

Creative Occupations and Subjective Wellbeing

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Abstract

This report statistically analyses whether creative occupations are associated with higher levels of subjective wellbeing, once other factors that affect wellbeing are controlled for. Four different measures of subjective wellbeing (life satisfaction, worthwhileness, happiness and anxiety) from the UK's Annual Population Survey are analysed. The research finds that most creative occupations have higher than average levels of life satisfaction, worthwhileness and happiness than employment in general, although most creative occupations also have higher average levels of anxiety. Once other factors which affect wellbeing are controlled for, some, but not all, creative occupations are found to be associated with higher levels of wellbeing.

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Amongst current professional roles, he is a member of the Office for National Statistics advisory forum on wellbeing (he recommended the questions for large scale surveys), on a National Academy of Sciences Panel on wellbeing in the US, and Chief Academic Advisor on Economic Appraisal to the Government Economic Service.

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This analysis was conducted using the Annual Population Survey data supplied under the standard End User Licence (EUL) agreement from the UK Data Service. Responsibility for the analysis and interpretation of the data are solely that of the authors.

Summary

This report statistically examines whether being in a creative occupation is associated with higher levels of subjective wellbeing, once other factors that affect wellbeing are controlled for. Four different measures of subjective wellbeing (life satisfaction, worthwhileness, happiness and anxiety) from the UK's Annual Population Survey are analysed. The research finds that most creative occupations have higher than average levels of life satisfaction, worthwhileness and happiness than employment in general, although most creative occupations also have higher average levels of anxiety. Once other factors that affect wellbeing are controlled for, some, but not all, creative occupations are found to be associated with higher levels of wellbeing. Jobs in architecture, crafts, design, and music, and the performing and visual arts are associated with higher levels of wellbeing than non-creative jobs. Jobs in marketing and advertising, film, TV, video, radio and photography, IT, and publishing are associated with *lower* levels of wellbeing than non-creative jobs. We conclude that jobs with a traditionally strong creative identity, such as crafts, design and arts, are associated with higher levels of wellbeing than other jobs.

1. Background

Over the past decade interest in subjective wellbeing (SWB) has significantly increased among policy makers and in academia. The number of journal publications using SWB data has increased rapidly and SWB is now recognised as an important measure of social progress (i.e. of overall improvements in a population's quality of life) in a large number of countries (e.g. the UK, the US, Australia and France) and international organisations (e.g. the Organisation for Economic Co-operation and Development (OECD) and the United Nations). The *National Wellbeing Programme* in the UK is at the forefront of policy developments in this area and has resulted in an ambitious programme of data collection on SWB by the Office for National Statistics (ONS). The UK Government and the OECD have developed guidance on methods for analysing and using SWB data in policy evaluation (Fujiwara and Campbell, 2011; OECD, 2013).

This trend has been reflected in the cultural sector, where there is a growing body of research on the wellbeing impact of engaging in cultural and creative activities. Wellbeing analysis now forms a key aspect of policy making and evaluation at the Department for Culture Media and Sport (DCMS)¹. The research in this field has primarily been focused on the wellbeing impact of different cultural and creative activities, such as playing music, going to the theatre, dancing and visiting museums or heritage sites (e.g. Fujiwara et al. 2014; Marsh et al. 2010), and we are unaware of any studies on the relationship between employment in creative occupations and subjective wellbeing in particular given that cultural and creative activities in general are found to be associated with higher wellbeing, the impact of creative jobs is an important area of research and the introduction of new wellbeing questions in surveys like the Annual Population Survey allows us to explore this in detail.

¹ http://blogs.culture.gov.uk/main/2014/04/what_makes_a_community_theatre.html
Also see recent publications (e.g., Fujiwara et al. 2014)

We contribute to the literature on wellbeing by establishing the relationship between creative occupations and SWB using a large national UK dataset. We look at the four main wellbeing questions currently used in a number of national surveys administered by the Office for National Statistics. These measure life satisfaction, purpose/meaning, happiness and anxiety, which are discussed in more detail in the next section. To our knowledge this is the first quantitative study that specifically analyses the connection between creative jobs and wellbeing.

The report is structured as follows: Section 2 looks at the concepts involved in measuring subjective wellbeing. Section 3 reviews the literature around employment and wellbeing. It develops a logic model which hypothesises the links between creative employment and wellbeing. Section 4 discusses the data analysed in the report and section 5 outlines the research methodology. Section 6 presents the results of the analysis and section 7 discusses the findings.

2. Measuring subjective wellbeing

Subjective wellbeing (SWB) refers to people's subjective experiences of their own wellbeing, which is usually measured through self-reported responses in a survey. It looks at how the individual feels and thinks about his or her life. There is a large range of SWB measures including happiness, emotions, life satisfaction, meaning and purpose in life, sadness, anxiety and goal attainment. Each taps into different theoretical concepts of wellbeing. No consensus or convention exists on which wellbeing measure is 'right' – over 2,000 years of philosophical enquiry dating back to the ancient greeks have not managed to resolve this question. It is, therefore, important that any analysis on SWB consider a variety of wellbeing indicators.

SWB can be broadly categorised into three different categories:

(i) Evaluative subjective wellbeing refers to people's overall assessments of their life or of domains of their life. Overall assessments are also known as 'global' measures of wellbeing. The most prominent measure is satisfaction with life. Domain wellbeing refers to wellbeing concerned with a specific area of one's life. This is often measured in terms of satisfaction, for example financial satisfaction, health satisfaction, job satisfaction etc. Evaluative measures like life satisfaction are made up of a balance of affect (positive and negative emotions and feelings) together with a cognitive assessment of how well one's life measures up to peers, aspirations and goals (Diener, 1984, Kahneman and Krueger, 2006). A life satisfaction response will incorporate to some extent a retrospective judgement of one's life together into how one feels now.

(ii) Affective subjective wellbeing is concerned with a person's feelings 'in the moment' and can encompass both positive and negative feelings. Positive feelings are often measured in terms of happiness and measures of negative feelings could cover stress, anxiety, misery and so on. Affective wellbeing is typically measured on a more frequent basis than evaluative measures. One example is the Experience Sampling Method (ESM) (Csikszentmihalyi and Hunter, 2003), which collects information on people's reported feelings in real time during selected moments of the day using a Personal Digital Assistant

(PDA). Respondents report their activity at the time and their subjective experiences, such as anger, happiness and fatigue.

(iii) Eudemonic subjective wellbeing conceives of people as having underlying psychological needs, such as meaning, autonomy, control and connectedness (Ryff, 1989). Meeting these contributes towards wellbeing independently of any pleasure that may bring (Hurka, 1993).

Different SWB measures can produce differing conclusions. 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 good and retirement is pretty good, at least to start with, but data on affective subjective wellbeing have generally shown weak associations between subjective wellbeing and these events (Kahneman et al, 2004; Knabe et al, 2010). Earlier research has found some discrepancies between those activities that people find 'pleasurable' rather than 'rewarding' or 'worthwhile'. For example, time spent with children is relatively more rewarding than pleasurable, and time spent watching television is relatively more pleasurable than rewarding (Dolan and Metcalfe, 2012).

In fact, each wellbeing measure has its pros and cons. For instance, evaluative measures like life satisfaction include a retrospective element (which distinguishes them from affective wellbeing measures). This can be a problem if people do not always correctly remember past experiences (Smith et al. 2006). People's current feelings can be influenced by contextual factors present at the time of the interview, which has implications for affective and evaluative measures of wellbeing. Although affective measures are generally seen as being less susceptible to survey-related biases, they face the problem of whether momentary measures such as happiness are broad enough to capture a full evaluation of one's life (Loewenstein and Ubel, 2008). In sum, the three SWB categories represent a range of wellbeing outcomes and therefore, as already discussed it is important to assess creative jobs in respect to all of the SWB measures as we do in this paper.

3. Literature review and logic model

We start by reviewing the literature on jobs and wellbeing and producing a logic model to help frame how we might expect creative occupations to impact on SWB.

We have not identified any empirical research that focuses directly on creative occupations and subjective wellbeing, but some studies on wellbeing and employment factors more generally do exist and are informative for this study.

The UN Creative Economy Report (2008) cites the individual health and psychological wellbeing benefits of creative occupations, but does not provide quantitative evidence². A few other papers look at the link between career choice and wellbeing (e.g. Falco et al. 2012; Graham and Shier 2010). However, neither of these papers analyse creative jobs in particular.

² http://unctad.org/en/Docs/ditc20082cer_en.pdf

The only work of which we are aware that has used occupational codes in wellbeing analysis was the Cabinet Office's work on the 'careers calculator'. This high-level analysis uses two waves of the Annual Population Survey to estimate mean life satisfaction scores associated with each occupation in the 2010 Standard Occupational Classification (SOC) classification. Part of this work was published in the Legatum Institute's Wellbeing and Policy Report (2014)³.

Since there is a lack of literature specific to creative jobs and wellbeing we created a logic model that draws on the wider literature on employment status, job characteristics and wellbeing to develop a framework for thinking about the relationship between creative occupations and wellbeing in a systematic way. A logic model describes "the relationship between an intervention's inputs, activities, outputs, outcomes, and impacts".⁴ We focus on how subjective wellbeing is affected by characteristics of creative occupations.

The first task is to break down what a creative job entails (Figure 1). See also Bakhshi, Freeman and Higgs (2013) which defines a creative occupation as being one that satisfied at least four out of five creative criteria.⁵ Bakhshi, Frey and Osborne (2015) use detailed task descriptions from the US O*NET database to estimate the degree of creativity of different occupations.

