How Life Transitions Stimulate Changes in Mobility:
New insights from the UK Household Longitudinal Study

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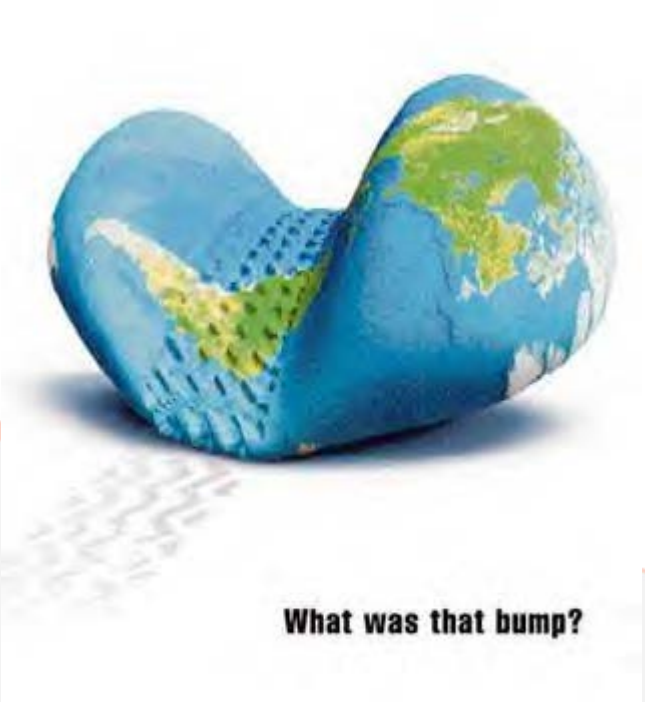
Overview of presentation

1. Importance of travel behaviour research
2. Adopting a life course perspective
3. Research questions and data
4. The new evidence
5. Next steps and conclusions

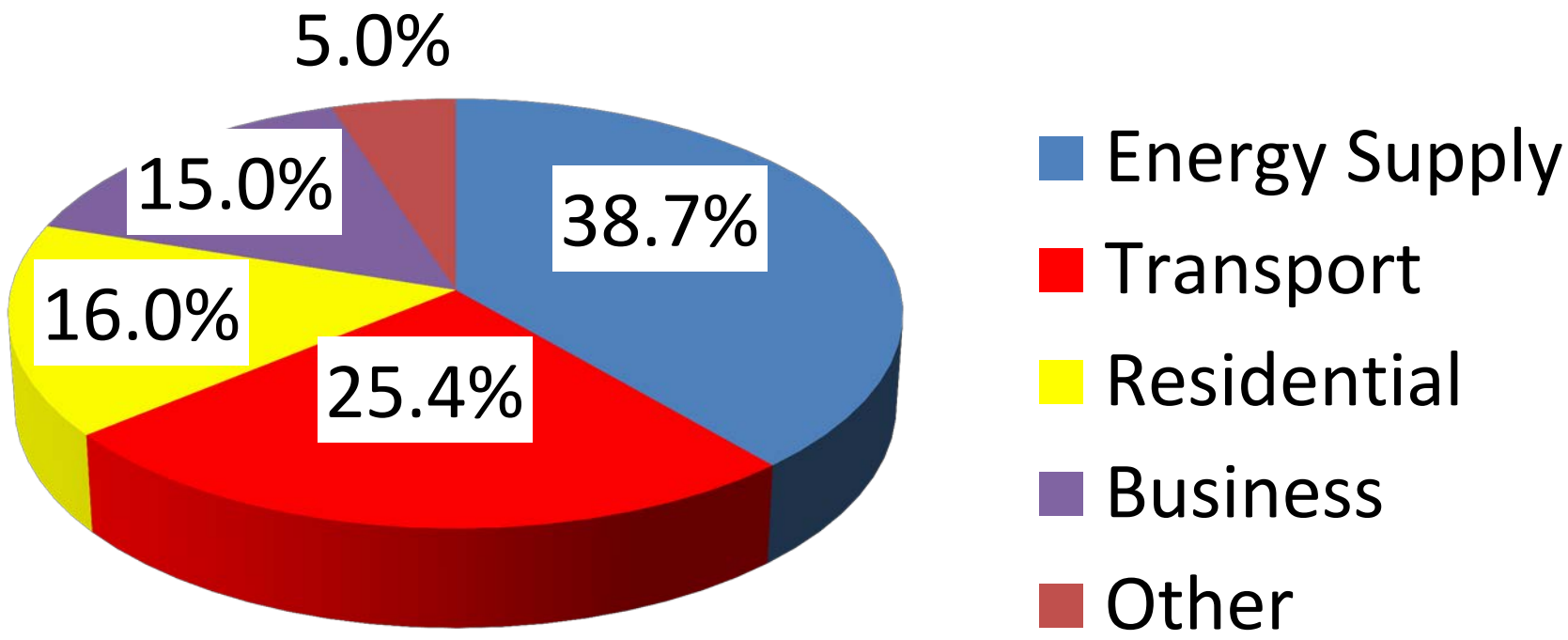
1. Importance of travel behaviour research



