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WELL-BEING, HEALTH AND WORK

Well-being, health and work

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Abstract

This paper presents measures of subjective well-being in England using a specially designed module of the 2010 Health Survey for England. It also looks at the relationship between well-being and labour market status, and, among those who are working, considers how well-being is associated with aspects of job quality.

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Key Words: Subjective well-being; happiness; WEMWBS; job quality; health.

Summary

- This paper presents measures of subjective well-being in England using the 2010 Health Survey for England. It also looks at the relationship between well-being and labour market status, and, among those who are working, considers how well-being is associated with aspects of job quality.
- There was considerable variation in the experience of subjective well-being as measured by the Warwick-Edinburgh Mental Well-being Scale (WEMWBS). Scores covered the entire range of 14 to 70, with a median score of 52.0. Overall the mean score for the population was 51.0 with similar scores for men and women. 11% of the population had a score of 39 or less, while most scores (77%) were in the 40-62 range.
- There was a U-shape in the relationship between age and well-being. The lowest scores for both men and women were in the middle age groups (49.9 for men aged 35-44, 49.7 for women aged 45-54), while scores were highest in the 65-74 age group (53.3 and 52.4 respectively).
- There was considerable variation according to equivalised household income. For both men and women, the WEMWBS score increased with household income. Between the lowest and highest quintiles the score rose by 5.1 for men, while for women it increased by 5.6. The biggest difference occurred between the lowest and the 4th quintile of the distribution, indicating that there were especially acute problems of subjective well-being for those people living in the poorest households.
- WEMWBS scores were compared with other measures of well-being. Men with a high General Health Questionnaire (GHQ12) score (at least 4) had a WEMWBS score 13.9 points lower than those scoring zero on the GHQ12 (40.2 compared with 54.1). For women the difference was 14.6 points (39.6 compared with 54.2). Comparison with a happiness scale showed that for both men and women, the WEMWBS score increased with the happiness score at every stage. The WEMWBS score also increased through the rising points on the EQ-5D visual analogue scale for self-reported health status.
- There was a very strong association between WEMWBS scores and self-reported general health. Those who rated their health as very good had a mean WEMWBS score of 54, while those who rated their health as bad had a mean of 41 (with the small numbers who rated their health very bad even lower than this).
- There was an association between the WEMWBS score and being in work. Among men the mean score was 51.6 for employees and the self-employed, but for the unemployed it was only 49 and for those otherwise economically inactive (non-retired men without jobs who were not seeking paid work) it was only 48.6. Similarly among women, the unemployed had a score of 49.7 and the economically inactive 48.6, compared with 51.5 for employees and 52.4 for the self-employed. The positive association between paid work and WEMWBS remained when controlling for age and region.
- There is much evidence that there is a robust and substantive relationship between the quality of a job and the job-holders' subjective well-being and health. The HSE results show that there was a clear relationship between the WEMWBS score and autonomy, support, security and control in an individual's job. This relationship was apparent when controlling for age and region.
- Among men, the score for those in high autonomy jobs was 4.3 points higher than for the low autonomy jobs (53.6 compared with 49.3). For women the difference was 4.4 points (53.9 compared with 49.5).
- Well-being scores were lower where support from the line manager was low. For men the score was 4.6 points lower than for employees who had high levels of support (53.6 to 49.0), while for women the difference was 6.4 points (53.5 to 47.1).

- The mean WEMWBS score was 5.3 points lower for men in jobs with low security (i.e. the fear of job loss) compared with high security (54.0 to 48.7); while for women, the WEMWBS score was 3.5 lower (53.5 to 50.0).
- Those men with a high ability to cope (defined as agreeing strongly that they could cope with the demands of their job) had a WEMWBS score 10.2 points higher than those with a low ability to cope (54.9 to 44.7). Among women the difference was 10.1 points (54.7 to 44.6).

1. Introduction

In recent years well-being has been a topic of interest for the Office for National Statistics in the light of public policy concerns with sustainable economic growth and economic well-being. There is a desire to utilise measures beyond GDP (gross domestic product), such as well-being measures, for designing and evaluating policies.ⁱ A substantial body of research shows that paid work and job quality affect health and well-being. In light of this research this paper presents measures of subjective well-being in England. It then looks at the relationship of well-being with a person's status in the labour market, and, among those who are working, considers how well-being is associated with aspects of job quality.

While there is no single agreed measure of subjective well-being, several related concepts and indicators have been in wide currency in recent years. These include the shortened 12 item General Health Questionnaire (GHQ12), the health related EQ-5D, and indicators of 'happiness' or life satisfaction that have been collected in several countries for a considerable time. This paper introduces national estimates for England of a relatively new indicator, the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), which focuses on the positive side of mental well-being, and compares it with the existing measures.

Many factors may affect a person's subjective well-being, including personality, and family and economic circumstances. The focus here is on work, following a large and growing body of studies from both occupational psychologists and labour economists, which shows that work has a substantial impact on well-being.ⁱⁱ There is a strong link between being in paid work and subjective well-being. Those who become unemployed have been shown to experience considerable losses in well-being, and in parallel fashion employment insecurity also threatens well-being. Those who feel that their job is insecure, especially those insecure workers who feel that they would not find it easy to obtain another good job, express losses in well-being that are sometimes comparable in magnitude to those who have become unemployed.ⁱⁱⁱ In a time of economic recession, with rising unemployment especially among young people, there is enhanced concern for the levels of well-being among the population of working age, especially those who are most affected by the risk of job loss.

For those in work there are many studies showing links between job quality and subjective well-being.^{iv v vi} 'Job quality' refers to the material aspects of the job, such as its pay and prospects, but also to the intrinsic quality of the work, including the social and physical environment and the work itself. It is consistently found that those workers in any occupation who are allowed more discretion in their jobs, for example in the ordering and methods of working, show greater levels of subjective well-being. The design of jobs, it is found, is therefore important for enhancing well-being.

This paper utilises this body of knowledge and applies it to the working population in England. Section 2 first sets out the measures of well-being to be used. Section 3 describes the distribution of scores on the WEMWBS scale and how they compare with other measures of well-being and health. Section 4 examines how the measures of well-being vary for people according to their labour market status and Section 5 looks at links between the WEMWBS scale and job quality. Section 6 concludes with a discussion, including consideration of the limitations inherent in these analyses.

2. Methods and definitions

Many studies of work and well-being use measures of well-being that are specific to the world of work. However, since it is expected that well-being from work is an important

component of well-being in general, it is appropriate and useful to study how work relates to general indicators of well-being. This is the approach taken in this paper.

2.1 The WEMWBS scale

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)^{vii} was developed to capture a broad concept of positive mental well-being.^{viii} This includes psychological functioning, cognitive-evaluative dimensions and affective-emotional aspects of well-being. The idea behind the design of the scale is that it is especially suitable for inclusion in large-scale representative surveys, for two reasons. First, it is relatively short and can be administered without taking up too much time in the interview. Second, it does not suffer from ceiling effects, so it is suitable for use in populations where one might want to be able to detect potential improvements in the well-being of populations, following certain programmes or policies.

The scale is based on 14 statements, for each of which participants are asked to tick the box that best describes their experience over the previous two weeks. They can answer on a 5-point scale: 'None of the time', 'Rarely', 'Some of the time', 'Often', or 'All of the time'. The statements are all expressed positively – for example, 'I've been feeling optimistic about the future'. The responses, numbered 1 to 5, are aggregated to form the Well-being Index, which can range from 14 (those who answer 'rarely' on every statement) to 70 (those who answer 'All of the time' to all statements).

Since the design of the scale drew on concepts from already-existing measures of well-being, WEMWBS is expected to be well correlated with other positive measures, such as indicators of happiness, and somewhat less well correlated with measures that capture negative well-being, such as the GHQ12.

2.2 Happiness

To assess 'happiness', participants were asked: 'Taking all things together on a scale of 0 to 10, how happy would you say you are? Here 0 means you are very unhappy and 10 means you are very happy'. Although it was included in the HSE for the first time in 2010 this item is fairly standard and has been used in many other surveys, though sometimes with different response scales. Happiness is often analysed alongside similar questions framed in terms of overall satisfaction with life.^{ix}

2.3 Assessment of psychosocial health: the GHQ12

For a measure of psychosocial health the 12-item General Health Questionnaire (GHQ12) was used; this is widely used and validated.^x It was originally intended for use in general practice settings as a screening instrument for psychiatric morbidity but cannot be used to diagnose specific psychiatric problems.^x The GHQ12 was administered via a self-completion booklet given to all participants aged 13 and over; discussions of findings in this paper are based on analysis of adults aged 16 and over only.

