



Department
for Culture
Media & Sport

Culture, Sport and Wellbeing: An analysis of the Taking Part Survey

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Social Science in Government



This report presents the results of an internal secondary analysis of Taking Part data. The analysis and reporting has been produced by Sam Tuckett (Assistant Statistician, DCMS) and Lee Smith (Head of Profession for Social Research, DCMS). The authors would like to thank Daniel Fujiwara (London School of Economics and Simetrica) for peer reviewing the approach and findings presented within the report.

Contents

Key Findings.....	4
Chapter 1: Introduction	5
Chapter 2: Data Source	7
Chapter 3: Method of analysis	9
Chapter 4: Results	10

Key Findings

This report presents an analysis of Taking Part data investigating the impact of engagement with sport and culture on subjective wellbeing measured as happiness¹.

This analysis provides strong statistical evidence² for the association of engagement with sport and culture and an individual's reported happiness, controlling for other factors influencing wellbeing, e.g. income. Specifically, this research has produced robust evidence that people who:

- Have attended arts events in the last 12 months are significantly happier than those who have not, even when other factors influencing happiness are controlled for.
- Have participated in moderate intensity sport in the last 4 weeks are significantly happier than those who have not, when other factors are controlled for.
- Have visited a heritage site in the last 12 months are significantly happier than those who had not, even when other factors are controlled for.
- Have visited a library in the last 12 months are significantly less happy than those who have not, even when other factors are controlled for.

Although it is not possible to demonstrate causality from the current analysis this is a well-recognised difficulty in analysis exploring impacts on subjective well-being, which can only be comprehensively addressed through experimental study. Most published papers use the same statistical methodology as this paper rather than experiments to analyse wellbeing.

In the absence of evidence on causality, this analysis goes a long way to making a robust case for the association between engagement in culture and sport and an individual's happiness, beyond the impact of other factors. This stands as further evidence to support the inclusion of culture and sport measures within the ONS domains included in its national wellbeing programme.

In addition to this programme of Taking Part analysis, DCMS has published work to further understand the social and wellbeing impacts of engagement with its sectors. This has included work to value the wellbeing impacts of engagement with culture and participation in sport. This work, undertaken by researchers at London School of Economics (LSE) was published by DCMS in April 2014³.

Since April 2013, the Taking Part survey has included additional subjective wellbeing questions taken from the ONS measuring wellbeing programme. The first full year's data can be explored later in 2014.

¹ Based on the single measure incorporated within the Taking Part survey 'Taking all things together how happy would you say you are'?

² Associations reported are statistically significant at the 95% level unless otherwise stated.

³ Quantifying and valuing the wellbeing impacts of culture and sport:
<https://www.gov.uk/government/publications/quantifying-and-valuing-the-wellbeing-impacts-of-culture-and-sport>,

Quantifying the social impacts of sport and culture:
<https://www.gov.uk/government/publications/quantifying-the-social-impacts-of-sport-and-culture>

Chapter 1: Introduction

1.1 Background

UK Government interest in understanding the social impact of policy and measuring its impact in terms of wellbeing has grown substantially over the past few years. Government policy and analysis is increasingly seeking to consider the social impacts of Government decision making and intervention alongside more traditional economic measures. To this end, supplements to HM Treasury Green Book guidance seek to inform methods for the consideration of such non-economic impacts. In addition, the Office for National Statistics (ONS) continues to release annual data on [national subjective wellbeing](#). Reflecting the importance of sport and culture in influencing people's quality of life, the ONS incorporated engagement with culture and participation in sport within its domain measures of national well-being⁴ in May 2013.

This release presents the findings of further analysis of Taking Part data to update and enhance the original results published within the August 2012 annual report and user event in November 2012. It includes the results of a regression analysis investigating the association between participation in DCMS sectors and subjective wellbeing measured as happiness. This analysis is based on Taking Part data from 2010/11 – 2012/13. The report; its approach and findings, has been peer reviewed by Daniel Fujiwara (LSE) who is an expert in the analysis of wellbeing data.

