

How and Why Commuting Influences Life Satisfaction

Commuting and Wellbeing Bulletin 2 – December 2016

Longer duration commutes are linked to lower levels of life satisfaction. The nature of this link varies by type of transport used.

People take on longer commutes to improve their employment situations and incomes. But our analysis of Understanding Society data shows that longer commute times are linked to lower life satisfaction, even after accounting for compensation from better jobs and higher incomes.

Why?

We found that longer duration commutes are associated with:

- (i) higher levels of strain;
- (ii) lower levels of satisfaction with leisure time availability; and
- (iii) lower levels of job satisfaction.

In turn, these factors are all associated with lower levels of life satisfaction.

Commute mode

These links between commuting and life satisfaction were found to apply for **drivers** and **cyclists**, but there are differences for those that **walk**, or use **public transport** to get to work.

For walkers, longer duration commutes are only found to be associated with lower job satisfaction.

For bus users, longer duration commutes are only found to be associated with lower satisfaction with leisure time availability.

For rail users, longer duration commutes are found to be associated with *lower* levels of strain. This suggests that people with shorter rail commutes find them to be more stressful, possibly as these are more likely to involve the use of crowded, urban commuter lines or metro systems.

Monetary valuation of longer duration commutes

From our analysis we estimate that a 10 minute increase in one-way commute time is equivalent to a £490 per month reduction in gross personal income.

Policy implications

Policies and investments which reduce commute times can be expected to improve life satisfaction across the working population. Improvements to the public transport journey experience can also be expected to have a positive impact on life satisfaction.

Your views

We are interested in your views on these insights. In particular:

1. What do you think are the most important implications of these findings and which sectors should respond (transport, health, employment, housing, spatial planning)? and
2. What additional evidence will be of value regarding the impact of commuting on personal wellbeing?

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Data on commuting and wellbeing

The Commuting and Wellbeing project team is analysing data from the [Understanding Society](#) survey¹. Understanding Society is an innovative world leading study about 21st century UK life. Members of 40,000 households are being surveyed every year to track how their lives are changing over time.

This bulletin reports findings from our analysis of data from wave two of the Understanding Society survey (conducted in 2010/11). The aim of the analysis was to understand how commuting is related to different aspects of personal wellbeing.

How do people get to work in England?

The survey confirmed that in 2010/11, the majority (over 60%) of employed people in England travelled to work by car. Walking was the next most common means of travelling to work. This is a similar mode share distribution to that obtained in the 2011 census.

Mode	Percentage using mode			Mean one-way commute time (mins)		
	Full sample	Males	Females	Full sample	Males	Females
Drive	58	60	56	24	27	22
Lift from household member	4	2	5	18	20	17
Lift from someone else	2	2	2	25	28	22
Motorcycle	1	1	0	23	24	17
Taxi	0	0	0	17	23	16
Bus/coach	6	5	7	40	42	38
Train	5	6	4	66	69	62
Metro	3	3	2	52	52	52
Cycle	3	5	2	21	21	18
Walk	11	8	14	16	16	15
Work from home	7	7	6	0	0	0
Other	1	1	1	31	34	25
Total	100	100	100	27	30	24

Population weighted estimates based on combined Understanding Society General Population, BHPS and Ethnic Minority boost sample members living in England.

n=21,566

How much time do people spend travelling to work?

Door to door commute journeys were found to take around 27 minutes on average, but there are large differences in commute durations between modes. Rail commuters travelled for over an hour on average, while car drivers commuted for 24 minutes on average. Walking and cycle commutes were much shorter. Men have slightly longer duration commutes than women (six minutes more on average).

