Examining the relationship between life transitions and travel behaviour change:

New insights from the UK Household Longitudinal Study

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Conclusion

1. Life events are important triggers for travel behaviour change

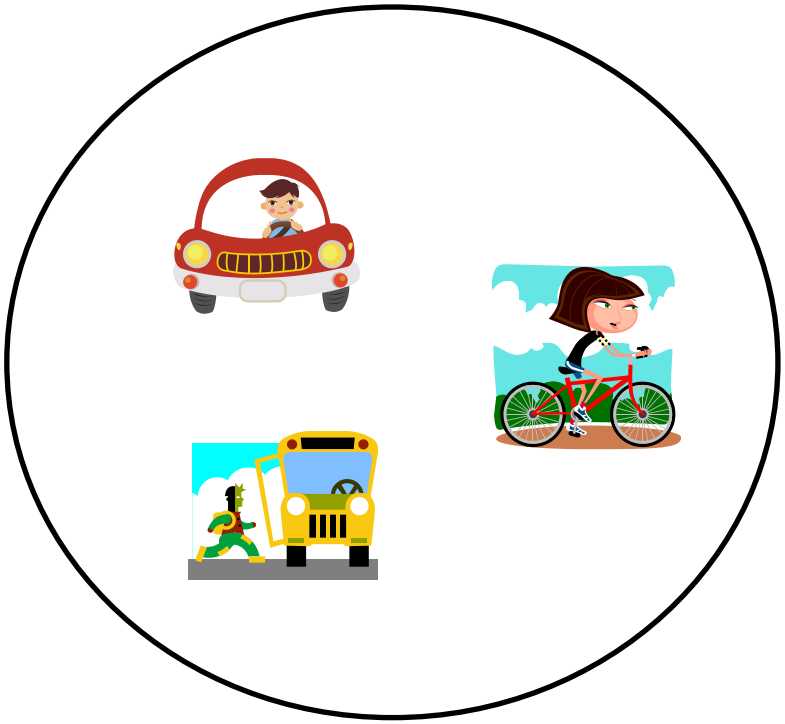
   but we need evidence for this at the population level

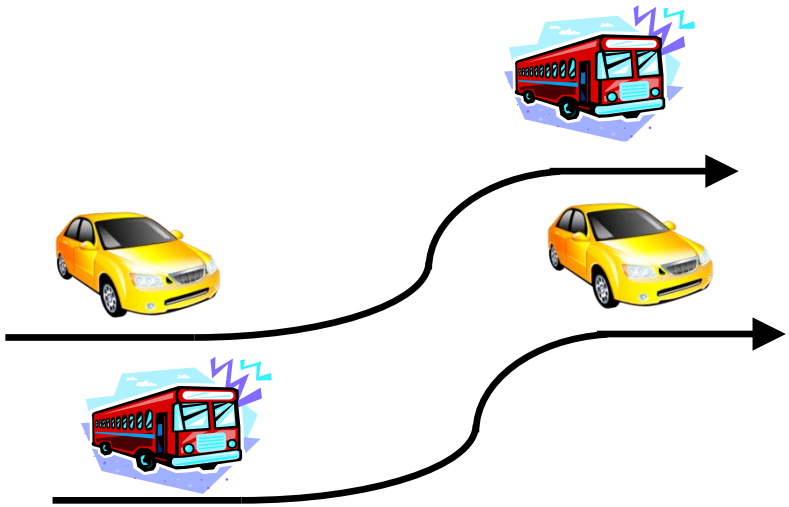
2. *Understanding Society* offers new opportunity to examine how and why travel behaviours are evolving over time

Overview of presentation

1. Adopting a longitudinal approach to travel behaviour research
2. Research questions
3. Data set preparation
4. The new evidence
5. Next steps and conclusions

