

‘Economic Evaluations of Public Health Interventions: A Role for the Capabilities Approach?’

Wednesday 22 August ‘07



Is economic evaluation capable of addressing social and public health interventions?

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Economic evaluation

- Inform difficult decisions about the best use of limited resources
- Determine if a proposed change is good use of resources
- Not simply a cost-cutting exercise

Principles of economic evaluation

- Identifying, measuring and valuing what is given up = cost
- Identifying, measuring and valuing what is gained = benefit

Cost with scheme – cost without scheme

Effect with scheme – effect without scheme

- Compare with alternative ways of using the same resources

Social & public health interventions

- Complex interventions
 - developing overtime
 - heterogeneous
 - “made up of various interconnecting parts”
- Complex outcomes
- Complex evaluation
 - Comparator group
 - Randomisation
 - Perspectives
- Timescales

GoWell

- Glasgow Community Health and *Well-being* Research and Learning Programme
- Multi-site, prospective study
- Multi-intervention
 - Core stock refurbishment (1368)
 - Area transformation (2204)
 - Special areas (1044)
 - Peripheral estates (1400)
- Baseline survey + follow-ups till 2013

GoWell - outcomes

- Individuals' health and well-being
 - Physical health
 - Mental health
 - Health behaviours
 - Use of health services
 - Sense of 'control' and self-esteem
- Neighbourhoods and communities
 - social participation, personal social networks
 - neighbourhood outcomes

GoWell – economic evaluation

- Cost-effectiveness
 - Which outcome?

Quality Adjusted Life Years (QALY)

- “well” accepted measure of outcome
- quality and quantity of life
 - Physical functioning
 - Pain or distress
 - Self-care
 - Psychological status
 - Social integration
- breadth of coverage for public health?

GoWell – economic evaluation

- Cost-effectiveness
 - Which outcome?
- Cost consequences
 - Comprehensive measure of effect

Cost consequences analysis



Comprehensive measure of effect



- How do we integrate the various measures of outcome?

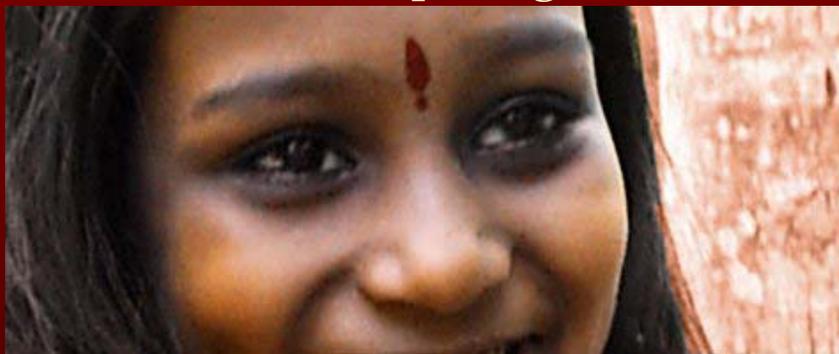
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OPHI

Oxford Poverty & Human Development Initiative
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Capability Approach: Theory and Application

Proochista Ariana

August 2007

From Theory to Application

- Sen's theory of human development
- The 'capability approach' (CA)
- Attempts to operationalize the CA
- Examples of multidimensional measures in poverty research

Amartya Sen's Theory of Human Development

- A re-evaluation of how we interpret development and measure its success
- Shift from focus on productivity or economic growth (means) to the enrichment of human lives (ends)
- Recognizing the importance of means and appreciating productivity as significant but insufficient in enriching human lives

Ends & Means

- Many factors have both intrinsic and instrumental value
- Have to clarify and justify what are the ends of interest and the possible means
- Health and education are examples of factors that have both intrinsic and instrumental value

Enriched Human Lives

Having accepted that development seeks to enrich human lives, how do we go about assessing that enrichment

Capability Approach

- Philosophical roots from Aristotle, Adam Smith and Karl Marx
- Human life seen as a set of valuable ‘doings and beings’ defined as ‘functionings’
- ‘Capabilities’ reflect individuals’ freedom to enjoy different ways of living

