

SIMETRICA

*Assessing the wellbeing impacts of
waterways usage in England and
Wales*

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Table of Contents

- 1 Context of the study 2
- 2 Data and methodology 3
- 3 Key findings 4
- 4 Bibliography 7

1 Context of the study

Historically, gross domestic product (GDP) has often been relied upon as a yardstick for a society's progress. Yet it is now commonly recognised that GDP, or economic growth, does not measure everything that is important for societal wellbeing, not least physical and mental health and environmental quality, which are better captured using broader measures of welfare and wellbeing, such as subjective wellbeing (SWB) measures. In fact, levels of SWB have hardly increased in the UK and across the OECD over the last 50 years, despite significant economic growth. Understanding the drivers of SWB can therefore provide important insights for policymakers on what is really important in people's lives.

Measures of SWB reflect how individuals think and feel about their wellbeing. Broadly speaking, subjective wellbeing can be categorised into three areas: (i) *evaluative accounts*, which require cognitive judgements about how people think and feel about their life as a whole; (ii) *hedonic accounts*, which measure people's experiences in the moment; and (iii) *eudemonic accounts*, capturing people's perceptions of meaning, purpose, reward or 'worthwhileness'. The main advantage of asking people to assess their own wellbeing is that paternalism (prescriptive questions that assume certain factors are beneficial for people's wellbeing) can be avoided as it allows them to make their own assessments of their wellbeing.

SWB measurement can be traced back to the 1930s¹ but has expanded greatly in the 21st century, particularly in the UK. This is reflected in key milestones such as the recognition of SWB measures as National Statistics by the Office for National Statistics (ONS) in 2011; the establishment of the What Works Centre for Wellbeing in 2014; and the revised version of the HM Treasury Green Book in 2018², which places greater emphasis on the Wellbeing Valuation approach as a means of valuing non-market services than ever before. Beyond the UK, the OECD has published guidelines on measuring SWB³ and produced the 'Better Life Index' in 2011 which measures the life satisfaction of people in OECD member countries. Governments and organisations in New Zealand⁴ and Canada⁵ are also using SWB measures to inform policymaking and the Government of Australia has recently followed the UK in including SWB analysis and the Wellbeing Valuation approach in its policy evaluation guidelines.⁶

¹ Angner 2011

²https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

³ OECD 2013

⁴ <https://asvb.com.au/2017/08/01/new-zealand-treasury-signs-asvb/>

⁵ Latif, E. (2012). Monetary valuation of cardiovascular disease in Canada. *Economics and Business Letters*, 1(1), 46–52. doi:10.17811/ebl.1.1.2012.46-52

⁶ https://arp.nsw.gov.au/sites/default/files/TPP17-03_NSW_Government_Guide_to_Cost-Benefit_Analysis_0.pdf

This rise in the use of SWB measures in the policy arena has prompted the Canal & River Trust to commission research assessing the contribution that waterways make to wellbeing and SWB. The Trust believes that waterways have the potential to make people happier, reconnect them with their local community, help improve their wellbeing and address health and wellbeing inequalities. With many health indicators in decline, especially in urban areas, the Trust believes it can make a significant contribution to improving the health of the nation and helping to tackle health inequalities.

The objective of this research is to assess the impact of waterways usage on the SWB of users in England and Wales and to value this usage in monetary terms, helping to measure impact in a ‘common currency’ with costs. The rest of this note describes the data and methodology used and the key findings from the research. A full version of the research paper is available on request.

2 Data and methodology

The findings in this note are drawn from two main sources of data:

- i) **The Waterway Engagement Monitor (WEM) (April 2016 - March 2017)**, an online survey, is the Trust’s main tool for measuring brand awareness, engagement, participation and people’s motivations for using inland waterways. It is a nationally representative sample of 11,500 adults from England and Wales. Regarding waterway usage, the WEM focuses on all inland waterways in England and Wales.
- ii) **The Towpath Survey (September 2017)** is administered face-to-face on towpaths, gathering detailed insight on the journey purpose and frequency, as well as motivations of towpath users. A total of 2,781 towpath users participated in the survey. The analysis is focused on fourteen sections of waterway across England and Wales which the Trust consider the most appropriate in demonstrating the relevance and value of waterways representatively at a local level.

