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Measuring Subjective Wellbeing for Public Policy: Recommendations on Measures

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Executive summary

The measurement of wellbeing is central to public policy. There are three uses for any measure: 1) monitoring progress; 2) informing policy design; and 3) policy appraisal.

There has been increasing interest in the UK and around the world in using measures of subjective wellbeing (SWB) at each of these levels. There is much less clarity about precisely what measures of SWB should be used.

We distinguish between three broad types of SWB measure: 1) evaluation (global assessments); 2) experience (feelings over short periods of time); and 3) 'eudemonic' (reports of purpose and meaning, and worthwhile things in life).

The table below summarises our recommended measures for each policy purpose (see Table 1 in the report for suggested wording). We have three main recommendations:

1. Routine collection of columns 1 and 2
2. All government surveys should collect column 1 as a matter of course
3. Policy appraisal should include more detailed measures

	Monitoring progress	**Informing policy design**	**Policy appraisal**
Evaluation measures	- Life satisfaction	- Life satisfaction - Domain satisfactions e.g.: relationships; health; work; finances; area; time; children	- Life satisfaction - Domain satisfactions - Detailed 'sub'-domains - Satisfaction with services
Experience measures	- Happiness yesterday - Worried yesterday		- Happiness and worry - Affect associated with particular activities - 'Intrusive thoughts' relevant to the context
'Eudemonic' measures	- Worthwhile things in life		- Worthwhile things in life - 'Reward' from activities

By placing these questions into large surveys, the UK Government will be in a strong international position to monitor national and local SWB, inform the design of public policy and appraise policy interventions in terms of their effects on SWB.

Introduction

1. There is increasing interest in the measurement and use of subjective wellbeing (SWB) for policy purposes. The highly-cited Stiglitz Commission (2009), for example, states that *"Research has shown that it is possible to collect meaningful and reliable data on subjective as well as objective well-being. Subjective well-being encompasses different aspects (cognitive evaluations of one's life, happiness, satisfaction, positive emotions such as joy and pride, and negative emotions such as pain and worry): each of them should be measured separately to derive a more comprehensive appreciation of people's lives... [SWB] should be included in larger-scale surveys undertaken by official statistical offices"*.

2. In the UK, the Coalition Government's Budget 2010 Report stated that *"the Government is committed to developing broader indicators of well-being and sustainability, with work currently underway to review how the Stiglitz (Commission) …should affect the sustainability and well-being indicators collected by Defra, and with the ONS and the Cabinet Office leading work on taking forward the report's agenda across the UK"*.

3. This paper and its motivation derives from the recent Office for National Statistics (ONS) working paper that called for a follow-up report to recommend which measures of SWB should be used (Waldron, 2010). We agree with Waldron when he states that "*there may be a role for ONS and the GSS to support the delivery of subjective wellbeing data on a national scale*". Along with other researchers, we have previously attempted to show how SWB data might be used to inform policy (Layard, 2005; Dolan and White, 2007) but here we focus on precisely how SWB should be measured and which measures are fit for specific policy purposes.

4. In what follows, Section 2 outlines the criteria for any account of wellbeing. Section 3 discusses the main accounts of wellbeing and where they are being used, and it highlights some differences between them. Section 4 outlines the three main measures of SWB and where they have been used. Section 5 discusses some of the methodological issues with the measures. Section 6 makes recommendations.

1. Wellbeing Measures for Public Policy

5. In order for any account of wellbeing to be useful in policy, it must satisfy three general conditions. It must be:

1. theoretically rigorous
2. policy relevant
3. empirically robust

6. By theoretically rigorous, we mean that the account of wellbeing is grounded in an accepted philosophical theory. By policy relevant, we mean that the account of wellbeing must be politically and socially acceptable, and also well understood in policy circles. By empirically rigorous, we mean that the account of wellbeing can be measured in a quantitative way that suggests that it is reliable and valid as an account of wellbeing. These criteria are similar to those used by Griffin (1986).

7. Ultimately, any account of wellbeing will be used for a specific policy purpose. We consider each of the three main policy purposes:

1. Monitoring progress
2. Informing policy design
3. Policy appraisal

8. Monitoring requires a frequent measure of wellbeing to determine fluctuations over time. Monitoring SWB could be important to ensure that other changes that affect society do not reduce overall wellbeing. Similarities can be seen here with the current use of GDP, which is not used directly to inform policy but is monitored carefully and sudden drops would have to be examined carefully and specific policies may then be developed to ensure it rises again.