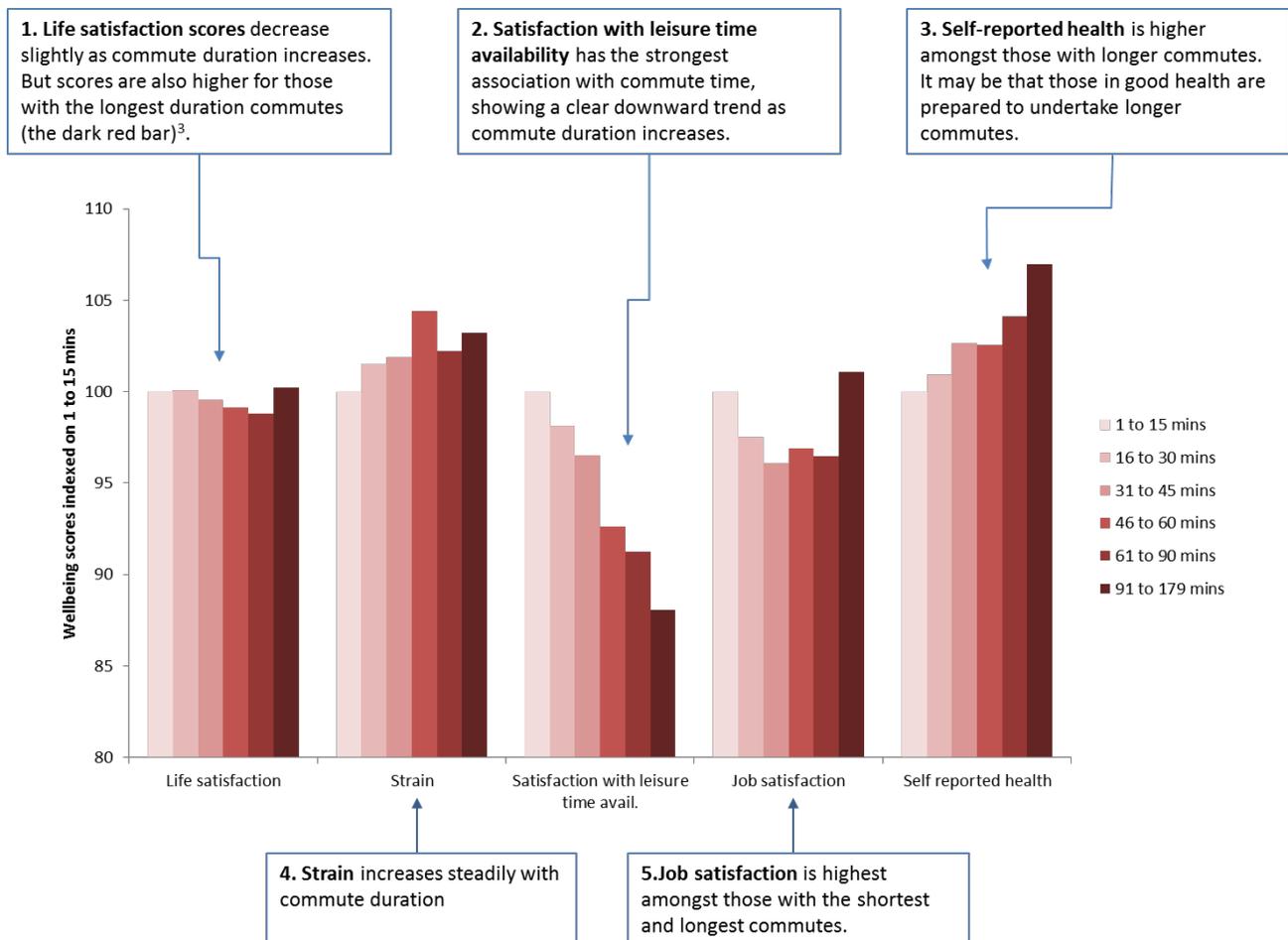
What aspects of personal wellbeing are recorded in Understanding Society?

