a partner, since $D_{pi} = 0$. The dummy is then treated as a potentially endogenous area satisfaction measure, making $K = 10$. We also have a $J \times 1$ vector of observed indicators of capabilities x_i, where $J = 51$.

In the first step the overall satisfaction with life of an individual i, is regressed on their satisfaction with life in particular areas $k = 1,2, \ldots ,8$ to give Model 1:[10]

$$s_i = \alpha_1 + \beta_1' a_i + \varepsilon_{1i}$$

where β is a $K \times 1$ vector. This is largely for comparison with earlier results. The estimates for model 1 are given in Tables II and III. Model 1, will suffer endogeneity bias since both the

TABLE II

Overall satisfaction regressed on elements of satisfaction (model 1) – females

Variable	Coefficient	SE	*t*-Statistics	Probability
C	0.060224	0.081284	0.740916	0.4588
D_NOJOB	0.409443	0.057762	7.088485	0.0000
D_NOPARTNER	1.009442	0.073462	13.74108	0.0000
S_HEALTH	0.185271	0.007524	24.62263	0.0000
S_HOUSE	0.078262	0.008456	9.254801	0.0000
S_HINCOME	0.082242	0.007846	10.48235	0.0000
S_PARTNER2	0.202341	0.011185	18.09103	0.0000
S_JOB2	0.073540	0.010427	7.052567	0.0000
S_SOCIAL	0.201914	0.010956	18.43020	0.0000
S_LEISURE	0.143686	0.011633	12.35176	0.0000
S_QLEISURE	0.045315	0.010031	4.517371	0.0000
R^2	0.552329	Mean dependent var		5.225292
Adjusted R^2	0.551648	SD dependent var		1.302411
SE of regression	0.872082	Akaike info criterion		2.565803
Sum squared resid	5001.229	Schwarz criterion		2.577146
Log-likelihood	−8439.471	*F*-statistic		811.3366
Durbin–Watson stat	2.053580	Prob (*F*-statistic)		0.000000

Dependent Variable: S_OALL
Method: Least Squares
Date: 11/26/03 Time: 13:49
Sample (adjusted): 1 12039 IF JSEX = 2
Included observations: 6587 after adjusting endpoints.

error term and the regressors include the personality traits. To allow for this we assume that satisfaction with a particular area is determined by measured capabilities and personality traits:

$$a_{ki} = \alpha_k + \phi_k' x_i + d_{ki}$$

where ϕ is a $J \times 1$ vector and d_{ki} reflects these personality traits. The estimates for these 10 equations are not reported, but are available from the authors on request. We are using a linear probability model rather than logit or probit to predict the dummy variables for having a partner or having a job, but Angrist and Kreuger (2001) suggest that this is more robust to functional form misspecification.

TABLE III

Overall satisfaction regressed on elements of satisfaction (model 1) – males

Variable	Coefficient	SE	*t*-Statistics	Probability
C	0.225719	0.081994	2.752861	0.0059
D_NOJOB	0.634711	0.056237	11.28637	0.0000
D_NOPARTNER	0.558690	0.078989	7.073016	0.0000
S_HEALTH	0.165380	0.008274	19.98812	0.0000
S_HOUSE	0.088242	0.008970	9.837399	0.0000
S_HINCOME	0.092377	0.008490	10.88026	0.0000
S_PARTNER2	0.123109	0.011809	10.42536	0.0000
S_JOB2	0.128219	0.010015	12.80287	0.0000
S_SOCIAL	0.200645	0.011588	17.31450	0.0000
S_LEISURE	0.182590	0.011152	16.37253	0.0000
S_QLEISURE	0.000883	0.009654	0.091488	0.9271
R^2	0.577968	Mean dependent var		5.214377
Adjusted R^2	0.577192	SD dependent var		1.213491
SE of regression	0.789056	Akaike info criterion		2.366056
Sum squared resid	3388.241	Schwarz criterion		2.379378
Log-likelihood	−6440.053	*F*-statistic		745.2750
Durbin–Watson stat	2.054863	Prob (*F*-statistic)		0.000000

Dependent Variable: S_OALL
Method: Least Squares
Date: 11/26/03 Time: 13:52
Sample (adjusted): 2 12040 IF JSEX = 1
Included observations: 5453 after adjusting endpoints.

We use this regression to decompose satisfaction in a particular area into that explained by capabilities and personality traits, the part not explained by capabilities, $a_{ki} = \hat{a}_{ki} + \hat{d}_{ki}$. These measures of personality traits $\hat{d}_{ki}$ are of interest in their own right, and Table IV, gives the correlation matrix between them. If there were common personality traits, which explained satisfaction with particular areas of life, independent of the observed capabilities, then we would expect them to be highly correlated across areas of life. This does not seem to be the case.

Using this decomposition, we can add these measures of personality traits to model (1) to give model (2):

$$s_i = \alpha_2 + \beta_2' a_i + \gamma_2' \hat{d}_i + \varepsilon_{2i}$$

TABLE IV

Correlation matrix of residuals (personality traits)

Males	Females									
	DNOJOB	DNOPARTNR	S_HEALTH	S_HINCOME	S_HOUSE	S_JOB	S_LEISURE	S_PARTNER	S_QLEISURE	S_SOCIAL
DNOJOB	1	0.12821	0.00107	0.02566	0.10437	−0.90065	0.12541	−0.10809	0.24447	0.02613
DNOPARTNR	0.11961	1	0.02718	0.00184	0.03570	−0.14252	0.03174	−0.93827	0.07336	−0.02743
S_HEALTH	−0.00464	0.00164	1	0.24838	0.18452	0.05069	0.20952	0.00610	0.16131	0.22377
S_HINCOME	−0.00488	0.03370	0.27781	1	0.34400	0.05426	0.23341	0.03756	0.22563	0.26317
S_HOUSE	0.11337	−0.01758	0.21123	0.33933	1	−0.03674	0.28101	0.02839	0.28906	0.26750
S_JOB	−0.86108	−0.11826	0.08198	0.15623	−0.01818	1	−0.05131	0.14102	−0.14890	0.06098
S_LEISURE	0.16572	0.02331	0.24410	0.25136	0.29503	−0.05463	1	0.03086	0.66732	0.66350
S_PARTNER	−0.08935	−0.93526	0.03367	−0.00453	0.08354	0.11444	0.04306	1	−0.01362	0.10345
S_QLEISURE	0.31854	0.06841	0.19271	0.25000	0.25371	−0.16784	0.60287	−0.01256	1	0.53316
S_SOCIAL	0.06956	−0.00780	0.27225	0.30776	0.30450	0.07476	0.61275	0.08585	0.52819	1

TABLE V

Overall satisfaction regressed on elements of satisfaction and personality traits (model 2) – females

Variable	Coefficient	SE	*t*-Statistics	Probability
C	−5.345018	0.378229	−14.13171	0.0000
D_NOJOB	1.016251	0.330410	3.075730	0.0021
D_NOPARTNER	6.476706	0.498460	12.99343	0.0000
S_HEALTH	0.248869	0.023826	10.44530	0.0000
S_HOUSE	−0.076108	0.038453	−1.979239	0.0478
S_HINCOME	0.152994	0.043512	3.516164	0.0004
S_PARTNER2	1.074363	0.076036	14.12966	0.0000
S_JOB2	0.094445	0.065378	1.444596	0.1486
S_SOCIAL	0.554924	0.078221	7.094311	0.0000
S_LEISURE	−0.020564	0.121834	−0.168791	0.8660
S_QLEISURE	−0.180783	0.080273	−2.252107	0.0243
RESIDF_DNOJOB	−0.677270	0.335291	−2.019948	0.0434
RESIDF_DNOPARTNR	−5.617419	0.503480	−11.15718	0.0000
RESIDF_HEALTH	−0.126603	0.025233	−5.017345	0.0000
RESIDF_HOUSE	0.149165	0.039349	3.790797	0.0002
RESIDF_HINCOME	−0.088203	0.044198	−1.995623	0.0460
RESIDF_PARTNER	−0.898291	0.076794	−11.69738	0.0000
RESIDF_JOB	−0.038058	0.066151	−0.575325	0.5651
RESIDF_SOCIAL	−0.386735	0.078938	−4.899191	0.0000
RESIDF_LEISURE	0.150994	0.122340	1.234215	0.2172
RESIDF_QLEISURE	0.216929	0.080860	2.682784	0.0073
R^2	0.596948	Mean dependent var		5.225292
Adjusted R^2	0.595721	SD dependent var		1.302411
SE of regression	0.828112	Akaike in fo crite-rion		2.463845
Sum squared resid	4502.758	Schwarz criterion		2.485502
Log-likelihood	−8093.675	*F*-statistic		486.2359
Durbin–Watson stat	2.059674	Prob (*F*-statistic)		0.000000

