

One approach for estimating the willingness to pay to avoid a statistical death is to observe human behaviour in risky situations. Most empirical estimates, which have been reviewed by Bailey (1980), examine wage differentials among occupations with varying degrees of risk. One empirical estimate used individual choice with respect to seat belt use. The values (1978 dollars) found in the former studies (wage differentials) ranged from approximately \$250,000 (Thaler and Rosen 1976) to \$5.0 million (Smith 1974). The value found in the seat belt study was approximately \$313,000 (Blomquist 1979).

Other approaches for estimating the value of human life include total lifetime earnings, court awards, and surveys. Current economic thinking questions these approaches on theoretical and empirical grounds.

Neither the behavioural nor the survey approach captures the willingness-to-pay of relatives or close friends. One study (Needleman 1976) indicates that including others' willingness to pay could increase the statistical value of life by 25-100%. Although this study measured willingness to pay, it differed from the behavioural approach in that it placed a value on a known human life. The behavioural approach assigns a value to an improvement in safety for each of a large number of individuals.

Review of the significant behavioural studies could provide high and low limits for the range of values of a statistical death avoided. Therefore, it is the approach recommended for valuing the effects associated with LRTAP. However, no monetary estimates are possible unless there is an agreed upon dose-response relationship.

7.3.5.2 Morbidity

The conceptually correct procedure for estimating the value of reductions in morbidity is also what an individual must be paid to accept additional risk. Individuals must be paid a certain amount to accept lost time at work, or restricted activity days. A more complete analysis would also ask what an individual must be paid if he had to accept a career change as a result of an accident.

Unfortunately, there are few behavioural studies and surveys which provide us with estimates of willingness to accept risk. In lieu of this information, average daily earnings (not wage differentials by occupation) for those in the labour force can be used as an empirical value with the recognition that not all morbidity results in lost earnings (paid sick leave and sickness on nonworking day). Their earning measures do not reflect loss in productivity and the pain and discomfort they suffer.

The value of changes in morbidity would partially follow the lower bound estimates of Freeman (1979). Morbidity could be measured either by work days lost or restricted activity days. The work days lost measure applies only to people in the labour force. Restricted