Transport and the Environment –
the problems according to Royal Commission on Environmental Pollution (1994)

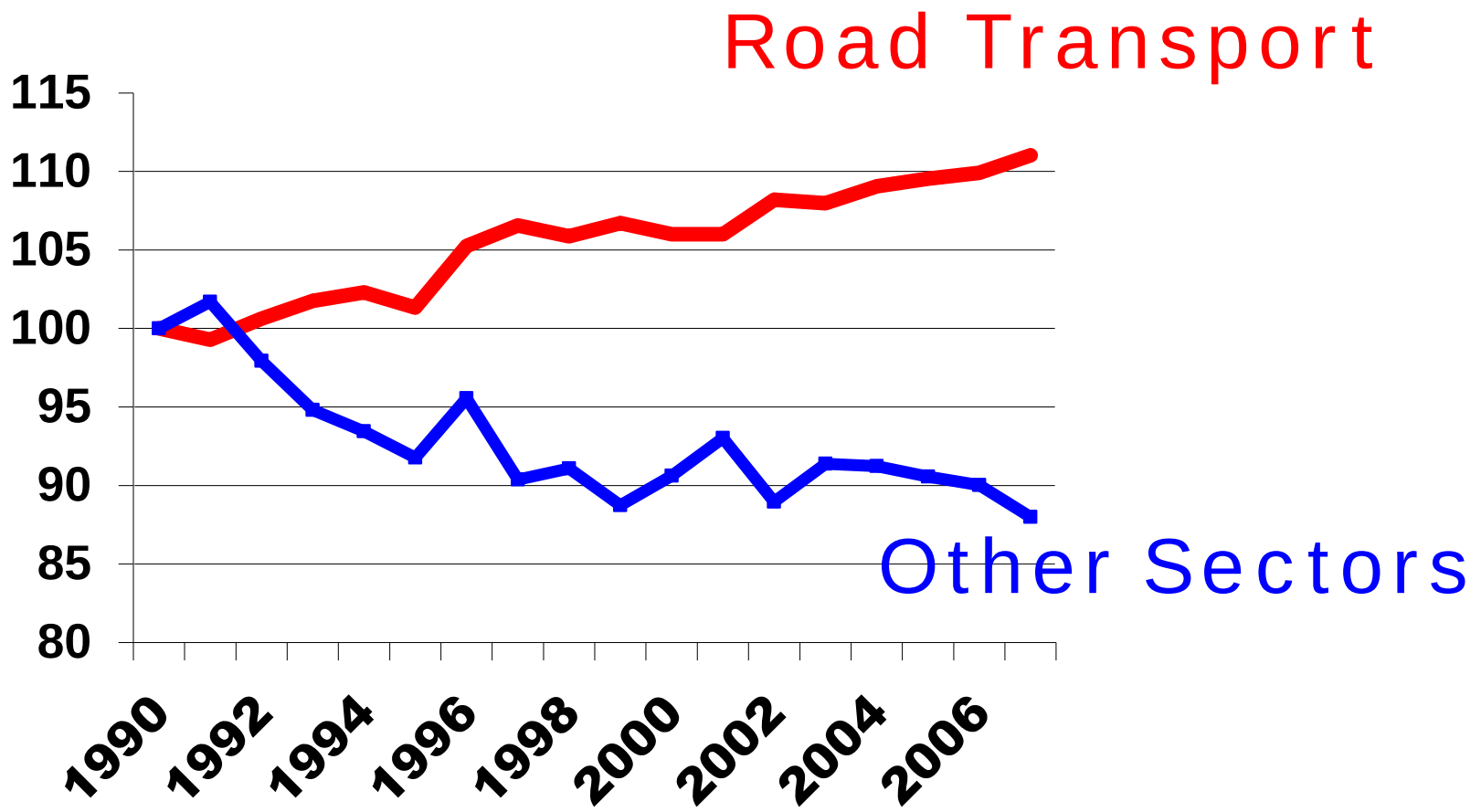
- Death and injuries from road accidents
- Health and other effects from air pollution
- The growing contribution to climate change
- The impact of road building
- Disruption of communities by traffic
- Nuisance from noise
- Growing demand for non-renewable materials

