How and why do commuters mix cycling with other modes of travel?
Lessons from the North Bristol Commuter Panel
Presentation overview

- Research background and aims
  - the North Bristol Commuter Panel study

- Method

- Findings
  - spotlight on how and why people vary their patterns of cycling to work

- Conclusions and discussion:
  - how this can help inform design and evaluation of cycling interventions
The North Bristol Commuter Panel
July 2014 to October 2015

Context
• LSTF Case Study evaluation for the Department for Transport:
  Evaluating the impact of sustainable transport measures on strategic employment sites and business parks (2014-16)

Aim of the Panel Study
• Obtain longitudinal data to understand how and why individuals maintain or change their commute mode use over time.
Method: Panel survey questions

- Normal commute mode/s
- Reasons for any change in mode use
- Perceptions of normal mode/s
- One-week travel diary (daily commute mode)
- Changes of circumstance
- Awareness of LSTF initiatives
- Influence of initiatives on attitudes or behaviour

Welcome back to the North Bristol Commuter Panel

Thank you for participating in our sixth and final survey!
Method: Panel survey sample

<table>
<thead>
<tr>
<th>Wave</th>
<th>Date</th>
<th>Responded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave 1</td>
<td>July 2014</td>
<td>1,526</td>
</tr>
<tr>
<td>Wave 2</td>
<td>October 2014</td>
<td>1,539</td>
</tr>
<tr>
<td>Wave 3</td>
<td>January 2015</td>
<td>1,494</td>
</tr>
<tr>
<td>Wave 4</td>
<td>April 2015</td>
<td>1,383</td>
</tr>
<tr>
<td>Wave 5</td>
<td>July 2015</td>
<td>1,255</td>
</tr>
<tr>
<td>Wave 6</td>
<td>October 2015</td>
<td>1,237</td>
</tr>
</tbody>
</table>

Full panel: 1,900 (approx.)

People responding at every Wave: 658
Findings (1): changes in ‘normal’ mode of travel to work

‘What form of transport do you normally use to travel to work?’ (full sample)

10% ‘churn’ at each wave

Wave-to-wave changes between car-alone and cycle over 18 months:

- 61 from car-alone to cycle
- 64 from cycle to car-alone
Findings (2): Reasons for changes in normal mode

Open responses

“No real change, it was just the week you last surveyed was a week that I mainly drove to work. I usually drive some days and cycle other days”.

Changes in ‘normal mode’ often reflected a change in the balance of modes used rather than a complete change in commute mode.
Findings (3): mixing modes across the week

Wave 1 diary data: How did you travel on each day you worked this week?

<table>
<thead>
<tr>
<th>Mode</th>
<th>% using mode at least once during week</th>
<th>% using only this mode in the week</th>
<th>‘normal’ mode share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car alone</td>
<td>61.7%</td>
<td>39.6%</td>
<td>46.4%</td>
</tr>
<tr>
<td>Car share</td>
<td>19.2%</td>
<td>6.7%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>3.9%</td>
<td>1.8%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>23.1%</td>
<td>11.0%</td>
<td>19.3%</td>
</tr>
<tr>
<td>Walk</td>
<td>7.0%</td>
<td>3.3%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Bus</td>
<td>8.0%</td>
<td>3.9%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Train</td>
<td>9.6%</td>
<td>4.8%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Total</td>
<td>71%</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
Findings (4): Understanding switches between car driving and cycling

Sub-sample of car-cycle ‘mixers’ (N=37): examples of individual ‘run patterns’ over 7 time points

<table>
<thead>
<tr>
<th>Run pattern (see key)</th>
<th>No. of cases in sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>4441111</td>
<td>2</td>
</tr>
<tr>
<td>4111111</td>
<td>1</td>
</tr>
<tr>
<td>4411111</td>
<td>1</td>
</tr>
<tr>
<td>4116611</td>
<td>1</td>
</tr>
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<td>1444444</td>
<td>2</td>
</tr>
<tr>
<td>4411414</td>
<td>1</td>
</tr>
<tr>
<td>1111144</td>
<td>2</td>
</tr>
<tr>
<td>1445114</td>
<td>1</td>
</tr>
<tr>
<td>1421441</td>
<td>1</td>
</tr>
</tbody>
</table>