3.1. The characteristics of creative occupations

(i) Autonomy and control

Creative jobs might be considered to provide a higher level of autonomy than other jobs. If employees can freely choose their work activities or the content and output of their work, they are arguably more likely to find their work meaningful, as opposed to viewing it as an obligation (Erdogan et al. 2012). Gill (2002), for instance, shows how new media industries are regarded as non-hierarchical and egalitarian. Autonomy is seen to exist in both working practices and the output of creative work.

It should be noted that Gill (2002) argues that despite their image of autonomy and creative freedoms, creative industries also suffer from a number of entrenched patterns of gender inequality, access to work, job insecurity, long hours and low pay.

(ii) Competence (impact/usefulness)

Competence is defined as an individual's inherent desire to feel effective in interacting with the environment (Deci and Ryan 2010; Ryan and Deci 2000; White 1959). Usefulness, value and impact are central to creative jobs (Joo et al. 2013). Since the 1990's the belief that creativity and the cultural industries are useful to the economy has grown (Asheim and Hansen 2009; Flew and Cunningham 2010; Gibson and Klocker 2005). The 'Rise of the

³ See Figure 4, p.72: <http://li.com/docs/default-source/commission-on-wellbeing-and-policy/commission-on-wellbeing-and-policy-report---march-2014-pdf-.pdf?sfvrsn=5>

⁴ HM Treasury (2011) The Magenta Book: Guidance for Evaluation (p21)

⁵ These criteria being whether the occupation: 1. Involves a novel process, 2. Is mechanisation resistant 3. Is non-repetitive or performs a non-uniform function 4. Involves a 'creative' contribution to the value chain irrespective of context and 5. Involves interpretation and not just transformation. Different occupational codes at the four-digit level were assessed against these criteria, based on the detailed list of sub-occupations (the 'coding index') published by the ONS.

creative class' (Florida and Boyett 2014) made creative occupations central to the economic competitiveness of advanced developed countries. Conceivably, such discourse may well have increased the sense of usefulness and impact associated with creative work.

(iii) Freedom (openness to new ideas and unconventionality)

Creative work involves applying or combining existing knowledge in new ways. In some contexts the work is geared at creating aesthetic qualities, symbols, and images that affect a desire for consumption in individuals (Asheim and Hansen 2009). More generally, it can create meaning and novel interpretations of existing materials and data. Creative work is seen as less conventional and more open to change and innovation (Feist 1998; Helson 1999), which again intuitively might impact on job satisfaction and wellbeing.

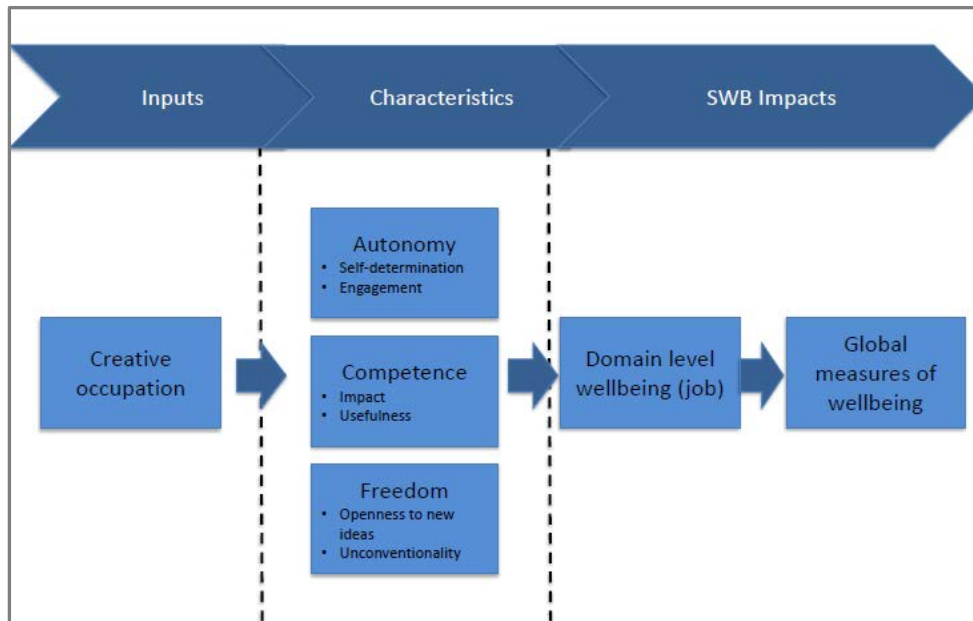
3.2. Relationships between creative job characteristics and wellbeing

For some of these characteristics associated with creative jobs there is evidence of higher wellbeing.

Autonomy has been identified as an important predictor of an individual's optimal functioning in the workplace (Deci and Ryan 2010; Ryan and Deci 2000). It has been shown to impact on domain and global wellbeing scores and both **autonomy** and **competence satisfaction** have been shown to be related to wellbeing more generally in terms of vitality, life-satisfaction, self-esteem, and less ill-being as reflected in measures of anxiety, depression and somatization (Baard, et al., 2004). Ilardi et al. (1993), for example, found that factory workers who experienced greater overall satisfaction of their needs for **autonomy** and **competence** displayed higher wellbeing (using the General Health Questionnaire scale). In Erdogan et al.'s (2012) meta review of the literature **autonomy** emerged as a major predictor of job control and life satisfaction (Day and Jreige 2002). This is also supported by De Cuyper et al.'s study (2009).

Competence and accomplishment have also been linked to studies showing that job performance is a predictor of life satisfaction (Babin and Boles 1998). Feelings of self-worth have been shown to increase in reaction to **confidence regarding one's skills**. Rochlen et al. (2009) found a positive correlation between **confidence regarding skills** and life satisfaction, for example. Baard et al. (2004) studied 59 employees in the US banking sector and found that **competence** was strongly associated with reduced anxiety and depression.

Figure 1. Logic model setting out the relationships between creative occupations and subjective wellbeing



The logic model shown in Figure 1 provides a framework for relating creative jobs to wellbeing. Since there is no prior empirical literature on creative jobs and wellbeing the logic model sets out our hypothesis. In the following sections using the Annual Population Survey data we explore the relationship between creative jobs and different measures of wellbeing. The data do not allow us to test directly the mechanisms through which creative jobs may impact on SWB (i.e., through autonomy, freedom etc). Instead, we look directly at the relationship with the ONS SWB measures. Wherever we find a positive relationship between creative jobs and wellbeing we interpret this as meaning that this may in part be due to the three main aspects of creative jobs (autonomy, competence and freedom).

4. Data

The Annual Population Survey (APS) is a combined statistical survey of households in the UK, which is conducted quarterly by the Office for National Statistics (ONS). It incorporates the Labour Force Survey, which provides a wealth of data on employment status. The APS is a repeated annual cross-sectional survey of approximately 155,000 households and 360,000 individuals. Since 2011 the APS has contained the four ONS wellbeing questions and hence we use waves (years) 2011-2012 and 2012-2013 in our analysis. We assess the following four wellbeing measures:

- i. **Life satisfaction:** “Overall, how satisfied are you with your life nowadays?” (evaluative wellbeing)
- ii. **Worthwhileness:** “Overall, to what extent do you feel the things you do in your life are worthwhile?” (eudemonic wellbeing)
- iii. **Happiness:** “Overall, how happy did you feel yesterday?” (affective wellbeing)
- iv. **Anxiety:** “Overall, how anxious did you feel yesterday?” (affective wellbeing)

These indicators are measured on a scale of 0 to 10 where 0 = 'not at all' and 10 = 'completely'.

We note that affective SWB measures are, in theory, measured at different points during the day using methods such as ESM as discussed above and they relate to experiences associated with specific activities and time points. The APS is a large population sample surveyed at certain points during the year and is not able to repeatedly survey respondents during the day. As an alternative the APS aims to 'replicate' or proxy the ESM by asking respondents for their experiences and feelings relating to a whole day (yesterday). This is similar to the well-known U.S. Gallup World data.

The four-digit 2010 SOC codes are used to identify occupations. The jobs variables relate to the main job of the individual. We use the following definitions of creative occupations as defined in the Department for Culture, Media and Sports' *Creative Industries Economic Estimates*.

Table 1. DCMS creative occupation definitions and SOC codes

Creative Occupations Group	Standard Occupational Classification (2010)	
	Code	Description
Advertising and marketing	1132	Marketing and sales directors
	1134	Advertising and public relations directors
	2472	Public relations professionals
	2473	Advertising accounts managers and creative directors
	3543	Marketing associate professionals
Architecture	2431	Architects
	2432	Town planning officers
	2435	Chartered architectural technologists
	3121	Architectural and town planning technicians
Crafts	5211	Smiths and forge workers
	5411	Weavers and knitters
	5441	Glass and ceramics makers, decorators and finishers
	5442	Furniture makers and other craft woodworkers
	5449	Other skilled trades not elsewhere classified
Design: product, graphic and fashion design	3421	Graphic designers
	3422	Product, clothing and related designers
Film, TV, video, radio and photography	3416	Arts officers, producers and directors
	3417	Photographers, audio-visual and broadcasting equipment operators
IT, software and computer services	1136	Information technology and telecommunications directors
	2135	IT business analysts, architects and systems designers

	2136	Programmers and software development professionals
	2137	Web design and development professionals
Publishing	2471	Journalists, newspaper and periodical editors
	3412	Authors, writers and translators
Museums, galleries and libraries	2451	Librarians
	2452	Archivists and curators
Music, performing and visual arts	3411	Artists
	3413	Actors, entertainers and presenters
	3414	Dancers and choreographers
	3415	Musicians

5. Methodology

We assess the wellbeing associated with creative jobs and compare them against other occupations in a number of different ways. We first derive **summary statistics of average SWB scores** for the 30 creative jobs in Table 1.