We sought to identify how the following aspects of personal wellbeing, which are recorded in the Understanding Society survey, are influenced by commuting:

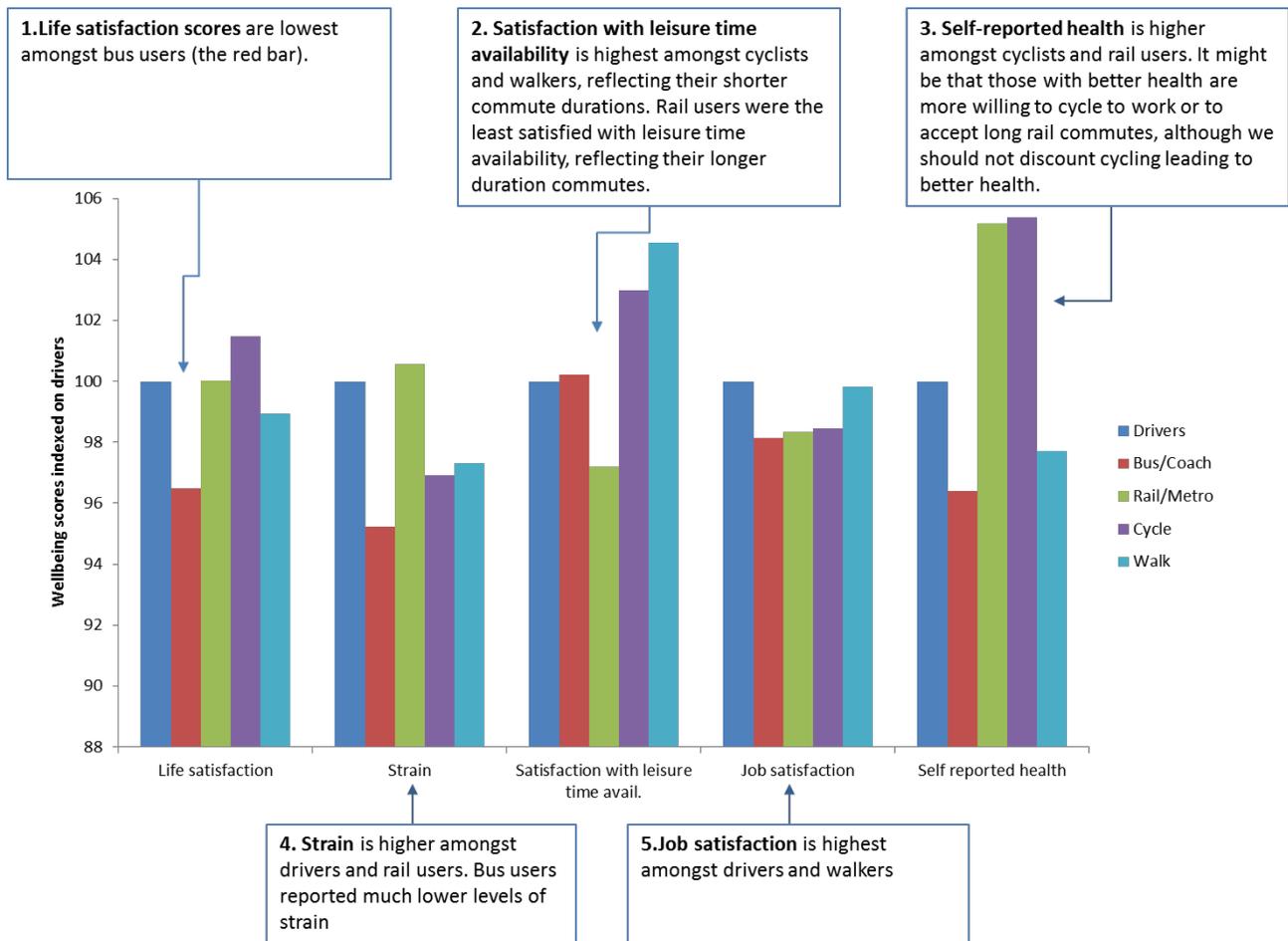
- Life satisfaction** How dissatisfied or satisfied are you with your life overall? (measured on a 7-point scale)
- Strain** Have you recently felt constantly under strain? (measured on a 4-point scale)
- Satisfaction with leisure time availability** How dissatisfied or satisfied are you with the amount of leisure time you have? (measured on a 7-point scale)
- Job satisfaction** How dissatisfied or satisfied are you with your job? (measured on a 7-point scale)
- Self-reported health** In general, would you say your health is? (excellent to poor on a 5-point scale)

