CALCULATION OF CHARGES FOR THE USE OF RAIL INFRASTRUCTURE

Reference Framework for Infrastructure Charging

Werner Rothengatter
Network Industry: A natural monopoly

Enforcement of competition: Regulated access

Economic use of capacity: Fair and efficient pricing
Fair and efficient pricing:

I  Approach of welfare theory

II  Approach of regulation theory
Approach of static welfare theory:

- Social marginal cost pricing
- Ramsey pricing
- Multi-part tariffs
Approach of dynamic welfare theory:

- flexible adaptation of systems to a changing environment, dynamic efficiency, robust systems

- decentralisation, incentives, innovation power

- self-financing systems (cost recovery)
Approach of institutional economics

(management, controlling):

- total costs control, control of cost centres, direct costing, financial performance matters
- decision related costs, planned costs, future costs, life cycle costs
- allocation according to fairness (intra- and intergenerational) and incentive compatible
EU Directives for transport networks:

- 2001/14 railway charging based on SRMC, mark-ups, scarcity, special service, evtl. external costs, evtl. bonus/malus

- 2006/38 motorway charging for HGV based on AC, total infrastructure cost recovery, differentiation according to congestion and environmental quality of vehicles, evtl. external costs
II Approach of regulation theory

Price Regulation

Cost-based regulation
Incentive-based regulation
Regulation Philosophies:

• Rate of Return Regulation
• Cost Plus Regulation / Mark-up Regulation
• Revenue Cap Regulation
• Price Cap Regulation

• Littlechild (1987)
• Principle-agent problem
• False incentives
• Costs hard to control (benchmark comparison)
• Costs of efficient production
Basics of price cap regulation:

- price change = RPI - X
- defined for a service bundle
- adjusted periodically
Designing Price Cap Regulation for Railways:
- initial values related to costs (ABC, LCC)
- path of development for some years
- incentives for raising productivity
- setting of quality/performance specifications

\[ IC + G = C (+E) \]

\( IC = \) Infrastructure charges \(\Rightarrow\) slots / bundles of slots

\( G = \) Payments for public services

\( C = \) Costs for efficient infrastructure provision (ABC, LCC)

\( E = \) Standard profit
Basic inputs:

• basket of commodities (upstream: type of slot, type of service on the slot)
• prices for first period (initial values)
• inclusion payments for public service
• setting RPI and X
• duration of regulation period
• costs of capital (treatment of public share; interest on capital)
Regulation

Cost-based regulation (ABC, LCC)

- ABC, LCC + auctions
  - Monopoly
  - Control of auctions
  - Benchmarking

Incentive based regulation (RPI and X)

- Basket of services
- Initial values
- Interim checks
- Quality, Performance parameters

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