Commuting & Wellbeing Research Design

Bulletin 1 - February 2016

Technical Appendix

This is a **technical appendix** to the Commuting & Wellbeing Research Design (bulletin 1). It provides further information on:

- The analytical framework and hypotheses underpinning the project;
- Methods of analysis; and
- UK Household Longitudinal Study (UKHLS) commuting & wellbeing measures

Analytical framework and hypotheses

The examination of the relationships between commuting and wellbeing will be underpinned by the analytical framework shown in Figure 1. This incorporates five inter-related hypotheses:

1. **Life situation** influences **commuting behaviour,** i.e. commuting choices are affected by personal characteristics and preferences and where people live (which affects the availability of different transport modes for the journey to work).
2. **Life situation** *directly* affects **wellbeing,** i.e. wellbeing is influenced by unemployment/poverty, meaningful social relationships and health.
3. **Commuting behaviour** also *directly* affects **wellbeing,** e.g. a stressful daily commute is likely to affect happiness or life satisfaction.
4. **Commuting behaviour** *indirectly* affects personal wellbeing through:
    a. Its impact on **physical health** (e.g. active commuting may improve fitness)
    b. Its impact on specific **satisfaction domains** such as availability of leisure time, time spent with family, sleep quality.
5. Those with lower levels of personal **wellbeing** seek to improve their **life situation** over time through, for example, moving home or changing jobs (and changing their journey to work).

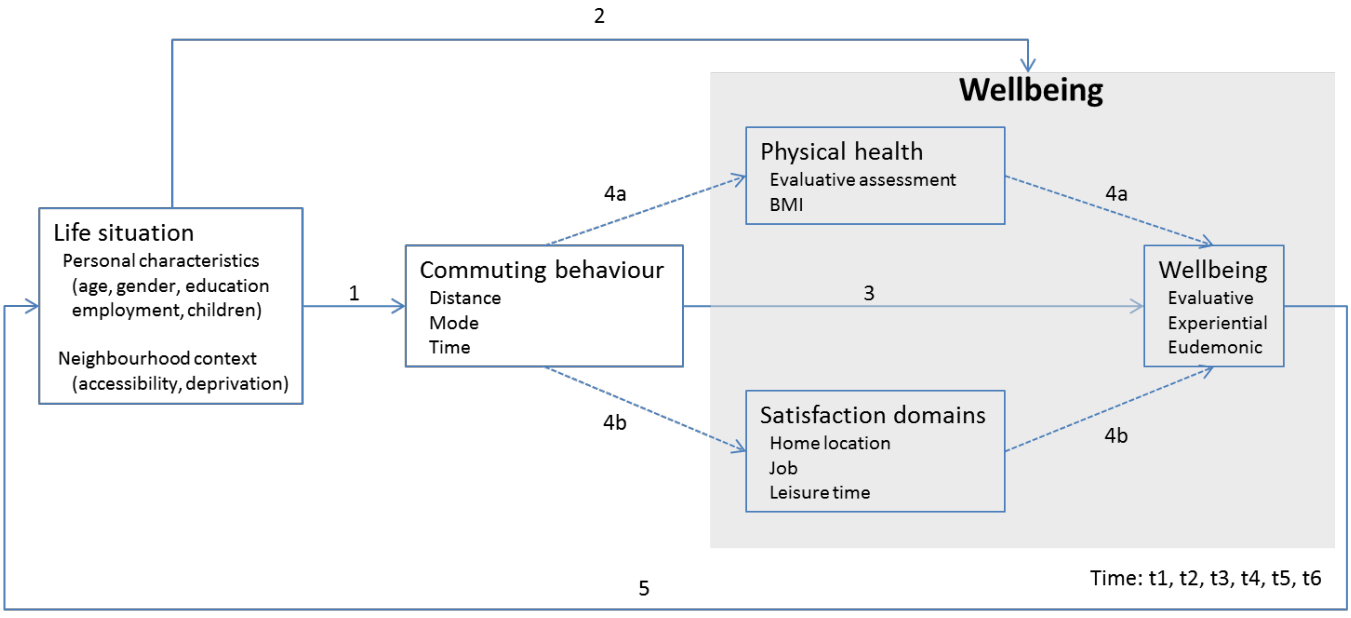

Figure 1: Analytical Framework

Methods of analysis

The study will employ three different methods of analysis:

Addressing Research Question 1: The first task will be to identify relationships between commuting and wellbeing that are present at **a particular point in time**. Investigating a **particular point in time** is known as **cross-sectional analysis**. This might show, for example, whether those that cycle to work have higher wellbeing scores than those that get the bus to work. The analysis will be independently repeated on single waves (one to six) of the UKHLS data set.

