



## Workforce commuting and subjective well-being

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### ABSTRACT

Commuting to and from work can constitute a significant proportion of a person's day and can have a considerable impact on one's well-being. Using the UK Time Use Survey (UKTUS) dataset, the experienced well-being effects of commuting, in terms of enjoyment, were evaluated relative to other daily activities. Commutes using passive modes of transport (e.g., car, train) were found to be the least enjoyable activities carried out in the day. Commuting using active modes of transport (e.g., cycle, walk) was also amongst the least enjoyable activities, although enjoyment of active commuting was significantly higher than that of passive commuting. This paper also assessed differences in the experienced well-being of other daily activities (such as working and physical exercise) during the workday between those who did and those who did not commute. Using a series of multilevel analyses, commuting was shown to have little impact on an individual's enjoyment of the other daily activities in which they partake. Enjoyment of all daily activities was found to be just as high on workdays on which participants commuted using active modes of transport as on non-commuting workdays. With the exception of only *Personal Care* activities and *Sleep*, there were no meaningful differences in enjoyment of any daily activities between any of the three commuting workday groups and non-commuting workdays.

### 1. Introduction

Commuting to and from work is a routine part of daily life for over 80% of the UK workforce, which equates to 21.5 million residents (as of 2011; Office for National Statistics, 2014a). The average daily two-way commute lasts 57 min, and the number of employees with daily commutes lasting over two hours increased by almost a third between 2010 and 2015, rising to 3.7 million in total (TUC, 2016). A growing body of evidence shows that commuting can be detrimental to people's well-being and overall life satisfaction. Indeed, recent studies based on large scale national surveys show that commuting duration is negatively associated with subjective well-being, and that the magnitude of this effect outweighs the economic benefits of traveling to and from work, such as cheaper housing and higher pay (Bryson et al., 2016; Morris and Guerra, 2015; Roberts et al., 2011; Stutzer and Frey, 2008). More specifically, commuting contributes to elevated stress levels, and more so if a person travels by car rather than a bicycle or public transport (Avila-Palencia et al., 2017; Legrain et al., 2015). Not all studies agree, however; Ory et al (2004) report that a certain portion of the population enjoy the activity of commuting and Olsson et al (2013) found feelings during commutes to be predominantly positive or neutral.

In recent years, much insight into the psychological consequences of

commuting has been generated by studies utilising variants of Day Reconstruction Methods (DRMs) for data collection (e.g., Kahneman et al., 2004). In a typical DRM methodology, respondents are asked to recall activities and experiences of the preceding day and then rate them on a range of affective-evaluative dimensions. Unlike most global measures of subjective well-being, DRMs reduce retrospective bias, which can occur if people are merely asked to describe their "typical" commuting experience (Stone and Schneider, 2016). Similarly, DRMs reduce practical difficulties associated with fully experiential methods, in which data are collected from participants in real time. Crucially, data collected with DRMs allow for comparisons of the psychological impact of distinct events that occupy one's day.

Collectively, DRM studies have shown that commuting, in comparison to other daily activities, is detrimental to one's psychological wellbeing. Using a convenience sample of 1018 women, Kahneman et al (2004) found that out of 28 daily activities, commuting events were rated as the least positive in affect. In another study, White and Dolan (2009) showed that out of 18 daily activities, only shopping, housework and work were found to be less pleasurable than commuting. Stone and Schneider (2016) utilised the American Time Use Survey (ATUS) data and showed that commuting episodes were rated highly on stress and tiredness but low on meaningfulness dimensions. Finally, Bryson and

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**Table 1**  
Key features of the previous studies that have compared daily activities based on their subjective well-being effects.

Paper Authors, Year	Sample	Measures
Kahneman et al. (2004)	Convenience sample of 1018 employed women	12 Affect Descriptors Grouped Into Five Categories: (1) Positive: Happy, Warm/Friendly, Enjoying Myself, (2) Negative: Frustrated/Annoyed, Depressed/Blue, Hassled/Pushed Around, Angry/Hostile, Worried/Anxious, Criticised/Put Down, (3) Competent, (4) Impatient, (5) Tired
White and Dolan (2009)	625 participants recruited via Web-based Internet panel run from a German university	Six Feeling Items: (1) Happy, (2) Nervous/Anxious, (3) Sad/Depressed, (4) Content/Relaxed, (5) Frustrated, (6) Impatient For It To End. Six Thoughts/Evaluations Items: (1) Focused, (2) Engaged, (3) Competent/Able. Felt the Activity Was (4) Worthwhile and Meaningful, (5) Useful to Other People, (6) Helped Me Achieve Important Goals. One Overall Episode Satisfaction Question
Stone and Schneider (2016)	American Time Use Survey – representative sample of 37,088 individuals living in the US	Six Well-Being Variables: Happy, Sad, Tired, Pain, Stress, Meaning
Bryson and MacKerron (2017)	Mappiness smartphone app, more than one million observations from tens of thousands of individuals in the UK	Three Dimensions of Momentary Well-Being: How Happy, How Relaxed, How Awake