Dependent Variable: S_OALL
Method: Least Squares
Date: 11/26/03 Time: 15:56
Sample (adjusted): 1 12039 IF JSEX = 2
Included observations: 6587 after adjusting endpoints.

where $\hat{d}_i$ is the $K \times 1$ vector of residuals. The estimates are given in Tables V and VI. This form of the equation is the standard way of implementing a Hausman (1978) test for the

TABLE VI

Overall satisfaction regressed on elements of satisfaction and personality traits (model 2) – males

Variable	Coefficient	SE	*t*-Statistics	Probability
C	−2.493597	0.392670	−6.350372	0.0000
D_NOJOB	1.325106	0.241711	5.482185	0.0000
D_NOPARTNER	2.496743	0.557167	4.481139	0.0000
S_HEALTH	0.093865	0.033789	2.777952	0.0055
S_HOUSE	−0.010360	0.042140	−0.245845	0.8058
S_HINCOME	0.020208	0.044041	0.458857	0.6464
S_PARTNER2	0.414741	0.080037	5.181883	0.0000
S_JOB2	0.309949	0.038257	8.101657	0.0000
S_SOCIAL	0.501598	0.076595	6.548691	0.0000
S_LEISURE	0.162485	0.081926	1.983312	0.0474
S_QLEISURE	−0.036044	0.060202	−0.598725	0.5494
RESIDM_DNOJOB	−0.792441	0.248368	−3.190597	0.0014
RESIDM_DNOPARTNR	−2.045686	0.562489	−3.636846	0.0003
RESIDM_HEALTH	0.030339	0.034943	0.868243	0.3853
RESIDM_HOUSE	0.094108	0.043070	2.184991	0.0289
RESIDM_HINCOME	0.063598	0.044841	1.418300	0.1562
RESIDM_PARTNER	−0.307976	0.080868	−3.808403	0.0001
RESIDM_JOB	−0.213444	0.039548	−5.397150	0.0000
RESIDM_SOCIAL	−0.332949	0.077438	−4.299566	0.0000
RESIDM_LEISURE	−0.006590	0.082650	−0.079739	0.9364
RESIDM_QLEISURE	0.043039	0.060947	0.706163	0.4801
R^2	0.609735	Mean dependent var		5.214377
Adjusted R^2	0.608298	SD dependent var		1.213491
S.E. of regression	0.759476	Akaike info criterion		2.291468
Sum squared resid	3133.199	Schwarz criterion		2.316900
Log-likelihood	−6226.687	*F*-statistic		424.3378
Durbin–Watson stat	2.053832	Prob (*F*-statistic)		0.000000

Dependent Variable: S_OALL
Method: Least Squares
Date: 11/26/03 Time: 16:24
Sample (adjusted): 2 12040 IF JSEX = 1
Included observations: 5453 after adjusting endpoints.

exogeneity of a_i. Under the null hypothesis, that the a_i are exogenous, $\gamma_2 = 0$, and this can be tested.

The right hand side of model (2) can also be written in terms of the predicted and unpredicted components of satisfaction with particular areas of life:

$$s_i = \alpha_2 + \beta_2' \hat{a}_i + (\hat{\beta}_2 + \gamma_2)' \hat{d}_i + \varepsilon_{2i}.$$

Underthe alternative hypothesis, that the a_i are not exogenous, $(\beta_2 + \gamma_2) = 0$, and the estimates of β_2 are asymptotically equivalent to the two stage least squares estimates. This model embodies the restriction, similar to some rational expectations models, that the only way that capabilities influence overall satisfaction with life is through their influence on satisfaction in particular areas of life. This restriction can be relaxed by replacing the linear combinations of capabilities (predicted area satisfactions $\hat{a}_{ki} = \alpha_k + \hat{\phi}_k' x_i$) by the capability indicators themselves to give model (3):

$$s_i = \alpha_3 + \beta_3' x_i + \gamma_3' \hat{d}_i + \varepsilon_{3i}.$$

This is our unrestricted equation and the estimates are given in Tables VII and VIII. It measures the effects of capabilities on overall life satisfaction with the addition of these constructed controls for personality traits. This is just a reparameterised version of:

$$s_i = \alpha_3 + \delta_3' x_i + \kappa_3'^{a_i + \varepsilon_{3i}}$$

where $\kappa_3 = \gamma_3$ and $\delta_3' = \beta_3' - \gamma_3' \Phi$, where Φ is the $K \times J$ matrix formed from the ϕ_k. However, the form of model (3) is more convenient for comparison with model (2). Given that the a_i are correlated with the unobserved personality traits included in ϵ_{3i}, the coefficients of a_i will not be consistently estimated, but the coefficients of x_i should be.

We can also ask, whether our measure of personality traits adds anything to the explanation of overall satisfaction by comparing model (3) with model (4)[11]:

$$s_i = \alpha_4 + \beta_4' x_i + \varepsilon_{4i}.$$

TABLE VII

Overall satisfaction regressed on capabilities and personality traits (model 3) – females

Variable	Coefficient	SE	*t*-Statistics	Probability
C	4.518391	0.085255	52.99841	0.0000
S_HL_LIMIT	−0.324704	0.039786	−8.161220	0.0000
S_HL_NOURISH	0.174662	0.077007	2.268128	0.0234
S_H_LAC_MOVE	−0.278308	0.024679	−11.27692	0.0000
S_S_CAR	−0.025081	0.022549	−1.112276	0.2661
S_H_CRIME	0.048985	0.026510	1.847783	0.0647
S_S_EDUCATE	−0.127458	0.021512	−5.924866	0.0000
S_W_CONCB	−0.107948	0.048123	−2.243174	0.0249
S_W_CONCL	−0.088673	0.031687	−2.798407	0.0052
S_W_CONCML	0.068593	0.073480	0.933504	0.3506
S_W_SLEEPN	0.127750	0.026912	4.746875	0.0000
S_W_SLEEPM	0.013564	0.031906	0.425112	0.6708
S_W_SLEEPMM	−0.086206	0.065678	−1.312554	0.1894
S_W_STRAINN	0.157652	0.032477	4.854267	0.0000
S_W_STRAINM	−0.099025	0.029615	−3.343748	0.0008
S_W_STRAINMM	−0.319560	0.067232	−4.753094	0.0000
S_W_DEPRESSN	0.289969	0.028616	10.13312	0.0000
S_W_DEPRESSM	−0.125206	0.034576	−3.621174	0.0003
S_W_DEPRESSMM	−0.189484	0.072540	−2.612138	0.0090
S_W_CONFIDENTN	0.119351	0.027619	4.321381	0.0000
S_W_CONFIDENTM	0.039219	0.038206	1.026507	0.3047
S_W_CONFIDENTMM	−0.190763	0.095202	−2.003775	0.0451
S_W_DECIDEM	−0.093023	0.037477	−2.482167	0.0131
S_W_DECIDEL	−0.030421	0.042321	−0.718828	0.4723
S_W_DECIDEML	0.177545	0.100027	1.774979	0.0759
S_W_DIFFICULTN	0.061679	0.027952	2.206563	0.0274
S_W_DIFFICULTM	−0.121796	0.038931	−3.128518	0.0018
S_W_DIFFICULTMM	−0.250394	0.085760	−2.919712	0.0035
S_W_FACEUPM	−0.125638	0.041467	−3.029824	0.0025
S_W_FACEUPL	−0.057266	0.042559	−1.345561	0.1785
S_W_FACEUPML	−0.075478	0.103280	−0.730810	0.4649
S_S_HOLIDAY2	0.218499	0.029923	7.302038	0.0000
S_S_CLOTHES2	0.123407	0.056106	2.199536	0.0279
S_S_MEAL2	0.291244	0.049937	5.832181	0.0000
S_W_WORTHN	0.227779	0.027225	8.366680	0.0000
S_W_WORTHM	−0.202876	0.048371	−4.194133	0.0000
S_W_WORTHMM	−0.554763	0.104581	−5.304627	0.0000
S_W_ROLEM	0.028688	0.033716	0.850861	0.3949