Second, we run **multivariate regression analysis** to assess the relationship between creative jobs and SWB in greater detail. The summary statistics only tell us about the average SWB scores across the different occupations and do not show the extent to which working in a creative job, other things equal, impacts on SWB. Regression analysis allows us to control for a range of other factors that may affect SWB. Any simple correlations that we may observe between job type and SWB could be driven by a large number of factors in addition to the job itself. For example, more motivated people may select into creative occupations and motivation in itself may also impact positively on SWB. In this case, any observed positive relationship between creative jobs and SWB may be driven to some extent by the motivation of the individual rather than the job itself. Regression analysis allows us to interrogate the data in greater detail to get a better sense of cause and effect relationships, but there may still be important confounding factors, such as motivation, that we are not able to control for in the analysis. As such, our results should be treated as indicative of causal relationships between creative work and wellbeing.

We use the following regression model as the base for the statistical analysis:

$$SWB_i = \alpha + \beta_1 CO_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

where SWB_i is a measure of wellbeing for individual i (which can be life satisfaction, worthwhileness, happiness or anxiety); CO_i is a vector of variables made up of the creative occupations; X_i is a vector of control variables, the β s are the coefficients associated with the different variables, and ε_i is the error term under the standard assumptions. All statistical analyses (descriptive statistics and regression models) are weighted using the APS' *welbeing weight* (variable name: np122r11) to make the sample and results nationally

representative. The *wellbeing weight* is recommended for analysis of SWB data in the APS.⁶

In X_i we control for the main determinants of SWB as set out in Fujiwara and Campbell (2011):

- Age
- Gender
- Religion
- Marital status
- Health status
- Ethnicity
- Education
- Housing
- Income
- Geographic region
- Date of survey

Table 2a presents descriptions of the variables used in the statistical analysis and Table 2b shows the sample sizes of the different occupations analysed in the survey.

Table 2. Variable descriptions
2a) Non-employment variables

Variable	Description
2nd pay decile	If respondent in 2nd pay decile
3rd pay decile	If respondent in 3rd pay decile
4th pay decile	If respondent in 4th pay decile
5th pay decile	If respondent in 5th pay decile
6th pay decile	If respondent in 6th pay decile
7th pay decile	If respondent in 7th pay decile
8th pay decile	If respondent in 8th pay decile
9th pay decile	If respondent in 9th pay decile
LS	Life Satisfaction (0-10 scale)
WW	Things you do in life are worthwhile (0-10 scale)
HA	Happiness (0-10 scale)
AN	Anxiety (0-10 scale)
Female	1= Female, 0= Male
Age	Age
Age Squared	Age squared
BME	1=Black & Minority Ethnic group , 0=White
Religious	1=Religious, 0=Non-religious
Separated	1=Separated, 0=Otherwise
Divorced	1=Divorced, 0=Otherwise
Widowed	1=Widowed, 0=Otherwise
Civil Partner	1=Civil Partner, 0=Otherwise
Limiting Health	1=limiting health condition, 0=Otherwise

⁶ http://doc.ukdataservice.ac.uk/doc/7365/mrdoc/pdf/7365_pwb_userguide2012_13.pdf

Smoker	1=Smoker, 0=Non-smoker
Ex-smoker	1=Ex-smoker, 0=Otherwise
Rent	1= Rent Home, 0=Otherwise
Norent/Squatting	1= Doesn't pay rent or squats, 0=Otherwise
Degree	1= Degree, 0=Otherwise
Higher Education	1=Attended Higher Education, 0=Otherwise
A-level	1=A-levels, 0=Otherwise
GCSE	1=GCSEs, 0=Otherwise
Other Qualifications	1=Other qualifications, 0=Otherwise
No Qualifications	1=No qualifications, 0=Otherwise
Face-to-Face Survey	1=Face to face survey, 0=Otherwise
Year (2012-13)	1= Surveyed in 2012/13, 0=Otherwise

Notes: The pay decile variables are created using the distribution of pay in the sample. The top income decile has a low sample size in the regressions and thus is excluded in the analysis. The lowest income decile is the reference group in the regression analysis. Home ownership is the housing reference group in the regression analysis.

2b). Creative jobs variables

Creative occupations	SOC Code 2010 Full Title	Sample
Marketing	Marketing and Sales Directors	1,422
Advertising	Advertising and PR Directors	160
IT	Information Technology and Telecommunication Directors	456
IT business	IT business analyst, architects and systems designers	821
Programmers	Programmers and software development professionals	1,769
Web Design	Web design and development professionals	455
Architects	Architects	371
Town Planning	Town planning officers	153
Chartered Architect	Chartered Architect	34
Librarians	Librarians	252
Archivists	Archivists	97
Journalists	Journalists, newspaper and periodical editors	530
Public Relations	Public relations professionals	287
Advertising Accounts	Advertising accounts managers and creative directors	180
Architectural	Architectural and town planning technicians	163
Artists	Artists	406
Authors	Authors, writers and translators	628
Actors	Actors, entertainers and presenters	343
Dancers	Dancers and choreographers	125
Musicians	Musicians	299
Arts Officers	Arts officers, producers and directors	446
Photographers	Photographers, audio-visual and broadcasting equipment operators	595
Graphic Designer	Graphic designers	605
Product Clothing	Product, clothing and related designers	422
Marketing Associate	Marketing associate professionals	1,182
Smiths Forge	Smiths and forge workers	44

Weavers	Weavers and knitters	26
Glass Ceramics	Glass and ceramic makers, decorators and finishers	97
Furniture Maker	Furniture makers and other craft woodworkers	375
Other Skilled Trades	Other skilled trader not elsewhere classified	363

All wellbeing models are estimated using ordinary least squares (OLS), which assumes that the SWB reporting scale (0 to 10) is cardinal. Ferrer-i-Carbonell and Frijters (2004) show that it makes little difference in wellbeing models whether one assumes cardinality or ordinality in the wellbeing variable and hence for ease of interpretation we use OLS (as is standard in much of the literature).

The main difficulty in inferring causality from the available data is that there may be a host of factors and attributes that people differ on in addition to job type and it may be these differences that drive changes in the wellbeing outcomes we are interested in. Certainly, when it comes to jobs we would expect some people to choose or ‘select’ into certain types of jobs. In line with best practice in wellbeing analysis the general strategy used in this study has been to control for as many of the determinants of SWB as possible using regression analysis. The main observable determinants of SWB have been controlled for, but it should be recognised that the estimates may be biased to some degree if there are confounding factors that have not been controlled for in the analysis. This is a risk with any wellbeing analysis using non-experimental data.

We run three different models per SWB outcome:

Model 1 compares the 30 creative occupations against **all other jobs**.

Model 2 compares the 30 creative occupations against **other jobs for people of similar levels of education**. This is done by restricting the sample to people with degree-level education. This model simply provides a closer ‘control’ or reference group for creative jobs.

Model 3 pools the 30 creative jobs under the DCMS’ definition of creative occupations groups (see Table 1) to take a more aggregated view. The creative job groups are compared against **all other jobs** as in Model 1.

6. Results

6.1. Summary statistics

Figures 2-4 and Table 3 show the average (mean) scores across the four SWB measures (life satisfaction; worthwhileness; happiness; anxiety) for the 30 creative occupations in descending order. We add the overall UK average SWB scores for employed people as red bars in each chart as a benchmark comparison. Note that lower anxiety scores represent lower levels of anxiety.

