

The Economics and Ethics of Valuing Life

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Outline

- **Value of life in economics**
- **General Problems with the economic approach**
- **Mainstream economists and their worldview:
Facts and values**
- **The value of non-human life**

Value of Life in Economics

Framing the Discourse

The Neoclassical Economic Logic

“Because society has **limited resources** that it can spend on health and safety improvements, it should obtain the **greatest benefits** for each dollar spent, and ascertaining an appropriate value is necessary to that effort. ... To resist placing a **dollar value** on a statistical life is to abdicate any sense of **rational decision-making** in the regulatory realm.” (Brannon, 2004)

Humans as Capital

Life time return is the worth of the capital asset
Present discounted value of expected labour earnings
→ zero value for those with no labour income

Value of a Statistical life (VSL)

More you pay to avoid risk of death the more your life is valued

“The **proper value** of the risk reduction benefits for government policy is society’s **willingness to pay** for the benefits. In the case of mortality risk reduction, the benefit is the value of the reduced probability of death that is experienced by the affected population, not the value of the lives that have been saved ex post.” (Viscusi & Aldy, 2002)

VSL from Hedonic Wage or Revealed Preferences

Job 1: annual income 20,000 Euros

Job 2: annual income 22,000 Euros , but 1% greater chance of death

Accepting job 2 over job 1 is taken to infer a value placed on life

$$€2,000 \times (1/0.01) = €200,000$$

Some Specific Problems

1. Marginal worker in theory accepts more than those already in the job so VSL over estimated (Shogren and Stamland, 2001)
2. What is the risk of death in a profession? What time period is chosen to estimate this?
3. Are actual (empirically observed) or perceived death rates relevant? Wage premiums relate to the latter.
4. How do we define a job? Task, sector, industry?
5. Risk premiums may be non-linear i.e. They change according to the riskiness of the job. For example an increase of 1% risk of death in a low risk job may be valued higher than the same increase in a high risk job.
6. Other things: role of functional form, measurement error, unobserved factors.

VSL from Contingent Valuation or Stated Preferences

What is your maximum willingness to pay (WTP) to avoid a 1% greater chance of death?

What is the minimum you would be willing to accept (WTA) in compensation for a 1% greater chance of death?

Some Specific Problems

1. WTA typically exceeds WTP
2. Outliers easily affect average values e.g. Person who values life at a 1000 billion Euros compared to the average of 1 million. Typically either excluded (5% sample trimming) or given an average of the others.
3. Protest responses are problematic and typically excluded.
4. Hypothetical bias
5. Risk perception does not conform to the economic rational person model e.g., low probability high damage events vs. high probability low damage events. Events within and outside perceived personal control.
6. People are not numerical calculators.
7. Other: treatment of zero bids, yea-saying, sample selection, functional form, treatment of bid distribution, survey administration method.

General Problems with the Economic Approach

The Value of Life as a Consumer Preference

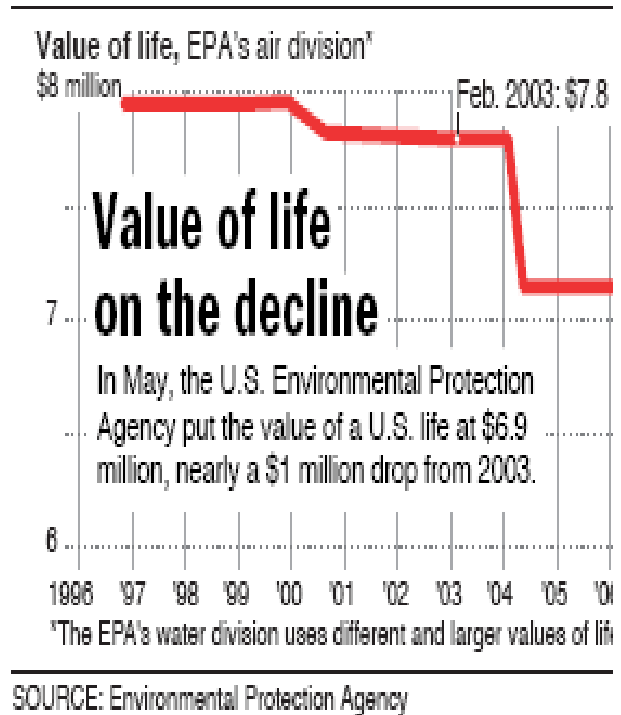
How to value life? EPA devalues its estimate \$900,000 taken off in what critics say is way to weaken pollution rules

(2008 Associated Press)

The "**value of a statistical life**" is \$6.9 million in today's dollars, the Environmental Protection Agency reckoned in May — a drop of nearly \$1 million from just five years ago.