Cross-sectional vs longitudinal





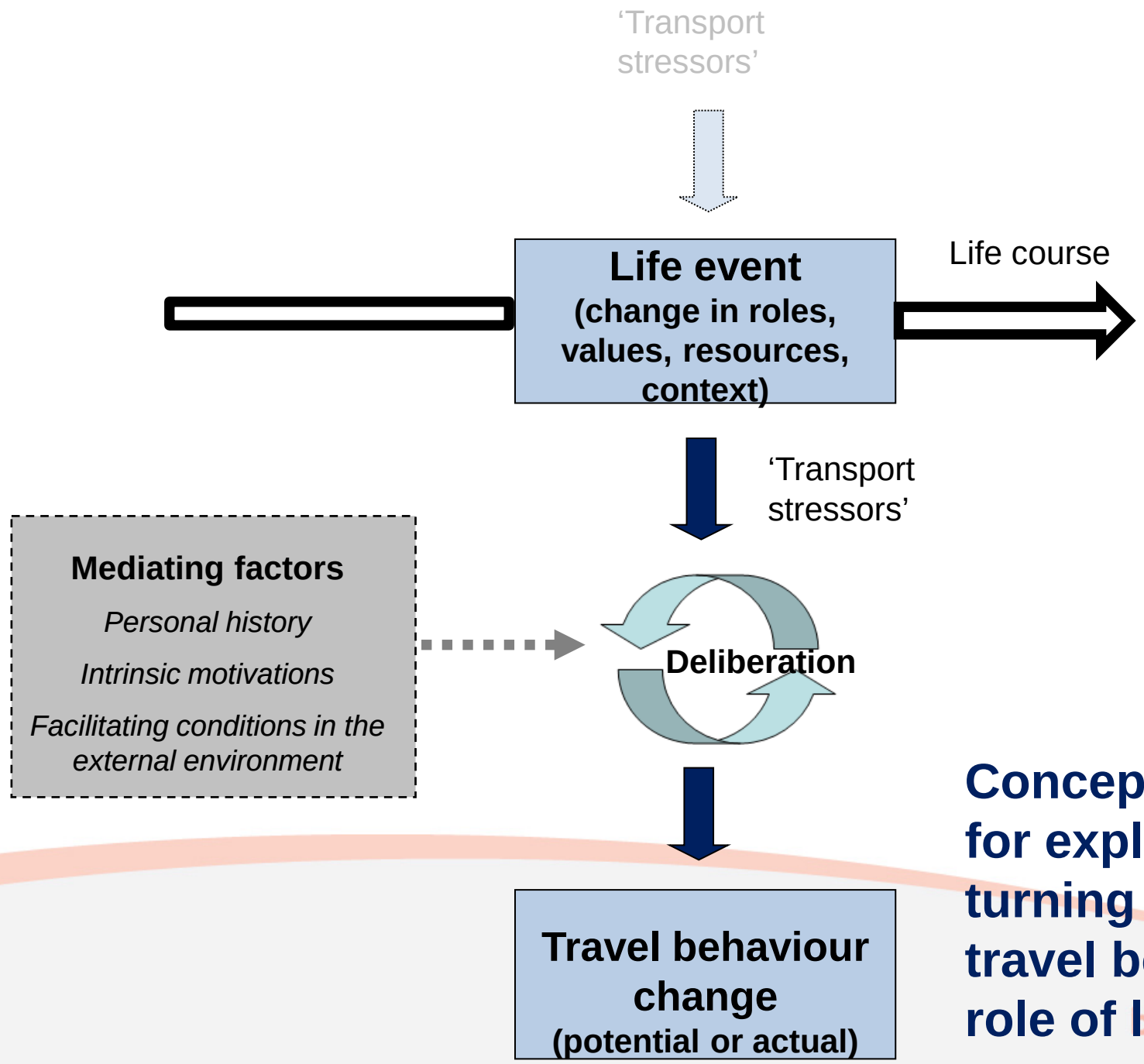
Explaining differences in behaviour by differences in prevailing circumstances

Explaining evolution of behaviour by differences over time in circumstances

What do life events alter?

- Roles people perform
- Values and preferences
- Resources available for travel
- Context for travel

→These can change the characteristics of travel considered salient and hence attitudes towards travel modes



Conceptual model for explaining turning points in travel behaviour - role of life events

Research questions

1. To what extent are different life events associated with changes in travel behaviour

2. Under what conditions are life events most likely to result in changes in travel behaviour and why?

Don't we already know that people change travel behaviour at the time of life events?

