Life Transitions and Travel Behaviour Study

Evidence Summary 2 – Drivers of change to commuting mode

Job changes and home moves disrupt established commuting patterns

This leaflet summarises **new analysis** (using the *Understanding Society* panel survey) which shows that **changing job and moving home** are frequently experienced events amongst the working population, especially younger workers. These life events **strongly increase the likelihood of changing commuting mode,** particularly through impacts on distance to travel and availability of transport options. This highlights the substantial opportunity to influence commuting behaviour at these '*moments of change'*.

Key findings:

Car commuting is a stable phenomenon. Nearly two-thirds of workers commute to work by car and on average sustain this for 6 years, while the smaller share of workers who use public transport, walk or cycle only sustain it for 3 years on average. 1 in10 car commuters stop getting to work this way each year while it is 3 in 10 for those using other modes.

Explaining commuting behaviour. The rich data from *Understanding Society* on people's circumstances along with linking to spatial data on residential context allowed new insights to be obtained on why people commute by car and active modes (walking and cycling):

Car commuting – car access, distance to work and restricted opportunities to travel by alternatives (especially rail) afforded by residential context are the strongest determinants of car commuting. After accounting for these, females, those of lower employment status, those with children and those in middle years of working life are more likely to use cars. Constraints and responsibilities associated with these groups make the car the preferred option. A willingness to act to protect the environment makes people less likely to commute by car, showing attitudes also matter.

Active commuting – similar factors explain active commuting but with the distinction that *mixed land use* characteristics of residential environment are more important than rail station access. In contrast to car commuting, education level, income and gender are not important, but employment type is found to have a stronger effect with those working in higher categories of employment (management) being less likely to commute by active travel.

Changing commuting mode. Changes in commuting mode from wave 1 to 2 of *Understanding Society* are far more likely for those experiencing *life events*. Analysis of the importance of different factors showed the primary significance of:

- **Job/home changes** particularly through their effect on distance to work and their effect on opportunities to use alternatives in a new residential context. Moving to within 3 miles of work strongly increases likelihood of switching to non-car commuting (or active travel) and moving to more than 2 miles from work very strongly increases likelihood of switching to car commuting (or non-active travel).
- **Gaining a driving licence** makes it likely that a switch to car commuting will occur. Regardless of this, young workers aged less than 30 are more likely to switch to car commuting. This shows a tendency to move towards car use in early working life.
- **Willingess to act to protect the environment** makes it more likely to switch from car to other commuting modes showing individual differences in attitudes are relevant, in addition to instrumental factors, for whether employees make a change away from using the car.

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What is *Understanding Society* and how was it used in the Life Transitions study?

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. The ESRC funded 'Life Transitions and Travel Behaviour' study used data from the first two waves of *Understanding Society* (2009/10 to 2010/11) to examine the extent to which people across England *change travel behaviour* (including commute mode) *at the same time as major life events* (e.g. moving home). Although it seems intuitive that people are more likely to change travel behaviour at the time of a life event, there has been very little evidence to date of the number of people across the population that experience different life events and change behaviour from year to year.

In this study we focussed on two categories of commuting behaviour: 1. Commuting by car and changes to/from this; and 2. commuting by walking and cycling (active commuting) and changes to/from this. We also used longitudinal data from the **British Household Panel Survey (BHPS)** – the forerunner to *Understanding Society*. This survey ran for 18 years between 1991 and 2009 and enabled us to examine how *stable* commuting behaviours are over the *longer term*.

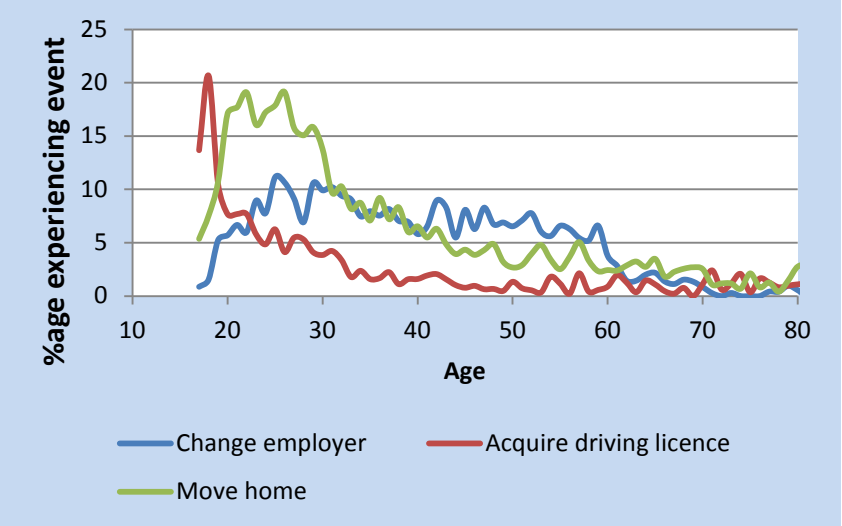
How many people experience different life events from year to year?

