mappiness .org.uk

UNIVERSITY OF SUSSEX

PSYT | Psychological Technologies

Mapping happiness over space, time, & more

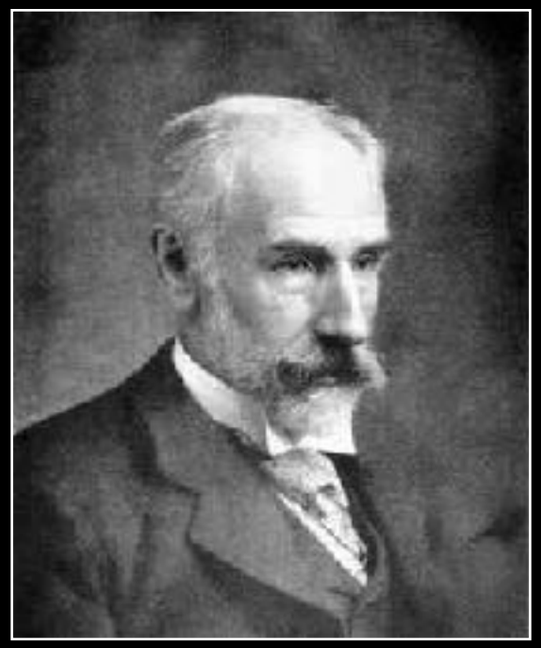
Dr George MacKerron

2017-11-27

Image: Zhongde Liu

?

How happy would it make you to be drinking, by an estuary, the day after your football team lost unexpectedly, at full moon, when Donald Trump had just won an election?



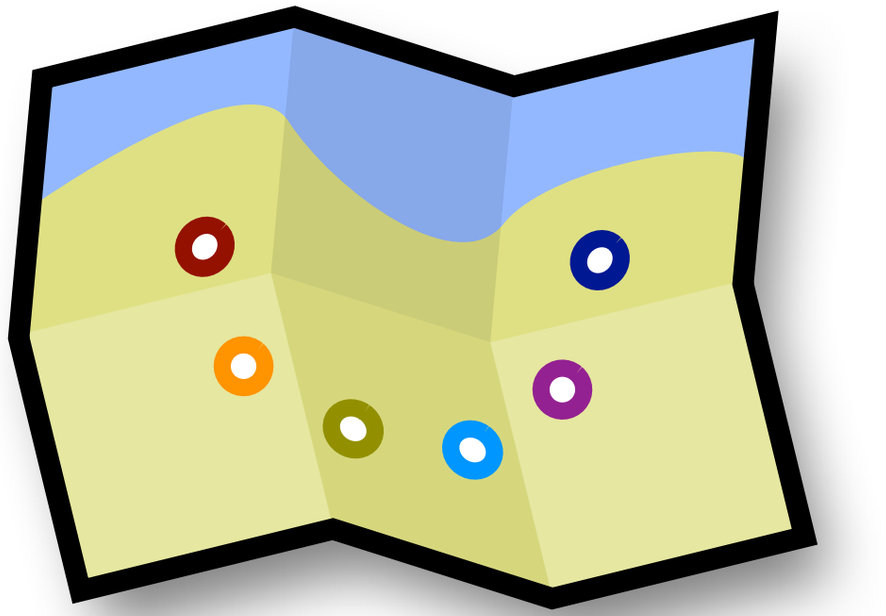
Edgeworth
1881

Hedonimeter

LSE

mappiness

.org.uk



ONS questions — accounts of wellbeing

- "Overall, how satisfied are you with your life nowadays?" ← Evaluative
- "Overall, to what extent do you feel the things you do in your life are worthwhile?" ← Eudemonic
- "Overall, how happy did you feel yesterday?" ↔ Hedonic
- "Overall, how anxious did you feel yesterday?" ↔ Hedonic
  - For all questions, 0 is 'not at all' and 10 is 'completely'

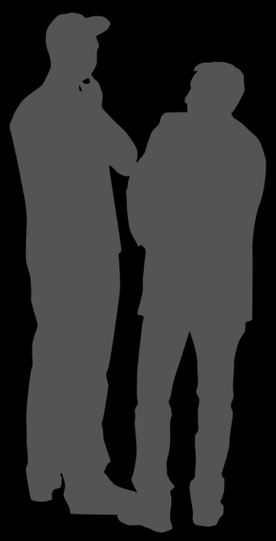
Green space is lovely

But *how* lovely?

Units of analysis

- Countries
  - National mean SWB & national mean EQ

- Individuals
  - SWB ‘nowadays’ & EQ ‘close to’ home



- Experiences
  - SWB & environment *right now*

Image: JuergenG & AlMare at Wikimedia Commons

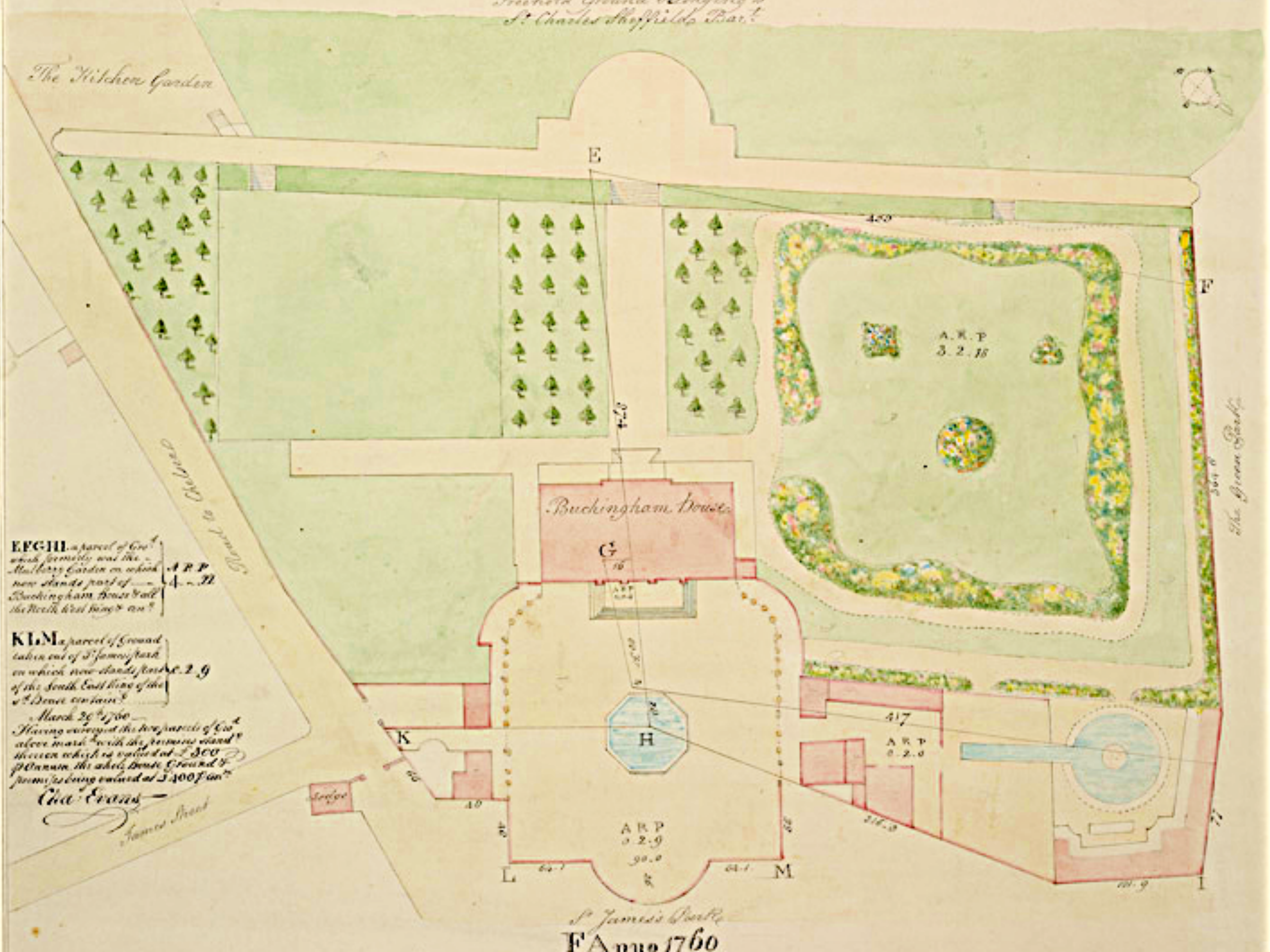
Experience Sampling Method (ESM)

- Hand out notebooks or PDAs
- Beep subjects at random moments
- Ask about experience and context
- In medicine: Ecological Momentary Assessment (EMA)

Images: Pascal Thauvin, Maria Kaloudi

Why ESM?

