

DYNAMICS IN MODE CHOICE BEHAVIOUR

WHO CHANGES MODE, WHY AND WHEN?

MPN SYMPOSIUM - 10 APRIL 2018

Marie-José Olde Kalter





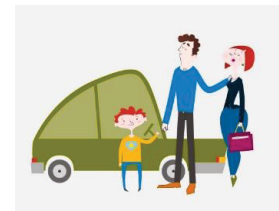
**HOUSEHOLD INTERACTIONS
AND TRAVEL BEHAVIOUR**



**CHANGING ATTITUDES
TOWARDS TRANSPORT MODES**



**IMPACT OF LIFE-EVENTS
ON TRAVEL BEHAVIOUR**



**DYNAMICS IN MODE
CHOICE BEHAVIOUR**

BACKGROUND

- Policy aims on increase in use of more sustainable modes to:
 - Improve accessibility of cities by reducing car use / congestion
 - Improve quality of life by reducing emissions
 - Improve health by stimulating more active modes such as cycling and walking
- At the same time, new mobility concepts like MaaS have more or less the same objectives:
 - Offering different mobility services on individual level, targeting on the use of different alternatives

INCREASING INTEREST IN INTRAPERSONAL VARIATION IN MODE USE:

- day-to-day variation
- variation over time

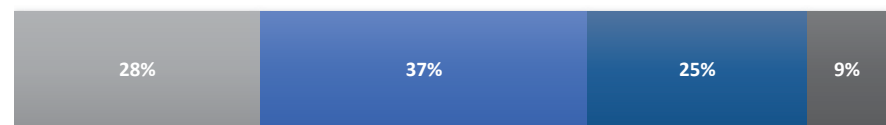
DYNAMICS IN MODE CHOICE BEHAVIOUR

MODE CHOICE VARIATION



MODE USE VARIATION (OR MULTIMODALITY)