The reduction reflects consumer preferences, said Al McGartland, director of EPA's office of policy, economics and innovation.

"It's our best estimate of what consumers are willing to pay to reduce similar risks to their own lives," McGartland said.



Life and measures to protect it are subject to the vagaries of the market. For example, in a recession income and WTP drop so life is cheaper; we should expect more pollution and more death. That is what VSL and efficient public policy prescribes under the economists' "**rational decision-making**" approach.

The Value of Life in Low Income Countries: Estimating Climate Change Damages

Fankhauser 1995

Willingness to pay studies in the range from \$0.2–\$16.0 million with an average of \$3 million, he adopts **\$1.5 million**

After adjusting for income

“an arbitrary value of **\$300,000** for middle income and **\$100,000** for low income countries”

Calculations used to inform the CBA of the IPCC 2nd Assessment Report

The Indian Environment Minister, Kamal Nath, wrote to other heads of delegations at the first meeting of the Conference of the Parties rejecting:

*“... the **absurd and discriminatory** Global Cost/Benefit Analysis procedures propounded by economists in the work of IPCC WG-III ... we unequivocally reject the theory that the monetary value of people’s lives around the world is different because the value imputed should be proportional to the disparate income levels of potential victims ... it is impossible for us to accept that which is **not ethically justifiable**, technically accurate or politically conducive to the interests of poor people as well as the global common good.”*

(quoted in Grubb, Vrolijk and Brack, 1999: 306)

Costs and Benefits: The Trade-Off Game

Nordhaus' started including loss of life in the late 90s but simultaneously introduced "non-market time use" i.e., basically recreational and sport activities specified as camping, golfing, walking and hiking.

The Economist has referred to the early work on climate control CBA of Prof. William Nordhaus as 'the best (though magnificently simplified) cost-benefit analysis' on the issue and regarded the estimates as 'hardnosed calculations'.

Work by Nordhaus has long been regarded a prescription to the United States administration to avoid cooperative action and has commanded significant respect and currency in that country

Benefits of GHG Control for China
Nordhaus (1998: Table 10)

	Nordhaus 98 China
Losses Avoided	
Sea Level Rise	8
Human morbidity/mortality	10
Urban Infrastructure	6
Miscellaneous	76
	100
Gains Missed (as % of losses avoided)	
Agriculture	-43
Outdoor recreation	-30
Temperature °C	2.5
Measurement basis	GDP
Net GDP Loss %	0.22
Base Year	1995



Harming the Innocent and Potential Compensation

Example from the UK Government's Stern Review (2006).

Nicholas Stern being an ex-Chief Economist of the World Bank

“the right to be protected from environmental damage inflicted by the consumption and production patterns of others” is rejected

“...future generations should have a right to a standard of living no lower than the current one” (Stern, 2006: 42).

Three Objectionable Implications

1. Rich get richer and poor can be harmed. More recreation in the USA compensates for deaths in India
2. Transfers for basic needs maintenance or raising standards of living (more consumption goods) are conflated with compensation for harm. E.g., welfare payment vs. liability for damages
3. There are no constraints on action as long as compensation is in theory possible; a potential Pareto improvement.

Economic Logic from Another Chief Economist of the World Bank

DATE: December 12, 1991

TO: Distribution

FR: **Lawrence H. Summers** [signed][written by Lant Pritchett then World Bank now Prof. at Harvard University]

[Chief Economist, World Bank 91-93; Secretary US Treasury 95-2001; President, Harvard University 2001-06; Director, White House National Economic Council 2009-10]

Subject: GEP

'Dirty' Industries: Just between you and me, shouldn't the World Bank be encouraging **MORE migration of the dirty industries to the LDCs [Less Developed Countries]**? I can think of three reasons:

- 1) The measurements of the costs of health impairing pollution depends on the foregone earnings from increased morbidity and mortality. From this point of view a given amount **of health impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages.** I think the **economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable** and we should face up to that.
- 2) The costs of pollution are likely to be non-linear as the initial increments of pollution probably have very low cost. I've always thought that under-populated **countries in Africa are vastly UNDER-polluted, their air quality is probably vastly inefficiently low compared to Los Angeles or Mexico City.** Only the lamentable facts that so much pollution is generated by non-tradable industries (transport, electrical generation) and that the unit transport costs of solid waste are so high prevent world welfare enhancing trade in air pollution and waste.
- 3) The demand for a clean environment for aesthetic and health reasons is likely to have very high income elasticity. The concern over an agent that causes a one in a million change in the odds of prostrate cancer is obviously going to be much higher in a country where people survive to get prostrate cancer than in a country where under 5 mortality is 200 per thousand. Also, much of the concern over industrial atmosphere discharge is about visibility impairing particulates. These discharges may have very little direct health impact. **Clearly trade in goods that embody aesthetic pollution concerns could be welfare enhancing.** While production is mobile the consumption of pretty air is a non-tradable.

