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Value of time spent commuting

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Abstract

Commuting is a routine part of life for many yet each individual's perception and experience of commuting differs. Understanding these differences could inform and enhance the effectiveness of workplace policies, such as the provision of flexible working hours. In this study, the value of commuting is explored using thematic analysis with a sample of 101 UK commuters. Eight distinct themes are identified which group together factors contributing to and/or explaining the value that individuals place on their commute: commuting as (1) a buffer between home and the workplace, (2) a time to think or reflect, (3) time to carry out other activities, (4) having an impact on physical health, (5) eliciting an emotional response, (6) exposure to the external environment, (7) a travelling experience, and (8) a necessary part of the day. This exploratory study offers an important first step in understanding the commuter's relationship with their commute and establishes foundations that can be built upon to develop a more comprehensive model.

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1. Introduction

Commuting is a routine part of daily life for millions of people (Evans and Wener, 2006). Conventional working practices necessitate commuting as a means to get between the workplace and home. Whilst the activity is routine, time spent commuting is likely to be both utilized and perceived differently by each individual commuter (e.g., Lyubomirsky & Tucker, 1998). Understanding the intricacies of these perceptions could inform and enhance the effectiveness of workplace policies, such as provision of flexible working hours and promotion of active modes of transport through, for example, the Cycle to Work incentive scheme.

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Commuting has been associated with a wide range of health issues. In terms of physical health, car commuters have been found to gain weight compared to those who do not commute or who commute by other means (e.g., Sugiyama, Ding & Owen, 2013), blood pressure has been shown to increase with commuting distance by car (Hoehner, Barlow, Allen & Schootman, 2012) and longer commuting times by car are linked to poor sleep quality (Künn - Nelen, 2016). With regards to workplace performance, commuting distance has been associated with more frequent instances of illness-related absences from work (Van Ommeren & Gutiérrez-i-Puigarnau, 2011). Additionally, the psychological implications of commuting include increased stress (e.g., Gottholmseder, Nowotny, Pruckner & Theurl, 2009; Costal, Pickup & Di Martino, 1988) and lower life satisfaction (e.g., Hilbrecht, Smale & Mock, 2014). Indeed, compared to other daily activities, commuting using passive modes of transport, such as cars or trains, was shown to be the least enjoyable parts of one's day (Adam, Walasek & Meyer, 2018).

Conversely, other studies have found feelings towards commuting to be predominantly positive or neutral (e.g., Olsson, Garling, Ettema, Friman & Fujii, 2013). One such study noted that approximately sixty percent of their sample, which comprised of 1,300 commuting workers in San Francisco, reported that they *strongly like*, *like* or feel *neutral* towards their commute, with over twenty percent selecting the positive responses (Ory, Mokhtarian, Redmond, Salomon, Collantes & Choo, 2004). This study also found that approximately half of the survey respondents were relatively satisfied with the amount that they commute, with a small proportion of them expressing a desire to increase their commuting amount.

Measures for evaluating travel-related subjective well-being have undergone significant development in recent years, resulting in the widely accepted Satisfaction with Travel Scale (Ettema et al., 2011). Further adaptations of this scale have been adopted and recommended in numerous studies, from using a shortened form that combines end points of the nine scales to create three scales (Friman, Olsson, Ståhl, Ettema & Gärling, 2017) to omission of two of the nine questions (De Vos, Schwanen, Van Acker & Witlox, 2015). A commute-specific measure of travel well-being was developed by Smith (2017) based on an adaptation of the Satisfaction with Travel Scale. The scale comprises of five affective (e.g. stress and enjoyment) and two cognitive (i.e. comparison to typical journey and ease of trip) evaluation items.

Measures of travel, or commute, satisfaction are evaluations of a particular journey and capture momentary experienced well-being. These measures do not encompass the broader context of the commute and the value it may provide outside of the immediate experience. For example, walking in the rain on a windy day may not rate highly on an affect scale of *enjoyment* or cognitive scale of *ease of trip*, however, it may present the only source of exercise in the day or an opportunity to mentally prepare for the day ahead.

One model of an individual's expressed affinity for travel in general suggests that it comprises of the positive utility of three distinct, although likely to be interacting, elements: activities conducted at the destination, activities conducted whilst travelling, and the activity of travel itself (Mokhtarian & Salomon, 2001).

