ITF-OECD Round Table on “Improving the Practice of Cost-Benefit Analysis in Transport”

THE PRACTICE OF COST BENEFIT ANALYSIS IN THE TRANSPORT SECTOR

MEXICO PERSPECTIVE

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I. Institutional Framework

- The purpose of the Institutional framework is to strengthen the process of planning, selection and prioritization of investment projects.

- Prerequisites for federal investments:
  i. Federal entities must present a planning document with priority investment needs
  ii. Present cost – benefit analysis
  iii. Obtain the project approval in the Investment Portfolio
  iv. The Inter-ministerial Commission for Financing and Expenditure (CIGFD) will analyze and determine the projects prioritization for their inclusion in the draft budget of expenditure
II. Institutional Framework

Stages of the Public Investment Process

- Planning
- Cost-Benefit Analysis
- Prioritization
- Budget Approval
- Monitoring
- Ex – Post Evaluation
1. Planning

Planning Tools

- National Development Plan (6 years)
- National Infrastructure Program (6 years)
- Planning Document (annually)
2. Cost - Benefit Analysis

• Clear guidelines and parameters for the evaluation of costs and benefits. In order to promote the same process for all projects there is a general methodology that helps in the evaluation and selection of projects with high social return.

• An independent expert opinion. For projects which investment amount is greater than 500 million pesos (approximately 50 million dollars).

• Training Center for the Preparation and Evaluation of Projects (CEPEP). It is the think tank of the UI.

• Investment Portfolio System. It is a bank of projects that demonstrates, through a cost benefit analysis, high social return.

• Transparency. The Investment Portfolio System is available in the SHCP web page:

(http://www.apartados.hacienda.gob.mx/sistema_cartera_inversion/index.html)
3. Priorization

- The Inter-ministerial Commission for Financing and Expenditure (CIGFD) will analyze and determine the projects prioritization for their inclusion in the draft budget of expenditure.

4. Programming and Budgeting

- Federal Expenditure Budget and Investment Portfolio System are linked at this stage.

5. Monitoring and Ex-Post Evaluation

- Seeks to monitor the development of the project, checking that ex-ante estimated benefits are actually attained.
III. The role of Cost – Benefit Analysis in decision-making process

• Is the most important instrument used by the government in decision-making process.

• CBA allows homogenizing criteria in the evaluation of projects and promote transparency and certainty.

• By law, all federal investment projects have the obligation to:
  i) Present a Cost – Benefit Analysis
  ii) Have the UI approval (registration code)
  iii) Be included in the investment portfolio

• In order to execute a project is necessary to demonstrate through a CBA that this project has high social return.
IV. Key elements of Cost – Benefit Analysis

- The depth of the analysis depends on the investment amount.

<table>
<thead>
<tr>
<th>Type of CBA</th>
<th>Technical notes (Idea and Project Definition level)</th>
<th>CBA (Pre-feasibility level)</th>
<th>CBA (Feasibility level)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infrastructure Project</strong></td>
<td>&lt; 5 MD</td>
<td>&lt; 50 MD</td>
<td>&gt; 50 MD</td>
</tr>
<tr>
<td><strong>Maintenance Project</strong></td>
<td>&lt; 15 MD</td>
<td>&lt; 50 MD</td>
<td>&gt; 50 MD</td>
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Process of a CBA

- Identify a need or problem
- Review if it is possible to improve the current situation
- Propose alternative solutions
- Evaluate alternatives and improved current situation
- Apply a decision criterion to choose the best option
Transport Evaluation

- Costs, Benefits and Indicators

**Costs**
- Investment
- Maintenance, operation and re-investment
- Disruption cost

**Benefits**
- Travel Time Savings
- Vehicle Operating Cost Savings
- Operation and Maintenance Savings
- Emission Cost Savings and Salvage Value

NPV
IRR
Transport Evaluation

- Structure of a CBA
  - Executive Summary
  - The “No Project scenario” and alternatives analysis
  - Project Description
  - Project Scenario
  - Project Evaluation
  - Sensitivity and Risk Analysis
  - Recommendations.
Specific Methodology

We have specific methodologies to facilitate and promote transparency and uniform criteria to evaluate the CBA, which are:

- Highways
- Rural Roads
- Railway projects
- Massive Transport Projects
Methodology for Massive Transport Systems

Some elements analyzed in this type of evaluation are:

- **Supply (Characteristics of the Transport System)**
  a) Number and total capacity of all transport modes
  b) Existing routes that provide the service (distance, number of lanes, etc.)
  c) Travel time by route, and traffic light system’s description
  d) Number of stops, their location and the distance between them
  e) Frequency of transport by congestion Schedule (high, medium and low)

- **Demand**
  a) Origin and destination of passengers
  b) Classification of passengers by travel’s motivation
  c) Amount of user’s time
  d) Estimated average number of passengers up and down daily and the distance
  e) Traveled by the time of congestion (high, medium and low)
  f) Average occupancy rate of each transport mode by congestion schedule.

...
Methodology for Massive Transport Systems

Some elements analyzed in this type of evaluation are:

- **Supply and Demand Interaction (Identify the Problem)**
  
a) Higher transport costs  
b) High operation and maintenance cost  
c) Inefficient transport system’s operation

- **Benefit identification**
  
a) Benefits for a shorter travel time (users and no users)  
b) Benefits for the reduction of pollutant emissions to the environment (intangible)  
c) Reduced operating and maintenance costs  
d) Earnings per release of resources  
e) Salvage value at the end of project evaluation horizon.
V. Potential development of project assessment procedures

In order to improve the quality of public investment, the UI:

- Will play a more active role (conception and definition)
- Will focus more deeply into risk analysis
- Will determine the best financing scheme (pure federal expenditure or PPP)
- Is working on 3 new approaches to evaluate a PPP project:
  a) Gateway process review
  b) Eligibility index for PPP’s
  c) A new methodology for the whole investment cycle
V. Potential development of project assessment procedures

Gateway Process Review

Gateways

• **Cost Benefit Analysis (Social IRR & NPV)**  The first step is to analyze if the project is socially worthwhile?

• **PPP Eligibility**  The project is feasible and viable as a PPP?

• **PPP Scheme**  The third step select the best PPP Scheme (Concession, Services Contract, BFO, etc)

• **Value for Money**  The fourth step make a comparison of PPP scheme against the public sector comparator taking into consideration the benefits, opportunities, and values of public sector retained risk. This Gateway (Public Sector Comparator) includes Risk Analysis and Financial Modeling.

• **Information**  The fifth step evaluates all aspects of project as a whole.
PPP´s Eligibility index

Social NPV > 0?  
YES  
NO  
Project is not implemented

Does the project have an investment of more than USD 100 million?  
YES  
NO  
Traditional public investment analysis

The project is perceived by the authority to be executed as a PPP  
YES  
NO  
PPP feasibility study

Is it eligible for PPP?  
YES  
NO  
Traditional public investment with limited budgetary resources available

Is it economic or social infrastructure?  
YES  
NO  
F&VFM Analysis

VFMmax = Cost of public provision risk-adjusted - Cost of private provision risk-adjusted

Traditional public investment with limited budgetary resources available  
NO  
YES  
The project is executable as PPP

Economic infrastructure  
F&VFM Analysis  
Contingent PPP

Social infrastructure  
F&VFM Analysis  
Pure PPP

Combined PPP

Notes:  
VFM: Value For Money  
F&VFM: Financial and Value For Money
Conclusion
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