TABLE VII

Continued

Variable	Coefficient	SE	*t*-Statistics	Probability
S_W_ROLEL	−0.157245	0.037682	−4.172919	0.0000
S_W_ROLEML	−0.329524	0.080528	−4.092038	0.0000
S_W_HAPPYM	0.155319	0.034188	4.543107	0.0000
S_W_HAPPYL	−0.384092	0.041556	−9.242811	0.0000
S_W_HAPPYML	−0.749988	0.092644	−8.095385	0.0000
S_W_EACTIVEM	0.077759	0.042931	1.811236	0.0702
S_W_EACTIVEL	−0.043074	0.033955	−1.268586	0.2046
S_W_EACTIVEML	−0.472986	0.076796	−6.159012	0.0000
S_VOTE	−0.017258	0.041404	−0.416818	0.6768
S_HL_PWORK	0.016631	0.061513	0.270368	0.7869
S_HL_NAWORK	−0.665711	0.151487	−4.394498	0.0000
S_HL_AWORKL	−0.057001	0.083661	−0.681332	0.4957
S_HL_AWORKLTL	0.142700	0.062765	2.273570	0.0230
S_HL_AWORKS	0.022809	0.070329	0.324317	0.7457
RESIDF_DNOJOB	0.338981	0.055844	6.070182	0.0000
RESIDF_DNOPARTNR	0.859287	0.069475	12.36824	0.0000
RESIDF_HEALTH	0.122267	0.008139	15.02216	0.0000
RESIDF_HOUSE	0.073056	0.008179	8.932232	0.0000
RESIDF_HINCOME	0.064790	0.007604	8.521079	0.0000
RESIDF_PARTNER	0.176071	0.010546	16.69615	0.0000
RESIDF_JOB	0.056387	0.009878	5.708451	0.0000
RESIDF_SOCIAL	0.168189	0.010403	16.16747	0.0000
RESIDF_LEISURE	0.130430	0.010890	11.97717	0.0000
RESIDF_QLEISURE	0.036146	0.009526	3.794441	0.0001
R^2	0.615610	Mean dependent var		5.225292
Adjusted R^2	0.612017	SD dependent var		1.302411
SE of regression	0.811250	Akaike info criterion		2.428886
Sum squared resid	4294.272	Schwarz criterion		2.492824
Log-likelihood	−7937.536	*F*-statistic		171.3109
Durbin–Watson stat	2.082291	Prob (*F*-statistic)		0.000000

Dependent Variable: S_OALL
Method: Least Squares
Date: 11/26/03 Time: 17:02
Sample (adjusted): 1 12039 IF JSEX = 2
Included observations: 6587 after adjusting endpoints.

TABLE VIII

Overall satisfaction regressed on capabilities and personality traits (model 3) – males

Variable	Coefficient	SE	*t*-Statistics	Probability
C	4.283546	0.102574	41.76040	0.0000
S_HL_LIMIT	−0.259034	0.044957	−5.761797	0.0000
S_HL_NOURISH	0.245785	0.090673	2.710665	0.0067
S_H_LAC_MOVE	−0.301212	0.025095	−12.00262	0.0000
S_S_CAR	0.069177	0.026815	2.579769	0.0099
S_H_CRIME	0.073144	0.027741	2.636667	0.0084
S_S_EDUCATE	−0.158032	0.021390	−7.388254	0.0000
S_W_CONCB	0.035070	0.046845	0.748622	0.4541
S_W_CONCL	−0.022234	0.035681	−0.623138	0.5332
S_W_CONCML	0.160238	0.094762	1.690955	0.0909
S_W_SLEEPN	0.087650	0.025513	3.435463	0.0006
S_W_SLEEPM	0.047285	0.037857	1.249021	0.2117
S_W_SLEEPMM	−0.010680	0.085468	−0.124964	0.9006
S_W_STRAINN	0.144579	0.029349	4.926258	0.0000
S_W_STRAINM	−0.120870	0.030770	−3.928119	0.0001
S_W_STRAINMM	−0.282289	0.076999	−3.666149	0.0002
S_W_DEPRESSN	0.251874	0.027534	9.147838	0.0000
S_W_DEPRESSM	−0.157613	0.039236	−4.017024	0.0001
S_W_DEPRESSMM	−0.438728	0.090640	−4.840341	0.0000
S_W_CONFIDENTN	0.136297	0.028509	4.780756	0.0000
S_W_CONFIDENTM	−0.015630	0.046565	−0.335662	0.7371
S_W_CONFIDENTMM	0.125354	0.134418	0.932567	0.3511
S_W_DECIDEM	−0.041618	0.036258	−1.147852	0.2511
S_W_DECIDEL	−0.024668	0.052179	−0.472761	0.6364
S_W_DECIDEML	0.147417	0.146174	1.008503	0.3133
S_W_DIFFICULTN	0.057892	0.026266	2.204088	0.0276
S_W_DIFFICULTM	−0.030643	0.042237	−0.725497	0.4682
S_W_DIFFICULTMM	0.173292	0.119028	1.455887	0.1455
S_W_FACEUPM	−0.036245	0.040083	−0.904248	0.3659
S_W_FACEUPL	−0.022389	0.051954	−0.430935	0.6665
S_W_FACEUPML	−0.336108	0.144203	−2.330800	0.0198
S_S_HOLIDAY2	0.214983	0.033210	6.473366	0.0000
S_S_CLOTHES2	−0.047048	0.066740	−0.704945	0.4809
S_S_MEAL2	0.247651	0.055280	4.479950	0.0000
S_W_WORTHN	0.347622	0.030260	11.48766	0.0000
S_W_WORTHM	−0.048612	0.059998	−0.810226	0.4178
S_W_WORTHMM	−0.324375	0.165553	−1.959338	0.0501

TABLE VIII

Continued

Variable	Coefficient	SE	*t*-Statistics	Probability
S_W_ROLEM	0.106807	0.035596	3.000552	0.0027
S_W_ROLEL	−0.156370	0.042455	−3.683187	0.0002
S_W_ROLEML	−0.095313	0.100109	−0.952086	0.3411
S_W_HAPPYM	0.211272	0.035025	6.032090	0.0000
S_W_HAPPYL	−0.395235	0.047796	−8.269201	0.0000
S_W_HAPPYML	−0.969749	0.124625	−7.781306	0.0000
S_W_EACTIVEM	0.001123	0.041022	0.027373	0.9782
S_W_EACTIVEL	−0.226229	0.035635	−6.348583	0.0000
S_W_EACTIVEML	−0.427973	0.086101	−4.970582	0.0000
S_VOTE	0.053508	0.041449	1.290927	0.1968
S_HL_PWORK	−0.026159	0.064890	−0.403122	0.6869
S_HL_NAWORK	−0.171198	0.137795	−1.242404	0.2141
S_HL_AWORKL	−0.116964	0.095953	−1.218974	0.2229
S_HL_AWORKLTL	0.146898	0.070813	2.074455	0.0381
S_HL_AWORKS	0.070163	0.075387	0.930708	0.3520
RESIDM_DNOJOB	0.532665	0.056497	9.428142	0.0000
RESIDM_DNOPARTNR	0.451057	0.076359	5.907062	0.0000
RESIDM_HEALTH	0.124205	0.008810	14.09819	0.0000
RESIDM_HOUSE	0.083748	0.008806	9.510004	0.0000
RESIDM_HINCOME	0.083807	0.008344	10.04450	0.0000
RESIDM_PARTNER	0.106764	0.011438	9.334408	0.0000
RESIDM_JOB	0.096504	0.009911	9.737380	0.0000
RESIDM_SOCIAL	0.168649	0.011270	14.96407	0.0000
RESIDM_LEISURE	0.155894	0.010799	14.43591	0.0000
RESIDM_QLEISURE	0.006994	0.009399	0.744166	0.4568
R^2	0.621006	Mean dependent var		5.214377
Adjusted R^2	0.616717	SD dependent var		1.213491
S.E. of regression	0.751270	Akaike info criterion		2.277201
Sum squared resid	3042.715	Schwarz criterion		2.352287
Log-likelihood	−6146.789	*F*-statistic		144.8113
Durbin–Watson stat	2.050690	Prob (*F*-statistic)		0.000000

Dependent Variable: S_OALL
Method: Least Squares
Date: 11/27/03 Time: 12:13
Sample (adjusted): 2 12040 IF JSEX = 1
Included observations: 5453 after adjusting endpoints.

