Evolving the economic appraisals for land transport investments

Training workshop I 22 October

Central Africa Time 09:30 I China Standard Time 15:30

Getting to know you

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What we will discuss today?

What are the issues with conventional economic appraisals for land transport?

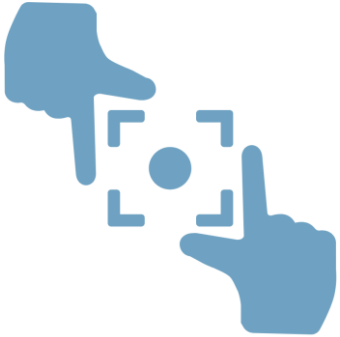
Why should we invest in public transport, walking and cycling?

How do we evolve conventional economic appraisals for land transport?

Where are we in terms of building capacity to evolve appraisals?

What are the issues with conventional economic appraisals for land transport?

Issues with conventional economic appraisals for land transport



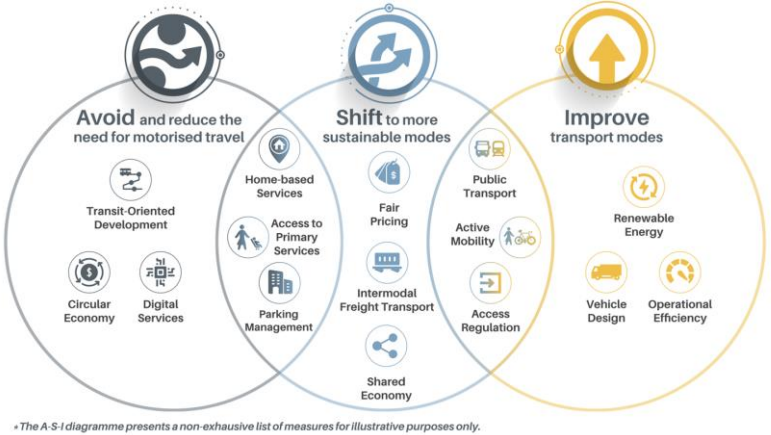
Narrow scope of the methods used for the quantitative analysis

Not broad enough to reflect the comprehensive nature of the direct, indirect and induced benefits of sustainable, low-carbon transport.

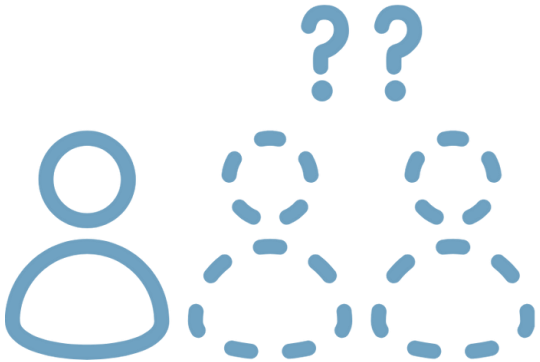
- Conventional methods in economic appraisals focus narrowly on **direct costs (capital, O&M)** and **performance metrics (e.g., ridership, revenues)**.
- Misses out on **indirect and induced benefits** like income generation from better employment opportunities and improved connectivity.

We need:

- Broader indicators and tools like the Avoid-Shift-Improve Framework should be adopted to reflect the full societal and economic value of sustainable, low-carbon transport.
- Enhanced investment decisions that capture a more holistic view of societal contributions.



Issues with conventional economic appraisals for land transport



Disconnect between the investor and beneficiaries

Sustainable infrastructure often does not generate enough benefits for a single investor but generates considerable benefits for the whole society.

- Investment decisions are centralised, while the benefits (e.g., reduced pollution, lower energy costs) are **dispersed across multiple stakeholders**.
- This disconnect **discourages large-scale sustainable investments due to perceived low returns for a single entity**.

We need:

- Approaches that assess benefits across diverse groups and all stakeholders.
- Stronger multi-stakeholder collaboration and holistic investment strategies to increase societal value and financial viability.

Issues with conventional economic appraisals for land transport

Absent or limited economic valuation of so-called “intangible” benefits

Some benefits are considered 'intangible' simply because they have not been measured and hence are not valued by the system. Many benefits also do not generate direct cash flows.