- No recall bias
  - Accurate and detailed record of experience
- Panel data
  - Fixed effects models using only within-person variation
    - No confounding by unobserved individual-level characteristics: use of response scale, personality, …



The Kitchen Garden
Buckingham House
Road to Chelsea
The Green Park
St James's Park
EFGHI a parcel of Grod which formerly was the Mulberry Garden on which now stands part of Buckingham House & all the North West Wing & con.
KLM a parcel of Ground taken out of St James's Park on which now stands part of the South East Wing of the sd House contains
March 29th 1760
Having surveyed the two parcels of Grod above mark'd with the premises stand'g thereon which is valued at £ 300 p Annum the whole House Ground & premises being valued at £ 400 p ann.
Chas Evans

=

× several million

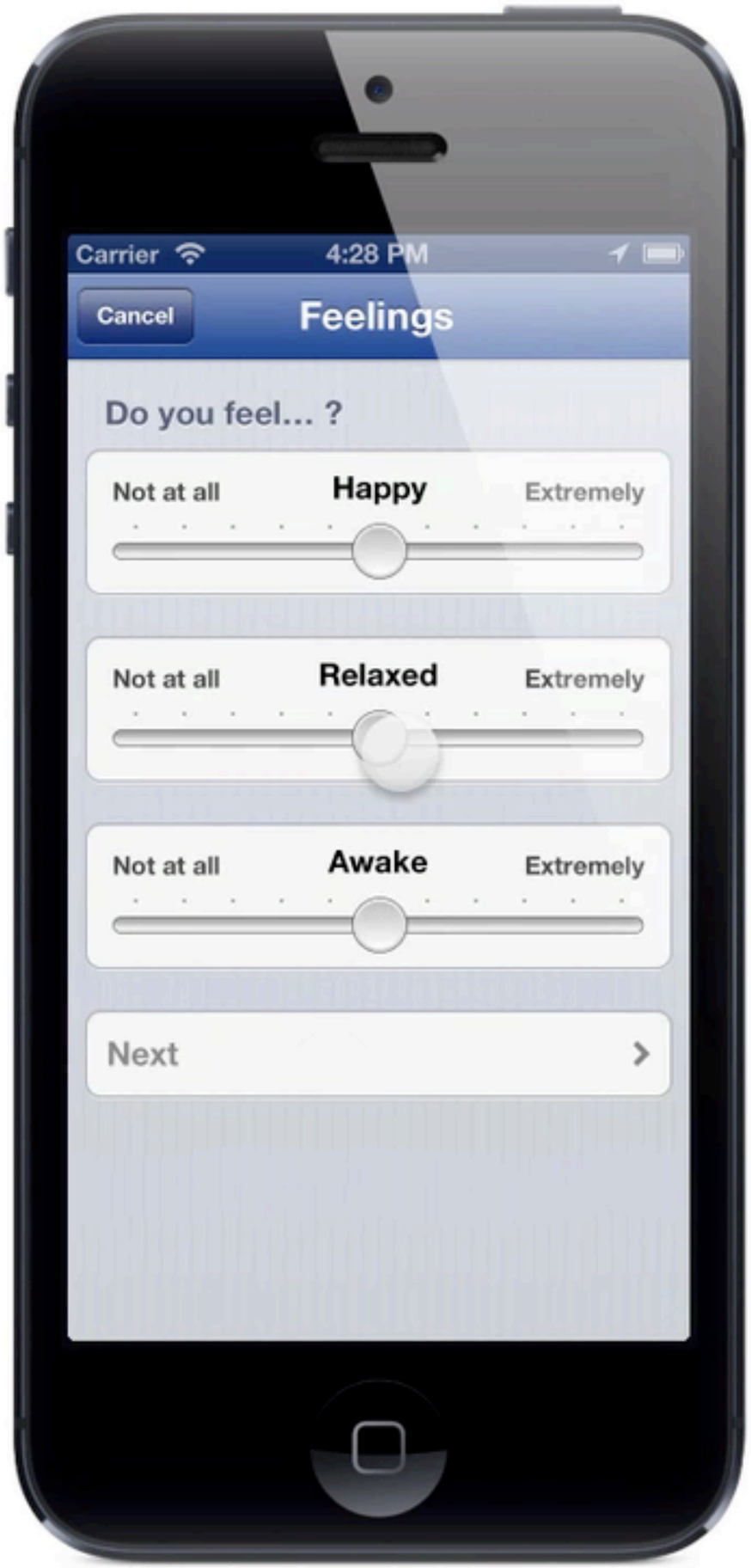
Images: Apple, www.optus.com.au, blackberryhacked.com, Antonio Jiménez Alonso, www.eretailmarket.com

I'm a PC.

I'm a Mac.


Carrier
5:59 PM
Welcome
LSE
mappiness
.org.uk
Find out more
Take part, in 3 easy steps
1
Agree to take part
2
Answer a few questions
3
Confirm beep settings
This all takes under 5 minutes


vodafone UK 3G 17:12
iPod
Wednesday
8
Calendar
Clock
Camera
Maps
Notes
Utilities
Transport
mappiness
How do you feel? Please tell us as soon as you safely can
Close
View
HulloMail
Guardian
App Store
Settings
Phone
Messages
83
Mail
Safari


Carrier
4:28 PM
Cancel
Feelings
Do you feel... ?
Not at all
Happy
Extremely
Not at all
Relaxed
Extremely
Not at all
Awake
Extremely
Next

mappiness data download

https://mappiness.me/4fcc.fb9y.6rxz

LSE mappiness .org.uk

Data download β

explore

map

Explore your responses on an interactive map

charts

View, save and print the same charts you get in the app

gallery

See all the photos you've contributed

download

map — kmz

Download and view your responses using a mapping application like Google Earth

calendar — ics

Trace your responses through time in a calendar application like Google Calendar, iCal or Outlook.

In some applications you can subscribe to this calendar link and new responses will appear automatically:

