Rail Infrastructure Access Charge Issues

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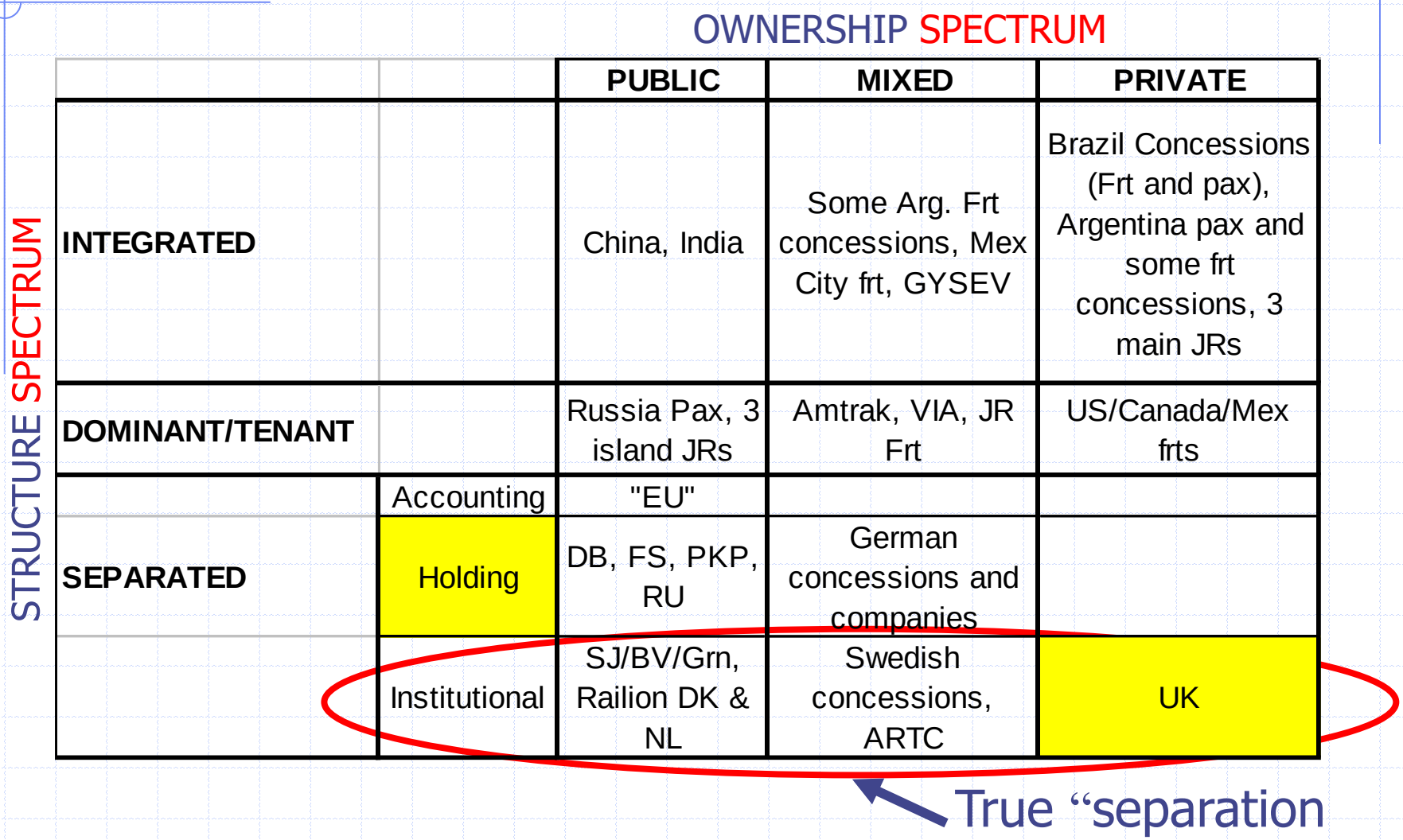
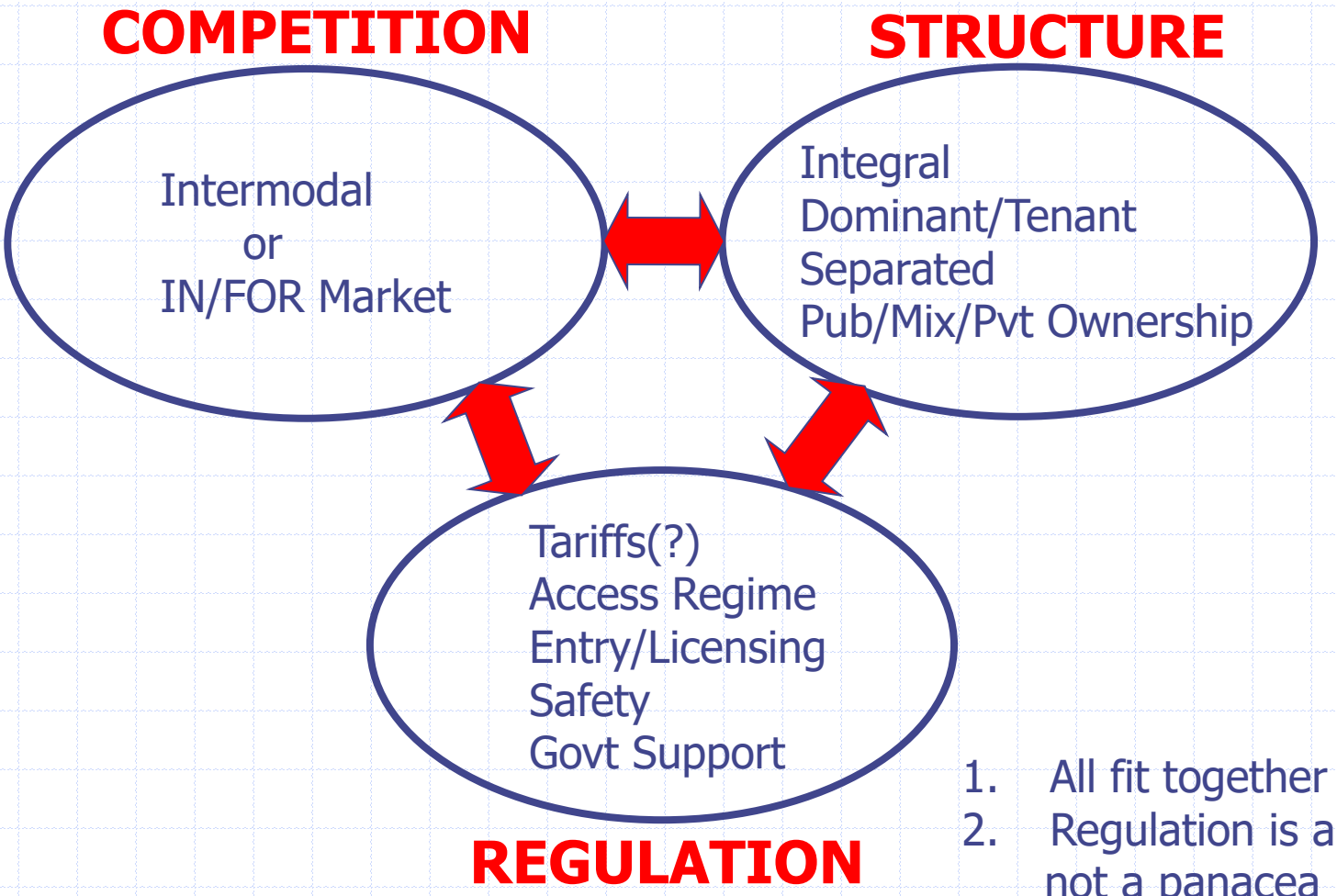
What Is Infrastructure "Separation"?