9. Informing policy design requires us to measure wellbeing in different populations that may be affected by policy. For example, Friedli and Parsonage (2007) cite SWB research as a primary reason for building a case for mental health promotion. More specifically, SWB could be used to make a strong case for unemployment programmes given the significant hit in SWB associated with any period of unemployment (Clark et al, 2004; Clark, 2010).

10. Policy appraisal requires detailed measurement of wellbeing to show the costs and benefits of different allocation decisions. Using SWB data as a 'yardstick' could allow for the ranking of options across very different policy domains (Donovan and Halpern, 2002; Dolan and White, 2007). Expected gains in SWB could be computed for different policy areas and this information could be used to decide which forms of spending will lead to the largest increases in SWB (Dolan and Metcalfe, 2008).

2. Accounts of Wellbeing

11. There are three accounts of wellbeing (Parfit, 1984; Sumner, 1996) that meet the three conditions and that could, in principle, apply at each of the monitoring, informing and appraising levels:

1. Objective lists
2. Preference satisfaction
3. Mental states (or SWB)

2.1. Objective lists and preference satisfaction

12. Objective list accounts of wellbeing are based on assumptions about basic human needs and rights. In one of the best-known accounts of this approach, Sen (1999) argues that the satisfaction of these needs help provide people with the capabilities to 'flourish' as human beings. In simple terms, people can live well and flourish only if they first have enough food to eat, are free from persecution, have a security net to fall back on, and so on. Thus, the aim of policy should be to provide the conditions whereby people are able to enrich their 'capabilities set'.

13. Despite many unresolved questions about what should be on the list and how to weight the items on it, many governments and organisations have specific policies to target many of these needs (such as access to education and healthcare), suggesting that objective list accounts are an integral part of monitoring wellbeing. The account has provided guidance on policies designed to increase literacy rates and to improve health outcomes. It has been less useful in policy appraisal.

14. The preference satisfaction account is closely associated with the economists' account of wellbeing (Dolan and Peasgood, 2008). At the simplest level, "*what is best for someone is what would best fulfil all of his desires*" (Parfit, 1984: 494). All else equal, more income – or GDP – allows us to satisfy more of our preferences and so, at the monitoring level, GDP is often used as a proxy for wellbeing. According to standard theory, more choice allows us to satisfy more of our preferences and this idea has informed the design of policies in health and education. Preference satisfaction has also been used widely in policy appraisal. Cost-benefit analysis (CBA) values benefits according to people's willingness to pay (HM Treasury, 2003).

15. Fundamental doubts remain about the preference satisfaction account. We are often unable to predict the impact of future states of the world (Wilson and Gilbert, 2003), we frequently act against our ''better judgment'' (Strack and Deutsch, 2004), and we are influenced by irrelevant factors of choice (Kahneman et al, 1999) as well as by a host of other behavioural phenomena (DellaVigna, 2009; Dolan et al, 2010).

16. Whilst there are some clear correlations between preference satisfaction and objective lists e.g. GDP in the UK has been correlated with increases in life expectancy (Crafts, 2005), there are some important discrepancies. Many other indicators of social success show a trend opposite to that of GDP e.g. increasing pollution and rising obesity (ONS, 2000, 2007). We need to more carefully consider, even at a very general monitoring level, whether wellbeing has, in fact, gone up or down. This requires us to also consider the third account of wellbeing.

2.2. Subjective wellbeing

17. SWB is a relative newcomer in terms of its relevance politically and its robustness empirically. Its theoretical rigour extends back to Bentham (1789) who provided an account of wellbeing that is based on pleasure and pain, and which provided the background for utilitarianism. Generally, SWB is measured by simply asking people about their happiness. In this sense, it shares the democratic aspect of preference satisfaction, in that it allows people to decide how good their life is going for them, without someone else deciding their wellbeing (Graham, 2010).

18. The differences between measures of wellbeing can be very striking for the same individuals. Peasgood (2008) used the British Household Panel Survey (BHPS) to examine objective wellbeing, preference satisfaction, and SWB within the same individuals. She shows that there is a dramatic difference between the accounts for those with children, people who commute long distances, those with a degree, and between men and women.