The first of these, *activities taking place at the destination*, suggests that perceived pleasantness of activities occurring on completion of the journey may influence evaluation of the journey itself. In the context of commuting, this "halo effect" (Thorndike, 1920) may result in an individual's enjoyment of their time spent in the workplace elevating their positivity about the commuting experience.

The second of the elements, *activities carried out whilst travelling*, not only includes engaging in enjoyable or useful pursuits, such as listening to music or speaking on the phone, but also "anti-activity", the absence of activity as time to think or to mentally prepare for what will take place at the end of the journey. At a minimum, activities carried out whilst travelling reduce the disutility of travel making it a more attractive prospect, and they may even increase the positive utility of the trip (Mokhtarian, Salomon & Redmond, 2001). A survey conducted in Sweden, however, found the relationship between activities during travel and travel satisfaction to be more complicated than that suggested by Mokhtarian et al. Working or studying whilst travelling by train and using ICT (e.g. internet, gaming, email) was found to have no effect on travel satisfaction (Ettema, Friman, Gärling, Olsson, & Fujii, 2012). The authors speculated that the reason for this may be that travellers undertake these activities not in an attempt to make their journey more pleasant, but rather to increase satisfaction in other life domains. In the context of commuting, one might complete work-related tasks whilst travelling in order to reduce workload stress or to ensure that these activities do not impede on time spent with family during the evening.

The third of the elements, *the activity of travel itself*, refers to intrinsic aspects of travelling, such as the sensations of movement and freedom. Taking the scenic route is commonplace and driving for pleasure has been a popular

recreational activity since the automobile became a symbol of modern society (Kent, 1993; Walsh, Sanders & McKean, 1990). Indeed, a 2008 survey in California found *driving through natural scenery* and *driving for pleasure* to rank amongst the top outdoor recreational activities (California State Parks, 2009).

Work on understanding attitudes towards travelling have largely focused on travel in general. While some work has been carried out on commuter's attitudes specifically, these studies predominantly used measures of attitudes based on researcher-selected variables, such as how worthwhile or enjoyable the journey was. These ratings may not be suitable for capturing the value of the commute if, for example, as mentioned earlier, the commuter is using this time to enhance their other life domains.

Using an alternative approach, in a small scale qualitative study, Wilhoit (2017) conducted telephone interviews with a sample of 24 commuters. Whilst this study drew out interesting findings on the opportunity that commuting creates for commuters to pursue activities they would not ordinarily make the time for outside of commuting, it mainly focused on the routine and liminal nature of commuting. It also explored commuters general framing of their experience as positive or negative but did not delve more deeply into their attitudes towards commuting or the role that commuting plays in individual's lives.

Measures of travel satisfaction, and specifically commute satisfaction, exist; they quantify individuals' evaluations of their journeys. These measures do not extend to the broader notion of the value of commuting. The model proposed by Mokhtarian and Salomon (2001) encompasses both time and benefit that extend beyond the immediacy of the journey itself. The model is a step closer to the holistic measure of commute value; however, it is intended to address affinity for travel rather than value and, crucially, it is a model for travel in general. The present study explores the value of commuting using qualitative methods; asking open-ended, undirected questions enables insight that is truly reflective of the commuter's experience uninfluenced by researcher-selected measures.

2. Methods

2.1. Participants

One hundred and fifty three responses to an online survey were obtained using the website Prolific, a crowdsourcing platform used to recruit participants and which has been shown to provide reliable survey results (e.g., Peer, Brandimarte, Samat & Acquisti, 2017). The data for this study were collected as part of a larger study to understand UK driver behaviour. To participate in the survey, individuals had to (1) be a resident of the United Kingdom, (2) hold a valid driving license, and (3) drive at least once a month.

Removal of responses from individuals who stated that they do not commute and those who had misinterpreted the question resulted in a sample size of 101 participants. Just over half of the sample were female (54%) and the average age was 39 with ages ranging from 19 to 65. Participants had held their driving license for 17 years on average with a range from 1 to 47 years. Whilst the survey respondents were all car drivers, it was unknown – unless explicitly stated by the individual in their response – whether they commute by car or by other modes.

2.2. Survey Question

Participants were asked two questions regarding the value of commuting: one quantitative and one qualitative. The quantitative question asked: *using the response scale below, please indicate the extent to which, if at all, you feel your commute plays a valuable role in your day (aside from getting you to/from work)?* The 7-point Likert scale ranged from 1 – *Not Valuable At All* to 7 – *Very Valuable*.