- Stages of "separation"
  - None. Fully integrated (one operator, one infrastructure provider)
  - Tenant (minority) users. Infrastructure manager controls and provides the dominant operations, minority users pay as tenants. "Trackage rights," non-competing use
  - Full separation. All operators are separated from infrastructure provider.
  - Open vs. controlled (franchised) access: a separate question
- Types of separation: accounting, holding and institutional
- Ownership (public, mixed, private)

Structure and Ownership



Variables to Manage

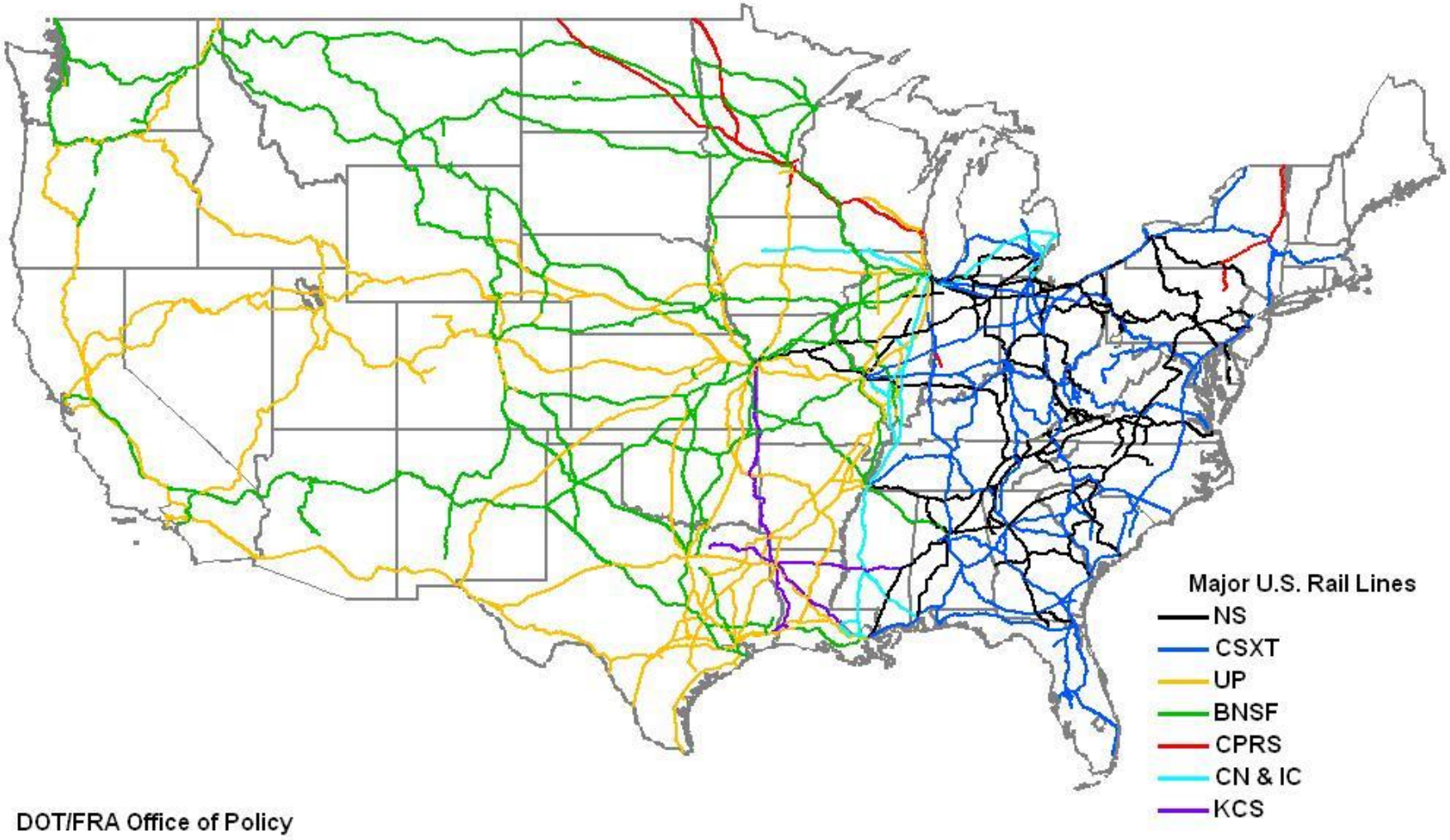


1. All fit together
2. Regulation is a referee, not a panacea

Is "Separation" New and Untested?
(It depends)