Key: ‘Normal’ commute mode

<table>
<thead>
<tr>
<th>Transportation Mode</th>
<th>No. of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car on my own</td>
<td>1</td>
</tr>
<tr>
<td>Car with another person or people</td>
<td>2</td>
</tr>
<tr>
<td>Motorbike/scooter</td>
<td>3</td>
</tr>
<tr>
<td>Cycle</td>
<td>4</td>
</tr>
<tr>
<td>Walk</td>
<td>5</td>
</tr>
<tr>
<td>Bus/coach</td>
<td>6</td>
</tr>
<tr>
<td>Train</td>
<td>8</td>
</tr>
</tbody>
</table>
Findings (5): Why do people switch between cycling and car-driving?

## ‘Life events’

### Stable changes
- work or home relocation.
- children’s development.
- long term health.

### Periodic changes
- short-term illness or accidents
- blocks of family commitments

### Routine mixing
- weekly routines e.g. care and work patterns, hobbies, exercise.
- day-to-day changes, e.g. working in different places, shopping, baggage.

## Variations in day-to-day life

### Stable changes
- buying a car or bicycle

### Periodic changes
- vehicle breakdowns, breakages and accidents.
- changes in shared vehicle use within a family.

### Routine mixing
- routine variation in vehicle access e.g. family member using the car on certain days.

## Changes in access to cars and bicycles

### Stable changes
- transport services infrastructure, facilities.
- parking provision.

### Periodic changes
- seasonal change in weather, daylight, air quality.
- roadworks
- parking/traffic
- cycling events

### Routine mixing
- day-to-day weather changes.
Findings (6): Individual narratives

Stable change examples

• Jason, aged 20-29, lives 8 miles from work
  “Safety concerns - cycle crash before Christmas highlighted the risks to me, and I have been driving to work ever since”. (January 2015)

• Lauren, aged 30-39, lived 4 miles from work prior to work relocation
  “My employer has stopped its park and ride service from North Bristol and has built additional onsite parking meaning I am now driving all the way to and from work” (July 2015).

• Nathan, aged 30-39, lives 4 miles from work
  “I've stopped cycling because I started going to the gym a lot, you can have too much of a good thing.” (October 2014)
Findings (7): Individual narratives

Periodic change example

• Rhys, 30-39, lives 2 miles from work

“Have switched to cycling through most of this year due to very good facilities at the new building. Have switched to driving recently as baby due imminently and may need to go home quickly. Intend to switch back to cycling once baby has arrived”.

Routine mixing examples

- Ellie, 40-49, lives 5 miles from work

  “Now travelling to a different place of work, requiring a change to my usual route.(..) Really don't like the change! Don't feel as safe and don't enjoy the noise/speed of cars. Miss the wildlife and quieter pace/environment of previous route”  (July 2014).

  “My transport to work completely depends on my work commitments and whether I have to go and see patients in their own homes rather than in clinics.”  (October 2014).

  “Usually cycle but was icy last week so chose not to on one day for safety reasons.”  (January 2015)
Conclusions

Monitoring and evaluating the impact of cycling interventions

• Results of ‘normal mode’ or ‘travel today’ questions in travel surveys are masking greater complexity in commuter mode use and its variability.

• Monitoring day-to-day variability in individuals’ cycling behaviour can help capture the full effects of interventions to encourage cycling to work.
Discussion

Design of cycling interventions

• Aim to increase ‘part-time cycling’ and to sustain the motivation of existing cyclists, not just full ‘conversion’ to cycling.

  e.g. complement cycling improvements with workplace parking schemes which reward employees for not driving every day.