Understanding Society confirmed that residential relocations were the most commonly experienced event in England in the period between 2009/10 and 2010/11, followed by changes in employer:

Life Event	Percentage of English adults (weighted)	Unweighted sample counts\percentage			
		Yes	No	Total	Percentage
Residential relocation	6.9%	2032	30097	32129	6.3%
Change of employer	6.2%	1770	28388	30158	5.9%
Entered employment from non-employment	5.1%	1621	30522	32143	5.0%
Lost employment (excluding retirement)	3.3%	1065	31078	32143	3.3%
Had child	3.1%	939	28655	29594	3.2%
Gained a driving licence	2.5%	836	31191	32027	2.6%
Gained a partner	1.6%	473	31678	32151	1.5%
Lost a partner	1.3%	395	31756	32151	1.2%
Retired	1.2%	380	31763	32143	1.2%

Source: Understanding Society, Waves 1 and 2 (2009/10 - 2010/11), English residents only, n=32,159

It also illustrated how the lives of younger people are much more changeable than those of older people. For instance, younger people, below about 30 years of age, are more likely to acquire a driving licence and move home. Changing employer occurs more evenly over the working life.



How were people commuting to work in 2009/10?

Understanding Society asks each employed person how they usually get to their place of work. Our analysis sample consisted of residents of England employed both in 2009/10 and 2010/11 (N=15,200). The data confirmed the car as the most common method for travelling to work in 2009/10, providing transport for nearly two-thirds of those that were in employment. Walking and working from home (WFH) were the next most commonly chosen options:

Commute mode	Percentage of English workforce (weighted)	Unweighted sample counts / percentage	
		Frequency	Percentage
Car (as driver or passenger)	64.2%	9561	62.9%
Walk	10.0%	1621	10.7%
Working from home	7.8%	1145	7.5%
Bus/coach	5.4%	1014	6.7%
Train	4.5%	679	4.5%
Cycle	3.6%	478	3.1%
Underground/light rail	2.7%	457	3.0%
Other	1.7%	245	1.6%
Total	**100.0%**	15200	100.0%

How many people changed commuting mode between 2009/10 and 2010/11?

20% of the sample changed commuting mode between 2009/10 and 2010/11. The likelihood of changing commute mode depends on the commute mode used in wave one. For example over 90% of car commuters were still commuting by car the following year. By contrast, a third of cyclists had changed to an alternative mode, with the largest share (16% of cyclists) switching to commuting by car. Overall we can say that car commuting is a more stable behaviour than non-car commuting and is also the most attractive alternative to users of other modes.

Commute mode in year t	%age of people switching to commute mode by year t+1							
	Car	Walk	WFH	Bus/coach	Train	Cycle	Metro	Other
Car	91.4%	2.5%	2.1%	1.1%	1.0%	0.6%	0.3%	1.0%
Walk	13.3%	76.1%	1.5%	4.6%	1.3%	1.6%	0.5%	1.0%
WFH	26.5%	3.5%	62.4%	0.8%	3.0%	0.6%	1.0%	2.3%
Bus/coach	16.6%	8.4%	1.1%	65.8%	2.7%	1.7%	2.5%	1.4%
Train	9.3%	2.9%	2.7%	5.7%	70.7%	1.0%	6.6%	1.0%
Cycle	16.3%	9.0%	0.8%	1.7%	1.9%	67.4%	1.0%	1.9%
Metro	6.8%	2.0%	2.4%	8.3%	13.1%	1.5%	64.3%	1.5%
Other	29.4%	10.6%	4.1%	2.4%	4.5%	3.3%	2.9%	42.9%

How often do people change commute mode over their working lives?

