"Cost-happiness analysis: a new and improved form of economic appraisal?"

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Background

• How do we value non-market benefits e.g. health
  – in commensurate units
  – to determine an efficient use of public resources?

• Aim is usually to express all benefits in monetary terms that allow direct comparisons with costs
  – i.e. cost-benefit analysis (CBA)

• Cost-happiness analysis (CHA) may be the way forward
Happiness is …

- A subjective assessment of how we feel and how we think about our lives
  - Affect e.g. pleasure and pain
  - Evaluation e.g. life satisfaction
  - Feelings of meaning and purpose etc.

- The weights may vary according to policy context
  - For consistency, we should strive for a single metric

- This paper leaves open the question of precisely how best to tap into the underlying concept of happiness
Valuation in economics

• How much do you want it?
  – Preference-based methods

• How much do you like it?
  – Experience-based methods

• Have the same extension if wanting = liking
  – But we often want things we don’t like and vice versa
Preference-based methods

• Revealed preferences i.e. observe (market) behaviour
  – But limited data and market failures

• Monetary stated preferences e.g. willingness to pay
  – Widely used in environmental economics
    • Recommended by UK Treasury Green Book

• Non-monetary preferences e.g. QALYs
  – Widely used in health economics
    • Recommended by UK NICE
Problems with preferences

• Actual preferences may not reflect idealised preferences
  – Overestimate intensity and duration of impact
  – Reflect immediate affective reactions
  – Focusing effects

• “The great source of both the misery of human life seems to arise from over-rating the difference between one permanent situation and another” (Adam Smith)
The new approach

• From happiness to CBA
  – What effect does income (Y) have on happiness?
  – What effect does non-market good (X) have?
  – What change in Y compensates for change in X?

• Used to value air pollution, airport noise etc. etc.
  – And now health
Health and happiness

• Waves 9 and 14 of the BHPS contain data on the SF-36
  – e.g. Physical functioning, pain, mental health, vitality
  • Responses calibrated on 0-100 for each dimension
• Plus life satisfaction (1-7), Y and background questions

• Fixed effects model to estimate Y compensation required for a change in different dimensions of health
  – Y in logs, monthly, household, exc. top/bottom 1%

• THANK YOU to Tessa Peasgood for the analyses
Income compensation

- Effect on life satisfaction of a 10/100 increase in:
  - Physical = 0.029
  - Pain = 0.004
  - Mental = 0.189
  - Vitality = 0.079
- Effect of a unit change in log of $Y = 0.0879$
- This translates into compensation amounts of:
  - Pain = £106/month increase (or £101 decrease)
  - Mental = £17,209 increase (or £2004 decrease)
QALYs and HALYs

• There are standard gamble data on the SF-36
  – What probability mixture of full health and death makes you indifferent to an imagined SF-36 state?

• We can compare the weights for different domains from preferences (SG) with those from experiences (LS)
QALYs versus HALYs
The monetary value of a QALY

- Ratio of effect of QALY to effect of log Y is 21.29
  - Effect of change of 1 QALY = 2.406 change in LS
  - Effect of change of 1 log Y = 0.113 change in LS

- Median Y = £2268 per month

- To move 2.406 points on the life satisfaction scale would be a change in log income of 21.29
  - From £2268 to £4,006,211,789,181
  - From £2268 to £0.01
Happiness to money

• Income coefficient may change according to:
  – the structure of the happiness function (e.g. functional form, how to deal with relative income)
  – what and how additional variables are controlled for

• Income-happiness relationship may be endogenous
  – Direction of causality may be happiness to income
  – Third factor may correlate with both

• Income does not have much effect – health does
Cost-happiness analysis

• Do we really need monetary values?
  – A single ‘happiness’ metric would still allow for most of the kinds of comparisons that CBA allows

• NICE does pretty well with QALYs
  – Need to move away from preferences to experiences
  – And to capture the non-health benefits associated with different experiences

• CHA would help facilitate ‘joined-up’ government
The way ahead

• More studies focusing on experience-based measures

• SWB can be applied to anything affecting current SWB
  – but not to things that don’t
    • e.g. future generations, existence values

• So we also need more on preferences v experiences
Some key questions

• How should we model the effects of determinants?
  – Key is to isolate the effects of policy interventions

• How should we measure happiness?
  – Momentary affect, global evaluations etc.

• Can we always ‘trust’ happiness ratings?
  – Adaptation
  – Lowered expectations
Conclusion

• Happiness has much to offer economic appraisal

• Valuations may be less biased than from WTP, SG etc.
  – Do not draw attention to the good in question
  – May more accurately reflect idealised preferences

• So, move over CBA, CHA is on its way
The economic costs of the project are not the same as its financial costs—externalities and environmental impacts should be considered. Externalities (positive or negative) are economic impacts that affect persons who are not necessarily part of the project scope. The economic benefits are a measure of the value the project will deliver to society as a whole. There is a wide range of literature and guidance material available on project appraisal and economic cost-benefit analysis. The Key References for this section provide a selection, with examples of government guidance material, as well as resources from international institutions, and textbooks. Transport Economic Appraisal Guidelines. Evaluation and Benefits, Finance and Investment March 2016. New methodologies are included as they become relevant to ensure that Transport is at the leading edge of robust, transparent decision making and driving value for money. We welcome your feedback on this document. The more specific transport guidelines include the RTA Economic Analysis Manual which provides guidelines for road solutions while the RailCorp Guide to Evaluation of Capital Projects focuses on rail solutions. Other forms of transport, such as bus, ferry and freight, do not currently have mode specific guidance on economic appraisal.