

Valuing subjective well-being benefits from leisure activities

Wheatley, Daniel; Bickerton, Craig

DOI:

[10.1080/11745398.2022.2099436](https://doi.org/10.1080/11745398.2022.2099436)

License:

Creative Commons: Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)

Document Version

Publisher's PDF, also known as Version of record

Citation for published version (Harvard):

Wheatley, D & Bickerton, C 2022, 'Valuing subjective well-being benefits from leisure activities: informing post-Covid public funding of arts, culture and sport', *Annals of Leisure Research*.
<https://doi.org/10.1080/11745398.2022.2099436>

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

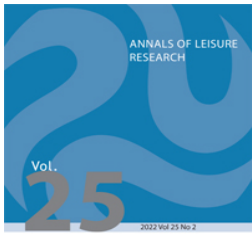
Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.



Valuing subjective well-being benefits from leisure activities: informing post-Covid public funding of arts, culture and sport

Daniel Wheatley & Craig Bickerton

To cite this article: Daniel Wheatley & Craig Bickerton (2022): Valuing subjective well-being benefits from leisure activities: informing post-Covid public funding of arts, culture and sport, Annals of Leisure Research, DOI: [10.1080/11745398.2022.2099436](https://doi.org/10.1080/11745398.2022.2099436)

To link to this article: <https://doi.org/10.1080/11745398.2022.2099436>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 16 Jul 2022.



Submit your article to this journal [↗](#)



Article views: 545





View related articles [↗](#)



View Crossmark data [↗](#)

Valuing subjective well-being benefits from leisure activities: informing post-Covid public funding of arts, culture and sport

Daniel Wheatley ^a and Craig Bickerton ^b

^aDepartment of Management, Birmingham Business School, University of Birmingham, Birmingham, UK;

^bNottingham Business School, Nottingham Trent University, Nottingham, UK

ABSTRACT

The Covid-19 pandemic has significantly impacted the leisure sector as lockdowns and social distancing resulted in a temporary shutdown. Using large-scale UK social survey data from two waves of Understanding Society, we employ the life satisfaction valuation method to provide estimates of monetary values of the subjective well-being benefits of leisure activities. We find that well-being benefits to life satisfaction from arts events, visiting museums and moderate sports have a significant monetary value. The value of some leisure activities to domains of satisfaction is higher compared with life satisfaction. The value to leisure satisfaction is particularly high, especially arts activities. Well-being benefits of moderate and mild sport are particularly high for health satisfaction. Meanwhile, activities which involve social interaction, including arts events and moderate sport have greater relevance to job satisfaction. These findings evidence the value of leisure activities, informing arguments for public funding to support and aid recovery in the sector.

KEYWORDS

Arts; culture and sport;
Covid-19 pandemic; leisure;
life satisfaction; subjective
well-being; public funding

Introduction

Leisure activities involving the arts, culture and sport (ACS), including playing musical instruments, attending concerts, visiting museums and historical sites, and participating in team and individual sports, have been shown to occupy the majority of leisure time among many individuals (Cushman, Veal, and Zuzanek 2005; Cabane, Hille, and Lechner 2016). As cultural goods (Throsby 2001; 2003), many of these activities are often supported by public funds as they possess cultural characteristics including historical value, social value and symbolic meaning. However, some of these same characteristics can result in their under-provision and under-consumption if left to market forces as, for example, the costs of maintaining historical sites may outweigh the revenues that can be generated. The focus of this paper is the UK, where funding for arts and culture of £1.6bn was set aside by the UK Government for the period 2018–2022 (Arts Council 2018), and £1bn of sports funding was planned in England for 2017–2021 (Sport England 2016).

CONTACT Craig Bickerton  craig.bickerton@ntu.ac.uk

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

The COVID pandemic has adversely impacted these activities. They have been subject to lockdown and social distancing policies implemented by governments in response to the pandemic. Theatres, cinemas, museums, gyms and swimming pools, for example, were all closed in the UK for long periods in 2020–2021. However, the importance of ACS to people's quality of life has been recognized through funding awarded to keep these facilities and the organizations that run and maintain them afloat. This policy also recognizes the importance of these activities in recovery from the pandemic. In the UK, the government has provided £2bn in loans and grants via its Culture Recovery Fund to support the sector (HM Government 2020). In the academic sphere too, research has begun to report on the importance of leisure activities to well-being as the world emerges from the pandemic. For example, Nofre (2021) comments on the role of night-time leisure activities as a source of social well-being. But what benefits accrue to participants and what value do participants in these activities place on them? Does this justify the public funding that these activities receive?

Our focus in this paper is on investigating the subjective well-being benefits that these activities generate and how they might be valued. Estimating the value of the well-being benefits associated with these activities is highly challenging. Individuals participate in these activities for a range of economic, health (physical and mental) and cultural reasons. Indeed, leisure experiences can be argued as being both social and cultural in nature (Iwasaki 2007, 257–258). Aspects of ACS are, therefore, difficult to measure in monetary terms (Throsby 2001, 32; 2003). Calculating shadow prices using traditional contingent valuation (willingness to pay) methods is problematic leading to potentially significant bias as these methods rely on assumptions of good information and well-defined preferences (see Fujiwara 2013). Engagement in a range of ACS activities has been shown to have statistically significant positive well-being effects (Dolan, Kavetsos, and Vlaev 2014; Brown, MacDonald, and Mitchell 2015; Taylor et al. 2015; Wicker and Frick 2015; Wheatley and Bickerton 2017, 2019; Hand 2018). This paper contributes to the understanding of the well-being benefits of time spent in ACS, and in turn arguments for public funding, through estimation of the economic value associated with engagement in these activities using the life satisfaction valuation method.

We draw on UK-based data from waves 2 (2010–2011) and 5 (2013–2014) of Understanding Society, a nationally representative household social survey. We build on work which has used subjective well-being data to value a range of assets, including public goods and the environment (Levinson 2012; Luechinger 2009; van Praag and Baarsma 2005), unemployment and divorce (Blanchflower and Oswald 2004), informal care (Van den Berg and Ferrer-i-Carbonell 2007) and health (Powdthavee and Van Den Berg 2011). In particular, we contribute to the emerging literature (e.g. Fujiwara 2013; Fujiwara, Cornwall, and Dolan 2014a, 2014b; Downward and Dawson 2016; Orłowski and Wicker 2018) on the use of this method to estimate the value of engagement in leisure activities, namely arts, culture and sport including museums, heritage sites, participating and being an audience to the arts, and sport. These activities are a sub-set of all the activities that fall under the heading of leisure, which is clearly identified in the Understanding Society data. In the analysis conducted in this paper, we use the life satisfaction valuation method, adapting the approaches of Levinson (2012) and Fujiwara (2013), to provide an estimate of the average marginal rate of substitution between annual personal income and

engagement in ACS activities. This gives an estimate of the monetary value of the well-being benefits associated with ACS where well-being is measured subjectively.

Measures of subjective well-being capture how people experience the quality of their lives and incorporate emotional responses and cognitive judgements (Kesebir and Diener 2008). These measures capture 'experienced' utility through responses to questions regarding various aspects of well-being (Kahneman 2000). In this paper, we consider a measure of satisfaction with life overall, but, extending prior research, consideration is also given to specific domains of life comprising measures of satisfaction with job, leisure and health (van Praag, Frijters, and Ferrer-i-Carbonell 2003, 30). This approach allows estimation of the value of ACS to overall satisfaction, and to separate domains of life. Specifically, this paper aims to answer the following research questions:

1. What is the value of the well-being benefits of participation in ACS?
2. Do the well-being benefits of different ACS activities have distinct values in well-being domains?

