

Summary:

Recommended values of time for passenger transport

The Norwegian Public Roads Administration and the County Directors of Transport are currently working on a joint guidebook of cost-benefit analysis of transport measures. Values of time are fundamental in this context. The same applies to similar work in the Civil Aviation Administration and the Norwegian National Rail Administration. These agencies have commissioned the Institute of Transport Economics (TØI) to propose a consistent set of values of time that can be used in evaluating multimodal transport measures. An ad hoc group of experts has reviewed TØI's recommendations, and their comments and viewpoints are incorporated in the final report.

The values of time recommended in this document are mainly based on results from the the Norwegian Value of Time Study (Ramjerdi et al. 1997) and recommendations in a follow-up report (Rekdal, 1998). We have supplemented this with results from a number of recent studies conducted by TØI for selected urban areas and results from foreign studies. We have used the same approach as Rekdal (1998) in this report. Values of time from the Norwegian Value of Time Study, grouped by income, travel purpose etc., have been weighted with data from the last Norwegian travel habit study (NRVU) from 1997/98 to form updated national values.

Assumptions underlying the recommendations

We have chosen to divide travel purposes into three main purposes: business travel, commuting and private travel. Furthermore, we differentiate between short and long trips, the latter being trips of more than 50 km. We have also differentiated the values of time by mode. For short trips there are two modes: car and public transport, while for long trips there are five: cars, trains, buses, planes and ferries.

To ensure the selection of the best projects first, it is important that several small time savings over time are treated in the same way as one large one. In practice this means that small and large time savings should be treated equally.

Little is known about how values of time develop over time. If the trend toward greater prosperity and shorter working hours seen over the last 20 years persists, the two factors will affect the values of time in opposite directions. Because it is virtually impossible to forecast how our preferences will change, we suggest, as a conservative recommendation, to keep the real values of time unchanged in analyses with a not too long time perspective.

Recommended time values

The choice context used in the Norwegian Value of Time Study was within-mode. The samples are consequently not necessarily representative for the population as a whole, but will contain various forms of self-selection. In calculating the value of travel time saving for particular projects, the values of time in the tables below may be used directly for the basic traffic, i.e. the traffic that uses the mode in question in the base case.

In the case of transferred traffic, adjustments of the values of time may only be undertaken when there is a great difference between them. This will only apply when traffic is transferred from air to other modes and vice versa. We then recommend a value of time consisting of 1/6 of the value of time for air and 5/6 of the value of time for the improved mode, or 5/6 of the value of time for planes and 1/6 of the value of time for other modes, if the air is the improved mode. This adjustment is made only for “the new travellers”.

More than one mode is used on many trips. No studies have been conducted which look at the values of time along the entire chain of travel. We recommend using the same value of time for the entire trip, preferably the value of time of the main mode.

Long trips

Table I: Values of time(1998 NOK/hour) for long trips, by mode and trip purpose.

	Driver	Train	Plane	Bus
All trips*	115	70	221	52
Business trips	192	123	213	80
Commuting	137	82	415**	51
Private trips*	96	56	184	50
Weighting factor for headway		0.1	0.2	0.1
Weighting factor for feeder time		1.0	1.0	1.0
Weighting factor for delays		1.5	1.5	1.5
Transfer disutility		(10 min.)	(10 min.)	(10 min.)

* Aggregated on the basis of data from NRVU 97/98, cf. table 4.2 for cars, buses and trains

** This value applies to special groups, which probably have their trips home paid by the employer. To be used with caution.

On the basis of the results for reduced headway in the Norwegian Value of Time Study we recommend a flat weighting factor of 0.1 for reduced headway relative to in-vehicle time. This applies for all travel purposes on trains and buses. A weighting factor of 0.2 is recommended for trips by plane and 0.5 for ferry trips.

The weighting factor for feeder time is set at one, because we recommend using the same value of time along the entire travel chain.

For delays we use the recommendations from the Swedish Value of Time Study. This gives us a weighting factor of 1.5 for all modes of long trips.