UK domestic CO_2 emissions by source



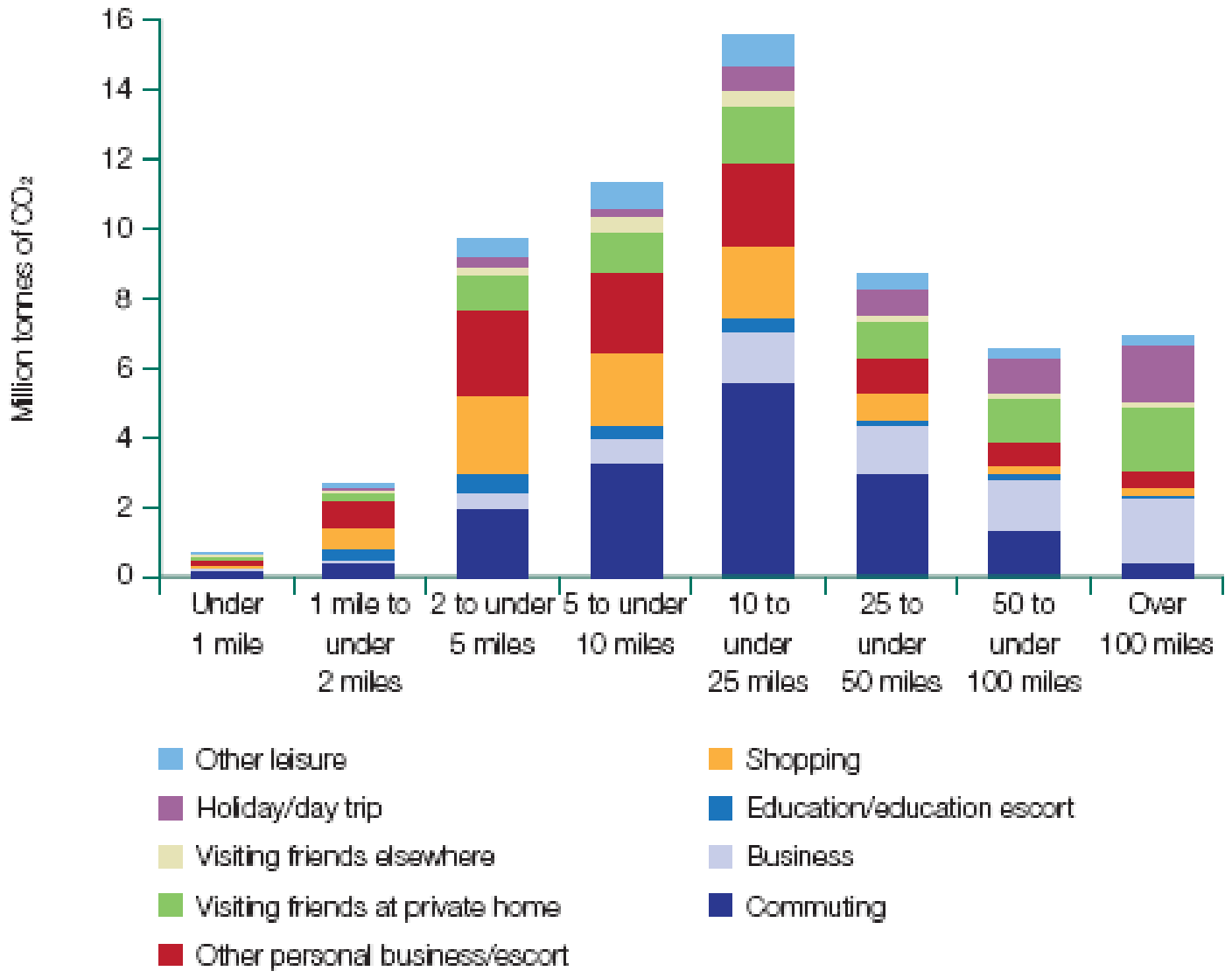
Source: DECC (2009)