Well-being effects of leisure activities

Research in the last decade, applying a range of perspectives and statistical techniques, has provided evidence in support of the well-being benefits associated with participation in a number of ACS activities. This work has investigated the scale of the benefits and the mechanisms by which these benefits are achieved.

In two studies exploring the well-being benefits associated with a range of leisure activities, using data for the US and 33 countries respectively, Wang and Wong (2011; 2014) reported well-being benefits from participation in ACS including social interaction, e.g. spending time with relatives, and activities providing self-fulfilment, e.g. listening to music, reading for pleasure and shopping. Similar findings are reported by Schmiedeberg and Schroder (2017) for Germany, and Brajša-Žganec, Merkaš, and Šverko (2011) for Croatia and Grossi et al. (2012) in Italy.

Our focus in this paper is on the UK. Bryson and MacKerron (2017, 9) collected and analysed UK data and found 'theatre, dance, concert' and 'exhibition, museum, library' to be ranked second and third behind intimacy and love-making, among 39 types of activity which influence happiness. Brown, MacDonald, and Mitchell (2015), using Understanding Society data, find a positive association between life satisfaction and participation in sport, heritage and active-creative leisure activities, but a negative association between life satisfaction and reading hobbies and sedentary-creative activities.

Further recent research using Understanding Society, reported in Wheatley and Bickerton (2017; 2019), provides evidence of ACS having a positive impact on overall life satisfaction, leisure and health satisfaction. This research also reports on the role of frequency of engagement in generating these benefits. Hand (2018) uses UK data from the Taking Part Survey and finds positive well-being effects associated with arts activities, although these are less pronounced among happier individuals. It is suggested that this could reflect (i) that the sense of escape and enjoyment derived from the arts may have a lesser effect on someone who is already happy, and/or (ii) that social benefits from engagement in the arts may be lesser among those who are already happy.

A growing body of research has also focused on the specific physical and mental well-being benefits of participation in sport (Taylor et al. 2015). Dolan, Kavetsos, and Vlaev (2014), using Eurobarometer data, find a positive relationship between exercise and physical activity and happiness. Sato, Jordan, and Funk (2015, 2016) find a positive relationship between participation in distance running events and life satisfaction in the USA. Bryson and MacKerron's (2017, 9) UK study, outlined earlier, identified 'sports, running and exercise' as ranking fourth from 39 activities generating happiness. Using the UK Taking Part Survey, Forrest and McHale (2011) and Downward and Rasciute (2011, 344) found happiness to be enhanced by participation in sports.

Downward and Dawson (2016) found less intense active leisure to have greater well-being benefits than more intense leisure which may provide greater benefits to health. They posit that less intense leisure activities improve mental stimulation and satisfaction as they are engaged with in the pursuit of fun, recreation and social interaction. Szabo et al. (2019) similarly report more positive impacts for leisure swimmers compared to competitive swimmers and highlight the role of control over the activity that participants have. Wicker and Frick (2015), using Eurobarometer data, found that while greater engagement in moderate-intensity sport generates subjective well-being benefits, intensity of activity may be subject to diminishing returns.

A number of mechanisms have been highlighted by which engagement in ACS and other leisure activities impact subjective well-being. Becchetti, Pelloni, and Rossetti (2008), using German Socioeconomic Panel data, find that social events, which can include ACS and other leisure activities, produce relational goods such as companionship, emotional support and a sense of belonging and that those who consume more of these relational goods report a positive impact on life satisfaction. Newman, Tay, and Diener (2014) suggest 'bottom up' models whereby subjective well-being is influenced through particular domains such as satisfaction with leisure. This mechanism is explored by Kim, Lee, and Chun (2010) and Kuykendall, Tay, and Ng (2015) who find empirical support for bottom-up models.

Some of the activities with which we are concerned in this paper may have an impact on subjective well-being through other channels. For example, health has been identified as a mediating factor (Huang and Humphreys 2012; Lera-Lopez, Olló-Lopez, and Sanchez-Santos 2017; Downward, Hallmann, and Rasciute 2018). Kuykendall, Tay, and Ng (2015) also find support for 'top down' models where subjective well-being is a function of global and stable personality traits and domain satisfaction is a consequence of subjective well-being rather than its cause. The literature offers a number of explanations for the link between participation in leisure activities and subjective well-being.

Valuation of arts, culture and sport

The public good nature of many ACS activities means that accurate valuation is a difficult exercise. Some have gone so far as to suggest that some of the characteristics of these activities, which reflect cultural and social value, are not measurable on a monetary scale as they possess an intrinsic value that exists independently of an individual or community's ability to evaluate willingness to pay (Throsby 2001; 2003). That said, public investment may act as both an indicator of the perceived value of ACS, as well as itself underlining the need for accurate valuation, which may be used to inform future

funding. While funding of sport and recreation is often motivated by links to both physical and mental health (Taylor et al. 2015), in the case of the arts there are generally considered to be two broad justifications. Firstly, economic justification focuses on public provision arising from market failures associated with non-consumers benefiting from positive spillovers derived from these public goods. Secondly, non-economic justifications argue that the arts have an inherent positive value, or cultural value, which renders them a merit good (Feder 2020, 3; Throsby 2001, 2003). Recent research exploring rationales for public funding of the arts and links between arts funding and consumption, using the case of orchestras, theatres and dance troupes in Israel (Feder 2020) found that there is a differentiated relationship between arts funding and consumption that reflects both the different value of these activities and in turn different rationales for funding. The nature of ACS activities renders estimation, and in turn funding decisions, challenging reflecting a need for reliable valuation methods.

Traditional valuation techniques have been applied to ACS activities in specific cases. For example, Bedate, Herrero, and Sanz (2009) use contingent valuation techniques to estimate the willingness to pay associated with a contemporary art museum in Spain. Meanwhile, Fujiwara, Lawton, and Mourato (2015) use a contingent valuation approach to estimate willingness to pay to maintain library services at current levels of provision in England. However, contingent valuation methods are problematic as already noted and further provide an incomplete picture as they do not capture the cultural value associated with many of these activities (see Throsby 2003). Orłowski and Wicker (2019) provide a review of the valuation methods available for valuing non-market leisure activities and their application in the context of sport, including the use of subjective well-being data for valuation purposes.

A small but growing number of studies have applied the life satisfaction valuation method to value ACS. Life satisfaction valuation studies have either used this approach in the context of a particular facility/amenity or have used large-scale surveys to value certain types of ACS activities. Examples of the former include Del Saz-Salazar et al. (2019) who use the subjective well-being approach to value the Contemporary Art Archives and Collections of the Faculty of Fine Arts of the city of Cuenca in Spain. They compare the life satisfaction valuation method with a contingent valuation estimate and find that willingness to pay is similar under both approaches. In a similar vein, Bakhshi et al. (2015), in a report commissioned by the UK Arts and Humanities Research Council's Cultural Value Project, apply a hybrid subjective well-being and contingent valuation method to the Natural History Museum in London and Tate Liverpool.

In contrast to these case studies, the use of large-scale surveys to value ACS has the advantage of collecting information on a range of activities so that these can be compared using the life satisfaction valuation method. Despite this, their use in the valuation of these activities has been somewhat limited. Tsurumi and Managi (2017) use a representative survey in Japan to compare valuations of the use of leisure time with other factors that influence well-being such as housing conditions, social connections, environmental quality, health and civic engagement and governance. Their findings suggested a benefit to subjective well-being equivalent to a value of \$800USD per hour spent in leisure time.

Orłowski and Wicker (2019) note the limited use of this approach in relation to sport. Downward and Dawson (2016) generate monetary values for the health benefits of participating in sport using UK Taking Part Survey data. They generate total values of £47,620

for low-intensity participation and £37,300 for participation three or more times a week at moderate intensity. Orłowski and Wicker (2018) generate monetary values for sport participation using the German Socioeconomic Panel. They find that people are willing to forgo greater amounts of net monthly income as levels of participation in sports and physical activity increase in frequency. They find that women are prepared to forgo between €195 and €840 in order to participate several times a year, increasing to between €577 and €1471 to participate at least once per week. The equivalent figures for men are €330–€790 and €577–€1662 respectively.