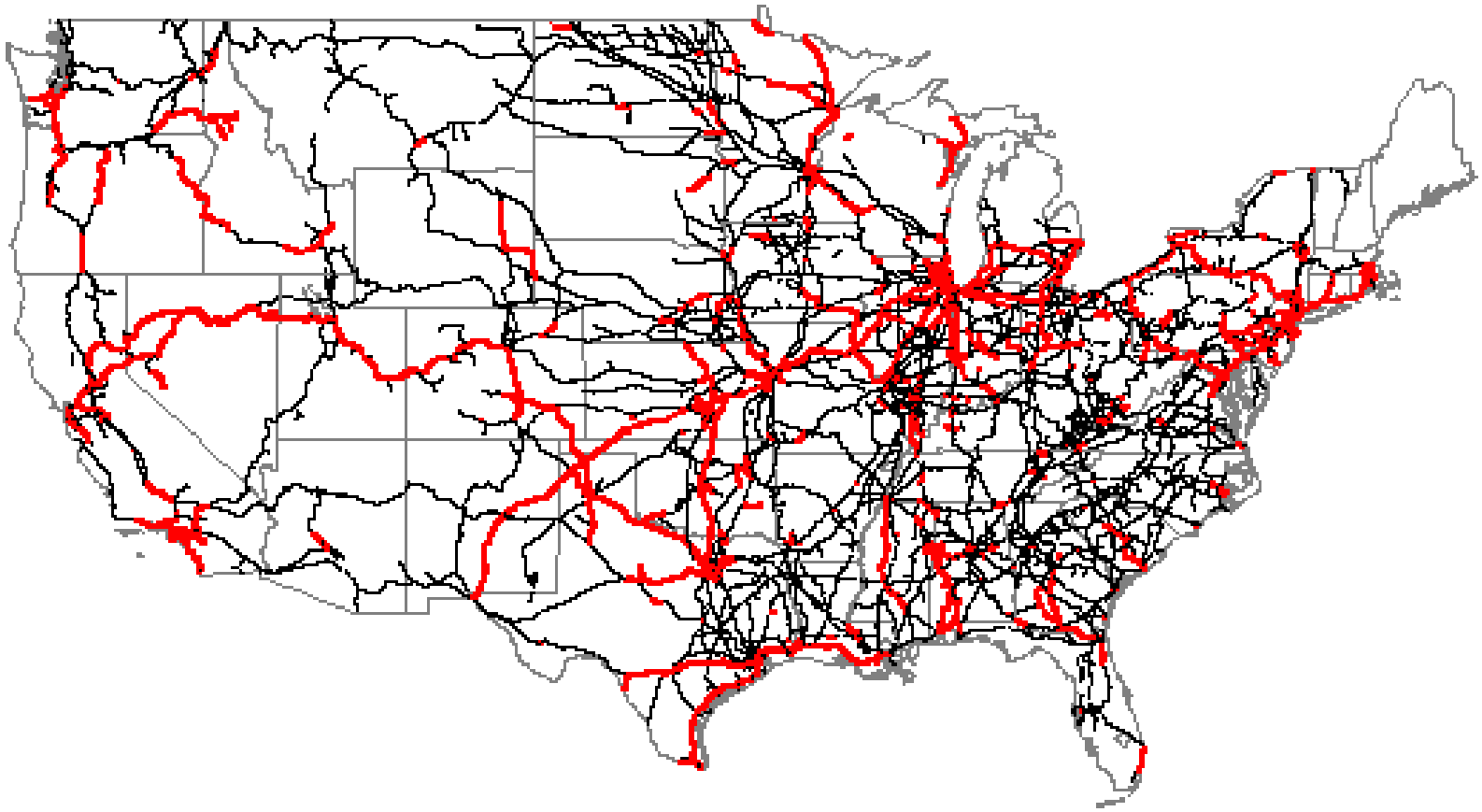
- US/Canada since 1900+ (Amtrak and VIA since 1970s). (mostly tenant)
- Japan – 1987 (tenant)
- Sweden – 1987 (institutional, public)
- UK – 1995 (full institutional, privatized -- study)
- Australia – ARTC in 1997 (mixed)
- EU Order 91-440 (1991 to present). (Mostly accounting, some holding, some institutional)
- Red herring issue: safety. Valid issue: complexity, incentives and transaction costs. Possibly valid: "wheel/rail" interface

US Rail System Map Today: Class I Railroads
(BUT 60 to 25 to 7)



Multiple Use US Tracks

(Excluding Amtrak)



Access Charge Situations

- Mutual interest (negotiated, often reciprocal)
- Non-competing use (pax on frt line)
- Imposed against the will and interest of infrastructure provider (usually regulatory)
- Mental constructs of the separated provider
  - Who, me?
  - The "public utility" provider
  - Infrastructure as a product to sell (EU language)

Background: Objectives (Why Do It?)

- Originally, common interest by railways
- Efficiency in rail sector (economies of density)
- Financial stability for infrastructure provision
- Clarifying government roles and costs
- Business focus of the parts (inc. infrastructure)
- Open up public/private roles
- Promote competition: intra-modal, international
- The Commission made us do it (EU railways) and now new EU candidates CEE (BG, Turkey, RO)

Infrastructure Charges: Coverage

- Maintenance and renewals
- Train planning and operations
- Electric power (diesel fuel by operator)
- Congestion and scarcity (capacity)
- External (social) costs

Infrastructure Charges: Broad Approaches

- Tenant cases, focus on variable cost, or on negotiated outcome
- Pure social marginal cost (theory)
  - maximizes economic efficiency, may not yield financial stability if gov't does not pay its share
- Marginal cost plus markup (MC+)
  - need to know (and rely on?) government contribution
  - objectives of the markups?
  - in principle, zero based
- Full cost minus government contribution (FC-)
  - same issues as MC+ (but MC is floor price)
  - allocates all costs: can conceal inefficiencies
- Major Issues
  - defining/calculating marginal costs
  - calculation of social costs
  - agreed and consistent definitions and data
  - mark-ups and knowing the elasticities of the users
- MC+ and FC- very similar issues: **the devil is in the mark-ups**