UK CO_2 trends (1990 =100)



Source: DEFRA (2009)

Figure 2.3: Carbon emissions by trip length and purpose



Source: Department for Transport 2008, Figure 3.14

Two thirds of emissions from trips less than 25 miles

CO_2 emissions by transport mode

	Normal occupancy	Max. occupancy
Cyclist	0.011	0.011
DART (commuter rail)	0.029	0.011
Dublin bus	0.034	0.017
Private car	0.149	0.052
SUV	0.242	0.068

Units: kg CO2 per passenger kilometre

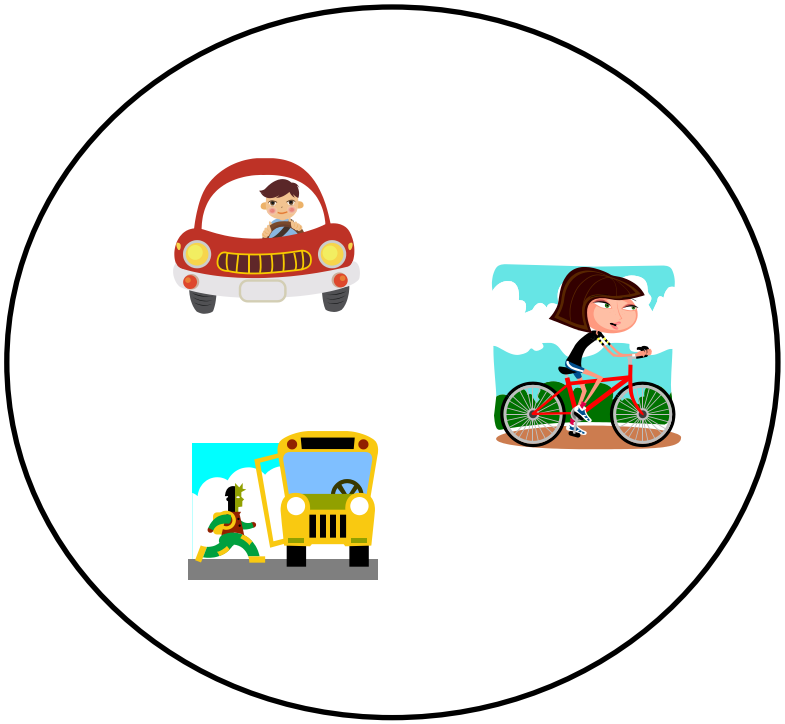
Source: Table 4 in Walsh et al. (2008)