Each survey contains a set of four subjective wellbeing questions⁷, designed by the ONS:

- **Life satisfaction** (“Overall how satisfied are you with your life these days?”) – an evaluative SWB measure.
- **Happiness** (“Overall how happy did you feel yesterday?”) – an hedonic SWB measure
- **Anxiety** (“Overall how anxious did you feel yesterday?”) – an hedonic SWB measure.

⁷ Each measure of wellbeing is measured on a scale of 0-10 where 0 is ‘not at all satisfied/happy/worthwhile’ and 10 is ‘completely satisfied/happy/worthwhile’. We note that for the anxiety measure, 0 indicates that someone is ‘not at all anxious’ while 10 indicates that they are ‘completely anxious’.

- **Sense of worthwhile** (“Overall, to what extent do you feel the things you do in your life are worthwhile?”) – an eudemonic SWB measure.

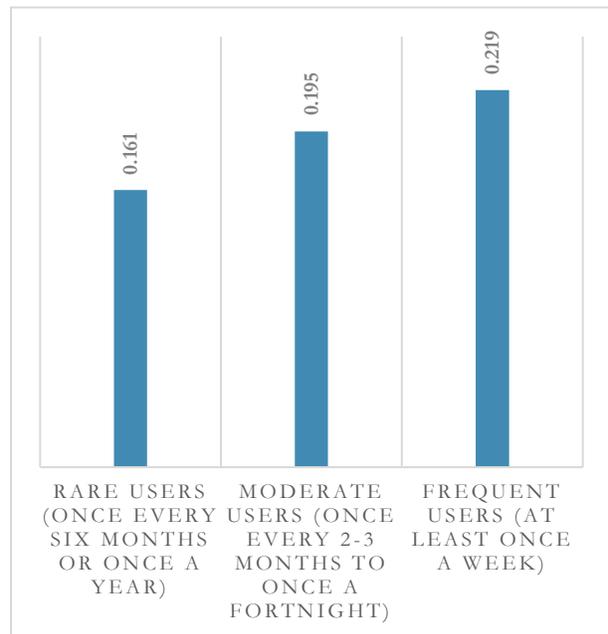
The analysis employs rigorous statistical techniques to consider the extent to which waterways engagement is associated with these wellbeing measures, adjusting also for differences in characteristics and environment between individuals who *use* and *do not use* waterways. Within the WEM, waterways engagement is defined as the number of visits made to a canal towpath in England or Wales over the previous 12-month period (from the date of the interview).

Differences in life satisfaction associated with engagement are converted to monetary values using a robust wellbeing valuation technique⁸ outlined in supplementary guidance to the HMT Green Book⁹ and which features in a number of high-profile publications¹⁰. We opt for life satisfaction as our key measure of wellbeing, as it offers a broad, evaluative assessment of overall wellbeing. The values derived show the increase in income that would be required to produce the same wellbeing improvement as is associated with visiting a waterway. This is known as the compensating surplus measure of welfare and is the approach recommended in the Green Book.

3 Key findings

The numbers presented in Figure 1 show the estimated difference in wellbeing between users (classified by frequency of use) and non-users. **We find that all levels of waterways usage are associated with higher evaluative wellbeing (life satisfaction).** For instance, frequent users report life satisfaction scores which are on average 0.219 higher on the 0-10 scale. The results show that the wellbeing association with waterways usage is greatest for frequent users, implying that the more people use waterways, the more satisfied they are with their lives. However, the large estimated difference in wellbeing between non-users and rare users suggests that there may also be hidden factors affecting this estimate. It is therefore sensible to value usage based on the

Figure 1: Estimated difference in life satisfaction between non-users and users from the WEM survey



⁸ Daniel Fujiwara 2013

⁹ Daniel Fujiwara and Campbell 2011

¹⁰ Bakhshi et al. 2015

differences in wellbeing *between* user groups, as these groups are more likely to be comparable than users and non-users might be.