Infrastructure Charge Structures

- Simple – variable with measures of use
  - gt-km, nt-km, p-km, train-km, wagon-km, % revenue
  - weighting factors (speed, axle load, equipment design, specific route, time of day, commodity, other)
- Two-part
  - variable factors as above
  - fixed part (capacity to be used, path reservation)
  - discrimination: economic efficiency versus equity
  - allocation (FC-) versus causality (MC+)

Economic and Policy Issues

- Degree of separation
- Network complexity and intensity of traffic
- Mix of traffic and path allocation priorities
- Growth rates in traffic (need for new capacity)
- Number of operators
- Competition goals (intramodal, international)
- Freight, ICP, HSR and suburban passenger incentives and cross-subsidies
- Slot rigidity (schedule) versus market demands
- User price elasticities (esp. supported services)
- Political/affiliate incentives to discriminate

Recommendations for Bank audience

- Start with market definition (frt, ICP, Sub'n/regional)
- Examine ALL models: separation often not appropriate: LAC, AFR. Asian models vary.
- Use competition for the market, not in the market where possible.
- Keep access charges as uncomplicated as possible (tenant models are easier)
- Access charges should at least cover MC (inc renewals): gap between charges and FC should be reliably funded. If not, stick to tenant models
- Access regimes can use mixed approaches by market: simple MC+ for freight, 2-part FC- for exclusive services, simple or 2-part MC+ for ICP depending on competition

Access Charge Regimes for Types of Rail Users

	Pure SMC	MC+	FC-	FC Contract with Sponsor (if any)
Suburban				High requirement for scheduled slots, relatively low speed. Limited response to price signals, high public support
HSR Franchise			Use two-part tariff for operations on conventional lines.	Slots all scheduled, rigid quality requirements, number of competing operators limited
ICP Conventional and HSR:				
With competition in the market		High capacity requirements. Two-part contracts appropriate, but fixed component should be minimized.		
Without competition (or with competition for the market)			High capacity schedule requirements. Suitable for two-part contracts	
Freight	Low schedule and track quality requirements. High response to price signals. Use either SMC or MC+ simple tariff with minimum mark-ups. Markups(if any) for freight in domestic, import-export and transit traffic movement should be uniform.			

Some Experience

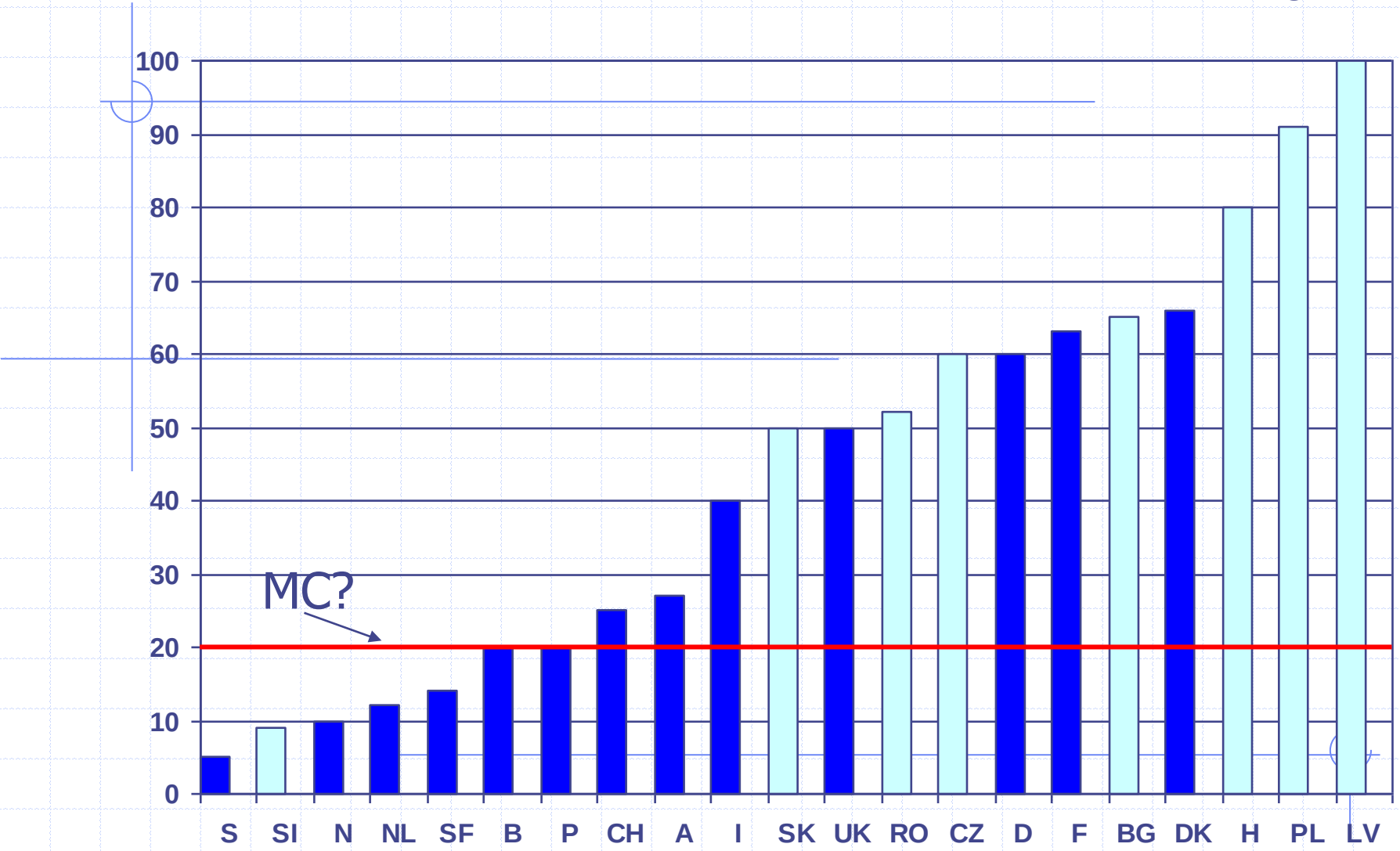
- Tenant models in the US and Japan "work" partly because they don't matter much
- UK approach has undergone significant (painful) change
- EU has a patchwork of regimes: creates "seams"
- Cost recovery objectives differ
- Wide range of charges, especially freight
- Network complexities and intensities vary
- Different balances Freight versus Passenger
- No single model available