Addressing Research Question 2: Research Question 2 is concerned with identifying whether different commuting behaviours influence how wellbeing **changes over time**. Investigating change over time is known as **longitudinal analysis**. All six waves of UKHLS data will be combined and analysed to compare how wellbeing changes over a period of five years for different groups of commuters. This might show, for example, whether the wellbeing of bus commuters worsens over five years, while the wellbeing of car commuters improves over five years.

Addressing Research Question 3: Research Question 3 is concerned with explaining **why** changes in life situation and commuting behaviour might alter personal wellbeing over time. The aim is to provide understanding of what **causes** changes in both commuting and wellbeing. A certain type of statistical analysis called **Structural Equation Modelling** will be used to identify presence of relationships between changes in life situation, changes in commuting and changes in wellbeing. The aim will be to build evidence around the hypotheses and analytical framework presented in **Figure 1.**

UKHLS commuting & wellbeing measures

UKHLS Variable	Values	Recorded
Subjective wellbeing (examples of three SWB domains)		
Overall life satisfaction (evaluative)	1 to 7	Every wave
How often you feel happy (experiential)	1 to 4	Every wave
Frequency of feeling useful (eudenomic)	1 to 5	W1, W4
Subjective wellbeing (further examples)		
Frequency of:		
Feeling optimistic about the future	1 to 5	W1, W4
Feeling relaxed	1 to 5	W1, W4
Dealing with problems well	1 to 5	W1, W4
Thinking clearly	1 to 5	W1, W4
Feeling close to other people	1 to 5	W1, W4
Been able to make up my own mind	1 to 5	W1, W4
Composite subjective wellbeing measure (GHQ)	0 to 36	Every wave
Have you recently:		
Been unable to concentrate	1 to 4	Every wave
Lost much sleep over worry	1 to 4	Every wave
Felt you were playing a useful part in things	1 to 4	Every wave
Felt capable of making decisions	1 to 4	Every wave
Felt constantly under strain	1 to 4	Every wave
Felt you couldn't overcome difficulties	1 to 4	Every wave
Been able to enjoy day to day activities	1 to 4	Every wave
Been able to face problems	1 to 4	Every wave
Been feeling unhappy or depressed	1 to 4	Every wave
Been thinking of yourself as a worthless person	1 to 4	Every wave
Been feeling reasonably happy all things considered	1 to 4	Every wave

UKHLS Variable	Values	Recorded
Physical Health (examples)		
BMI (derived from height and weight)		W1
Self reported health (excellent to poor)	1 to 5	Every wave
Satisfaction domains (examples)		
Satisfaction with the amount of leisure time you have	1 to 7	Every wave
Satisfaction with health	1 to 7	Every wave
Job satisfaction	1 to 7	Every wave
Like to move home	1 to 2	Every wave
Expect to move home	1 to 2	Every wave
Feel you belong to neighbourhood	1 to 5	W1 and W3
Local friends mean a lot	1 to 5	W1 and W3
Plan to stay in neighbourhood	1 to 5	W1 and W3
Frequency of leisure with child	1 to 6	W1 and W3
Frequency of dinner with kids	1 to 4	W1 and W3
Sleep		
How many hours of sleep have you normally had in the last month		W1
How often have you had trouble sleeping because		
Could not sleep within 30 minutes	1 to 5	W1
Wake up in the middle of the night	1 to 5	W1
Cough or snore loudly	1 to 5	W1
How often taken medication to help with sleep	1 to 4	W1
How often had trouble staying awake	1 to 4	W1
Sleep quality rating over the last month	1 to 4	W1
Commuting behaviour		
Commute mode (main mode)	1 to 10	Every wave
Commute time		Every wave
Commute distance		W1, W2, W4
Life situation (examples)		
Cohabitation status	0 to 1	Every wave
Number of children in household		Every wave
Settlement type		Every wave
Local area population density		Every wave
Local area proximity to jobs, shops, public transport		Every wave
Local area social deprivation		Every wave
Life events (examples)		
Move home	0 to 1	Every wave
Change jobs	0 to 1	Every wave
Cohabitation status change	0 to 1	Every wave
Had child	0 to 1	Every wave
Attitude		
Environmental behaviours have to fit in with lifestyle	1 to 2	W1