Resources

```
graph TD; Resources[Resources] -- "(conversion factors: individual, social, environmental)" --> Capabilities["Capabilities (Freedom to choose between different functionings)"]; Capabilities -- "(Choices)" --> Functionings["Functionings (valued beings and doings)"]; Functionings --> Utility[Utility];
```

(conversion factors:
individual, social, environmental)

Capabilities
(Freedom to choose between
different functionings)

(Choices)

Functionings
(valued beings and doings)

Utility

Resources

- Commodities and services
- For example: food, income, schools, hospitals, employment opportunities, etc.
- Can be social (i.e. publicly provided goods and services)
- Or private (i.e. private income, land)

Conversion factors

- Individual
 - i.e. Age, gender, metabolic rate, energy expenditure, pregnancy, illness, knowledge, etc.
- Social
 - i.e. social or familial dynamics
- Institutional (formal or informal)
 - i.e. Rules and regulations
- Environmental
 - i.e. Climate, infrastructure, etc.

Resources

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graph TD; Resources[Resources] -- "(conversion factors: individual, social, environmental)" --> Capabilities["Capabilities (Freedom to choose between different functionings)"]; Capabilities -- "(Choices)" --> Functionings["Functionings (valued beings and doings)"]; Functionings --> Utility[Utility];
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(conversion factors:
individual, social, environmental)

Capabilities
(Freedom to choose between
different functionings)

(Choices)

Functionings
(valued beings and doings)

Utility

Capabilities

- Set of possible vectors of functionings (given the resources and conversion factors)
- Individual has the freedom to choose the functioning which they value and have reason to value

Capabilities



PF=possible functionings (which make up the capability set)

Functionings

- **Elemental Functionings**
 - Escaping morbidity & mortality
 - Being adequately nourished
 - Mobility
- **Complex Functionings**
 - Achieving self-respect
 - Taking part in the life of the community
 - Appearing in public without shame

Operationalizing the Capability Approach

- Choice of dimensions (what capabilities to measure)
- Measuring the dimensions
- Aggregating across dimensions

What Capabilities

- While Sen acknowledges that capabilities must be identified and valued he refrains from developing a list
- Different lists are appropriate in different situations
- According to Sen, the selection of capabilities is a value-judgement that ought to be made explicit- through local public debates or participatory processes

-
- There is considerable disagreement about what constitutes a 'good life' and therefore different views about what capabilities are important to measure
 - Nevertheless, there are numerous lists proposing a basic set of capabilities

Finnis (1985) Basic Human Values	Rawls (1993) Basic Liberties	Nussbaum (1998) Basic Human Capabilities
Bodily life (health, vigour, safety)	Freedom of movement	Life
Knowledge	Freedom of association	Bodily health
Skilful performance in work & play	Freedom of occupational choice	Bodily integrity
Friendship	Powers and prerogatives	Sense, thought imagination
Practical reasonableness	Income and wealth	Emotions
Self-integration	The social basis of self-respect	Practical reason
Harmony with ultimate source of reality	Position of responsibility in political & economic institutions	Affiliation
		Other species
		Play
		Control over ones environment (political and material)

Measuring Capabilities

- Evaluate achieved functionings
 - Objective: life-expectancy, educational achievement
 - Subjective: perceived achievements
- Discern capabilities directly
 - Surveying perceptions of and/or satisfaction with freedoms and opportunities
- Assess capabilities indirectly
 - Measurement of agency/coercion

Achieved Functionings

- The valuable 'beings or doings' that an individual has realised
- The evident and measurable functioning(s) used as a proxy for capabilities
- Assuming that given optimal freedom to choose, an individual would achieve this functioning
- Most common means to operationalise the CA
- Human Development Index is an example of this

Autonomy/Agency

- For each domain, measure the degree of coercion or autonomy in deriving at a functioning
- For a particular functioning, 'I feel I freely endorse it' (or – 'I feel coerced')
- Indirect assessment allows for an external/objective valuation

Challenges

- Psychometric issues relating to validity of survey instrument
- Validity where there is no gold-standard
- Complex and dynamic nature of preferences
- Adaptive preferences