The questionnaire concentrates on the broader components of psychological morbidity and consists of twelve items measuring general levels of happiness; depression and anxiety; sleep disturbance; and ability to cope over the last few weeks. The twelve items are rated on a four-point response scale, where a score of 0 is given to responses such as that the symptom is present 'not at all' or 'no more than usual' and a score of 1 is given to responses such as 'rather more than usual' or 'much more than usual'. Consistent with previous HSE surveys, a GHQ12 score of 4 or more is referred to as a 'high GHQ12 score', indicating probable psychological disturbance or mental ill health.

2.4 EQ-5D

The EQ-5D questionnaire is a standardised instrument developed by the EuroQol Group in order to provide a simple, generic measure of health for clinical and economic appraisal. Applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status that can be used in the clinical and economic evaluation of health care as well as in population health surveys.^{xi}

There are two components to the EQ-5D; the first is a descriptive system comprising five different dimensions; Mobility; Self care; (ability to perform) Usual Activities; Pain/Discomfort and Anxiety/Depression. Participants are asked to indicate whether they have no problems, some problems or severe problems (the wording for each dimension differs slightly). The second component is the EQ visual analogue scale (EQ VAS), which records the participant's self-rated health on a vertical, visual analogue scale where the endpoints are labelled 'Best imaginable health state' (100) and 'Worst imaginable health state' (0). This information can be used as a quantitative measure of health as judged by the individual participants.

The VAS was used for the first time in HSE 2010, and this is discussed in this paper; while data are available^{xiii} on the descriptive five-item system, this is not covered here.

2.5 Job quality

The characteristics of jobs among those in paid employment were assessed on four dimensions of job quality. High, medium and low categories were defined for the four dimensions and are as follows:

Autonomy: from the question 'Do you have a choice in deciding HOW you go about your work?': High autonomy = All the time/most of the time; Medium = Much of the time/some of the time; Low = Occasionally/never.

Support: from the question 'Do you get help and support from your line manager?': High support = Often; Medium = Sometimes; Low = Seldom/never. Those who do not have a line manager were included in the Medium category.

Security: from the question 'How likely is it that you will lose your job and become unemployed within the next twelve months?' on a scale 0-100 where 0 means that the change will definitely not take place, and where 100 means that it will definitely take place: High security = 0; Medium = 10-50; Low = 60-100.

Control: from the question 'I feel able to cope with the demands of my job': High control = Agree strongly; Medium = Agree; Low = Neither agree nor disagree/disagree/disagree strongly.

2.6 Linear regression models

Linear regression was used to investigate the independent effects of 'predictor' variables on a 'dependent' or 'outcome' variable, the WEMWBS score (a continuous variable). The parameter estimates (coefficients) for a particular variable from a linear regression model give an estimate of the effect of that variable on the outcome variable, after controlling for all other variables in the model. In this paper two models were fitted, one looking at the association between the WEMWBS score and employment status, and one examining the association between the WEMWBS score and job quality among those in paid employment. In each case, the model also controlled for age and region.

All the independent variables in the models were categorical. One category of the variable was defined as the reference category, and all other categories were compared to this reference category. There is no coefficient for the reference category and estimates for all other categories give the predicted mean difference in the outcome variable (i.e. the

difference in the WEMWBS score) between each category and the reference category, having controlled for all other variables in the model. 95% confidence intervals were calculated. There is a 95% chance that the given interval for the sample will contain the true population parameter of interest. In a linear regression a 95% confidence interval which does not include zero indicates that the given coefficient represents a statistically significant difference from the reference category.

The R^2 in the model represents the percentage of the variation in the dependent variable (the WEMWBS score) explained by the independent variables in the model.

3. Subjective well-being according to the WEMWBS scores

This section looks at the WEMWBS scores, and at how they vary between men and women, and across the age groups, household income, Strategic Health Authorities, and according to the health status of the area. The aim is to present a picture of how this measure differs across the population.

3.1 WEMWBS scores, by age and sex

Table 1 gives the mean scores and distributions of the WEMWBS scale, both for the whole sample and separately for men and women in different age groups.

There was considerable variation in the experience of subjective well-being, covering the entire range of 14 to 70, around a median score of 52.0. It is noticeable that there was a long 'tail' of people with relatively low scores: 11% of the population had a score of 39 or less. Most scores (77%) were in the 40-62 range. Overall the mean score for the population was 51.0; and there were no significant differences in the mean scores of men and women.

Many earlier studies have shown that there is a U-shape in the relationship between age and well-being.^{xiii} That is, well-being declines up to a certain point in life, after which it rises. This pattern was apparent in the HSE results. The lowest scores for both men and women were in the middle age groups (49.9 for men aged 35-44, 49.7 for women aged 45-54), while scores were highest in the 65-74 age group (53.3 and 52.4 respectively). For both sexes, the score was slightly lower for those aged over 75.

Table 1

3.2 WEMWBS scores, by Strategic Health Authority

Table 2 shows how the subjective well-being scale varied across Strategic Health Authorities. While there was statistically significant variation, the differences across regions in the mean levels of well-being were quite small, compared with range of well-being across the population. For both men and women, relatively high mean levels of subjective well-being were found in the East of England, London, the South East Coast and South Central. The North East had relatively low levels of well-being.

Table 2

3.3 WEMWBS scores, by equivalised household income, Spearhead status

There was greater variation according to equivalised household income.^{xiv} For both men and women the subjective well-being score increased with household income (Table 3). Between the lowest and highest quintiles the score rose by 5.1 for men and 5.6 for women. The biggest across-quintile difference occurred between the lowest and the 4th quintile of the distribution, indicating that there were especially acute problems of subjective well-being for those people living in the poorest households.

The WEMWBS scores also varied according to whether or not participants were living in a Spearhead Primary Care Trust (PCT), as is shown in Table 4. Spearhead PCTs are the most deprived areas of England, as measured by the health of the population. The scores were 51.4 for both men and women in non-Spearhead PCTs, but in Spearhead PCTs were only 50.5 for men, and 49.8 for women, differences that are statistically significant.

Tables 3, 4

3.4 Further measures of well-being

Three further measures of well-being were included in the HSE 2010 in addition to the WEMWBS. The profile of these measures is briefly considered here before comparisons are made between these measures and WEMWBS.

The GHQ12 provides an indication of probable mental ill health by identifying those with a 'high' score of 4 or more. Women were significantly more likely than men to have a high score (16% and 14% respectively). The proportion with a high score was similar across age groups, with the exception of adults aged 65-74 (9% of men and 10% of women).

A new question on happiness was included in 2010, and a mean score out of 10 was calculated. The mean was similar for men and women (9 and 8.0 respectively). Very few had scores at the bottom end of the scale, with the 5th centile having a mean score of 5 (i.e. only 5% of the population scored 5 or less). At the other end of the scale, the 75th centile was a score of 9, and the 85th centile was a score of 10. There was significant variation by age, with slightly different patterns for men and women. Among men there was a U-shaped pattern similar to that for WEMWBS, with lower scores in the middle age ranges (5-7 in those aged 25-54), while among women there was little variation in score up to the age of 64. Among both men and women, those aged 65 and over had the highest happiness scores (8.4 for men, 8.1-8.3 among women).

The visual analogue scale (VAS), part of the EQ-5D, provided a measure of self-assessed health status ranging from 0 to 100. Mean scores were similar overall for men and women (78.7 and 78.6 respectively). There was significant variation by age, and again there were different patterns for men and women. Among men, scores declined steadily with age, ranging from 81.2-81.5 for those aged 16-34 to 74.0 for those aged 75 and over. Among women, scores were lower for those aged 16-24 (78.7) and 65-74 (74), but were similar for the middle age ranges. As for men, women aged 75 and over had the lowest scores on this health-based measure of well-being (69.9).

Tables 13, 15, 17

3.5 How the measures of well-being compare

While the new WEMWBS scale measures positive well-being, it is expected that this scale would correlate well with other well-being scales, even if these others were designed to capture somewhat different aspects of subjective well-being. Tables 5, 6 and 7 confirm this expectation.