TABLE IX

Model evaluation

Females					
	R2	MLL	Nop	SBC	
M1	0.552329	−8439.47	11	2.577146	
M2	0.596948	−8093.68	21	2.485502	
M3	0.61561	−7937.54	62	2.492824	
M4	0.367223	−9579.22	52	2.977937	
Males					
	R2	MLL	Nop	SBC	
M1	0.577968	−6440.05	11	2.379378	
M2	0.609735	−6226.69	21	2.3169	
M3	0.621006	−6146.79	62	2.352287	
M4	0.347087	−7629.79	52	2.880431	
Females		LR	Dof	CV	P val
	M2vM1	691.592	10	18	0.0000
	M3vM2	312.278	41	57	0.0000
	M3vM4	3283.368	10	18	0.0000
Males		LR	Dof	CV	
	M2vM1	426.732	10	18	0.0000
	M3vM2	159.796	41	57	0.0000
	M3VM4	2966.006	10	18	0.0000

Model (3) nests the other three models, though (4) is not nested with (1) and (2), and Likelihood Ratio tests between the models are straightforward. However, with samples as large as this, LR tests may not be appropriate and alternative model selection criteria such as the Schwarz Bayesian Information Criteria, which increases the penalty on the number of parameters with the log of the sample size, may be more appropriate.

Table IX gives R^2, Maximised Log-Likelihoods (MLL), number of parameters, NoP, and Schwarz Bayesian Information Criterion (SBC) for the four models. On these numbers all the restrictions are rejected massively by likelihood ratio tests, leading to a preference for the unrestricted model (3). The capability indicators on their own have much less explanatory power than models that include satisfaction with particular areas of life, as one might expect if personality traits are

important. But on the other hand use of the capability indicators, either directly or as predictors of area satisfaction, does significantly improve the fit. If one uses the SBC model (2) is chosen for both men and women, indicating the restriction that capabilities act through satisfactions in particular areas is appropriate, on this criteria.

Our discussion of the results uses model 3 and the 10 equations which regress the elements of satisfaction and whether an individual has a job or partner on the capability measures. Before describing the impact of capabilities on satisfaction with life and the individual elements of overall satisfaction the next section considers the base probability of having a job or partner, the base level of satisfaction of both men and women and, the effects of our measure of personality traits on satisfaction with life.

DISCUSSION OF RESULTS

Probability of Having a Job or a Partner

The regression intercepts, for the regression of the dummies for job and partner on the capabilities give the expected probability of having a job or a partner when all the capability variables are zero (not having that capability) in this case women are 76% likely to not have a job whereas men are only 68% likely not to have a job. The corresponding values for the probability of not having a partner are 74% for women but only 50% for men. In the absence of all the capabilities both women and men are not likely to have a job or a partner.

Base Level of Satisfaction

The regression intercepts for each element of satisfaction, give a base level of satisfaction for that element when all the capability variables are set to zero (not having the capability). The base level is above the mid point of the 1–7 scale for, health (4.94 for men, 4.78 for women), house or flat (4.06 for men, 4.63 for women), social life (3.98 for men, 3.82 for women), use of leisure (4.53 for men, 4.03 for women) and

quantity of leisure (4.67 for men, 4.09 for women) whereas for household income (2.36 for men, 2.53 for women), it is below the halfway point in the scale. Those with a job and those with a partner have a base level of satisfaction higher than those without. The base level of satisfaction for those with a partner is (2.68 for men, 1.48 for women), whereas for those without a partner the figures are (0.74 for women and 0.68 for men). The base level of satisfaction for those with a job is 1.33 for men and 1.13 for women, but 0.76 for women and 0.50 for men for those without a job.

Effect of Personality Traits

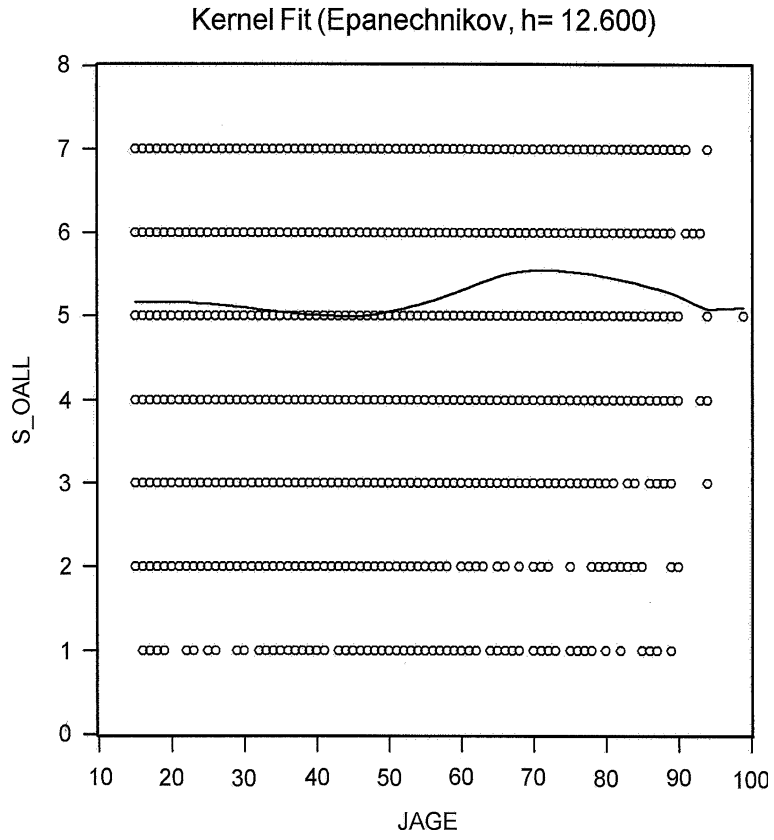
Personality traits as proxied by our residuals in model 3 do have an impact on overall satisfaction with life. Those determining whether you have a partner or not are particularly strong for women (coefficient 0.86) but less so for men (coefficient 0.45), in contrast the effect of those personality traits which determine whether you have a job or not is stronger for men (coefficient 0.53) than for women (coefficient 0.43). Personality traits have a stronger but moderate effect on satisfaction with partner, for women than for men (coefficient 0.18 compared to 0.11) but a stronger effect on satisfaction with use of leisure for men than women (coefficient 0.16 vs. 0.13). The effect of personality on satisfaction with social life and health is similar for both men and women (coefficients 0.17 and 0.12) but its impact on satisfaction with house, household income and job is small (coefficient < 0.08) for women although slightly larger for men (coefficient < 0.10 of a point). There is no statistically significant effect (at the 5% level) of personality on satisfaction with quantity of leisure for men and little for women (coefficient 0.04).