Based on the difference in wellbeing between rare and frequent users (0.219-0.161=0.058) and estimates of the average number of trips taken by rare and frequent users, **we find that the average trip is associated with a benefit of £6.63.** This association reflects the value people receive from a trip *over and above* the financial and non-financial costs they incur to access the waterways (e.g. the cost of fuel and parking). **Multiplying the per trip value by the estimated number of trips in the financial year 2016-17¹¹, we estimate an indicative total wellbeing value of £3.8bn per annum for all waterways usage in England and Wales.** However, whilst in the regression analysis we statistically control for a large number of *observable* sociodemographic factors which also drive wellbeing, we cannot rule out the possibility that the observed difference in wellbeing are not just due to waterway usage alone: wellbeing could be impacted on by other *hidden* determinants of wellbeing and it could also be the case that happier people tend to use waterways rather than the effect being the other way around. Our statistical methodology, however, uses the data to the best possible extent and is in line with the methods used in most of the academic research in this area¹².

The estimated value associated with visiting a waterway is broadly similar to the wellbeing value of engaging in other cultural activities. A weekly visit to the cinema is associated with a wellbeing value of £4 per visit and doing sport at least once a week produces an estimate of £10.54.¹³ As the wellbeing value per visit for doing these other activities is based on assumptions regarding the number of visits made annually (for that specific activity), direct comparisons of value per visit across wellbeing valuation studies should be made with caution.

Breaking down the average value of £6.63 per visit by the level of waterways usage, we find that there is a larger wellbeing association per trip for the first additional 10 trips (£53.24 per trip), and a smaller value per additional trip for increases beyond that level (£2.93 per trip)¹⁴. This pattern of positive but decreasing additional value per trip is aligned with the wider economic literature: a person is expected to receive less additional satisfaction from each additional waterway visit as they become accustomed to the environment with greater levels of usage (a phenomenon known as diminishing marginal returns).

In terms of hedonic measures of wellbeing, we find that the benefits associated with waterways usage increase with the length of the visit, reflected in higher levels of happiness and lower levels of anxiety for longer visits. The association between happiness and spending over

¹¹ Rare users – 5,309,000 people, Moderate users – 5,379,000 people, Frequent users – 3,626,000 people

¹² Daniel Fujiwara and Campbell 2011

¹³ D. Fujiwara et al. 2014

¹⁴ The £6.63 average trip value is therefore a weighted average of the first additional 10 trips and all other trips beyond that level (126 further trips).

an hour at a waterway, for example, is around two times larger than spending between 15-30 minutes there. These findings add support to our main analysis on the association with evaluative wellbeing and can be used to enrich the Trust's picture of the value of waterways.

Visiting waterways with friends and family is also associated with higher hedonic wellbeing, in terms of both happiness and lower anxiety, than visiting alone or with colleagues. We note however that this finding may be driven in part by the presence of friends and family *per se* (i.e. if the respondent were with their friends/family in another location, they might still report higher levels of happiness), rather than by the impact of friends/family on the individual's experience of waterways.

Overall, the study produces a promising set of indicative results regarding the wellbeing benefits associated with waterway usage in England and Wales. Further research may be fruitful to confirm and extend the key findings of the analysis. For example, the existing surveys could be broadened to incorporate data on additional drivers of waterway usage and wellbeing, as well as further data on health outcomes of waterway users. This will permit better estimates of the role and impact of waterways on health and wellbeing. Furthermore, other Green Book consistent valuation methods can be used to support and develop on our analysis here. A Stated Preference study could be carried out (whereby respondents would be asked directly about the value they attach to waterways) to estimate the heritage and environmental value of these assets to both users and non-users. And the benefits of waterways could also be estimated using Revealed Preference methods, which assess value based on how individuals have behaved in practice (e.g. by looking at how house prices vary with proximity to a waterway or by considering how much people spend on travelling to waterways).

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