The problem with the arguments against all of these proposals for **more pollution in LDCs** (intrinsic rights to certain goods, moral reasons, social concerns, lack of adequate markets, etc.) could be turned around and used more or less effectively against every Bank proposal for liberalization.

Global asbestos trade: dangerous and growing

Public Radio International

22 July, 2010

"When asbestos was banned in industrialized countries and [producers] started to lose money, they came to the developing countries to recover their investments," Dr. Guadalupe Aguilar Madrid

Advocates claim that they are simply offering consumers a choice of products to buy.

John Hoskins, a scientist who works with The Crysofile Institute, believes that the health dangers are negligible. In fact, he told the CPI [Center for Public Integrity] that "the people who would like to ban chrysotile asbestos are actually **committing economic damage**" especially to people in the developing world.



What about the Future?

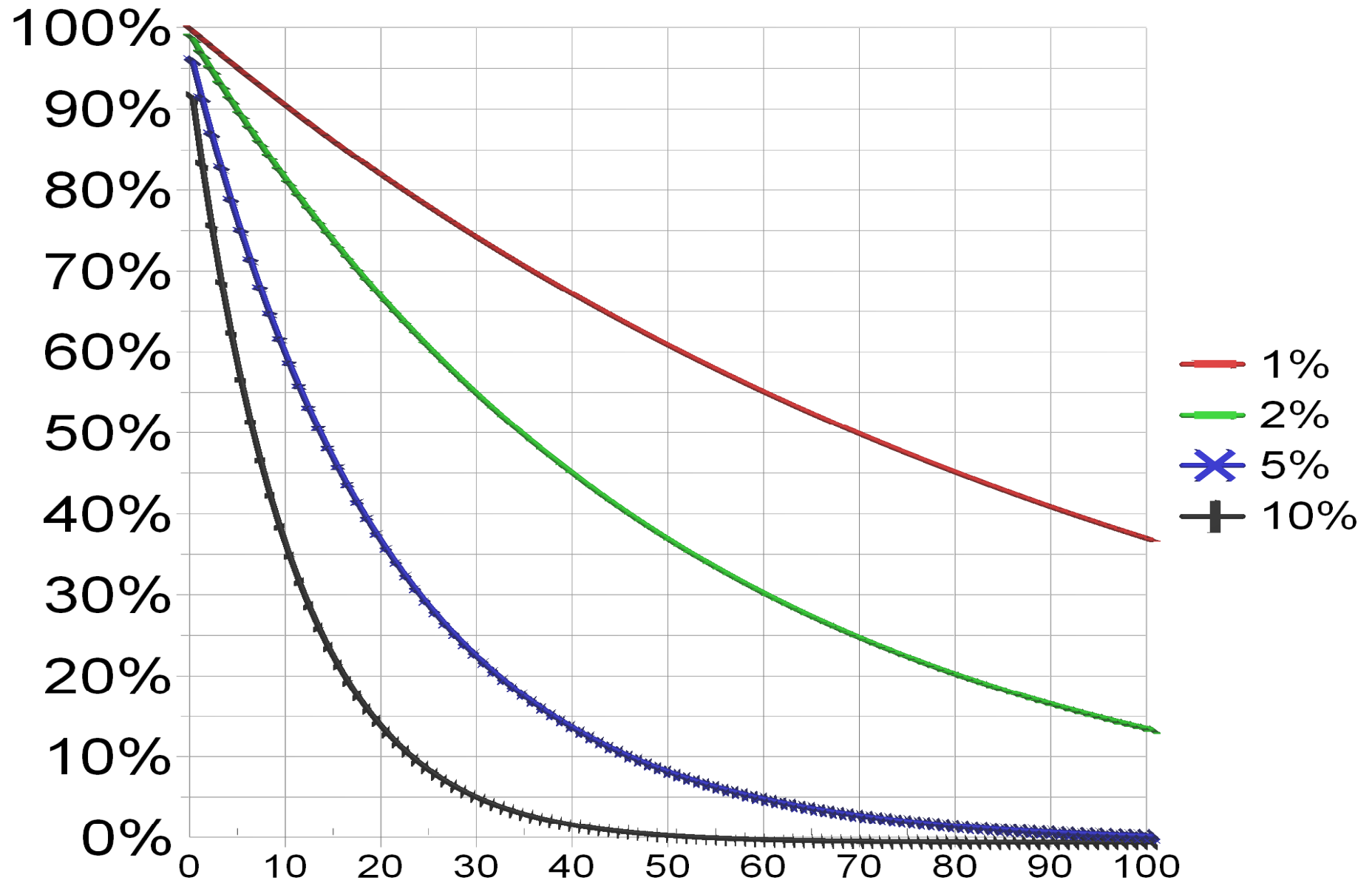
Economists advocate discounting on the basis of:

1. The positive but small probability of the world ending
2. Myopia
 - Not regarding the future a valuable on the basis of one's own preferences
 - Regarded by some economists as unethical and therefore rejected
3. Capital growth
 - Basically interests rates being positive returns on capital and so there being economic growth

The appropriate rate is an empirical matter for objective economic science to estimate

Figure 8.2

Weightings for 100yrs of Discounting



Ethics and Economics

- Consumption is commensurable with loss of life or harm of the innocent.
- Ethical issues are encapsulated in preference utilitarianism.
- Future generations are unimportant because they are assumed to have more to consume.
- No debate as to the reasons for more luxuries in Australasia, North America and Europe, because the cake can grow regardless of what it consists, who gets to eat it or how.
- No stark contrast between deciding whether millions of people suffer and die rather than airplane, car, oil, coal and energy supply companies having to adjust their operations and rich consumers their consumption habits.

“Economics has traditionally been able to maintain its credibility by relegating uncertainties in knowledge and complexities in ethics firmly to the sidelines.”

(Funtowicz and Ravetz, 1994: 197)

Mainstream Economists and their World View: Facts and Values

A False Dichotomy in Economics

Normative vs. Positive

“Ought” versus “Is” (David Hume, 1700s)

Value versus fact

Welfare Economics: Normative

Resource use for maximisation of well-being in society

Propositions derive ultimately from the ethics of society

All Other Economics is Designated Positive or “Value free”?

Objectivity and the search for the truth

Empiricism discovering cause-effect relationships; refutation by observation

Conceptual Problems

Empiricism and scientific methodology can be applied to propositions in welfare economics

Conversely ethical judgements are required in setting the criteria of efficiency as a desirable goal

Economists World View is Very Specific

Empirically restricted

Ethically loaded

Built on unjustified presupposition

Psychologically biased

Defence of Economics as Value Free Empiricism

Monetary Value of Life

“Much of the confusion seems to have arisen from the fusion of the **two separate issues**: the valuation of environmental damages at an individual level, which is a matter of **empirical analysis**, and the comparison and aggregation of these effects, which is a political process involving **ethical judgements** on, among other things, the socially desirable distribution of income.”

(Fankhauser, Tol and Pearce, 1997: 250)

Value of Future Life: Intergenerational Discounting

The alternative – over-riding market prices on ethical grounds – opens the door to irreconcilable inconsistencies. If **ethical arguments**, rather than the **revealed preferences of citizens**, form the rationale for a low discount rate cannot ethical arguments be applied to other questions?

(Arrow *et al.*, 1996)

Philosophical Position of Economics

Conditional Imperative

Relies upon the outcome or consequence for its force: the reason for the action is related to the consequences rather than belief that the act is right or wrong

Categorical Imperative

Relies upon an ethical absolute regardless of consequences e.g. Kant's categorical imperative. Deontology

Ethical propositions can be debated (as in moral philosophy) and deontology need not imply unthinking assent

Rules/rights can conflict might be ranked and differences of opinion be expressed over the ranking

On What do Economists Base Their Ethics?

Consequences are key: A good (moral) act is one from which good consequences arise.

Trade-offs are normal: The moral act has good consequences outweighing bad.

Values arise from individual preferences: Value is how much an individual prefers a consequence.

Choices reflect preferences: Observing choice then allows inference as to underlying preferences as the only motive.

Values are commensurable and can be aggregated: Good and bad consequences can be added and subtracted for any individual and across all individuals.

On What Basis do Economists Promote Preferences?

“Each person knows their own best interest”

- i. **A judgement of fact:** claim of strong validity for mainstream economics, reinforcing preference utilitarianism

Empirical investigation of the individual

- ii. **A judgement of morality:** a good society is one where people are treated as if they knew their own best interest. A strong validity claim again but accepting a required broader moral base.

Moral analysis of what is the good society

- iii. **A principle of political expediency:** a belief that modern democracy requires this assumption regardless of any factual or ethical basis.

