Workshop 3: Strategic Transport Infrastructure Planning and Financing

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The Programming and Optimal Pricing of Infrastructure in PPPs

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For new infrastructures in PPPs, the IRR ranking for the whole programme provides more welfare gain than the ERR ranking! (under the public financing constraint)

If the financial IRR is more efficient than the socio-economic ERR for an optimisation of the whole programme, is the welfare oriented pricing more efficient than the profit oriented pricing?
1. Optimal toll for existing infrastructure and scarcity coefficient of public funding

Optimal toll according to $\varphi$

<table>
<thead>
<tr>
<th>$\varphi$</th>
<th>Optimal Toll</th>
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<tbody>
<tr>
<td>0.08</td>
<td>0.02</td>
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<tr>
<td>0.04</td>
<td>0.04</td>
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<td>0.06</td>
<td>0.06</td>
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<tr>
<td>2</td>
<td>0.1</td>
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2. Optimal toll for a programme of new infrastructures

The objective function is in fact the ratio:

\[ \frac{\text{Welfare gain}}{\text{Sub}} \]

(The same as for the optimal ranking)

Thus, the optimal pricing is:

\[ P_{opt} = P_{Rmax} \left( 1 - \frac{\text{Min(Sub)}}{R_{max}} \right) \]

3 cases:

- \( \text{Min(Sub)} = 0 \) \( \Rightarrow \) \( P_{opt} = P_{Rmax} \)
- \( \text{Min(Sub)} > R_{max} \) \( \Rightarrow \) Free road
- \( 0 < \text{Min(Sub)} < R_{max} \) \( \Rightarrow \) Regulated \( P_{opt} \)

Conclusion: 3 families of PPP according to IRR
Does the crisis change the analysis?

**Improvement / ERR ranking**

- **NPV/public euro**
- **IRR (financial)**
- **ERR (socio-econ.)**

Decreasing budget
MERCI