A data opportunity

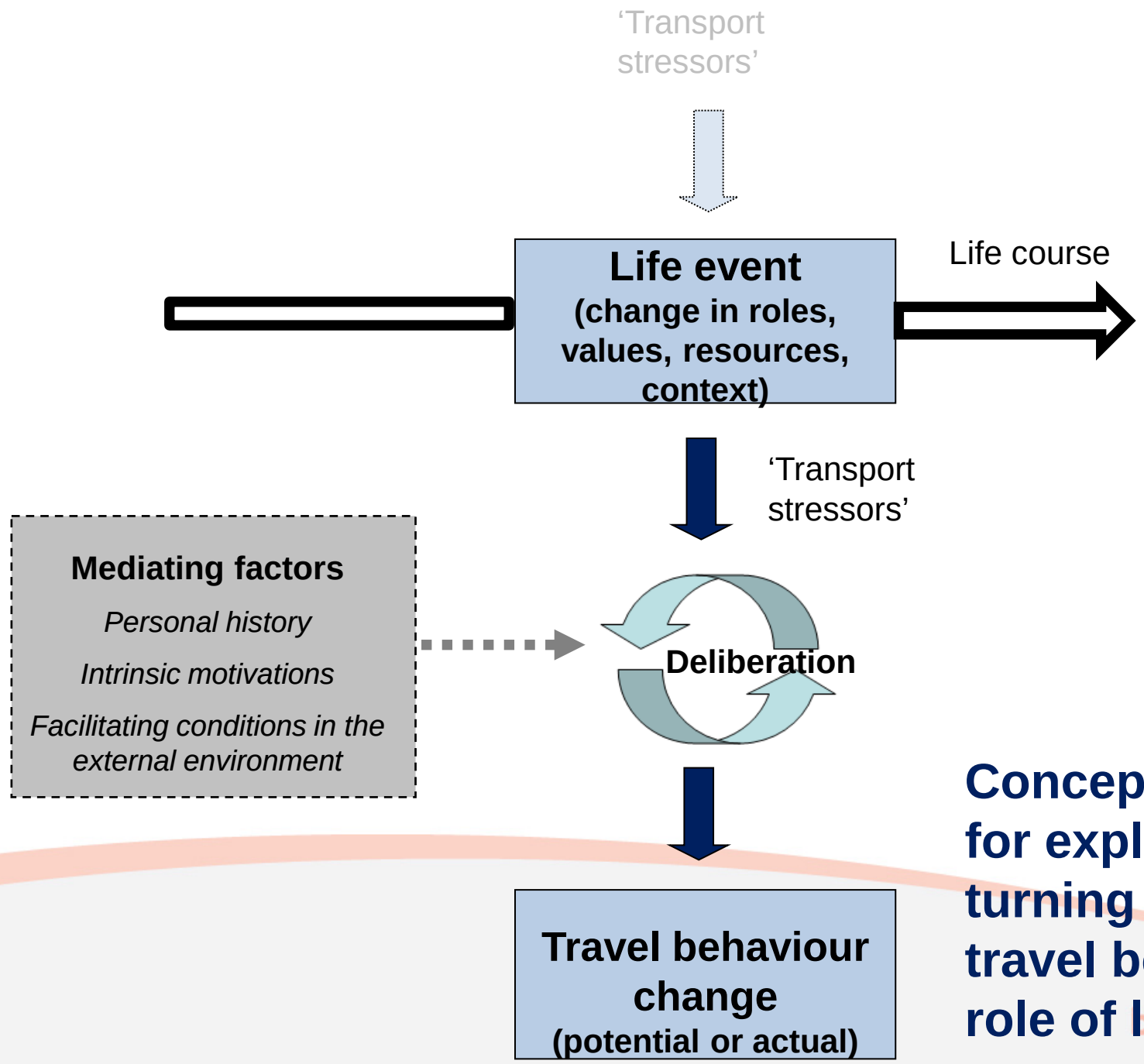
About – Everything you need to know about the study

Understanding Society is a unique and valuable academic study that captures important information every year about the social and economic circumstances and attitudes of people living in 40,000 UK households.