19. SWB is beginning to be used to monitor progress and to inform policy; or, rather, 'ill being', in terms of depression rates and in the provision of cognitive behavioural therapy (Layard, 2006). More is now needed on the positive side of the wellbeing coin. Policy appraisal using SWB has interested academics (Dolan and Kahneman, 2008) and it is now interesting policymakers too (HM Treasury, 2008). More is now required. We need to measure all three wellbeing accounts, separately (see Dolan et al, 2006). We also need to measure SWB in different ways.

3. Measuring SWB

20. There have been many attempts to classify the different ways in which in SWB can be measured for policy purposes (Kahneman and Riis, 2005; Dolan et al, 2006, Waldron, 2010). We distinguish between three broad categories of measure:

1. Evaluation
2. Experience
3. 'Eudemonic'

3.1. Evaluation measures

21. SWB is measured as an evaluation when people are asked to provide global assessments of their life or domains of life, such as satisfaction with life overall, health, job etc. Economists have been interested in using life satisfaction for some time (see Frey and Stutzer, 2002; van Praag and Ferrer-i-Carbonell, 2005). The main reason why this measure has been used most often in policy-relevant research is because of its prevalence in international and national surveys, including the BHPS (Waldron, 2010), and because of its comprehensibility and appeal to policymakers (Donovan and Halpern, 2002).

22. Life satisfaction has been shown to be correlated with income (both absolute and relative), employment status, marital status, health, personal characteristics (age, gender, and personality), and major life events (see Dolan et al, 2008 for a recent review). The main correlations have been found to be broadly similar across studies. Life satisfaction has also been shown to differ across countries in ways that can also be explained by differences in freedoms, social capital and trust (Halpern, 2010).

23. The use of various domain satisfaction questions has become prominent since the analysis of job satisfaction in labour economics (Freeman, 1978; Clark and Oswald, 1996). Life satisfaction can be seen as an aggregate of various domains (van Praag et al, 2003; Bradford and Dolan, 2010). The BHPS has a list of domain satisfactions (health, income, house/flat, partner, job, social life, amount of leisure time, use of leisure time), with partner satisfaction and social life satisfaction having the biggest correlation with life satisfaction (Peasgood, 2008). There are some intuitively clear omissions in the BHPS, such as satisfaction with your own mental wellbeing, and satisfaction with your children's wellbeing.

24. General happiness has also been used instead of life satisfaction. General happiness question have been asked in many of the international surveys (Waldron, 2010). Using happiness or life satisfaction yields very similar results, in terms of the impact of key variables. The Gallup World Poll has recently used Cantril's (1965) 'ladder of life' which asks respondents to evaluate their current life on a scale from 0 (*worst possible life*) to 10 (*best possible life*). There are some differences between life satisfaction and the ladder of life, notably in relation to income (Helliwell, 2008).

25. Evaluation can also use questions about general affect. For instance, the Affect Balance Scale (Bradburn, 1969), and the Positive and Negative Affect Scale (Watson et al, 1988) elicit responses to general statements about affect. The General Health Questionnaire (GHQ) can also be classified as an evaluation of SWB. Huppert and Whittington (2003) show that the positive and negative scales are somewhat independent of one another and so we need to be cautious when considering the overall figures (and also ask about both positive and negative affect – see below).

3.2. Experience measures

26. Experience is very closely associated with a 'pure' mental state account of wellbeing, which depends entirely upon feelings held by the individual during some stated period of time. This is the Benthamite view of wellbeing, where pleasure and pain are the only things that are good or bad for anyone, and what makes these things good and bad respectively is their 'pleasurableness' and painfulness (Crisp, 2006). This may be colloquially thought of as the amount of affect felt in any moment (e.g. happy, worried, sad, anxious, excited, etc.). Well-being is therefore conceived as the average balance of pleasure (or enjoyment) over pain, measured over the relevant period. There is some evidence, however, that positive and negative affect are somewhat independent of one another and should therefore be measured separately (Diener and Emmons, 1984).

27. Many existing measures tap into experienced wellbeing, such as the Ecological Momentary Assessment (EMA) (Stone et al, 1999) and the Day Reconstruction Method (DRM) (Kahneman et al, 2004). EMA is based on reports of wellbeing at specific (often randomly chosen) points in time and also includes other approaches, such as the recording of events, and explicitly includes self-reports of one's own behaviours and physiological measures (Stone and Shiffman, 2002).

28. The DRM has been used to approximate to the more expensive EMA and to avoid potentially non-random missing observations, which arise due to the invasive nature of EMA (Csikszentmihalyi and Hunter, 2003). The DRM asks people to write a diary of the main episodes of the previous day and recall the type and intensity of feelings experienced during each event (Kahneman et al, 2004). Kahneman and Krueger (2006) provide evidence that the results from the DRM provide a good approximation for those from experience sampling.