This analysis enables DCMS to draw more robust conclusions about the specific associations between culture, sport and individuals' reported happiness, controlling for the impact of other factors e.g. income and age.

1.2 Previous evidence

In August 2012 DCMS published initial analysis⁵ on the impact of culture and sport participation and engagement on the Taking Part measure of happiness. This analysis was of Taking Part 2011/12 annual data only. Further developments of the analysis were also presented in November 2012 at the Taking Part User Event⁶.

Key findings from the previous Taking Part analysis included:

Comparability with other well-being analysis⁷

⁴ See: <http://www.ons.gov.uk/ons/rel/wellbeing/measuring-national-well-being/domains-and-measures---may-2013/index.html>

⁵ See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/77920/Taking_Part_2011_12_Annual_Report.pdf

⁶ See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/138076/2012_TP_user_event_Social_impacts.pdf

⁷ The single measure incorporated within the Taking Part survey is 'Taking all things together how happy would you say you are'? This is measured on a 10-point bipolar scale where '1' is *extremely unhappy* and '10' is *extremely happy*. This question is used as the proxy measure of subjective well-being within the presented analysis. It is however a different question from the measure of self-reported happiness used in the ONS survey, which asks 'overall, how happy did you feel yesterday'? The ONS question is answered on an 11-point unipolar scale where '0' is *not at all* and '10' is *completely*. These differences should be considered when making any comparisons between both surveys.

- The average happiness score for the whole sample in 2011/12 was 7.9, which was broadly comparable with the ONS measure of happiness reported in its first annual results (7.36). More than four out of five (83.3%) people gave a happiness score of 7 or more. Only 3.6% of people gave a score of less than 5.
- The overall reported levels of happiness demonstrated patterns found in the analysis of wellbeing data from other sources i.e. a broad correlation between happiness and income and a broadly u-shaped relationship between age and happiness.

Impact of culture and sport on subjective wellbeing measured as happiness

- In relation to a number of DCMS sectors there is a significant association between sport participation/cultural engagement and happiness. Specifically, those who engage/participate report significantly higher levels of happiness than those who do not. This lends support to the view that culture and sport improve people's quality of life on a measure of subjective well-being. However this finding from previous analysis does not control for other factors associated with happiness e.g. income.
- Further analysis to control for income levels showed continued evidence for an association between engagement with a number of DCMS sectors and happiness.

The previously published analysis therefore presented evidence for a positive association between engagement in sport and culture and Taking Part's measure of happiness. However, at that time a more robust analysis controlling for multiple factors associated with well-being had not been conducted. As a result it was not possible to draw stronger conclusions from the existing analysis as to any identified associations.

Chapter 2: Data Source

Taking Part is a survey commissioned by the Department for Culture, Media and Sport in partnership with Arts Council England, Sport England and English Heritage. It collects data on leisure, culture and sport participation and engagement within England.

Taking Part is a face to face survey which collects data on a random sample of addresses and as such, provides a representative sample of the population of England.

The survey provides a repeated cross-sectional dataset from 2005/06 to 2012/13 with a current sample size of roughly 10,000 adults per year. From 2011/12 onwards the survey has included a longitudinal aspect, whereby previous respondents were followed up and re-interviewed. For the purposes of this work, follow up interviews have been excluded from the data to avoid respondents being included twice.

The analysis presented in this report looks at data from year 6, 7 and 8 of the survey, 2010/11 – 2012/13 as this was the most recent and longest stretch for which the variables of interest are consistent.