It also collects additional health information from around 20,000 of

Key facts

- 40,000 househ
  England, Scotl
  addresses fro
- £48.9 million fu
- Approximately
  information



Conceptual model for explaining turning points in travel behaviour - role of life events

Data set preparation

Sample size – England only

Wave	Individual respondents	No. of unique households
1	42,972	25,099
2	35,729	19,806
1 balanced panel	32,151	19,263
2 balanced panel	32,151	19,615

Data set preparation

Data linking

Travel behaviour is influenced by the form of the local **built and social environments**

We have linked Understanding Society to:

- Census data (population density)
- NTS area type classifications (not previously conducted)
- DfT accessibility statistics (not previously conducted)
- Indices of Multiple Deprivation
- MOSAIC life style profiling classifications

Allows us to examine the effect of **neighbourhood context** on behaviour change in association with life events

Data set preparation

Variable derivation

Travel behaviour variables of interest:

- No. of household cars (and change between waves)
- Commute mode (and change between waves)

Explanatory variable groupings:

- Life events
- Mobility characteristics
  - Licence holding, commute time, commute distance, car miles driven
- Socio-demographic characteristics
- Attitudinal and health characteristics
- Built and social environment characteristics

Data set preparation

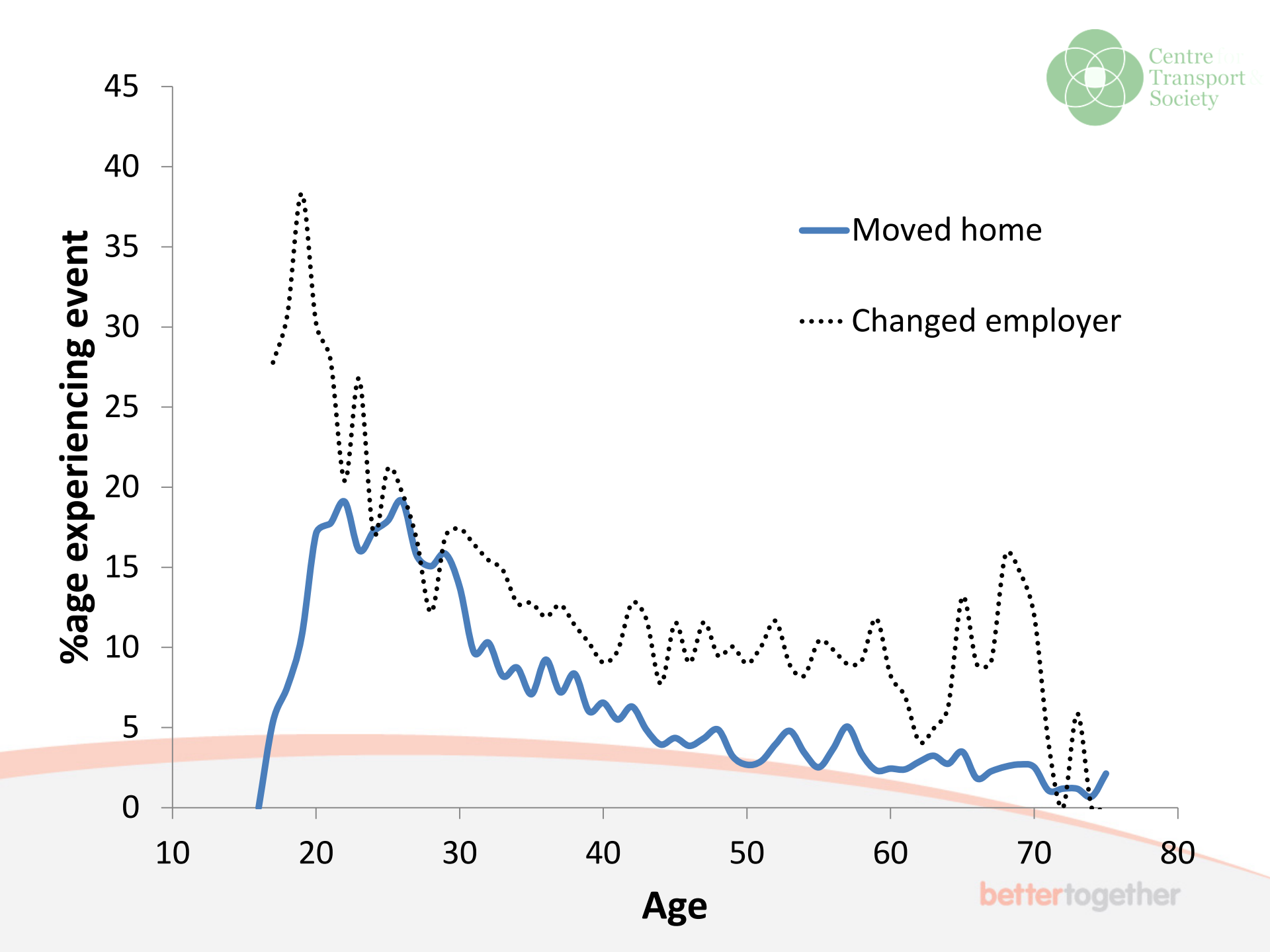
Life event derivations

- Moving home
- Having children
- Partnership formation and dissolution
- Moving into employment from non-employment
- Moving into non-employment (excl retirement) from employment
- Changed employer
- Retiring from employment
- Gaining a driving licence

How many people in the English population experienced different life events between 2009/10 and 2010/11?

Life Event	% English adults	Unweighted sample counts\%			
		Yes	No	Total	%
Residential relocation	6.9%	2032	30097	32129	6.3%
Switched employer	6.2%	1770	28388	30158	5.9%
Entered employment from non-employment	5.1%	1621	30522	32143	5.0%
Lost employment (excl retirement)	3.3%	1065	31078	32143	3.3%
Had child	3.1%	939	28655	29594	3.2%
Gained a driving license	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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%age experiencing event