Time costs associated with transfers were not studied in the Norwegian Value of Time Study. In calibrating weighting factors for public transport trips in the Oslo region (PROSAM report no. 45), the result for disutility of transfer was that one transfer was equivalent to 10 additional minutes of in-vehicle time. As a simplified, conservative recommendation, we recommend to value transfers at the equivalent of 10 minutes of in-vehicle time, or 17% of the in-vehicle time value, for all trips by plane, train, bus, ferry and public transport.

In addition, waiting time at transfers are weighted by a factor of one. This accords with our choice of using the same value of time throughout the travel chain.

Short trips

In table II the recommended values of time for waiting time for short public transport trips are based on results from the Norwegian Value of Time Study. The weighting factor for headway relative to in-vehicle time was in this study estimated at 0.5 on average.

Table II: Time values (1998 kroner/hour) for short trips, by means of transport and purpose of trip

	Driver	Public
All trips*	44	34
Business trips	145	113
Commuting	42	41
All private trips*	39	26
Weighting factor for waiting time 0-7.5 min.		1.8
Weighting factor for waiting time 7.5-15 min.		1.2
Weighting factor for waiting time 15 or more min.		0.4
Weighting factor for walking time		1.8
Weighting factor for delays		3.0
Transfer disutility		(10 min.)

* aggregated on the basis of data from NRVU 97/98, cf. table 4.3.

The Norwegian Value of Time Study indicates an extremely low value of time for walking in connection with public transport. Our recommendation of a weighting factor of 1.8 is based on the results of the previously mentioned calibration of weighting factors for public transport in the Oslo area.

For short trips the value of delays was three times the in-vehicle value of time for public transport in the Norwegian Value of Time Study. We have therefore chosen to recommend a weighting factor of 3 for public transport.

Ferry trips

We have compiled a special table, table III, for ferry trips because we believe the statistical basis in the Norwegian Value of Time Study is not good enough to make solid recommendations for values of time for ferry trips. We recommend instead

using the value of time for long car trips for drivers and car passengers on ferry trips. For ferry passengers without cars we recommend using the same value of time as for trips with public transport.

Table III: Time values (1998 kroner/hour) for ferry trips

	Drivers and car passengers on the ferry	Ferry passengers without car
All trips*	115	34
Business trips	192	113
Commuting	137	41
Private trips*	96	26
Weighting factor for headway	0.5	0.5
Weighting factor for feeder time	1.0	1.0
Weighting factor for delays	1.5	3.0
Transfer disutility	(10 min.)	(10 min.)

* aggregated on the basis of data from NRVU 97/98, cf. table 4.2 for ferries

Values of time are uncertain

In this report we have recommended values of time on the basis of previous studies and current knowledge. There is little doubt that there is still much uncertainty and that we have many challenges ahead in making the figures more certain and credible. This project has not been large enough to be able to judge the methods employed in the Norwegian Value of Time Study, but we note that no better alternative method is available at this time.

Some are critical of the use of the SP method itself. They believe that when respondents are asked to choose between alternatives they may have problems making choices that reveal their true preferences. This can be because they do not understand the questions, that there is too much of a leap between the alternatives so they do not find the answer that suits them, or that they do not bother to answer properly, etc.

It appears, however, that most believe SP analysis is the best choice for estimating transport value of time, but that some adjustments should be made. Key words here will be; inconsistent choices, lexicographical choices and problems of heterogeneity. For instance, it turns out that reestimation of both the Norwegian and Swedish data, treating data heterogeneity differently, yields lower value of time estimates. Results of new studies may indicate that the method of the Norwegian Value of Time Study might yield values of time that are too high.

Furthermore, the choice context in the Norwegian Value of Time Study was within-mode. Thus respondents do not represent the entire population of travellers. Moreover, the the mode specific choice situations make it impossible to isolate the effect of comfort, so consequently we cannot say how much of the variations in the values of time between modes are due to comfort differences.

It is important that resources be invested to refine and improve the methods for valuing travel time savings. Much new knowledge about heterogeneity and other problems could be obtained by further analyses of the existing material from the Value of Time Study. As long as no better alternative method exists, we recommend that the values of time as they are presented above be used in valuing travel time savings. We see that doubts can be raised about the figures, but our assessment is that it is the best we have as of today.