This report looks at the effects of engagement in sport and culture on subjective wellbeing measured as happiness. In Taking Part, this is the question 'Taking all things together, how happy would you say you are?' where 1 = 'extremely unhappy' and 10 = 'extremely happy'. Happiness is known as an affective measure of wellbeing in that it captures momentary wellbeing and mood. It is a substantively different measure of wellbeing to evaluative wellbeing measures, such as life satisfaction which taps into both a person's momentary emotions as well as a cognitive evaluation of how their life is going compared to peers, goals and previous experiences. The drivers and determinants of affective and evaluative measures of wellbeing are often distinct and so these caveats should be taken into account when comparing the results in this report with studies looking at sports, culture and evaluative measures of wellbeing. Cultural variables, as well as those likely to impact upon wellbeing, which have been adjusted for in this analysis, are outlined in Table 1.

The cultural variables selected are the headline measures as reported in the Taking Part survey reports, with the exception of the arts attendance and participation variables for which definitions are given in table 1.

Table 1: Definition of variables included in the model

Variable	Definition
Sport participation	1 = taken part in 30 minutes+ of moderate intensity sport in the last 4 weeks, 0 = otherwise
Museum visits	1 = visited a museum or gallery at least once in the last 12 months, 0 = otherwise
Heritage visits	1 = visited a heritage site at least once in the last 12 months, 0 = otherwise
Archive visits	1 = visited an archive or records office at least once in the last 12 months, 0 = otherwise
Arts attendance	1 = attended an exhibition, opera, live music event, ballet, other dance performance, play or drama in the last 12 months, 0 = otherwise
Arts participation	1 = Took part in ballet, other dance, sang to an audience, played a musical instrument to an audience or for pleasure, painting, photography, craft, rehearsed or performed in a play/drama, written stories, plays or music in the last 12 months, 0 = otherwise
Olympic support	1 = supportive of the UK hosting the 2012 summer Olympic/Paralympic Games in London, 0 = otherwise
Urban area	1 = lives in an urban area according to classifications from the Office of National Statistics, 0 = otherwise
Lives with children	1 = lives in a household with children, 0 = otherwise
Working	1 = currently in paid employment, 0 = otherwise
Voluntary work	1 = Volunteered once or more in the last 12 months, 0 = otherwise
Library	1 = attended a library once or more in the last 12 months, 0 = otherwise
North	1 = lives in the North of England, 0 = otherwise
Midlands	1 = lives in the Midlands of England, 0 = otherwise
South	1 = lives in the South of England, 0 = otherwise
East	1 = lives in the East of England, 0 = otherwise
Marital Status	1 = married, 0 = otherwise
Health	Self-ranked health on a scale of 1-5, 1 = very poor health, 5 = very good health
Male	1 = Male, 0 = otherwise
White	1 = white group, 0 = otherwise
Religion	1 = Religious (self-reported), 0 = otherwise
Age	Age of respondent in years
Age squared	Age of respondent in years squared
LN income	Natural Logarithm of income, measured as midpoint of the income band selected, ranging from £2,500 and under to £50,000. This relates to personal earnings in the last year before tax and other deductions.
Education	1 = 5 A*-C GCSEs or above 0 = otherwise
Social rented	1 = lives in social sector rented housing, 0 = otherwise
Private rented	1 = lives in private sector rented housing, 0 = otherwise
Socialise	1 = seeing friends and family listed as free time activity, 0 = otherwise

Chapter 3: Method of analysis

This report presents a linear regression model⁸ that was applied to the outcome of the Taking Part subjective happiness question. The aim of this analysis is to investigate which of the considered factors (e.g. sport participation) have associations with happiness scores, whilst holding other factors constant. Therefore, the regression model allows us to identify where there is a significant association with subjective happiness beyond the influence of other factors e.g. income.

To test for impact of engagement with DCMS sectors on happiness, variables regarding participation with culture, sport, volunteering and the Olympics and Paralympics Games were added to the model. A full description of these variables is given in chapter 2.

Mathematically, the actual regression model will be fitted using ordinary least squares and the equation:

$$\text{Happiness}_i = \alpha + \beta_1 \text{CS}_i + \beta_2 \text{X}_i + \varepsilon_i$$

Where CS is a vector of culture and sport variables (the variables down to and including Olympic support in Table 1) and X is a vector of control variables as listed in Table 1.