Impact of Capabilities on Satisfaction

Life. The BHPS does not include any data on life expectancy but some indication of the effect of age on overall satisfaction can be obtained by a kernel regression (Figure 1a, b) of overall satisfaction against age which shows a clear ''U'' shaped curve

with a low point for both men and women around 40, followed by a gradual increase until old age. Blanchflower and Oswald (2000) also found this "U" shaped pattern in their studies of well-being in Britain and the USA. The decline in satisfaction with life overall begins at around 70 for women whereas for men it is only in very old age that satisfaction declines. Cantril (1965), also found that life satisfaction increases with age as did the World Values Study Group (1994), who found this more the case for men than for women. This supports the view that the capability to live "to the end of a human life" does make for a better life. The effect of poor health on satisfaction is discussed below.

Bodily health. The results from model 3 confirm Veenhoven's, (1994) finding that there is a relation between happiness and



having specific illnesses, especially where this restricts activity. Poor health such that it limits an individual's ability to carry out their daily activities reduces overall satisfaction (by around 0.32 for women on a scale of 1–7 and by 0.26 for men). For men the largest impact is on satisfaction with health but the lack of good health also has a negative affect on satisfaction in all areas other than satisfaction with partner where it has a positive effect but not significantly so (at the 5% level). Naturally it reduces the probability of having a job but it increases the probability of having a partner but not significantly so. For women the largest impact is also on satisfaction with health but there is also a significant negative impact on satisfaction with household income, job, social life and use of leisure. Again health which limits women's ability to carry out their daily activities has a positive but not significant impact on their satisfaction with their partner, as with men this perhaps indicates that those with poor health are slightly more dependent on their partner. Naturally it reduces the probability of having a job but less so than for men and it increases the probability of having a partner but not significantly so.

We have used the answers to the questions on whether the respondents in the BHPS eat meat, chicken or fish, every second day and if not whether this is because they can not afford to, as a measure of their capability to be adequately nourished. The effect on overall satisfaction is positive (coefficient 0.17 for women, 0.25 for men). For both women and men being able to be adequately nourished has a positive effect on satisfaction with their household income (coefficient 0.35 for women, 0.41 for men). Well nourished women are almost a point more satisfied with their partner and are 15% more likely to have one. There is no such significant effect for well nourished men. However, the significance of this result is limited by the low number of respondents (81 males and 134 females) not able to afford meat, chicken or fish every second day but who would like to.

The BHPS asks if respondents would like to move house and follows this up by asking those who reply "yes" if they expect to move. These results have been combined to identify those who would like to move but do not expect to do so and this is

used as a proxy for being able to be adequately sheltered. Whilst the effect on overall satisfaction, on a scale of 1–7, is negative (coefficient 0.28 for women, 0.30 for men), there a positive effect, for both men and women, on satisfaction with partner (not significant for women) and with job which perhaps indicates that a satisfying job and satisfying relationship with one's partner may limits people's choices. The overall negative effect results from the effect on satisfaction with, health, house or flat, household income, social life and use and quantity of leisure.

Bodily integrity. Whether or not the respondents had the use of a car or van was used as a proxy for an individual's ability to move freely. For men this had a small (coefficient 0.7) positive effect on overall satisfaction but a negative effect on satisfaction with social life (coefficient 0.10), use of leisure (coefficient 0.12), and amount of leisure (coefficient 0.32). For women the overall effect was not significant (although negative), however it did have a positive effect on their satisfaction with their partner, and their job but a negative effect on their satisfaction with their use and quantity of leisure.

The BHPS identifies whether there is vandalism or crime in the area of those surveyed, however it does not give any information on the nature of the crime so it is not possible to say whether this includes sexual and domestic violence. The absence of crime has a small positive effect (coefficient 0.07) for men but an insignificant effect for women on overall satisfaction. This finding is in contrast to Veenhoven (1997) who found a strong correlation between happiness and the murder rate and lethal accidents in a country. There is a positive effect (coefficient 0.4 for men, 0.37 for women) on satisfaction with house or flat. There is also a positive effect on satisfaction with household income and job (not significant for women), which could indicate that those with a higher household income and better job live in more crime free areas.

There was no data available from the survey to investigate whether the respondents had freedom in the opportunities for sexual satisfaction or in choices in matters of reproduction.

Veenhoven (1997) found that acceptance of homosexuality and prostitution was strongly correlated with happiness.

Senses, imagination, and thought. A dummy variable for those with an education of 'A' levels and above was constructed to allow the effects of education on satisfaction to be measured. On the basis of the BHPS data having a higher education reduces overall satisfaction for both women and men (coefficient 0.13 for women, 0.16% for men). These results confirm the findings of Veenhoven (1997) who suggests that the relative unhappiness of the highly educated may be due to a lack of jobs at the appropriate level and to the fading of earlier advantages in the process of social equalizing. Clark and Oswald (1996) also found that education had a clear negative effect, when income and occupation are held constant, which they argue is the result of raised expectations. Argyle (2001) argues that education has weak effects on well-being, mainly through affecting occupation and income and this is reflected in our findings that a higher level of education does go with a higher level of satisfaction with job, for men (coefficient 0.42) and even more so for women (coefficient 0.77) and by the positive effect on satisfaction with household income for men (coefficient 0.14) and women (coefficient 0.08) The overall negative effect arises from the negative effects on satisfaction with house, social life, and quantity and use and amount of leisure. This may indicate that the choices one makes in choosing how to use one's capabilities makes a difference to overall satisfaction, more satisfying jobs may come at the expense of one's leisure and social life.

There is no data available from the BHPS to investigate the other areas of this capability although the data on the capability for play (see below) gives some insight into the ability to have pleasurable experiences.

Emotions. There is a strong relationship between the variables reflecting fear and anxiety and overall satisfaction. Not losing sleep through worry, not feeling constantly under strain, not feeling unhappy or depressed, and having confidence in oneself

all have a positive effect on men and women's overall satisfaction with life. In contrast being constantly under strain, and feeling unhappy or depressed, have a negative effect on overall satisfaction.

Being able to concentrate does not have a significant effect on overall satisfaction of men although being less able than usual to concentrate has a negative effect on women's overall satisfaction. Being able to concentrate less has a negative effect on satisfaction with health, for both men and women.

As is to be expected not losing sleep over worry has a modest (coefficient 0.09 for men and 0.13 for women) positive effect on overall satisfaction. Losing rather more sleep than usual has a positive effect for women and men but in neither case is the effect on overall satisfaction significant. The only significant effect is on satisfaction with social life and satisfaction with use of leisure for men, suggesting that losing some sleep is the price that men pay for being satisfied with their social life. Losing much more sleep than usual has a negative although not significant effect on overall satisfaction for both men and women. Worryingly the effect, for men, of losing much more sleep than normal on satisfaction with their job is positive and fairly strong (coefficient 0.56), perhaps illustrating that more satisfying male jobs are more demanding.

As one would expect not being constantly under strain has a positive effect (coefficient 0.14 for men, 0.16 for women) on overall satisfaction whereas being rather more, or much more under strain has a negative effect (coefficient 0.12 and 0.28 for men, 0.10 and 0.32 for women, respectively). The effect of not being constantly under strain has a strong (coefficient 0.30 for men and 0.24 for women) negative effect on satisfaction with partner but being rather more or much more under strain has no significant effect indicating perhaps there is less need for emotional support when not under strain. Not being under strain has a very strong (coefficient 0.82 for men 0.56 for women) negative effect on satisfaction with job but again being rather more or much more under strain has no significant effect, indicating perhaps that in order for a job to be satisfying, employees need to feel under some strain.

Understandably not feeling unhappy or depressed has a positive effect on satisfaction with all elements of satisfaction, but it reduces the probability of having a partner slightly (by 4% for both women and men) and of men having a job (but not significantly so). It has a positive effect on overall satisfaction (coefficient 0.25 for men and 0.29 for women) with that on satisfaction with partner (coefficient 0.40 for both) being particularly strong. Feeling rather more, or much more, unhappy or depressed has a negative effect on overall satisfaction with the effect being strongest (coefficient 0.44 for men 0.19 for women compared to 0.16 and 0.13) for those who are feeling much more unhappy or depressed.