In a series of reports, Fujiwara and co-authors have applied the life satisfaction valuation method. In Fujiwara (2013), the net well-being benefits of involvement in museums, participation in the arts, being an audience to the arts, and participation in sports were estimated. Findings estimated benefits of £3200, £1500, £2000 and £1500, respectively, per person per year. In Fujiwara, Kudrna, and Dolan (2014b), using data from wave 2 of Understanding Society and income data from the British Household Panel Survey, an instrumental variable approach was used to estimate values for engagement with the arts, libraries and sports of £1084, £1359 and £1127 per person per year, respectively. Finally, Fujiwara, Cornwall, and Dolan (2014a) generated an estimate of the overall value of engagement with heritage of £1646 per person per year.

Method

To extend previous research and estimate the value of frequency of engagement in ACS to reported well-being, we use pooled UK panel data from waves 2 (2010–2011) and 5 (2013–2014) of Understanding Society, alternatively titled the UK Household Longitudinal Survey. Understanding Society is a multi-topic longitudinal survey of a stratified nationally representative sample of 40,000 households, using face-to-face and telephone interviews to capture data from household members. The survey aims to improve understanding of social and economic change at household and individual levels. Data on a variety of ACS activities is collected, but only periodically. The analysis utilizes the two available waves of the survey – waves 2 and 5 – that capture ACS participation offering a sample size of c60,000 for our analysis and giving the most comprehensive picture available.¹

Valuing well-being effects

The life satisfaction valuation method, alternatively referred to as the happiness valuation method, differs from more orthodox contingent valuation methods (see Orłowski and Wicker 2019). It regresses measures of well-being on a chosen focus variable (e.g. a public good), income and other variables to estimate the value of the focus variables through calculating utility constant trade-off ratios between the focus variables and income (Luechinger 2009, 483). The life satisfaction valuation method is predicated upon the notion that ‘the relative size of any two coefficients provides information about how one variable would have to change to maintain constant well-being in the face of an alteration in the other variable’ (Blanchflower and Oswald 2004, 1373).

The primary focus of our analysis is the valuation of the frequency of engagement in ACS. The life satisfaction valuation method is used to provide an estimate of the trade-offs between income and engagement in a wide range of ACS activities. Adopting the

approach of Levinson (2012, 872) to our valuation of the subjective well-being effects of ACS we derive the following function:

$$H_{it} = \alpha ACS_t + \gamma Y_i + \beta X_{it} + \eta_t + \epsilon_{it}$$

where satisfaction is a function of engagement in arts, cultural, and sporting activities (ACS_t), income (Y_i), demographic, employment and geographic characteristics (X_{it}) and year fixed effects (η_t), with the latter year fixed effects applied in the final stage models. Distinct from Levinson we do not consider location centrally in our analysis as the evidence does not support leisure activities varying significantly by location. We do include a measure of location (region of residence) in the control variables. Following Levinson (2012, 872), we then use the following equation to measure the average marginal rate of substitution between ACS activities and income, $\partial Y/\partial ACS$:

$$\left. \frac{\partial Y}{\partial ACS} \right|_{dH=0} = -Y \frac{\hat{\alpha}}{\hat{\gamma}}$$

This reflects the level of annual household income (£,000s) necessary to maintain constant well-being when there is an alteration in the frequency of engagement in ACS. Consistent with Fujiwara (2013), we do not use the log of income in our analysis. Instead, we limit the maximum income level (£150,000) in our data to eliminate skewness associated with inequality in distribution among outlying top earners, while only removing outliers accounting for under 0.3% of the sample. Using the reported annual household income measure means that $\partial Y/\partial ACS$ is the ratio of the coefficients of ACS and annual income, $\hat{\alpha}/\hat{\gamma}$.

Applying the life satisfaction valuation method involves a number of stages of analysis and is subject to certain limitations. For example, the validity of the subjective well-being measures, which reflect measures of satisfaction rather than utility, can be questioned although this may reflect 'experience utility' as noted by Kahneman (2000). In addition, subjective well-being measures do not explicitly refer to a specific period of time as questions are of the form 'nowadays' or 'these days'.

A further concern surrounds the potential for reverse causality, i.e. individuals with a happier disposition being more likely to participate in ACS. Factors such as socio-economic status influence norms and expectations, which in turn can influence relative happiness set-points, and it could be that happier individuals engage in ACS as they have, for example, better social networks and/or more disposable income. Evidence based on instrumental variable/two-stage methodologies has addressed the issue of causality (Huang and Humphreys (2012); Wicker and Frick (2015)). Further evidence that offers insight into causality through measurement of change has supported the positive impacts of engagement in ACS to both overall and domain satisfaction, albeit acknowledging that impacts may be less pronounced among those who are generally happier (Hand 2018; Wheatley and Bickerton 2019). Income measures also present a concern as they may be endogenous with measures of happiness. While relationships have long been identified between income and happiness, it is also acknowledged that it takes a non-linear form and is subject to complexities and external factors including relative income levels, and expectations and perceptions around wealth and financial status (Stutzer and Frey 2010, 691).

Measures are also of ordinal form. However, it has been shown that ordinal or cardinal treatment of subjective well-being measures may have little effect on the results, rendering the approach employed suitable (Kristoffersen 2017; Levinson 2012, 873; Luechinger 2009; Ferrer-i-Carbonell and Frijters 2004). Acknowledging these limitations, the method is employed in this paper as it has been shown to successfully enable the valuation of well-being benefits of activities which have either no existing market value or market valuation which may not accurately reflect their benefits (e.g. Levinson 2012, 873; Luechinger 2009; Powdthavee and Van Den Berg 2011). In addition, while certain ACS activities have a market valuation, e.g. cinema, many do not, including activities which involve more active participation (Wheatley and Bickerton 2017; 2019) and instead involve a subjective valuation of time-use.

We use three estimation procedures. Probit estimation (ordinal treatment) is initially performed as a baseline for our estimations, consistent with previous research that has considered the relationship between ACS activities and well-being using cross-sectional data (e.g. Wheatley and Bickerton 2017). OLS regression (cardinal treatment) estimations are performed which generate coefficients which can be used in the valuation stage of the analysis. As per Levinson's (2012) approach, fixed effects are also applied in a final set of estimations. To test for the application of fixed effects, tests of panel structure were conducted. In all cases, the fixed effects test (F -test) shows that intercepts for all cross-sections are not identical, rendering fixed effects estimation suitable. Meanwhile, Hausman tests (statistically significant X^2) suggest that effects may be correlated with explanatory variables rendering the application of random effects potentially biased and therefore unsuitable. Cross-section fixed effects are therefore applied in the third set of estimations.

Extending prior research in this area, the models consider four measures of subjective well-being as dependent variables: satisfaction with life overall, satisfaction with the amount of leisure time, satisfaction with health and job satisfaction. These measures provide insight into not only the overall life satisfaction value of well-being benefits associated with ACS, but also the value of ACS engagement to specific domains of life. The dependent variables are derived from responses to seven-point Likert scale questions, where 1 = completely unsatisfied, 4 = neither satisfied or unsatisfied and 7 = completely satisfied. In addition to life satisfaction, domain satisfaction well-being measures are used as per existing research, including Powdthavee and Van Den Berg (2011) which found different measures of well-being generate starkly different monetary valuations when considering the case of health conditions. We include satisfaction with leisure, given its direct relevance to ACS, and satisfaction with health given associations evident in existing contributions (e.g. Marsh and Bertranou 2012; Creech et al. 2013). We also include job satisfaction as previous research has suggested a potential, but differentiated, relationship between ACS and job satisfaction (see for example Wheatley and Bickerton 2019).

