

*Supplementary Information:*  
**Happiness Is Greater in More Scenic Locations**

Chanuki Illushka Seresinhe,<sup>1,2\*</sup> Tobias Preis,<sup>1,2,3</sup> George MacKerron<sup>4</sup>  
and Helen Susannah Moat<sup>1,2,3</sup>

<sup>1</sup>Data Science Lab, Behavioural Science, Warwick Business School,  
University of Warwick, Coventry, CV4 7AL, UK

<sup>2</sup>The Alan Turing Institute, British Library, 96 Euston Road, London, NW1 2DB, UK

<sup>3</sup>Department of Physics, Boston University,  
590 Commonwealth Avenue, Boston, Massachusetts 02215, USA

<sup>4</sup>Department of Economics, University of Sussex,  
Jubilee Building, Falmer, Brighton, BN1 9SL, UK

\*To whom correspondence should be addressed; E-mail: C.Seresinhe@warwick.ac.uk.

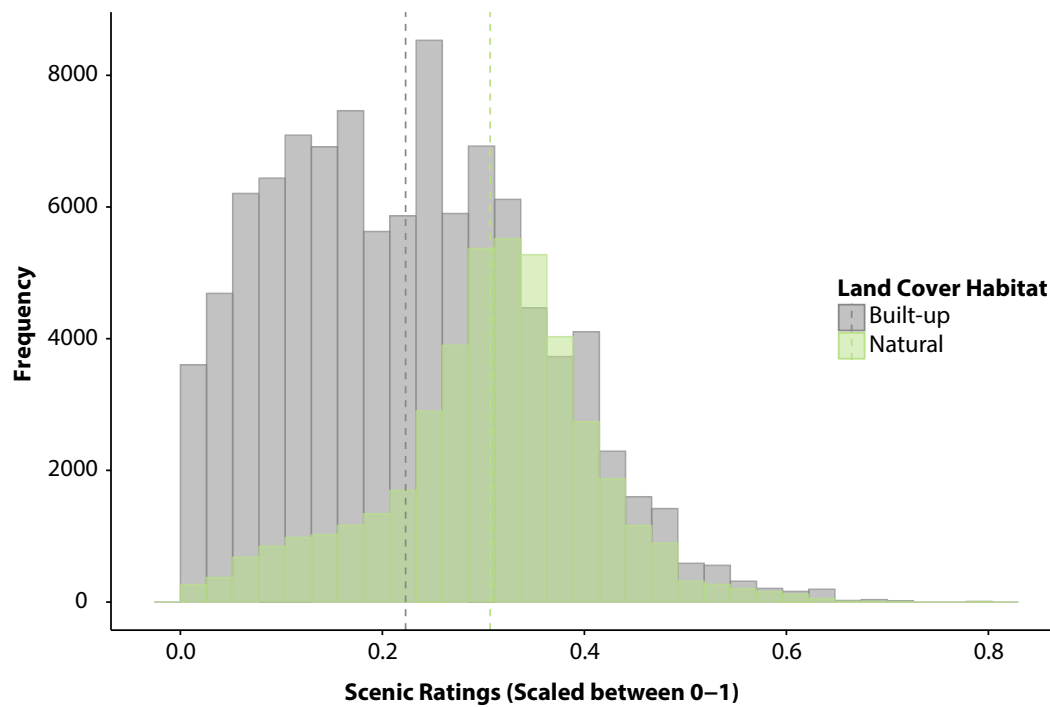
## Supplementary Note 1

Original URLs of scenic images in Fig. 2a, reproduced in full in Supplementary Fig. 3a, from top to bottom: Richard Swales (<http://www.geograph.org.uk/photo/135301>), Tony Atkin (<http://www.geograph.org.uk/photo/189469>), Tom Richardson (<http://www.geograph.org.uk/photo/1012532>), Helen Wilkinson (<http://www.geograph.org.uk/photo/1108720>); Original URLs of unscenic images in Fig. 2b, reproduced in full in Supplementary Fig. 3b, from top to bottom: Peter Whatley (<http://www.geograph.org.uk/photo/986664>), David Long (<http://www.geograph.org.uk/photo/1000263>), Mick Garratt (<http://www.geograph.org.uk/photo/66880>), Doug Lee (<http://www.geograph.org.uk/photo/392588>); Original URLs of scenic built-up images in Fig. 2c, reproduced in full in Supplementary Fig. 3c, from top to bottom: Bob Jones (<http://www.geograph.org.uk/photo/1154040>), Phil D (<http://www.geograph.org.uk/photo/1091209>), Mike Searle (Fig. <http://www.geograph.org.uk/photo/868144>), Glyn (<http://www.geograph.org.uk/photo/755931>). Copyright of the images is retained by the photographers. Images are licensed for reuse under the Creative Commons Attribution-Share Alike 2.0 Generic License. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-sa/2.0/>

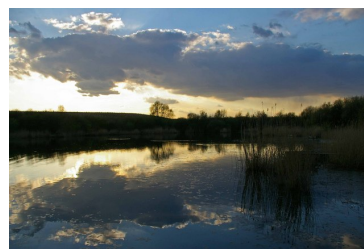
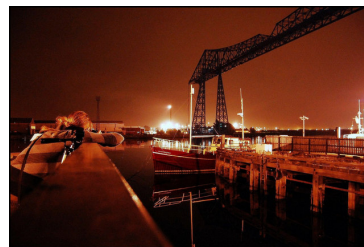
## Supplementary Figures



Supplementary Figure 1: The *Scenic-Or-Not* voting screen. *Scenic-Or-Not* presents users with random geotagged photographs of Great Britain, which they rate on an integer scale of 1 to 10 (10 indicating “very scenic” and 1 indicating “not scenic”). The *Scenic-Or-Not* database has over 217,000 images, sourced from *Geograph* (<http://www.geograph.org.uk/>), covering nearly covering 92.5% of the 234,429 land mass 1 km grid squares of Great Britain. *Scenic-Or-Not* was originally built by mySociety (<https://www.mysociety.org/>) and is now hosted by the Data Science Lab at Warwick Business School (<http://scenicornot.datasciencelab.co.uk/>). The data used in this study, including links to all images which were rated, can be downloaded at <http://scenicornot.datasciencelab.co.uk/votes.tsv>. Scenic image by David Wild (<http://www.geograph.org.uk/photo/35940>). Image is licensed for reuse under the Creative Commons Attribution-Share Alike 2.0 Generic License. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-sa/2.0/>.