The qualitative question asked: *please explain why you do, or do not, value your time spent commuting.* Participants were not provided with any guidance as to the length of their explanation or suggestions regarding content.

2.3. Qualitative Approach

An inductive thematic analysis approach was adopted for this study (Braun & Clarke, 2006). As such, the study design was not based on existing theoretical frameworks or preconceived hypotheses. Instead, coding of responses

and creation of categories reflected themes that emerged from the dataset itself. Coding was carried out by the first author and the results were discussed among all three authors.

3. Results

Working through the explanations as to why people do, or do not, find their commute to be valuable, eight themes were identified. Thirteen respondents did not answer the question, instead simply stating which transport mode they use, that they have no specific reason, or a similar response. These responses did not fit under any of the themes identified and are not included in the subsequent reporting of results; thus, responses from 88 survey participants were included in the analysis.

The quantitative analysis results are presented in Section 3.1. The eight themes identified to account for the value of time spent commuting are detailed in Section 3.2. The qualitative and quantitative aspects of the study are brought together in a brief exploration of the themes associated with those respondents who placed the least and most value on their commutes; this is presented in Section 3.3.

3.1. Perceived Value of Commuting

Respondents were asked to rate the extent to which they feel their commute plays a valuable role in their day on a scale from 1 to 7, which corresponded to Not Valuable At All and Very Valuable respectively. The distribution of ratings is presented in Figure 1. Whilst the average rating is the neutral value of 4 indicating that approximately the same proportion of people value their commute as those who do not, it is interesting to note that the mode is 5 and that more respondents rated their commute as Very Valuable ($n=9$) than rated it as Not Valuable At All ($n=8$).

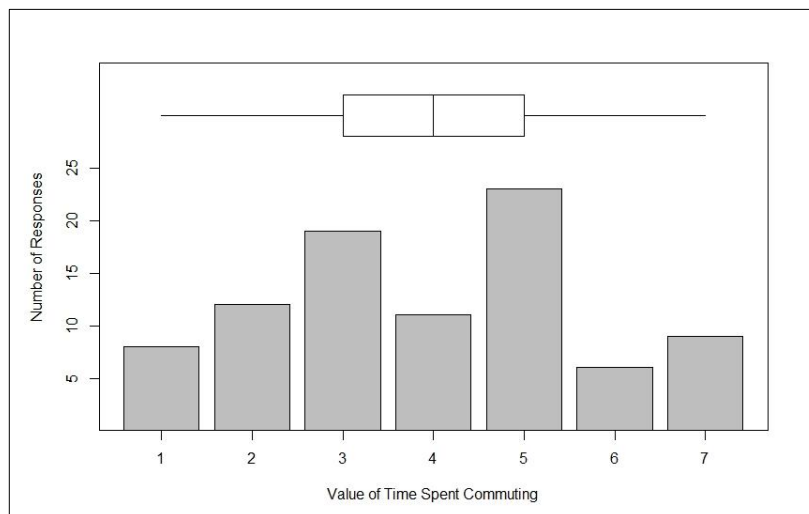


Figure 1: Count and distribution of ratings of value of time spent commuting.

3.2. Themes Accounting For Commute Value

3.2.1. Buffer

Commuting as a buffer between home and the workplace. All respondents in this category expressed positive sentiment with regards to their commuting experience. Some commuters referred to the morning commute and the opportunity it provides to “*think about the day ahead and how to tackle it.*” Other responses referred to the journey back home from work; a representative response from one of the commuters read “*it provides a buffer between work*”

and home which allows me to process my thoughts from the day before getting home and therefore being better able to leave work at work.” Commuting providing both a time to plan at the start of the day and to reflect on the way home was also mentioned. Aside from the mental processes associated with this time, in some cases the value of this time was simply attributed to it being a “worthwhile break between different parts of my day” and “time [I] get to switch off from work when coming home.”

3.2.2. Think/Reflect

Commuting as a time to think or reflect more generally. This is distinct from commuting as a buffer as it is not about preparing for what awaits at the destination. All responses within this category express positive sentiment, using phrases such as “[I] value the time it gives me to clear my head” and “when I’m driving it’s also time for me to think about other things that are going on in my life but because I’m driving I can’t give it my full attention thus I think about problems from a simpler mindset which I find very valuable.”