Adaptive Preferences

- Individuals often adapt to their circumstances and fail to recognize their capability deprivation (their limited freedom to choose)
- This may be due to lack of information or misinformation related to individual, social, cultural, institutional, and/or political factors

Aggregating across dimensions

Once we have decided on what capabilities to measure and found means of measuring them, how then do we conduct our analysis given the multi-dimensionality and the often incompatible nature of the dimensions

Multidimensional Indices

- Human Development Index (1990)
- Watts Index (2007 – Chakravarty)
- Tsui index (2002)
- Bourguignon and Chakravarty index (2003)
- Maasoumi and Lugo (2007)
- Alkire and Foster (2007)

Alkire and Foster Index

- Choose x number of dimensions
- Set a 'poverty line' z for each dimension
- Count number of dimensions 'poor'
- Set a cut off for number of poor dimensions, k
- Can weight each dimension

	Safety	Empowerment	Social Capital	Health	Sum (k)
Person 1	Poor	Poor	Poor	Poor	4
Person 2	Non-poor	Poor	Non-poor	Non-poor	1
Person 3	Non-poor	Non-poor	Non-poor	Non-poor	0
Person 4	Poor	Poor	Poor	Non-poor	3
Person 5	Non-poor	Poor	Poor	Non-poor	2

Equal Weights

- If poverty $k=2$, then Persons 1, 4 and 5 are poor
- so $3/5$ of sample population are poor
- If want to incorporate the dimensional extent of poverty:
 $(4/4 + 3/4 + 2/4)/3 = 3/4$ (on average the poor are poor in 3 out of 4 dimensions)

Unequal Weights

- **Can also weight dimensions differently with respect to one another in which case the poverty k would not be a number but a percentage**
- **So if: Safety=20%; Empowerment=30%; Social capital=20%; Health=30%**
- **and poverty $k=50%$**
- **Then: person 1 = 100%; person 2=30%; person 3 = 0%; person 4 = 70%; person 5= 50%**
- **So, persons 1, 4 and 5 are poor**

Advantages and Limitations

- Advantages
 - Simple
 - Decomposable and other Axiomatic properties
- Limitations
 - For ordinal data does not distinguish the depth of poverty within dimensions

Thank You

Developing an instrument for evaluating public health interventions

Dr Paula Lorgelly

On behalf of the project team:
Dr Karen Lorimer, Research Assistant
Dr Liz Fenwick, Co-investigator
Prof Andy Briggs, Co-investigator

Background

- How best to measure and value the outcomes of public health intervention?
- Capability approach would expand the evaluation space

Capability Approach in HE

- Culyer (1989)
 - extra welfarist perspective to economic evaluation
- Anand (2003, 2005)
 - health care rationing and resource allocation
- Cookson (2005)
 - capability QALY
- Coast (2007)
 - index of capability for the elderly

Operationalising the approach

- ‘Capability Lists’
 - Finnis (1985, 1987)
 - Alkire and Black (1997)
 - Robeyns (2003) *review article (Feminist Economics)
 - Nussbaum (1995, 2000, 2003)
 - Coast (2006)

Nussbaum

Central Human Capabilities

Life

Practical reason

Bodily health

Affiliation

Bodily integrity

Other species

Senses, imagination
and thought

Play

Emotions

Control over one's
environment

Nussbaum

Central Human Capabilities

Life

Being able to live to the end of a human life of normal length . . . ; not dying prematurely . . .

Bodily health

Affiliation

Bodily integrity

Other species

Senses, imagination and thought

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Nussbaum

Central Human Capabilities

Life

Practical reason

Bodily health

Affiliation

Bodily integrity

Being able to move freely from place to place; being able to be secure against violent assault, including sexual assault . . . ; having

Senses, imagination
and thought

opportunities for sexual satisfaction and for choice in matters of reproduction

Emotions

Control over one's
environment

Nussbaum

Central Human Capabilities

Life

Practical reason

Bodily health

Affiliation

Being able to live for and in relation to others, to recognize and show concern for other human beings, to engage in various forms of social interaction; being able to imagine the situation of another and to have compassion for that situation; having the capability for both justice and friendship. . . . Being able to be treated as a dignified being whose worth is equal to that of others.