Figure 2. Mean life satisfaction scores for creative jobs

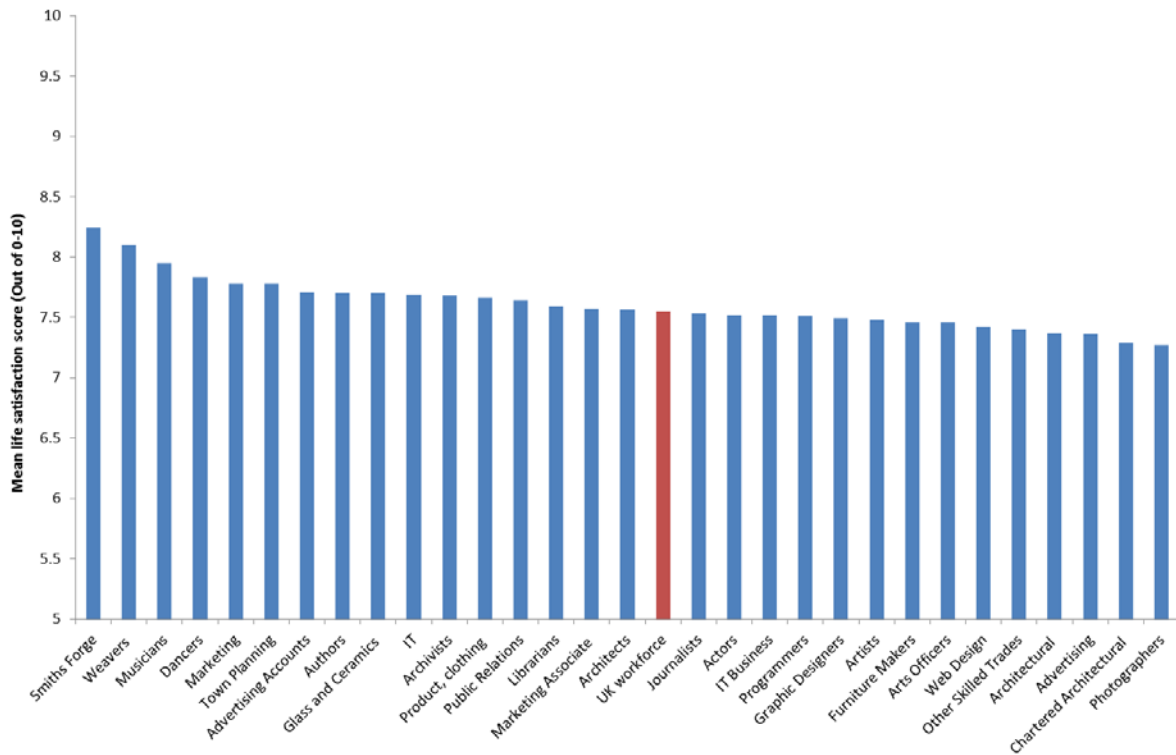


Figure 3. Mean worthwhileness scores for creative jobs

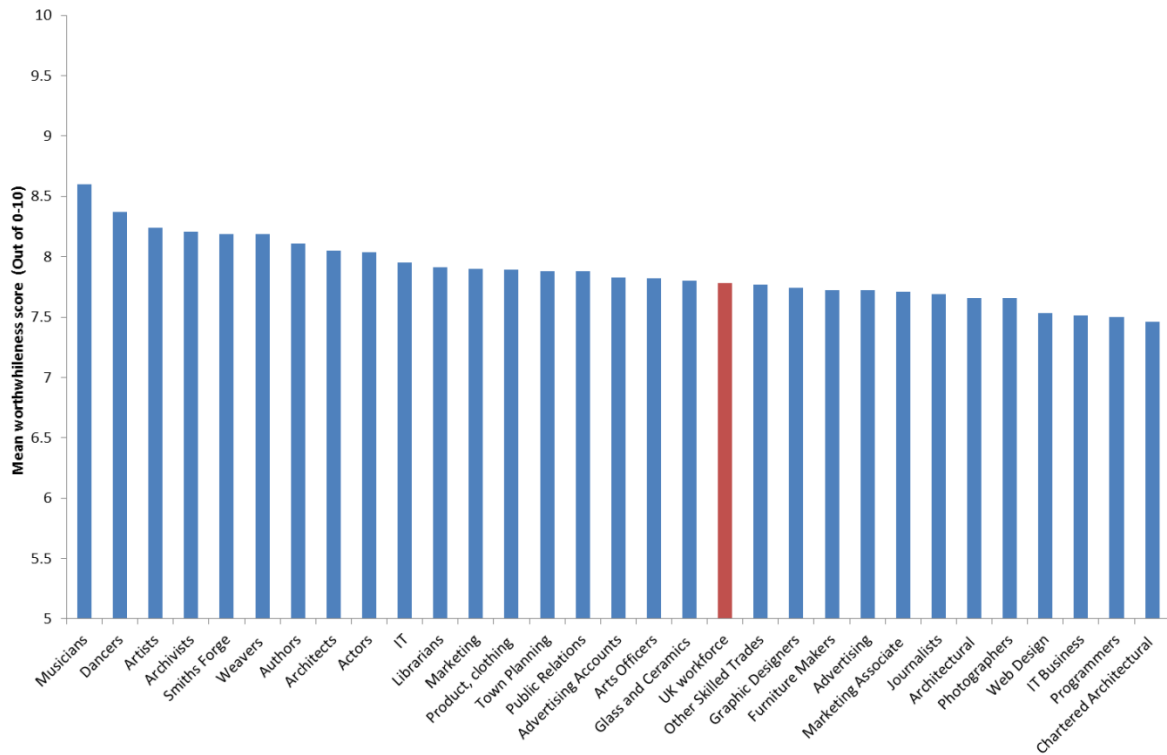


Figure 4. Mean happiness scores for creative jobs

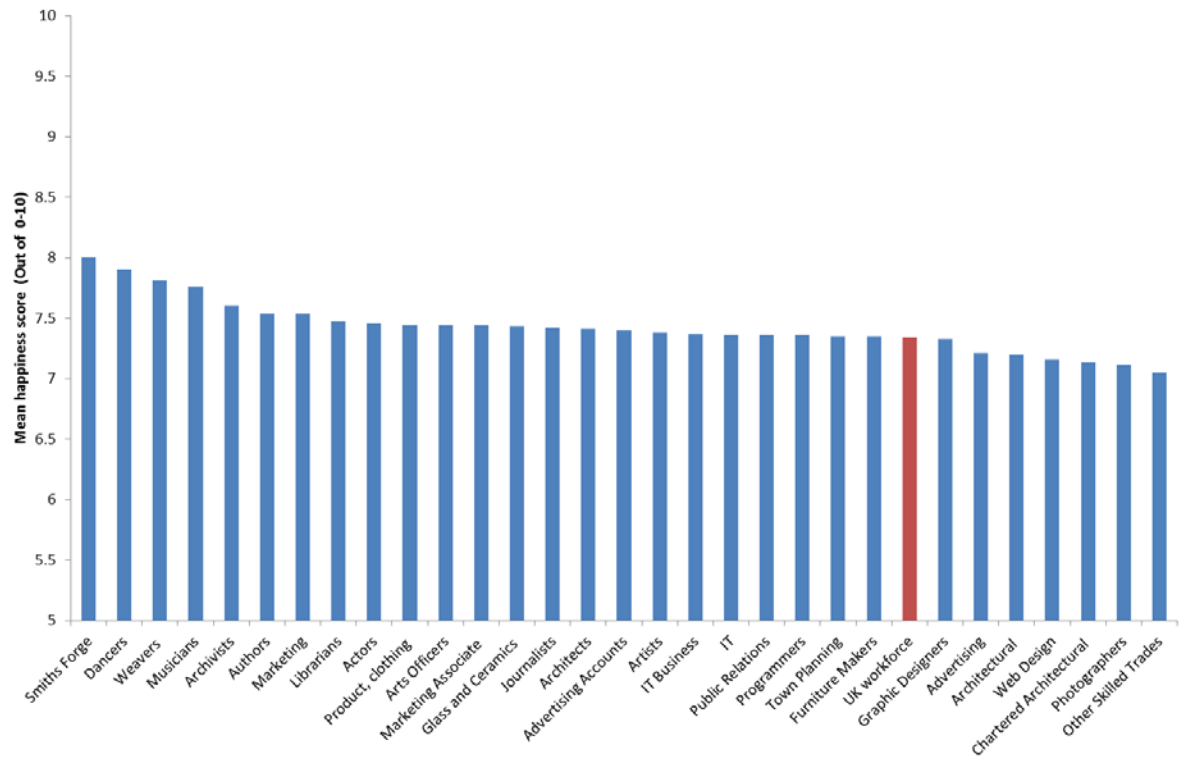


Figure 5. Mean anxiety scores for creative jobs

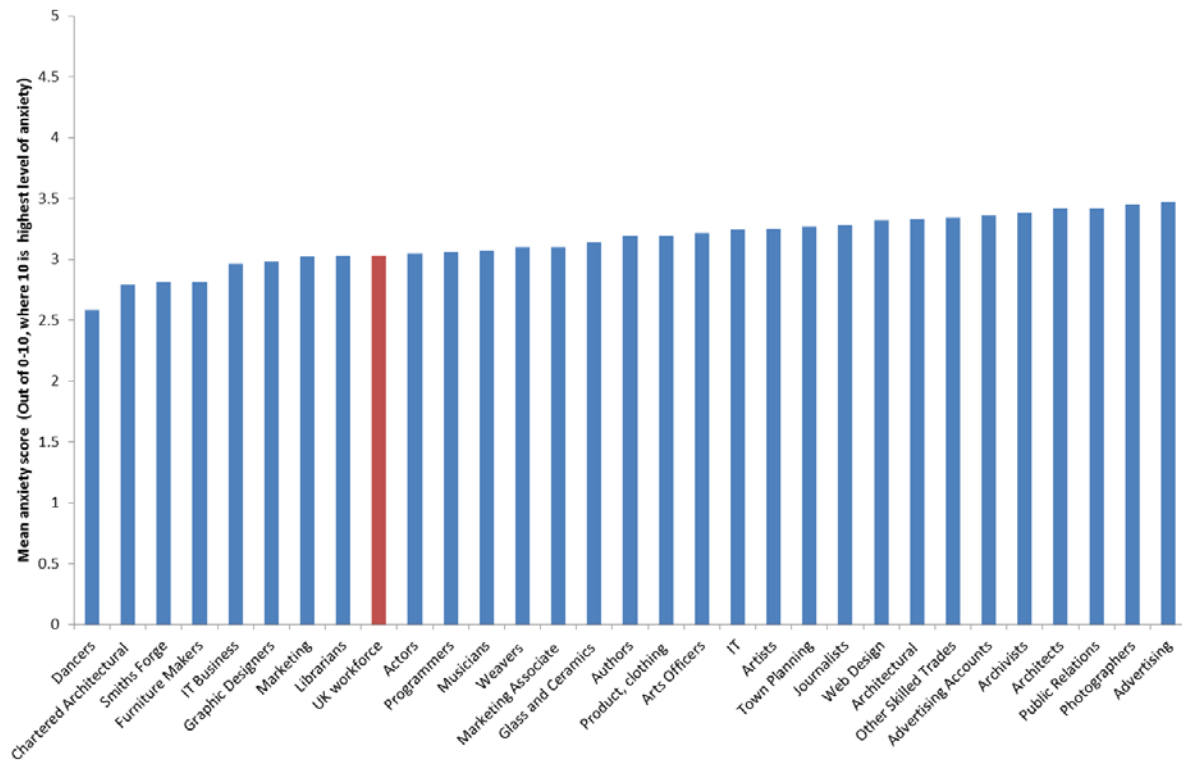


Table 3. Average wellbeing scores

SOC	Occupation	Life Satisfaction	Worthwhileness	Happiness	Anxiety
3414	Dancers and choreographers	7.83	8.37	7.9	2.58
5211	Smiths and forge workers	8.24	8.19	8	2.81
5411	Weavers and knitters	8.1	8.19	7.81	3.1
3415	Musicians	7.95	8.6	7.76	3.07
5442	Furniture Makers	7.46	7.72	7.35	2.81
1132	Marketing and Sales Directors	7.78	7.9	7.54	3.02
2451	Librarians	7.59	7.91	7.47	3.03
3413	Actors, entertainers and presenters	7.52	8.04	7.46	3.05
2135	IT business analyst, architects and systems designers	7.52	7.51	7.37	2.96
3412	Authors, writers and translators	7.7	8.11	7.54	3.19
2435	Chartered Architect	7.29	7.46	7.13	2.79
3421	Graphic Designers	7.49	7.74	7.33	2.98
3543	Marketing associate professionals	7.57	7.71	7.44	3.1
2136	Programmers and software development professionals	7.51	7.5	7.36	3.06
5441	Glass and ceramic makers, decorators and finishers	7.7	7.8	7.43	3.14
3422	Product, clothing and related designers	7.66	7.89	7.44	3.19
3416	Arts officers, producers and directors	7.46	7.82	7.44	3.22
2452	Archivists	7.68	8.21	7.6	3.38
2471	Journalists, newspaper and periodical editors	7.53	7.69	7.42	3.28
1136	Information Technology and Telecommunication Directors	7.69	7.95	7.36	3.24
3411	Artists	7.48	8.24	7.38	3.25
2432	Town planning officers	7.78	7.88	7.35	3.27
2473	Advertising accounts managers and creative directors	7.71	7.83	7.4	3.36
2431	Architects	7.56	8.05	7.41	3.42
2472	Public relations professionals	7.64	7.88	7.36	3.42
3121	Architectural and town planning technicians	7.37	7.66	7.2	3.33
2137	Web design and development professionals	7.42	7.53	7.16	3.32
1134	Advertising and PR Directors	7.36	7.72	7.21	3.47
5449	Other Skilled Trades	7.4	7.77	7.05	3.34
3417	Photographers, audio-visual and broadcasting equipment operators	7.27	7.66	7.11	3.45
	UK workforce	7.55	7.78	7.34	3.03

The graphs and table show a fair amount of variability in SWB across the occupations, with some clear patterns emerging (although the results should be interpreted with some caution since some of the groups have small sample sizes). Smith and forge workers, weavers and knitters, musicians, and dancers and choreographers tend to do consistently well across all SWB measures. It is less clear cut at the other end, but photographers, audio-visual and broadcasting equipment operators tend to fare poorly on all SWB measures.

Most creative occupations have higher average levels of wellbeing, worthwhileness and happiness than the levels for the UK workforce, but they also have average higher anxiety levels than the UK workforce. However, it should be noted that differences in means will not in some cases be statistically significant and that they will not be driven solely by the jobs themselves⁷. One important driver of wellbeing related to any job is salary. It may be that some jobs do well on the SWB measures because they are associated with large salaries. And also people will certainly select into some jobs meaning that it will be their other characteristics (such as personality and level of education) that account for some of the observed differences in SWB scores across the jobs. The summary statistics are a useful point of reference, but it could be very misleading to suggest that the differences we see in wellbeing scores across different occupations are due solely to the job and its characteristics.

6.2. Regression analysis

The wellbeing models contain the main determinants of SWB and have goodness of fit values that are in line with the literature (for life satisfaction) as discussed below. The evidence suggests that as much as 90% of the variation in SWB is due to personality traits (DeNeve and Cooper, 1998) and so the (relatively small) R-squared values do not warrant concern here. The direction and size of the coefficients in the wellbeing models are in line with previous findings in the wellbeing literature.

In respect to the validity of inference and hypothesis testing: (i) visual inspection of the residuals showed them to be normally distributed (although this issue does not matter so much in large sample sizes like this); and (ii) we employ heteroskedasticity-robust standard errors in all models (in line with best practice in the wellbeing literature, robust standard errors are used to address the common observation of heteroskedasticity in large sample data).