Political analysis of what constitutes a democratic society

The Impossibility of a 'Value Free' Economics

Economics presents ideas claimed to be true of the object studied

Unlike the natural sciences the object (i.e. society) includes ideas

Human agents act in accordance with ideas (e.g. religions, political ideologies)

Understanding social phenomena (e.g. toxic waste) requires addressing the real structural causes (e.g. corporations, financial institutions, government policy, world markets) and prevalent ideas.

Explanations arising from a social-scientific study entail criticism of some ideas in society

"To say that some institution causes false beliefs is to criticise it. Given that (other things being equal) it is better to believe what is true than what is false, it is also better (other things being equal) that institutions that cause false beliefs should be replaced by, or transformed into, those that cause true ones."

(Collier, 1998: 446)

The Value of Non-human Life

How to Value of Non-Human Life

Make Nature a human artefact

Objectification

Commoditisation

Get people to state their preferences (willingness to pay)

Contingent Valuation

Choice Experiments

Transfer benefits/values

Where numbers are lacking be pragmatic

Seek alternatives

Ecosystems/species/genetics characterised as “objects” with “money values”



People's Preferences

Public perception of important attributes

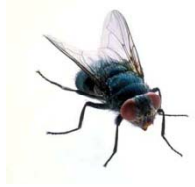
Key iconic species

Powerful
or
Warm & Fuzzy

Human Like



Informing and Forming Preferences



Public cognition vs. ecologist vs. economists

Encoding and decoding

Ecosystems integrity vs. bits the public prefer

Selective extinction of 'unattractive' species



Banking and Finance, Growth and Development

Provide corporations and financiers with business opportunities

“Hardwiring biodiversity and ecosystems services into finance”

(UNEP Finance Initiative, 2010)

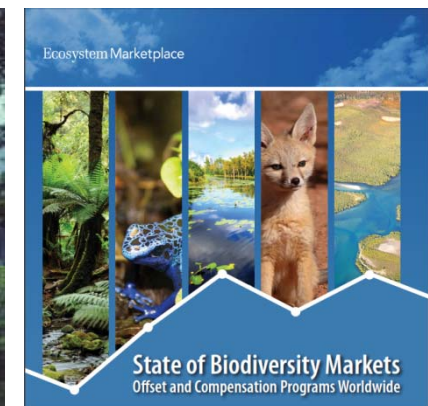
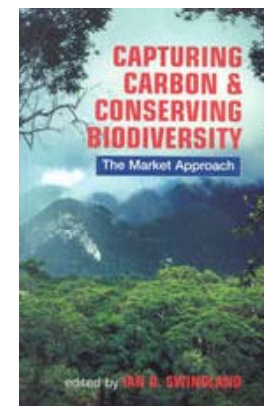
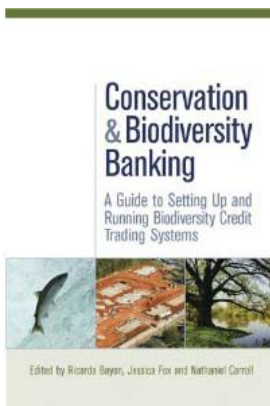
Extend carbon trading and expand financial instruments to create biodiversity offset programs. The market for wetland credits is estimated at US\$1.1-1.8 billion (TEEB 2010 p.22-24)

Show politicians how to get economic growth from ecosystems

“investment in **natural capital** can create and safeguard **jobs** and underpin **economic development**, as well as secure untapped **economic opportunities** from natural processes and genetic resources.”

“pro-biodiversity investment the logical choice”

(TEEB 2010 p.10)



A Misguided Approach

Wrong grounds for debate

Ecologists, conservation biologist, environmental NGOs and others have bought into an orthodox model of political economy

This changes the discourse for species and ecosystem preservation and respect for Nature into a debate over prices and money

Neglect of value pluralism and non-market institutions

Wrong 'solution' to wrong problem

Population growth, land use change, development model, political process, corporate power, financial greed

Institutions needed in which ethical and other deeply felt concerns can be properly voiced.

Conclusions

Understanding Values

A few issues challenging the orthodox economic approach

- Recognising values cannot be reduced to a single figure
- Understanding community is different from individualism
and the individual is more than a consumer
- Comprehending value without usefulness to humans
- Refusing to trade for money is 'rational' and normal
- Importance of defending not compromising principles



Some Issues in Applying Economic Valuation to Life or Anything

- **Uncertainty**
- **Incommensurability**
- **Plural values**
- **Non-utilitarian ethics**
- **Rights**
- **Distributional inequity**
- **Poverty**
- **Treatment of the future**
- **Discourse created in society**
- **Impact on how people relate to the world**

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THE END

DANKE