New values of travel time, reliability and comfort in the Netherlands

Summary

Marlinde Knoope

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Summary

To make it possible to express changes in travel times, reliability and comfort in monetary terms, it is necessary to have access to appraisal values. This study presents those new values. For practically every mode of passenger and freight transport for which values of travel time were determined in the previous measurement, based on reference year 2010, these values have fallen. Only the value of travel time for truck transport by road has risen, by 15%.

In this study, for the first time, national values of travel time have been laid down for walking and cycling. The value of travel time for transport to and from airports for travel by aircraft have also been determined for the first time, and a value for changes to the level of comfort due to high passenger volumes in public transport is new. These additions make it possible to express more effects of mobility policy in monetary terms, in societal cost-benefit analyses.

Objective, scope and approach

The objective of this study was to generate a new and consistent set of values for changes in travel time, reliability and comfort for the various modes of transport. These values serve as key input for Social Cost Benefit Analyses (SCBA) for mobility projects.

For freight transport, we have updated the value of travel time and value of reliability for road transport, train transport, air cargo, inland shipping and maritime shipping. For passenger transport, we have updated the values for travel time and reliability for travel by car, train, bus tram metro (BTM), aviation and recreational navigation, where applicable, for 3 motives (business, commute and other), as well as a weighted average based on journey time. Compared with the previous value of travel time study, active modes of transport, walking and cycling, have been added in this study. Also new are the values of travel time for transport to and from airports for air travel and of comfort. The comfort multipliers indicate the level of comfort in relation to passenger volume for train and BTM, and the comfort of the walking and cycling infrastructure.

Significance was responsible for data gathering and analysis on behalf of the Netherlands Institute for Transport Policy Analysis (KiM). A new travel survey was conducted for passenger transport. For freight transport, no new question-based survey was conducted, but instead a method was developed that translates the available cost figures for freight transport into values of travel time. All the appraisal values have been determined for the price reference year 2022 and are inclusive of VAT.

The new values of travel time for personal mobility

Table S1 lists the values of travel time, averaged and broken down according to reason for travel, for the various modes of transport. These values can be interpreted as follows: a travel time saving of one hour by train generates an average benefit of approx. 10 euro per passenger. The values of travel time also work in the opposite direction, and a travel time loss of one hour costs on average around 10 euro per train passenger. It is notable that the value of travel time for walking and cycling is in the same order of magnitude as the value of travel time for car and train. The value of travel time for air travel is considerably higher but only

applies to time *in* the aircraft. The value of travel to and from the airport is considerably lower.

Table S1 **Values of travel time (VTT)[1] of each reason for travel in 2022 for the various modes of passenger transport in €/hour per person at price reference level 2022**

Mode	Average	Commute	Business	Other
Car	10.42	10.78	21.20	9.60
Train	10.08	12.05	17.96	8.64
BTM	7.12	7.62	14.39	6.66
Aviation	61.79	n.a.	110.2	53.80
Recreational navigation	8.07	n.a.	n.a.	8.07
Walking	10.39	10.17	11.20	10.43
Cycling	11.84	15.89	14.72	11.76
Transport to and from airport for air travel	12.46	n.a.	21.73	10.77

1. These are the best estimates of the values of travel time. For applications, we recommend conducting a sensitivity analysis with 5% lower and higher values.

Table S1 presents our best estimate of the values of travel time. These values are influenced by a number of different (model-based) assumptions and (statistical) uncertainties. We therefore recommend applying sensitivity analyses with 5% higher and lower values of travel time.

Compared with the previous appraisal values, the values of travel time for passenger transport have fallen by 10-20%. The most important reasons for this downturn in value of travel time are:

- Increased comfort during travel for example due to fewer transfers.
- Technological developments that mean travel time can be spent more usefully.
- Composition effect of the type of travel and the people travelling.
- The values of travel time for 2010 are based on people recruited on location. For car travel, this may have resulted in an overestimation of the value of travel time.
- Methodological changes in determining the value of travel time for business travel have caused the values of travel time for this motive for travel to fall by around 20%. However, business travel only represents a limited share of the weighted average.