The following two bar charts illustrate how commuting time and mode are associated with personal wellbeing:

How is personal wellbeing associated with commute time?²



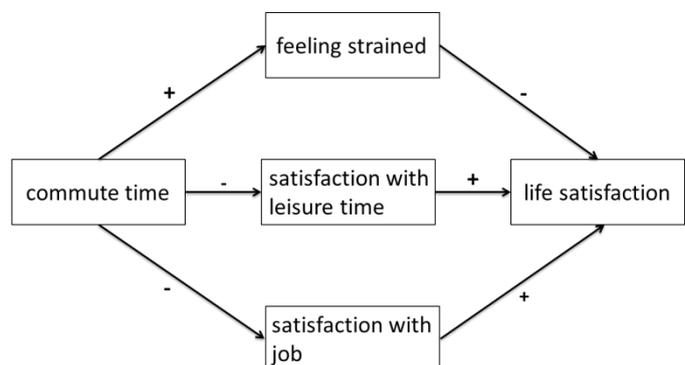
How is personal wellbeing associated with commute mode?²



Why might longer duration commutes influence life satisfaction?

We developed a model to identify why longer duration commutes might have a negative impact on life satisfaction as indicated in the bar charts above. The model tested three theories, that:

- (i) longer duration commutes increase feelings of strain (through time pressure and travel time discomfort), which in turn reduces life satisfaction;
- (ii) longer duration commutes reduce satisfaction with leisure time availability, which in turn reduces life satisfaction; and
- (iii) longer duration commutes reduce job satisfaction (through negative emotions and consequences spilling over into working time), which in turn reduces life satisfaction.



The model was designed to show the effect of commute duration over and above other factors that influence personal wellbeing^{4,5}.

The evidence

- **When considering all commuters**, we demonstrated that longer duration commutes are associated with lower life satisfaction scores (after accounting for other factors).
- The lower life satisfaction scores were confirmed to arise from longer duration commutes being associated with: higher levels of strain, lower levels of satisfaction with leisure time availability and lower job satisfaction.

Is the commute mode important?

- Yes. These same relationships were found to apply for **drivers** and **cyclists**, but there are differences for those that walk, or use public transport to get to work.
- For **walkers**, longer duration commutes are only found to be associated with lower job satisfaction, which in turn is linked to lower levels of life satisfaction.
- For **bus users**, longer duration commutes are only found to be associated with lower satisfaction with leisure time availability, which in turn is linked to lower levels of life satisfaction.
- An interesting *reverse relationship* is found for **rail users**, where longer duration commutes are associated with *higher* life satisfaction scores. The model showed that lower levels of satisfaction with leisure time availability associated with longer rail commutes are counteracted by lower levels of strain⁶. This suggests that people with shorter rail commutes find them to be more stressful, possibly as these are more likely to involve the use of crowded, urban commuter lines or metro systems.

	Association of longer commute times with:			Net association with life satisfaction
	Levels of strain	Satisfaction with leisure time	Job satisfaction	
All modes	Higher	Lower	Lower	Negative
Drivers	Higher	Lower	Lower	Negative
Bus users	None	Lower	None	Negative
Rail/metro	Lower	Lower	None	Positive
Walkers	None	None	Lower	Negative
Cyclists	Higher	Lower	Lower	Negative

- For further details about these results, please refer to the [technical appendix](#).