Nussbaum

Central Human Capabilities

Life

Practical reason

(A) Political: being able to participate effectively in political choices that govern one's life; having the rights of political participation, free speech and freedom of association . . . (B) Material: being able to hold property (both land and movable goods); having the right to seek employment on an equal basis with others . . .

and thought

Emotions

Control over one's environment

Anand and colleagues

- Programme of work operationalising the capability approach
- Sought to exploit secondary collected data, specifically the BHPS
- Addition of further indicators
- List of some 64 capabilities aligned with Nussbaum's ten
- Research explores links between life satisfaction/happiness/wellbeing and capability

Capabilities
 “What you can do, not what you actually do”

Capabilities

Questions – Version I

Life

Being able to live to the end of a human life of normal length . . . ; not dying prematurely . . .

Given your family history, dietary habits, lifestyle and health status until what age do you expect to live?

Bodily Health

Being able to have good health, including reproductive health; being adequately nourished . . . ; being able to have adequate shelter . . .

Does your health in any way limit your daily activities, compared to most people of your age?
 Do you eat fresh meat, chicken or fish at least twice a week? If not, why not?
 Are you able to have children? If not why not?
 Is your current accommodation adequately or inadequate for your current needs?
 Are you prevented from moving home?

Bodily Integrity

Being able to move freely from place to place; being able to be secure against violent assault, including sexual assault . . . ; having opportunities for sexual satisfaction and for choice in matters of reproduction

Are you prohibited from using any of the following: contraception, abortion, fertility treatment?
 Do you have sufficient opportunities to satisfy your sexual needs/desires?
 Please indicate how safe you feel walking alone in the area near your home (daylight and after dark):
 Have you ever been a victim of sexual/domestic/violent assault?
 How vulnerable do you feel to sexual /domestic/ violent assault in the future

Senses, Imagination and Thought

Being able to use the senses; being able to imagine, to think, and to reason—and to do these things in . . . a way informed and cultivated by an adequate education . . . ; being able to use imagination and thought in connection with experiencing, and producing expressive works and events of one's own choice . . . ; being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech and freedom of religious exercise; being able to have pleasurable experiences and to avoid nonbeneficial pain

I am free to express my political views
 I am free to practice my religion
 How often do you use your imagination/reasoning ?
 Have you been able to enjoy your normal day to day activities?
 What is the highest educational or work related qualification you have?

Emotions

Being able to have attachments to things and persons outside ourselves; being able to love those who love and care for us; being able to grieve at their absence, to experience longing, gratitude, and justified anger; not having one's emotional developing blighted by fear or anxiety. . . .

How easy/difficult do you find it to enjoy the love, care and support of you immediate family?
 Do you find it easy/difficult to express feelings of love, grief, long, gratitude and anger?
 How difficult do you find it to make friends?
 Have you recently lost much sleep over worry?
 Have you recently felt under constant strain?

Practical Reason

Being able to form a conception of the good and to engage in critical reflection about the planning of one's own life. (This entails protection for liberty of conscience.)

My idea of a good life is based on my own judgement.
 I have a clear plan of how I would like my life to be.
 How often do you evaluate how you lead your life and where you are going in life?
 Outside of work, have you recently felt that you were playing a useful part in things?

Affiliation

Being able to live for and in relation to others, to recognize and show concern for other human beings, to engage in various forms of social interaction; being able to imagine the situation of another and to have compassion for that situation; having the capability for both justice and friendship. . . . Being able to be treated as a dignified being whose worth is equal to that of others.

I respect, value and appreciate other people.
 Do you tend to find it easy or difficult to imagine the situation of other people?
 Have you recently been thinking of yourself as a worthless person?
 Do you normally have at least one week's holiday away from home? If not, why not?
 Do you normally meet up with friends/family for a drink or a meal at least once a month? If not, why not?
 Outside of work, have you ever experienced discrimination because of your:
 Race; Sexual orientation; Gender; Religion; Age
 Outside of work, how likely do you think it is that you will experience discrimination because of your: Race; Sexual orientation; Gender; Religion; Age

Species

Being able to live with concern for and in relation to animals, plants, and the world of nature.

