

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

**Paul Dolan**

Tanaka Business School

Imperial College London

Email: [Paul.Dolan@Imperial.ac.uk](mailto:Paul.Dolan@Imperial.ac.uk)

# 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

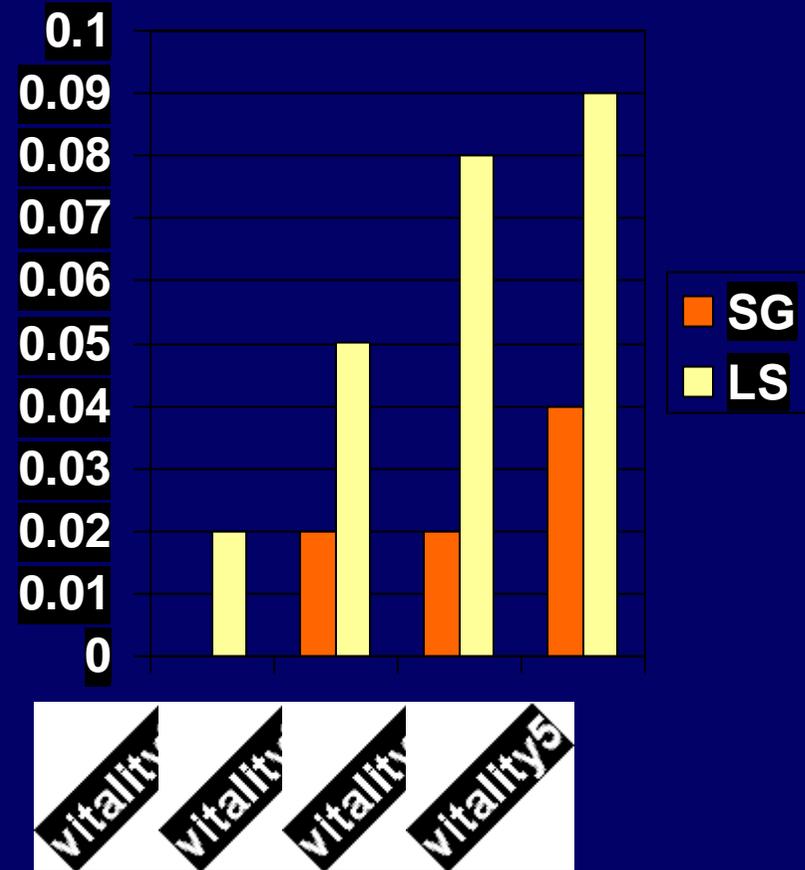
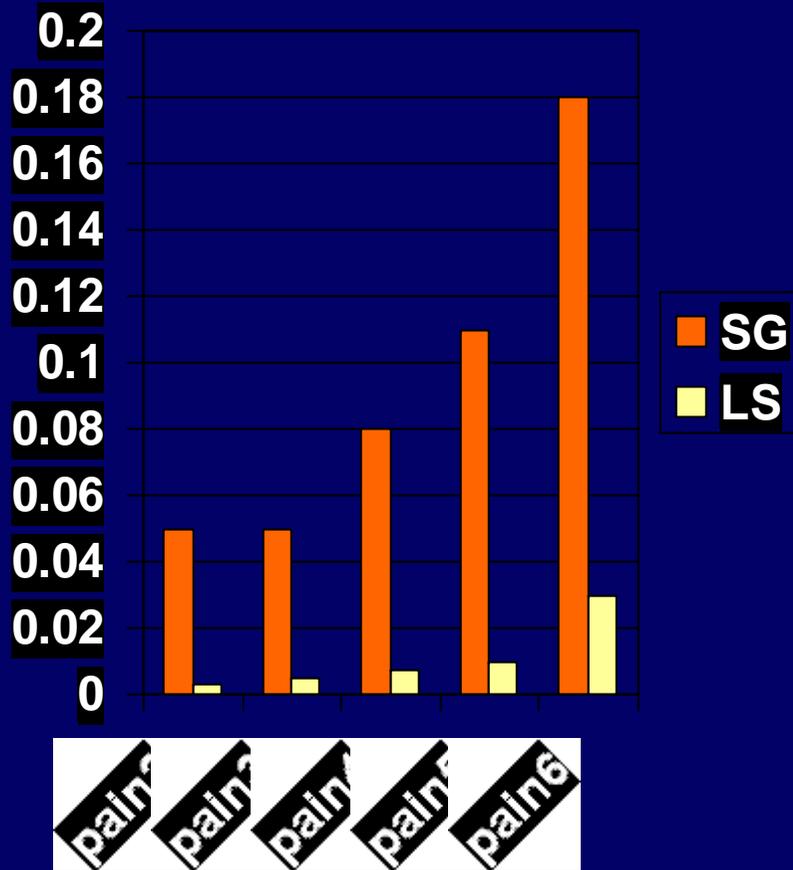
## Income compensation

- 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