3 days



2 days



1 day



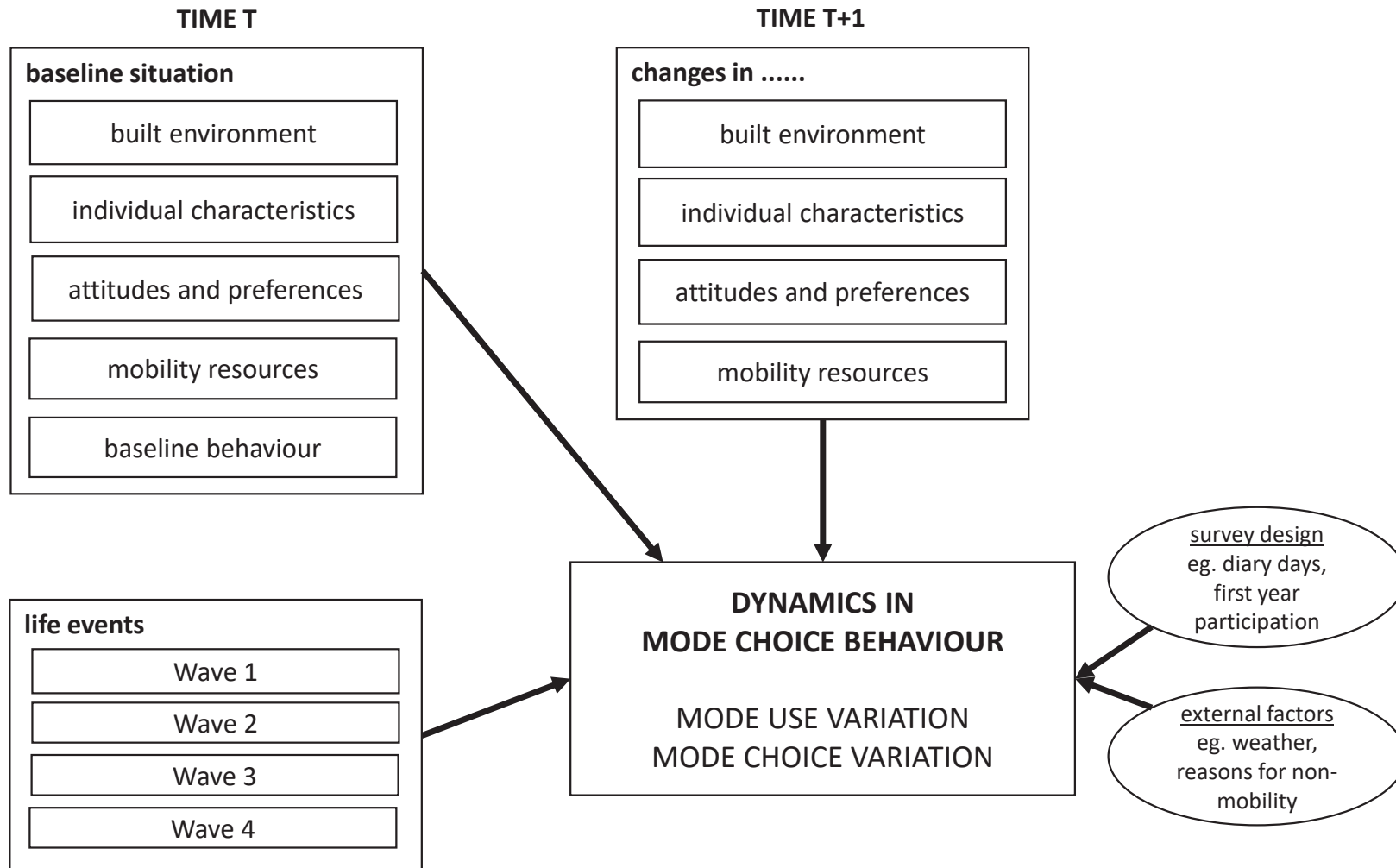
Number of modes used



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CONCEPTUAL FRAMEWORK



MOBILITY PANEL NETHERLANDS

TWO IMPORTANT CHARACTERISTICS TO STUDY MODE USE VARIATION:

1. MULTIDAY TRIP DIARY
2. LONGITUDINAL DATA

For a better understanding of
individual variation and changes
in travel behaviour