https://mappiness.me/4fcc.fb9y.6rxz/mappiness.ics

CONNECT | LINE

HAPPY TWEETS | "MAPPINESS" | HAPPIEST PLACES

GEORGE MACKERRON
London School of Economics

CNN

DAX ▼ -0.05

Tuesday is depressing, say British

HISTOIRE DU JOUR

Le mardi est déprimant, foi de Britanniques

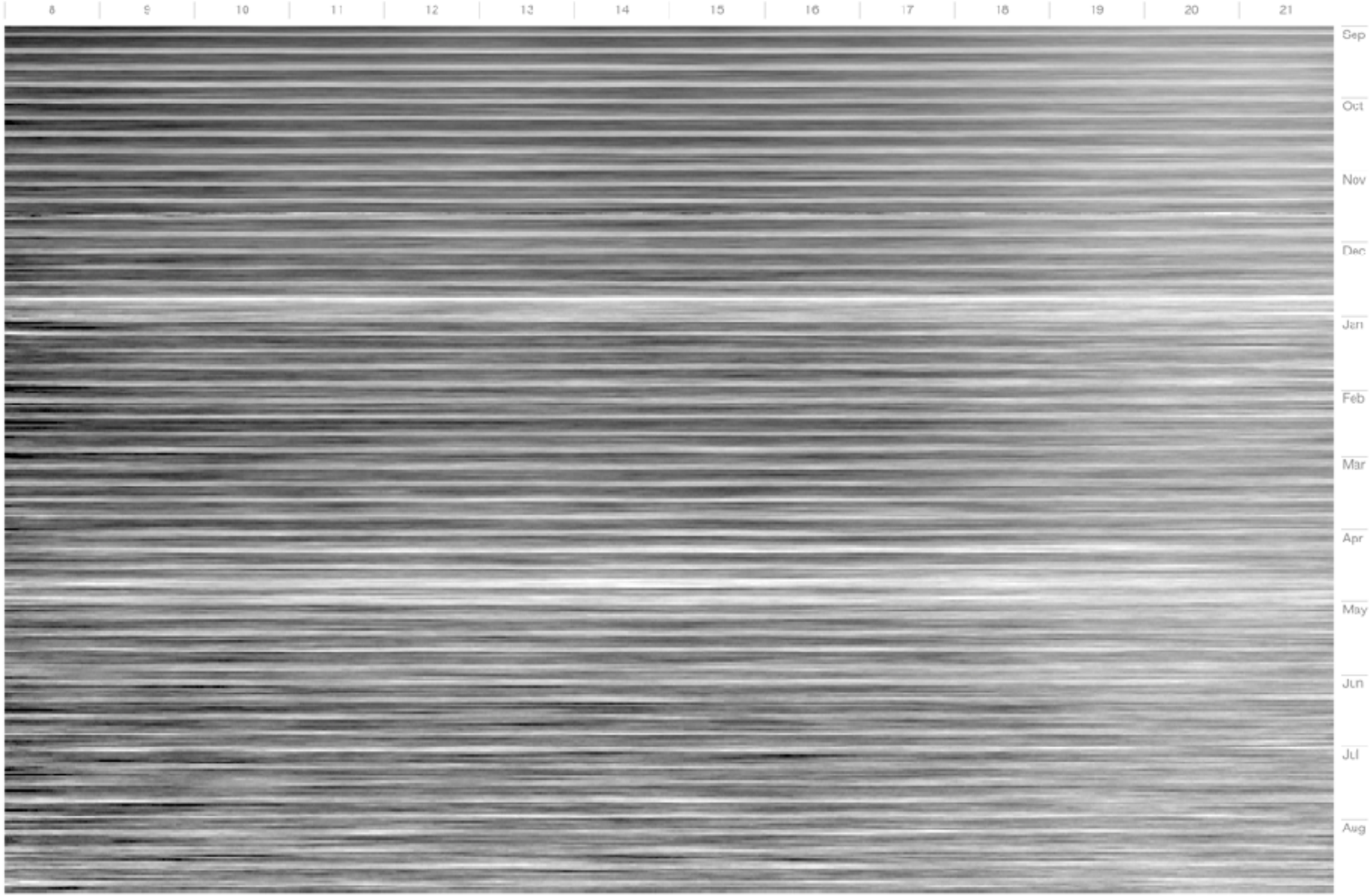
Le lundi, en dépit de sa sinistre réputation, ne serait pas le jour le plus haïssable de la semaine. À en croire des chercheurs de la London School of Economics (LSE), c'est plutôt aux mardis qu'une majorité de la population britannique réserverait ses humeurs les plus sombres. *« Sans doute de nombreuses personnes bénéficient-elles en tout début de semaine de la bonne humeur emmagasinée durant le week-end, avant de se démoraliser peu à peu »*, hasarde George MacKerron, chercheur au département de géographie et d'environnement. Inattendu, cet enseignement est issu d'un sondage mené auprès de quelque 21 000 utilisateurs d'iPhone via l'application Mappiness. Ce logiciel, lancé en août dernier par la LSE, ambitionne de percer les secrets du bonheur. Dans ce but, les milliers de volontaires sont invités deux fois par jour à décrire leur humeur en répondant à un questionnaire électronique, tandis que leur téléphone enregistre instantanément les coordonnées GPS qui permettent de les localiser. Grâce à ces informations, les chercheurs espèrent établir une corrélation entre le bien-être exprimé par les sondés et la qualité de l'environnement - conditions météo, degré de pollution... - dans lequel ils évoluent. *« À terme, nous voudrions ainsi évaluer l'impact du cadre de vie et des problèmes environnementaux sur le bien-être de la population »*, indique George MacKerron. ■

CYRILLE LOUIS

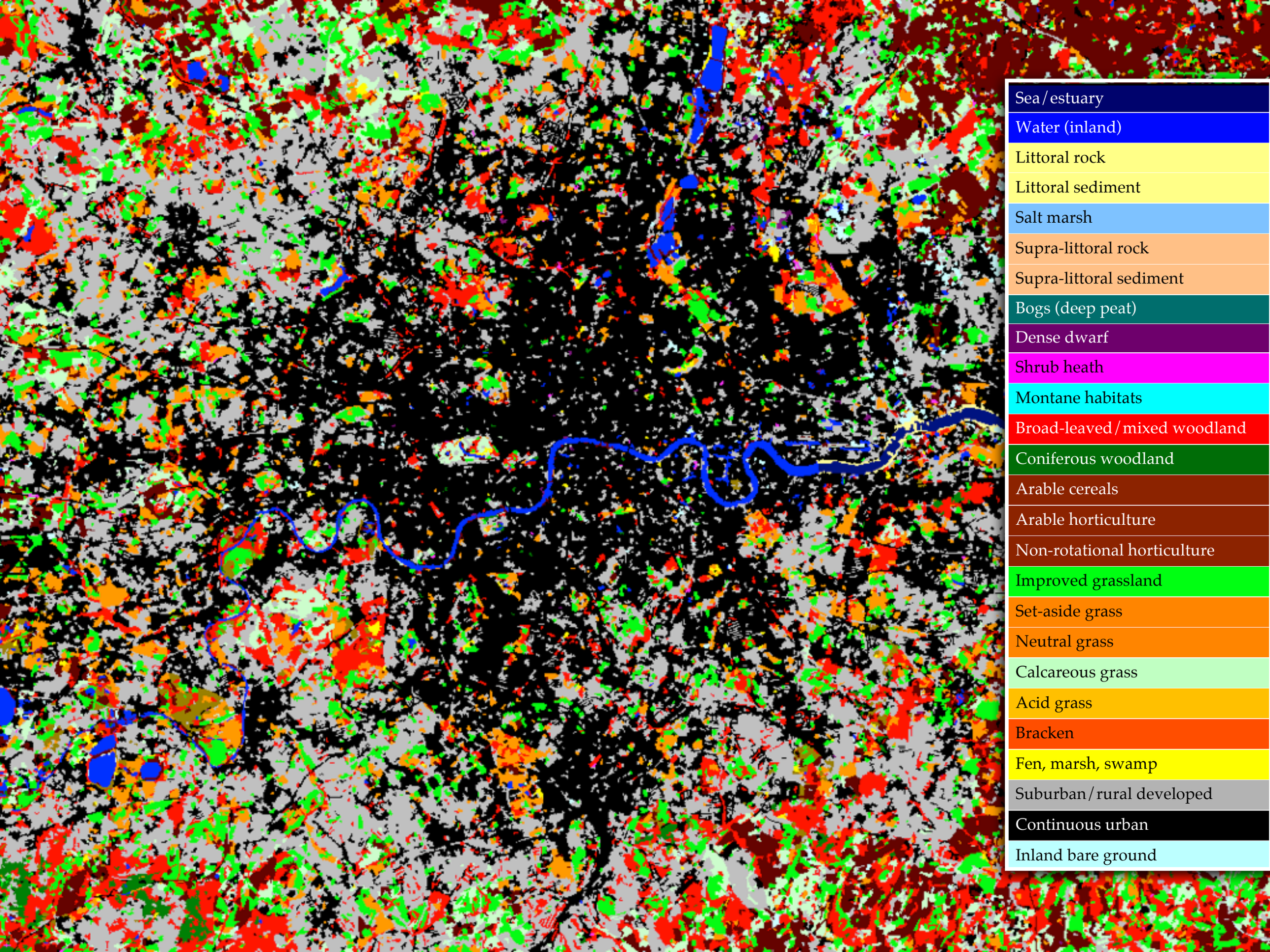
Source: Le Figaro

> 4 million
responses

> 66,000
participants



UK mean happiness, 2010 – 2011 *Mappiness* study, George MacKerron


Sea / estuary
Water (inland)
Littoral rock
Littoral sediment
Salt marsh
Supra-littoral rock
Supra-littoral sediment
Bogs (deep peat)
Dense dwarf
Shrub heath
Montane habitats
Broad-leaved / mixed woodland
Coniferous woodland
Arable cereals
Arable horticulture
Non-rotational horticulture
Improved grassland
Set-aside grass
Neutral grass
Calcareous grass
Acid grass
Bracken
Fen, marsh, swamp
Suburban / rural developed
Continuous urban
Inland bare ground

One big regression

- Happiness (0 – 100) as a function of:
  - habitat
  - weather conditions, daylight
  - activity, companionship
  - location type: in, out, home, work, etc
  - time of day, day of week
  - # of previous responses
  - individual fixed effects (Stata: xtreg, fe)