The frequency of participation in ACS activities is included in the analysis as the focus variables, as is a measure of annual household income (£,000s) which is used in the valuation stage. The ACS measures comprise (1) arts activities e.g. dancing, playing musical instruments, painting; (2) arts events e.g. cinema, concerts, theatre; (3) visiting libraries, (4) archives, (5) museums and (6) historical sites; (7) moderate-intensity sports e.g. swimming, football, golf, and (8) mild intensity sports, e.g. bowling, rambling, yoga. For a complete list of ACS included in the Understanding Society survey, see Wheatley and

Bickerton (2017, 41–43). A set of independent variables is included as controls including variables related to economic activity, time-use, region of residence and demographics. Occupation, using UK Standard Occupation Classification major groups, is included in the job satisfaction models. As the analysis utilizes panel data, the standard errors of the models are corrected for clustering by multiple observations of individual sample members, as per Henley (2017).

Results and discussion

The estimation results are presented in Table 1. The results of the probit (ordinal) models, as the most standard approach to regressing subjective well-being measures, provide a baseline and offer a number of consistent findings with existing research into factors influencing subjective well-being. Demographics such as gender (Hodson 1989; Garcia, Molina, and Navarro 2007; Philp and Wheatley 2011), age (Blanchflower and Oswald 2004), health and disability (Jones et al. 2018), presence of dependent children (Garcia, Molina, and Navarro 2007), education (Blanchflower and Oswald 2004; Khattab and Fenton 2009) and marital status all generate results, on the whole, in line with past research.

Negative well-being effects are associated with economic inactivity and unemployment (Stutzer 2004; Stutzer and Frey 2010). Income is positively correlated with job and life satisfaction but has a negative association with leisure time reflecting the trade-offs of time spent in paid work (Kahneman et al. 2006; Clark, Frijters, and Shields 2008; Jorgensen, Jamieson, and Martin 2010). Similarly, working hours and hours of overtime have a negative correlation with well-being (Blanchflower and Oswald 2004; Philp and Wheatley 2011). Finally, occupation group (included in the job satisfaction models) reveals greater well-being among those employed in managerial and professional occupations, but lesser satisfaction among sales and customer services occupations relative to those in elementary occupations.

Turning to participation in ACS, the analysis is indicative of positive associations with measures of subjective well-being. Arts activities and events have positive associations with life and leisure satisfaction. Attending arts events also has a positive association with satisfaction with health, while arts activities have a positive association with job satisfaction. In the latter case, this could reflect the benefits of social interaction, in the form of belonging and social connectedness, being derived from more active involvement in the arts (Becchetti, Pelloni, and Rossetti 2008; Wang and Wong 2011, 2014). Visiting museums more frequently is associated with higher satisfaction with life overall and with leisure time, but is not significantly associated with satisfaction with health. Visiting historical sites is associated with greater reported well-being in all measures except job satisfaction. We find some negative associations with the use of libraries and archives. Greater frequency of engagement in moderate and mild intensity sports has positive associations with all measures of subjective well-being. Overall, we find several positive associations between ACS and subjective well-being measures. We do, though, find fewer statistically significant relationships for participation in ACS with job satisfaction, consistent with existing research, e.g. Wheatley and Bickerton (2019).

The ACS activities we find are statistically significant are those that require more active involvement (both arts and sport) and offer associated social interaction benefits

Table 1. Estimation results: subjective well-being measures and ACS activities.

	Satisfaction with life			Satisfaction with amount of leisure			Satisfaction with health			Satisfaction with job		
	Probit	OLS	Fixed effects OLS	Probit	OLS	Fixed effects OLS	Probit	OLS	Fixed effects OLS	Probit	OLS	Fixed effects OLS
Constant	–	5.198***	7.435***	–	4.777***	5.586***	–	4.695***	10.981***	–	6.083***	7.586***
<i>Frequency of arts, cultural and sporting activities</i>												
Arts activities	0.012**	0.016**	0.012	0.038***	0.059***	0.035**	0.003	0.003	–0.016	0.015**	0.016**	0.008
Arts events	0.023***	0.036***	0.016**	0.023***	0.035***	0.016*	0.008**	0.015***	0.025***	0.003	0.010*	0.018*
Library	–0.007***	–0.008***	0.002	–0.002	–0.003	0.001	0.004*	0.005	0.002	–0.005*	–0.006*	0.001
Archives	0.001	0.000	0.015	0.000	–0.001	–0.007	–0.010*	–0.011	–0.017	0.000	–0.007	–0.006
Museums	0.005	0.009**	0.014**	0.006**	0.007*	0.019**	0.004	0.006	0.002	–0.004	–0.007	–0.002
Historical Sites	0.023***	0.034***	0.006	0.012***	0.019***	0.005	0.014***	0.025***	0.004	–0.003	–0.001	–0.001
Moderate-Intensity Sport	0.023***	0.031***	0.013**	0.028***	0.042***	0.020***	0.040***	0.060***	0.032***	0.005*	0.009**	0.020***
Mild Intensity Sport	0.020***	0.026***	0.004	0.021***	0.030***	0.009	0.027***	0.044***	0.017***	0.006**	0.009**	–0.001
Age	–0.032***	–0.041***	–0.048***	–0.023***	–0.034***	0.018	–0.013***	–0.020***	–0.144***	–0.042***	–0.047***	–0.058***
Age ² /100	0.036***	0.046***	–0.018	0.028***	0.041***	–0.079***	0.016***	0.024***	0.012	0.054***	0.059***	0.026
Male	–0.059***	–0.063***	0.388	0.067***	0.088***	0.677*	–0.027***	–0.024*	1.027	–0.086***	–0.104***	–0.894
Long term illness/disability	–0.357***	–0.461***	–0.125***	–0.194***	–0.285***	–0.065**	–0.680***	–1.062***	–0.386***	–0.129***	–0.187***	–0.030
<i>Highest educational qualifications: reference is no qualifications</i>												
Degree or equivalent	–0.050**	–0.019	0.043	0.029	0.015	0.375*	–0.007	–0.005	–0.067	–0.196***	–0.229***	0.199
A level	–0.094***	–0.085***	–0.009	0.008	–0.016	0.445**	–0.069***	–0.096***	–0.215	–0.171***	–0.200***	0.074
GCSE	–0.068***	–0.079***	0.180	0.009	–0.009	0.412**	–0.050***	–0.079***	0.046	–0.119***	–0.144***	0.232
<i>Marital status: reference is single/never married or in civil partnership</i>												
Married	0.229***	0.299***	0.123*	0.032**	0.061***	0.032	0.081***	0.125***	–0.044	0.094***	0.119***	–0.022
Separated/divorced	–0.011	–0.037*	–0.007	–0.048***	–0.073**	0.023	–0.032*	–0.062**	–0.081	0.054**	0.055*	0.010
Widowed	0.065**	0.092***	–0.231	0.053*	0.067*	0.315**	0.071***	0.109***	–0.067	0.186***	0.192***	–0.436**
Number of children in household aged 0–2	0.103***	0.153***	0.063**	–0.148***	–0.243***	–0.243***	0.042***	0.074***	0.012	–0.026*	–0.028	–0.010
Number of children in household aged 3–4	–0.006	0.028	–0.066*	–0.133***	–0.211***	–0.224***	0.027	0.039	0.047	0.033*	0.043*	–0.018
Number of children in household aged 5–11	–0.012*	–0.009	0.012	–0.108***	–0.169***	–0.080*	–0.005	–0.011	0.025	0.020**	0.019	–0.054**
Number of children in household aged 12–15	–0.031***	–0.039***	0.026	–0.047***	–0.079***	0.010	–0.007	–0.012	0.078**	0.039***	0.044***	–0.003
<i>Government Office Region: reference is East Midlands</i>												
North East	–0.045	–0.065*	–0.427	–0.062**	–0.083**	–0.632	–0.074**	–0.116***	–0.148	–0.021	–0.056	–0.313
North West	–0.018	–0.033	–0.390*	–0.029	–0.036	–0.449	–0.024	–0.041	–0.367	–0.005	–0.014	–0.131
Yorkshire and the Humber	–0.049**	–0.058*	0.235	–0.029	–0.042	–0.341	–0.043*	–0.066*	–0.293	0.019	0.016	–0.484
West Midlands	–0.054**	–0.073**	0.078	–0.110***	–0.159***	–0.411	–0.059**	–0.091***	–0.396	–0.034	–0.042	0.207