45
40
35
30
25
20
15
10
5
0
Moved home
Changed employer
10
20
30
40
50
60
70
80
Age
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How many people switched commute mode between 2009/10 and 2010/11?

How many households gained or lost a car between 2009/10 and 2010/11?

Behaviour change	Yes	No	Total	%	Weighted %
No. of households gaining a car	1752	17793	19545	8.96%	N/A
No. of households losing a car	1769	17776	19545	9.05%	N/A
No. of employed individuals that switched from car commuting	818	14382	15200	5.38%	5.42%
No. of employed individuals that switched to car commuting	931	14269	15200	6.13%	6.17%

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To what extent are different life events associated with changes in travel behaviour?

% of households gaining / losing cars with / without life event

Life event	Gain car with life event	Gain car without life event	Lose car with life event	Lose car without life event
Lost a partner	7.0	9.0	**42.8**	8.4
Gained a partner	**38.6**	8.3	14.6	8.9
Gained a driving license	**34.1**	7.9	5.7	9.2
Residential relocation	**14.3**	8.5	**23.3**	7.9
Entered employment from non-employment	**15.0**	8.4	9.8	9.0
Lost employment (excl retirement)	9.4	8.9	**14.6**	8.7
Had child	**11.3**	8.5	**11.8**	8.7
Retired	6.7	9.0	**12.7**	9.0

% of individuals switching to/from car commute with / without life event

Life event	From car with event (%)	From car with no event (%)	To car with event (%)	To car with no event (%)
Gained a driving license	4.18	5.41	**25.78**	5.74
Switched employer	**11.07**	4.61	**11.5**	5.26
Lost a partner	**10.27**	5.32	5.41	6.13
Residential relocation	8.87	5.12	**9.65**	5.87
Gained a partner	**8.96**	5.31	**8.24**	6.09
Had child	5.81	5.37	7.35	6.08

Evidence highlights

Travel behaviour changes are far more prevalent in association with all life events tested:

- Driving licence acquisition demonstrates a strong commitment to car ownership and use
- Losing a partner results in the loss of car access for some groups
- Having children is linked to both increases and reductions in car ownership
- Different employment switches prompt behaviour changes (in the expected direction)
- Residential relocations are prompts for behaviour change
  - but are often concurrent with household structure changes
  - Is this a spatial structure relationship or something else?