29. To generate a measure of 'pleasurableness' from the EMA or DRM, a summary of the moment is generated from the responses to types of feelings and their intensity. There are a number of ways to calculate this summary measure and no clear theoretical guidance about which one is best. One possibility is to take the difference between the average positive feelings (or the most intense positive) and the average negative (or the most intense negative) (Kahneman et al, 2004). The proportion of time in which the most intense negative affect outweighs the most intense positive may also be generated, referred to by Kahneman and

Kruger (2006) as a ‘U-index’. The U-index clearly combines positive and negative affect but is calculated by measuring each separately.

30. The EMA and DRM have been widely studied in purposeful samples but there has been less work in population samples (although see White and Dolan, 2009). For large population samples, respondents could be asked for their experiences at a random time yesterday. With a large enough sample, a picture could be constructed about yesterday from thousands of observations, without having to use the full EMA or DRM for each respondent. This is very similar to the Princeton Affect Time Use Survey (PATS) (Krueger and Stone, 2008). Simpler still is to ask people about feelings relating to the whole day. The U.S. Gallup World and Daily Polls have done this.

31. Experiences of wellbeing are also affected by "mind wanderings", whereby our attention drifts between current activities and concerns about other things. Research suggests that these can be quite frequent, occurring in up to 30% of randomly sampled moments during an average day (Smallwood and Schooler, 2006). When these mind-wanderings repeatedly return to the same issues, they are labelled "intrusive thoughts" and they often have a negative effect on our experiences (Watkins, 2008). Dolan (2010) reports how intrusive thoughts can potentially explain part of the difference between health preferences and experiences.

32. Evaluations and experience-based measures may sometimes produce similar results (Blanchflower, 2009) but often they do not. For life satisfaction, it appears that unemployment is very bad, marriage is pretty good at least to start with, children have no effect, retirement is pretty good at least to start with, but there is considerable heterogeneity (Calvo et al, 2007). DRM data on affect have generally found weak associations between SWB and these events (Kahneman et al, 2004; Knabe et al, 2010). Work on the Gallup Poll by Diener et al (2010) and Kahneman and Deaton (2010) shows that income is more highly correlated with ladder of life responses than with feelings, which are themselves more highly correlated with health.

3.3. 'Eudemonic' measures

33. 'Eudemonic' theories conceive of us as having underlying psychological needs, such as meaning, autonomy, control and connectedness (Ryff, 1989), which contribute towards wellbeing independently of any pleasure they may bring (Hurka, 1993). These accounts draw from Aristotle's 'eudemonia' as the state that all fully rational people would strive towards. 'Eudemonic' wellbeing can be seen as part of an objective list in the sense that meaning etc. are externally defined but it comes under SWB once measurement is made operational. We each report on how much meaning our lives have, in an evaluative sense (Ryff and Keyes, 1995), and so we classify such responses under SWB but with quotations to highlight the blurred boundaries.

34. In a comparison of 'eudemonic' measures and evaluations of life satisfaction and happiness, Ryff and Keyes (1995) found that self-acceptance and environmental mastery were associated with evaluations but that positive relations with others, purpose in life, personal growth, and autonomy were less well correlated. There has, however, not been a thorough comparison of the three measures of SWB (evaluation, experience and eudemonic) due to no large scale longitudinal or repeated cross-sectional survey containing all the measures.

35. More recently, White and Dolan (2009) have measured the 'worthwhileness' (reward) associated with activities using the DRM. They find some discrepancies between those activities that people find 'pleasurable' as compared to 'rewarding'. For example, time spent with children is relatively more rewarding than pleasurable and time spent watching television is relatively more pleasurable than rewarding.

4. Methodological Issues

36. Before recommending any specific measures, we need to consider some key methodological issues. These are not fundamental flaws but rather issues to address when moving forwards with any measure of wellbeing. The three key issues are:

1. Salience

2. Scaling
3. Selection

4.1. Salience

37. Any question focuses attention on something and we must be clear about where we want respondents' attention to be directed, and where it might in fact be directed. We should like to have attention focussed on those things that will matter to the respondent when they are experiencing their lives and when they are not thinking about an answer to our surveys (Dolan and Kahneman, 2008). It must also be recognised that the mere act of asking a SWB question might affect experiences (Wilson and Schooler, 1991; Wilson et al, 1993).