The Access Regime Patchwork

	Simple	Two-Part
MC+	A,CZ,DK,SF,NL, N(frt),P,S,CH,UK(frt), US tenant, JR Frt, ARTC	BG,F,RO, UK(pass)
FC-	D,LV,PL,SI,SK	EE,H,I,E

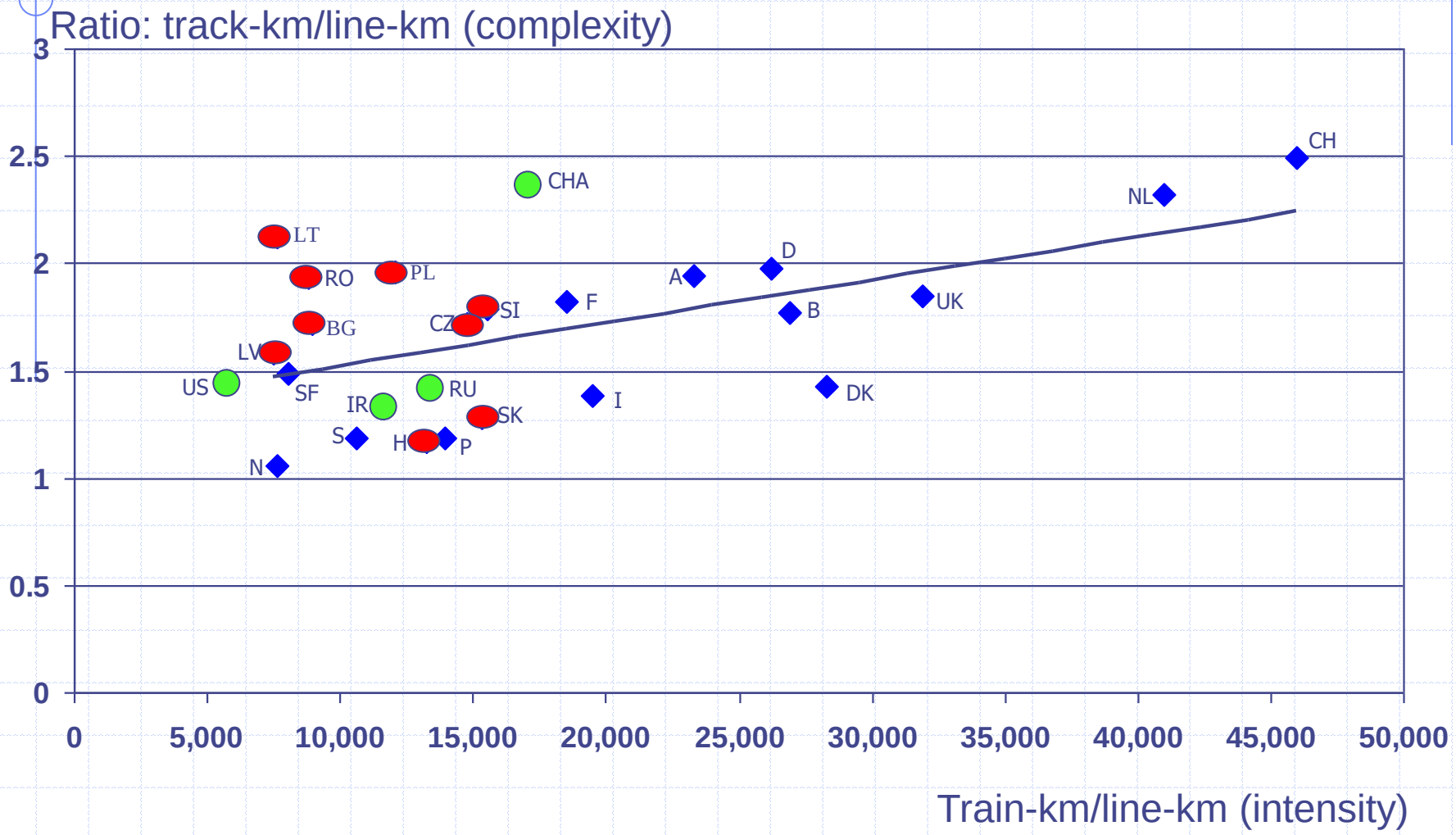
Note: Railtrack began as two-part, FC: now shifting toward MC+

