



## **The dynamics and triggers of mode use changes: Findings of a mobility biography study in Cape Town**

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- TDM strategies are an alternative to road capacity increase in managing traffic
- What are TDM strategies?
  - seek to change decision-maker's travel behaviour
- Targeted TDMs more effective than non-targeted ones
- Understanding behaviour is important
  - rational or habitual deliberation
  - triggers of behaviour change

- Travel is repetitious
- How do individuals make travel choices – the extent of deliberation
  - rational
  - habitual
- Two main types of variability in travel behaviour patterns
  - ‘short-term’ variability
  - ‘long-term’ variability

- ‘Short-term’ variabilities are as a result of
  - routinized variation in travel pattern
  - once-off interruptions
- ‘Long-term’ variabilities may be caused by the occurrences of
  - ‘key events’ – expected major events in a person’s life, e.g. changing residence, getting married, driver’s license acquisition, car ownership
  - ‘life shocks’ – unexpected major events, e.g. car crashes
- Extent of variability different in the various attributes of travel choices



Mode use is habitual, and that sustained changes are triggered by the occurrence of life time events.



- Longitudinal data are needed for variability to be determined
- Methods for the collection of longitudinal data include
  - panel surveys
  - pseudo-panel surveys
  - retrospective surveys

## Panel surveys

- Repeated survey of a group of people over a period of time
- The most reliable method for the collection of longitudinal data - memory errors are minimized
  - take long before data is delivered
  - conditioning of respondents
  - Expensive
- A two week travel diary was used to record daily travel behaviour patterns – mode used, departure and arrival times, route choice, car occupancy

## Pseudo-panel

- Tracing of cohorts constructed through several cross-sectional data
- Cheaper and faster method compared to panel survey
- Observations are however done at an aggregate level
- Construction of mobility biography not possible with this method



## Retrospective survey

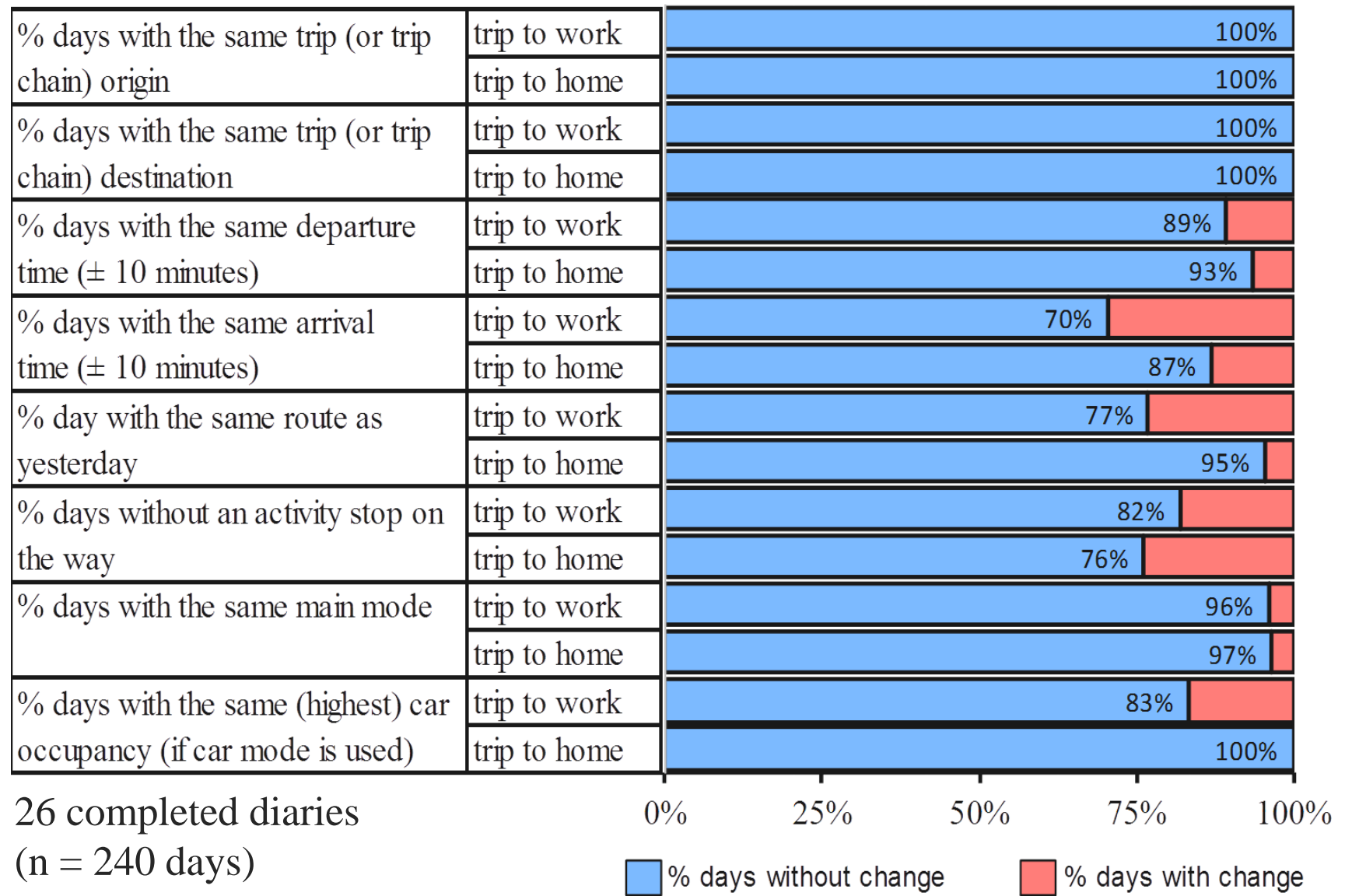
- Involve the once-off collection of information about a person's past life
- Main problem is issues related to memory biases – forgetfulness and telescoping
- Commuting and event history calendars have been seen to improve memory recollection

