



Ministry of Infrastructure and the
Environment

New values of time and reliability for infrastructure project assessment in The Netherlands

Pim Warffemius

KiM Netherlands Institute for
Transport Policy Analysis

ABE20- Transportation
Economics Committee Meeting
TRB; January 14, 2014

January 14, 2014

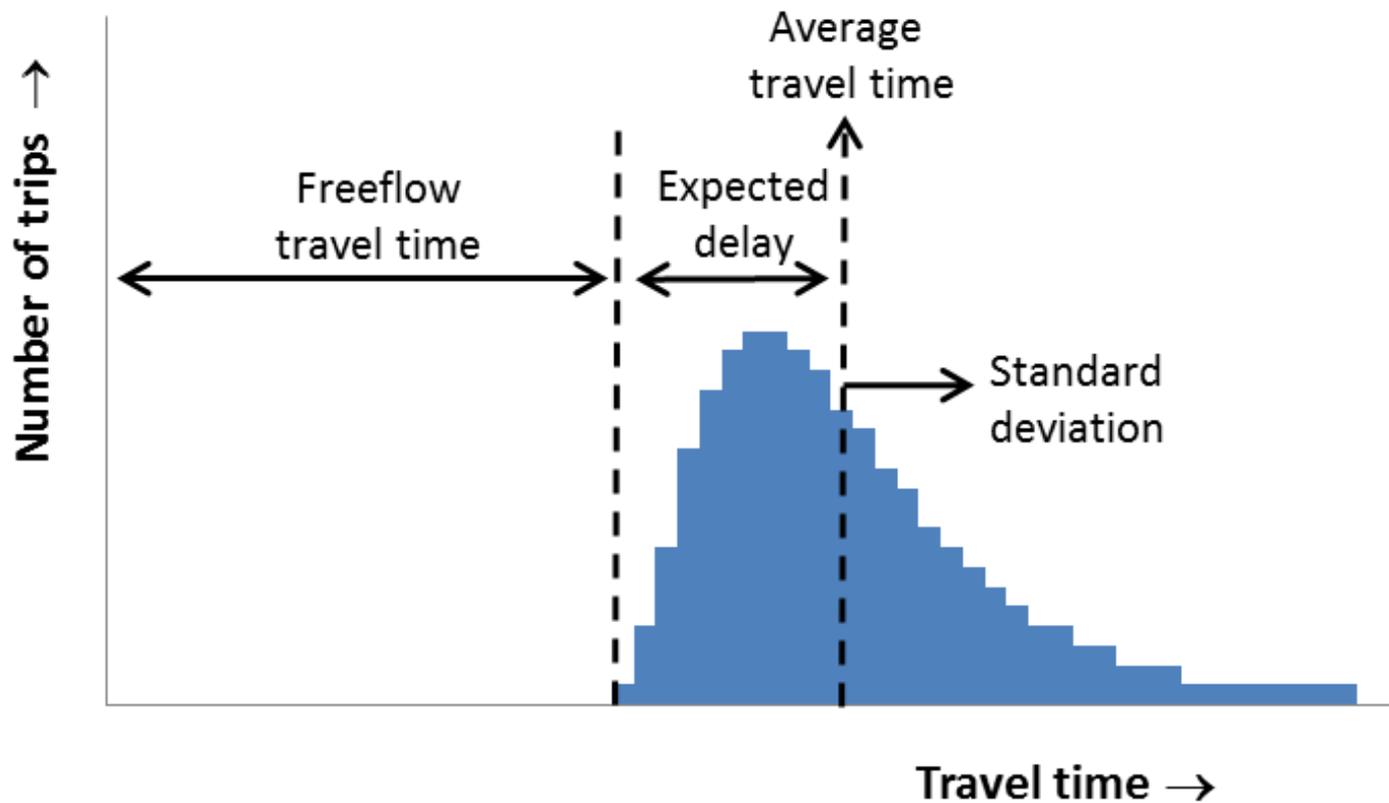


New VOTs and VORs

- Based on empirical research in The Netherlands, carried out by a consortium led by Significance, KiM has determined new values for:
 - Passenger transport car, bus, tram, metro, train, airplane, and recreational navigation
 - Freight transport road, rail, inland waterways, sea and air
- Why new values?
 - Update necessary: travel behavior changes over time
 - Passenger transport: last empirical study conducted in 1997
 - Freight transport: last empirical study conducted in 2004
- Reliability: for the first time values based on empirical research
 - Replace old expert meeting based values



Reliability is measured by the standard deviation





How are the values determined?

- Stated-preference surveys
 - Passenger transport: choice between two trips
 - Freight transport: choice between two transports
 - Variations around recent trip/transport
- Two experiments
 - Experiment 1: two attributes
 - variable travel time / travel costs
 - same as the earlier “Value of Time studies” (passengers in 1988 and 1997; freight in 2004)
 - Experiment 2: four attributes
 - Travel time
 - Travel costs
 - Reliability
 - Arrival time



- Experiment 1:

Trip A

Usual travel time:
45 min.

Travel costs:
€6.00

Trip B

Usual travel time:
40 min.

Travel costs:
€7.00

- Experiment 2:

Trip A

Departure time:
07:55

You have an equal chance of the following 5 travel times and therefore of arriving at the following times:

<i>Travel time:</i>		<i>Arrival time:</i>
35 min.	→	08:30
45 min.	→	08:40
45 min.	→	08:40
75 min.	→	09:10
125 min.	→	10:00

Usual travel time:
45 min.

Travel costs:
€6.00

Trip B

Departure time:
07:45

You have an equal chance of the following 5 travel times and therefore of arriving at the following times:

<i>Travel time:</i>		<i>Arrival time:</i>
40 min.	→	08:25
50 min.	→	08:35
50 min.	→	08:35
70 min.	→	08:55
90 min.	→	09:15

Usual travel time:
50 min.

Travel costs:
€5.50



Data collection

- Passenger transport
 - Internet survey
 - Within on-line panel: 5,700 interviews
 - Outside on-line panel: 1,400 interviews
- Freight transport
 - CAPI (computer assisted personal interviews)
 - 800 interviews
- Lesson learned: SP using members on-line panel leads to substantially lower VoTs due to self selection bias



Results

- Final models:
 - Freight transport: logWTP-space models (road) and relative models (other modes)
 - Passenger transport: new approach -> Panel Latent Class models
- Final outcome of the study consists of recommended VoTs and VoRs for use in cost-benefit analysis (CBA) of transport projects in The Netherlands
- All results and technical details can be found on:
<http://www.kimnet.nl/en/publication/social-value-shorter-and-more-reliable-travel-times>
 - Policy report (KiM, 2013, in English)
 - Technical report (Significance et al., 2013, in English)
 - Peer-reviewed papers in progress



Discussion issues

- Reliability should be included in traffic forecasting tools
 - Insight into behavioral responses to changes in travel time reliability is needed
 - Benefits = $p \times q$: both should be measured consistently
 - In the Netherlands, both p and q are measured in terms of standard deviation of the travel time distribution
- Expectation: travel time benefits will go down due to ICT developments, reliability benefits will become more important
- VOTs and VORs should **not** be measured using internet panels