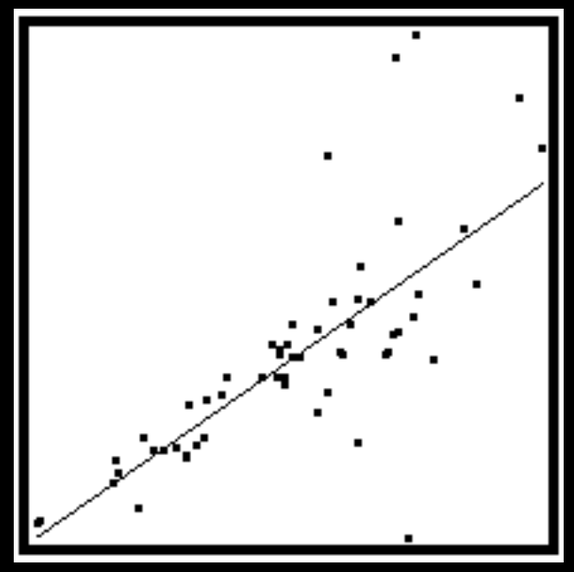
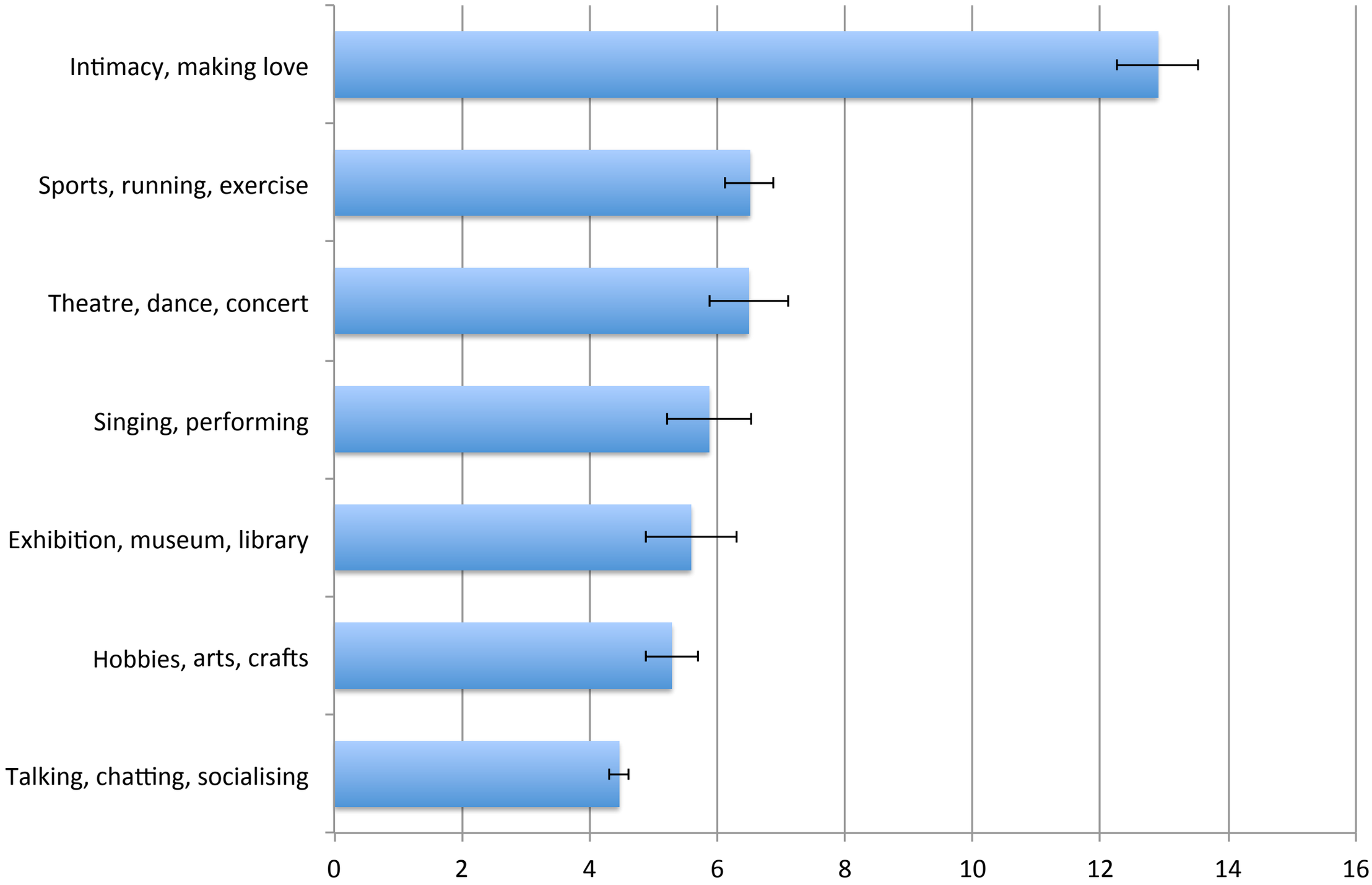
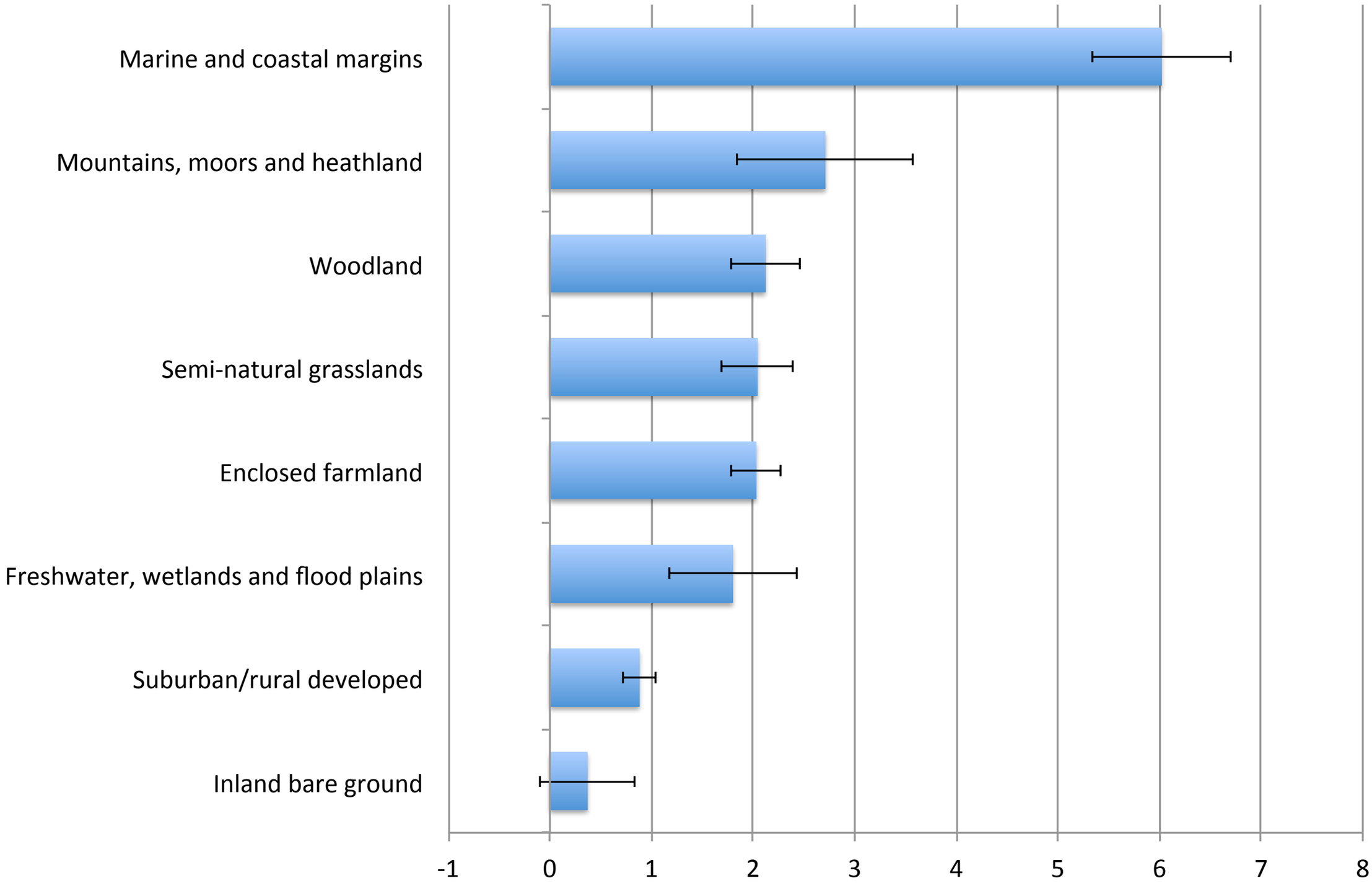


Image: http://davidmlane.com/hyperstat/A121947.html

Happiest activities



Land cover when outdoors



Happiness is greater in natural envs.