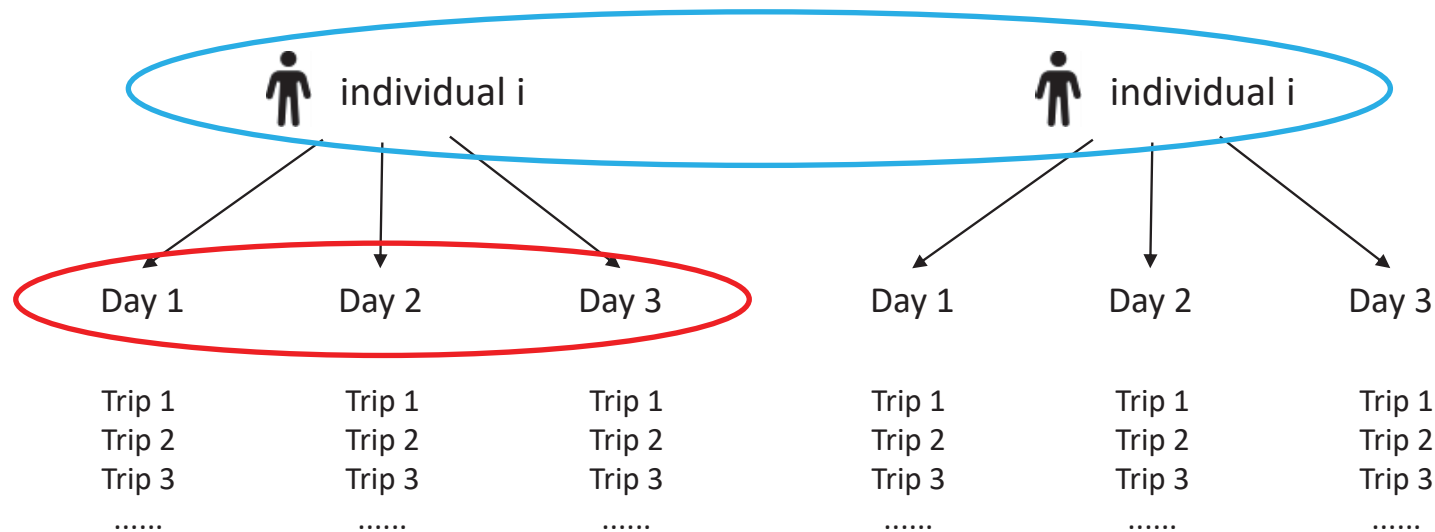


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MULTIDAY TRIP DIARY

**INTRAPERSONAL
VARIATION**



**INTERPERSONAL
VARIATION**

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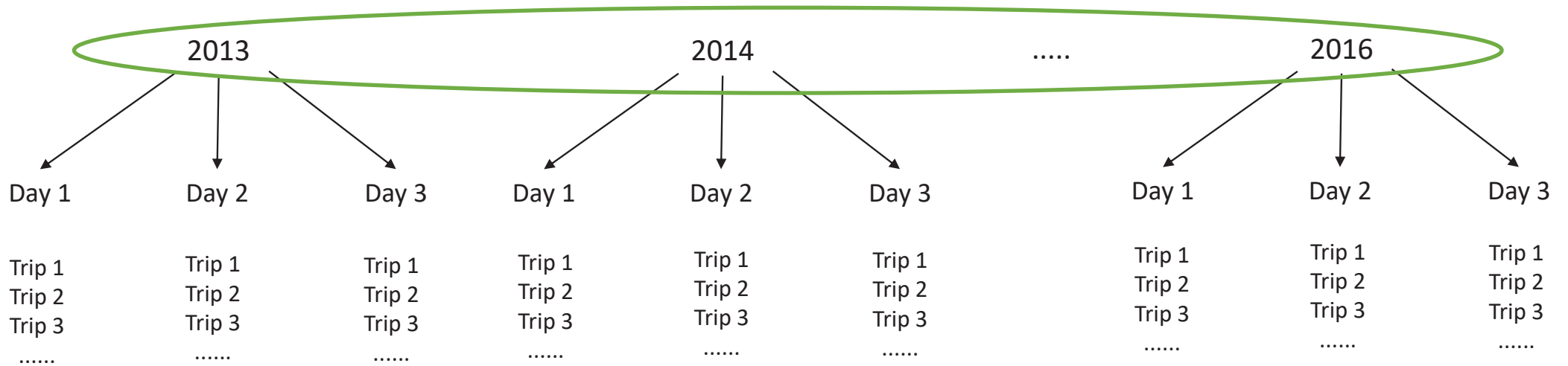
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LONGITUDINAL DATA