Those who have not been losing confidence in themselves have a higher level of overall satisfaction (coefficient 0.14 for men and 0.12 for women). The effects are positive on all areas of satisfaction (other than quantity of leisure for men) and there is a positive effect on the probability of having a partner and a job. The effect of recently losing rather more or much more confidence on overall satisfaction is not significant for men but there is a negative effect (coefficient 0.20) on recently losing much more confidence for women.

Practical reason. Being able to overcome your difficulties has a small (coefficient 0.06 for men and women) positive impact on overall satisfaction. Although being more capable of making decisions has no significant effect on men's overall satisfaction it has a small negative effect (coefficient 0.09) on women's overall satisfaction perhaps as a result of facing up to the consequences of their decisions. A point reinforced by the negative effect (coefficient 0.13) that being more able to face up to problems has on overall satisfaction. For men, being more able to face up to problems has no significant effect on overall satisfaction however, for those who are much less able to face up to problems, the effect on overall satisfaction is significantly negative (coefficient 0.34). There is no significant effect on overall satisfaction as a result of men feeling that they couldn't overcome their difficulties but for women the effect is negative (coefficient 0.12) and strongly so (coefficient 0.25) where this is much more so than usual.

For men being more capable of making decisions than usual has a positive effect on satisfaction with employment and being much less able to make decisions has a positive effect on satisfaction with household income. The effect on satisfaction with health and on satisfaction with household income of men being able to overcome their difficulties is positive but there is no significant effect on the other elements of overall satisfaction. Finally, it is worth noting that being more able to face up to problems has a significantly positive effect (coefficient 0.62) on satisfaction with job whereas being less able or much less able to face up to problems has a significantly negative effect (coefficients 0.38 and 1.02) on satisfaction with partner.

Affiliation. Those who would like to, go on holiday, buy new rather than second hand clothes, or have friends or family for a drink or meal once a month but could not do so because they could not afford to, are identified in the BHPS which allowed these variables to be used to investigate the effects of people being able to engage in social interaction. Being able to go on holiday or have friends or family round had a positive effect on overall satisfaction (coefficient 0.21 and 0.25 for men, 0.22 for women and 0.29 for women respectively,) however being able to buy new clothes had a negative but not significant effect for men whilst for women it had a significant positive effect (coefficient 0.12). The elements of satisfaction on which women being able to buy new clothes had a significant positive effect were satisfaction with household income, partner, job, and social life.

We measured the ability ''to be treated as a dignified being whose worth is equal to that of others'' using the responses to the questions, ''Have you recently... been thinking of yourself as a worthless person?'' and ''have you recently felt that you were playing a useful part in things?''. Not thinking of oneself as a worthless person has a strong (coefficient 0.35 for men 0.23 for women) effect on overall satisfaction with the positive effect being felt on all elements of satisfaction and it has a positive effect on the probability of having a job or a partner. For both men and women the negative effect on overall satisfaction of

thinking of oneself as a worthless person much more than often than usual is strong (coefficients 0.32 and 0.55) but there is a positive impact on the probability of having a job or partner. The effect on satisfaction with health, house, household income, social life, and use of leisure, is negative whereas the effect on satisfaction with partner and job is positive for men and women. For men who feel that they have been playing a more useful part in things than usual, the effect on overall satisfaction is positive (coefficient 0.11) whereas for women there is no significant effect. For both men and women the effect is particularly strong (coefficient 0.47 for men, 0.41 for women) on satisfaction with job but it is not significant for the other elements of satisfaction. For men feeling that an individual has been playing less of a useful role has a significantly negative impact on satisfaction with household income, job, social life and the probability of them not having a job. The satisfaction of women, who feel that they have been playing less of a useful role, with their partner, job, and social life, is significantly less as is the probability of them having a job or a partner. This effect is accentuated for those feeling that they have been playing much less of a useful part in things

Other species. No data from the BHPS was available from the survey to investigate this capability.

Play. The responses to the questions, "Have you recently been feeling reasonably happy, all things considered?" and "Have you recently been able to enjoy your normal day to day activities?" give the results one would expect for men. Being more happy than usual has a positive effect (coefficient 0.21) on overall satisfaction whilst being less or much less happy than usual has a negative effect (coefficients 0.40 and 0.97). Men who are more happy than usual are more satisfied with their job (coefficient 0.25), their partner (coefficient 0.31) and their social life (coefficient 0.13). Whilst being less happy than usual has a negative effect on satisfaction with household income (24% of a point), social life (26% of a point), and use of leisure (35% of a point) it has a positive

effect (5%) on the possibility of having a job. Being much less happy than normal has a negative effect on satisfaction with health (coefficient 0.62), social life (coefficient 0.45), and use of leisure (coefficient 0.59) but a positive effect (coefficient 0.18) on the possibility of having a job and of being satisfied with it (coefficient 0.75).

Being able to enjoy day-to-day activities more than usual has no significant effect on overall satisfaction of men but being less able and much less able to enjoy day-to-day activities reduces overall satisfaction (coefficients 0.23 and 0.43). This is mainly as a result of the negative effect on satisfaction with health, (coefficients 0.26 and 0.42), social life (coefficients 0.39 and 0.44), use of leisure (coefficients 0.28 and 0.40), and quantity of leisure (coefficients 0.38 and 0.48).

The effect on women is similar, feeling more happy than usual has a positive effect on overall satisfaction (coefficient 0.15) whilst being less happy or much less happy has a negative effect (coefficients 0.38 and 0.75). There is a positive effect on women who are more happy than usual on the probability of their having a job (coefficient 0.7), satisfaction with their partner (coefficient 0.26), and their job (coefficient 0.34), but a negative effect on their satisfaction with their house. Women who are less happy than usual are 13% more likely to have a job and to get more satisfaction from it (coefficient 0.44) but be less satisfied with their house (coefficient 0.16), and amount of leisure (coefficient 0.18). For those who are much less happy than usual, there is a significant effect on their social life (50% of a point). The effect on satisfaction of enjoyment of day-to-day activities by women is not significant other than for those who have been able to enjoy these activities much less than usual where it reduces overall satisfaction (coefficient 0.47). This effect is significant on satisfaction with health (coefficient 0.61), house (coefficient 0.30), social life (coefficient 0.61) use of leisure (coefficient 0.67), and amount of leisure (coefficient 0.65).

Control over one's environment. Although everyone in Britain over 18 has the right to vote, the survey identifies 545 males and 604 females who for whatever reason could not vote in the last

general election. However, the effect on overall satisfaction for both men and women of not being able to vote was not significant.

One of the limitations to an individual seeking employment on an equal basis is where their health limits the type or amount of work that they can do. The BHPS data show that for men there is no significant effect on their overall satisfaction where an individual's health limits the type of work they can do but for females there is a significant negative effect (coefficient 0.66) where their health prevents them form doing any type of work. Where an individual's health limits the amount of work they can do a little there is only a significant reduction in overall satisfaction where their health limits the amount of work they can do a little (coefficient 0.15 for men and 0.14 for women).

Satisfaction with health is reduced for both men and women where the state of their health prevents them from doing some types of work (coefficient 0.35 for men, 0.34 for women). Where health prevents an individual from doing any work, there is a positive effect on satisfaction with house (coefficient 0.49 for men 0.50 for women) and a negative effect on satisfaction with health (coefficient 0.92 for men, 1.63 for women). Women also suffer a negative effect on their satisfaction with partner (coefficient 1.26), social life (coefficient 0.90) use of leisure (coefficient 0.87).

CONCLUDING REMARKS

The main empirical point to emerge from our analysis is that capabilities do matter – we found strong evidence that capabilities do influence well-being. Personality does impact on well-being, and may influence capabilities, but even when we controlled for personality traits we got the same result – capabilities are significantly related to well-being.

Taken at face value our findings would argue against Nussbaum's contention that we cannot satisfy the need for one of her capabilities by giving a larger amount of another one – some capabilities have a bigger impact on well-being than others – but this is of course a consequence of the functional

form chosen for our model and further work on different models may lead to a different conclusion.