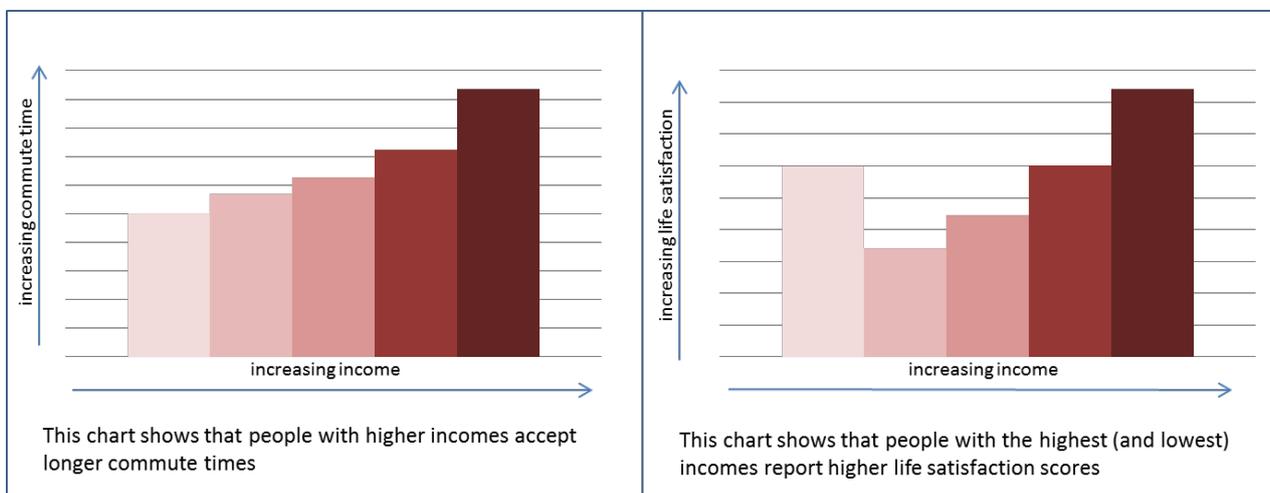
How much do people need to earn to compensate for longer duration commutes?

We can use the model to provide an indication of how much people need to earn in order to compensate for longer duration commutes. This suggests that commuters need to earn £490 more per month (in gross personal income) to maintain the same level of life satisfaction if they experience a 10 minute increase in one-way commute time (holding constant other possible compensatory factors such as employment type, residence). Further details about this estimation are provided in the [technical appendix](#)⁷.

Why do people take on longer duration commutes if this reduces life satisfaction?

If there is an adverse effect of longer duration commutes on life satisfaction, as suggested by these findings, then much lower life satisfaction scores would have been expected for those with long commutes. But the bar charts presented above indicate that those with longer duration commutes have only *marginally lower* life satisfaction scores.

The explanation of this is that longer commute times are associated with higher household income and managerial jobs, which are associated with higher life satisfaction scores (as illustrated in relation to income below):



Overall, we conclude that people with longer duration commutes are partially, but not fully, compensated by other benefits from their employment, and potentially from their residential and family situation.

What are the policy implications of these insights?

The above evidence implies that policies and investments which reduce commute times (by all modes, with the exception of rail), while also enabling access to the same employment opportunities, housing quality and earnings, would improve life satisfaction across the population. For spatial planning, this indicates the benefits of housing being built in closer proximity to employment centres. For transport planning, this indicates the need for efficient transport links between housing and employment. The results for rail commuting suggest that improvements to the public transport journey experience could also have a positive impact on life satisfaction (e.g. providing more seats and WiFi).

Next steps

In the next work packages we will be exploiting the *longitudinal data* available in Understanding Society to examine what happens to wellbeing *over a five year period* in relation to maintaining the same commute or changing commute mode. For example, we will be able to explore what happens to the wellbeing of an individual if he/she switches from driving to a physically active mode like walking or cycling or the other way around.

End notes

1. Understanding Society is also known as the UK Household Longitudinal Study.
2. People that work from home were excluded from the analysis as we were interested in the impact of the commute journey on personal wellbeing. These graphs show bivariate relationships without controlling for other factors (e.g. income).
3. There are relatively few people with commute times of over 90 minutes (only 1% of the sample). It is not known how often these people travel to work during the week.
4. The model took account of a number of correlates of wellbeing including: gender, age, ethnicity, self-reported health, long standing health condition, education, working hours, employment type, temporary employment, personal gross monthly income, equivalised net household income, living with own children, living with a partner, preference to stay in current home.
5. Self-reported health was not included in the model. Testing indicated no relationship between commute time and self-reported health.
6. There are also unobserved compensatory factors associated with longer duration rail commutes that are associated with higher life satisfaction.
7. We will be conducting further analysis on the monetisation of commute time.