Greater stability of car commuting is also confirmed by longer history (18 year) data from BHPS. BHPS data for 4098 individuals that participated in all 18 years of the survey revealed that, on average, survey respondents stayed commuting by car for twice as long (six years) as they persevered with commuting by public transport, walking or cycling (three years on average). This shows that people do not maintain non-car commuting over the longer term and indicates that once they start car commuting they are likely to remain a car commuter for a significant period of time.

Commute mode	Mean length of commuting spell (no. of consecutive years)
Car / motorcycle	6.3
Walk or cycle	3.2
Public transport	3.0

Are people more likely to change commuting mode at the time of a life event?

Yes, two-wave data from *Understanding Society* demonstrates this. The table below compares the percentage of our sample changing commuting mode at the time of a life event to the percentage changing commute mode in the absence of the life event. The data has been weighted so the results represent the English working population. Grey shading indicates that the life event is not associated with greater likelihood of a commute mode change occurring.

	Car to non-car		Non-car to car	
Life event	with life event %	with no life event %	with life event %	with no life event %
Gained a driving licence	18.48	8.49	34.68	16.10
Switched employer	18.21	7.38	29.39	15.08
Gained a partner	16.32	8.40	23.86	16.65
Residential relocation	15.01	8.04	23.24	16.15
Had child	8.54	8.58	22.85	16.56
Lost a partner	16.45	8.48	15.78	16.81
	Active to non-active		**Non-active to active**	
Life event	**with life event %**	**with no life event %**	**with life event %**	**with no life event %**
Switched employer	63.62	18.99	9.04	3.41
Gained a driving licence	53.67	22.38	7.65	4.00
Residential relocation	38.22	21.78	8.23	3.70
Gained a partner	31.73	23.42	5.39	4.00
Had child	29.56	23.35	2.74	4.11
Lost a partner	23.62	20.92	6.95	4.02

The results indicate that residential relocations, employment switches and gaining a driving licence are all associated with increased likelihood of changing commute mode to or from car/active commuting. It is also apparent that switching away from non-car and active commuting is far more prevalent than switching towards non-car or active commuting. For example, the majority of active commuters, 64%, switched to non-active commuting when they changed employer. Having a child is associated with increased likelihood of switching to car of those that stay in employment. Partnership formation and dissolution are associated with increased likelihood of switching to non-car commuting but not associated with changes to or from active commuting.

Multiple regression analysis with the *Understanding Society* data has been used to investigate the importance of life events, and the changes in circumstances associated with them, in triggering changes to commuting mode alongside other factors.

What predicts car commuting?

Before looking at changes to/from car commuting, we used *Understanding Society* wave one data (2009/10) and multiple regression analysis to identify attributes associated with car commuting. Statistical significance in the table below indicates the probability that the observed effect could occur by chance. The number of +/- signs indicates the extent to which car commuting becomes more (+) or less (-) likely with the attribute. **Car use opportunity** and **distance to work** have the strongest effects. Having a driving licence and greater access to cars increases the likelihood of commuting by car. Commuting by car increases in likelihood as the distance to work increases, but only up to 25 miles, after which rail competes with car. The **residential context** has a strong effect with living in areas with greater access to alternatives to the car (London, higher population density, proximity to rail, poorer living environment – associated with main roads) reducing likelihood of commuting by car. The result that higher deprivation is associated with higher likelihood of car commuting may arise due to such locations having poorer public transport connectivity to employment. After accounting for other factors, **higher economic status,** as indicated by educational qualifications and income, is associated with reduced likelihood of car commuting. One possible explanation for this is higher status jobs being located in larger urban areas less accessible by car. Self-employed and those working for small employers are less likely to commute by car (as they have a tendency to work from home) and those in lower supervisory and technical roles have increased likelihood of commuting by car. **Gender and life-stage** are relevant with the likelihood of car commuting greater for females, having children present in the household and being 25-44 or 60+ (after accounting for other factors such as car access and distance to work). This suggests that those with caring and household responsibilities prefer to use a car. **Attitudes** are found to play a role with willingness to act to protect the environment associated with lower likelihood of car use.

