

The Valuation of Business Travel Time Savings: Evidence and Practice

The value of travel time savings is one of the most important parameters of transport planning, with a long history of estimation and application in project appraisal. The UK has been one of the pioneers in its understanding, estimation and application, although in the context of business travel time savings other countries, such as Norway, Sweden and the Netherlands, have championed recent developments in the form of a departure from the traditional 'Cost Savings' approach that values such savings at the gross wage rate.

For infrastructure projects with the objective of improving accessibility, travel time savings are important, and they typically comprise the majority of the direct benefits of such projects. As business travel time changes in the UK are currently valued per unit on average at more than 4 times non-working time savings, the value of business travel time savings is critical to the economic appraisal of such projects. For a package of national highway improvements appraised for the UK's Eddington study in 2006, travel time benefits accounted for 72% of all monetised benefits including reliability and wider impacts. Of the time benefits, the breakdown was 20% to freight, 34% to car employer's business and 46% to non-work car purposes including commuting, and hence 39% of the total monetised benefits of the package are accounted for by business travel of all kinds including those by professional drivers. Obviously these proportions might vary significantly between schemes, but as a generality we can say that the valuation of business purpose travel time savings is very important issue for national highway schemes, and the same is also true of rail schemes, yet despite its economic importance business travel actually comprises only 8.5% of all trips made per year 8.8% of all miles travelled per year in Great Britain.

The current UK procedure, and that adopted in most countries and by international agencies, is to value business travel time savings at labour cost, the so-called Cost Savings Approach, on the grounds that unproductive travel time when saved can be converted into productive time which has a value equal to the wage rate. This approach has the attraction of simplicity in application, requiring no distinction between different types of travel time whilst, according to Fowkes et al. (1986), who provided the first and in our understanding only empirical comparison of different valuation methods, also provides a reasonable approximation to more comprehensive and sophisticated approaches. It is our understanding that the findings of the pioneering Fowkes et al. (1986) study influenced the UK Department for Transport's retention of the cost saving method in the light of what the first UK national VoT study (MVA et al., 1987) termed the "well-rehearsed" shortcomings of the assumptions underpinning the cost saving approach.

At what might be regarded to be the other extreme, but with a pedigree almost as long as the Cost Saving Approach, is the Hensher (1977) approach, the key features of which are the recognition of time spent working while travelling, whether time saved is returned to work or leisure, the relative productivity of work at the normal workplace and travelling and the valuation that individuals place on time savings. This approach has considerable intuitive appeal. The main reservations concerning this approach have been the degree of accuracy with which its key parameters can be estimated and whether it does indeed provide an accurate account of the benefit to companies of time saved

travelling by their employees as might be reflected in the company's willingness to pay (WTP). It has been recognised by many commentators that such a willingness to pay, expressed directly by the company or implicit in the decisions made by business travellers, would provide another suitable basis for valuing business travel time savings. Indeed, there is a wealth of such evidence.

It is timely to revisit the issue of the appropriate basis for the value of business travel time savings because there is now a wealth of empirical evidence that can be used to assess the cost saving approach, covering the Hensher parameters and broader willingness to pay evidence, and also because some countries are departing from the conventional cost saving approach.

This paper provides what we believe to be a comprehensive review of the European empirical evidence underpinning the valuation of business travel time savings; indeed we are not aware of such an extensive review of various strands of empirical evidence in this area.

We briefly summarise the reasoning behind the conventional wisdom of valuing business travel time savings at the gross wage rate and then summarise the well-rehearsed objections to this method. The Hensher equation approach to valuation is then briefly outlined along with the relevance of willingness to pay (WTP) approaches based around the employer and employees.

The main substance of the paper covers the following:

- International appraisal practice - covering the 10 European countries where guidance values are provided and also countries outside Europe and international organisations
- A critical review of evidence relating to the Hensher parameters, dealing with 10 studies from 7 countries. Most of these were from so-called national value of time studies.
- A review of willingness to pay evidence in the business travel market covering 170 UK RP and SP values of in-vehicle time along with 113 mainland Europe RP and SP values. To this is added a large amount of evidence on values of walk time, wait time and other attributes such as crowding.
- Evidence from a large number of Japanese studies is covered whilst we have reviewed 11 high speed rail studies.
- Examination of existing evidence on travel time use which has assembled a set of 66 potentially relevant articles and close review of around a third of these.

We compare and contrast the evidence from the Hensher and WTP approaches alongside official values based on the cost savings approach. Particular emphasis is placed on exploring evidence that challenges particular methods, such as variations in values of time by mode or by whether the time is walking or waiting, which are not admissible under the cost saving approach, whether WTP based values are falling over time as might be suggested by the Hensher approach, and contrasting the generally large WTP based values with the relatively low values based on the Hensher approach.

The aim of the paper is not to draw recommendations as to the most appropriate method to value business travel time savings. This would in any event be difficult due to the disparate nature of the evidence base, but to identify what we believe to be the major research issues in this area on the basis of a considerable amount of empirical evidence that we have reviewed.