Model 1

Table 4 shows the results of the full regression model with the 30 creative job categories. The reference group is people in all other (non-creative) occupations. We show statistically significant results in bold. R-squared values for the life satisfaction regressions are low but they are in line with the lower bound of R-squared values one would see in the empirical wellbeing literature which typically range between 5% and 15%. We cannot comment on the R-squared values of the worthwhileness, happiness and anxiety regressions as these

⁷ Comparing all 30 creative jobs against other types of occupations using t-tests we find that creative jobs have statistically higher happiness and higher levels of anxiety (these t-tests do not control for any other factors).

measures are unique to the APS data and there are few previous published studies using this.

Eight out of the 30 jobs are *positively* associated with at least one SWB measure (i.e. associated with a better SWB rating) in a statistically significant way (Unless stated otherwise, only statistically significant associations at the 10% level or less are discussed in the text). Two occupations (dancers and graphic designers) are positively associated with two SWB measures (both had more life-satisfaction and less anxiety). Ten out of the 30 jobs are also *negatively* associated with at least one SWB measure (i.e. associated with worse SWB after adjusting for other factors).⁸ People working in advertising and PR director roles; programmers, and photographers, audio-visual and broadcasting equipment operators are negatively associated with two SWB variables adjusting for other factors (all three have lower levels of life satisfaction; advertising and PR director roles also have higher levels of anxiety, programmers also have lower levels of worthwhileness scores and photographers, audio-visual and broadcasting equipment operators also have lower happiness scores). No creative job is significantly associated with more than two SWB measures. Some jobs had very high positive associations with SWB (e.g. in comparison to non-creative jobs musicians feel that the things that they do in life are particularly worthwhile; weavers are much happier; dancers have much lower levels of anxiety). The size of some of these estimates (in relation to other non-job variables in the model) may indicate some upward bias in our estimates of the relationship between creative jobs and wellbeing (due to unobservable selection), because they are large even in relation to key drivers of SWB such as health.

We also assess the possibility of heterogeneous impacts across different population groups. We look at whether creative jobs are more highly associated with wellbeing for certain groups: younger people (under 30) compared to people over 30; women compared to men; people in full-time creative jobs compared to people in part-time creative jobs. This is done using interactive models of the following type:

$$SWB_i = \alpha + \beta_1 CO_i + \beta_2 X_i + \beta_3 CO_i \cdot C_i + \varepsilon_i \quad (2)$$

where SWB_i is a measure of wellbeing for individual i (which can be life satisfaction, worthwhileness, happiness or anxiety); CO_i a variable indicating whether the individual is employed in one of the 30 creative job categories; X_i is a vector of control variables; ε_i is the error term under the standard assumptions; and C_i is a vector of characteristics for which we examine whether heterogeneous impacts exist (age, gender, job status). $(CO_i \cdot C_i)$ is the interactive term that tests whether there are statistically significant associations between creative jobs and wellbeing that differ by age, gender and job status (full/part time).

In comparison to other non-creative jobs we find no differences across these different groups in terms of associations between creative employment and wellbeing and thus do not report the results here (in other words the coefficient on the interactive term (β_3) was insignificant for all interactions).

⁸ Note that a positive (negative) coefficient for anxiety shows that the activity is associated with increased (reduced) anxiety.

Table 4. Creative jobs and wellbeing compared against all other jobs (four-digit SOC code)