East of England	-0.026	-0.029	0.280	-0.041*	-0.068*	-0.321	-0.027	-0.049	-0.169	-0.005	-0.002	-0.312
London	-0.127***	-0.173***	0.219	-0.131***	-0.189***	-0.347	-0.052**	-0.089***	-0.030	-0.051*	-0.060	-0.218
South East	-0.049**	-0.058	0.013	-0.051**	-0.077**	-0.180	-0.032	-0.048	-0.095	-0.004	-0.002	-0.529*
South West	0.008	0.006	0.102	-0.004	-0.012	0.122	-0.001	0.000	0.259	0.071**	0.085**	-0.076
Wales	-0.023	-0.032	-0.125	-0.057**	-0.079**	-0.483	-0.057**	-0.105***	-0.136	0.012	0.022	0.056
Scotland	-0.017	-0.036	-0.449	-0.038*	-0.048	-0.643*	-0.038*	-0.072**	-0.643**	-0.010	-0.000	-0.504
Northern Ireland	0.066**	0.086**	0.035	0.038	0.080**	-0.399	0.021	0.017	0.582	0.030	0.075*	-2.263**
<i>Current economic activity: reference is economically inactive</i>												
Employed	0.179***	0.299***	0.058	0.119***	0.219***	-0.053	0.225***	0.365***	0.146**	-	-	-
Self-employed	0.111***	0.187***	0.104**	-0.090***	-0.121***	-0.059	0.160***	0.249***	0.096	-	-	-
Unemployed	-0.133***	-0.209***	-0.209***	0.063**	0.078*	0.111	0.119***	0.171***	0.107	-	-	-
Education/training	0.298***	0.414***	0.275***	0.039	0.072*	-0.093	0.320***	0.476***	0.273***	-	-	-
Retired	0.425***	0.570***	0.074	0.572***	0.726***	0.246***	0.252***	0.404***	0.252***	-	-	-
<i>Major occupation group (SOC): reference is elementary occupations</i>												
Managers, directors and senior officials	-	-	-	-	-	-	-	-	-	0.280***	0.361***	0.257**
Professional occupations	-	-	-	-	-	-	-	-	-	0.235***	0.314***	0.270**
Associate professional and technical occupations	-	-	-	-	-	-	-	-	-	0.185***	0.249***	0.339***
Administrative and secretarial occupations	-	-	-	-	-	-	-	-	-	0.111***	0.157***	0.099
Skilled trades occupations	-	-	-	-	-	-	-	-	-	0.200***	0.276***	0.021
Caring, leisure and other service occupations	-	-	-	-	-	-	-	-	-	0.296***	0.374***	0.406***
Sales and customer service occupations	-	-	-	-	-	-	-	-	-	-0.087***	-0.097**	-0.090
Process, plant and machine operatives	-	-	-	-	-	-	-	-	-	0.031***	0.059	0.346**
Annual Household Income (£000s)	0.028***	0.035***	0.006	0.005**	0.007**	-0.018***	0.009***	0.011***	-0.010	0.013***	0.017***	0.015**
Working hours	-0.001	0.000	0.000	-0.010***	-0.014***	-0.014***	0.000	0.001	-0.001	-0.006***	-0.007***	-0.006***
Overtime hours	-0.005***	-0.005***	-0.004*	-0.017***	-0.028***	-0.019***	-0.002**	-0.003**	-0.003	0.000	0.000	-0.002
<i>Model diagnostics</i>												
R ²	0.031	0.094	0.001	0.049	0.145	0.017	0.039	0.132	0.012	0.013	0.132	0.001
F-statistic	-	116.32	11.11	-	216.00	14.28	-	189.06	28.81	-	27.81	3.13
Prob > F	-	0.000	0.000	-	0.000	0.000	-	0.000	0.000	-	0.000	0.000
Log pseudolikelihood	-91,713.37	-	-	-104,808.18	-	-	-98,681.56	-	-	-60,508.53	-	-
Wald chi ² (75)	4492.13	-	-	7341.35	-	-	6823.98	-	-	1273.98	-	-
Prob > chi ²	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-

(Continued)

Table 1. Continued.

	Satisfaction with life			Satisfaction with amount of leisure			Satisfaction with health			Satisfaction with job		
	Probit	OLS	Fixed effects OLS	Probit	OLS	Fixed effects OLS	Probit	OLS	Fixed effects OLS	Probit	OLS	Fixed effects OLS
Fixed effects (<i>F</i> -test)	–	–	<i>F</i> = 1.76, 0.000	–	–	<i>F</i> = 1.59, 0.000	–	–	<i>F</i> = 1.63, 0.000	–	–	<i>F</i> = 1.72, 0.000
Random effects (Hausman test)	–	–	χ^2 = 885.83, 0.000	–	–	χ^2 = 35,902.26, 0.000	–	–	χ^2 = 1635.98, 0.000	–	–	χ^2 = 174.26, 0.000
Number of Observations	60,414	60,414	60,414	60,403	60,403	60,403	60,503	60,503	60,503	38,832	38,832	38,832

Data source: Understanding Society Wave 2 (2010–2011) and 5 (2013–2014).

Notes: *P*-values of 1%, 5% and 10% are denoted by ***, ** and *, respectively. *P*-values are computed after adjustment of standard errors for clustering by individual.

(Becchetti, Pelloni, and Rossetti 2008; Downward and Dawson 2016). The linear (cardinal) models generate largely consistent results to the probit estimations, suggesting that valuation using linear models is appropriate. Finally, the fixed effects models, also presented in Table 1, add additional robustness to the estimations, accounting for the panel structure of the data. The fixed effects estimations return fewer statistically significant relationships. We find significant positive associations between arts activities and events, visiting museums and sports and measures of subjective well-being, consistent with the Probit and OLS models, but the negative results associated with libraries and archives are not statistically significant casting doubt on the reliability of these results.

Valuation of well-being benefits from ACS

Table 2 presents valuations of the well-being benefits of engagement in ACS, derived from both the OLS and fixed effects estimations. Valuations are presented in pounds sterling as this is consistent with the measure of income used in the Understanding Society survey and provides an indication of the relative monetary values. Our findings are indicative of the well-being benefits of ACS having values in line with previous research using more limited UK data which considered some of the leisure activities included in our analysis (Fujiwara 2013; Fujiwara, Cornwall, and Dolan 2014a; Fujiwara, Kudrna, and Dolan 2014b). For example, the OLS models suggest that participating in moderate-intensity sports is associated with an increase in overall life satisfaction of 0.031 on a seven-point Likert scale, while it is associated with an increase of 0.042 in leisure satisfaction. Using the life satisfaction valuation method, this equates to a value of these sporting activities of £886 and £6000 to life and leisure satisfaction, respectively. The results also suggest that the relative well-being benefits from engagement in moderate sports have a higher value in the domain of leisure satisfaction than they do to overall life satisfaction. It is notable that in our estimations a number of overall life satisfaction values are lower than those associated with specific domains. This reflects that they incorporate a wider range of factors that influence responses when compared with satisfaction with

Table 2. Valuation of ACS activities.