- Using a semi-structured interview, commuters were asked questions about their work trips over their working life
- Commuting and event history calendars were completed by both interviewer and interviewee concurrently
- Travel diary then given to participants to be filled over two weeks
- A total of 68 full-time workers were interviewed





## Short-term dynamics – attributes of work trips



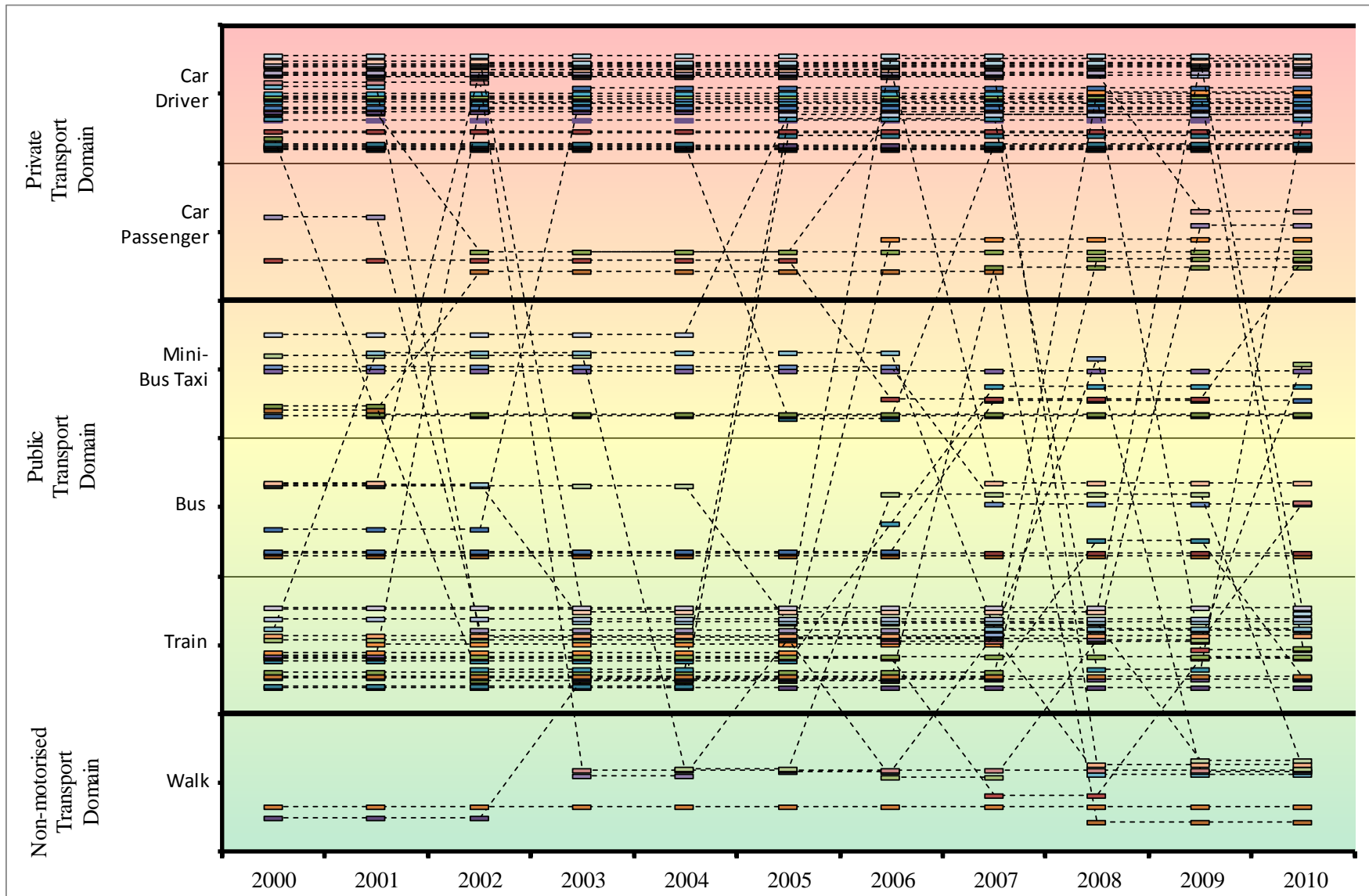
## Short-term dynamics – mode variability

Respondent's ID	Access to car mode?	Work trips			Home trips		
		No. of trips	No. of days variable	% variable	No. of trips	No. of days variable	% variable
OM02	No	-	-	-	10	1	10%
OM03	Yes	10	2	20%	10	2	20%
OM04	No	-	-	-	10	3	30%
TJ02	No	10	1	10%	-	-	-
TJ10	No	10	2	20%	-	-	-
TJ16	No	10	4	40%	10	4	40%
<b>Total</b>		40	9	23%	40	10	25%