- Many benefits (e.g., health improvements, air quality) are **undervalued or excluded due to difficulties in measurement**.
- Projects like public transport, walking and cycling are often deemed **unviable, despite their wider social and environmental benefits**.

We need:

- Expansion of analyses to include broader sustainability outcomes, utilising methods to quantify so-called “intangible” benefits (e.g., reduced health costs, increased productivity).
- Stronger economic cases and evidences for sustainable transport investments.

Issues with conventional economic appraisals for land transport

Limited systemic vision and integration of knowledge across different stakeholder groups

Stakeholders may have varying visions for the future and lack alignment to identify, quantify and assess the mutually-reinforcing benefits of integrated walking, cycling and public transport solutions.

- **Lack of coordination** across stakeholders with diverse priorities results in siloed decisions, missing out on systemic benefits.
- Difficulties in **data-sharing**, multi-disciplinary collaboration, and optimising the overall transport system.

We need:

- Multi-stakeholder engagement, guided by an ambitious political vision that integrates knowledge from various sectors.
- More inclusive, systemic approach to ensure mutually reinforcing benefits across different modes like walking, cycling, and public transport.

Q&A

Any questions?

Rank these issues by how much they affect your current work.

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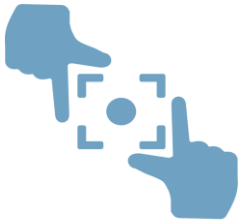

Narrow scope of quantitative analysis

Disconnect between investor and beneficiaries

Absent or limited economic valuation of "intangible" benefits

Limited systemic vision and integration of knowledge across stakeholders

Why should we invest in public transport, walking and cycling?

The economic case

What are the benefits of public transport, walking and cycling?

Avoided CO_2 emissions

Congestion relief

Fuel and transport costs savings

Longer and healthier lives

Road safety

Avoided costs of crashes

Improved access

Job creation

How do we capture these benefits in economic appraisals?

Selected impacts of sustainable transport investment and their relevance across local actors

Investment	Impacts	Actors benefitting			Illustrative examples
		Government	Private sector	Households	
Active mobility	Physical activity and related health benefits	✓	✓	✓	Private sector: reduced sickness leave of employees
	Reduced air pollution and related health costs	✓	✓	✓	Governments: reduced costs for public health
	Reduced fuel use and related carbon dioxide (CO_2) emissions		✓	✓	Households: reduced expenditure in transport
	Increased property price and retail revenues	✓	✓	(✓)	Private sector: increased revenue Households: Benefits for property owners, might have negative impact on people renting
	Reduced travel time		✓	✓	Household: more time for other activities
	Reduced traffic crashes	✓		✓	Government: reduced health burden
Bus rapid transit and mass rapid transit systems	Reduced air pollution and related health costs	✓	✓	✓	Households: improved health
	Increased property price and retail revenues	✓	✓	✓	Private sector: more customers leading to more revenue
	Reduced fuel use and related CO_2 emissions		✓	✓	Households: reduced expenditure in transport
	Reduced travel time		✓	✓	Private sector: higher accessibility by more employees or customers
	Reduced traffic crashes	✓		✓	Households: reduced potential financial burden
	Employment creation	✓	✓	✓	All: higher employment resulting in more disposable income and higher spending levels
	Revenues from BRT use	✓			Governments: higher revenue
Transport electrification	Reduced air pollution and related health costs	✓	✓	✓	Households: improved health
	Reduced fuel use and related CO_2 emissions		✓	✓	Private sector: reduced costs for transport of goods or services

What do you think is the return of investment for these modes?

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	For every US Dollar invested in:	Returns (USD)
	Public transport	?
	Cycling	?
	Walking	?
	Active mobility (combined walking and cycling)	?
	Integrated approach of public transport, walking and cycling	?

A robust economic case for investing in public transport, walking and cycling

For every US Dollar invested in:	Returns (USD)
Public transport	5
Cycling	2 - 19
Walking	1.3 - 20
Active mobility (combined walking and cycling)	1.3 - 19
Integrated approach of public transport, walking and cycling	1.1 - 4.5

Robust economic case for investing in public transport, walking and cycling

Benefits of public transport

Every US dollar invested in public transport yields economic benefits worth **USD 5**.