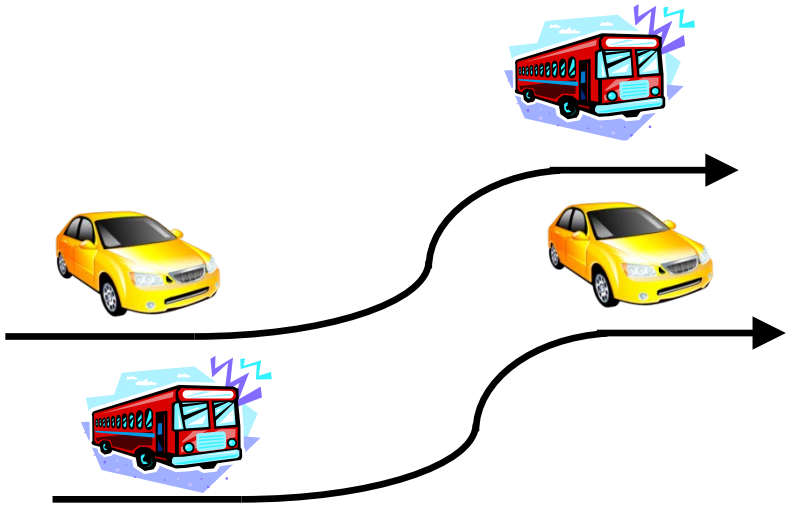
Travel behaviour - research needs

- DfT's Door to Door Strategy
  - UK Govt "wants more journeys to be made by sustainable transport: public transport, supported by cycling and walking"
  - Strategy sets out improvements to transport system to achieve this but notes behaviour change also depends on 'individuals' circumstances, characteristics, habits and attitudes'
- "People and organisations are likely to be most open to changing habitual behaviours at key **'transition points'** or **'moments of change'**"
