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Methodology

Executive summary

The estimation of marginal time preference in a UK-wide sample (TEMPUS) project

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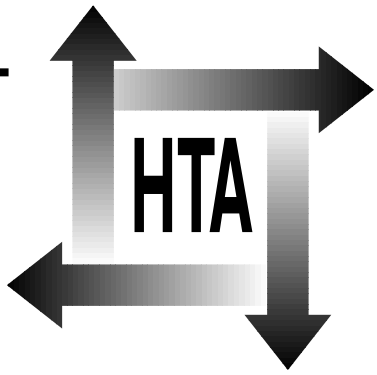

Executive summary

Background

Generally, any individual would prefer to receive a benefit today rather than in the future and to incur a cost later rather than sooner. Economists call these time preferences. Such preferences are relevant in two ways in the context of health care. First, how individuals view future costs and benefits influences health-affecting behaviour like smoking, exercising and following dietary restrictions. Information on peoples' time preferences could help us to understand health-affecting behaviour and therefore be valuable with respect to the design of policies for the promotion of health. Second, because timing matters, and because different interventions have different time profiles of costs and benefits, methods are required to take into account the timing of costs and benefits when undertaking economic evaluation of healthcare interventions. This is achieved by discounting future costs and benefits to present values by attaching smaller weights to future events the further into the future they occur.

Objectives

1. To derive implied discount rates for future health benefits for a sample of the general public in the UK.
2. To establish whether individual inter-temporal preferences with respect to their own health differ from those with respect to the health of others.
3. To investigate the effect of different ways of asking questions on apparent inter-temporal preferences (specifically closed-ended and open-ended methods are compared).
4. To establish whether individuals value future health benefits in line with the traditional discounted utility model and to investigate, in addition, how well the hyperbolic discounting models explain individual responses.

Methods

Stated preference techniques comprising a series of health-related choices were used to elicit the time preferences of a random sample of adults. Two methods were used: an open-ended method and a discrete choice experiment (closed-ended method). Preferences were elicited for non-fatal changes in own health and others' health. Four different postal questionnaires were sent to a random sample of 5120 adults in England, Scotland and Wales. The data were analysed using a number of forms of regression analysis.

Results and conclusions

The median implied discount rates were 6.1% for own health and 6.2% for others' health using the open-ended method and, in the discrete choice experiment, 5.0%, 4.6%, 3.8% (5-, 8- and 13-year delay, respectively) for own health and 6.4%, 5.7%, 3.8% for others' health.

The results suggest that the implied discount rates for own and others' health are broadly similar. There are some differences but the similarities are much more striking, certainly in the case of the open-ended method.

The implied discount rates and the distribution of the implied discount were very similar for the open-ended method and the discrete choice experiment. The discrete choice experiment had a higher response rate and respondents considered that the discrete choices questions were easier to answer.

The results provide evidence against the discounted utility model. The key axiom of the discounted utility model, stationarity, was violated. The alternative, the hyperbolic discounting models, fitted the data better than the discounted utility model.

The implied discount rates elicited in this study should not be over-emphasised because of the unrepresentativeness of the study sample. However, it is notable how close the estimated median rates are to the rates advocated for use in economic evaluation in a range of countries (for example, 3% in the USA, 5% in Australia and Canada). The estimated implied discount rates in this study fall comfortably within the range of estimates from previous empirical studies.

Research recommendations

A single, albeit multifaceted, project such as TEMPUS adds significantly to our understanding but cannot by itself resolve the outstanding research issues, particularly as this is the first study in which a number of these issues have been addressed systematically. Three areas should be highlighted.

1. Continued refinement of the methods of eliciting time preferences is required. Relevant topics include the use of self-completed questionnaires versus interviews (face-to-face and telephonic) and the presence and impact of framing effects.
2. Further research is required on alternative models of time preference, in particular, models which allow for decreasing timing aversion. Also, the implications of using alternative models for policy making need to be investigated.
3. There is considerable scope for research to investigate the role played by time preference in explaining health-affecting behaviour. To what extent are individuals willing to incur short-term costs in order to secure longer-term benefits – for example, in the successful control of blood sugar levels by patients with diabetes or by participation in screening programmes?

Publication

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NHS R&D HTA Programme

The overall aim of the NHS R&D Health Technology Assessment (HTA) programme is to ensure that high-quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage and work in the NHS. Research is undertaken in those areas where the evidence will lead to the greatest benefits to patients, either through improved patient outcomes or the most efficient use of NHS resources.

The Standing Group on Health Technology advises on national priorities for health technology assessment. Six advisory panels assist the Standing Group in identifying and prioritising projects. These priorities are then considered by the HTA Commissioning Board supported by the National Coordinating Centre for HTA (NCCHTA).

This report is one of a series covering acute care, diagnostics and imaging, methodology, pharmaceuticals, population screening, and primary and community care. It was identified as a priority by the Methodology Group and funded as project number 94/35/01.

The views expressed in this publication are those of the authors and not necessarily those of the Standing Group, the Commissioning Board, the Panel members or the Department of Health. The editors wish to emphasise that funding and publication of this research by the NHS should not be taken as implicit support for the recommendations for policy contained herein. In particular, policy options in the area of screening will be considered by the National Screening Committee. This Committee, chaired by the Chief Medical Officer, will take into account the views expressed here, further available evidence and other relevant considerations.

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The editors have tried to ensure the accuracy of this report but cannot accept responsibility for any errors or omissions. They would like to thank the referees for their constructive comments on the draft document.

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