Supplementary Figure 2: Scenicness in built-up versus natural locations. We use land cover type data from the 25m-resolution UK Land Cover Map 2007<sup>1</sup> and categorise each location for which we have a rating of scenicness as either a natural or a built-up environment. Table 1 lists land cover types deemed as natural and those deemed as built-up. Scenic ratings tend to be higher in natural environments (marked green) than in built-up environments (marked grey). However, the distributions of ratings exhibit considerable overlap.



(a)

(b)

(c)

Supplementary Figure 3: Full images from Fig. 1. See Supplementary Note 1 for credit, copyright and license details.

## Supplementary Tables

Supplementary Table 1: Land Cover Data.

| LCM2007 class                                            | Habitat  |
|----------------------------------------------------------|----------|
| Broadleaved woodland                                     | Natural  |
| Coniferous woodland                                      |          |
| Arable and Horticulture                                  |          |
| Improved Grassland                                       |          |
| Rough Grassland                                          |          |
| Neutral Grassland                                        |          |
| Calcareous Grassland                                     |          |
| Acid Grassland                                           |          |
| Fen, Marsh and Swamp                                     |          |
| Heather                                                  |          |
| Heather grassland                                        |          |
| Bog                                                      |          |
| Montane habitats                                         |          |
| Inland Rock                                              |          |
| Salt water                                               |          |
| Freshwater                                               |          |
| Supra-littoral Rock                                      |          |
| Supra-littoral Sediment                                  |          |
| Littoral Rock                                            |          |
| Littoral Sediment                                        |          |
| Saltmarsh                                                |          |
| Urban (including Bare and Urban)                         | Built-up |
| Suburban (including Urban industrial and Urban suburban) |          |

