# The road to happiness? Measuring satisfaction of Dutch car drivers with their travel using the satisfaction with travel scale (STS)

Dick Ettema, *Utrecht University*
Tommy Gärling, *Karlstad University and University of Gothenburg*
Lars Eriksson, Margareta Friman, Lars E. Olsson, *Karlstad University*
Sjef Moerdijk, *Centre for Transport and Navigation*

## Decision utility vs. Experienced utility

Decision utility: expected utility underlying decisions, as derived from discrete choice models.
Experienced utility: utility actually experienced.

Decision utility and experienced utility may differ considerably, due to incomplete information, constrained choices and mis-prediction of the intensity of emotions. Experienced utility is also referred to as subjective well-being (SWB)
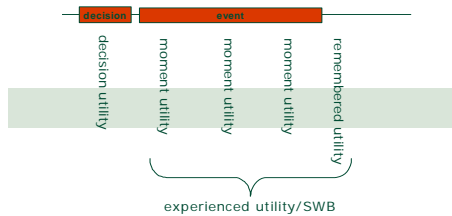


## SWB and travel

SWB can be investigated in specific domains (relationships, work, etc.) but also in the context of travel. Insight in the relationship between travel conditions and SWB provides a potentially powerful tool for policy appraisal.

Travel may affect SWB in two ways:
- the direct experience of travel (delays, cleanliness, safety, etc.)
- by facilitating participation in meaningful activities



## Satisfaction with travel (STS) scale

To measure travel related SWB, the STS scale was developed in this project. STS includes 6 items to tap emotions as combinations of valence and activation levels, plus 3 items to tap cognitive responses.



*Figure 1: Positioning of affective SWB items on SCAS dimensions*

*Table 1: The Satisfaction with Travel Scale: End Points of Scales*

| Positive deactivation-negative activation (items 1-3) | |
|---|---|
| Hurried | Relaxed |
| Worried | Confident |
| Stressed | Calm |

| Positive activation-negative deactivation (items 4-6) | |
|---|---|
| Tired | Alert |
| Bored | Enthusiastic |
| Fed up | Engaged |

| Cognitive evaluation (items 7-9) | |
|---|---|
| Travel was worst I can think of | Travel was best I can think of |
| Travel was low standard | Travel was high standard |
| Travel worked well | Travel worked poor |

## Application of STS scale

Questionnaires among 256 car drivers intercepted at 4 Dutch highways. Questions were included to measure:
- Cognitive and affective STS
- trip characteristics (purpose, frequency, company)
- driving conditions

### Results

| | Cronbach's alpha | Range of inter item correlations |
|---|---|---|
| STS items 1-3 (positive deactivation) | 0.811 | 0.555-0.617 |
| STS items 4-6 (positive activation) | 0.643 | 0.301-0.467 |
| STS items 7-9 (cognitive evaluation of travel) | 0.796 | 0.523-0.695 |

| | Positive deactivation | Positive activation | Cognitive evaluation |
|---|---|---|---|
| **Model 1** | | | |
| Positive deactivation | -- | 0.376 (0.000) | 0.212 (0.001) |
| Positive activation | 0.647 (0.000) | -- | 0.706 (0.000) |
| Cognitive evaluation | 0.183 (0.001) | 0.355 (0.000) | -- |
| R2 | 0.51 | 0.62 | 0.51 |
| | | | |
| **Model 2** | | | |
| Positive deactivation | -- | 0.371 (0.000) | 0.145 (0.012) |
| Positive activation | 0.568 (0.000) | -- | 0.471 (0.000) |
| Cognitive evaluation | 0.182 (0.012) | 0.386 (0.000) | -- |
| | | | |
| Purpose = recreation | | | 1.341 (0.044) |
| A2 motorway | | | -1.318 (0.005) |
| Trip frequency > 1/week | -0.689 (0.086) | | |
| Crowdedness | | | -0.743 (0.000) |
| Lack of autonomy | | | -0.595 (0.000) |
| Experienced safety | 0.526 (0.022) | | |
| Annoyed by road users | -0.386 (0.074) | | |
| Fatigue | -0.928 (0.000) | | -0.507 (0.011) |
| Difficulty in wayfinding | | | |
| Distracted by billboards | | -0.333 (0.047) | 0.456 (0.013) |
| male | 0.774 (0.038) | | -0.925 (0.005) |
| R2 | 0.59 | 0.65 | 0.73 |