In the case of the GHQ12 score, which is a negative indicator of well-being, the correlation would be expected to be negative. Men with a score of at least 4 on GHQ12 had a 13.9 points lower score on the WEMWBS scale than those scoring zero on the GHQ12 (40.2 compared with 54.1). For women the difference was 14.6 points (39.6 compared with 54.2).

In contrast, the happiness scale should be positively related to the WEMWBS scale. For both men and women, the WEMWBS score increased with the happiness score at every stage. The WEMWBS score also increased through the rising points on the EQ-5D visual analogue scale for self-reported health status. It is notable that WEMWBS scores are slightly lower at the lower end of the happiness scale than they are at the lower end of the health-focused VAS.

Tables 5-7

3.6 WEMWBS and health indicators

Tables 8, 9 and 10 explore variance in the subjective well-being measure for three indicators of health: participants' assessment of their general health, their body mass index (BMI) and their blood pressure. As might be predicted, there was a very strong association between WEMWBS scores and self-reported general health. Men and women who rated their health as very good had a mean WEMWBS score of 54.1 and 54.2 respectively, while those who rated their health as bad had a mean of 41.1 and 41.0 respectively (with the small numbers who rated their health very bad even lower than this).

There was significant variation according to BMI status, although this was much less extreme than for general health. WEMWBS scores were highest among those who were overweight among both men and women (51.6 and 51.5 respectively), though these scores were not significantly different from those among people of normal weight, nor those among men who were obese. Women who were obese (BMI from 30 to below 40) had relatively low scores (49.9). Among both men and women those who were morbidly obese (with a BMI of 40 or more) had the lowest scores (43 for men, 48.3 for women). The scores for the morbidly obese were significantly lower than they were for those of normal weight

WEMWBS scores were also examined comparing those who reported that they had ever been told by a doctor that they had high blood pressure and those who had not; women who had only had high blood pressure during pregnancy were excluded from the 'high blood pressure' group. There was significant variation, with lower well-being scores among those who had been diagnosed with high blood pressure (50.2 for men and 49.6 for women) compared with those who had never been told they had high blood pressure (51.4 for men, 51.2 for women).

Tables 8-10

4. Subjective well-being and labour market status

This section and the next explore relationships between the measures of well-being and work. The associations of well-being with labour market status are examined in this section, while the association of well-being with job quality is investigated in the next section.

Table 11 show that, leaving aside those that have already retired, there was an association between the WEMWBS score and being in work. Among men, the mean score was 51.6 for employees and the self-employed, but for the unemployed it was only 49 and for those otherwise economically inactive (non-retired men without jobs who were not seeking paid work) it was only 48.6. Similarly for women, the unemployed had a score of 49.7, the economically inactive 48.6, compared with 51.5 for employees and 52.4 for the self-employed.

Among both unemployed and economically inactive men, and among economically inactive women, well-being scores were especially spread out. This has the consequence that those unemployed or inactive who were in the bottom 10% of the distribution (at the 10th percentile) experienced very much lower subjective well-being than the 10th percentile of employed people. In the case of men, for example, the 10th percentile scores for the unemployed and employees were 34.0 and 41.0 respectively.

Table 19 shows that the association between economic activity and well-being persists having controlled for age and region in a linear regression model. Among women, the well-being of those in paid employment was greater than those who were economically inactive, the unemployed and the retired, the gaps being equivalent to roughly 3, 2 and 1.5 points respectively on the WEMWBS scale. The well-being of employees and the self-employed did not differ significantly. Among men the effects were a little larger: the unemployed and economically inactive had WEMWBS scores of around 5 points lower than their employed

counterparts. The well-being of employed men was not significantly different from those who were self-employed and those who were retired.

Table 14 shows a similar relationship between the GHQ12 and labour market status. Among male employees, for example, 11% had a score of 4 or more, which is generally regarded as a high score, an indicator of probable mental ill health. However, among unemployed men, 29% scored 4 or more, while the figure for the economically inactive was 22%. Among women, 22% of unemployed and 24% of the economically inactive scored 4 or more, compared with 14% of employees in this category.

Paid work and happiness were positively associated, as shown in Table 16. For example, male employees had a mean score of 9, compared with 2 for unemployed men. The difference was not so pronounced among women (8.0 and 8 respectively). This is a rare instance when there was a significant difference between the sexes, with higher mean scores for women than men who were self-employed (8.1 compared with 7) as well as those who were unemployed or economically inactive (6 and 3). It is notable in this case, however, that the highest happiness score among men (8.4) was reported by those retired, and that this was higher than among retired women (8.1).

A somewhat different pattern is revealed in Table 18, which gives the relationship between the EQ-5D visual analogue scale of self-reported health and labour market status. It shows, as before, that being in work was linked to a better score: thus employees had scores of 81.4 (men) and 82.0 (women), compared with unemployed people's scores of 75 (men) and 80.4 (women). However, unlike with the other well-being scales the health-focused EQ-5D score for retired people was lower even than for the unemployed. This varying pattern reflects the fact that the different measures are designed to pick up a range of aspects of health and well-being.

Tables 11, 14, 16, 18, 19

5. Subjective well-being and job quality

The previous subsection illustrated the relationship between subjective well-being and labour market status. It is also important to consider the link between well-being and the quality of the work for those in a job. In the last few decades a large body of literature has established that there is a robust and substantive relationship between the quality of a job (along several dimensions) and the job-holders' subjective well-being and health.^{xv} Not all of the studies establish that the relationship is causal, for it could be that people with lower subjective well-being or health are accommodated in lower quality jobs.^{xvi} Yet there is a reasonable scientific case that low quality jobs are a source of lower well-being. If this is so, the design of jobs is a potential channel for influencing the health of the nation. Moreover, there is some evidence that declining job quality could be affecting the supply of labour, and hence also having economic repercussions.^{xvii}

Drawing on this research literature concerning work quality, health and subjective well-being, Table 12 illustrates the association between indicators of job quality and the WEMWBS scale. One dimension positively related to subjective well-being, emphasised in a large number of studies, is the extent to which employees are able to exercise discretion and influence over aspects of their daily tasks – sometimes referred to as 'autonomy'. Previous studies based on the Skills Survey series show a falling trend in employees' discretion over the course of the 1990s in Britain. This was followed by a period of no change in the first part of the 2000s.^{1 xviii} The HSE results show that there was a clear relationship between autonomy and the WEMWBS score. Among men, the score for those in high autonomy jobs was 4.3 points higher than for the low autonomy jobs (53.6 compared with 49.3). For women the difference was 4.4 points (53.9 compared with 49.5).

¹ Gallie D, Felstead A, Green F. *Changing patterns of task discretion in Britain*. *Work Employment and Society* 2004 18;2:243-266. [U](#)

A second branch of studies on well-being at work has centred on the quality of the social relationships in the workplace. On the negative side, subjective well-being and health are significantly impaired in situations where individuals are subject to bullying, sexual harassment and other forms of abuse. Fortunately, abusive situations at work are comparatively uncommon. On the positive side, the research shows that, where there are supportive co-workers, employees report higher levels of job satisfaction.^{xix} A question in the HSE 2010 survey elicited responses as to the extent to which help and support was received by the line manager. Its association with the WEMWBS scale is also shown in Table 12. Again, it can be seen that well-being was least where support was 'low' (where participants indicated that they seldom or never got support from their line manager). For men the score was 4.6 points lower than for high support employees who reported that they got support often (53.6 to 49.0), while for women the difference was 6.4 points (53.5 to 47.1).

Another salient aspect of job quality is the amount of job security that it offers. The research shows that job insecurity is a source of stress, and causes reductions in well-being that cannot be explained just in terms of the lower expected income it brings. In the work climate following the start of the global recession in 2008 many employees have felt a heightened sense of insecurity in addition to those that have become and remain unemployed. It is therefore relevant to examine subjective well-being separately for those in jobs with a low level of security (employees who rated the probability of job loss at 60 or greater on a scale from 0 to 100 where 0 means that job loss will definitely **not** happen, and 100 is where it definitely **will** happen) and for those with high security (who rated the probability of job loss at 0). From Table 12 it can be seen that the mean WEMWBS score was 5.3 points lower for men in jobs with low security compared with high security (48.7 compared with 54.0); while for women, the WEMWBS score was 3.5 lower (50.0 compared with 53.5). A further point to note about the table, consistent with some previous studies, is that the WEMWBS scores of those in low security jobs were close to those for unemployed workers. This finding helps to set in context why recessions can resonate beyond just those who lose their jobs. A climate of fear brought on by an adverse economic situation can have far-reaching effects on subjective well-being.