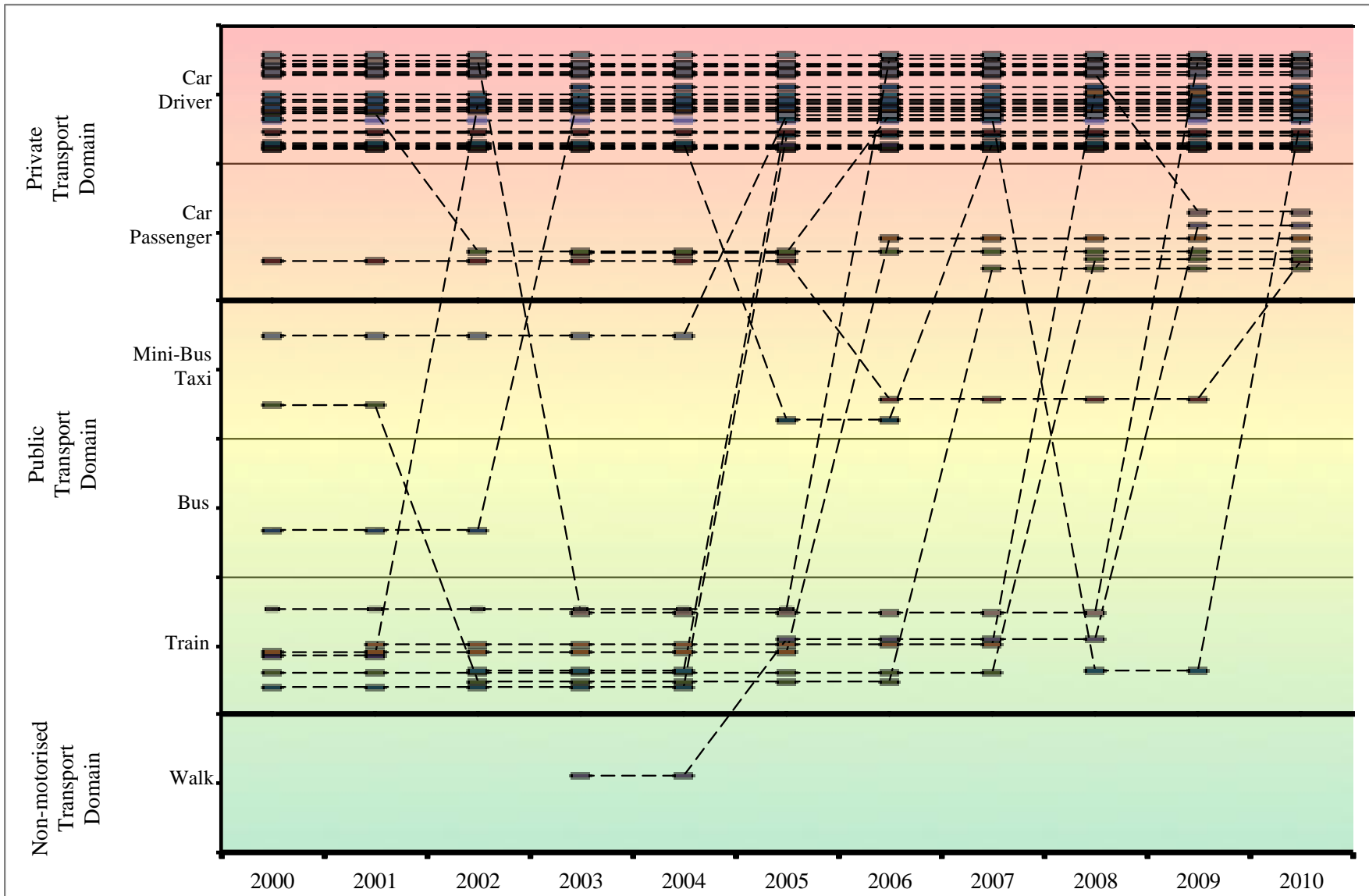
## Long-term dynamics – sustained mode use changes

	Gender		Age (years)				Total
	Male	Female	<30	31-40	41-50	51-65	
<b>Number of respondents</b>	36	32	6	22	22	18	<b>68</b>
<b>Mean duration between sustained mode use changes (years)</b>	7.3	7.5	3.3	5.9	8.6	9.0	<b>7.4</b>