A valid criticism of our findings is that our measures of capabilities may in fact be measures of functionings. This partly results from the circular nature of the relationship. Is health which limits your activities a capability in that it restricts the potential choices you can make, or is it rather a functioning, the result of the choices you made from your capability set to e.g. smoke or drink? In determining the variables to be used as capability measures we have attempted to focus on those which do influence an individual's choice set. Perhaps the answer lies in Nussbaum's point that what people choose to do, should not be the focus of policy makers but rather that enhancing the choice set available to everyone (even smokers and the obese) should be.

NOTES

[1] The authors are particularly grateful to a number of people for discussions about this paper and/or the capabilities approach. These include participants at meetings in Frankfurt and Norwich including Wulf Gaertner, Angela Robinson and Peter Moffat as well as Martin van Hees (Groningnen University), Fabienne Peter (Basel University), Ian Carter (Pavia University), Caterina Laderchi (The World Bank), and Pierre Hoonhout (University College, London). The usual caveat applies.

[2] See Anand (1993) for an overview of the normative concerns about subjective expected utility and Starmer (2000) for a review of some attempts to model empirical violations of (mainly objective) expected utility.

[3] See also particularly Alkire (2002), Atkinson (1999), Gasper (1997), Qizilbash (1996), Robeyns (2003) and Stewart (1995).

[4] The BHPS is a rich data source and the exploration of different functional forms including interaction terms, for the number of variables we have in this data has led us to defer exploration of non-linearities to a subsequent paper.0

[5] These were, in turn, were developed from an account in her book "Women and Human Development" Nussbaum (2000).

[6] It will be apparent to the theoretically inclined that Srinvasen proposes, in effect, a connection between the capabilities approach and Debreu's account of general equilibrium.

[7] The way in which we use such questions is similar in spirit to the so-called Leyden school approach to empirical welfare economics – see for example, van Praag and Frijters (1999).

[8] Carter argues that the relationship between freedom and happiness is an empirical one – though Sen does not. If preferences were perfectly and instantaneously adaptive we might not expect to observe such empirical relations – however the assumption is unrealistic. Furthermore, the existence of an empirical relation does not undermine the value of arguments that point to an analytical relation between freedom and well-being.

[9] See also Layard (2003) for an overview of the social science literature on happiness and its application to economics. Gerdthan and Johannesson (2001) examine, inter alia, relations between income, happiness and health whilst relations between happiness, income and democratic institutions are discussed in Frey and Stutzer (2002).

[10] The linearity of the satisfaction measures was firstly checked by running ordered probit and ordered logit versions of the equations. These indicated that the scales between the discrete satisfaction choices were the same in both models as were the standard errors and thus the use of linear models is acceptable. This is in keeping with practice elsewhere and facilitates the conduct of endogeneity testing.

[11] Detailed results for model 4 are not presented here for reasons of space.

APPENDIX A

Nussbaum's List of Capabilities and BHPS Questions Used

From Nussbaum, M,C. 2001, ''Symposium on Amartya Sen's Philosophy: 5 Adaptive Preferences and Women's Options'', *Economics and Philosophy*, 17 pp. 67–88.

1. Life. Being able to live to the end of a human life of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living.

No data from the BHPS available

2. Bodily Health. Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.

Being able to have good health – variable S_HL_LIMIT

BHPS variable (JHLLT) and question –

''Does your health in any way limit your daily activities compared to most people of your age?''

Yes coded as one. No coded as 0.

Being able to be adequately nourished – variable S_HL_NOURISH

BHPS variable (JHSCANE) and question –

"Here is a list of things which people might have or do. Please look at this card and tell me which things you (and your household) have or do? Eat meat, chicken, fish every second day."

Yes coded as one. Those who answer no are asked (BHPS Variable JHSCNTE) –

"Would you like to be able to eat meat, chicken, fish at least every second day, but must do without because you cannot afford it?"

No coded as one. Yes coded as 0.

Being able to have ... adequate shelter – *variable S_H_LAC_MOVE*

BHPS variable (JLKMOVE) and question

"If you could choose, would you stay here in your present home or would you prefer to move somewhere else?"

'Stay here' coded as 0. For those answering 'Prefer to move' those answering to question (BHPS Variable XPMOVE)

"(Even though you may not want to move) Do you expect you will move in the coming year?"

Yes are coded 0. No are coded one.

3. Bodily Integrity. Being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction.

Being able to move freely from place to place – variable S_S_CAR

BHPS variable (JCARUSE) and question

"Do you normally have access to a car or van that you can use whenever you want to?"

Yes coded as one. No and 'Don't drive' coded as 0.

Being secure against violent assault – variable S_H_CRIME

BHPS variable (JHSPRBQ) and question

"Does your accommodation have any of the following problems? Vandalism or crime in the area"

Yes coded as 0. No coded as 1.

4. Senses, Imagination, and Thought. Being able to use the senses, to imagine, think, and reason – and to do these things in a 'truly human' way, a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training. Being able to use imagination and thought in connection with experiencing and producing works and events of one's own choice, religious, literary, musical, and so forth. Being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech, and freedom of religious exercise. Being able to have pleasurable experiences and to avoid non-beneficial pain.

Being able to ... imagine, think and reason, ... cultivated by an adequate education – variable S_S_EDUCATE

BHPS variable (JQFEDHI) is a derived variable giving the highest educational qualification. Those coded 'A' level and above are coded as one. The remainder are coded as 0.

5. Emotions. Being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety. (Supporting this capability means supporting forms of human association that can be shown to be crucial in their development.)

Not having one's emotional development blighted by fear and anxiety – variables S_W_CONCB S_W_CONCL, S_W_CONCML, S_W_SLEEPN, S_W_SLEEPM, S_W_SLEEPMM, S_W_STRAINN, S_W_STRAINM, S_W_STRAINMM, S_W_DEPRESSN, S_W_DEPRESSM, S_W_DEPRESSMM, S_W_CONFIDENTN, S_W_CONFIDENTM, S_W_CONFIDENTMM,

BHPS variable (JGHQA) and question

''Have you recently... been able to concentrate on whatever you're doing?''

S_W_CONCB has value one for those answering 'Better than usual', S_W_CONCL for those answering 'Less than usual' and S_W_CONCML for those answering 'Much less than usual'. The base is those answering 'Same as usual'.

BHPS variable (JGHQB) and question

''Have you recently.... lost much sleep over worry?''

S_W_SLEEPN has value one for those answering 'Not at all', S_W_SLEEPM for those answering 'Rather more than usual', and S_W_SLEEPMM for those answering 'Much more than usual'. The base is those answering 'No more than usual'.

BHPS variable (JGHQE) and question

''Have you recently.... felt constantly under strain?''

S_W_STRAINN has value one for those answering 'Not at all', S_W_STRAINM for those answering 'Rather more than usual', and S_W_STRAINMM for those answering 'Much More than usual'. The base is those answering 'No more than usual'.

BHPS variable (JGHQI) and question

''Have you recently... been feeling unhappy or depressed?''

S_W_DEPRESSN has value one for those answering 'Not at all', S_W_DEPRESSM for those answering 'Rather more than usual', and S_W_DEPRESSMM for those answering 'Much more than usual'. The base is those answering 'No more than usual'

BHPS variable (JGHQJ) and question

''Have you recently...been losing confidence in yourself?''

S_W_CONFIDENTN has value one for those answering 'Not at all', S_W_CONFIDENTM for those answering 'Rather more than usual', and S_W_CONFIDENTMM for those answering 'Much more than usual'. The base is those answering 'No more than usual'

6.Practical Reason. Being able to form a conception of the good and to engage in critical reflection about the planning of one's life. (This entails protection for the liberty of conscience and religious observance.)

Being able to ... engage in critical reflection about the planning of one's life – variables

S_W_DECIDEM, S_W_DECIDEL, S_W_DECIDEML, S_W_DIFICULTN, S_W_DIFICULTM, S_W_DIFICUL TMM, S_W_FACEUPM, S_W_FACEUPL, S_W_FACE UPML

BHPS variable (JGHQD) and question

''Have you recently... felt capable of making decisions about things?''