Percent of Variable Cost Recovered from Infrastructure Charges



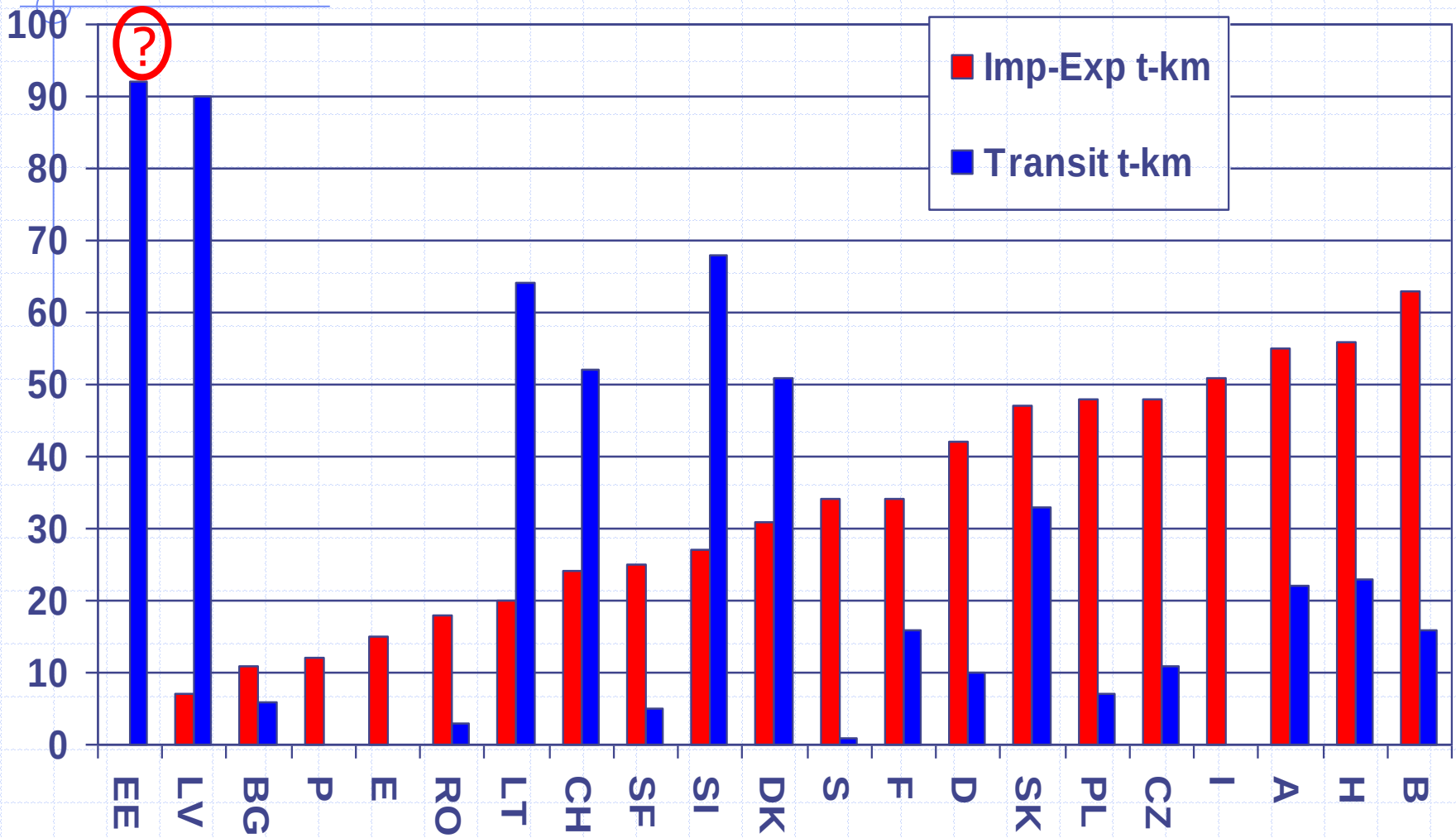
Network Complexity versus Intensity of Use

