External cost of transport

Huib van Essen, CE Delft
Introduction

- CE Delft
- Independent policy consultancy company, 60 employees
- Specialised in policy development and environmental, technical and economic assessments
- For various sectors: transport, energy, industry, (bio) materials
- Key expertise in transport:
  - All transport modes; EU, national and local policies
  - Passenger and freight transport and urban mobility
  - Climate policy, air pollution and sustainable transport
  - External cost, internalisation and economic assessments
  - Eco-scoring and carbon footprinting methodologies and data
Outline

- External costs and the concept of internalisation
- Environmental performance data: different types of application
- External cost for environmental reporting: benefits and limitations
External cost of transport

Costs of transport not borne by the transport user and hence not taken into account when they make a transport decision

- Environmental and health impacts:
  - Climate change
  - Air pollution
  - Noise
  - Fragmentation of habitats
- Traffic accidents and risks
- Road congestion
Applications of external cost

• Internalisation (transport pricing):
  - Introducing taxes/charges reflecting cost to make transport users account for the costs they induce on others
  - External costs can also be reduced in other ways, e.g. by regulation

• For reporting or assessing environmental/societal performance
Potential of internalisation of external cost

• More efficient road use and improved accessibility (congestion pricing)
• Contribution to decarbonisation by providing relative advantages to low carbon transport modes, vehicles and energy
• Generating revenues for investments in sustainable transport system
Objective/scope of ongoing study DG MOVE

• Collect data on:
  - infrastructure expenditures/costs
  - external costs
  - internalisation measures (taxes and charges and non-pricing at EU)

• All transport modes (including airports and maritime ports)

• All EU Member States, Norway, Switzerland, Japan, states in US/Canada

• Comparisons of costs and taxes/charges between modes and countries:
  - Total cost coverage ratios for whole EU
  - Average and marginal cost coverage ratios (also for countries)
  - Including infrastructure costs, external costs and both
Comparison of modes on total external cost EU per mode (2008)

- Car: 314,000 million EUR per year
- Bus/Coach: 19,000 million EUR per year
- MC: 29,000 million EUR per year
- LDV: 48,000 million EUR per year
- HDV: 66,000 million EUR per year
- Rail Pass.: 6,000 million EUR per year
- Rail Freight: 4,000 million EUR per year
- Air Pass.: 27,000 million EUR per year
- IWW: 2,000 million EUR per year

Cost categories include:
- Up- & Downstream (difference low/high scenario)
- Climate Change (difference low/high scenario)
- Up- & Downstream Processes (low scenario)
- Climate Change (low scenario)
- Other Cost Categories
- Noise
- Air Pollution
- Accidents
Applications of external cost

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  - Introducing taxes/charges reflecting cost to make transport users account for the costs they induce on others
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• For reporting or assessing environmental/societal performance
Environmental performance data: different types of application

- **To know**: assessing your own environmental performance
- **To communicate**: communicating your own environmental performance
- **To improve**: reducing your footprint
- **To invest**: assessing the most environmental product or investment
- **To compensate**: climate off-setting
Different target groups: different needs

• Clients of companies
  - Consumers: easy to understand
  - Business: easy to use for their own reporting or consumer information and also certifications, eco-labels, legal requirements, etc.

• Shareholders and investors: complete, sound, consistent, linked to investment

• Public policy makers: societal impacts and cost benefit ratio

External costs:

• Widely used for public policy/investment assessments (e.g. Cost Benefit Analysis and External cost calculator for EU Marco Polo program)

• Potential for other applications (e.g. building on UIC External Cost Tool for logistics, environmental/sustainability assessment of investments)
Different target groups: similar challenges

- What scope?
  - Climate change (e.g. carbon footprinting)
  - All environmental impacts
  - All societal impacts (people, planet, profit)
- How to define and measure (environmental) performance: based on input, output or outcome?
- How to add up very different impacts to one score?
- (how) to link performance to costs or investments?
- How to link performance to options for improvement?
- Complete and consistent versus low data needs and comprehensive
Benefits of using external costs

- A scientific sound and uniform way to add up different impact:
  - Climate change
  - Air pollution
  - Noise
  - Fragmentation of habitats
  - Accidents
  - Road congestion
- Indicator can be linked to other costs, financial benefits and investments
Limitations/disadvantages of using external costs

• Data needs can be higher; depending on:
  - how many external effects are included
  - whether default data or specific data are used
• More difficult to understand and communicate than the performance of a single impact (such as carbon footprint)
Comparison of average costs passenger transport (2008)

- Rail Electric: 12.0 €/1,000 pkm
- Rail Diesel: 34.1 €/1,000 pkm
Comparison of average costs freight transport (2008)

![Graph showing comparison of average costs for freight transport modes.](image)

- **LDV**
  - Up & Downstream: 50.5
  - Climate Change: 34.0
  - Noise: 1.2
  - Air Pollution: 1.2
  - Accidents: 1.2

- **HDV**
  - Up & Downstream: 50.5
  - Climate Change: 34.0
  - Noise: 1.2
  - Air Pollution: 1.2
  - Accidents: 1.2

- **Road Freight**
  - Up & Downstream: 50.5
  - Climate Change: 34.0
  - Noise: 1.2
  - Air Pollution: 1.2
  - Accidents: 1.2

- **Rail Freight**
  - Up & Downstream: 50.5
  - Climate Change: 34.0
  - Noise: 1.2
  - Air Pollution: 1.2
  - Accidents: 1.2

- **Inland Waterways**
  - Up & Downstream: 50.5
  - Climate Change: 34.0
  - Noise: 1.2
  - Air Pollution: 1.2
  - Accidents: 1.2

Differentiated cost for rail:
- Rail Electric: 6.6 €/1,000 pkm
- Rail Diesel: 12.4 €/1,000 pkm
Alternative approach focusing on climate: carbon rating of infrastructure investments

- Traffic impacts
- Infrastructure construction
- Infrastructure OM&M
- Impacts on other sectors

Types of impacts:
- Net impacts on annual GHG emissions
- Relative carbon proofing indicator
- Investment or added value

External Cost of Transport - Huib van Essen
Thank you for your attention!

- Mail: essen@ce.nl
- Web page: www.cedelft.eu