
BEYOND COST-EFFECTIVENESS: WHY BENEFIT-COST ANALYSIS?

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Topics to be Covered

- Two cultures
- The Evolution of Disease Control Priorities
- Why BCA?
- The Way Forward: Education as an Example

Two Cultures: A (mild) Caricature

Sources of difference	Economic evaluation in health	Environmental economics and the BCA community
1. Assigning dollar values to small changes in mortality risks	At best a distraction, at worst unethical	Routine
2. The loss associated with deaths at different ages	Years of life lost (YLL) most relevant	The occurrence of death most relevant
3. Summary measures of population health (QALYs, DALYs)	Intellectually essential	A waste of time

Two Cultures: A (mild) Caricature

Sources of difference

Economic evaluation
in health

Environmental
economics and the BCA
community

1. Assigning dollar
values to small changes
in mortality risks

At best a distraction, at
worst unethical

✓ Routine

2. The loss associated
with deaths at different
ages

✓ Years of life lost (YLL)
most relevant

The occurrence of death
most relevant

3. Summary measures of
population health
(QALYs, DALYs)

Intellectually essential

✓ A waste of time

A Caveat on CEA

We should distinguish two types of CEA

CEA-1: Assesses choice of technique and scale of effort using **real** outcomes (deaths averted; pregnancies averted; HIV infections averted, etc.)

CEA-2: Addresses intrasectoral resource allocation using QALYs or DALYs

* * *

CEA-1 is always essential

CEA-2 is completely replaced by BCA

The Evolution of the World Bank's *Disease Control Priorities*

- *DCP 1* (1993) and *DCP2* (2006): CEA focused
- *DCP3* (2015-17): Substantial use of BCA (and of extended cost-effectiveness analysis)

DCP3

Disease
Control
Priorities

economic evaluation for health

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Disease Control Priorities

Improving Health and Reducing Poverty



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WHY BCA (Rather than CEA-2)?

