

**FORUM 2009 - 26-29 mai - Leipzig**

**Workshop 3: Strategic Transport Infrastructure  
Planing and Financing**

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**The Programming and Optimal Pricing of  
Infrastructure in PPPs**

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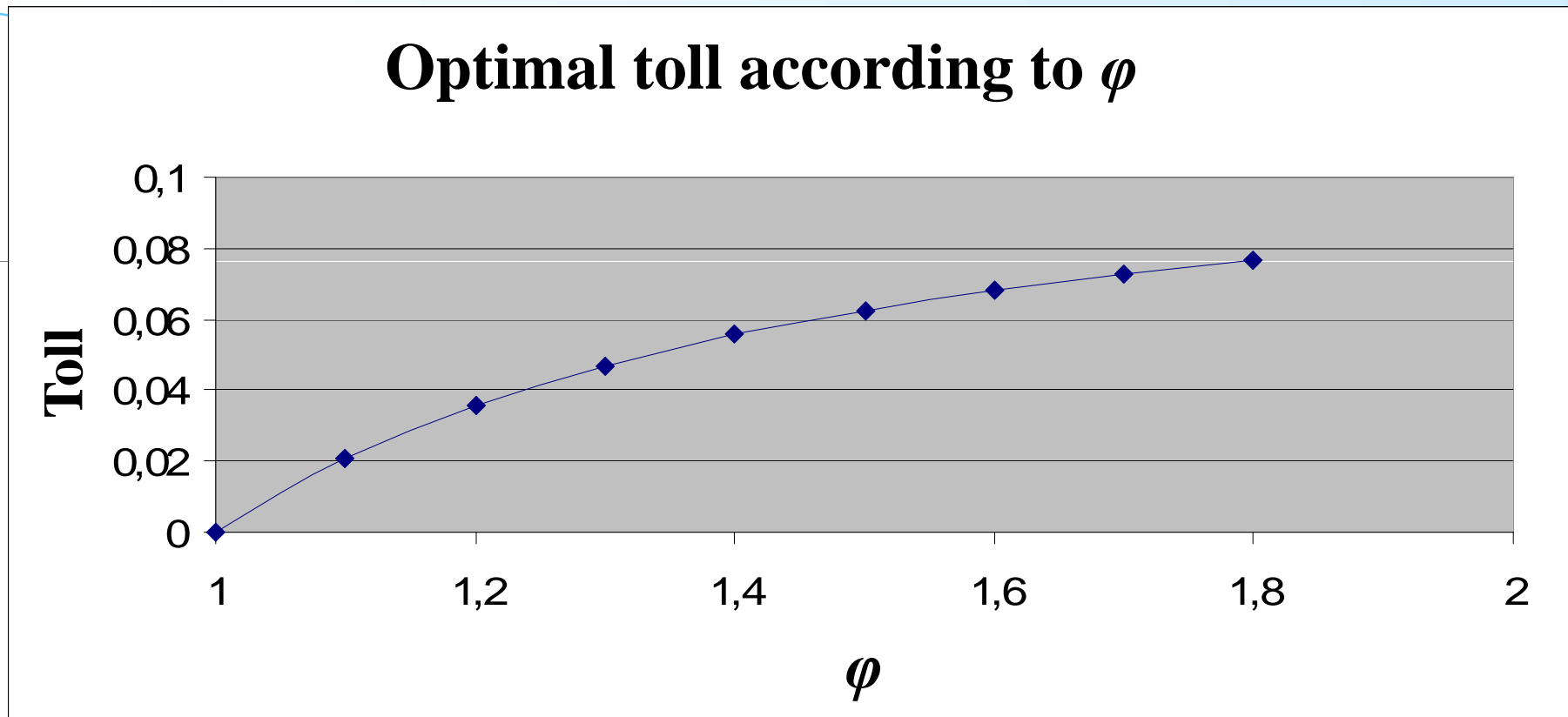


**For new infrastructures in PPPs, the IRR ranking for the whole programme provides more welfare gain than the ERR ranking !  
(under the public financing constraint)**

**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



## 2. Optimal toll for a programme of new infrastructures

The objective function is in fact the ratio:

$$\textit{Welfare gain} / \textit{Sub}$$

(The same as for the optimal ranking)

Thus, the optimal pricing is :

$$P_{opt} = P_{Rmax} \left( 1 - \frac{\textit{Min}(\textit{Sub})}{R_{max}} \right)$$