Attribute	Statistical significance	Likelihood of car use
Car use opportunity		
Have driving licence	<0.1%	**++++**
Number of cars in household	<0.1%	**++**
Number of people in the household	0.1%	**-**
Distance to work	<0.1%	**++++**
Residential context		
Live in London	<0.1%	**--**
Population density	<0.1%	**-**
Local rail station available	5%	**-**
Higher deprivation	<0.1%	**+**
Poor living environment	<0.1%	**-**
Economic status		
Higher educational qualifications	<0.1%	**--**
Income	<0.1%	**-**
Full time employment	0.1%	**+**
Self-employed / small employer	1%	**-**
Lower supervisory / technical role	1%	**+**
Gender and life-stage		
Children present in household	<0.1%	**+**
Female	1%	**+**
Aged 25-44, 60+	1%	**+**
Attitude		
Environmental personal norm	<0.1%	**-**

What predicts switching to/from car commuting?

Predictors of *switching* to and from car commuting are summarised in the figure overleaf. A **change in distance to work** most strongly predicts switching to/from car commuting. Sensitivity tests indicate that an increase from 2 miles or less to at least 2 miles very strongly predicts a switch to car (increasing likelihood by 30 times) and a decrease from 3 miles or more to less than 3 miles predicts a switch to non-car (increasing likelihood by 9 times).

Such changes occur either when moving home or changing employer (or both). These are frequently experienced, especially by younger adults, and are therefore of great significance for commuting. Residential relocations that involve an **increase in population density** and **reduced public transport travel times to employment centres** increase the likelihood of switching to non-car commuting, highlighting the importance of public transport availability/connectivity in reducing car commuting. Beyond these effects on journey distance and context, changing employer and moving home, as events in themselves, are associated with increased likelihood of changing to and from car commuting. This could be simply because they prompt deliberation about how to get to work which would not occur otherwise, but it may also be because they modify the attractiveness of commuting by different modes in ways that were not captured by the data (no information was available on transport attributes of the workplace).

Acquiring a driving licence is found to strongly predict a switch to car commuting – it is worth noting that a licence may be acquired with travel to work in mind. **Stopping cohabitating** increases likelihood of switching from car to non-car which reflects the loss of a car which will often occur in this circumstance. The results also show that workers in different population groups and residential contexts have different propensities to switch to and from car commuting. Those aged 16-29 are more likely than other age groups to switch towards car commuting, indicating that young adults tend to move towards car commuting in their early years in the labour force. On the other hand highly educated individuals are less likely to switch to car commuting, suggesting that they take on jobs and residential locations that do not suit car commuting (whether this is willingly or not is not known). **Willingness to act to protect the environment** increases likelihood of switching from car to non-car, but is not found to affect the opposite switch, which suggests that attitude plays an active role for car commuters considering alternatives.

Predictors of switching to / from car commuting

Switching from commuting by non-car to car

Predicted by following life events and changes in circumstances associated with them:

Acquiring driving licence

Distance to work increasing from 2 miles or less to at least 2 miles

Switching employer (beyond above effect)

Moving home (beyond above effect)

Predicted by following characteristics at wave one:

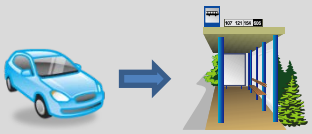
Car use opportunity: Have driving licence, more cars in household.

Residential context: Live outside London, live close to large employment centres.

Economic status: Do not have higher education qualification.

Gender and life-stage: Male, aged 16-29.

Switching from commuting by car to non-car



Predicted by following life events and changes in circumstances associated with them:

Not acquiring driving licence

Distance to work decreasing from 3 miles or more to less than 3 miles

Switching employer (beyond above effect)

Moving to area with higher population density

Moving to area with reduced public transport travel times to employment centres

Moving home (beyond above effects)

Stopping cohabitating

Predicted by following characteristics at wave one:

Car use opportunity: Do not have driving licence, fewer cars in household.

Residential context: Live in area with poorer living environment.

Economic status: Self-employed or working for a small employer.

Attitudes: Willing to act to protect environment.

What predicts active commuting?

Before looking at changes to/from active commuting (walking and cycling), we used the *Understanding Society* wave one data (2009/10) and multiple regression analysis to identify attributes associated with active commuting. Here we explain how these attributes are similar or different to those found to be associated with car commuting.