⁸ A linear regression model can be used to estimate a mathematical relationship between one variable and another or others

Chapter 4: Results

3.1 Association between culture and sport and happiness.

A linear regression model was conducted on data collected in the Taking Part survey between April 2010 and March 2013. Table 1 shows the model output. The R squared score for this model was 0.150, meaning that 15.0 per cent of the variation in happiness scores can be attributed to all the variables combined.

This is a typical R squared value for work looking at happiness and wellbeing and is comparable with other analysis in this area⁹. It indicates that although happiness scores vary largely randomly, or based on far more than the variables considered here; there are underlying trends which can be associated with these variables.

Studies have found that wellbeing is highly stable over time due to personality traits. Eid and Diener, (2003) and Lykken and Tellegen, (1996) find that only 15%-20% of the variation in evaluative wellbeing measures are due to external factors and life circumstances. R squared values between 0.10 and 0.20 for wellbeing models of this kind are therefore to be expected.

Table 2 overleaf shows the results of the linear regression model¹⁰.

⁹ For example, the R squared in analysis undertaken by London School of Economics using Taking Part data for 'The Happy Museum project' was 13% <http://www.happymuseumproject.org/>

¹⁰ Diagnostic tests have been completed to ensure that the data does not suffer from heteroscedasticity or multicollinearity and that the distribution of the residuals is normal.

Table 2: Results of the regression model, April 2010 – March 2013

Explanatory Variable	Coefficient	Robust Standard error
Sport participation	0.058**	0.026
Museum visits	0.010	0.028
Heritage visits	0.116***	0.036
Archive visits	0.092*	0.054
Arts attendance	0.059**	0.029
Arts participation	0.015	0.025
Olympic support	0.121***	0.026
Urban area	-0.044	0.031
Lives with children	0.024	0.029
Working	0.123***	0.036
Voluntary work	0.049*	0.027
Library	-0.076***	0.026
North	0.119***	0.042
Midlands	0.039	0.045
South	0.020	0.043
East	0.027	0.050
Marital Status	0.633***	0.028
Health	0.541***	0.017
Male	-0.086***	0.026
White	0.030	0.046
Religion	0.090***	0.028
Age	-0.069***	0.005
Age squared	0.001***	0.000
LN income	0.055***	0.015
Education	-0.108**	0.042
Social rented	-0.064	0.044
Private rented	-0.033	0.035
Socialise	0.237***	0.042
Constant***	5.580***	0.180
R Squared	.150	
Sample Size	17,228	
Significance	***<1%; **<5%; *<10%	

The regression coefficients show the association of the variable with the outcome (happiness) holding all other factors in the table constant.

Results for the regions are relative to respondents who live in London.

Results for social and private rented accommodation are relative to respondents who are home owners.

The following variables had positive coefficients and had a statistically significant association with **higher** happiness scores¹¹:

- Those that had participated in moderate intensity sport within the last 4 weeks. On average they reported happiness scores 0.8% greater than those who had not.
- Those that had visited a heritage site in the last 12 months. On average they reported happiness scores 1.6% greater than those who had not.
- Those that had attended an arts event within the last 12 months. On average they reported happiness scores 0.8% greater than those who had not.

Given that wellbeing does not vary greatly due to external factors, the changes described above are non-trivial.

Conversely, the following had negative coefficients and had a statistically significant association with **lower** happiness scores:

- Those that had visited a library within the last 12 months. On average they reported happiness scores 1.0% less than those who had not.

The reasons underlying this finding are not clear. Further work will be needed to understand whether the nature of library use and/or the happiness levels of those groups using libraries are key factors.

Engagement with the following DCMS sectors was **not** found to be significantly associated with happiness within the model:

- Those that had visited a museum or gallery in the last 12 months
- Those that had participated in arts activities (as opposed to attending) as defined in table 1 in the last 12 months.

¹¹ Results described are statistically significant at the 95% level unless otherwise mentioned



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