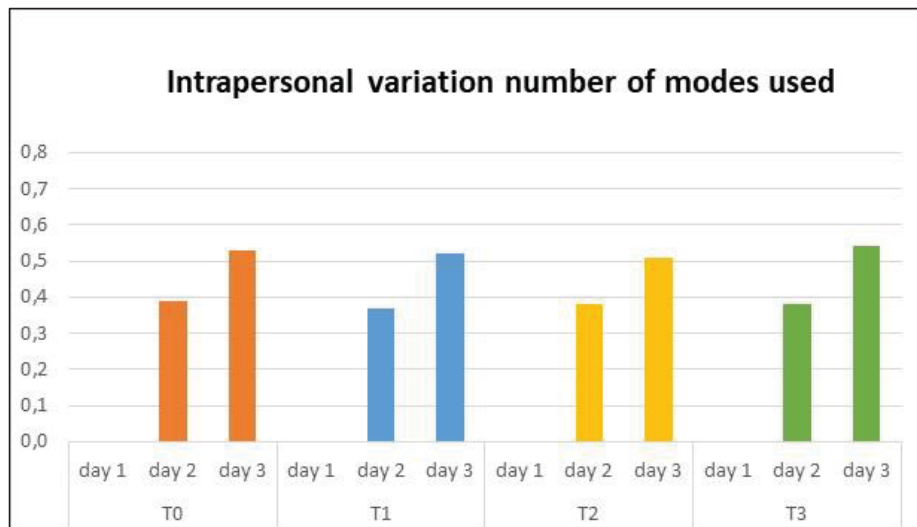


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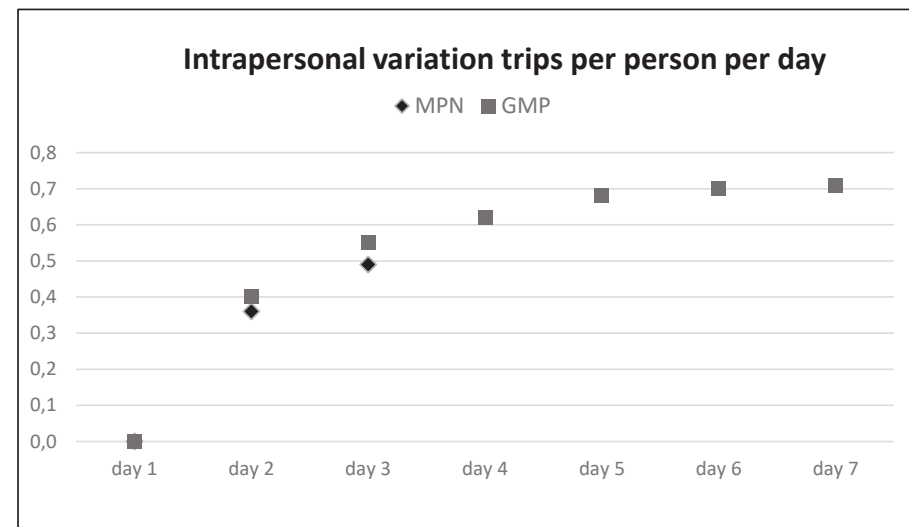
VARIATION OVER TIME



INTRAPERSONAL VARIATION



~ 50% of all variance intrapersonal



~ 80% of all variance within 3 days

MPN does not cover all intrapersonal variation

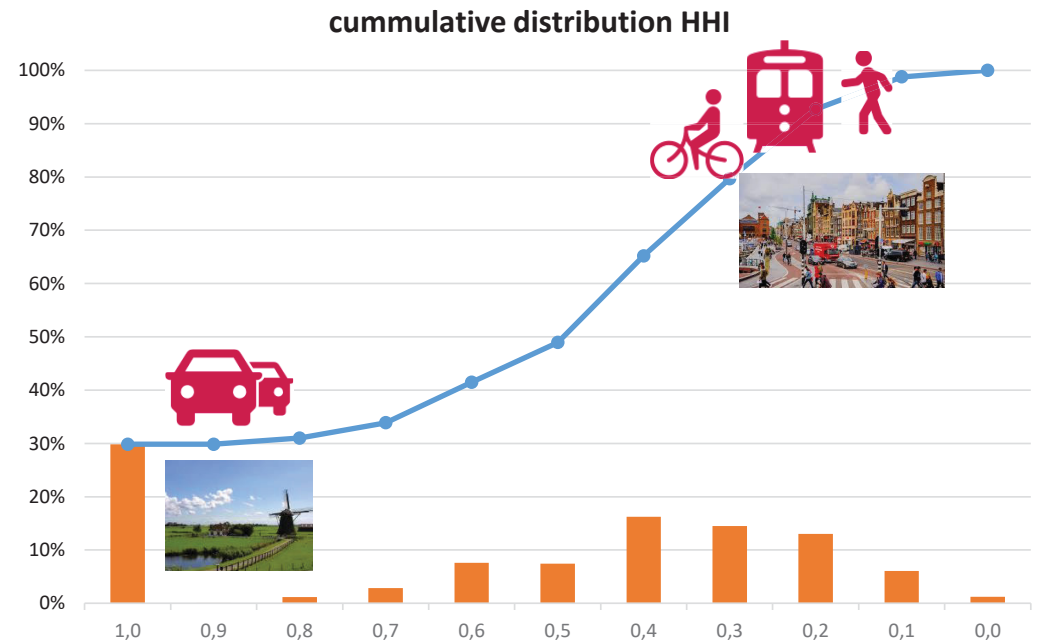
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MODE USE VARIATION

DIFFERENT MEASURES (SCHEINER ET AL., 2016):