Attribute	Statistical significance	Likelihood of active commuting
Car use opportunity		
Have driving licence	<0.1%	--
Number of cars in household	<0.1%	-
Number of people in the household	<5%	+
Distance to work	<0.1%	----
Residential context		
Urban, non-London/Metro	<5%	+
Outer London	<5%	-
Population density	<1%	+
Close to food stores	<0.1%	+
Close to large employment sites	<0.1%	-
Number of bus stops	<1%	+
Journey time to employment by PT	<5%	-
Higher deprivation	<0.1%	-
Poor living environment	<0.1%	+
Employment type		
Higher professional status	<0.1%	-
Self-employed / small employer	<0.1%	--
Full time employment	<0.1%	-
Life-stage		
Children present in household	<1%	-
Aged 60+	1%	-
Attitude		
Environmental personal norm	<0.1%	+

In common with car commuting, **distance to work** and **car use opportunity** have the strongest effects. Active commuting is most likely for those living within two miles of work and the likelihood reduces for those within 2-5 miles (0.6 times the likelihood of those within 2 miles) and drops sharply for longer distances. Having a driving licence and greater access to cars reduces the likelihood of active commuting. The **residential context** has a strong effect, but different characteristics play a role than with car commuting. Living in mixed land use areas (higher population density, close proximity to food stores, not close to large employment centres, poorer living environment - associated with main roads) and good access to bus services (more bus stops, shorter public transport journey times to employment) increase likelihood of active commuting. Access to a local rail station (which reduces likelihood of car commuting) does not have an effect. This suggests that the nature of the local built environment is important to active commuting. The result that higher deprivation is associated with lower likelihood of active commuting may arise due to such locations being poorly connected to employment sites and/or social groups living in these areas not being positive towards walking and cycling. Active commuting is more likely in non-metropolitan urban areas than metropolitan areas (including London) and rural areas after considering other factors such as distance to work. In contrast to car commuting, education level, income and gender are not important, but **employment type** is found to have a stronger effect. Those working in higher categories of employment (e.g. management roles) and those working for small employers or in self-employment are less likely to commute by active travel. The **attitude** relationship is as expected with willingness to act to protect the environment associated with increased likelihood of active commuting.

What predicts switching to/from active commuting?

Predictors of *switching* to and from active commuting are summarised in the figure below. The life events identified as important for switching to/from car commuting also hold for switching to/from active commuting. Employment changes and residential relocations that alter the **distance to work** are the strongest predictor of switches to and from active commuting. Sensitivity tests indicated that a decrease from 3 miles or more to less than 3 miles predicts a switch to active travel (increasing likelihood by 5 times) and an increase from 2 miles or less to at least 2 miles very strongly predicts a switch to non-active commuting (increasing likelihood by 31 times). Active commuting is very unlikely to be sustained when distance to work increases beyond 2 miles. In comparison to switches to non-car commuting, different residential context changes are found to predict switches to active travel. Starting active commuting is more likely in association with **moves to mixed land use areas** (indicated by more food stores and fewer large employment centres), while switching to non-car commuting was associated with reduced public transport times to employment. The results also show that workers in different population groups and spatial contexts have different propensities to switch to and from active commuting. In contrast to switches to/from car commuting, education level is not found to be important but employment type is important. Those in management / professional jobs are less likely to begin active commuting than other employment categories. Consistent with switches to/from car commuting, younger adults aged 16-29 are more likely than other age groups to curtail active commuting. It is found that willingness to act to protect the environment increases likelihood of starting active commuting, but it is not found to affect the opposite switch. This suggests that attitude plays a role for those considering active commuting.

Predictors of switching to / from active commuting

Switching from non-active to active commuting

Predicted by the following life events and changes in circumstances associated with them:

Distance to work decreasing from 3 miles or more to less than 3 miles

Switching employer (beyond above effect)

Moving to an area with fewer large employment centres

Moving to an area with more food stores

Moving home (beyond above effects)

Predicted by the following characteristics at wave one:

Car use opportunity: Do not have a driving licence, fewer cars in the household.

Residential context: Live in an area with more food stores, live in lower deprivation area, live in area with poorer living environment.

Employment type: Part-time employed, not working in management/professional.

Attitudes: Willing to act to protect the environment.

Switching from active to non-active commuting

Predicted by the following life events and changes in circumstances associated with them:

Distance to work increasing from 2 miles or less to more than 2 miles

Switching employer (beyond above effect)

Acquiring driving licence

Moving to an area with increased public transport travel times to employment centres

Moving home (beyond above effect)

Predicted by the following characteristics at wave one:

Car use opportunity: Have a driving licence, more cars in the household.

Residential context: Live in area with more large employment centres.

Life-stage: Aged 16-29.

Employment type: Lower supervisory & technical, self-employed or working for small employer.

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