- Strong line of evidence on links between environment and happiness
- Read more: **mappin.es/gec**

Global Environmental Change 23 (2013) 992–1000

Contents lists available at SciVerse ScienceDirect

Global Environmental Change

journal homepage: www.elsevier.com/locate/gloenvcha

Happiness is greater in natural environments

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Nature
Green space
Blue space
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ABSTRACT

Links between wellbeing and environmental factors are of growing interest in psychology, health, conservation, economics, and more widely. There is limited evidence that green or natural environments are positive for physical and mental health and wellbeing. We present a new and unique primary research study exploring the relationship between momentary subjective wellbeing (SWB) and individuals' immediate environment within the UK. We developed and applied an innovative data collection tool: a smartphone app that signals participants at random moments, presenting a brief questionnaire while using satellite positioning (GPS) to determine geographical coordinates. We used this to collect over one million responses from more than 20,000 participants. Associating GPS response locations with objective spatial data, we estimate a model relating land cover to SWB using only the within-individual variation, while controlling for weather, daylight, activity, companionship, location type, time, day, and any response trend. On average, study participants are significantly and substantially happier outdoors in all green or natural habitat types than they are in urban environments. These findings are robust to a number of alternative models and model specifications. This study provides a new line of evidence on links between nature and wellbeing, strengthening existing evidence of a positive relationship between SWB and exposure to green or natural environments in daily life. Our results have informed the UK National Ecosystem Assessment (NEA), and the novel geo-located experience sampling methodology we describe has great potential to provide new insights in a range of areas of interest to policymakers.

1. Introduction

1.1. Pathways

There are at least three reasons for thinking that experiences of natural environments will be positively related to health, wellbeing and happiness. First, there appear to be direct pathways by which such experiences affect the nervous system, bringing about stress reduction and restoration of attention. The existence of such pathways – *biophilia* – has plausible evolutionary explanations: an innate human emotional affiliation to nature and living organisms in general is proposed as an adaptation to our reliance on the natural environment throughout all but the past 10,000 years of our history (Wilson, 1993). Affinities with more specific habitats, including savanna and forest, have similarly been postulated on the basis that these habitats would have provided our hominin ancestors with the greatest reproductive success (Falk and Balling, 2010; Han, 2007).

Second, natural environments may be lower in environmental 'bads' that have significant negative impacts on physical and mental wellbeing, which in turn could affect happiness. Adverse health effects of noise and air pollution are well documented. Chronic traffic noise exposure in urban environments can cause severe sleep disturbance, hearing impairment, tinnitus, and raised stress levels, leading to high blood pressure, coronary heart disease, stroke, and possibly immune system and birth defects (Passchier-Vermeer and Passchier, 2000). Similarly, air pollution can lead to a wide range of respiratory and cardiovascular problems (Gouveia and Maisonet, 2005). As noted by Welsch (2006), this link does not require that individuals are conscious of the causal relationship between an environmental problem and their own happiness. However, awareness of a local environmental problem, and of its negative effects on human and ecosystem health, could also act to reduce happiness levels directly and

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?

How happy would it make you to be drinking, ~~by an estuary,~~ the day after your football team lost unexpectedly, at full moon, ~~when Donald Trump had just won an election~~?

NASA/Goddard/Lunar Reconnaissance Orbiter

Gavin Mills, freeimages.com

Happiness is greater in the Five Bells

- Drinking +6 ***
- Drinking × alone –3 ***
- Drinking × weekday AM –2
- Drinking × weekday PM +1 *
- Drinking × pub +1 ***

Social Science & Medicine 156 (2016) 184–191

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Can alcohol make you happy? A subjective wellbeing approach

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Britain

ABSTRACT

There are surprisingly few discussions of the link between wellbeing and alcohol, and few empirical studies to underpin them. Policymakers have therefore typically considered negative wellbeing impacts while ignoring positive ones, used gross overestimates of positive impacts via a naïve 'consumer surplus' approach, or ignored wellbeing completely. We examine an alternative subjective wellbeing method for investigating alcohol and wellbeing, using fixed effects analyses of the associations between drinking and wellbeing within two different types of data. Study 1 examines wave-to-wave changes in life satisfaction and past-week alcohol consumption/alcohol problems (CAGE) from a representative cohort of people born in Britain in 1970, utilising responses at ages 30, 34 and 42 (a sample size of 29,145 observations from 10,107 individuals). Study 2 examines moment-to-moment changes in happiness and drinking from an iPhone-based data set in Britain 2010–13, which is innovative and large (2,049,120 observations from 31,302 individuals) but unrepresentative. In Study 1 we find no significant relationship between changing drinking levels and changing life satisfaction ($p = 0.20$), but a negative association with developing drinking problems (−0.18 points on a 0–10 scale; $p = 0.003$). In contrast, Study 2 shows a strong and consistent moment-to-moment relationship between happiness and drinking events (+3.88 points on a 0–100 scale; $p < 0.001$), although associations beyond the moment in question are smaller and more inconsistent. In conclusion, while iPhone users are happier at the *moment* of drinking, there are only small overspills to *other* moments, and among the wider population, changing drinking levels across several years are not associated with changing life satisfaction. Furthermore, drinking problems are associated with lower life satisfaction. Simple accounts of the wellbeing impacts of alcohol policies are therefore likely to be misleading. Policymakers must consider the complexity of different policy impacts on different conceptions of 'wellbeing', over different time periods, and among different types of drinkers.

1. Introduction

While alcohol can lower wellbeing – globally, alcohol is the fifth biggest risk factor for premature death and disability (Lim et al., 2012), as well as having a contributing role to a range of social problems and economic costs (Baumberg, 2006) – it is also clearly a source of pleasure. However, there are few empirical studies of links between wellbeing and alcohol (see below), and almost no academic discussion of the implications for policy (rare exceptions being Keane, 2009; Room, 2000).

This lack of evidence is an obstacle to developing evidence-based alcohol policies. The main existing approach for looking at the wellbeing impacts of drinking is the 'consumer surplus' approach – but the naïve form that has sometimes been used by policymakers is based on flawed assumptions that produce large overestimates of the positive wellbeing impacts of drinking while largely ignoring negative wellbeing impacts (see below). For example, in relation to recent UK Department of Health proposals to introduce minimum unit pricing, the Treasury conducted an impact assessment using this approach, and found that the costs of minimum pricing (via a loss of positive wellbeing) outweighed its benefits, temporarily halting the policy until a critical note was received from outside experts.

Conversely, other studies estimate the negative wellbeing impacts of drinking while ignoring any positive impacts. Recent studies have found new ways to value negative wellbeing impacts of alcohol, including wellbeing-related 'harms to others' (Johansson

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0277-9536/

“Someone said to me ‘To you football is a matter of life or death!’ and I said ‘Listen, it's more important than that.’”
— Bill Shankly

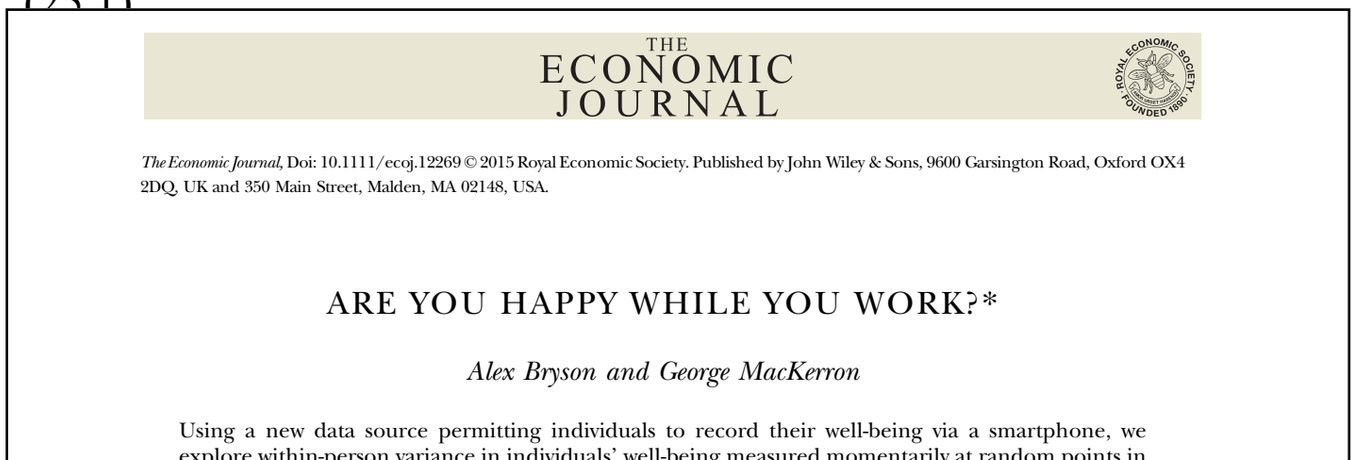
“The natural state of the football fan is bitter disappointment, no matter what the score.”
— Nick Hornby, *Fever Pitch*