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Under what **conditions** are life events most likely to result in changes in **car ownership level** and why?

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Regression modelling

Vehicle gains and losses modelled as a function of:

1. Life events
2. Baseline conditions
    - Household structure and life stage
    - Household socio-demographics
    - Neighbourhood context (built and social environment)

Life events

- All else being equal, life events do *increase* the likelihood of car ownership level changes occurring:

Example odds ratios

Life event	Gain a car	Lose a car
Gain partner	x2.95	x0.51
Lose partner	Not sig	x5.98
Gain employment	x1.38	Not sig
Lose employment	Not sig	x1.85
Switch employer	x1.43	Not sig
Had child	Not sig	x1.53
Acquire driving licence	x4.7	x0.63
Retire	Not sig	x1.59

Rural vs urban

- Employment changes are not triggers for car ownership changes in rural areas
  - Car ownership is more strongly governed by spatial structure in rural areas and less sensitive to other changes in circumstance

London and public transport

- Households *located in London have a greater propensity to relinquish cars* compared to other groups
- Living in close proximity to faster public transport links to employment centres *reduces* the propensity for people to *gain* cars

Rich vs poor neighbourhoods

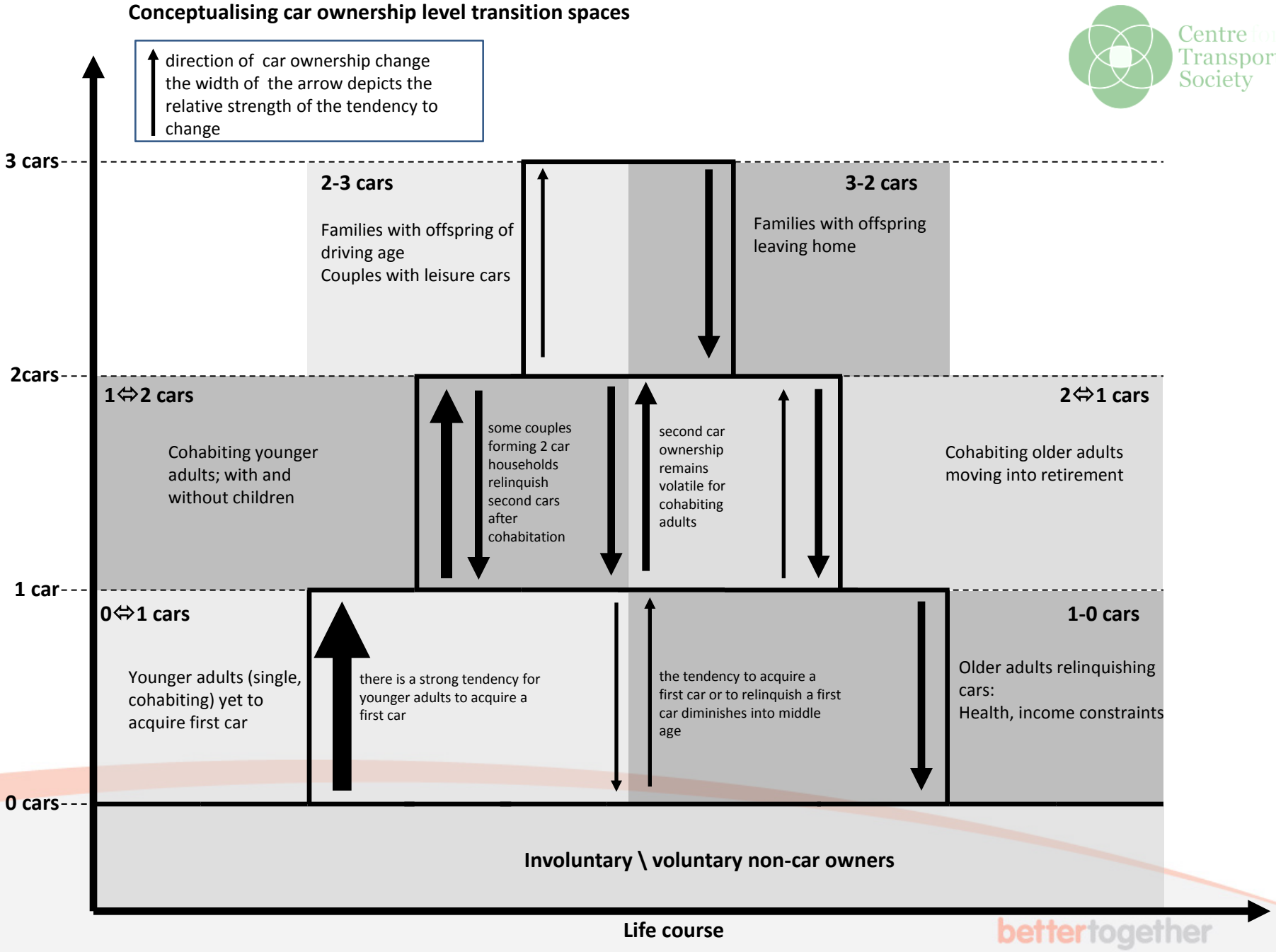
- Households in areas of higher deprivation are *more likely* to *relinquish* cars
  - after controlling for other factors, including income and spatial characteristics