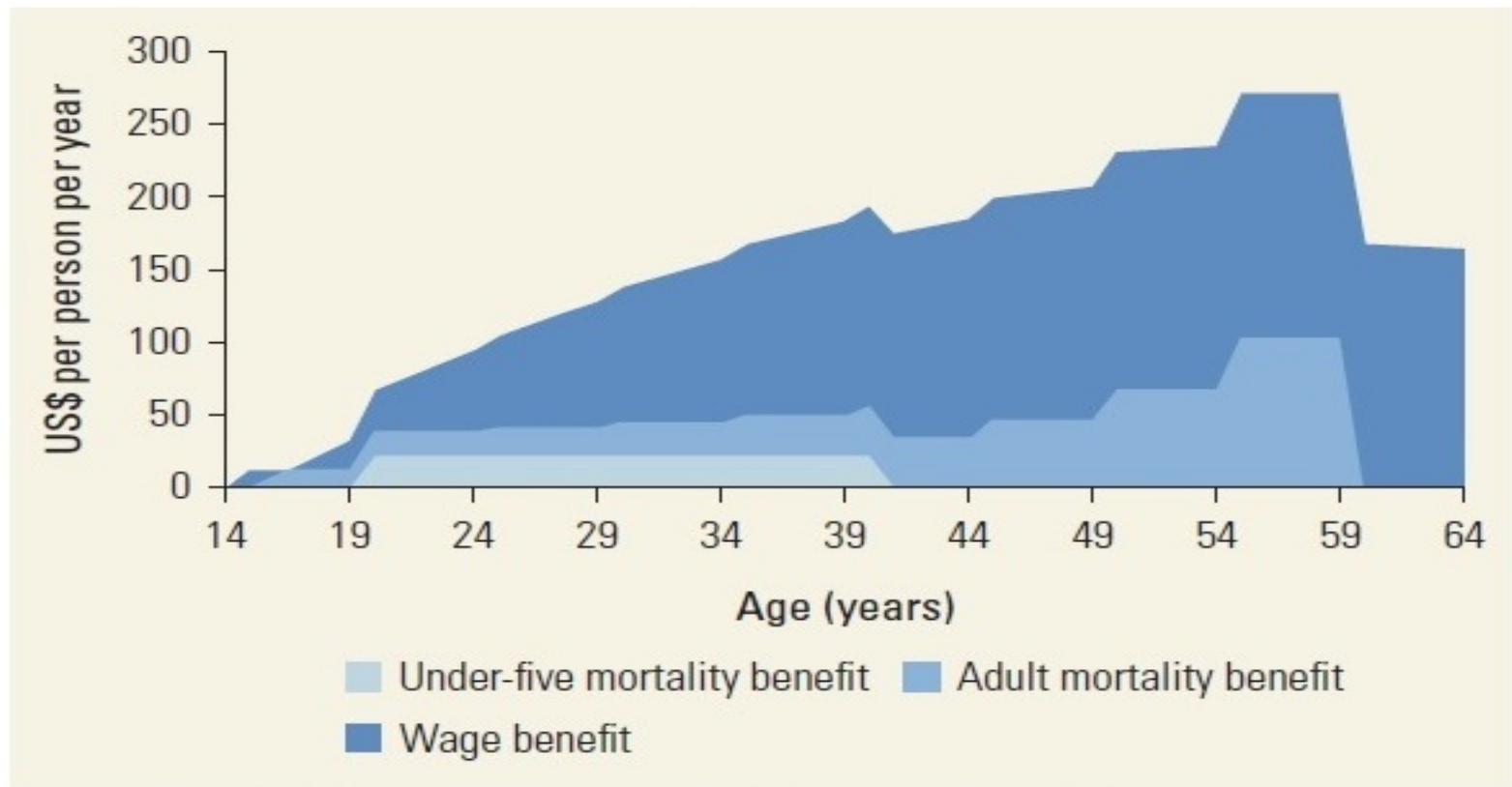
1. Some health sector investments have outcomes not measured in DALYs or QALYs – financial risk protection, IQ change, pain control and palliative care, stillbirths averted, growth shortfalls averted, control of fertility, abortion, plastic and reconstructive surgery. The list is short but important.
2. Many non-health sector investments have important health consequences – water supply and sanitation, traffic safety, air pollution control, education.
3. Existing aggregate measures of health outcomes can change in non-transparent ways and suffer conceptual shortcomings.
4. NIPA excludes mortality change. Full appreciation of the role of health in the evolution of human welfare requires valuation of change in health

COMMON THEME: COMPARABILITY



Intersectoral Resource Allocation: Education as an Example

Figure 30.3 Benefit Stream for Lower-Middle-Income Countries from One Additional Year of Schooling



Source: E Pradhan, et al (2017)

Internal Rate of Return (IRR)

$$hPVNB(r_h) = \sum_{a=A}^{65} \frac{ev(a) + hv(a) - c_1(a) - c_2(a)}{(1+r_h)^{a-A}}$$

- c_1 and c_2 are direct and opportunity costs
- ev earnings value
- hv is health value
- PVNB is present value of net benefits
- The internal rate of return (IRR) is the value of the discount rate, r_h , that makes $PVNB = 0$

STANDARDIZED SENSITIVITY ANALYSIS

VSL_r Values for Lower Middle-Income Countries

VSL_r for Anchor VSL_r = 180

	Age Adjustment	
	N	Y
Income Adjustment	N 180	104
	Y 115	66

VSL_r for Anchor VSL_r = 100

	Age Adjustment	
	N	Y
Income Adjustment	N 100	58
	Y 67	33

THE IRR FOR EDUCATION IN LOWER MIDDLE-INCOME COUNTRIES: SENSITIVITY to VSL_r

Original paper: $VSL_r = 130$
(Pradhan et al, 2017)

IRR = 9.3%
(IRR, without health = 7%)

Health-Inclusive IRR for Lower-Middle Income Countries

Panel A: Anchor $VSL_r = 180$

		Age Adjustment	
		N	Y
Income Adjustment	N	10.2%	8.9%
	Y	9.1%	8.2%

Panel B: Anchor $VSL_r = 100$

		Age Adjustment	
		N	Y
Income Adjustment	N	8.8%	8.0%
	Y	8.2%	7.6%



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