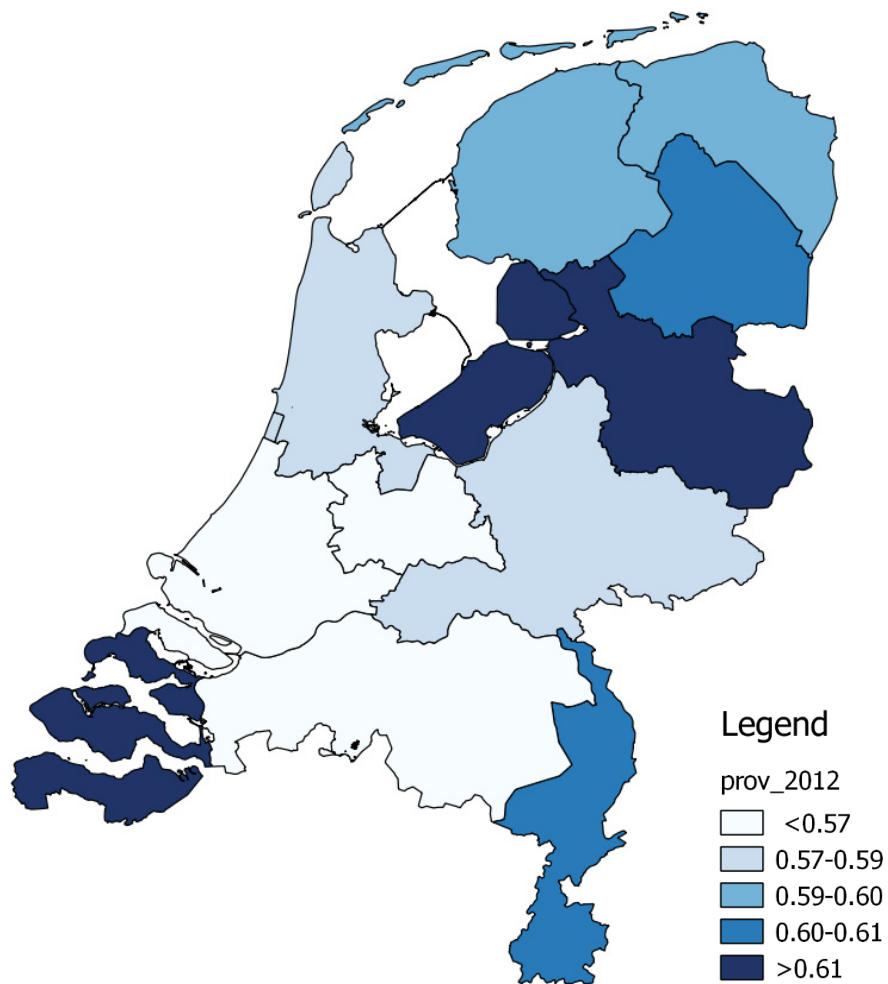
- Mode Variation Index (MIX)
- Herfindahl-Hirschman Index (HHI)
- Number of modes used
- Share of primary mode
-



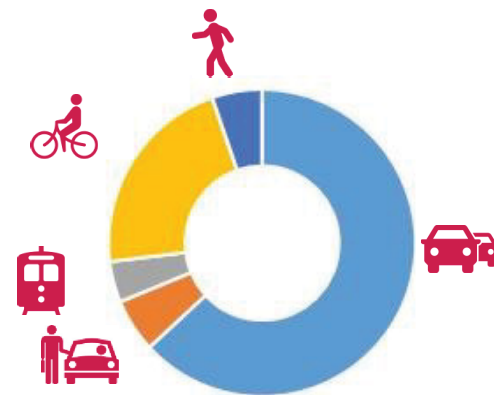
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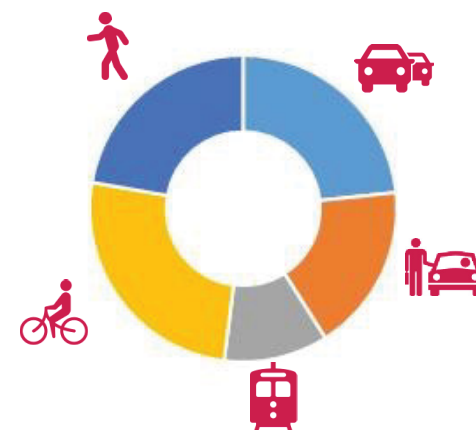
DIFFERENCES IN MODE USE VARIATION



no variation
(30%)