Picture: Christopher Bruno, freeimages.com

Mappiness data

Happy (0 – 100)

Activities (in rank order)	*coeff*	*t*
Intimacy, making love	14.20	(44.4)
Theatre, dance, concert	9.29	(29.6)
Exhibition, museum, library	8.77	(25.0)
Sports, running, exercise	8.12	(45.5)
Gardening, allotment	7.83	(22.8)
Singing, performing	6.95	(17.5)
Talking, chatting, socialising	6.38	(75.2)
Birdwatching, nature watching	6.28	(11.4)
Walking, hiking	6.18	(37.0)
Hunting, fishing	5.82	(3.98)
Drinking alcohol	5.73	(54.0)
Hobbies, arts, crafts	5.53	(22.5)
Meditating, religious activities	4.95	(11.2)
Match, sporting event	4.39	(15.2)
Childcare, playing with children	4.10	(19.4)
Pet care, playing with pets	3.63	(17.1)
Listening to music	3.56	(27.6)
Other games, puzzles	3.07	(11.1)
Shopping, errands	2.74	(25.1)
Gambling, betting	2.62	
Watching TV, film	2.55	
Computer games, iPhone games	2.39	
Eating, snacking	2.38	
Cooking, preparing food	2.14	
Drinking tea/coffee	1.83	(18.4)
Reading	1.47	(13.3)
Listening to speech/podcast	1.41	(9.62)
Washing, dressing, grooming	1.18	(11.5)
Sleeping, resting, relaxing	1.08	(11.4)
Smoking	0.69	(3.16)
Browsing the Internet	0.59	(6.13)
Texting, email, social media	0.56	(5.64)
Housework, chores, DIY	-0.65	(-6.59)
Travelling, commuting	-1.47	(-16.2)
In a meeting, seminar, class	-1.50	(-9.01)
Admin, finances, organising	-2.45	(-14.2)
Waiting, queueing	-3.51	(-22.7)
Care or help for adults	-4.30	(-7.75)
Working, studying	**-5.43**	**(-44.0)**
Sick in bed	-20.4	(-67.9)
Something else (version < 1.0.2)	-1.00	(-5.43)
Something else (version >= 1.0.2)	-2.31	(-13.6)



THE ECONOMIC JOURNAL

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ARE YOU HAPPY WHILE YOU WORK?*

Alex Bryson and George MacKerron

Using a new data source permitting individuals to record their well-being via a smartphone, we explore within-person variance in individuals' well-being measured momentarily at random points in

Saturday 14:52

Match, sporting event

Picture: streetmap.co.uk

Stadium data

Amex Stadium

Team: Brighton and Hove Albion
Capacity: 22374
Latitude: 50.8609
Longitude: -0.08014
More info

Directions: To here - From here

Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image IBCAO
Image U.S. Geological Survey

Google Earth

lat 50.111231° lon -1.104413° elev 0 m eye alt 545.97 km

Identify potential fans

- ‘Match, sporting event’
  + outdoors
  + elsewhere (not home, work)
  + within 500m of any stadium

Football match data

- football-data.co.uk
  > Historical Data
  - English + Scottish leagues × 3 seasons

Season 2012/2013
- Premier League (FT & HT results; match stats; match, total goals & AH odds)
- Championship (FT & HT results; match stats; match, total goals & AH odds)
- League 1 (FT & HT results; match stats; match, total goals & AH odds)
- League 2 (FT & HT results; match stats; match, total goals & AH odds)
- Conference (FT & HT results; match stats; match, total goals & AH odds)

Season 2011/2012
- Premier League (FT & HT results; match stats; match, total goals & AH odds)
- Championship (FT & HT results; match stats; match, total goals & AH odds)
- League 1 (FT & HT results; match stats; match, total goals & AH odds)
- League 2 (FT & HT results; match stats; match, total goals & AH odds)
- Conference (FT & HT results; match stats; match, total goals & AH odds)

Season 2010/2011
- Premier League (FT & HT results; match stats; match, total goals & AH odds)
- Championship (FT & HT results; match stats; match, total goals & AH odds)
- League 1 (FT & HT results; match stats; match, total goals & AH odds)
- League 2 (FT & HT results; match stats; match, total goals & AH odds)
- Conference (FT & HT results; match stats; match, total goals & AH odds)

Season 2012/2013
- Premier League (FT & HT results; match stats; match, total goals & AH odds)
- Division 1 (FT & HT results and match odds & AH odds)
- Division 2 (FT & HT results and match odds & AH odds)
- Division 3 (FT & HT results and match odds & AH odds)

Season 2011/2012
- Premier League (FT & HT results; match stats; match, total goals & AH odds)
- Division 1 (FT & HT results and match odds & AH odds)
- Division 2 (FT & HT results and match odds & AH odds)
- Division 3 (FT & HT results and match odds & AH odds)

Season 2010/2011
- Premier League (FT & HT results; match stats; match, total goals & AH odds)
- Division 1 (FT & HT results and match odds & AH odds)
- Division 2 (FT & HT results and match odds & AH odds)
- Division 3 (FT & HT results and match odds & AH odds)

Merge *Mappiness* responses & matches

- On match date = response date and stadium team name ≈ match home team name
  - e.g. Cowdenbeath ≈ Coedenbeath
    - --C -Co Cow owd wde den enb nbe bea eat ath th-
    - --C -Co Coe oed ede den enb nbe bea eat ath th-

Identify fans' teams

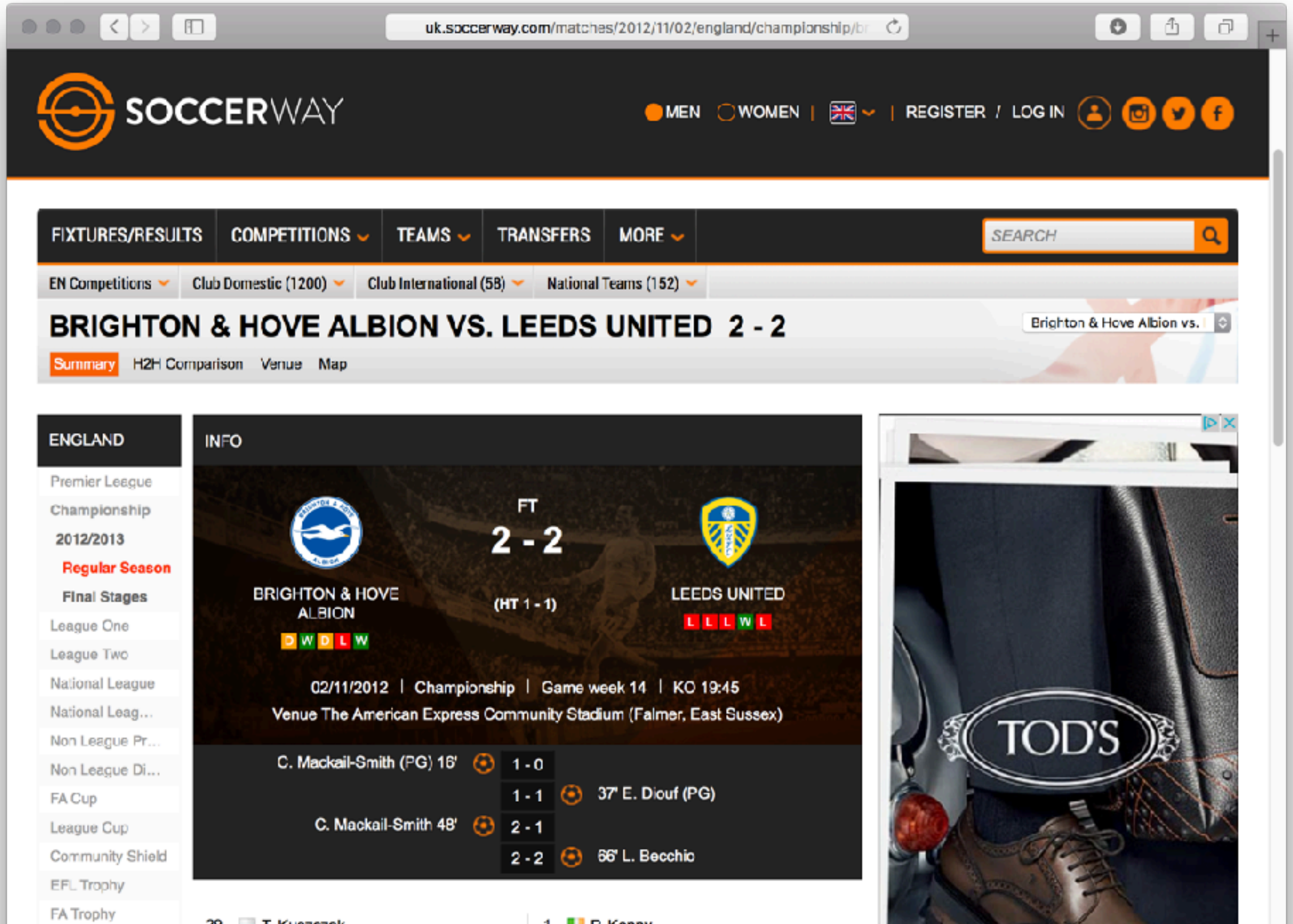
- 2+ matches
  - Assume support for common team
  - *N* = 120