As well as appreciating the time their commute provides to think or reflect, some respondents within this category also mentioned negative aspects of their commuting experience. For example, one response read “[I] value the time it gives me to clear my head whilst listening to the radio but sometimes get frustrated especially on the homeward bound commute when traffic is a lot heavier (morning commute is at 4.15am).”

3.2.3. Activities

Activities carried out whilst commuting. Listening to audio was noted in various forms: music, news, podcasts, radio and audiobooks. Some of the respondents were quite specific in describing their listening behaviour – “catch up on audiobooks through my car stereo” – whereas others were more vague, simply stating that they can “listen to what I want to.” Responses regarding interactions with travel companions comprised of “socialising with my husband” and “me and the kids spend time singing together in the car and playing games.” Other activities included reading, running errands en route and taking a nap. Whilst most respondents expressed positive sentiment with regards to the activities they carry out – “I like being able to listen to music in the car and to have time alone” – a few simply stated the activities they engage in without a clear indication of the sentiment – “During commutes I use the time to catch up on news via the radio. I also use this time to listen to educational podcasts.”

The requirement for all study participants to be car drivers may have resulted in a sample with a higher than average proportion of commuters using private vehicles as their mode of transport. This would have limited the range of activities captured in the findings. For example, a train commuter may work on their laptop whilst this would not be possible if driving.

The theme of activities also has a negative aspect, an inability to engage in other activities during the commute. The nature of the commute was described to be the reason for preventing some respondents from carrying out activities: in one instance the commute was too short - “I don’t spend a long time commuting so I don’t get to enjoy music or audiobooks during that time” and in another the individual was physically restricted, “Southern Rail delays and cancellations means you often don’t get a seat so the commute is uncomfortable and you can’t do anything.” Some of the respondents mention a desire to be “doing other things” whilst others simply describe their commute as being wasted time.

3.2.4. Health

Health-related explanations as to why respondents do, or do not, value their time spent commuting. Commuting as a form of physical exercise was noted by those who cycle or walk. Negative health impacts of commuting were also highlighted, with one respondent noting that the drive causes her “a lot of eye strain”.

As explained in Section 3.2.3, the sample may comprise of a higher than average proportion using private vehicles for their commute. This would have restricted the range of health-related reasons, both positive and negative, captured in the findings.

3.2.5. Affect

Emotional responses to the commuting experience. Responses that either solely or predominantly discussed emotions associated with commuting fell into this theme. Relaxing, calming, enjoyable and peaceful were terms used to describe positive commute-related emotions, with typical responses reading “it is calming and take the stress out

of you, especially when playing music” and “I normally get time to relax on my journey to work.” Others found their commute to be stressful, boring, frustrating and tiring, using phrases such as “boring and makes me tired and sometimes stressed if the roads are busy.” In some cases, both positive and negative emotions were expressed within the same sentence, “I am on my own, its a short journey, can be peaceful and relaxing but also can be stressful if it is busy.”

Responses assigned to other themes were often found to also express an emotional response to the commute. In one instance, when describing his commute as a useful Buffer between home and work, the respondent also mentions that it puts him in a “good mood”: “in the mornings it is time to listen to the radio, and get into a good mood before work, on the commute home it is a time to reflect on the day and unwind before you get home.” Similarly, in describing her Activities during her commute, another respondent mentions how they make her feel, “I enjoy using the time to myself and listening to my favourite music that my husband doesn't enjoy.” Whilst only two examples are presented here, emotions were expressed in responses assigned to every theme identified in this study.

3.2.6. Environment

The physical environment in which the commute takes place. The visual appeal, or lack thereof, of their surroundings during the commute drew both positive responses - “I enjoy seeing the wildlife and nature around me” – as well as more negative responses with regards to the repetitive nature of the commute - “Tedium, seeing the same places en-route, even after altering it I still get bored.” The other responses that fall under this theme referred to the opportunity that commuting provides “to be out and about” and “get out into the world before having to go back inside.”

3.2.7. Travel

A general affinity for, or dislike of, travelling. Enjoyment of driving was noted as the reason for valuing their commute by most respondents in this category, using statements such as “I value my time commuting because I like driving cars generally.. Driving gives me joy” and one respondent mentioned their “passion for cars and Motorsport.”