Returns from public transport investments are mainly related to:

Job creation

4.6 million additional jobs could be created in nearly 100 major cities alone with improved and expanded public transport services

Reduction of global GHG emissions

Potential to reduce global transport emissions by **20-45%**

Potential to reduce urban transport emissions by **50%** if doubling public transport capacity

Lower community costs

The community costs (i.e. expenses by public authorities and governments) of private transport are **28 times higher** than the costs of public transport travel

The economic case for public transport in the United States

- Investing USD 1 billion can create **50,000 jobs**.
- Business sales impact:
  - Capital investments of USD 10 million generates **USD 30 million**.
  - Operating investments of same amount generate **USD 32 million**.
- Home values are up to **24% higher** in areas near public transport compared to areas without public transport access.
- Public transport saves **22.7 billion litres of petrol** each year and reduces the nation's GHG emissions by **63 million tonnes** CO_2eq annually.

Robust economic case for investing in public transport, walking and cycling

Benefits of walking

Every US dollar invested in walking yields economic benefits worth **USD 1.3 to 20**.

Returns from walking investments are mainly related to:

Health benefits

More physical activity and reduced air pollution

Stimulate local economies

People that walk **spend significantly more** than commuters that use motorised transport modes

Other benefits

Walking is the **start and end of most journeys**, acting as a vital link to public transport systems

Enhances the overall **livability and attractiveness of urban spaces**

The economic case for reducing CO_2 emissions through walking in Bogotá, Colombia

- Assessment showed that increasing the share of walking has the highest impact on CO_2 emissions reductions at the lowest costs.
- Increasing the share of walking in all travel activities from 20 to 25% could reduce **transport emissions by 6.9%** at a cost of **USD 17 per tonne of CO_2**.
- A combined implementation of BRT, walking and cycling would yield **emission reductions of 25%** at a cost of **USD 30 per tonne of CO_2**.

Robust economic case for investing in public transport, walking and cycling

Benefits of cycling

Every US dollar invested in cycling yields economic benefits worth **USD 2 to 19**.

Returns from public transport investments are mainly related to:

Economic opportunities

Bicycle and parts manufacturing, bicycle retail (sales, repair and services)

Improved cycling infrastructure **attracts more cyclists, reducing traffic congestion** and **boosting local economies**

Bicycle tourism provides great opportunities

Health and environmental benefits

Potential to reduce global transport emissions by **20-45%**

Fuel savings and healthcare benefits through cycling can lead to a BCR ranging from USD 1.2 to USD 3.8 for every dollar invested.

Impacts of cycling infrastructure improvements in Sydney, Australia

- Development of the Inner Sydney Regional Bicycle Network was assessed.
- **Health benefits and journey ambiance** account for 41% of the total benefits for the project.
- Even without these benefits, the bicycle network produces net benefits.

Benefits of active mobility and integrated public transport, walking and cycling solutions

Active Mobility: Cycling and Walking

BCR ranges from **1.3 to 19** per USD invested, driven mainly by health benefits.

Integrated Transport Solutions

BCR of **1.1 to 4.5** per USD invested, based on projects in Argentina, China, Peru, Tanzania, and the UK, with benefits like accessibility, congestion relief, and safety.

What is your experience with implementing public transport, walking and cycling projects?

How can we evolve conventional economic appraisals for land transport?

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Establish suitable policy and institutional frameworks

Standardise comprehensive and integrated economic appraisal approaches and tools

Build multi-stakeholder engagement in the economic appraisal process

Quantify and monetise all costs and benefits

How can we evolve conventional economic appraisals for land transport?

Establish suitable policy and institutional frameworks

To foster sustainable, low-carbon transport, it is crucial to create strong policy and institutional frameworks that incentivize long-term investments and integrate multi-stakeholder perspectives. These frameworks should be tailored to local contexts and systematically applied to align policies with sustainable development goals.