- 1 match
  - Assume support for home team
  - *N* = 319

Follow over full seasons

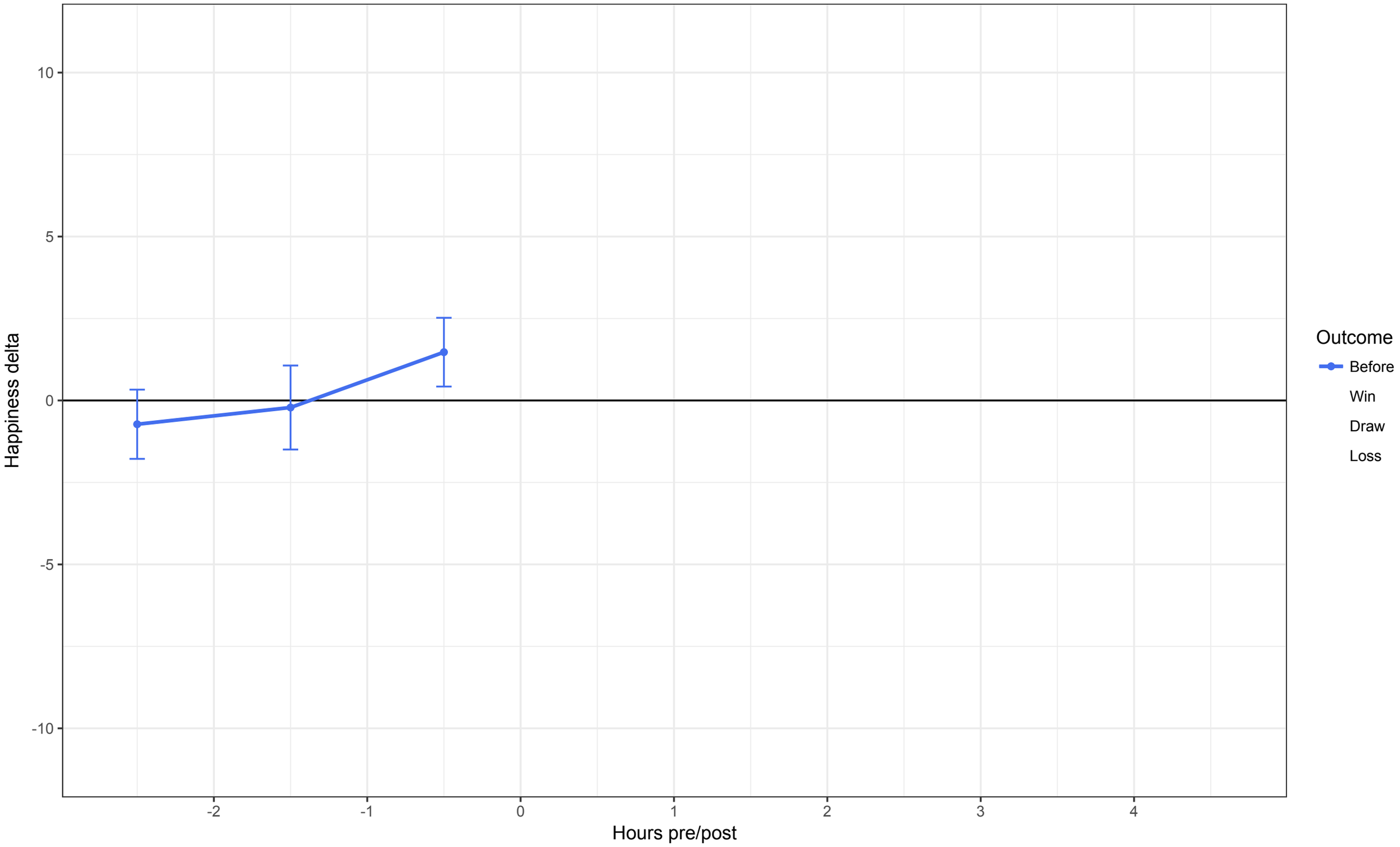
E1	2010-08-07	Crystal Palace	Leicester	3	2	15:00	19 : home : 1 - 0 / 26 : home : 2 - 0 / 41 : home : 3 - 0 / 57 : away : 3 - 1 / 84 : away : 3 - 2
E2	2010-08-07	Sheffield Weds	Dag and Red	2	0	15:00	13 : home : 1 - 0 / 15 : home : 2 - 0
E2	2010-08-07	Southampton	Plymouth	0	1	12:15	47 : away : 0 - 1
E2	2010-08-13	Leyton Orient	Charlton	1	3	19:45	28 : away : 0 - 1 / 50 : home : 1 - 1 / 62 : away : 1 - 2 / 90 : away : 1 - 3
E0	2010-08-14	Aston Villa	West Ham	3	0	15:00	15 : home : 1 - 0 / 40 : home : 2 - 0 / 66 : home : 3 - 0
E0	2010-08-14	Blackburn	Everton	1	0	15:00	14 : home : 1 - 0
E0	2010-08-14	Bolton	Fulham	0	0	15:00	
E0	2010-08-14	Chelsea	West Brom	6	0	17:30	6 : home : 1 - 0 / 44 : home : 2 - 0 / 55 : home : 3 - 0 / 63 : home : 4 - 0 / 68 : home : 5 - 0 / 90 : home : 6 - 0
E0	2010-08-14	Sunderland	Birmingham	2	2	15:00	24 : home : 1 - 0 / 56 : home : 2 - 0 / 77 : away : 2 - 1 / 88 : away : 2 - 2
E0	2010-08-14	Tottenham	Man City	0	0	12:45	
E0	2010-08-14	Wigan	Blackpool	0	4	15:00	16 : away : 0 - 1 / 38 : away : 0 - 2 / 43 : away : 0 - 3 / 75 : away : 0 - 4
E0	2010-08-14	Wolves	Stoke	2	1	15:00	37 : home : 1 - 0 / 39 : home : 2 - 0 / 55 : away : 2 - 1
E1	2010-08-14	Derby	Cardiff	1	2	15:00	15 : away : 0 - 1 / 25 : home : 1 - 1 / 78 : away : 1 - 2
E1	2010-08-14	Doncaster	Bristol City	1	1	15:00	49 : away : 0 - 1 / 90 : home : 1 - 1
E1	2010-08-14	Leicester	Middlesbrough	0	0	15:00	
E1	2010-08-14	Millwall	Hull	4	0	15:00	14 : home : 1 - 0 / 29 : home : 2 - 0 / 52 : home : 3 - 0 / 60 : home : 4 - 0
E1	2010-08-14	Portsmouth	Reading	1	1	15:00	8 : home : 1 - 0 / 87 : away : 1 - 1
E1	2010-08-14	Sheffield United	QPR	0	3	15:00	11 : away : 0 - 1 / 20 : away : 0 - 2 / 23 : away : 0 - 3
E1	2010-08-14	Swansea	Preston	4	0	15:00	23 : home : 1 - 0 / 40 : home : 2 - 0 / 44 : home : 3 - 0 / 55 : home : 4 - 0
E1	2010-08-14	Watford	Coventry	2	2	15:00	44 : home : 1 - 0 / 58 : home : 2 - 0 / 88 : away : 2 - 1 / 90 : away : 2 - 2
E2	2010-08-14	Brentford	Walsall	1	2	15:00	12 : away : 0 - 1 / 44 : home : 1 - 1 / 54 : away : 1 - 2
E2	2010-08-14	Hartlepool	Swindon	2	2	15:00	4 : home : 1 - 0 / 12 : home : 2 - 0 / 72 : away : 2 - 1 / 74 : away : 2 - 2
E2	2010-08-14	Huddersfield	Tranmere	0	0	15:00	
E3	2010-08-14	Morecambe	Rotherham	0	0	15:00	
E3	2010-08-14	Oxford	Bury	1	2	15:00	26 : away : 0 - 1 / 31 : home : 1 - 1 / 79 : away : 1 - 2
EC	2010-08-14	Wrexham	Cambridge	1	0	15:00	25 : home : 1 - 0
SC0	2010-08-14	Rangers	Kilmarnock	2	1	15:00	16 : home : 1 - 0 / 59 : home : 2 - 0 / 60 : away : 2 - 1
SC2	2010-08-14	Dumbarton	Livingston	1	2	15:00	25 : away : 0 - 1 / 70 : home : 1 - 1 / 77 : away : 1 - 2
E0	2010-08-15	Liverpool	Arsenal	1	1	16:00	46 : home : 1 - 0 / 90 : away : 1 - 1
E1	2010-08-15	Nott'm Forest	Leeds	1	1	19:15	9 : home : 1 - 0 / 36 : away : 1 - 1
E0	2010-08-16	Man United	Newcastle	3	0	20:00	33 : home : 1 - 0 / 42 : home : 2 - 0 / 85 : home : 3 - 0
EC	2010-08-17	Barrow	Gateshead	1	3	19:45	30 : home : 1 - 0 / 34 : away : 1 - 1 / 70 : away : 1 - 2 / 83 : away : 1 - 3
EC	2010-08-17	Forest Green	Wrexham	3	0	19:45	20 : home : 1 - 0 / 75 : home : 2 - 0 / 80 : home : 3 - 0
EC	2010-08-17	Kettering Town	Luton	1	3	19:45	25 : away : 0 - 1 / 32 : home : 1 - 1 / 73 : away : 1 - 2 / 84 : away : 1 - 3
E0	2010-08-21	Arsenal	Blackpool	6	0	15:00	12 : home : 1 - 0 / 32 : home : 2 - 0 / 39 : home : 3 - 0 / 48 : home : 4 - 0 / 58 : home : 5 - 0 / 83 : home : 6 - 0
E0	2010-08-21	Birmingham	Blackburn	2	1	15:00	54 : away : 0 - 1 / 57 : home : 1 - 1 / 71 : home : 2 - 1
E0	2010-08-21	Everton	Wolves	1	1	15:00	43 : home : 1 - 0 / 74 : away : 1 - 1
E0	2010-08-21	Stoke	Tottenham	1	2	15:00	19 : away : 0 - 1 / 25 : home : 1 - 1 / 30 : away : 1 - 2