- DfT 'Climate Change and Transport Choices' study identified 9 life-stage oriented segments across pop'n which share particular travel behaviour characteristics, but we know little about ***how behaviour evolves as people move between life stages and within life stages***

2. Adopting a life course perspective

Cross-sectional vs longitudinal





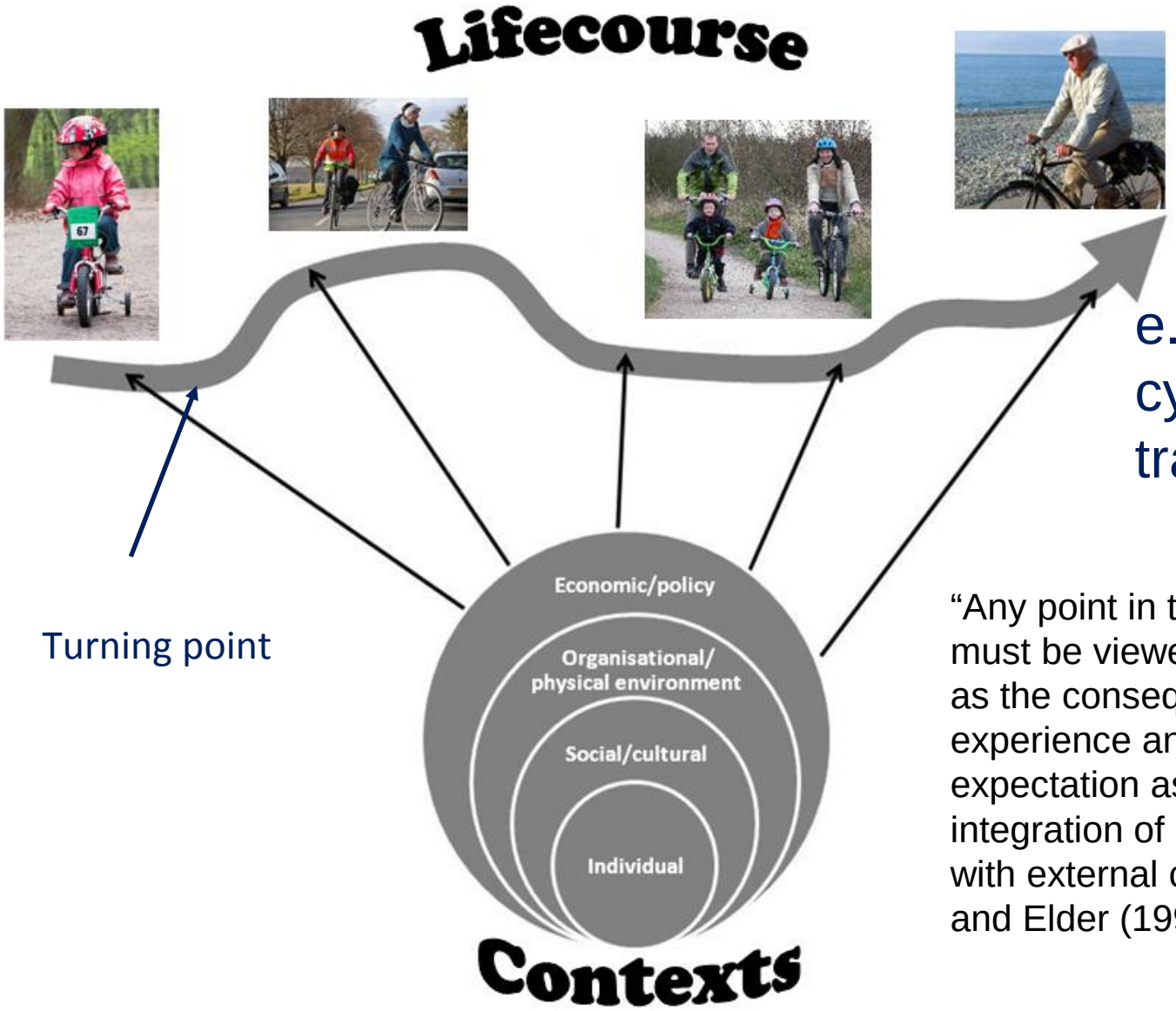
Explaining differences in behaviour by differences in prevailing circumstances