The level of demands upon the worker, whether physical or emotional, is another aspect of job quality that has received considerable attention. High levels of demand have been found to be associated with lower levels of well-being. Unsurprisingly, some individuals are better able to cope with the demands of the job, and this will depend on personal characteristics as well as on the features of the job. In a further question about job quality for 2010, participants were asked to assess their ability to cope with demands. It would be expected that those people who stated that they could cope better with demands would report higher well-being. This finding is confirmed by the final three columns of Table 12. Those men with high ability to cope (defined as agreeing strongly that they could cope with the demands of their job) had a WEMWBS score 10.2 points higher than those with a low ability (those who did not agree with this statement) (54.9 to 44.7). Among women the difference was 10.1 points (54.7 to 44.6).

Table 20 shows the association of the WEMWBS score with the dimensions of job quality, having controlled for age and region in a linear regression model. This shows that each of these four dimensions of job quality was independently associated with employee well-being and that, taken together, they accounted for around one fifth of the well-being of employees as measured on the WEMWBS scale. Employee well-being rose with greater autonomy, support, security and control among both women and men.

Tables 12, 20

6. Discussion

This paper has presented some descriptions of a measure of subjective well-being that was introduced for the first time in 2010 into the Health Survey of England. The WEMWBS scale focuses on positive aspects of subjective well-being, and is designed to fit into surveys where there are considerable pressures on interview time. While it has been validated in several studies, the scale is subject to certain limitations. By construction it does not pick up any negative elements of well-being. In addition, however, there are elements of positive well-being that are not included among the items asked. For example, the scale does not capture the contributions of spirituality, or purpose in life, to well-being; these are excluded from the WEMWBS instrument in order to minimise non-response.

A limitation that applies to all the associations presented in this paper is that what they demonstrate are merely correlations, and do not prove a direction of causation between potential determinants and well-being outcomes. It is usually hard to establish causation in cross-sectional studies. There may, on one hand, be other factors that have impacts on well-being, which are also correlated with labour market status or with features of job quality upon which the paper has dwelled. If so, it is important to control for these other factors. In many studies in the literature several controls are included, though it is never possible to be sure that all relevant controls are taken into account, and that there are not some unobserved factors causing biases in the estimates. One important variable that is often not included is an individual's personality traits or dispositions. The latter are related to well-being, and help to explain the variation in responses on well-being scales. This may or may not affect the descriptions and estimates of the relationship between labour market status and well-being.

On the other hand, there could be reverse causation, where people with a certain level of well-being are induced to choose, or are selected into, jobs.

The descriptive connections shown in this paper were chosen on the basis of the body of research literature, typically at the micro level, which has established causal connections with some reasonable standard of reliability. The tables present the national picture for England, and show how these relationships are largely mirrored in the findings at the national level. However, they do not themselves establish any causal connections.

The national picture shows that with the WEMWBS scale there was a spread of scores across the population, with most scoring highly while a small proportion of people exhibited rather low levels of positive well-being.

The tables also convey an overall picture of the importance of work for health and well-being, in two ways. Looking first only at those who had not retired, it is found that those in work, whether they were self-employed or employees, had average levels of well-being that substantially exceeded those of the unemployed or the economically inactive. This finding is confirmed for all measures of well-being: the WEMWBS scale, the GHQ12, happiness and the EQ-5D indicator for self-reported health. The average well-being among retired people was, by contrast, close to that of those in work, with the exception that retired people had on average lower self-reported health according to the EQ-5D indicator. Second, for those in work, the survey findings convey the importance of good job quality for well-being and health along a number of dimensions at the national level.

Table 1 WEMWBS^a mean scores, by age and sex

Aged 16 and over

2010

Mean score	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
Men								
Mean	51.5	51.2	49.9	50.3	51.2	53.3	51.4	51.1
Standard error of the mean	0.50	0.43	0.39	0.45	0.40	0.46	0.58	0.17
Median	52	52	51	52	52	54	52	52
90 th percentile ^b	62	61	60	62	62	65	64	62
10 th percentile	41	42	39	38	39	42	38	40
Women								
Mean	50.5	50.8	50.7	49.7	51.8	52.4	50.4	50.8
Standard error of the mean	0.52	0.38	0.34	0.37	0.38	0.45	0.56	0.15
Median	51	52	52	51	52	54	51	52
90 th percentile	62	62	61	61	64	65	64	62
10 th percentile	38	39	39	38	40	40	38	39
All adults								
Mean	51.0	51.0	50.3	50.0	51.5	52.8	50.8	51.0
Standard error of the mean	0.38	0.29	0.27	0.30	0.30	0.35	0.42	0.12
Median	52	52	51	51	52	54	51	52
90 th percentile	62	61	60	61	63	65	64	62
10 th percentile	39	40	39	38	40	41	38	39
<i>Bases (unweighted)</i>								
<i>Men</i>	320	415	534	531	536	432	298	3066
<i>Women</i>	407	587	716	749	608	445	385	3897
<i>All adults</i>	727	1002	1250	1280	1144	877	683	6963
<i>Bases (weighted)</i>								
<i>Men</i>	539	586	623	608	507	359	234	3456
<i>Women</i>	520	571	661	624	527	368	302	3573
<i>All adults</i>	1059	1157	1284	1232	1034	727	537	7029

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 2 WEMWBS^a mean scores (observed and age-standardised), by Strategic Health Authority^b and sex

Aged 16 and over

2010

Mean score	Strategic Health Authority									
	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	East of England	London	South East Coast	South Central	South West
Men										
Observed										
Mean	49.9	50.6	50.4	50.9	50.7	51.1	52.0	52.2	52.1	50.7
Standard error of the mean	0.68	0.54	0.66	0.51	0.51	0.46	0.57	0.46	0.58	0.56
Standardised										
Mean	49.9	50.7	50.4	50.9	50.7	51.1	51.8	52.1	52.0	50.5
Standard error of the mean	0.70	0.55	0.67	0.51	0.52	0.46	0.56	0.47	0.57	0.57
Women										
Observed										
Mean	49.3	50.7	51.0	49.6	50.3	51.2	51.8	51.4	51.7	50.4
Standard error of the mean	0.58	0.50	0.45	0.54	0.54	0.41	0.51	0.46	0.63	0.52
Standardised										
Mean	49.3	50.6	51.0	49.6	50.3	51.2	51.6	51.3	51.6	50.4
Standard error of the mean	0.58	0.51	0.46	0.54	0.53	0.41	0.54	0.47	0.63	0.52
<i>Bases (unweighted)</i>										
<i>Men</i>	253	407	302	305	318	362	274	262	275	308
<i>Women</i>	357	499	365	384	394	434	378	354	346	386
<i>Bases (weighted)</i>										
<i>Men</i>	170	452	354	315	367	414	458	285	277	363
<i>Women</i>	189	474	363	320	370	407	473	316	284	377

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b This table provides data for regional analysis by the configuration of Strategic Health Authorities (SHAs) in place from July 2006.

Table 3 WEMWBS^a mean scores (age-standardised), by equivalised household income and sex

Aged 16 and over

2010

Mean score	Equivalised household income quintile				
	Highest	2nd	3rd	4th	Lowest
Men					
Mean	52.7	52.0	51.4	50.4	47.6
Standard error of the mean	0.37	0.36	0.41	0.45	0.68
Women					
Mean	52.9	51.8	51.0	49.6	47.3
Standard error of the mean	0.41	0.35	0.36	0.40	0.54
<i>Bases (unweighted)</i>					
<i>Men</i>	627	596	524	451	333
<i>Women</i>	675	715	663	627	543
<i>Bases (weighted)</i>					
<i>Men</i>	694	674	576	474	402
<i>Women</i>	630	663	592	553	493

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

Table 4 WEMWBS^a mean scores (age-standardised), by Spearhead status^b and sex

Aged 16 and over

2010

Mean score	Spearhead status	
	Non-Spearhead PCT	Spearhead PCT
Men		
Mean	51.4	50.5
Standard error of the mean	0.22	0.31
Women		
Mean	51.4	49.8
Standard error of the mean	0.20	0.28
<i>Bases (unweighted)</i>		
<i>Men</i>	1928	1138
<i>Women</i>	2416	1481
<i>Bases (weighted)</i>		
<i>Men</i>	2250	1206
<i>Women</i>	2307	1266

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b Spearhead PCTs are the most health deprived areas of England. They are areas in the bottom fifth nationally for three or more indicators relating to life expectancy at birth, cancer and cardiovascular (CVD) mortality and the index of multiple deprivation.