Scrape and merge in times



Football hypotheses

1. Football matches have an impact on football fans' happiness/utility
2. Utility changes dynamically, as match is anticipated — experienced — reflected on
3. Loss aversion means impacts are asymmetrical
4. Objective reference points (betting odds) mediate the impacts


10
5
0
-5
-10
-2
-1
0
1
2
3
4
Hours pre/post
Outcome
Before
Win
Draw
Loss

Expectations

- William Hill betting odds
  - Outcome probabilities are calculated as the odds offered on Friday afternoon (weekend games) or Tuesday afternoon (midweek games), rescaled such that Pr(win) + Pr(draw) + Pr(loss) = 1
  - For all matches observed,
    Pr(win) ≥ Pr(draw) ≤ Pr(loss)
  - ‘Win expected’ implies Pr(win) ≥ Pr(loss)

Table 3: Utility Model with Expectations Based on Betting Odds.

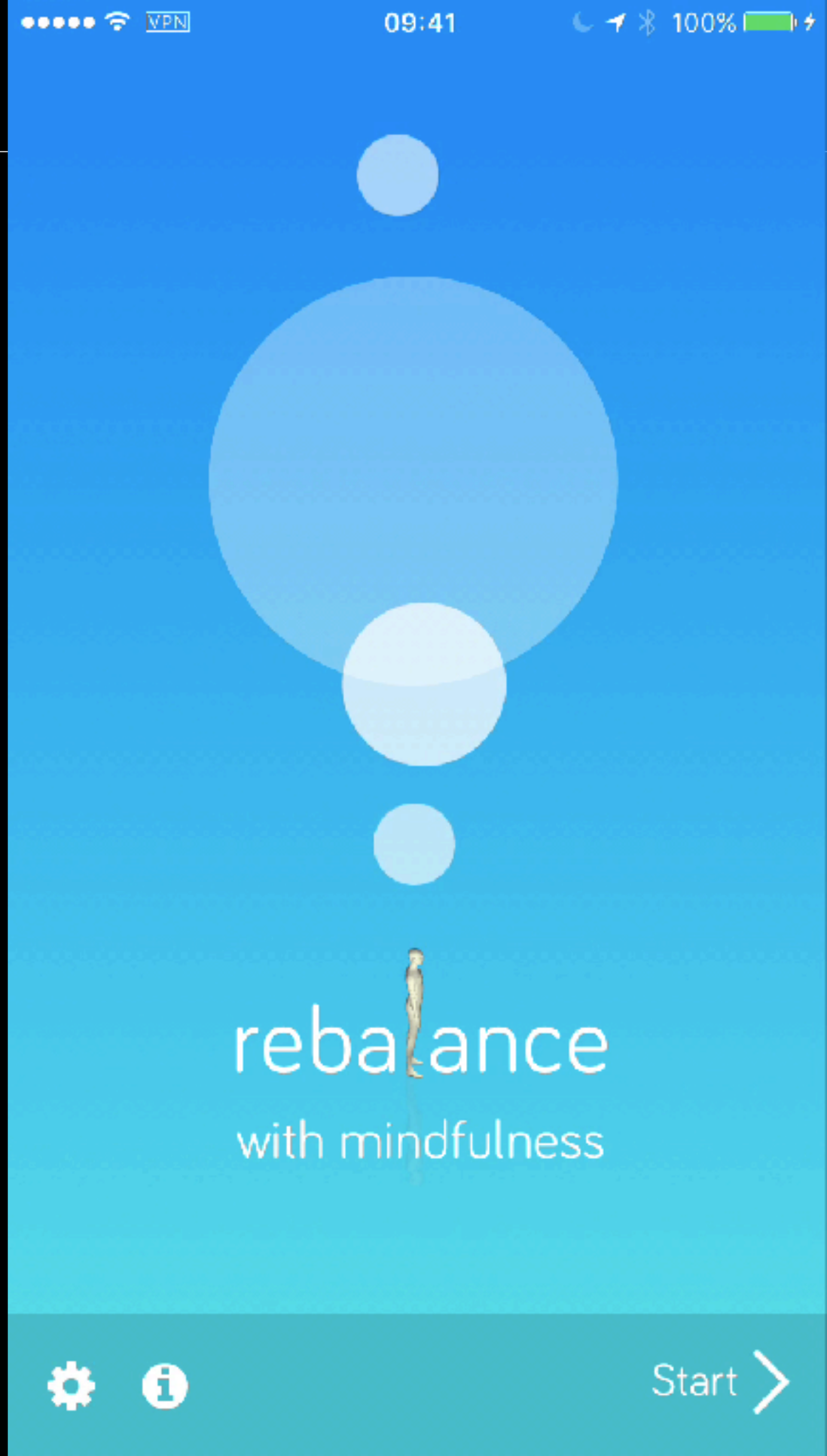
Variables	coefficient	robust std. err.
Reported happiness (0 – 100)		
1 – 0 hours before match, win not expected	1.023	(0.822)
1 – 0 hours before match, win expected	1.776**	(0.674)
0 – 1 hours after win, win not expected	7.021**	(2.203)
0 – 1 hours after win, win expected	3.061*	(1.259)
0 – 1 hours after draw, win not expected	-1.897	(1.873)
0 – 1 hours after draw, win expected	-4.071**	(1.362)
0 – 1 hours after loss, win not expected	-6.252***	(1.579)
0 – 1 hours after loss, win expected	-10.03***	(2.121)
Day of week dummies (6)	Yes	
Time of day in 3 hour blocks × weekday vs weekend/holiday dummies (15)	Yes	
Activity dummies (42)	Yes	
Companionship dummies (7)	Yes	
Prior response count dummies (3: to power 1, 2, 3)	Yes	
Respondent fixed effects	Yes	
Constant	57.81***	(1.031)
R-squared (within)	0.122	
Observations	2,085,410	

Lots more to do ...

Picture: Christopher Bruno, freeimages.com

Mappiness 2.0

- Platforms, features, reach
- Make you happier
- Find our more about work



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Thanks!

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Image: Zhongde Liu