Explaining evolution of behaviour by differences over time in circumstances

Life course perspective

- Cross-sectional (“snapshot”) data inadequate at explaining why behaviour changes
- Changes to behaviour not only induced by the external “system” but also by internal (life) circumstances
- Behaviour at a given time should be seen in the context of life-long developmental pathways, recognising:
  - Historical time and place
  - Linked lives
  - Human agency
  - Timing of lives

Life course perspective



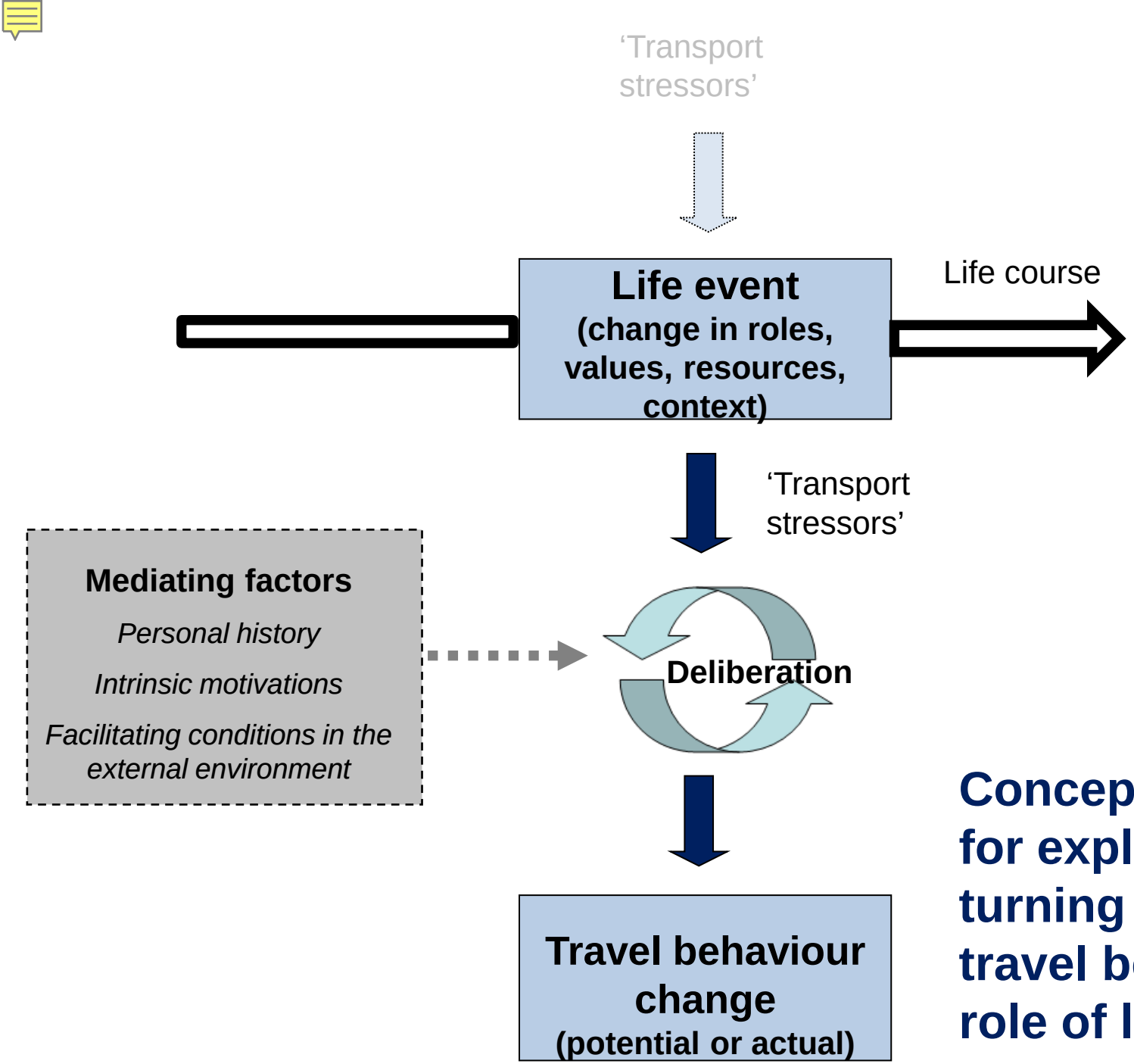
e.g. cycling trajectory

"Any point in the life span must be viewed dynamically as the consequence of past experience and future expectation as well as the integration of individual motive with external constraint (Giele and Elder (1998)

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

3. Research questions and data

Overall aim of project

To assess how life transitions influence travel behaviour and to identify opportunities from this for policy interventions to achieve desirable transport outcomes.

Life transitions - ‘major or minor life events that may cause changes in one’s life and relationships’ (Connidis, 2010)

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?

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

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

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
  - Pop density, Urban/rural type, Indices of Multiple Deprivation, etc.

5. The new evidence

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


45
40
35
30
25
20
15
10
5
0
%age experiencing event
10
20
30
40
50
60
70
80
Age
Moved home
Changed employer

How many households increased or decreased car ownership between 2009/10 and 2010/11?

How many people switched commute mode between 2009/10 and 2010/11?

Behaviour change	Yes	No	Total	%	Weighted %
No. of households increasing cars	1752	17793	19545	8.96%	N/A
No. of households decreasing cars	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%

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

% of households increasing / decreasing cars with / without life event

Life event	Increase cars with life event	Increase cars without life event	Decrease cars with life event	Decrease cars 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 decrease in cars for some groups
- Having children is linked to both increases and decreases 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?

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

Regression modelling

Car increases and decreases 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	Increase cars	Decrease cars
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 essential in rural areas and insensitive to changes in circumstance