<i>Creative occupations</i>	Life satisfaction		Worthwhileness		Happiness		Anxiety	
	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>
Marketing	0.091	0.087	-0.082	0.127	0.127	0.097	-0.017	0.129
Advertising	-0.392**	0.193	-0.254	0.17	-0.187	0.296	0.629*	0.326
IT	0.187	0.137	0.093	0.13	0.117	0.178	0.398*	0.238
IT business	-0.062	0.064	-0.305***	0.071	0.08	0.094	-0.059	0.136
Programmers	-0.095*	0.05	-0.276***	0.059	0.006	0.065	0.062	0.1
Web Design	-0.101	0.115	-0.241*	0.126	-0.249	0.17	0.207	0.268
Architects	-0.052	0.14	0.271***	0.093	-0.009	0.177	0.35	0.308
Town Planning	0.128	0.133	0.079	0.131	0.355	0.237	0.214	0.36
Chartered Architect	-0.173	0.181	-0.629*	0.338	-0.405	0.582	0.07	0.66
Librarians	-0.022	0.109	-0.088	0.113	0.131	0.157	-0.385	0.243
Archivists	0.115	0.243	0.325**	0.159	0.147	0.271	0.606	0.465
Journalists	-0.005	0.115	-0.147	0.129	-0.04	0.165	0.164	0.229
Public Relations	0.01	0.136	-0.032	0.149	0.125	0.191	0.086	0.279
Advertising Accounts	0.156	0.143	-0.002	0.162	0.111	0.197	0.012	0.316
Architectural	-0.041	0.173	0.213	0.194	0.086	0.202	0.063	0.339
Artists	0.35	0.328	0.282	0.348	0.319	0.339	0.265	0.585
Authors	0.068	0.177	-0.244	0.219	0.051	0.213	0.097	0.322
Actors	-0.218	0.408	0.004	0.343	0.327	0.399	-0.385	0.631
Dancers	0.546*	0.33	0.016	0.451	0.308	0.41	-1.157**	0.537
Musicians	0.325	0.208	1.003***	0.22	0.452	0.324	0.947	0.706
Arts Officers	-0.163	0.141	-0.096	0.15	0.019	0.181	0.222	0.234
Photographers	-0.345**	0.169	-0.119	0.213	-0.380*	0.216	0.273	0.388
Graphic Designer	0.315***	0.096	0.164	0.116	0.207	0.137	-0.393*	0.211
Product Clothing	0.251	0.165	0.068	0.148	0.372**	0.17	-0.12	0.25
Marketing Associate	-0.11	0.084	-0.195**	0.076	0.121	0.094	0.063	0.154
Smiths Forge	1.076	0.891	1.106	1.011	1.004	1.324	-0.571	1.132
Weavers	-0.252	0.494	-0.002	0.737	1.203**	0.544	-0.786	0.939
Glass Ceramics	-0.061	0.351	-0.724*	0.392	-0.211	0.471	0.312	0.744
Furniture Maker	-0.012	0.189	0.292*	0.166	0.029	0.234	-0.189	0.317
Other Skilled Trades	-0.105	0.158	0.076	0.161	-0.492*	0.264	0.417	0.369
<i>Control variables</i>								
2nd pay decile	0.050*	0.028	0.011	0.028	0.042	0.036	-0.172***	0.048
3rd pay decile	-0.001	0.03	-0.074**	0.029	-0.032	0.038	-0.095*	0.049
4th pay decile	0.022	0.029	-0.102***	0.029	-0.077**	0.038	-0.098**	0.05
5th pay decile	0.073***	0.028	-0.069**	0.028	-0.03	0.037	-0.120**	0.048
6th pay decile	0.143***	0.028	0.023	0.028	-0.011	0.037	-0.135***	0.049
7th pay decile	0.202***	0.028	0.068**	0.028	0.038	0.037	-0.138***	0.049
8th pay decile	0.234***	0.027	0.119***	0.027	0.041	0.036	-0.110**	0.05
9th pay decile	0.397***	0.026	0.206***	0.026	0.102***	0.035	-0.164***	0.047
Female	0.143***	0.012	0.284***	0.012	0.067***	0.016	0.210***	0.022
Age	-0.082***	0.003	-0.038***	0.003	-0.056***	0.004	0.066***	0.006

Age Squared	0.001***	0.000	0.001***	0.000	0.001***	0.000	-0.001***	0.000
BME	-0.261***	0.024	-0.096***	0.023	-0.064**	0.029	0.193***	0.039
Religious	0.123***	0.012	0.176***	0.012	0.148***	0.016	0.091***	0.022
Separated	-0.592***	0.034	-0.195***	0.03	-0.337***	0.041	0.263***	0.052
Divorced	-0.359***	0.019	-0.179***	0.018	-0.235***	0.025	0.125***	0.033
Widowed	-0.782***	0.05	-0.331***	0.044	-0.550***	0.062	0.219***	0.074
Civil Partner	0.347***	0.07	0.322***	0.072	0.353***	0.099	0.009	0.178
Limiting Health	-0.510***	0.019	-0.311***	0.019	-0.484***	0.024	0.689***	0.032
Smoker	-0.326***	0.017	-0.231***	0.017	-0.325***	0.022	0.213***	0.028
Ex-smoker	-0.071***	0.012	-0.064***	0.012	-0.090***	0.016	0.120***	0.022
Rent	-0.178***	0.014	-0.076***	0.015	-0.126***	0.019	0.117***	0.025
No rent/ Squatting	0.065	0.075	0.232***	0.073	0.178**	0.088	-0.1	0.11
Higher Education	0.063***	0.018	0.033*	0.017	0.013	0.024	-0.160***	0.033
A-level	0.081***	0.015	-0.02	0.016	-0.005	0.021	-0.218***	0.028
GCSE	0.050***	0.017	-0.060***	0.017	-0.005	0.023	-0.261***	0.03
Other Qualifications	0.095***	0.027	-0.104***	0.026	0.057*	0.033	-0.257***	0.043
No Qualifications	0.092**	0.036	-0.136***	0.033	0.049	0.041	-0.263***	0.054
Face-to-face Survey	-0.097***	0.012	-0.051***	0.012	-0.040**	0.016	0.015	0.022
Year (2012-13)	-0.013	0.058	-0.012	0.056	-0.202***	0.073	0.129	0.101
Constant	9.066***	0.098	8.163***	0.099	8.673***	0.13	1.423***	0.174
Observations	129,480		129,292		129,475		129,380	
r2	0.06		0.037		0.025		0.021	

Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Day, month and region fixed effects (as dummy variables) controlled for (but not shown here). 10th pay decile dropped due to low sample size. Job variables relate to the individual's main job. Heteroscedasticity-robust standard errors. Reference groups for employment variables = people in non-creative occupations. A higher score for anxiety means higher levels of anxiety. Standard errors for age squared are positive but very small (not discernible at the third decimal place).

Model 2

Table 5 shows the results of the full regression model with the 30 creative job categories, where the reference group is now people with similar levels of education in all other (non-creative) occupations. This is done by running regressions where the sample is restricted to people with degree-level education. The reference group is, therefore, people in all other (non-creative) occupations with degree-level education. This is done to make the reference group more similar and to also make the reference group more realistic as an alternative for people in creative jobs (a disproportionately large number of people in creative jobs have degree-level education and so it makes sense to compare them to degree holders in other professions)⁹. We show statistically significant results for occupations in bold.

There are more statistically significant results in Model 2 for the four SWB measures. The reference group for this model is arguably a more plausible one comparing people who hold similar levels education in creative and non-creative jobs. Whereas Model 1 provides estimates of the wellbeing effects of creative jobs averaged across all education groups, Model 2 is more specific looking at the wellbeing effects of creative jobs for university

⁹ In the APS over 60% of people in the 30 creative jobs hold degree-level education (compared to around 30% in the general employed population).

graduates. For additional information in the Annex we include the results of Model 2 estimated for non-graduates as well (Table A.1.).

In comparison to other non-creative jobs, town planners, architects, graphic designers, product clothing and related designers, and weavers are all found to have higher levels of happiness after controlling for other factors. Previously (when looking at the full sample in Table 4) a positive association with happiness was only found for product clothing and related designers, and weavers. Advertising and PR directors are now found to score less well relative to the reference group on three SWB measures adjusting for other factors (life satisfaction, worthwhileness and anxiety); previously (for the full sample in Table 4) a negative effect is only found for life satisfaction and anxiety. Weavers now score well across all measures (albeit that the weaver sample size is particularly small and hence the results could be driven by outliers).

Table 5. Creative jobs and wellbeing compared against people with similar education levels in other jobs

<i>Creative occupations</i>	Life satisfaction		Worthwhileness		Happiness		Anxiety	
	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>
Marketing	-0.063	0.137	-0.25	0.205	0.01	0.133	-0.009	0.178
Advertising	-0.401*	0.24	-0.363**	0.169	-0.194	0.309	0.603*	0.336
IT	0.113	0.136	0.07	0.147	0.127	0.21	0.29	0.285
IT business	-0.062	0.085	-0.385***	0.091	0.015	0.119	-0.119	0.172
Programmers	-0.144**	0.058	-0.305***	0.073	-0.044	0.078	-0.001	0.12
Web Design	0.075	0.151	-0.224	0.172	-0.241	0.22	0.362	0.35
Architects	-0.087	0.158	0.351***	0.101	0.017	0.196	0.371	0.333
Town Planning	0.164	0.133	0.15	0.131	0.528**	0.225	0.055	0.375
Chartered Architect	0.175	0.249	-0.415	0.373	0.508	0.462	-0.484	0.562
Librarians	-0.012	0.128	-0.192	0.127	-0.006	0.172	-0.43	0.273
Archivists	0.248	0.24	0.508***	0.157	0.301	0.307	0.344	0.538
Journalists	-0.009	0.128	-0.164	0.15	-0.07	0.195	0.134	0.252
Public Relations	-0.174	0.148	-0.221	0.166	0.013	0.213	0.104	0.339
Advertising Accounts	0.134	0.167	-0.092	0.186	-0.204	0.222	-0.364	0.345
Architectural	-0.111	0.201	0.387*	0.21	0.481**	0.233	-0.031	0.396
Artists	0.571	0.392	0.709*	0.401	0.456	0.455	0.064	0.704
Authors	-0.037	0.193	-0.384	0.249	-0.155	0.231	0.157	0.355
Actors	-0.026	0.492	0.530**	0.257	0.021	0.726	-0.973	0.946
Dancers	-0.151	0.286	-0.08	0.34	-0.38	0.541	-0.111	1.035
Musicians	0.539**	0.267	1.337***	0.222	0.526	0.437	0.779	0.926
Arts Officers	-0.179	0.161	-0.194	0.178	0.022	0.21	0.33	0.252
Photographers	-0.405	0.249	-0.098	0.349	-0.2	0.281	0.382	0.633
Graphic Designer	0.228**	0.107	0.05	0.137	0.331**	0.163	-0.264	0.233
Product Clothing	0.132	0.228	0.062	0.193	0.378*	0.228	-0.15	0.32
Marketing Associates	-0.185*	0.111	-0.219**	0.103	0.163	0.112	0.152	0.21

