Valuing Road-Transport Noise Abatement Measures

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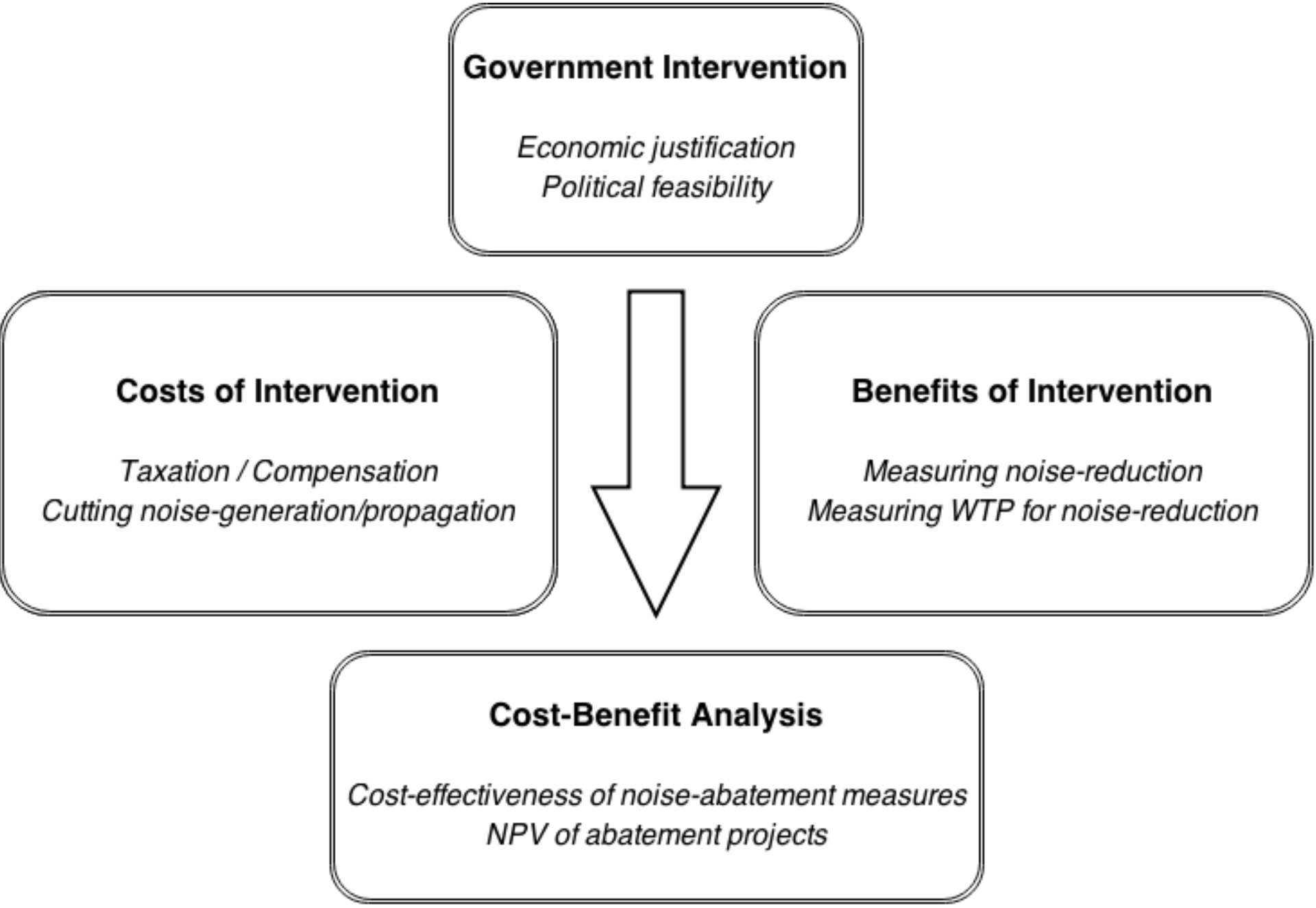
Road Noise

- External effect of road transport
  - ‘missing market’ for tranquillity
- Social cost of €17 billion/year (CEDelft, 2011)
  - Annoyance and health-costs

- Environmental Noise Directive (EU, 2002)
  - Reduce harmful noise exposure
  - No hard limit noise-values


Government Intervention
Economic justification
Political feasibility
Costs of Intervention
Taxation / Compensation
Cutting noise-generation/propagation
Benefits of Intervention
Measuring noise-reduction
Measuring WTP for noise-reduction
Cost-Benefit Analysis
Cost-effectiveness of noise-abatement measures
NPV of abatement projects

Political environment

- Political support
  - Providing accurate information can raise support
  - Combining restrictive traffic-measures with promotion of other transport modes
- Taxation / Compensation
  - Electronic Road Pricing lacks public support
  - Compensation schemes are especially relevant for airport noise

Noise abatement measures

- Noise generation
  - Silent tires, silent tarmac, vehicle specifications, traffic volume/speed (Traffic Management)
- Noise propagation
  - Noise barrier walls, housing insulation

- Costs are largely ignored in academic research

Willingness-to-pay for noise reduction

- Hedonic Pricing method
  - WTP is subdivided in terms of product characteristics (Rosen, 1974)
- Assumptions (Bateman, 1993)
  - Aggregate WTP reflects social benefit
  - Environmental quality changes are perceivable (i.e. they affect housing prices)
  - Competitive housing market, free acces, perfect information
  - The housing market is always in equilbrium

Willingness-to-pay for noise reduction

- Stated preference method
  - Simulated market for the externality
  - Questionnaire techniques

- HP vs. SP
  - HP based on real choices, SP is hypothetical
  - SP takes into account non-user valuations

Earlier research

- Many studies use ‘benefit transfer’
  - WTP values based on a few meta-analyses
- Importance of Spatial confounders in HP
  - Spatial econometrics is widely used
- Quasi-experimental set-up is rare
  - A study concerning aircraft noise (Pope, 2008) indicates the importance of the information environment using quasi-experiments

Novel research methods

- "Using happiness surveys to value intangibles: The case of airport noise." (Van Praag & Baarsma, 2005)
  - Happiness as a function of income, noise, etc.
  - Does not assume housing market equilibrium
  - Might deal with strategic response behavior
  - Methodological issues…

Research suggestions

- HP analysis to obtain WTP values for road-noise reduction in the Netherlands
- Cost-effectiveness of noise-barriers and housing insulation
- Digging into the appropriateness of using happiness surveys in externality-valuation studies
- Search for quasi-experiment application