London and public transport

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

High vs low income neighbourhoods

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

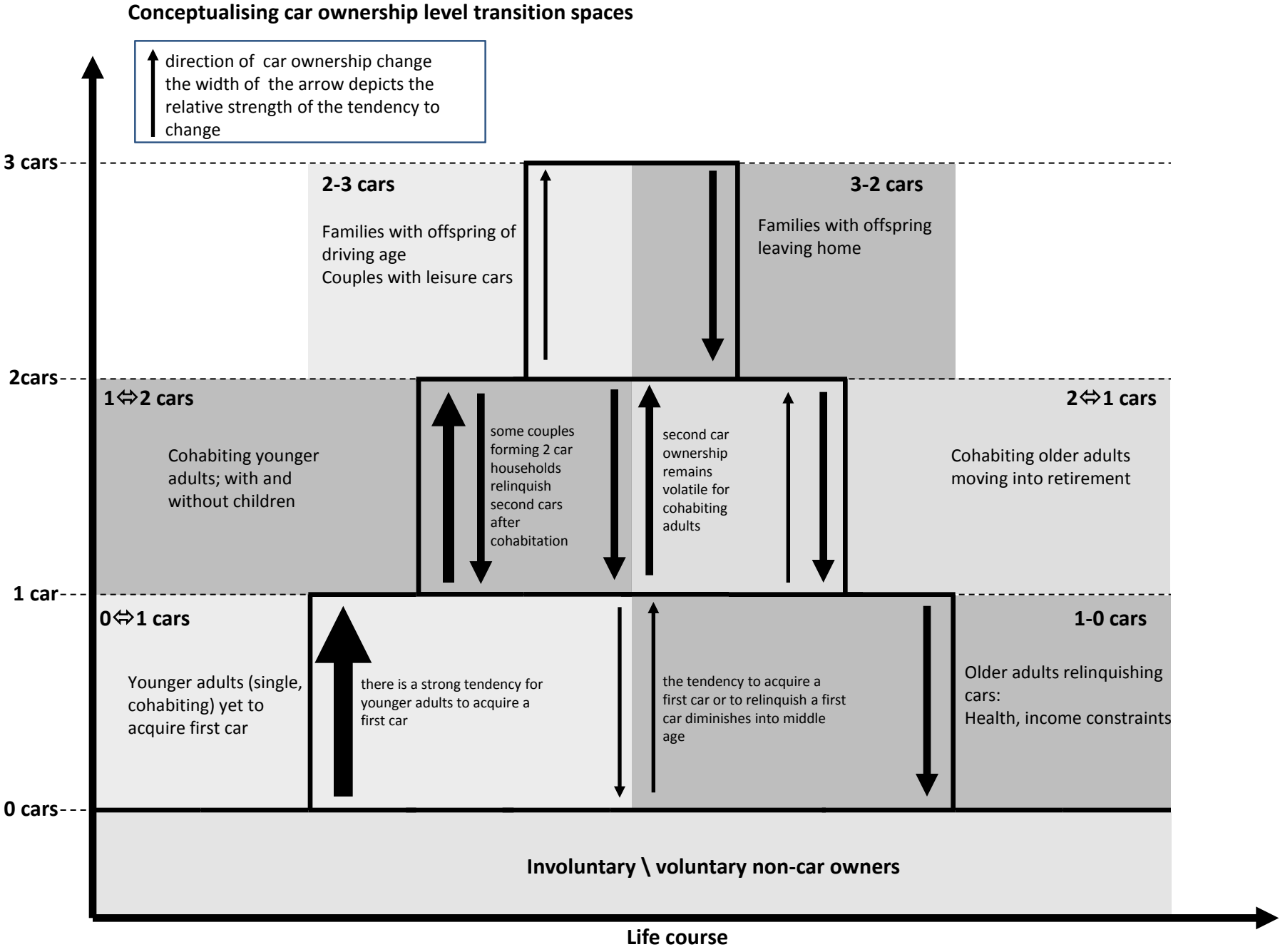
Types of residential relocation

- Car ownership level is adjusted to changes in spatial structure which may occur with a residential relocation
  - Urbanising moves are associated with car decreases
  - Ruralising moves are associated with car increases

Self-employment

- Greater likelihood of *increasing* cars for self employed compared to other types of employment

6. Next steps and conclusions


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

Current and future developments

- Development of *commute mode switching* regression models
  - Preliminary finding that those reporting that they act environmentally friendly more likely to switch from car to non-car
- Longer history analysis of commute mode switching using British Household Panel Survey (18 waves)
- Exploring opportunities to exploit further waves of Understanding Society

Conclusion

1. Life events are important triggers for travel behaviour change

   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

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

Centre for Transport & Society

Department for Transport

Institute for Social & Economic Research