Weavers	2.644***	0.079	2.236***	0.083	2.617***	0.103	-2.251***	0.142
Glass Ceramics	1.654***	0.558	0.920**	0.414	0.266	0.761	-1.257	1.273
Furniture Maker	-1.075	0.822	-0.176	0.623	-1.287	0.79	-1.720**	0.676
Other skilled trades	0.068	0.617	-0.026	0.575	-0.43	0.591	-0.256	0.524
Control variables								
2nd pay decile	0.139**	0.07	0.046	0.073	0.048	0.089	-0.162	0.124
3rd pay decile	0.041	0.072	-0.07	0.074	-0.115	0.092	-0.240*	0.126
4th pay decile	0.087	0.072	-0.048	0.075	-0.176*	0.094	-0.157	0.125
5th pay decile	0.218***	0.065	0.017	0.068	-0.008	0.084	-0.199*	0.118
6th pay decile	0.298***	0.062	0.200***	0.064	0.009	0.082	-0.223*	0.114
7th pay decile	0.345***	0.062	0.197***	0.063	0.035	0.078	-0.173	0.11
8th pay decile	0.384***	0.059	0.228***	0.06	0.027	0.076	-0.063	0.108
9th pay decile	0.534***	0.057	0.317***	0.058	0.071	0.073	-0.171*	0.102
Female	0.123***	0.019	0.302***	0.02	0.069***	0.026	0.223***	0.036
Age	-0.078***	0.006	-0.028***	0.007	-0.044***	0.008	0.066***	0.012
Age Squared	0.001***	0	0.000***	0	0.001***	0	-0.001***	0
BME	-0.210***	0.032	-0.038	0.032	-0.035	0.04	0.094*	0.056
Religious	0.106***	0.019	0.198***	0.02	0.170***	0.025	0.044	0.036
Separated	-0.595***	0.067	-0.07	0.054	-0.215***	0.078	0.15	0.104
Divorced	-0.336***	0.037	-0.146***	0.037	-0.139***	0.047	0.043	0.068
Widowed	-0.804***	0.123	-0.19	0.116	-0.407***	0.147	0.137	0.174
Civil Partner	0.302***	0.081	0.428***	0.099	0.368***	0.13	0.004	0.207
Limiting Health	-0.472***	0.036	-0.263***	0.035	-0.431***	0.045	0.656***	0.061
Smoker	-0.332***	0.032	-0.280***	0.034	-0.352***	0.044	0.311***	0.06
Ex-Smoker	-0.039**	0.019	-0.058***	0.02	-0.065**	0.026	0.199***	0.037
Rent	-0.176***	0.024	-0.064**	0.026	-0.091***	0.032	0.143***	0.046
No Rent / Squatting	0.273***	0.093	0.373***	0.105	0.196	0.12	-0.107	0.173
Face-to-face Survey	-0.01	0.019	-0.019	0.02	-0.01	0.027	-0.002	0.037
Year (2012-13)	0.066	0.102	0.073	0.096	-0.131	0.127	0.275	0.179
Constant	8.763***	0.184	7.801***	0.186	8.324***	0.248	1.306***	0.335
Observations	37931		37904		37925		37918	
r2	0.06		0.046		0.022		0.02	

Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroscedasticity-robust standard errors. Day, month and region fixed effects (as dummy variables) controlled for (but not shown here). 10th pay decile dropped due to low sample size. Reference groups for employment variables = people in non-creative occupations with degree. Job variables relate to the individual's main job. Smiths and forge workers were excluded because of minimal variation among people with degrees. Sample restricted to degree holders and hence the education variable is excluded and sample sizes are smaller. A higher score for anxiety means higher levels of anxiety.

Model 3

Table 6 shows the results of the full regression model with the 30 creative jobs categorised according to their DCMS creative occupations groups (see Table 1). The reference group is people in all other (non-creative) occupations and, as before, we restrict the sample to degree holders. We show statistically significant results in bold.

The results echo the results in Table 4: some industry categories are positively associated with SWB and others are negatively associated. Controlling for other factors, jobs in advertising and marketing; film, TV, video, radio and photography; IT, and publishing are associated with lower levels SWB on some measures than non-creative jobs (all but publishing have lower levels of life satisfaction, and all but film, TV, video, radio and photography have lower scores for worthwhileness). Jobs in architecture are however associated with higher levels of worthwhileness and happiness, than non-creative jobs. Crafts are associated with lower levels of anxiety. Design, and music, performing and visual arts are both associated with higher levels of life satisfaction and also with higher levels of happiness (design) and worthwhileness (music, performing and visual arts) than non-creative jobs.

Table 6. Creative jobs and wellbeing compared against all other jobs (DCMS creative occupations groups)

<i>Creative occupations groups</i>	Life satisfaction		Worthwhileness		Happiness		Anxiety	
	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>
Advertising & marketing	-0.132*	0.071	-0.231***	0.089	0.048	0.075	0.081	0.119
Architecture	-0.002	0.092	0.271***	0.078	0.296**	0.128	0.16	0.21
Crafts	-0.198	0.52	0.046	0.386	-0.675	0.48	-1.007**	0.476
Design	0.190*	0.111	0.054	0.113	0.349***	0.134	-0.22	0.19
Film, TV, video, radio, photo	-0.259*	0.139	-0.161	0.169	-0.057	0.168	0.348	0.278
IT	-0.078*	0.045	-0.278***	0.053	-0.032	0.062	0.037	0.093
Publishing	-0.017	0.107	-0.232*	0.129	-0.096	0.153	0.14	0.207
Museums, galleries, libraries	0.064	0.116	0.013	0.107	0.083	0.153	-0.203	0.253
Music, performing & visual arts	0.375*	0.194	0.817***	0.202	0.308	0.271	0.165	0.501
Control variables								
2nd pay decile	0.137*	0.07	0.042	0.073	0.044	0.089	-0.169	0.124
3rd pay decile	0.04	0.072	-0.072	0.074	-0.116	0.092	-0.243*	0.126
4th pay decile	0.087	0.072	-0.048	0.075	-0.174*	0.094	-0.158	0.125
5th pay decile	0.218***	0.065	0.015	0.068	-0.008	0.084	-0.200*	0.118
6th pay decile	0.297***	0.062	0.199***	0.064	0.01	0.082	-0.224**	0.114
7th pay decile	0.346***	0.062	0.197***	0.063	0.033	0.078	-0.174	0.11
8th pay decile	0.384***	0.059	0.226***	0.06	0.026	0.076	-0.066	0.108
9th pay decile	0.533***	0.057	0.315***	0.058	0.07	0.073	-0.175*	0.102
Female	0.122***	0.019	0.301***	0.02	0.069***	0.026	0.224***	0.036
Age	-0.077***	0.006	-0.028***	0.006	-0.045***	0.008	0.066***	0.012
Age Squared	0.001***	0	0.000***	0	0.001***	0	-0.001***	0
BME	-0.211***	0.032	-0.039	0.032	-0.035	0.04	0.094*	0.056
Religious	0.107***	0.019	0.199***	0.02	0.171***	0.025	0.044	0.036

Separated	-0.591***	0.067	-0.069	0.054	-0.213***	0.078	0.147	0.103
Divorced	-0.335***	0.037	-0.145***	0.037	-0.139***	0.047	0.044	0.068
Widowed	-0.806***	0.123	-0.192*	0.116	-0.407***	0.147	0.133	0.174
Civil Partner	0.301***	0.081	0.425***	0.099	0.367***	0.129	-0.001	0.206
Limiting Health	-0.472***	0.036	-0.263***	0.035	-0.431***	0.045	0.654***	0.061
Smoker	-0.333***	0.032	-0.281***	0.034	-0.352***	0.044	0.309***	0.059
Ex-Smoker	-0.038**	0.019	-0.057***	0.02	-0.063**	0.026	0.201***	0.037
Rent	-0.177***	0.024	-0.065**	0.026	-0.092***	0.032	0.143***	0.046
No Rent / Squatting	0.272***	0.093	0.371***	0.105	0.197	0.121	-0.109	0.173
Face-to-Face Survey	-0.01	0.019	-0.019	0.02	-0.01	0.027	-0.002	0.037
Year (2012-13)	0.065	0.102	0.072	0.096	-0.131	0.127	0.28	0.179
Constant	8.756***	0.184	7.806***	0.185	8.329***	0.248	1.308***	0.335
Observations	37931		37904		37925		37918	
r2	0.059		0.045		0.022		0.019	

Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroscedasticity-robust standard errors. Day, month and region fixed effects (as dummy variables) controlled for (but not shown here). 10th pay decile dropped due to low sample size. Reference groups for employment variables = people in non-creative occupations with degree-level education. Job variables relate to the individual's main job. Sample restricted to degree holders and hence the education variable is excluded. A higher score for anxiety means higher levels of anxiety.

7. Discussion

This study looks at the relationship between creative jobs and subjective wellbeing (SWB). We use the Annual Population Survey and look at the four ONS SWB measures: life satisfaction, worthwhileness, happiness, and anxiety for the 30 creative occupations as defined by the DCMS. The study uses the 2010 Standard Occupational Classification (SOC) codes to define job categories.

We develop a logic model based on the current literature and hypothesise that creative jobs might impact positively on SWB through job characteristics such as autonomy, competence and freedom, but that this may be offset as some creative jobs have been previously found to be associated with factors such as gender inequality, instability, long hours and poor pay.

There is some variation in average SWB scores across the 30 different creative jobs. Most (although not all) of the creative occupations have average happiness scores that are above the average for the UK workforce. In terms of life satisfaction and whether people feel that the things they do in life are worthwhile there are marginally more creative jobs above the average SWB scores for the workforce. In the case of anxiety (where a higher score indicates higher levels of anxiety), the picture is less good: most creative occupations have higher anxiety scores than the average for the workforce.