Table 5 WEMWBS^a mean scores (age-standardised), by GHQ12 score^b and sex

Aged 16 and over

2010

Mean score	GHQ12 score		
	Score 0	Score 1-3	Score 4+
Men			
Mean	54.1	49.1	40.2
Standard error of the mean	0.18	0.30	0.45
Women			
Mean	54.2	49.6	39.6
Standard error of the mean	0.18	0.27	0.35
<i>Bases (unweighted)</i>			
<i>Men</i>	1931	700	399
<i>Women</i>	2293	928	597
<i>Bases (weighted)</i>			
<i>Men</i>	2166	796	460
<i>Women</i>	2102	858	543

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b A score of 4 or more is referred to as a 'high GHQ12 score', indicating probable psychological disturbance or mental ill health.

Table 6 WEMWBS^a mean scores (age-standardised), by happiness score^b and sex

Aged 16 and over

2010

Mean score	Happiness score									
	0-2	3	4	5	6	7	8	9	10	
Men										
Mean	[35.0]	[35.9]	[37.5]	40.6	44.6	48.3	52.0	55.2	57.2	
Standard error of the mean	[2.36]	[1.45]	[1.02]	0.67	0.71	0.36	0.24	0.30	0.41	
Women										
Mean	[35.3]	c	37.8	41.7	44.0	47.6	50.9	55.3	57.7	
Standard error of the mean	[2.40]	c	1.30	0.67	0.54	0.36	0.24	0.28	0.27	
<i>Bases (unweighted)</i>										
<i>Men</i>	42	36	35	142	149	414	837	543	473	
<i>Women</i>	36	27	51	220	217	498	994	624	710	
<i>Bases (weighted)</i>										
<i>Men</i>	44	41	48	161	176	493	951	607	496	
<i>Women</i>	32	33	47	194	197	468	937	571	638	

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b Participants were asked to indicate how happy they would say they were, taking all things together, on a scale of 0 to 10, where 0 means very unhappy and 10 means very happy.

^c Data not shown because base too small (under 30).
 [] data shown in brackets should be interpreted with caution because of the small base size (under 50).

Table 7 WEMWBS^a mean scores (age-standardised), by EQ-5D visual analogue scale values^b and sex

Aged 16 and over

2010

Mean score	EQ-5D visual analogue scale values							
	0-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Men								
Mean	36.3	41.9	44.5	44.5	48.0	50.7	53.4	57.0
Standard error of the mean	1.31	1.81	1.00	0.92	0.42	0.30	0.28	0.40
Women								
Mean	39.7	41.5	43.0	44.5	48.2	50.4	53.2	56.3
Standard error of the mean	1.56	1.05	0.71	0.64	0.40	0.30	0.25	0.33
<i>Bases (unweighted)</i>								
<i>Men</i>	65	67	113	173	365	799	887	454
<i>Women</i>	89	101	179	204	480	860	1068	695
<i>Bases (weighted)</i>								
<i>Men</i>	66	70	110	191	416	882	1031	538
<i>Women</i>	77	88	158	184	441	812	982	649

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b The Visual Analogue Scale (VAS) is part of the EQ-5D; a 'thermometer' scale is presented to participants, with zero representing the worst imaginable health state and 100 representing the best imaginable health state. Participants were asked to indicate how good or bad their own health state was that day.

Table 8 WEMWBS^a mean scores, by self-reported general health and sex*Aged 16 and over^p*

2010

Mean score	Self-reported general health				
	Very good	Good	Fair	Bad	Very bad
Men					
Mean	54.1	51.4	47.0	41.1	[40.4]
Standard error of the mean	0.26	0.23	0.50	0.87	[2.19]
Women					
Mean	54.2	51.3	46.5	41.0	39.7
Standard error of the mean	0.24	0.23	0.42	0.68	1.56
<i>Bases (unweighted)</i>					
<i>Men</i>	1015	1339	509	163	40
<i>Women</i>	1287	1648	717	189	56
<i>Bases (weighted)</i>					
<i>Men</i>	1206	1534	521	159	35
<i>Women</i>	1213	1517	639	159	45

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b This table is not age-standardised because of small base sizes in some of the age cells.

[] data shown in brackets should be interpreted with caution because of the small base size (under 50).

Table 9 WEMWBS^a mean scores, by BMI status and sex*Aged 16 and over with a valid BMI measurement^p*

2010

Mean score	BMI status ^c				
	Underweight	Normal	Overweight	Obese	Morbidly obese
Men					
Mean	d	50.9	51.6	50.9	[47.3]
Standard error of the mean	d	0.32	0.25	0.41	[1.68]
Women					
Mean	50.6	51.4	51.5	49.9	48.3
Standard error of the mean	1.41	0.27	0.30	0.35	1.07
<i>Bases (unweighted)</i>					
<i>Men</i>	24	762	1215	705	49
<i>Women</i>	52	1309	1064	771	124
<i>Bases (weighted)</i>					
<i>Men</i>	32	974	1300	765	54
<i>Women</i>	56	1248	951	673	113

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b This table is not age-standardised because of small base sizes in some of the age cells.

^c

Description	BMI (kg/m ²)
Underweight	Less than 18.5
Normal	18.5 to less than 25
Overweight	25 to less than 30
Obese	30 to less than 40
Morbidly obese	40 or more.

^d Data not shown because base too small (under 30).

[] data shown in brackets should be interpreted with caution because of the small base size (under 50).

Table 10 WEMWBS^a mean scores, by self-reported doctor-diagnosed high blood pressure^b and sex

<i>Aged 16 and over</i>		<i>2010</i>	
Mean score	Ever had doctor-diagnosed high blood pressure		
	Have had high blood pressure	Never had high blood pressure	
Men			
Mean	50.2	51.4	
Standard error of the mean	0.35	0.20	
Women			
Mean	49.6	51.2	
Standard error of the mean	0.37	0.18	
<i>Bases (unweighted)</i>			
<i>Men</i>	<i>828</i>	<i>2237</i>	
<i>Women</i>	<i>942</i>	<i>2953</i>	
<i>Bases (weighted)</i>			
<i>Men</i>	<i>782</i>	<i>2673</i>	
<i>Women</i>	<i>795</i>	<i>2777</i>	

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b Excluding hypertension only during pregnancy.

Table 11 WEMWBS^a mean scores, by labour market status and sex

Aged 16 and over^b

2010

Mean score	Whether employed ^c		Labour market status				
	In work	Not in work	In work: employee	In work: self employed	Unemployed	Otherwise economically inactive	Retired
Men							
Mean	51.6	50.3	51.6	51.6	47.9	48.6	52.4
Standard error of the mean	0.20	0.33	0.21	0.45	0.91	0.64	0.35
Median	52	52	52	52	49	51	53
90 th percentile ^d	61	63	61	62	62	61	64
10 th percentile	42	37	41	42	34	33	40
Women							
Mean	51.6	50	51.5	52.4	49.7	48.6	51.4
Standard error of the mean	0.19	0.26	0.20	0.60	0.69	0.45	0.34
Median	52	51	52	53	50	50	52
90 th percentile	62	63	62	63	62	62	65
10 th percentile	40	37	40	41	38	34	39
<i>Bases (unweighted)</i>							
<i>Men</i>	<i>1800</i>	<i>1260</i>	<i>1472</i>	<i>328</i>	<i>167</i>	<i>313</i>	<i>780</i>
<i>Women</i>	<i>2005</i>	<i>1888</i>	<i>1821</i>	<i>184</i>	<i>195</i>	<i>750</i>	<i>943</i>
<i>Bases (weighted)</i>							
<i>Men</i>	<i>2123</i>	<i>1323</i>	<i>1755</i>	<i>369</i>	<i>231</i>	<i>445</i>	<i>647</i>
<i>Women</i>	<i>1884</i>	<i>1686</i>	<i>1718</i>	<i>166</i>	<i>211</i>	<i>711</i>	<i>763</i>

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b This table is not age-standardised because of small base sizes in some of the age cells.

^c Further breakdown shown in subsequent labour market status column.