Negative responses were related to being a “nervous driver”, possessing a desire to walk rather than drive due to a dislike of driving, and a general dislike of travel, “especially long trips in the car.” One respondent who had held their driving license for only a short amount of time noted “driving experience” as their reason for valuing their commute very highly.

3.2.8. Necessity

Commuting as a necessity to get to and from the workplace. All of the responses expressed negative sentiment towards their commute, using phrases such as “necessary evil” and describing it as a “chore.”

3.3. Least and Most Valued Commutes

This section focuses on the respondents that placed the least and the greatest value on commuting. Eight respondents rated their commute as *Not Valuable At All*. Their responses fall into the following themes: Necessity (x5), Activities (x3) and Emotions (x1). Nine respondents rated their commute as *Very Valuable*. These responses fall into the following categories: Travel (x3), Emotions (x2), Activities (x2), Environment (x1) and Think/Reflect (x1). Whilst it is not possible to glean much insight based on the small number of commutes rated at the extremes, it is interesting to note the broader range of themes associated with those that find their commute to be very valuable as opposed to those at the other end of the scale.

4. Discussion

Eight distinct themes have been identified to group together factors that may contribute to and/or explain the value that individuals place on their commute: commuting as (1) a buffer between home and the workplace, (2) a time to think or reflect, (3) time to carry out other activities, (4) having an impact on physical health, (5) eliciting an emotional response, (6) exposure to the external environment, (7) a travelling experience, and (8) a necessary part of the day.

This is the first study to take a qualitative approach and explore reasoning for the value individuals place on commuting. A breakdown of individuals' affinity for travel in general was proposed by Mokhtarian & Salomon (2001), as discussed in the introduction. To summarise, they suggest that it comprises of positive utility in three separate, but linked, areas: activities conducted whilst travelling, the activity of travel itself, and activities conducted at the destination. The eight themes identified in this study do, to some extent, fit this model. Activities that are conducted whilst travelling is effectively the same as the theme of *Activities*, and “anti-activity” relates to the theme of *Think/Reflect*. The activity of travel itself corresponds to three themes. First, and most closely, the theme of *Travel* which itself is made up of responses that expressed an affinity for, or dislike of, travel in general. The second and third themes partially fit; however, some of what they comprise is more specific to the commuting experience and cannot be attributed to travel in general. Thus, secondly, the theme of *Environment* fits well with the model when the reasoning relates to the experience of being outdoors and appreciating the visual surroundings; however, this is not the case with regards to how the repetitive nature of commuting affects the experience of moving through the environment. Lastly, the theme of *Health* includes general comments that apply to all travel, such as eye strain when driving, but also includes commute-specific factors such the creation of the need for an additional walk/cycle which increases daily exercise; whilst this physical exertion would be a feature of any travel by these modes, in this case we are specifically focused on the creation of this additional journey. Activities conducted at the destination does not relate to any of the themes.

The three remaining themes, commuting as a *Buffer* between home and the workplace, as a *Necessity*, and *Emotions* associated with the journey, are solely related to the commuting experience. The creation of a fourth element in Mokhtarian and Salomon's model to encompass all commute-specific reasoning – the activity of commuting itself – would ensure that all themes identified in this study are included. However, the issue of some themes being relevant to multiple elements of that model would still remain. Thus, whilst there is some crossover between the two studies, the findings differ significantly. This is unsurprising given the specific nature of commuting.

The commute is a unique type of journey distinct from other forms of travel and the value it holds for commuters cannot be explained using generic models designed for travel in general. The eight themes identified in this study provide a first step in identifying a model of the value that individuals' place on their commute.

4.1. Limitations and Further Work

The study sample comprised of individuals who hold a driving license and drive regularly. Thus, it can be assumed that a greater than average proportion of our sample drove to/from work. This may have skewed our results, limiting the range of responses. It is reasonable, therefore, to speculate that a more representative sample may reveal additional themes to those reported on in this study.

A subsequent study using a sample comprised of commuters travelling via a wider range of transport modes is currently in progress. The value of time spent commuting will be explored separately for each of the most commonly used transport modes.

5. Conclusion

Understanding the value of commuting as perceived by commuters is crucial when implementing workplace schemes that impact the nature of the commute. This study offers some insight by identifying eight distinct themes that could be used to evaluate the value of commuting. While our study was exploratory, it offers an important first step in understanding the commuter's relationship with their commute and provides foundations that may be built upon to develop a more comprehensive model.

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