S_W_DECIDEM has a value one for those answering 'More so than usual', S_W_DECIDEL for those answering 'Less so than usual' and S_W_DECIDEML for those answering 'Much less capable than usual'. The base is those answering 'Same as usual'

BHPS variable (JGHQF) and question

''Have you recently... felt you couldn't overcome your difficulties?''

S_W_DIFICULTN has a value one for those answering 'Not at all', S_W_DIFICULTM for those answering 'Rather more than usual' and S_W_DIFICULTMM for those answering 'Much more than usual'. The base is those answering 'No more than usual'

BHPS variable (JGHQH) and question

''Have you recently... been able to face up to problems?''

S_W_FACEUPM has a value one for those answering 'More so than usual', S_W_FACEUPL for those answering 'Less so than usual' and S_W_FACEUPMML for those answering 'Much less than usual'. The base is those answering 'Same as usual'

7. Affiliation

A. Being able to live with and toward others, to recognize and' show concern for other human beings, to engage in various forms of social interaction; to be able to imagine the situation of another (Protecting this capability means protecting institutions that constitute and nourish such forms of affiliation, and also protecting the freedom of assembly and political speech.)

B. Having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others. This entails provisions of non-discrimination on the basis of race, sex, sexual orientation, ethnicity, caste, religion, and national origin.

Being able to ... engage in various forms of social interaction-variables S_S_HOLIDAY, S_S_CLOTHES and S_S_MEAL

BHPS variable (JHSCANB) and question –

"Here is a list of things which people might have or do. Please look at this card and tell me which things you (and your household) have or do? Pay for a week's annual holiday away from home."

S_S_HOLIDAY is coded as one for those answering yes. Those who answer no are asked (BHPS Variable JHSCNTB) –

"Would you like to be able to pay for a week's annual holiday away from home, but must do without because you cannot afford it?"

S_S_HOLIDAY is coded as one for those answering No and 0 for those answering Yes.

BHPS variable (JHSCAND) and question –

"Here is a list of things which people might have or do. Please look at this card and tell me which things you (and your household) have or do? Buy new, rather than second hand, clothes."

S_S_CLOTHES is coded as one for those answering yes. Those who answer no are asked (BHPS Variable JHSCNTD) –

"Would you like to be able to buy new, rather than second hand, clothes, but must do without because you cannot afford it?"

S_S_CLOTHES is coded as one for those answering 'No' and 0 for those answering 'Yes'.

BHPS variable (JHSCANF) and question –

"Here is a list of things which people might have or do. Please look at this card and tell me which things you (and your household) have or do? Have friends or family for a drink or meal at least once a month".

S_S_MEAL is coded as one for those answering yes. Those who answer no are asked (BHPS Variable JHSCNTF) –

"Would you like to be able to have friends or family for a drink or meal at least once a month, but must do without because you cannot afford it?"

S_S_MEAL is coded as one for those answering 'No' and 0 for those answering 'Yes'.

Being able to be treated as a dignified person whose worth is equal to others – variables

S_W_WORTHN, S_W_WORTHM, S_W_WORTH MM, S_W_ROLEM, S_W_ROLEL, S_W_ROLEML.

BHPS variable (JGHQK) and question

''Have you recently... been thinking of yourself as a worthless person?

S_W_WORTHN has a value one for those answering 'Not at all', S_W_WORTHM for those answering 'Rather more than usual', S_W_WORTHMM for those answering 'Much more than usual'. The base is those answering 'No more than usual'

BHPS variable (JGHQC) and question –

''Have you recently... felt that you were playing a useful part in things?''

S_W_ROLEM has a value one for those answering 'More than usual', S_W_ROLEL for those answering 'Less so than usual' and S_W_ROLEML for those answering 'Much less than usual'. The base is those answering 'Same as usual'

8. Other Species. Being able to live with concern for and in relation to animals, plants, and the world of nature.

No data available from the BHPS.

9. Play. Being able to laugh, to play, and to enjoy recreational activities.

Being able to laugh, to play, to enjoy recreational activities – variables S_W_HAPPYM, S_W_HAPPYL, S_W_HAPPYML, S_W_EACTIVEM, S_W_EACTIVEML, S_W_EACTIVEML

BHPS variable (JGHQL) and question –

''Have you recently.... been feeling reasonably happy, all things considered??''

S_W_HAPPYM has a value one for those answering 'More so than usual', S_W_HAPPYL for those answering 'Less so than usual' and S_W_HAPPYML for those answering 'Much less than usual'. The base is those answering 'Same as usual'

BHPS variable (JGHQG) and question –

''Have you recently... been able to enjoy your normal day-to-day activities?''

S_W_EACTIVEM has a value one for those answering 'More so than usual', S_W_EACTIVEL for those answering 'Less so than usual' and S_W_EACTIVEML for those answering 'Much less than usual'. The base is those answering 'Same as usual'.

10. Control Over One's Environment

A. Political. Being able to participate effectively in political choices that govern one's life; having the right of political participation, protection of free speech and association.

B. Material. Being able to hold property (both land and movable goods), and having property rights on an equal basis with others; having the right to seek employment on an equal basis with others; having the freedom from unwarranted search and seizure. In work, being able to work as a human being, exercising practical reason and entering into meaningful relationships of mutual recognition with other workers.

Being able to participate effectively in political choices – variable S_VOTE

BHPS variable (JVOTE7) and question –

''Did you vote in this (past) year's general election?''

Those who couldn't vote are coded one others are coded 0.

Having the right to seek employment on an equal basis – variables S_HL_PWORK, S_HL_NAWORK, S_HL_AWORKL, S_HL_AWORKLTL, S_HL_AWORKS use

BHPS variable (JHLENDW) and question –

''Does your health keep you from doing some types of work?'' and

BHPS variable (JHLLTWA) and question –

''For work you can do, how much does your health limit the amount of work you can do?''

S_HL_PWORK is coded as one for those answering Yes' to JHLENDW and S_HL_NAWORK for those answering 'Can do nothing'. The base is those answering 'No'.

S_HL_AWORKL is coded as one for those answering 'A lot' to JHLLTWA, S_HLAWORKLTL for those answering 'Just a little', S_HLAWORKS for those answering 'Somewhat'. The base is those answering 'Not at all'.

Satisfaction variables S_OALL, S_HEALTH, S_H_INCOME, S_HOUSE, S_PARTNER2, S_JOB2, S_SOCIAL, S_LEISURE, S_QLEISURE

BHPS variable (JLFSATO) and question

''How dissatisfied or satisfied are you with your life overall?''

S_OALL coded 1 -7

BHPS variable JLFSAT1) and question

''How dissatisfied or satisfied are you with your health?''

S_HEALTH coded 1 = Not satisfied at all – 7 = Completely satisfied

JBHPS variable (JLFSAT2) and question

"How dissatisfied or satisfied are you with the income of your household?"

S_H_INCOME coded 1 = Not satisfied at all – 7 = Completely satisfied

BHPS variable (JLFSAT3) and question

"How dissatisfied or satisfied are you with your house/flat?"

S_HOUSE coded 1 = Not satisfied at all – 7 = Completely satisfied

BHPS variable (JLFSAT4) and question

"How dissatisfied or satisfied are you with your husband/wife/partner?"

S_PARTNER2 coded 0 = no partner, 1 = Not satisfied at all – 7 = Completely satisfied

BHPS variable (JLFSAT5) and question

"How dissatisfied or satisfied are you with your job?"

S_JOB2 coded 0 = no job, 1 = Not satisfied at all – 7 = Completely satisfied

BHPS variable (JLFSAT6) and question

"How dissatisfied or satisfied are you with your social life?"

S_SOCIAL coded 1 = Not satisfied at all – 7 = Completely satisfied

BHPS variable (JLFSAT7) and question

"How dissatisfied or satisfied are you with the amount of leisure time you have?"

S_QLEISURE coded 1 = Not satisfied at all – 7 = Completely satisfied

BHPS variable (JLFSAT8) and question

"How dissatisfied or satisfied are you with the way you spend your leisure?"

S_LEISURE 1 = Not satisfied at all – 7 = Completely satisfied

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