Types of residential relocation

- Car ownership level is adjusted to changes in spatial structure which may occur with a residential relocation
  - Urbanising moves are associated with vehicle relinquishments
  - Ruralising moves are associated with vehicle acquisitions

Self-employment

- Being self employed *increases* the propensity to *gain* cars over and above other types of employment


Conceptualising car ownership level transition spaces
direction of car ownership change
the width of the arrow depicts the relative strength of the tendency to change
3 cars
2cars
1 car
0 cars
2-3 cars
Families with offspring of driving age
Couples with leisure cars
3-2 cars
Families with offspring leaving home
1⇔2 cars
Cohabiting younger adults; with and without children
some couples forming 2 car households relinquish second cars after cohabitation
second car ownership remains volatile for cohabiting adults
2⇔1 cars
Cohabiting older adults moving into retirement
0⇔1 cars
Younger adults (single, cohabiting) yet to acquire first car
there is a strong tendency for younger adults to acquire a first car
the tendency to acquire a first car or to relinquish a first car diminishes into middle age
1-0 cars
Older adults relinquishing cars:
Health, income constraints
Involuntary \ voluntary non-car owners
Life course
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Current and future developments

- Development of *commute mode switching* regression models
- Longer history analysis of commute mode switching using British Household Panel Survey (18 waves)
- Running a (small) Understanding Society training event for transport analysts
- Exploring opportunities to exploit further waves of Understanding Society

Conclusion

1. Life events are important triggers for travel behaviour change

   ~~but we need~~ We have been able to generate new evidence for this at the population level

2. *Understanding Society* offers new opportunity to examine how and why travel behaviours are evolving over time

www.travelbehaviour.com

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Life Transitions and Travel Behaviour

Examining the relationship between life transitions and travel behaviour change

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Home

Welcome to the **Life Transitions and Travel Behaviour** research project.

This fascinating study will be finding out about how people in the UK change their travel behaviours over the course of their lives with special attention to major life events such as starting a job, moving home and having children.

Understanding people's travel routines and how they change is important to help governments around the world plan effective transport systems and policies. Such policies are expected to make an important contribution to tackling some of the big issues of the day, including: energy security and climate change, public health and obesity, how to create healthy urban environments, and supporting economic growth and reducing congestion.

The study began in November 2012 and will be carried out over eighteen months. This website will report the findings of the study and provides a discussion forum for researchers and others around the world to exchange ideas.

Click on the menus above to find out more about the study team and for a summary of the project.

Links

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