The value of reliability was determined via reliability ratios. The reliability ratio multiplied by the value of travel time results in the value of a change in reliability of travel. The reliability ratios have fallen, for all modes of transport. The greatest downturn is visible in aviation (from average 0.7 to 0.28), while for BTM and recreational navigation they have remained (practically) unchanged. The new reliability ratios appear to form a better match with the values used in other countries.

Multipliers have been determined for the various comfort aspects. A multiplier of less than 1 means that the value of travel time falls because the comfort is higher than average. For walking and cycling, multipliers have been determined for different types of cycle paths and walking paths, the attractiveness of the route, the volume of cars, the width of the footpath or the type of paving of the cycle path. For public transport, multipliers have been determined for various different passenger

volume levels in the train or BTM. These vary from 0.93 for sitting in a quiet train to 2.29 for standing in a very busy train. For a detailed description of the method and overviews of all results, we refer to the background report prepared by Significance.

Results and comparison of the values for freight transport

Table S2 shows the new average values for freight transport (not broken down according to container and non-container transport). For SCBA applications, we recommend performing sensitivity analyses with 5% higher and lower values of travel time.

For the majority of modes of transport there is a difference between the short (1 year) and long (10 years) term value. In particular for non-road transport modes, it can be difficult to fully utilise time savings on personnel and materiel. The time saved for example is too short to transport an additional load. In the longer term, these time savings can be fully utilised.

Besides for road transport, the values of travel time for freight transport are far lower (-45 to -75%) than the previous value of time, updated to price reference level 2022. One key reason for this is a change in the methodology. In the values of travel time based on reference year 2010, both the time-dependent factor costs and the distance-dependent costs were used as a basis for the value of travel time; in this study, only the time-dependent factor costs have been used. This new approach is in line with international practice. The distance-dependent costs are in fact already separately listed as a cost item in any SCBA. Including the distance-dependent costs in the value of travel time therefore results in a double count. For maritime shipping, for example, a fuel-intensive mode of transport, this methodological change explains the entire difference. For other modes of transport, this change means that the fall is between 10 and 30% points lower.

Another important explanation for the fall in value of travel time for freight transport, in particular for transport by train, inland shipping and aviation, is the switch in 2020 from the old factor costs calculation method, to the use of cost figures for freight transport.

The reliability ratios for freight transport have not changed. However, because the values of travel time have fallen considerably, the values for reliability have also fallen. The reliability ratios for freight transport all appear in the background report prepared by Significance.

Table S2 **Average short (1 year) and long term (>10 years) value of travel time in 2022 for freight transport in €/hour per vehicle or vessel at price reference level 2022[1]**

Mode	Short term	Long term
Road	63.1	63.1
Train	461	1,137
Inland shipping - quayside	39.0	173
Inland shipping - lock	167	173
Maritime shipping	660	1,084
Aviation	5,545	8,472

1. These are the best estimates of the values of travel time. For applications, we recommend conducting a sensitivity analysis with 5% lower and higher values.

Implications for policy

The lower value of travel time and value of reliability for passenger transport and for the majority of modes of freight transport could impact the outcomes of SCBAs. Whether these lower appraisal values mean that the cost-benefit balance changes from positive to negative or negative to positive is difficult to say, since any such change depends heavily on the travel time and reliability changes and the other cost and benefit items. It is also worthwhile emphasising that other benefit items such as a saving on distance-dependent costs for freight transport and comfort improvement in passenger transport could also result in additional, quantified benefit items. Based on a quick scan of a number of recent SBCAs, the overall conclusion would not appear to be drastically different, based on this new set of values of travel time, reliability and comfort.

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Author:

Marlinde Knoope

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KiM Netherlands Institute for Transport Policy Analysis

Bezuidenhoutseweg 20

2594 AV The Hague

Postbus 20901

2500 EX The Hague

Phone : 070 456 1965

Website : www.kimnet.nl

E-mail : info@kimnet.nl