38. Responses will be influenced by salient cues, such as the previous question (Schwarz et al, 1987), and perhaps also by the organisation carrying out the survey (there has been little research on the importance of the 'messenger' in research into SWB). The general consensus, however, is that there are stable and reliable patterns in SWB, even over the course of many years (Fujita and Diener, 2005).

39. The time frame of assessment is not usually made explicit in the evaluative and 'eudemonic' measures – but it could be. Currently, life satisfaction questions, for example, are usually phrased as 'nowadays' or 'recently', with little evidence suggesting that either of these alter the distribution of the data. The time frame might not be important for monitoring SWB over time but it matters much more when the purpose is to use SWB for informing policy design, and especially in appraising policy. The experience measures usually do mention a specific time period. For the EMA, it is the wellbeing at that particular moment; for the DRM, time is explicit in that episodes are weighted by duration.

40. Issues of measurement error can be seen to be related to salience, since different measures may make different aspects of life more salient at any one time, which increases measurement error. Layard et al (2008) found that the average of life satisfaction and happiness responses gave greater explanatory power than either one on its own. It is possible that domain satisfaction measures may have good reliability because they are relatively straightforward judgements that can be aggregated to generate overall satisfaction (Peasgood, 2008; Cummins, 2000).

4.2. Scaling

41. In order to make meaningful comparisons over time and across people, we need to understand how interpretations of the scales may change over time. Frick et al (2006) show that respondents in the German Socio-Economic Panel have a tendency to move away from the endpoints over time. The relationship between earlier and later responses can be seen as an issue of scaling and salience: if later responses are influenced by earlier ones, then the earlier ones are salient at the time of the later assessment (as shown in the study by Dolan and Metcalfe, 2010).

42. It is possible that the endpoints on a scale change when circumstances change and when key life events happen and it is important that we conduct more focussed empirical research into this issue. It is not at all clear, though, whether this actually matters for policy purposes since a 7 out of ten before and after having children, for example, is still, in fact, 7 out of ten.

43. What would matter much more in interpersonal comparisons is if different population groups used the scales differently. The Defra (2009) survey has shown that life satisfaction ratings are positively associated with the things, like income, we would expect them to be – except at the top of the scale where those rating their life satisfaction as 'ten out of ten' are older, have less income and less education than those whose life satisfaction is nine out of ten. This is consistent with the view that life satisfaction ratings in part reflect an endorsement of one's life (Sumner, 1996). This issue warrants further research and reinforces the need for multiple measures of SWB (e.g. in relation to domains of life as well as life overall).

4.3. Selection

44. Selection effects are crucial for all three purposes for any measure of wellbeing. Who selects into being in a survey with SWB measures is important to establishing whether the effects of any factor associated with SWB are generalisable or specific to the sample population. Attrition of certain types of people in different types of SWB surveys is also important in generalising treatment effects. Watson and Wooden (2004) show that people

with lower life satisfaction are less likely to be involved in longitudinal surveys. We do not know enough about these effects for the three measures of SWB.

45. Moreover, people self-select into particular circumstances that make it difficult for us to say anything meaningful about how those circumstances would affect other people. Take the effects of volunteering as an example. There is generally a positive association between volunteering and SWB but it is possible that those choosing to volunteer are those most likely to benefit from it and those with greater SWB may be those most likely to volunteer in the first place. Part of any correlation will then be picking up the causality from SWB to volunteering.

46. For monitoring purposes, issues of causality are not that important since we want to know the headline figures. The same could be said about informing policy design. It could well be that unhappy people select into caring roles, for example, but policymakers might still want to target the SWB of carers. For appraising policy, however, causality is perhaps *the* key issue. We need to know how resources allocated to a project directly impact the SWB of the beneficiaries. Telling the chicken from the egg in wellbeing research is crucial for effective policymaking.

5. Recommendations

47. By using the three SWB measures across the UK, we will be able to address the methodological issues and provide more empirically robust data. Table 1 provides our recommended measures for each policy purpose. We strongly recommend:

1. Routine collection of columns 1 and 2
2. All government surveys should collect column 1 as a matter of course
3. Policy appraisal should include more detailed (e.g. time use) measures

48. In the spirit of the Stiglitz et al, we suggest that the evaluative, experience and 'eudemonic' components of SWB should be measured separately. Policymakers may wish to aggregate across the four questions in column one for the purposes of monitoring progress

but it is vital that the measures under each account of wellbeing are not confused with each other.

