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(How) Can we value health, safety and the environment?

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Abstract

The assumptions that underpin the conventional economic model of 'rational agents' tend to be substantially violated by data from surveys that try to elicit people's values for health, safety and environmental goods. Psychological research suggests that there may be a large affective component in people's responses to such surveys, with the result that those data are not amenable to the 'logic' of economic rationality. This raises questions both about the way we model human judgment and decision processes, and also about the use of survey data to guide public policy in these and other areas.

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1. Introduction

Most people would agree that measures which reduce the risks to human health and safety and protect the environment are desirable activities to which at least some

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scarce resources should be allocated. However, they are not the only things people want: food, clothing, shelter, transportation, education and entertainment are among the other goods and services we desire. So the question is: how do individuals and societies strike the balance and allocate the appropriate levels of resources to health, safety and the environment as compared with all the other goods and services which are valued?

The structure of this paper is as follows. The next section outlines the conventional economist's answer to that question. There is then an indication of the main kinds of practical problems encountered when researchers attempt to act on the basis of that conventional model. This is followed by a discussion of some of the related and relevant research by psychologists and behavioural economists, with particular reference to the influence of the work of Daniel Kahneman and his peers and collaborators. The concluding section considers some possible issues for policy and future research.

2. The conventional economic approach

It is a fundamental premise of conventional welfare economics that public policy decisions should, as far as possible, reflect the preferences of those who will be affected by them. For example, if it is proposed to introduce some health or safety innovation – some new technology, perhaps, or some change in legislation or regulation – then public policy makers may need to consider how the costs that will fall on members of the population compare with the benefits they may expect to receive. In effect, that requires some (monetary) value to be attached to each component of the costs and benefits, including any changes in expected quality and/or length of life that may be entailed by the innovation.

In this paradigm, the welfare of each individual is the basic unit of analysis. Each individual is characterised as having some level of current and expected future income and wealth and some set of personal values and preferences. On the assumption that he is well informed about the prices and qualities of the large array of goods and services available, it is supposed that he will choose a pattern of present and planned future consumption which will bring him the greatest overall level of satisfaction (or, in economists' terminology, *utility*) that his wealth will allow. This is, of course, a highly stylised portrait of an individual; however, the model appeals to the assumption that *on average* it is *as if* the population at large operates in this way.

Now suppose we are considering some new safety device or policy which offers some overall reduction in the numbers of injuries and/or deaths, and which, at the level of the individual, translates into some reduction in the personal probability of loss of quality and/or length of life. If this benefit has positive value for an individual, it is assumed that she will be willing to adjust her other (present and/or future) consumption in order to release some resources from current income and/or savings to pay for the safety innovation. It is supposed that she will be willing to make such adjustments up to, but not beyond, the point at which the anticipated benefit is exactly offset by the loss of utility from the other consumption she would have to forego. This is her *willingness to pay* (WTP) for the benefit. If we can elicit such a figure from each member of a representative cross-section of the population, we can derive a measure *in monetary form* of the aggregate value of the health/safety benefit to the population which can then be added to any other