^d Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 12 WEMWBS^a mean scores, by job characteristics and sex

Aged 16 and over in paid employment^b

2010

Mean score	Autonomy ^c			Support ^d			Security ^e			Control ^f		
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
Men												
Mean	53.6	49.9	49.3	53.6	50.6	49.0	54.0	51.4	48.7	54.9	50.1	44.7
Standard error of the mean	0.26	0.35	0.53	0.33	0.37	0.53	0.38	0.25	0.54	0.28	0.27	0.64
Median	54	51	50	54	51	49	54	52	49	55	51	44
90 th percentile ^g	63	58	60	63	60	59	65	61	59	64	58	55
10 th percentile	44	41	38	43	41	39	43	42	38	46	41	35
Women												
Mean	53.9	50.4	49.5	53.5	50.3	47.1	53.5	50.9	50.0	54.7	50.8	44.6
Standard error of the mean	0.26	0.29	0.49	0.27	0.32	0.62	0.32	0.25	0.60	0.29	0.25	0.56
Median	55	51	50	54	51	48	54	52	50	55	52	45
90 th percentile	64	60	62	64	60	57	64	61	61	65	60	55
10 th percentile	43	40	38	43	40	35	42	40	38	45	41	35
All adults												
Mean	53.7	50.2	49.4	53.6	50.5	48.2	53.7	51.2	49.2	54.8	50.4	44.7
Standard error of the mean	0.19	0.23	0.36	0.22	0.25	0.41	0.25	0.18	0.41	0.21	0.19	0.44
Median	55	52	50	54	51	49	54	52	49	55	51	44
90 th percentile	65	61	60	63	60	58	64	61	60	64	59	55
10 th percentile	45	42	38	43	40	38	43	41	38	45	41	35
<i>Bases (unweighted)</i>												
<i>Men</i>	942	534	273	573	568	265	471	987	276	782	793	175
<i>Women</i>	845	773	399	937	660	223	675	1072	256	777	1017	221
<i>All adults</i>	1787	1307	672	1510	1228	488	1146	2059	532	1559	1810	396
<i>Bases (weighted)</i>												
<i>Men</i>	1076	657	348	685	702	314	544	1205	316	924	947	211
<i>Women</i>	786	735	388	904	613	216	630	1025	241	741	957	207
<i>All adults</i>	1861	1391	736	1589	1315	530	1174	2230	557	1665	1904	418

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- ^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.
- ^b This table is not age-standardised because of small base sizes in some of the age cells.
- ^c From the question 'Do you have a choice in deciding HOW you go about your work?': High autonomy = All the time/most of the time; Medium = /Much of the time/some of the time; Low = Occasionally/never.
- ^d From the question 'Do you get help and support from your line manager?': High support = Often; Medium = Sometimes; Low = Seldom/never. Those who do not have a line manager were included in the Medium category.
- ^e From the question 'How likely is it that you will lose your job and become unemployed within the next twelve months?' on a scale 0-100: High security = 0; Medium = 10-50; Low = 60-100.
- ^f From the question 'I feel able to cope with the demands of my job': High control = Agree strongly; Medium = Agree; Low = Neither agree nor disagree/disagree/disagree strongly.
- ^g Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 13 GHQ12 scores, by age and sex

Aged 16 and over

2010

GHQ12 score ^a	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
	%	%	%	%	%	%	%	%
Men								
Score 0	60	60	61	63	69	70	63	64
Score 1-3	26	25	23	22	19	21	24	23
Score 4 or more	14	15	15	15	12	9	13	14
Women								
Score 0	55	60	60	56	62	69	55	60
Score 1-3	29	25	24	23	23	21	31	25
Score 4 or more	16	15	16	20	15	10	14	16
<i>Bases (unweighted)</i>								
<i>Men</i>	338	432	557	568	573	465	346	3459
<i>Women</i>	418	613	746	787	661	498	470	4340
<i>Bases (weighted)</i>								
<i>Men</i>	569	610	650	650	541	385	272	3846
<i>Women</i>	531	598	692	655	575	412	369	3996

^a A score of 4 or more is referred to as a 'high GHQ12 score', indicating probable psychological disturbance or mental ill health.

Table 14 GHQ12 scores, by labour market status and sex

Aged 16 and over^a

2010

GHQ12 score ^b	Whether employed ^c		Labour market status				
	In work	Not in work	In work: employee	In work: self employed	Unemployed	Otherwise economically inactive	Retired
	%	%	%	%	%	%	%
Men							
Score 0	67	58	67	68	48	49	67
Score 1-3	22	24	22	20	23	28	21
Score 4 or more	11	18	11	12	29	22	11
Women							
Score 0	63	56	62	66	52	51	62
Score 1-3	24	25	24	25	26	25	25
Score 4 or more	13	18	14	9	22	24	13
<i>Bases (unweighted)</i>							
<i>Men</i>	1891	1382	1540	351	176	346	860
<i>Women</i>	2090	2099	1896	194	200	816	1083
<i>Bases (weighted)</i>							
<i>Men</i>	2231	1436	1833	398	243	481	712
<i>Women</i>	1967	1862	1793	174	217	769	877

^a This table is not age-standardised because of small base sizes in some of the age cells.

^b A score of 4 or more is referred to as a 'high GHQ12 score', indicating probable psychological disturbance or mental ill health.

^c Further breakdown shown in subsequent labour market status column.

Table 15 Happiness scores^a, by age and sex

Aged 16 and over

2010

Happiness score	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
Men								
Mean	7.9	7.7	7.7	7.5	7.9	8.4	8.4	7.9
Standard error of the mean	0.11	0.09	0.08	0.10	0.09	0.09	0.11	0.04
5th percentile ^b	5	5	5	3	5	5	5	5
10th percentile	6	6	6	5	5	7	6	6
15th percentile	7	6	6	6	6	7	7	6
25th percentile	7	7	7	7	7	8	8	7
median	8	8	8	8	8	9	9	8
75th percentile	9	9	9	9	9	10	10	9
85th percentile	9	9	9	9	10	10	10	10
90th percentile	10	10	10	10	10	10	10	10
95th percentile	10	10	10	10	10	10	10	10
Women								
Mean	7.8	8.0	7.9	7.8	8.0	8.3	8.1	8.0
Standard error of the mean	0.11	0.07	0.07	0.08	0.08	0.09	0.13	0.03
5th percentile	5	5	5	5	5	5	5	5
10th percentile	6	6	6	5	5	6	5	6
15th percentile	6	7	6	6	6	7	6	6
25th percentile	7	7	7	7	7	8	7	7
median	8	8	8	8	8	8	8	8
75th percentile	9	9	9	9	9	10	10	9
85th percentile	10	10	10	10	10	10	10	10
90th percentile	10	10	10	10	10	10	10	10
95th percentile	10	10	10	10	10	10	10	10
<i>Bases (unweighted)</i>								
<i>Men</i>	298	384	497	509	514	394	258	2854
<i>Women</i>	382	559	670	726	577	403	333	3650
<i>Bases (weighted)</i>								
<i>Men</i>	497	541	577	579	483	326	203	3207
<i>Women</i>	488	552	616	607	501	334	263	3360

^a Participants were asked to indicate how happy they would say they were, taking all things together, on a scale of 0 to 10, where 0 means very unhappy and 10 means very happy.

^b Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 16 Happiness scores^a, by labour market status and sex

Aged 16 and over^b

2010

Happiness score	Whether employed ^c		Labour market status				
	In work	Not in work	In work: employee	In work: self employed	Unemployed	Otherwise economically inactive	Retired
Men							
Mean	7.9	7.8	7.9	7.7	7.2	7.3	8.4
Standard error of the mean	0.04	0.07	0.05	0.10	0.19	0.15	0.07
5th percentile ^d	5	4	5	5	3	3	5
10th percentile	6	5	6	6	5	4	6
15th percentile	7	6	7	6	5	5	7
25th percentile	7	7	7	7	6	6	8
median	8	8	8	8	8	8	9
75th percentile	9	9	9	9	9	9	10
85th percentile	9	10	10	9	9	9	10
90th percentile	10	10	10	10	9	10	10
95th percentile	10	10	10	10	10	10	10
Women							
Mean	8.0	7.9	8.0	8.1	7.8	7.6	8.1
Standard error of the mean	0.04	0.05	0.04	0.11	0.14	0.10	0.08
5th percentile	5	4	5	5	5	3	5
10th percentile	6	5	6	6	5	5	5
15th percentile	7	6	7	7	6	5	6
25th percentile	7	7	7	7	7	7	7
median	8	8	8	8	8	8	8
75th percentile	9	9	9	9	9	9	10
85th percentile	10	10	10	10	10	10	10
90th percentile	10	10	10	10	10	10	10
95th percentile	10	10	10	10	10	10	10
<i>Bases (unweighted)</i>							
<i>Men</i>	1704	1144	1392	312	150	294	700
<i>Women</i>	1914	1732	1736	178	179	703	850
<i>Bases (weighted)</i>							
<i>Men</i>	2000	1197	1648	352	206	408	583
<i>Women</i>	1804	1552	1642	162	191	670	691

^a Participants were asked to indicate how happy they would say they were, taking all things together, on a scale of 0 to 10, where 0 means very unhappy and 10 means very happy.

