Transportation Research Part F 42 (2016) 117–124

Contents lists available at ScienceDirect

Transportation Research Part F

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

Commuting episodes in the United States: Their correlates with experiential wellbeing from the American Time Use Survey

Arthur A. Stone *, Stefan Schneider

University of Southern California, USA

ARTICLE INFO

Article history:
Received 5 May 2015
Received in revised form 15 April 2016
Accepted 4 July 2016
Available online 28 July 2016

Keywords:
Commuting
Wellbeing
Affect
American Time Use Survey

ABSTRACT

For many Americans, commuting to and from work is a time-consuming activity that is often thought of as unpleasant. Some studies have also suggested that commuting's unpleasantness increases with its duration. Three years of the American Time Use Survey's Wellbeing Module provided an opportunity to extend our understanding of commuting in a representative sample of 37,088 individuals living in the United States who provided a detailed account of yesterday's activities and rated the wellbeing associated with a portion of those activities. Commuting episodes were rated high in stress and tiredness and much lower in meaningfulness compared with other activities of the day. However, level of wellbeing was also determined by whether the commute was to work or to home, with tiredness low in the former case and very high in the latter. Longer commutes were weakly associated with increased stress and tiredness. These findings confirm that commuting is a low wellbeing experience and add to our understanding of this common activity.

1. Introduction

Commuting to and from work is a ubiquitous activity in modern society and it has received much attention as a potential contributor to the stress of daily life (Novaco, Stokols, & Milanesi, 1990), and some have argued that it has not received enough attention (Roberts, Hodgson, & Dolan, 2011). The average length of a commute to work in the United States is about 30 min and appears to be increasing (Wener & Evans, 2011). Commuting is generally considered a stressful experience and has been associated with increased level of stress biomarkers such as cortisol and blood pressure (Novaco et al., 1990). It has also been associated with high self-reported levels of stress, although there is evidence from Sweden that commuting in that country is a neutral or positive experience (Olsson, Garling, Ettema, Friman, & Fujii, 2013). A recent study showed that commuting is associated with overall higher levels of self-reported stress in one's life, especially for women (Roberts et al., 2011). It is also notable that relatively little is known about emotional correlates of commuting beyond the concept of stress.

Assessment of the commuting characteristics and the wellbeing associated with commuting has been methodologically limited in previous research. The primary means of collecting data on commuting has been via respondents' retrospective reports of their "typical" commuting. That is, asking people to recall the usual characteristics of their experiences getting to and from places of employment. A major source of information about commuting in the United States is the American Community Survey (ACS), which is conducted by the Census Bureau. Regarding commuting, it queries individuals with

* Corresponding author at: USC Dornsife Center for Self-Report Science and the Department of Psychology, University of Southern California, 635 Downey Way, Los Angeles, CA 90089-3332, USA.
E-mail address: arthur.stone@usc.edu (A.A. Stone).

http://dx.doi.org/10.1016/j.trf.2016.07.004
1369-8478/

questions like "How many minutes did it usually take this person to get from home to work LAST WEEK?" (http://www.census.gov/acs/www/). While an approximation of average commuting time may be derived from this question, there is a reasonable possibility that responses are distorted by retrospective bias. Notably, the ACS does not collect any psychological data, so that inferences about the potential linkage between commuting and wellbeing are not possible.

Other investigators have asked respondents to complete wellbeing questionnaires shortly after commuting, but the wording of the questions indicate that the target of the question was not about immediate commuting, but was a global impression of commuting (e.g., "Overall, commuting is stressful to me") (Wener & Evans, 2011). Global questions such as this can also be associated with reporting biases, in that they can evoke global beliefs and stereotypes about commuting as opposed to actual feelings experienced during instances of commuting (Bradburn, Rips, & Shevell, 1987; Schwarz & Sudman, 1994).