In order to determine whether an environment is natural or built-up, we use data on land cover type from the 25m-resolution UK Land Cover Map 2007 (LCM)<sup>1</sup> to categorise each location for which we have scenic ratings as either a natural environment or a built-up environment. The table shows which land cover types have been deemed as natural, and which have been deemed as built-up.

Supplementary Table 2: *Mappiness* activities.

|                                  |                                  |
|----------------------------------|----------------------------------|
| Working, studying                | Texting, email, social media     |
| In a meeting, seminar, class     | Browsing the Internet            |
| Travelling, commuting            | Watching TV, film                |
| Cooking, preparing food          | Listening to music               |
| Housework, chores, DIY           | Listening to speech/podcast      |
| Admin, finances, organising      | Reading                          |
| Shopping, errands                | Theatre, dance, concert          |
| Waiting, queueing                | Exhibition, museum, library      |
| Childcare, playing with children | Match, sporting event            |
| Pet care, playing with pets      | Walking, hiking                  |
| Care or help for adults          | Sports, running, exercise        |
| Sleeping, resting, relaxing      | Gardening, allotment             |
| Sick in bed                      | Birdwatching, nature watching    |
| Meditating, religious activities | Hunting, fishing                 |
| Washing, dressing, grooming      | Computer games, iPhone games     |
| Intimacy, making love            | Other games, puzzles             |
| Talking, chatting, socialising   | Gambling, betting                |
| Eating, snacking                 | Hobbies, arts, crafts            |
| Drinking tea/coffee              | Singing, performing              |
| Drinking alcohol                 | Something else (version < 1.0.2) |

The table above lists all the *Mappiness* activities that respondents can choose. All the activities were included as control variables in our analysis.

Supplementary Table 3: Estimated Model Parameters For Fixed Effects Model without *Mappiness* Predictor Variables

|                                           | Model 1: scenicness only |                 | Model 2: scenicness and environmental variables |                 |
|-------------------------------------------|--------------------------|-----------------|-------------------------------------------------|-----------------|
| <i>Environment Variables</i>              | <i>Coeff</i>             | <i>95% C.I.</i> | <i>Coeff</i>                                    | <i>95% C.I.</i> |
| Scenicness                                | 10.39***                 | [9.062,11.72]   | 6.705***                                        | [5.372,8.038]   |
| Natural habitat                           | —                        | —               | 2.231***                                        | [1.922,2.540]   |
| Percentage of green space                 | —                        | —               | -0.0550                                         | [-0.757,0.647]  |
| Log of area-level median household income | —                        | —               | -0.178                                          | [-0.697,0.340]  |
| Urban                                     | —                        | —               | -1.256***                                       | [-1.749,-0.764] |
| Rural                                     | —                        | —               | 0.807***                                        | [0.380,1.235]   |
| Suburban (base category)                  | —                        | —               | —                                               | —               |
| Observations                              | 138,407                  |                 | 138,407                                         |                 |
| Groups (participants)                     | 15,444                   |                 | 15,444                                          |                 |
| Groups (LSOAs)                            | 14,228                   |                 | 14,228                                          |                 |
| R <sup>2</sup>                            | 43.2%                    |                 | 43.4%                                           |                 |
| Adjusted R <sup>2</sup>                   | 36.0%                    |                 | 36.3%                                           |                 |
| Within R <sup>2</sup>                     | 0.5%                     |                 | 1.0%                                            |                 |

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Supplementary References

- [1] Morton, D. *et al.* Land Cover Map 2007 (vector, GB) v1.2. NERC Environmental Information Data Centre. (2014).