- Implement phased policy signals, like the **Wales Transport Strategy**, to guide economic appraisals and embed sustainability criteria.
- Establish **multi-stakeholder, cross-sectoral** coordination to ensure a holistic approach (e.g., linking health, equity, and job creation with transport planning).
- Use proven frameworks like **Avoid-Shift-Improve** to reduce carbon-intensive transport and promote public transport, walking, and cycling.
- Phase out fossil fuel subsidies and adjust **financing mechanisms** (taxes, costs, prices) to favor sustainable transport options.
- Leverage examples from **SUMP approaches** in Malmö, Utrecht, and Yaoundé for effective horizontal and vertical coordination.

How can we evolve conventional economic appraisals for land transport?

Standardise comprehensive and integrated economic appraisal approaches and tools

Standardising economic appraisals with broad sustainability criteria is essential for fully capturing the social, economic, and environmental impacts of transport projects. Integrating diverse models and methods enables comprehensive assessments that support long-term low-carbon transport solutions.

- Shift from focusing on **vehicles and infrastructure** to **people, goods, and the transport system**.
- Use the **Avoid-Shift-Improve** framework to structure economic appraisals with relevant indicators for proximity planning, modal shifts, and system improvements.
- Apply diverse models like **Cost Benefit Analysis (CBA) and Cost Effectiveness Analysis (CEA), together with Multi-Criteria Analysis (MCA),** and the **SAVi methodology** to assess economic, environmental, and social impacts.
- Ensure methods and tools are **open-source** for accessibility and equitable application.
- Enhance decision-making by raising awareness of **biases and limitations** in appraisal criteria and input data.
- Learn from innovative projects like **FLOW**, which integrates the impact of walking and cycling on congestion reduction.

How can we evolve conventional economic appraisals for land transport?

Build multi-stakeholder engagement in the economic appraisal process

Inclusive and transparent stakeholder engagement in economic appraisals is key to ensuring robust, locally relevant, and widely supported transport projects. Engaging a diverse set of stakeholders enhances the identification of key performance indicators and strengthens the overall project viability.

- Ensure **inclusive participation** of all stakeholders: governments, private sector, NGOs, local communities, and civil society.
- Broader engagement helps identify **key performance indicators** and counters the influence of narrow interest groups.
- **Local knowledge** improves data reliability, reducing reliance on secondary assumptions and generalisations.
- Use tools like **Causal Loop Diagrams (CLDs)** to integrate diverse views and data, as demonstrated in the non-motorised transport project in Coimbatore, India.
- Building a **broad support base** enhances the project's economic and social viability, ensuring optimal planning and implementation.

How can we evolve conventional economic appraisals for land transport?

Quantify and monetise all costs and benefits

Traditional methods like Cost-Benefit Analysis (CBA) are insufficient for assessing the full potential of sustainable, low-carbon transport projects. Broader economic, social, and environmental impacts must be considered to ensure comprehensive and sustainable project outcomes.

- Avoid reliance on conventional **CBA**, which often focuses narrowly on financial costs and revenues.
- Incorporate **social and environmental impacts**, using economic valuation to capture a project's broader contribution.
- Use tools like **HEAT** (Health Economic Assessment Tool) to quantify the benefits of walking and cycling, including health, reduced emissions, and mortality impacts.
- Perform evolved CBA that assesses: **financial performance** (cash flows), **holistic economic performance** (social and environmental impacts), returns for all economic actors (private sector, government, citizens).
- Ensure **economic sustainability** by evaluating how the project contributes to human development and prosperity.
- Address concepts like **transport poverty** to ensure inclusive and equitable project outcomes.

Building capacity to evolve appraisals - where are we?

Mr. Michail Kapetanakis, Research Analyst with the Economic Law and Policy Program, International Institute for Sustainable Development

- **Sustainable Asset Evaluation (SAVi)**

Mr. Bertrand Goalou, Principal Transport Specialist, Asian Development Bank

- **Sustainable Transport Appraisal Rating (WEB-STAR)**

Ms. Ana Costa, INOVA+, Civitas Secretariat

- **FLOW Impact Assessment Tool - CIVITAS**

Mr. Thiago Hérick de Sá, Technical Officer, World Health Organization

- **Health Economic Assessment Tool (HEAT)**

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Thanks for joining us

Stay tuned for the policy paper!

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