^b This table is not age-standardised because of small base sizes in some of the age cells.

^c Further breakdown shown in subsequent labour market status column.

^d Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 17 EQ-5D visual analogue scale^a values, by age and sex

Aged 16 and over

2010

EQ-5D VAS values	Age							Total
	16-24	25-34	35-44	45-54	55-64	65-74	75+	
Men								
Mean	81.2	81.5	78.9	78.3	76.9	76.7	74.0	78.7
Standard error of the mean	0.83	0.70	0.69	0.71	0.75	0.93	1.16	0.27
5th percentile ^b	50	60	50	40	40	40	39	48
10th percentile	65	65	60	57	50	50	50	60
15th percentile	70	70	65	60	60	60	60	65
25th percentile	75	75	70	70	70	70	65	70
median	84	85	80	80	80	80	80	80
75th percentile	90	90	90	90	90	90	88	90
85th percentile	95	95	91	93	90	90	90	93
90th percentile	95	95	95	95	95	95	90	95
95th percentile	100	100	98	98	98	100	95	99
Women								
Mean	78.7	81.3	80.1	79.1	79.0	77.4	69.9	78.6
Standard error of the mean	0.90	0.68	0.61	0.73	0.68	0.83	1.16	0.28
5th percentile	50	50	50	40	45	40	37	40
10th percentile	55	60	60	50	55	53	40	50
15th percentile	60	70	70	62	62	60	50	60
25th percentile	70	75	75	70	70	70	55	70
median	80	85	82	81	80	80	75	80
75th percentile	90	90	90	90	90	90	85	90
85th percentile	95	95	95	95	95	95	90	95
90th percentile	96	98	95	96	95	95	90	95
95th percentile	100	100	99	100	100	100	95	100
<i>Bases (unweighted)</i>								
<i>Men</i>	330	414	548	550	550	438	306	3136
<i>Women</i>	414	598	727	750	641	458	411	3999
<i>Bases (weighted)</i>								
<i>Men</i>	554	584	637	628	519	363	241	3526
<i>Women</i>	527	587	676	629	559	380	323	3680

^a The Visual Analogue Scale (VAS) is part of the EQ-5D; a 'thermometer' scale is presented to participants, with zero representing the worst imaginable health state and 100 representing the best imaginable health state. Participants were asked to indicate how good or bad their own health state was that day.

^b Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 18 EQ-5D visual analogue scale^a values, by labour market status and sex

Aged 16 and over^b

2010

EQ-5D VAS values	Whether employed ^c		Labour market status				
	In work	Not in work	In work: employee	In work: self employed	Unemployed	Otherwise economically inactive	Retired
Men							
Mean	81.3	74.6	81.4	81.0	77.5	72.2	75.3
Standard error of the mean	0.34	0.60	0.38	0.77	1.28	1.26	0.71
5th percentile ^d	60	35	60	60	50	30	39
10th percentile	65	50	65	65	55	40	50
15th percentile	70	51	70	70	60	50	55
25th percentile	75	65	75	73	70	60	70
median	83	80	83	84	80	80	80
75th percentile	90	90	90	90	90	90	90
85th percentile	94	90	94	94	90	92	90
90th percentile	95	95	95	95	95	95	95
95th percentile	99	98	99	99	95	100	98
Women							
Mean	82.1	74.7	82.0	83.0	80.4	73.5	74.4
Standard error of the mean	0.32	0.52	0.34	1.02	1.12	0.86	0.67
5th percentile	50	40	50	50	50	30	40
10th percentile	65	50	65	68	60	40	50
15th percentile	70	50	70	70	67	50	50
25th percentile	75	63	75	80	70	60	60
median	85	80	85	85	80	80	80
75th percentile	90	90	90	90	90	90	90
85th percentile	95	93	95	95	95	94	90
90th percentile	96	95	96	95	98	95	95
95th percentile	100	100	100	100	100	100	100
<i>Bases (unweighted)</i>							
<i>Men</i>	1833	1297	1496	337	170	332	795
<i>Women</i>	2041	1954	1844	197	195	773	986
<i>Bases (weighted)</i>							
<i>Men</i>	2162	1354	1781	381	233	461	659
<i>Women</i>	1927	1750	1750	177	213	736	801

^a The Visual Analogue Scale (VAS) is part of the EQ-5D; a 'thermometer' scale is presented to participants, with zero representing the worst imaginable health state and 100 representing the best imaginable health state. Participants were asked to indicate how good or bad their own health state was that day.

^b This table is not age-standardised because of small base sizes in some of the age cells.

^c Further breakdown shown in subsequent labour market status column.

^d Percentiles have been presented in this table for reference only. The percentiles show a set of points within a scale from 1-100 which is divided into groups based on order of magnitude. For example, the group of those with a score that is equal to or more than the value of 90% of those with a score is expressed as the 90th percentile.

Table 19 Association of the WEMWBS score^a with employment status, age and region, by sex

Aged 16 and over

2010

R ² : 4.89 % ^b			R ² : 3.21% ^b				
Variable	N	Coefficient ^c	(95% C.I.) ^d	Variable	N	Coefficient ^c	(95% C.I.) ^d
Men Weighted Base			3414	Women Weighted Base			3528
Employment status (p<0.001)				Employment status (p<0.001)			
Employee	1749	-		Employee	1708	-	
Self employed	351	-0.20	(-1.27, 0.87)	Self employed	156	0.95	(-0.31, 2.22)
Unemployed	231	-4.94	(-6.80, -3.08)	Unemployed	209	-2.17	(-3.63, -0.70)
Otherwise economically inactive	440	-4.50	(-5.90, -3.10)	Otherwise economically inactive	705	-3.21	(-4.14, -2.28)
Retired	643	0.01	(-1.47, 1.49)	Retired	751	-1.48	(-2.75, -0.21)
Age (p<0.001)				Age (p<0.001)			
16-24	532	-		16-24	511	-	
25-34	571	-2.60	(-4.00, -1.19)	25-34	565	-0.56	(-1.85, 0.72)
35-44	620	-4.02	(-5.40, -2.65)	35-44	652	-0.87	(-2.13, 0.40)
45-54	600	-3.58	(-5.02, -2.15)	45-54	619	-1.88	(-3.11, -0.65)
55-64	504	-2.49	(-3.94, -1.05)	55-64	518	0.78	(-0.65, 2.22)
65-74	356	-1.08	(-2.93, 0.77)	65-74	367	1.67	(-0.15, 3.50)
75+	232	-2.90	(-5.06, -0.74)	75+	296	-0.16	(-2.10, 1.78)
Strategic Health Authority (p=0.025)				Strategic Health Authority (p=0.016)			
North East	169	-		North East	186	-	
North West	447	0.58	(-1.10, 2.26)	North West	471	1.46	(-0.05, 2.96)
Yorkshire & the Humber	352	0.59	(-1.22, 2.40)	Yorkshire & the Humber	357	1.63	(0.18, 3.09)
East Midlands	313	0.98	(-0.65, 2.62)	East Midlands	317	0.47	(-1.07, 2.01)
West Midlands	363	0.86	(-0.80, 2.52)	West Midlands	365	1.12	(-0.48, 2.73)
East of England	408	0.93	(-0.72, 2.58)	East of England	404	1.87	(0.33, 3.40)
London	448	2.44	(0.66, 4.22)	London	462	2.71	(1.17, 4.26)
South East Coast	272	2.24	(0.41, 4.07)	South East Coast	278	2.45	(0.66, 4.24)
South Central	360	0.69	(-1.10, 2.48)	South Central	375	1.18	(-0.35, 2.70)
South West	283	2.35	(0.66, 4.04)	South West	313	2.09	(0.54, 3.65)

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b R² represents the percentage variation of the data explained by the model.