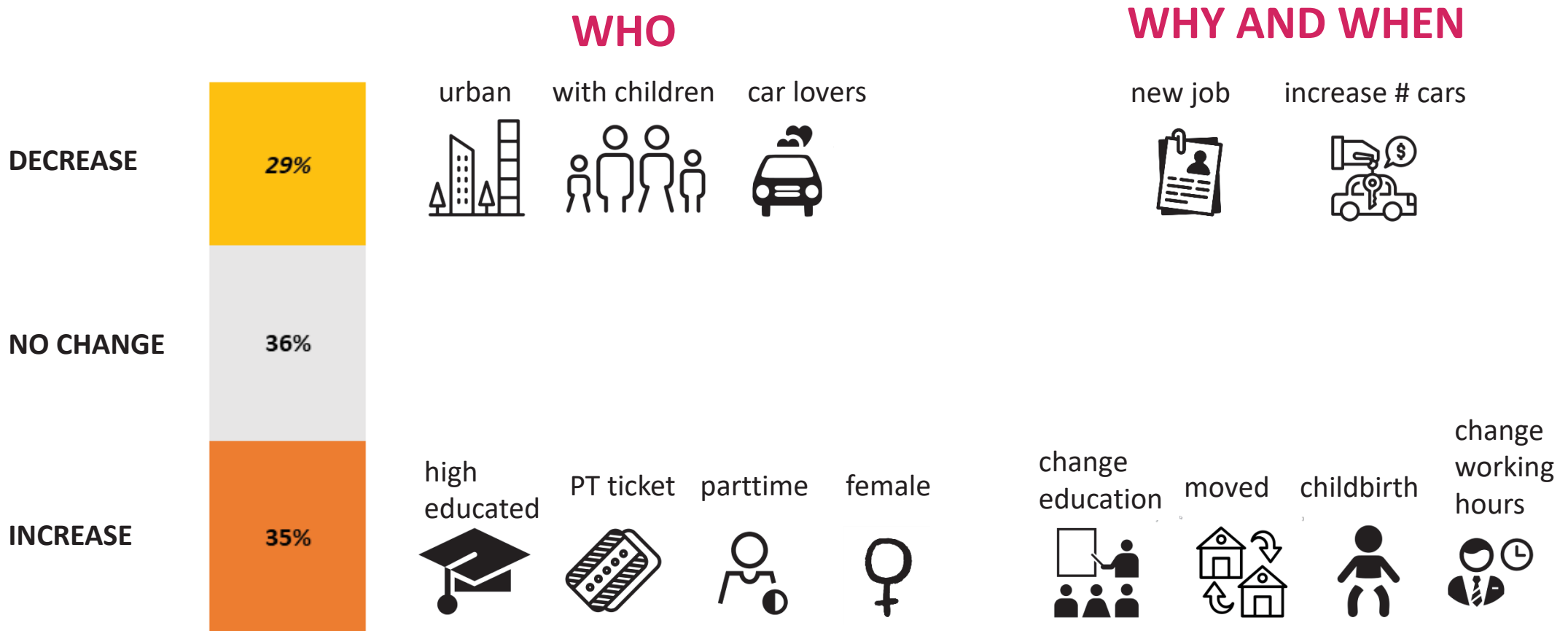


high variation
(10%)



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MODE USE VARIATION OVER TIME



MODE USE VARIATION OVER TIME

HOWEVER.....

- **CHANGE STRONGLY DEPENDS ON BASELINE BEHAVIOUR -> STATE DEPENDENCY**
- **LARGE IMPACT OF EXTERNAL FACTORS AND SURVEY DESIGN:**



higher temperature -> increase in mode use variation








weekend days -> increase in mode use variation



non mobility because of holiday / illness -> decrease in mode use variation

MODE USE VARIATION OVER TIME

RELATIONSHIP WITH CHANGES IN MODE CHOICE:

	decrease in mode use variation	no change in mode use variation	increase in mode use variation
change in....			
 share car driver	7,6%	-0,1%	-6,3%
 share car passenger	-4,0%	0,2%	3,4%
 share PT	-1,2%	-0,3%	1,3%
 share cycling	1,8%	0,3%	-1,8%
 share walking	-4,3%	-0,2%	3,5%

- Less mode use variation is related to a higher share of car driver and cycling
- Increase in mode use variation is related to a higher share of car passenger, PT and walking

THIS RESEARCH....

- Better understanding of **intrapersonal variation** in mode use behaviour
- More insight into **changes in mode use variation over time**
- More insight into **explanatory variables** of changes in mode use variation over time:
 - Life events
 - Baseline behaviour
 - Individual characteristics
- Use of **MPN data**:
 - Three day trip diary does not cover all intrapersonal variability
 - Important to take into account external factors and characteristics survey design

WHAT'S NEXT?

- FURTHER EXAMINATION OF THE RELATIONSHIP BETWEEN CHANGES IN MODE USE VARIATION AND CHANGES IN MODE CHOICE
- FURTHER EXAMINATION OF THE IMPACT OF CHANGES IN MODE USE VARIATION ON:
 - Accessibility of cities
 - Quality of life
 - Health issues
- HOW TO USE THIS INFORMATION FOR:
 - Policy implications
 - Traffic and transport modelling
 -

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QUESTIONS?

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