I appreciate and value plants, animals and the world of nature.

Play

Being able to laugh, to play, to enjoy recreational activities.

Have you recently been enjoying your recreational activities?

Political

(A) *Political*: being able to participate effectively in political choices that govern one's life; having the rights of political participation, free speech and freedom of association . . .
 (B) *Material*: being able to hold property (both land and movable goods); having the right to seek employment on an equal basis with others . . .

I am able to participate in the political activities that affect my life if I want to.
 At work, have you recently felt that you were playing a useful part in things?
 Which of these applies to your home? Why have you not bought your home?
 How likely do you think it is that you will be stopped and searched by the police?
 When seeking work in the past, have you ever experienced discrimination because of your:
 Race; Sexual orientation; Gender; Religion; Age
 When seeking work in the future, how likely do you think it is that you will experience discrimination because of your: Race; Sexual orientation; Gender; Religion; Age
 To what extent does your work make use of your skills and talents?
 Do you tend to find it easy or difficult to relate to your colleagues at work?
 At work, are you treated with respect?

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Have you recently been enjoying your recreational activities?

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To what extent does your work make use of your skills and talents?

Do you tend to find it easy or difficult to relate to your colleagues at work?

At work, are you treated with respect?

Current GU/GCPH Project

- This project aims to:
 - further develop and refine the survey instrument as proposed by Anand et al
 - validate the instrument for use in public health evaluations
 - propose how future evaluations might employ the capability approach

Phases/Stages

- Phase I, Stage I
 - FG group discussions
 - Analysis of the YouGov questionnaire
- Phase I, Stage II
 - Semi-structure interviews
 - Pilot postal survey
- Phase II
 - Interviews and postal survey
- Phase III (currently unfunded)
 - Develop an index (valuation technique)

Phase I, Stage I findings

- Focus Groups
- Issues of:
 - Question interpretation
 - Ambiguous questions
 - Answer/response options
 - Question ordering
- ‘Questionnaire refinement’

Phase I, Stage I findings (cont.)

- Factor analysis (YouGov questionnaire)
- Factor loadings onto Nussbaum's list
- Correlations amongst multiple measures
- Raised issues of measuring this so-called capability
 - yes or no, i.e. does or does not have the capability
 - or is there a degree of capability
- 'Questionnaire reduction'

Measuring Capability

- *Does your health in any way limit your daily activities, compared to most people of your age?*
- 27% of sample say health limits their daily activities

Measuring Capability (cont.)

- *Given your family history, dietary habits, lifestyle and health status unit what age do you expect to live?*
- Mean life expectancy was 79 years
- Range 40 to 127!

Measuring Capability (cont.)

- *Do you find it easy or difficult to express feelings of love, grief, longing, gratitude and anger?*

Responses	Freq.	Percent
Extremely easy	171	16.32
Very easy	262	25.00
Fairly easy	314	29.96
Neither easy nor difficult	122	11.64
Fairly difficult	133	12.69
Very difficult	39	3.72

- 479 (47%) not capable of loving, grieving, experiencing longing, etc, assuming 'having difficulty' is 'not having the capability'

Item Reduction

- Key changes included:
- Change option responses
- Conflated questions
- Removed multiple questions,
- Used more established questions
- Refined the wording
- Changed the ordering of the question

- *64 specific capabilities to 42 specific capabilities*

Phase I, Stage II findings

- Semi-structured interviews
 - Further clarification
 - Insight into respondents understanding of capabilities

Phase II

- Item reduction is imminent
- Currently recruiting

Phase III

- Valuation of ‘capability’ states
- Index between 0 and 1
- Anchoring at 0 (normally death)
- Traditional approaches include:
 - Standard gamble, time trade off, rating scale
- More recently methodological advances with discrete choice experiments (DCE)
- Weighting and trading off different dimensions

The future??

- Cost per QALY gained
- Cost per capability gained

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