49. The time has certainly come for regular measurement of SWB in the largest standard government surveys. By aggregating over years, data should be available at local authority level and reliable quarterly data should be produced at the national level, especially if the survey involved overlapping panels.

50. There are many potential ONS surveys that could include the measures in Table 1, such as the Integrated Household Survey (IHS) (see Waldron, 2010 for details of the candidate surveys). The ONS has a fantastic opportunity to measure SWB in ways that will enhance the monitoring of progress, and better inform the design and appraisal of policy in the UK.

Table 1: Recommended measures of SWB[1]

	Monitoring progress	**Informing policy design**	**Policy appraisal**
Evaluation measures	Life satisfaction on a 0-10 scale, where 0 is not satisfied at all, and 10 is completely satisfied e.g. ***1. Overall, how satisfied are you with your life nowadays?***[2]	Life satisfaction plus domain satisfactions (0-10)[3] e.g. ***How satisfied are you with: your personal relationships; your physical health; your mental wellbeing; your work situation; your financial situation; the area where you live; the time you have to do things you like doing; the wellbeing of your children (if you have any)?***	Life satisfaction plus domain satisfactions Then 'sub-domains'[4] e.g. different aspects of the area where you live Plus satisfaction with services, such as GP, hospital or local Council[5]
Experience measures	Affect over a short period from 0 to 10, where 0 is not at all and 10 is completely e.g. ***2. Overall, how happy did you feel yesterday?*** ***3. Overall, how anxious did you feel yesterday?*** [6]	Happiness yesterday plus other adjectives of affect on the same scale as the monitoring question[6.7] e.g. ***Overall, how much energy did you have yesterday? Overall, how worried did you feel yesterday? Overall, how stressed did you feel yesterday? Overall, how relaxed did you feel yesterday?***	Happiness and worry Then detailed account of affect associated with particular activities[8] Plus 'intrusive thoughts' e.g. money worries in the financial domain over specified time[9]
'Eudemonic' measures	'Worthwhileness' on a 0-10 scale, where 0 is not at all worthwhile and 10 is completely worthwhile ***4. Overall, to what extent do you feel that the things you do in your life are worthwhile?"***[10]		Overall worthwhileness of things in life Then worthwhileness (purpose and meaning) associated with specific activities[11]

Notes on Table 1

1. Reviews of the different measures can be found in Dolan et al (2006) and Waldron (2010).
2. This is similar to the question used in the BHPS, GSOEP and World Values Survey (WVS), the Latinobarometer and the recent Defra surveys. The GSOEP, WVS and Defra surveys use a 0-10 scale. Some of these surveys use a scale running from completely dissatisfied to completely satisfied, and they do not make clear where on the scale dissatisfied stops and satisfied starts. This makes it difficult to interpret the scores. Moreover, we seek consistency across the different measures of SWB, at least at the level of monitoring, and the experience measures generally calibrate the scales from 'not at all'.
3. These are largely taken from the BHPS domains. The BHPS does not ask about satisfaction with mental wellbeing and with the wellbeing of your children. Both of these domains are potentially important determinants of wellbeing (as distinct, in the case of children, from simply knowing whether someone has children or not). It is important to ask about general mental wellbeing and not mental health, since the latter is most likely to only pick up the negative side of the domain.
4. See Van Praag and Ferrer-i-Carbonell (2004) for considering of the sub-domains that go into job satisfaction.
5. e.g. see the UK Local Authority Surveys, conducted by IpsosMORI (2004).
6. Happy is a widely used adjective for positive affect and appears in the DRM and in the Gallup-Healthways data. Anxious is widely used as an indicator of poor mental wellbeing, and appears in the EQ-5D, a widely used generic measure of health status. Other adjectives, like worried and stressed, could be used instead.
7. Some of these adjectives can be taken from the Gallup World Poll questions. We would also recommend that data using well established measures of mental health (e.g. the PHQ9 and GAD7 which are being used to evaluate the impact of cognitive behavioural therapies) be collected periodically.
8. See Kahneman et al (2004) and Krueger and Stone (2008).
9. See Smallword and Schooler (2006) and Dolan (2010).
10. The eudemonic measures are traditionally quite demanding to complete (Dolan et al, 2006). There are no generally used questions about purpose and meaning in life, so we have based our recommendations on a suggestion by Felicia Huppert.
11. See White and Dolan (2009).

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