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Project evaluation with democratic decision-making: What does cost-benefit analysis really measure?

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Book version:

The Ethics and Politics of Environmental Cost-Benefit Analysis, Routledge 2012

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Purposes of a project analysis

1. **Ranking**
   - Provide an answer: Which project(s) should be chosen?
   - Normative analysis: must choose normative premises
   - Ranking device: total net WTP
   - Valuation: crucial
2. **Background information**
   - Provide factual input to a democratic process: enable demos to make *their* well-founded judgments
   - Clarify pros/cons
   - Separate fact and judgement
   - Indicator set
   - Valuation: less essential

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Measurement:
Total (sum of) net WTP for relevant population

Interpretations:
Welfare - normative
Efficiency - positive

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Welfare

- Marginal project
- *i* cares about income X_i, public good E

  $U_i = u_i (X_i, E)$ u_i increasing, weakly quasiconcave
- Welfarism: $W = V(U_1, \ldots, U_n)$ $V'_i > 0$
- **Welfare change: weighed sum of net WTP.**

  $dW = \sum_i [V'_i u'_{ix} (NWTP_i)]$
- $V'_i u'_{ix}$: *welfare weight* for *i*
- CBA: $V'_i u'_{ix} = 1$ (or, any $K > 0$), i.e. $V'_i = 1/u'_{ix}$
- If u'_{ix} decreasing in income: utility changes for poor are given systematically **less** weight in social welfare judgment than utility changes for rich.

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Efficiency

- Pareto improvements?
- Potential Pareto improvements?
  - Costly transfers, incentive compatibility
- Hylland & Zeckhauser (1979):
  - Allocate projects according to CBA
  - Redistribute through other means
  - Higher welfare, even with second-best taxation

  (Christiansen 1981, Johansson-Stenman 2005, Kaplow 2008)
- Democratic decision-making: fragmented
  - E.g. projects in regional council, tax system in Parliament

A power line example

- Two alternative routes for power line: A, B
- Identical for each alternative:
  - Pecuniary costs and their distribution
  - Number of recreational users = N
  - Physical environmental impacts = dE
  - Individuals' utility functions: $U_i = u(X_i) + v(E_j)$

  E_j local public good, j = A, B, u and v increasing and concave.
- *Only* difference: users of A have higher incomes
  - Not known to decision-makers

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Measuring benefits: power line ex.

- Aggregate utility change *identical* for A and B
- $WTP_i = v'(E)/u'(X_i)\cdot dE$ WTP increasing in income

different

- CBA: B is chosen *because of* lower incomes in B
- Reasonable if compensation is paid
  - Cheap to compensate those with low incomes
- But what if compensation is *not* paid?
  - Next week: hazardous waste treatment facility
  - Real and hypothetical Pareto improvements: fundamentally different phenomena

Political attitudes to CBA

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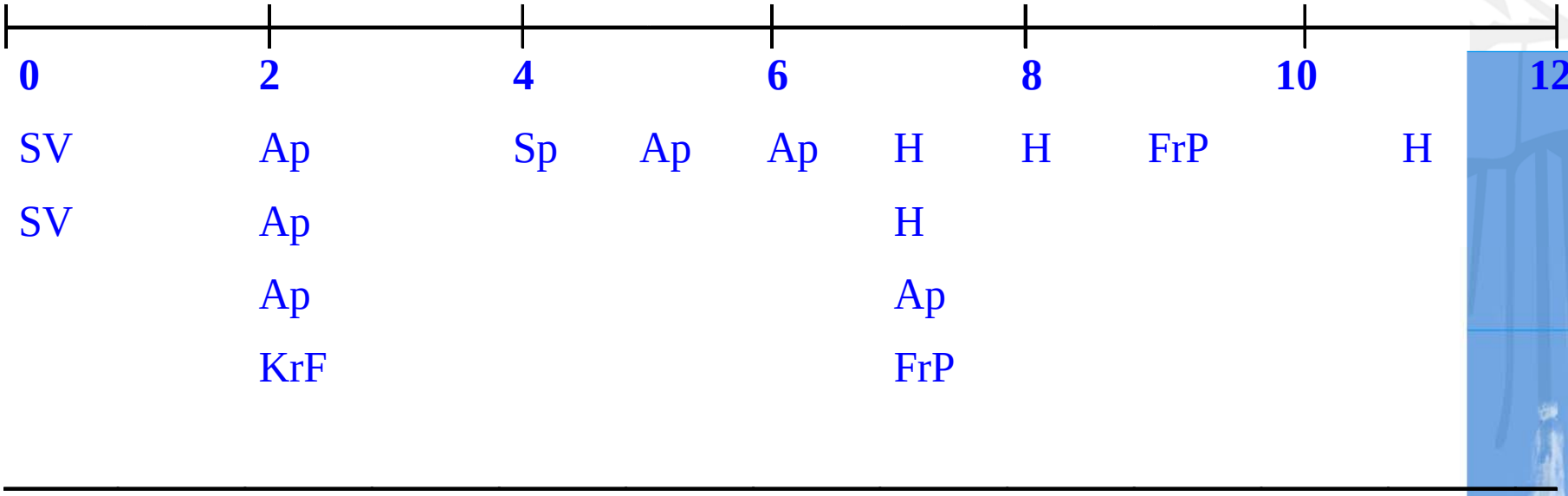
An index for attitudes towards use of CBA as policy tool. Higher number means more positive attitude. SV=Socialist left; Ap=Labour; Sp=Center; KrF=Christian Democrat; H=Conservative; FrP=Progress Party. Source: Nyborg 1998, Nyborg and Spangen 1996.



- If you think 1 kr is more socially important for a poor than a rich person, CBA does not rank projects according to your views
- Are leftist politicians less happy with the income distribution?
- If so, they should be more skeptical.

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Clarifying pros & cons

- Indicator set
  - What information is most likely to help demos understand what's at stake?
- CBA
  - Systematic, comparable
  - Understandable?

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Welfare

Efficiency

Total net willingness to pay