	Satisfaction with life		Satisfaction with amount of leisure		Satisfaction with health		Satisfaction with job	
	OLS	Fixed effects OLS	OLS	Fixed effects OLS	OLS	Fixed effects OLS	OLS	Fixed effects OLS
Annual Income (£000s)	0.035***	0.006	0.007**	-0.018***	0.011***	-0.010	0.017***	0.015**
<i>Valuation of frequency of arts, cultural and sporting activities</i>								
Arts activities	£457	-	£8429	£1944	-	-	£941	-
Arts events	£1029	£2667	£5000	£889	£1364	£2500	£588	£1200
Library	-£229	-	-	-	-	-	-£353	-
Archives	-	-	-	-	-	-	-	-
Museums	£257	£2317	£1000	£1056	-	-	-	-
Historical Sites	£971	-	£2714	-	£2273	-	-	-
Moderate-Intensity Sport	£886	£2133	£6000	£1111	£5455	£3200	£529	£1333
Mild Intensity Sport	£743	-	£4286	-	£4000	£1700	£529	-

Data source: Understanding Society Wave 2 (2010–2011) and 5 (2013–2014).

individual domains which have a greater focus on specific aspects of life and are reflected in higher valuations (Powdthavee and Van Den Berg 2011). The exception is satisfaction with job, which may be viewed by individuals separately from leisure time. These relationships are also, in part, driven by the greater magnitude of the income coefficient to life satisfaction.

Valuations using the results of the fixed-effects models differ from the OLS models, although some consistent patterns are present. Arts events and moderate-intensity sport generate significant well-being benefits across all satisfaction measures, with estimated values to life satisfaction of £2667 and £2133 respectively. Visiting museums remains statistically significant to satisfaction with life (£2317) and leisure (£1056) with values estimated which are consistent with those reported in previous research (Fujiwara 2013). Visiting historical sites, while returning a value of £971 (life overall), £2714 (leisure) and £2273 (health) in the OLS models, is not statistically significant in the fixed effects estimations casting some doubt over the robustness of these valuations. The fixed effects models also suggest more active pursuits including arts activities deliver well-being benefits to leisure time equating to around £1944, while participation in sport is associated with well-being benefits to health of £3200 (moderate sport) and £1700 (mild sport), consistent with the health benefits accrued from these activities (Taylor et al. 2015). Benefits to job satisfaction are again fewer, although we do find some evidence of positive spillover from arts events and moderate sport, perhaps reflecting social interaction benefits as already noted, with the greatest value of these well-being benefits (£1333) associated with moderate sports.

Overall, the life satisfaction valuation method suggests that some of the largest benefits from engagement in ACS are to leisure satisfaction, which is perhaps not surprising given our focus on activities engaged in during leisure time. However, the OLS analysis also suggests that arts events, visiting museums and historical sites, and moderate and mild intensity sports generate well-being benefits to life satisfaction. Fewer results for health satisfaction are statistically significant, although the benefits associated with more active involvement in sports are evident in the statistically significant and relatively high valuations. The causality present in this relationship, however, may be questioned. It could reflect the benefits of healthier active lifestyles but equally could reflect those who are less able or healthy being unable to access these activities and their associated benefits. Job satisfaction benefits appear relatively smaller, consistent with individuals separating time spent in leisure activities, including the benefits of ACS, from paid work (Wheatley and Bickerton 2019). Meanwhile, the ACS activities which return greater valuations are also those which involve others, lending further support to the social interaction benefits which may be derived from these leisure activities (the relational goods argument of Becchetti, Pelloni, and Rossetti (2008)) and the importance of supporting these activities in a recovery from the pandemic.

Conclusion

This paper has applied the life satisfaction valuation method to estimate the value of ACS leisure activities to specific domains of satisfaction and their relationship to overall life satisfaction. We do this in the context of the impact of the Covid-19 pandemic on the leisure sector with the aim of providing evidence of the relative value of leisure activities at the

individual level to inform ongoing debates over the public funding of the sector. Adopting three estimation procedures, probit, OLS and fixed effects OLS regression using UK data from waves 2 (2010–2011) and 5 (2013–2014) of *Understanding Society*, the primary contribution of this paper is in providing estimates for the value of the well-being benefits of ACS activities.

Our estimates suggest that the well-being benefits associated with arts events, visiting museums and historical sites and participating in moderate sports have significant value to life satisfaction. Importantly, we find significant differences in the valuation of certain activities to specific domains of satisfaction compared with overall life satisfaction. The value of well-being benefits to leisure satisfaction is particularly high relative to other satisfaction measures. Participating in arts activities, attending arts events, visiting museums, and engaging in moderate-intensity sport all provide well-being benefits that have substantive valuations. The results also provide evidence in support of the well-being benefits of engagement in sport to reported satisfaction with health consistent with existing research and provides further support to the evidence base regarding the spillover benefits of social interaction (with colleagues for example) in non-work time to job satisfaction, which may be derived from involvement in more active arts events and moderate sports.

Overall, the findings support the notion of well-being benefits being derived from engagement in ACS, and further, that these benefits have differing values to specific domains of life. These benefits, and the more highly valued benefits associated with activities involving social interaction, in particular, will have been forgone during the periods of lockdown in the COVID pandemic when venues were closed and social mixing prohibited. Ideally, future waves of *Understanding Society* and similar surveys elsewhere would include recurring modules of questions on participation in ACS leisure activities to allow further research into the valuation question and the impact of the pandemic, e.g. after experiencing a period of non-consumption would valuations increase as a result of pent-up demand? Nevertheless, the results presented, in finding statistically robust values of ACS activities to well-being, provide support to arguments for funding the arts, culture and heritage, and sport and ensuring that these activities recover from the pandemic. As many governments will be seeking not just to wind down pandemic-specific support packages but also to take action to restore public finances these arguments will become more difficult with risks to the funding landscape for ACS leisure activities. Our results suggest that there is a strong case for this funding based on the value of benefits that sit outside the accounting frameworks of treasury departments.

While the results are consistent with a range of ACS activities having a positive relationship with reported well-being, it should be acknowledged that factors including socio-economic and demographic differences render certain groups of individuals more or less likely and/or able to access certain ACS activities. Those engaged in these activities may, therefore, possess certain common characteristics which may extend to levels of reported well-being. Factors influencing well-being including economic activity and social status may be central in driving engagement in certain activities which in turn deliver well-being benefits. In influencing relative access to well-being benefits these factors can themselves also be argued as offering a further rationale for funding to support ACS to widen accessibility. The life satisfaction valuation method employed is also subject to limitations as noted in the method section, including the assumption of

income as being exogenous to subjective well-being. This does leave the exact valuations provided in the analysis subject to a degree of error. There are also both conceptual and empirical challenges associated with measuring the value of cultural goods as noted in the introduction (see Throsby 2001, 2003). However, more traditional contingent valuation methods themselves are subject to significant limitations. The life satisfaction valuation technique employed in this paper provides a well-being-based valuation of the effects of engagement in a range of ACS activities evidencing significant, but differentiated, values to subjective well-being.

Note

1. There are some relevant questions relating to ACS participation in a later wave of the survey, wave 8, but these are only included in the youth questionnaire which is targeted at 10–15-year-olds and does not provide data comparable with that of the earlier waves.