MacKerron (2017) found that commuting ranked as 34th and 35th out of 40 activities in terms of happiness and feelings of relaxation. In this particular study, data were collected using experiential sampling, where participants were asked to report on their feelings of happiness, relaxation and alertness when prompted to do so by a mobile app. Out of all four studies reported above, only the work of Bryson and MacKerron (2017) was conducted with the UK population. As discussed in their paper, however, their sample was not representative of the UK population; those using the mobile phone application were wealthier and younger than the general public, with greater proportions being in full time employment or education. Key features of these four studies are summarised in Table 1.

To date, no research has investigated whether carrying out the activity of commuting affects the enjoyment of other activities. A related study carried out in Sweden found that emotional responses during commutes have residual effects on mood immediately after the commute but not later in the day (Friman et al., 2017). In this study, participants completed three questionnaires: before the commute, immediately afterwards and one hour after the commute. Thus, the study assessed the time duration for which the residual effects are experienced; the study did not relate the effect of commuting to other specific daily activities.

The overall aim of the present paper is to examine the experienced well-being effects of commuting in the United Kingdom, in terms of how it compares to, and impacts on, other daily activities. More specifically, this paper reports the results of analysis performed on data from the 2014–15 UK Time Use Survey (UKTUS), which consists of three main components: household interviews, individual questionnaires and diaries. UKTUS includes DRM data from 9,388 participants who completed over 16,550 diary days, rating 587,632 activity episodes on an enjoyment scale. The overall aim of the study is addressed by two objectives. The first objective is to compare experienced well-being, in terms of enjoyment, across different daily activities reported on by the respondents in the UKTUS. By doing so, previous findings are replicated using a new dimension of well-being (i.e. enjoyment) with a representative sample of the UK population. The second objective is to compare how the experienced well-being of various activities differs between workdays on which commuting is undertaken and workdays on which participants did not commute to/from work. This objective is enabled by the unique features of the UKTUS dataset; although the dataset includes only ratings on one dimension of experienced well-being, it contains ratings of all activities in any given individual’s day.

**2. Data**

This study used the UK Time Use Survey (UKTUS) dataset (Gershuny and Sullivan, 2017). The survey was conducted in 2014–15 on a representative sample of individuals and private households across the

UK. The survey was conducted by NatCen and the Northern Ireland Statistics and Research Agency (NISRA) on behalf of the University of Oxford’s Centre for Time Use Research (CTUR), and the survey design follows the Harmonised European Time Use Survey (HETUS) guidelines (Morris et al., 2016). The sample was drawn in two stages, firstly by random selection of postcode sectors and then a random selection of postal addresses within each of these.

Data from participants’ diaries, which contained records for every 10 min of the 24-h period, was the focus of the present paper. Participants were asked to note down their primary and secondary activities, who they were with, where they were, whether they were using a smartphone/tablet/computer, and their enjoyment rating (on a scale of 1 to 7) of each activity. The enjoyment ratings were taken to be the measure of well-being evaluated in this study. UKTUS only contains ratings for this one positive affect measure. The scope of this study, therefore, does not extend beyond positive hedonic/experienced well-being to include negative affect or the other aspects of subjective well-being, namely evaluative well-being and eudaimonic well-being.

Participants were advised to fill out the diary as they progressed through the day, as opposed to filling it out at the end of the 24-hour period. In the data, multiple individuals could come from a single household. Individuals were asked to complete two diary days, one weekday and one weekend day; dates of the allocated days were randomly selected for each household.

When processing the data from the diaries, NatCen’s Data Unit allocated the activities to 276 different activity codes. Activities were ordered using three levels; 11 Level 1 activities split up into 43 Level 2 activities and then further into 276 Level 3 activities. Each activity undertaken by a participant during the day, regardless of its duration, is referred to as an episode.

Commuting falls under the Level 1 activity *Travel*, the Level 2 activity *Travel by Purpose*, and is covered by three separate Level 3 activities: (1) Travel to/from work; (2) Travel to work from home and back only; and (3) Travel to work from a place other than home. The number of episodes of each of these three activity codes is presented in Table 2. In this study, commuting is taken as the sum of the three Level 3 activities.

UKTUS includes participants who usually work (1) from home, or in the same grounds/buildings as home, (2) at a single workplace away

**Table 2**  
Number of recorded episodes for Level 3 commuting activities in UKTUS 2014–15.

Level 3 Activity	Number of episodes
Travel to/from work	315
Travel to work from home and back only	9,192
Travel to work from a place other than home	649
Total:	10,156

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