## Long-term dynamics – mode use changes

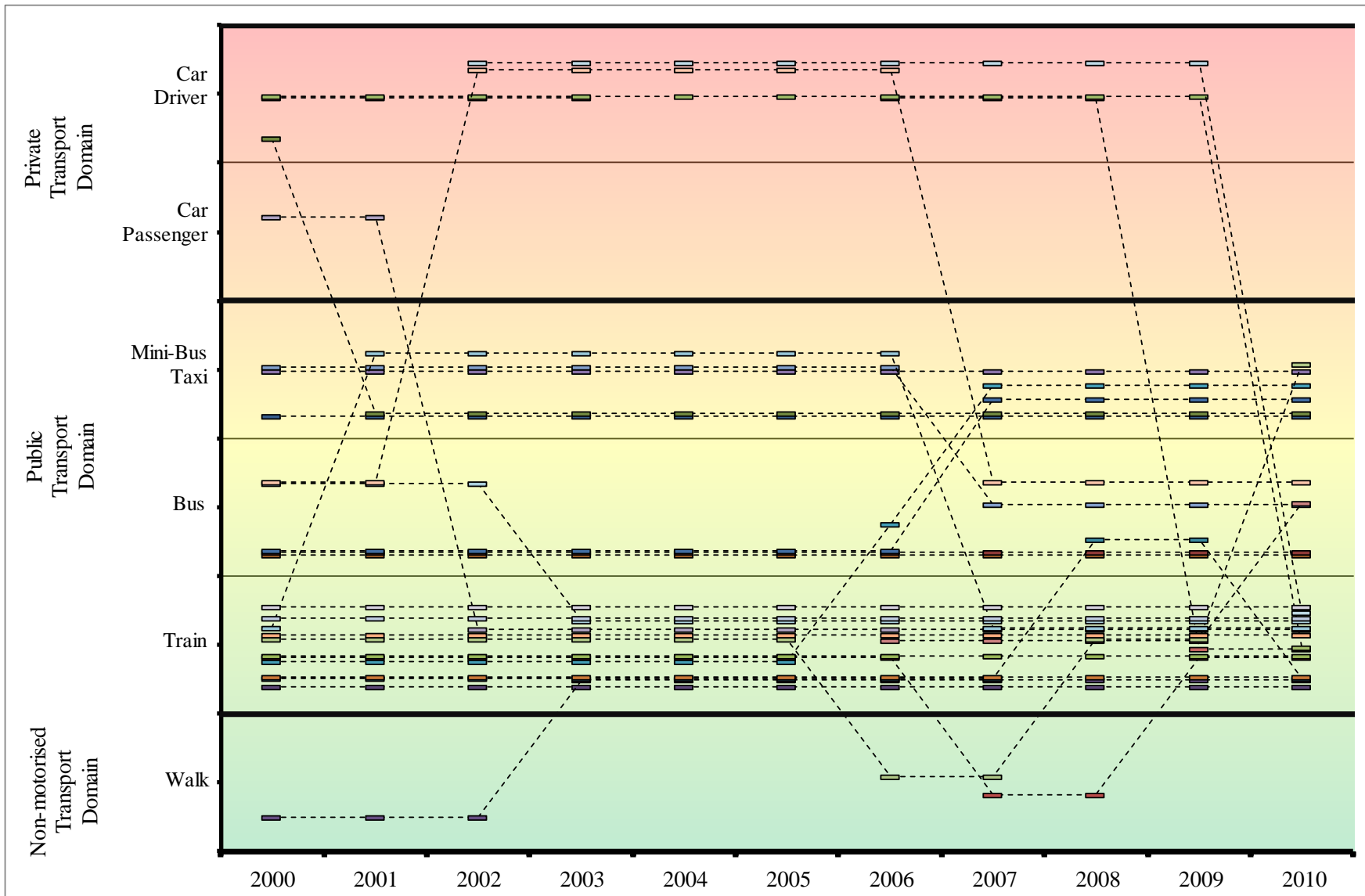


## Mode use changes – Current private transport users

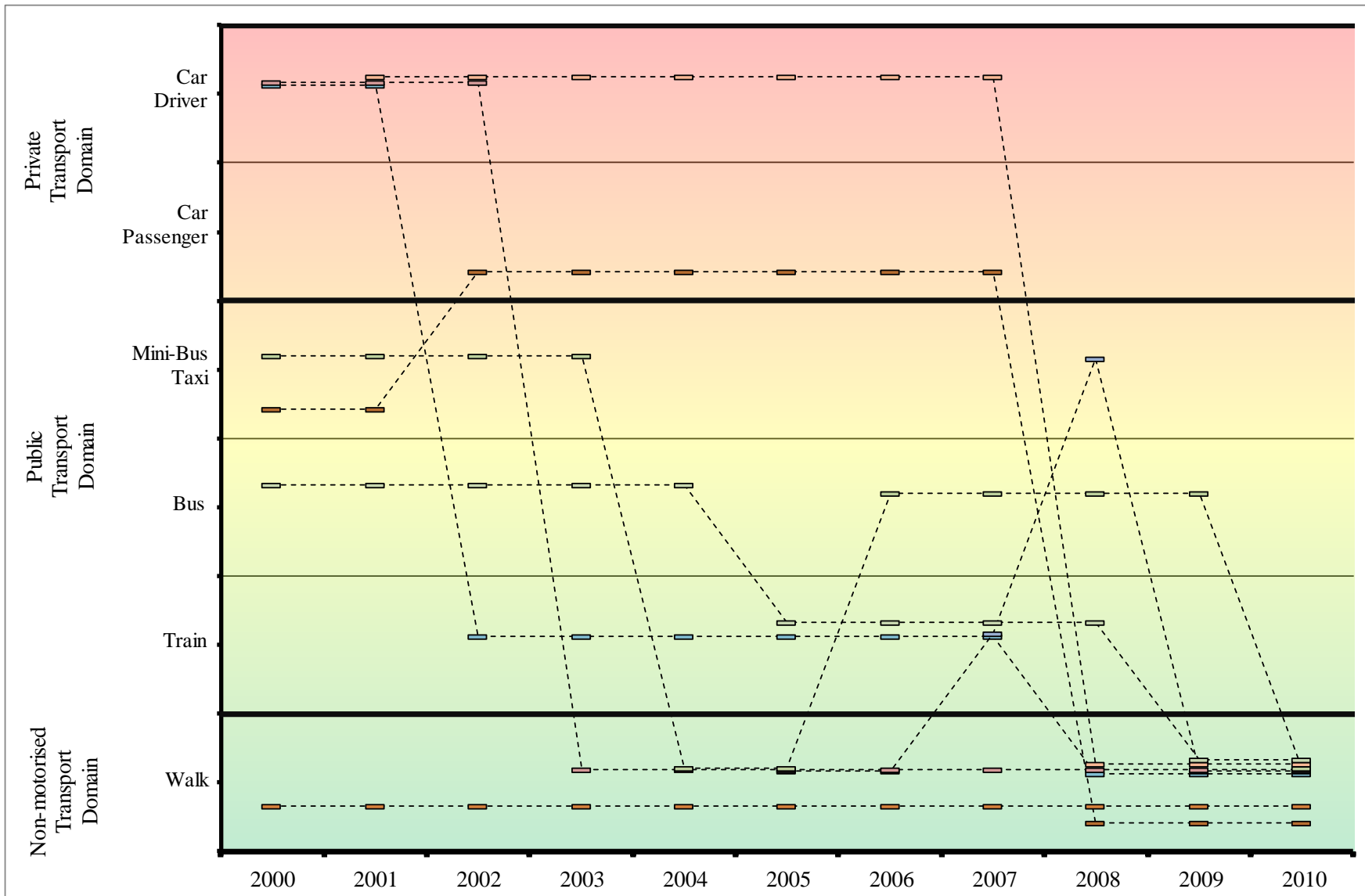




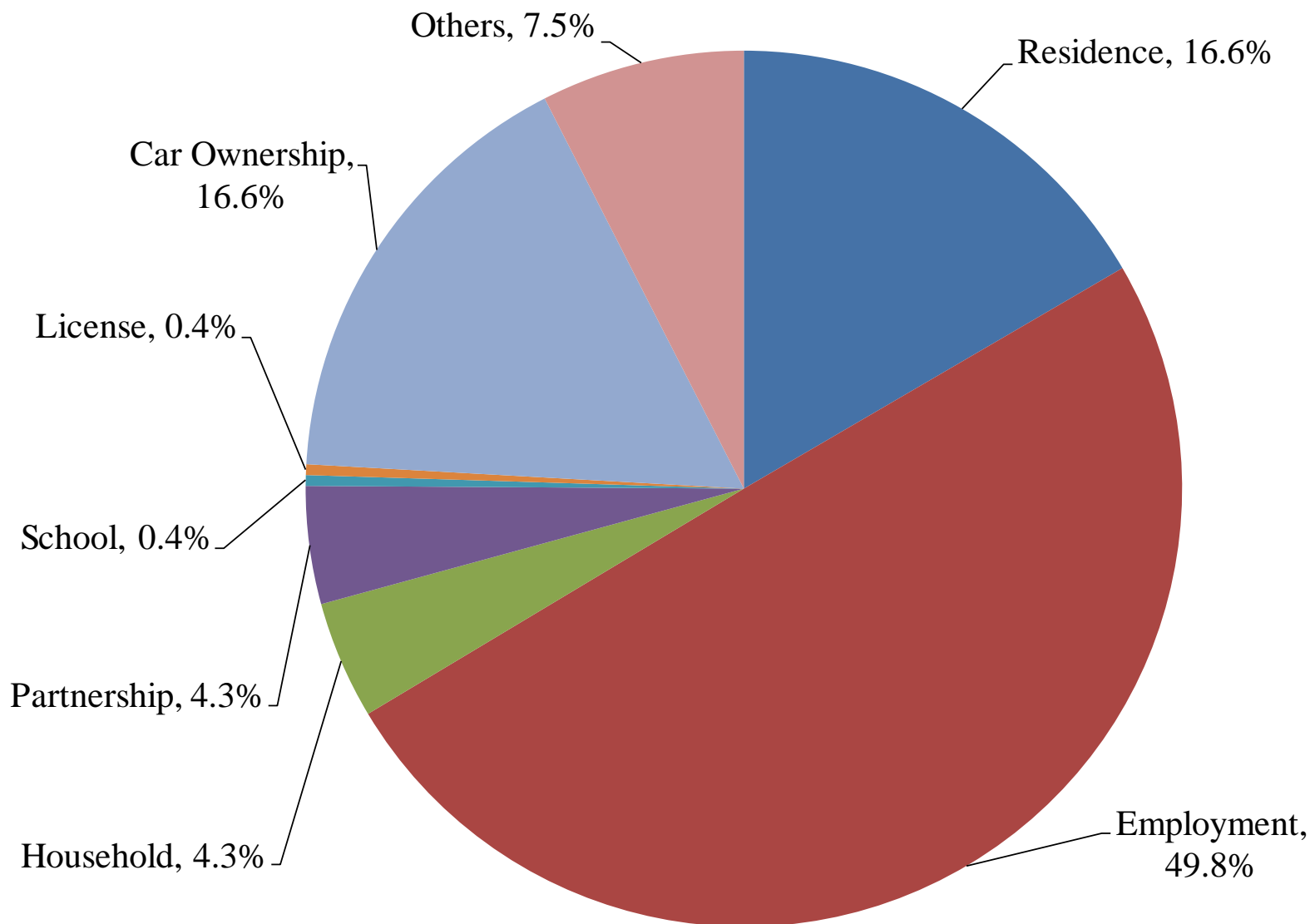
## Mode use changes – Current public transport users



## Mode use changes – Current NMT users



## Long-term dynamics – life course events



## Long-term dynamics – life course events

Life course events (LCE)	LCE changes observed	LCE causing changes in mode use	% of LCE causing mode use change	% in total mode change
Residence	192	42	21.9	16.6
Employment	279	126	45.2	49.8
Household	204	11	5.4	4.3
Partnership	88	11	12.5	4.3
Child's school	220	1	0.5	0.4
License	36	1	2.8	0.4
Car ownership	62	42	67.7	16.6
Others	19	19	100	7.5
<b>Total</b>	<b>1100</b>	<b>253</b>		<b>100</b>



- Mode use choices are fairly stable compared to route choice, departure and arrival times
- Most variability in mode choice were observed among public transport users
- On average commuters were found to take about 7 years before changing mode use to work
- Asymmetric churn observed between private and public transport

- The main key event changing mode choice was changes in employment
- Car ownership was, however, the major key event changing mode choice per occurrence



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