Acknowledgements

Compliance with ethical standards: the research utilized secondary data, and as such did not involve research involving human participants and/or animals and/or informed consent.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Daniel Wheatley is a Reader in the Department of Management at University of Birmingham. His research focuses on well-being and work including job quality, work–life balance, flexible working arrangements and work-related travel, and he has a wider interest in relationships between aspects of time-use and well-being. He is the author of *Well-being and the Quality of Working Lives* and *Time Well Spent: Subjective Well-being and the Organization of Time*. His work has appeared in a number of edited volumes, and in peer-reviewed journals including the *Cambridge Journal of Economics*; *Industrial Relations Journal*; *New Technology, Work and Employment*; *Work and Occupations*, and; *Work, Employment and Society*.

Craig Bickerton is a Senior Lecturer in the Economics Division of Nottingham Business School. His areas of research interest include well-being, welfare and the environment. He has significant previous experience of policy development and practice in these areas as a professional economist in the public sector in the UK. He is currently a member of the Economic and Social Research Bureau (ESRB) at Nottingham Business School.

ORCID

Daniel Wheatley  <http://orcid.org/0000-0002-6753-2867>

Craig Bickerton  <http://orcid.org/0000-0003-4942-3453>

References

Arts Council of England. 2018. *National Portfolio, 2018-2022*. Online. <http://www.artscouncil.org.uk/about-us/how-and-where-we-invest-public-money>.

- Bakhshi, H., D. Fujiwara, R. Lawton, S. Mourato, and P. Dolan. 2015. *Measuring Economic Value in Cultural Institutions*. Arts and Humanities Research Council.
- Becchetti, L., A. Pelloni, and F. Rossetti. 2008. "Relational Goods, Sociability and Happiness." *Kyklos* 61 (3): 343–363.
- Bedate, A., L. C. Herrero, and J. A. Sanz. 2009. "Economic Valuation of a Contemporary art Museum: Correction of Hypothetical Bias Using a Certainty Question." *Journal of Cultural Economics* 33 (3): 185–199.
- Blanchflower, D. G., and A. J. Oswald. 2004. "Wellbeing Over Time in Britain and the USA." *Journal of Public Economics* 88 (7-8): 1359–1386.
- Brajša-Žganec, A., M. Merkaš, and I. Šverko. 2011. "Quality of Life and Leisure Activities: How Do Leisure Activities Contribute to Subjective Well-Being?" *Social Indicators Research* 102: 81–91.
- Brown, J. L., R. MacDonald, and R. Mitchell. 2015. "Are People Who Participate in Cultural Activities More Satisfied With Life?" *Social Indicators Research* 122 (1): 135–146.
- Bryson, A., and G. MacKerron. 2017. "Are You Happy While You Work?" *The Economic Journal* 127 (599): 106–125.
- Cabane, C., A. Hille, and M. Lechner. 2016. "Mozart or Pelé? The Effects of Adolescents' Participation in Music and Sports." *Labour Economics* 41: 90–103.
- Clark, A. E., P. Frijters, and M. A. Shields. 2008. "Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles." *Journal of Economic Literature* 46 (1): 95–144.
- Creech, A., S. Hallam, M. Varvarigou, H. McQueen, and H. Gaunt. 2013. "Active Music Making: A Route to Enhanced Subjective Well-Being among Older People." *Perspectives in Public Health* 133 (1): 36–43.
- Cushman, G., A. Veal, and J. Zuzanek. 2005. *Free Time and Leisure Participation: International Perspectives*. Wallingford: CABI Publishing.
- Del Saz-Salazar, S., A. Navarette-Tudela, J. R. Alcalá-Mellado, and D. C. Del Saz-Salazar. 2019. "On the Use of Life Satisfaction Data for Valuing Cultural Goods: A First Attempt and a Comparison with the Contingent Valuation Method." *Journal of Happiness Studies* 20: 119–140.
- Dolan, P., G. Kavetsos, and I. Vlaev. 2014. "The Happiness Workout." *Social Indicators Research* 119 (3): 1363–1377.
- Downward, P., and P. Dawson. 2016. "Is It Pleasure or Health from Leisure That We Benefit from Most? An Analysis of Well-Being Alternatives and Implications for Policy." *Social Indicators Research* 126 (1): 443–465.
- Downward, P., K. Hallmann, and S. Rasciute. 2018. "Exploring the Interrelationship Between Sport, Health and Social Outcomes in the UK: Implications for Health Policy." *European Journal of Public Health* 28 (1): 99–104.
- Downward, P., and S. Rasciute. 2011. "Does Sport Make You Happy? An Analysis of the Well-Being Derived from Sports Participation." *International Review of Applied Economics* 25 (3): 331–348.
- Feder, T. 2020. "Normative Justification for Public Arts Funding: What Can We Learn from Linking Arts Consumption and Arts Policy in Israel?" *Socio-Economic Review*, 18 (1): 193–213. doi:10.1093/ser/mwy001.
- Ferrer-i-Carbonell, A., and P. Frijters. 2004. "How Important is Methodology for the Estimates of the Determinants of Happiness?" *The Economic Journal* 114 (497): 641–659.
- Forrest, D.K., McHale, I.G. (2011). Subjective Well-Being and Engagement in Sport: Evidence from England. In *The Economics of Sport, Health and Happiness*, edited by P. Rodriguez, S. Kesenne, and B.R. Humphreys, 184–189. Cheltenham: Edward Elgar.
- Fujiwara, D. 2013. *Museums and Happiness: The Value of Participating in Museums and the Arts* [online]. Museum of East Anglian Life, April. www.happymuseumproject.org.
- Fujiwara, D., T. Cornwall, and P. Dolan. 2014a. *Heritage and Wellbeing*. English Heritage.
- Fujiwara, D., L. Kudrnat, and P. Dolan. 2014b. *Quantifying and Valuing the Wellbeing Impacts of Culture and Sport*. Department for Culture, Media and Sport.
- Fujiwara, D., R. Lawton, and S. Mourato. 2015. *The Health and Wellbeing Benefits of Public Libraries*. Arts Council England.