More information about the basic properties of commuting, including affective reactions to it, from a large, representative sample could enhance understanding of this common aspect of everyday life for many people. In this paper, we examine *specific* instances of commuting and the experiential (also known as "hedonic") wellbeing associated with commuting. We use a variant of a relatively new data collection method, called the Day Reconstruction Method (DRM; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004), which has the potential to provide insights into the commuting – wellbeing relationship that are much less affected by people's beliefs and stereotypes about commuting compared to global retrospective reports. The DRM is based on a time-usage reconstruction of the prior day, where respondents "chunk" the day into a series of discrete "episodes" defined by activities (usually 15–20 are generated for a day) and by systematically reviewing yesterday's activities. Each of the episodes is then rated on a series of adjectives such as happy, sad, and stressed. Other information about each episode, such as the presence of others or location, is also recorded. The method allows one to examine the linkage between activities and wellbeing experiences directly and with reduced bias from memory, because people are reporting about specific instances that should be accessible to them given the relatively short recall period. A previous DRM study with a convenience sample of 909 working women in Texas has shown that commuting episodes were associated with the lowest levels of positive affect and among the highest levels of negative affect among 16 types of daily activities (Kahneman et al., 2004).

The data used in this paper come from a time-use survey conducted by the US Bureau of Labor Statistics (BLS) called the American Time Use Survey (ATUS). The ATUS usually does not collect any information about emotions associated with episodes, but in 2010 an experimental module supported by the National Institute on Aging (Wellbeing Module: WBM) was added after the usual time-use questions and it assessed emotional states for three of the day's episodes; the WBM was also used in two subsequent years. This procedure is almost the same as the DRM, with the exception that only 3 of the day's episodes were queried for wellbeing.

There are several opportunities and advantages presented by the WBM for complimenting the existing knowledge about commuting. First, the data were collected from a representative and moderately large sample of the US population. Second, the ATUS provides detailed information about the activities of the previous day. The interviews asked participants to parse yesterday into activity-related episodes; all episodes were coded with respect to the activities by BLS personnel using a detailed classification system. Third, the WBM questions tap a broad range of affective, somatic, and cognitive aspects of hedonic wellbeing (happy, sad, stress, tired, pain, meaningfulness), thus providing an opportunity for a detailed examination of the commuting experience. Fourth, response rates are excellent and data quality is high given the computer-assisted telephone interviews that were conducted by exceptionally well-trained interviewers.

There are also ways that ATUS data are less than ideal for addressing the questions at hand. First, as already mentioned, only three of each person's daily episodes were sampled, which presents some analytic challenges, because hedonic wellbeing information is missing for most episodes. Second, the sampling scheme for ATUS was that half of the interviews were conducted on weekends and the other half spread evenly over weekdays. For analyses of commuting, this means that there are relatively fewer commuting episodes available since most people do not work on weekends. Third, while the ATUS provides a detailed account of how people spend their time by coding a broad range of daily activities, including commutes, it does not collect information specifically tailored toward characteristics of the commute (e.g., traffic conditions and mode of commuting) that could be moderators of the commuting experience.

The overall goal of this paper is to examine experienced wellbeing of commuting compared to other activities of daily life. We examine several components of wellbeing assessed in the ATUS WBM module: happiness, sadness, stress, tiredness, pain, and the perceived meaningfulness of activities. In Section 2.1, we describe the frequency of commuting episodes in the sample and present basic descriptive information such as duration, time of occurrence, and day of occurrence. In Section 2.2, we address the question whether or not wellbeing during commuting episodes differs from wellbeing during other activities amongst those who reported at least one episode of commuting on the day addressed by the survey. Section 2.3 asks if longer commutes are associated with worse hedonic wellbeing than shorter commutes.

2. Methods and results

2.1. Characteristics of commuting

The 37,088 respondents from the three years of the ATUS reported 703,689 episodes or an average of 19.0 episodes per respondent. Demographic information about the sample is available on the BLS website (http://www.bls.gov/tus/). We iden-