^c The coefficient represents the difference in WEMWBS score between a category and the reference category after adjustment for other variables in the model.

^d 95% Confidence interval.

Table 20 Association of the WEMWBS score^a with quality of job, age and region, by sex

Aged 16 and over and in paid employment

2010

R ² : 22.86 % ^b				R ² : 19.59% ^b			
Variable	N	Coefficient ^c	(95% C.I.) ^d	Variable	N	Coefficient ^c	(95% C.I.) ^d
Men Weighted Base				Women Weighted Base			
Autonomy^d (p<0.001)				Autonomy^d (p<0.001)			
Low	343	-		Low	379	-	
Medium	655	0.44	(-0.70, 1.58)	Medium	725	0.66	(-0.37, 1.70)
High	1054	2.40	(1.33, 3.47)	High	778	2.51	(1.47, 3.55)
Support^e (p<0.001)				Support^e (p<0.001)			
Low	311	-		Low	216	-	
Medium	1060	0.66	(-0.44, 1.77)	Medium	776	2.29	(1.04, 3.54)
High	682	2.41	(1.27, 3.56)	High	890	4.03	(2.75, 5.31)
Security^f (p<0.001)				Security^f (p<0.001)			
Low	315	-		Low	237	-	
Medium	1199	1.88	(0.78, 2.99)	Medium	1019	0.91	(-0.17, 1.99)
High	538	3.10	(1.89, 4.31)	High	626	2.53	(1.37, 3.70)
Control^g (p<0.001)				Control^g (p<0.001)			
Low	206	-		Low	205	-	
Medium	938	4.10	(2.77, 5.44)	Medium	945	4.68	(3.43, 5.93)
High	908	7.81	(6.43, 9.19)	High	731	7.59	(6.23, 8.95)
Age (p=0.032)				Age (p=0.034)			
16-24	236	-		16-24	254	-	
25-34	467	-0.09	(-1.58, 1.41)	25-34	400	1.41	(0.02, 2.79)
35-44	529	-0.75	(-2.24, 0.74)	35-44	472	0.20	(-1.23, 1.62)
45-54	482	-0.36	(-1.81, 1.09)	45-54	476	0.33	(-1.04, 1.69)
55-64	295	0.46	(-1.15, 2.07)	55-64	242	1.19	(-0.33, 2.71)
65+	43	2.69	(0.30, 5.09)	65+	38	2.93	(0.28, 5.57)
Strategic Health Authority (p=0.003)				Strategic Health Authority (p=0.428)			
North East	96	-		North East	96	-	

North West	265	0.20	(-1.57, 1.98)	North West	240	1.56	(-0.11, 3.24)
Yorkshire & the Humber	198	0.41	(-1.68, 2.51)	Yorkshire & the Humber	195	0.99	(-0.53, 2.52)
East Midlands	189	-0.85	(-2.65, 0.95)	East Midlands	156	1.30	(-0.48, 3.08)
West Midlands	202	-0.56	(-2.39, 1.28)	West Midlands	199	-0.01	(-1.70, 1.69)
East of England	274	0.47	(-1.34, 2.28)	East of England	241	0.86	(-0.87, 2.58)
London	270	1.60	(-0.23, 3.44)	London	239	1.42	(-0.34, 3.17)
South East Coast	196	1.02	(-1.00, 3.03)	South East Coast	155	1.61	(-0.04, 3.26)
South Central	189	-2.01	(-4.06, 0.04)	South Central	188	0.88	(-0.88, 2.54)
South West	173	0.49	(-1.31, 2.28)	South West	174	1.00	(-0.66, 2.65)

^a The Warwick-Edinburgh Mental Well-being Scale is designed to measure mental well-being of adults in the UK. The scale has 14 items, each scored from 1 to 5 on a Likert scale, and a total score between 14 and 70 is calculated.

^b R² represents the percentage variation of the data explained by the model.

^c The coefficient represents the difference in WEMWBS score between a category and the reference category after adjustment for other variables in the model.

^d 95% Confidence interval.

^e From the question 'Do you have a choice in deciding HOW you go about your work?': High autonomy = All the time/most of the time; Medium = Much of the time/some of the time; Low = Occasionally/never.

^f From the question 'Do you get help and support from your line manager?': High support = Often; Medium = Sometimes; Low = Seldom/never. Those who do not have a line manager were included in the Medium category.

^g From the question 'How likely is it that you will lose your job and become unemployed within the next twelve months?' on a scale 0-100: High security = 0; Medium = 10-50; Low = 60-100.

^h From the question 'I feel able to cope with the demands of my job': High control = Agree strongly; Medium = Agree; Low = Neither agree nor disagree/disagree/disagree strongly.

ⁱ ONS. *Measuring national well-being*. Office for National Statistics, Newport, 2011.

www.ons.gov.uk/ons/guide-method/user-guidance/well-being/index.html

ⁱⁱ Warr P. *Work, Happiness, and Unhappiness*. Lawrence Erlbaum Associates, London, 2000

ⁱⁱⁱ Green F. *Unpacking the misery multiplier: how employability modifies the impacts of unemployment and job insecurity on life satisfaction and mental health*. *Journal of Health Economics* 2011 30;2:265–276.

^{iv} Karasek R A. Job demands, job decision latitude, and mental strain: Implications for job design. *Administrative Science Quarterly* 1979 24:285-308.

^v Wichert I. *Job insecurity and work intensification: the effects on health and well-being*. In Burchell B, Lapido D, Wilkinson F (eds). *Job Insecurity and Work Intensification*. Routledge, London, 2002.

^{vi} Green F. *Work Effort and Worker Well-Being in the Age of Affluence*. In Burke R, Cooper C (eds). *The Long Work Hours Culture. Causes, Consequences And Choices*. Emerald Group Publications, Bingley, 2008.

^{vii} The Warwick-Edinburgh Mental Well-being Scale was funded by the Scottish Government National Programme for Improving Mental Health and Well-being, commissioned by NHS Health Scotland, developed by the University of Warwick and the University of Edinburgh, and is jointly owned by NHS Health Scotland, the University of Warwick and the University of Edinburgh.

^{viii} Tennant R, Hiller L, Fishwick R, Platt S, Joseph S et al. *The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation*. Health and Quality of Life Outcomes 2007 5:1-13.

^{ix} Di Tella R, MacCulloch RJ, Oswald AJ. *The macroeconomics of happiness*. Review of Economics and Statistics 2003 85;4:809-82

^x Goldberg D, Williams PA. *User Guide to the General Health Questionnaire*. NFER-Nelson, Windsor, 1998.

^{xi} Cheung K, Oemar M, Oppe M, Rabin R. *User Guide: basic information on how to use EQ-5D. Version 3.0*. Euroqol Group, 2010.

www.euroqol.org/eq-5d/publications/user-guide.html

^{xii} www.esds.ac.uk/government/hse/

^{xiii} Blanchflower DG, Oswald AJ. *Is well-being U-shaped over the life cycle?* Social Science & Medicine 2008 66;1733-1749.

^{xiv} Equivalised household income takes into account the number of people living in households, but allows for some economies of scale. See Volume 2, Appendix C, Glossary, for a full description.

^{xv} For an overview of some of this work, see Warr, P. *Work, Happiness, and Unhappiness*. Lawrence Erlbaum Associates, London, 200

^{xvi} Llana-Nozal A. *The effect of work status and working conditions on mental health in four OECD countries*.

National Institute Economic Review July 2009 209;1:72-8 This is one of the few studies using panel data which permits the author to draw the reasonable inference that causation runs from employment status to well-being.

^{xvii} A recent study finds, for example, that part of the rise in incapacity for work that took place in the 1990s was associated with increases in job strain (a combination of high work demands and low autonomy). Baumberg B. *The role of increasing job strain in deteriorating fitness-for-work and rising incapacity benefit receipt*. PhD thesis, London School of Economics and Political Science, London, 2011. Available from 1/1/2012 at <http://etheses.lse.ac.uk>

^{xviii} Green F, Felstead A, Gallie D. *Skills and Work Organisation in Britain*. In Green F, Keese M (eds). *Job Tasks, Work Skills and the Labour Market*. OECD, Paris, 2011.

^{xix} Warr (op. cit.), p. 196.