

2016 Petition to House of Lords Select Committee: Using 'willingness to pay' to conduct cost benefit analysis for untraded goods

Statement of evidence

Submission by Hilary Wharf, Director HS2AA

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Using ‘willingness to pay’ to conduct cost benefit analysis for untraded goods

This statement is given by Hilary Wharf. I am a railway consultant having established a consultancy more than 25 years ago. I am economist and have worked largely on railway franchise bids and prior to that on monitoring railway safety.

I am familiar with concept of ‘willingness to pay’ (WTP) that DfT use in conducting cost benefit analysis for untraded goods. I have worked on projects concerning valuing a statistical life (for railway safety). I have given evidence to parliamentary committees on the HS2 Business Case – in particular the basis used to value the time savings that represent more than half the benefits ascribed to HS2. I identified deficiencies in the DfT WTP process for HS2 (using outdated data) that DfT have now amended.

Willingness to Pay (WTP) basis for cost benefit analysis

DfT is generally committed to monetizing benefits and costs so that cost benefit analysis of decisions can be conducted including as many factors as is practicable. Money provides a common coin for different impacts, and monetization of factors without market prices brings them within the ambit of quantified cost benefit analysis. DfT’s approach to cost benefit analysis and the general commitment to a ‘willingness to pay’ basis is set out in TAG unit A1.1:

1.1.2 Therefore CBA entails presenting as many of the impacts of a scheme or option as possible in monetary terms, so that they can be compared in a common unit of measurement. Some valuations can be made using prices paid in markets and predictions of future prices, e.g. fuel prices. The valuation of some other impacts, for which markets do not provide prices, is derived from research, e.g. stated preference studies to derive values of time that are used to convert time saved into a monetary value. TAG Unit A1.1 Cost-Benefit Analysis (Nov. 2014)

And

2.1.3 CBA aims to take account of all the impacts of a project and there are essentially two ways of describing the impacts: as a calculus of willingness-to-pay (WTP); or as a calculus of social costs and benefits (SCB). If properly applied, both methods will result in the same valuation of the net benefit to society but will present the impacts in a different way. For transport appraisal the WTP calculus should be used as it allows different impacts on different groups to be identified. More detail on the differences between WTP and SCM calculus is given in Appendix A.

DfT also introduces this approach in terms of the Treasury’s recommended best practice, which supports CBA.

‘1.1.1 The Green Book [HMT, 2003] sets out best practice guidance on assessing and evaluating policies, programmes and projects and recommends that options should be appraised using cost-benefit analysis (CBA). The Green Book defines CBA as ‘analysis which

quantifies in monetary terms as many of the costs and benefits of a proposal as feasible, including items for which the market does not provide a satisfactory measure of economic value.”

The latest edition of the Green Book (2011) says at Appendix 2

3 The preferred method of estimating this change in utility is to simulate the market in order to estimate people’s ‘willingness to pay’ (WTP) or ‘willingness to accept’ (WTA) a project’s outputs or outcomes. Willingness to pay is the maximum amount of money an individual is willing to give up in order to receive a good. WTA is the minimum amount of money they would need to be compensated to forego or give up a good. The amount consumers are willing to pay depends to a large extent on the levels of income available to them, so valuations are usually obtained by averaging across income groups.

Using WTP or health basis for valuing reductions in noise (TAG unit A3)?

Until December 2015 TAG unit A3 was based on WTP and then it switched to becoming health based. Both the pre 2015 basis and the latest version give about the same monetary values – just under £100/household/pa for a 5db reduction (50db to 45db). Neither ascribes any value to preventing relatively quiet places becoming noisier

WTP basis

A key issue with noise is that not only does it have adverse health effects, but that people dislike being exposed to it and would pay to avoid being exposed to it. How much they would pay no doubt varies with the characteristics of the source, where and when the noise occurs, how obtrusive it is, and how loud it is. Research to fully explore people’s willingness to pay to avoid noise is very limited to date.

The pre December 2015 WTP basis was founded on a single Birmingham house prices study.

The problem with using the Birmingham study is that it involves heroic assumptions to move from the evidence of the implicit valuation of noise from property prices within an urban area to use it as the basis of values everywhere. The evidence is also old. The application of the Birmingham study was developed by Nellthorp (and others) at Leeds University and published in 2007 (although DfT used the assessment earlier), but the study itself was conducted on 1997 data. Nellthorpe referenced some international supporting evidence for the values that they took, which is also old.

Health basis

Rather than develop the WTP approach, DfT dropped it, adopting the DEFRA health based approach.

The DEFA health basis for noise was introduced in the December 2015 WebTAG Databook. TAG Unit A3 Environmental Impact Assessment (Dec. 2015) gives the rationale of how noise is assessed. It cites the sourcing of values from DEFRA, but has no mention of WTP. It argues that the adoption of the health cost basis is due to the emergence of evidence of health impacts from noise. I do not dispute that. But there is no discussion or justification for why WTP is not continued to be used.

Issues

The key problem with using health values (even were these correct) is that independently of this people do have a willingness to pay for less noise. No attempt is currently being made to capture this.

In contrast, willingness to pay for journey time savings contributed the great majority of quantified benefit for HS2 in its cost-benefit analysis.

That this is an omission is indicated by whether people have a preference for not having noise.

What people would be prepared to pay to avoid the noise from HS2 is not known, yet is very likely to be substantial – particularly in quieter areas. The previous Birmingham study was in an urban environment and so could not explore this. Not knowing a good method of quantification is not a justification for using values which are deficient and do not include a WTP element.

HS2AA contend that without proper WTP research having been done, the present WebTAG basis is deficient and should not be used in valuing mitigations for HS2 generated noise (as is being done)