These scores may be driven by other characteristics such as an occupation having higher wages or being mainly done by people with demographic characteristics known to affect wellbeing in a particular way. We therefore employ multivariate regression analysis to control for the effects of observable characteristics and to make better inferences about the extent to which being in a creative occupation drives SWB. We cannot, however, take the

results as being fully causal estimates as there may be bias due to unobservable self-selection (e.g. happier people systematically deciding to do certain kinds of jobs). Addressing this would require experimental data or repeated observations on the same individuals over time (i.e. panel data).

We find mixed results for the 30 creative jobs when compared with other (non-creative) jobs when controlling for the main determinants of SWB (the corresponding SOC codes follow in parentheses). For example, advertising and PR directors (1134), computer programming (2136) and photographers, audio-visual and broadcasting equipment operators (3417) are associated with lower levels of SWB than non-creative jobs, whilst musicians (3415), graphic design (3421) and dancers (3414) are associated with higher levels of SWB than non-creative jobs. Similarly mixed patterns are observed when we focus on sub-samples of people with degree-level education (and in the Annex non-degree level education). With one exception – weavers (5411) (which is based on a very small sample) - no creative occupation, controlling for other factors, has higher wellbeing scores across all four wellbeing measures.

When we categorise the 30 jobs under the nine creative occupations groups as defined by the DCMS (see Table 1), marketing and advertising, film, TV, video, radio and photography, IT, and publishing jobs are associated with lower levels of SWB than non-creative jobs, whilst jobs in architecture, crafts, design, and music, performing and visual arts are associated with higher levels of SWB than non-creative jobs.

The evidence on the relationship between creative occupations and wellbeing is therefore mixed. Some creative jobs are positively associated with SWB, whilst others are negatively associated with SWB.

Interestingly, however, jobs that more traditionally may have been seen as creative (e.g. design, architecture, arts) tend to be associated with higher levels of SWB than non-creative jobs, whilst other creative jobs tend to be associated with lower levels of SWB.

Future research should dig deeper into the tasks and activities that make up different creative occupations, perhaps using the tasks description O*NET database used in Bakhshi, Frey and Osborne (2015). There would also be great value in collecting data that allow for quasi-experimental analytical methods, such as difference-in-difference analysis (which requires panel data), and that provide more robust estimates of causality and addresses the potential issues around happier people self-selecting into certain kinds of job. It should also look across the spectrum of occupations as a whole to obtain a better understanding of how different kinds of work can affect wellbeing.

Annex

Table A.1 shows the relationship between creative jobs and wellbeing compared with people in other jobs with non-degree education levels.

Table A.1. Creative jobs and wellbeing for people with non-degree level education

	Life satisfaction		Worthwhileness		Happiness		Anxiety	
	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>	<i>coefficient</i>	<i>se</i>
<i>Creative occupations</i>								
Marketing	0.285***	0.085	0.144	0.094	0.266**	0.133	-0.051	0.185
Advertising	-0.43	0.304	0.016	0.388	-0.185	0.673	0.582	0.747
IT	0.332	0.307	0.155	0.255	0.096	0.328	0.572	0.423
IT business	-0.099	0.094	-0.195*	0.116	0.186	0.149	0.037	0.225
Programmers	-0.031	0.097	-0.188*	0.098	0.117	0.12	0.175	0.181
Web Design	-0.470***	0.145	-0.283*	0.169	-0.298	0.261	-0.055	0.391
Architects	0.096	0.211	-0.165	0.196	-0.215	0.374	0.192	0.757
Town Planning	-0.709	0.788	-0.955	0.598	-1.745	1.28	2.203**	0.984
Chartered Architect	-0.420*	0.247	-0.78	0.512	-1.119	0.779	0.508	1.083
Librarians	-0.028	0.209	0.146	0.241	0.501	0.342	-0.223	0.517
Archivists	-0.471	0.673	-0.454	0.282	-0.507	0.492	1.617**	0.809
Journalists	-0.075	0.255	0.009	0.184	0.088	0.279	0.03	0.548
Public Relations	0.597**	0.27	0.618**	0.285	0.523	0.423	-0.158	0.495
Advertising Accounts	0.177	0.264	0.192	0.283	0.678**	0.321	0.675	0.615
Architectural	0.066	0.295	0.004	0.361	-0.411	0.32	0.182	0.585
Artists	-0.249	0.513	-0.728*	0.4	-0.021	0.421	0.749	1.026
Authors	0.615	0.388	0.648***	0.245	1.134***	0.352	-0.419	0.72
Actors	-0.318	0.54	-0.246	0.464	0.452	0.466	-0.128	0.799
Dancers	1.026**	0.427	0.036	0.764	0.798	0.548	-1.867***	0.31
Musicians	-0.123	0.174	0.171	0.138	0.238	0.205	1.464	0.894
Arts Officers	-0.189	0.282	0.278	0.195	-0.037	0.308	-0.394	0.533
Photographers	-0.277	0.221	-0.106	0.246	-0.538*	0.32	0.133	0.439
Graphic Designer	0.415**	0.163	0.309	0.192	0.089	0.227	-0.578	0.367
Product Clothing	0.429**	0.205	0.069	0.226	0.349	0.241	-0.096	0.404
Marketing Associates	-0.017	0.125	-0.146	0.111	0.075	0.158	-0.098	0.222
Smiths Forge	1.064	0.891	1.081	0.994	1.009	1.324	-0.674	1.12
Weavers	-0.336	0.485	-0.062	0.758	1.162**	0.567	-0.73	0.961
Glass Ceramics	-0.289	0.33	-0.876**	0.362	-0.267	0.517	0.481	0.787
Furniture Maker	0.111	0.179	0.343**	0.168	0.186	0.23	-0.038	0.335
Other skilled trades	-0.126	0.159	0.093	0.166	-0.507*	0.289	0.504	0.409
<i>Control variables</i>								
2nd pay decile	0.037	0.03	0.01	0.03	0.04	0.04	-0.177***	0.052
3rd pay decile	-0.004	0.032	-0.070**	0.031	-0.016	0.041	-0.073	0.054
4th pay decile	0.017	0.032	-0.110***	0.032	-0.058	0.042	-0.095*	0.054

5th pay decile	0.047	0.032	-0.085***	0.032	-0.041	0.041	-0.111**	0.054
6th pay decile	0.109***	0.032	-0.03	0.032	-0.027	0.042	-0.121**	0.056
7th pay decile	0.168***	0.033	0.026	0.032	0.025	0.043	-0.142**	0.057
8th pay decile	0.191***	0.033	0.080**	0.032	0.031	0.044	-0.173***	0.059
9th pay decile	0.355***	0.032	0.157***	0.031	0.112***	0.043	-0.177***	0.057
Female	0.143***	0.016	0.265***	0.016	0.060***	0.021	0.200***	0.028
Age	-0.082***	0.004	-0.039***	0.004	-0.058***	0.005	0.066***	0.007
Age Squared	0.001***	0	0.001***	0	0.001***	0	-0.001***	0
BME	-0.301***	0.035	-0.150***	0.032	-0.095**	0.042	0.286***	0.054
Religious	0.129***	0.016	0.165***	0.016	0.135***	0.021	0.112***	0.028
Separated	-0.590***	0.04	-0.230***	0.035	-0.369***	0.047	0.297***	0.06
Divorced	-0.364***	0.022	-0.188***	0.021	-0.261***	0.029	0.150***	0.037
Widowed	-0.783***	0.055	-0.362***	0.048	-0.585***	0.069	0.230***	0.082
Civil Partner	0.403***	0.118	0.192*	0.104	0.338**	0.153	-0.001	0.304
Limiting Health	-0.522***	0.023	-0.327***	0.022	-0.501***	0.029	0.700***	0.037
Smoker	-0.327***	0.019	-0.220***	0.019	-0.320***	0.025	0.186***	0.033
Ex-Smoker	-0.087***	0.015	-0.066***	0.015	-0.103***	0.02	0.077***	0.028
Rent	-0.183***	0.018	-0.082***	0.018	-0.139***	0.024	0.106***	0.031
No Rent / Squatting	-0.047	0.104	0.147	0.096	0.167	0.119	-0.073	0.142
Higher Education	-0.093	0.251	0.282	0.275	0.012	0.362	-0.168	0.455
A-level	-0.078	0.25	0.217	0.275	-0.01	0.361	-0.22	0.454
GCSE	-0.111	0.25	0.178	0.275	-0.008	0.361	-0.267	0.454
Other Qualifications	-0.062	0.251	0.138	0.275	0.059	0.362	-0.278	0.455
No Qualifications	-0.069	0.252	0.104	0.276	0.046	0.363	-0.286	0.456
Face-to-Face Survey	-0.135***	0.015	-0.065***	0.015	-0.052***	0.02	0.022	0.026
Year (2012-13)	-0.051	0.071	-0.055	0.069	-0.239***	0.089	0.063	0.121
Constant	9.301***	0.275	8.011***	0.297	8.786***	0.391	1.502***	0.498
Observations	91,549		91,388		91,550		91,462	
r2	0.062		0.036		0.027		0.022	

Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Day, month and region fixed effects (as dummy variables) controlled for (but not shown here). 10th pay decile dropped due to low sample size. Job variables relate to the individual's main job. Heteroscedasticity-robust standard errors. Reference groups for employment variables = people in non-creative occupations without degree-level education. Sample restricted to non-degree holders and hence sample sizes are smaller. High score for anxiety equals higher anxiety. Sample size now sufficient for Smiths and forge workers. Non-degree education variables are controlled for.

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