- Garcia, I., A. Molina, and M. Navarro. 2007. "How Satisfied are Spouses with Their Leisure Time? Evidence from Europe." *Journal of Family and Economic Issues* 28 (4): 546–565.
- Grossi, E., G. T. Blessi, P. L. Sacco, and M. Buscema. 2012. "The Interaction Between Culture, Health and Psychological Well-Being: Data Mining from the Italian Culture and Well-Being Project." *Journal of Happiness Studies* 13 (1): 129–148.
- Hand, C. 2018. "Do the Arts Make You Happy? A Quantile Regression Approach." *Journal of Cultural Economics* 42 (2): 271–286.
- Henley, A. 2017. "The Post-Crisis Growth in the Self-Employed: Volunteers or Reluctant Recruits?" *Regional Studies* 51 (9): 1312–1323.
- H.M. Government. 2020. *Culture Recovery Fund* [Online]. <https://www.gov.uk/government/groups/culture-recovery-board>.
- Hodson, R. 1989. "Gender Differences in Job Satisfaction: Why Aren't Women More Dissatisfied?" *The Sociological Quarterly* 30 (3): 385–399.
- Huang, H., and B. R. Humphreys. 2012. "Sports Participation and Happiness: Evidence from US Microdata." *Journal of Economic Psychology* 33 (4): 776–793.
- Iwasaki, Y. 2007. "Leisure and Quality of Life in an International and Multicultural Context: What Are Major Pathways Linking Leisure to Quality of Life?" *Social Indicators Research* 82 (2): 233–264.
- Jones, M., K. Mavromaras, P. Sloane, and Z. Wei. 2018. "The Dynamic Effect of Disability on Work and Subjective Well-Being." *Oxford Economic Papers* 70 (3): 635–657.
- Jorgensen, B., R. Jamieson, and F. Martin. 2010. "Income, Sense of Community and Subjective Well-Being: Combining Economic and Psychological Variables." *Journal of Economic Psychology* 31 (4): 612–623.
- Kahneman, D. 2000. "Experienced Utility and Objective Happiness: A Moment-Based Approach." In *Choices, Values and Frames*, edited by D. Kahneman and A. Tversky, 673–692. New York: Cambridge University Press.
- Kahneman, D., A. B. Krueger, D. Schkade, N. Schwarz, and A. A. Stone. 2006. "Would You Be Happier If You Were Richer? A Focusing Illusion." *Science* 312 (5782): 1908–1910.
- Kesebir, P., and E. Diener. 2008. "In Defense of Happiness." In *Capabilities and Happiness*, edited by L. Bruni, F. Comim, and M. Pugno, 60–80. Oxford: Oxford University Press.
- Khattab, N., and S. Fenton. 2009. "What Makes Young Adults Happy? Employment and Non-Work as Determinants of Life Satisfaction." *Sociology* 43 (1): 11–26.
- Kim, B., Y. Lee, and S. Chun. 2010. "An Exploratory Study Examining the Relationships Between the Leisure-Related Variables and Subjective Well-Being of Community Residents." *Annals of Leisure Research* 13 (4): 613–629.
- Kristoffersen, I. 2017. "The Metrics of Subjective Wellbeing Data: An Empirical Evaluation of the Ordinal and Cardinal Comparability of Life Satisfaction Scores." *Social Indicators Research* 130 (2): 845–865.
- Kuykendall, L., L. Tay, and V. Ng. 2015. "Leisure Engagement and Subjective Well-Being: A Meta-Analysis." *Psychological Bulletin* 141 (2): 364–403.
- Lera-Lopez, F., A. Ollo-Lopez, and J. M. Sanchez-Santos. 2017. "How Does Physical Activity Make You Feel Better? The Mediation Role of Perceived Health." *Applied Research in Quality of Life* 12 (3): 511–531.
- Levinson, A. 2012. "Valuing Public Goods Using Happiness Data: The Case of air Quality." *Journal of Public Economics* 96 (9-10): 869–880.
- Luechinger, S. 2009. "Valuing Air Quality Using the Life Satisfaction Approach." *The Economic Journal* 119 (536): 482–515.
- Marsh, K., and E. Bertranou. 2012. "Can Subjective Well-Being Measures Be Used to Value Policy Outcomes? The Example of Engagement in Culture." *Cultural Trends* 21 (4): 299–310.
- Newman, D. B., L. Tay, and E. Diener. 2014. "Leisure and Subjective Well-Being: A Model of Psychological Mechanisms as Mediating Factors." *Journal of Happiness Studies* 15 (3): 555–578.
- Nofre, J. 2021. "Nightlife as a Source of Social Wellbeing, Community- Building and Psychological Mutual Support After the COVID 19 Pandemic." *Annals of Leisure Research*. doi:10.1080/11745398.2021.1964991.

- Orlowski, J., and P. Wicker. 2018. "Putting a Price Tag on Healthy Behavior: The Monetary Value of Sports Participation to Individuals." *Applied Research in Quality of Life* 13 (2): 479–499.
- Orlowski, J., and P. Wicker. 2019. "Monetary Valuation of Non-Market Goods and Services: A Review of Conceptual Approaches and Empirical Applications in Sports." *European Sport Management Quarterly* 19 (4): 456–480.
- Philp, B., and D. Wheatley. 2011. "Time Use, Exploitation, and the Dual-Career Household: Competing Perspectives." *American Journal of Economics and Sociology* 70 (3): 587–614.
- Powdthavee, N., and B. Van Den Berg. 2011. "Putting Different Price Tags on the Same Health Condition: Re-Evaluating the Well-Being Valuation Approach." *Journal of Health Economics* 30 (5): 1032–1043.
- Sato, M., J. S. Jordan, and D. C. Funk. 2015. "Distance Running Events and Life Satisfaction: A Longitudinal Study." *Journal of Sport Management* 29 (4): 347–361.
- Sato, M., J. S. Jordan, and D. C. Funk. 2016. "A Distance-Running Event and Life Satisfaction: The Mediating Roles of Involvement." *Sport Management Review* 19: 536–549.
- Schmiedeberg, C., and J. Schroder. 2017. "Leisure Activities and Life Satisfaction: An Analysis with German Panel Data." *Applied Research in Quality of Life* 12 (1): 137–151.
- Sport England. 2016. *Sport England: Towards an Active Nation, Strategy 2016-2021*. <https://www.sportengland.org/media/10629/sport-england-towards-an-active-nation.pdf>.
- Stutzer, A. 2004. "The Role of Income Aspirations in Individual Happiness." *Journal of Economic Behavior & Organization* 54 (1): 89–109.
- Stutzer, A., and B. S. Frey. 2010. "Recent Advances in the Economics of Individual Subjective Well-Being." *Social Research: An International Quarterly* 77 (2): 679–714.
- Szabo, A., S. Boros, S. Mezei, V. Nemeth, I. Soos, R. de la Vega, R. Ruiz-Barquin, and J. P. Bosze. 2019. "Subjective Psychological Experiences in Leisure and Competitive Swimming." *Annals of Leisure Research* 22 (5): 629–641.
- Taylor, P., L. Davies, D. Wells, J. Gilbertson, and W. Tayleur. 2015. *CASE: A Review of the Social Impacts of Culture and Sport*. Online. Department for Culture, Media and Sport. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/416279/A_review_of_the_Social_Impacts_of_Culture_and_Sport.pdf.
- Throsby, D. 2001. *Economics and Culture*. Cambridge: Cambridge University Press.
- Throsby, D. 2003. "Determining the Value of Cultural Goods: How Much (or How Little) Does Contingent Valuation Tell Us?" *Journal of Cultural Economics* 27 (3–4): 275–285.
- Tsurumi, T., and S. Managi. 2017. "Monetary Valuations of Life Conditions in a Consistent Framework: The Life Satisfaction Approach." *Journal of Happiness Studies* 18 (5): 1275–1303.
- University of Essex. Institute for Social and Economic Research, NatCen Social Research and Kantar Public. *Understanding Society: Waves 1-6, 2009-2015*. 8th ed. Colchester, Essex: UK Data Archive, November 2016. SN: 6614, doi: [10.5255/UKDA-SN-6614-9](https://doi.org/10.5255/UKDA-SN-6614-9).
- Van den Berg, B., and A. Ferrer-i-Carbonell. 2007. "Monetary Valuation of Informal Care: The Well-Being Valuation Method." *Health Economics* 16 (11): 1227–1244.
- van Praag, B. M., and B. Baarsma. 2005. "Using Happiness Surveys to Value Intangibles: The Case of Airport Noise." *The Economic Journal* 115 (500): 224–246.
- van Praag, B. M., P. Frijters, and A. Ferrer-i-Carbonell. 2003. "The Anatomy of Subjective Well-Being." *Journal of Economic Behavior & Organization* 51 (1): 29–49.
- Wang, M., and M. C. S. Wong. 2011. "Leisure and Happiness in the United States: Evidence from Survey Data." *Applied Economics Letters* 18 (18): 1813–1816.
- Wang, M., and M. C. S. Wong. 2014. "Happiness and Leisure Across Countries: Evidence from International Survey Data." *Journal of Happiness Studies* 15 (1): 85–118.
- Wheatley, D., and C. Bickerton. 2017. "Subjective Well-Being and Engagement in Arts, Culture and Sport." *Journal of Cultural Economics* 41 (1): 23–45.
- Wheatley, D., and C. Bickerton. 2019. "Measuring Changes in Subjective Well-Being from Engagement in the Arts, Culture and Sport." *Journal of Cultural Economics* 43 (3): 421–442.
- Wicker, P., and B. Frick. 2015. "The Relationship Between Intensity and Duration of Physical Activity and Subjective Well-Being." *The European Journal of Public Health* 25 (5): 868–872.