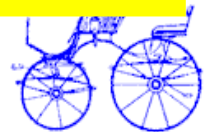
**3 cases :**

$$\textit{Min}(\textit{Sub}) = 0 \Rightarrow P_{opt} = P_{Rmax}$$

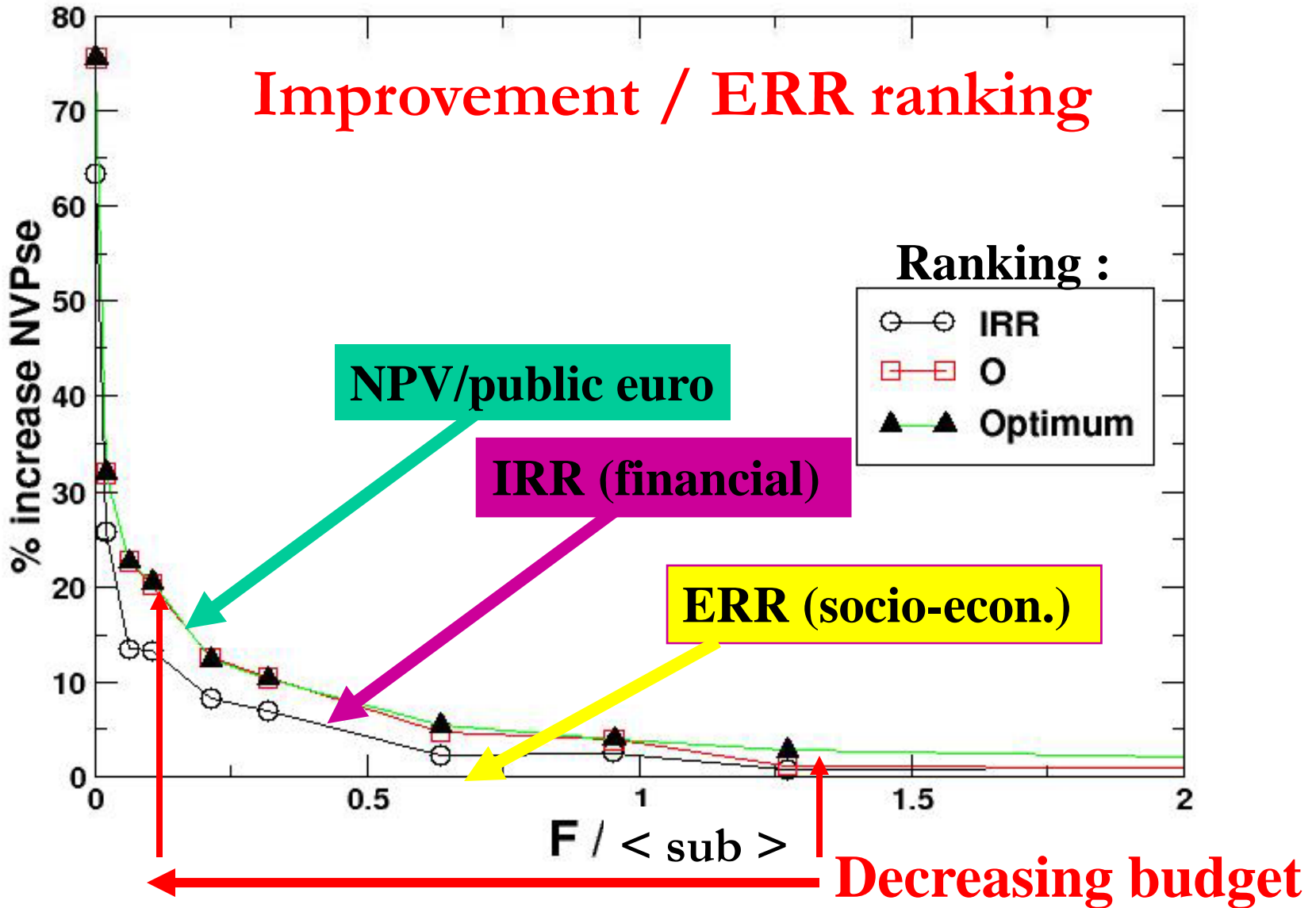
$$\textit{Min}(\textit{Sub}) > R_{max} \Rightarrow \text{Free road}$$

$$0 < \textit{Min}(\textit{Sub}) < R_{max} \Rightarrow \text{Regulated } P_{opt}$$

**Conclusion: 3 families of PPP according to IRR**



# Does the crisis change the analysis ?



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