(train-km/km of line basis)



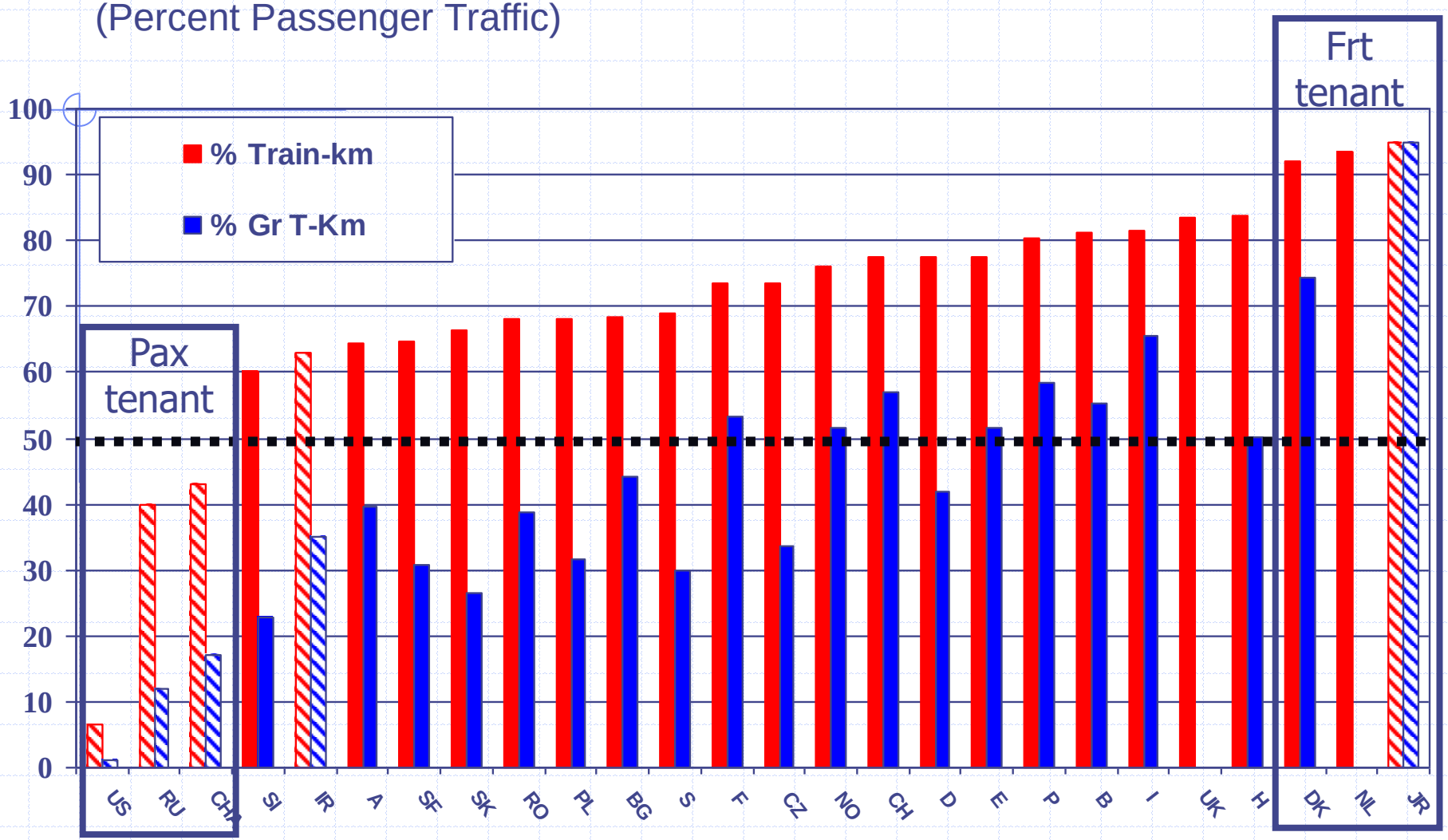
Note: Russia, US and China added manually and do not affect the regression line.

Percent International Freight Traffic

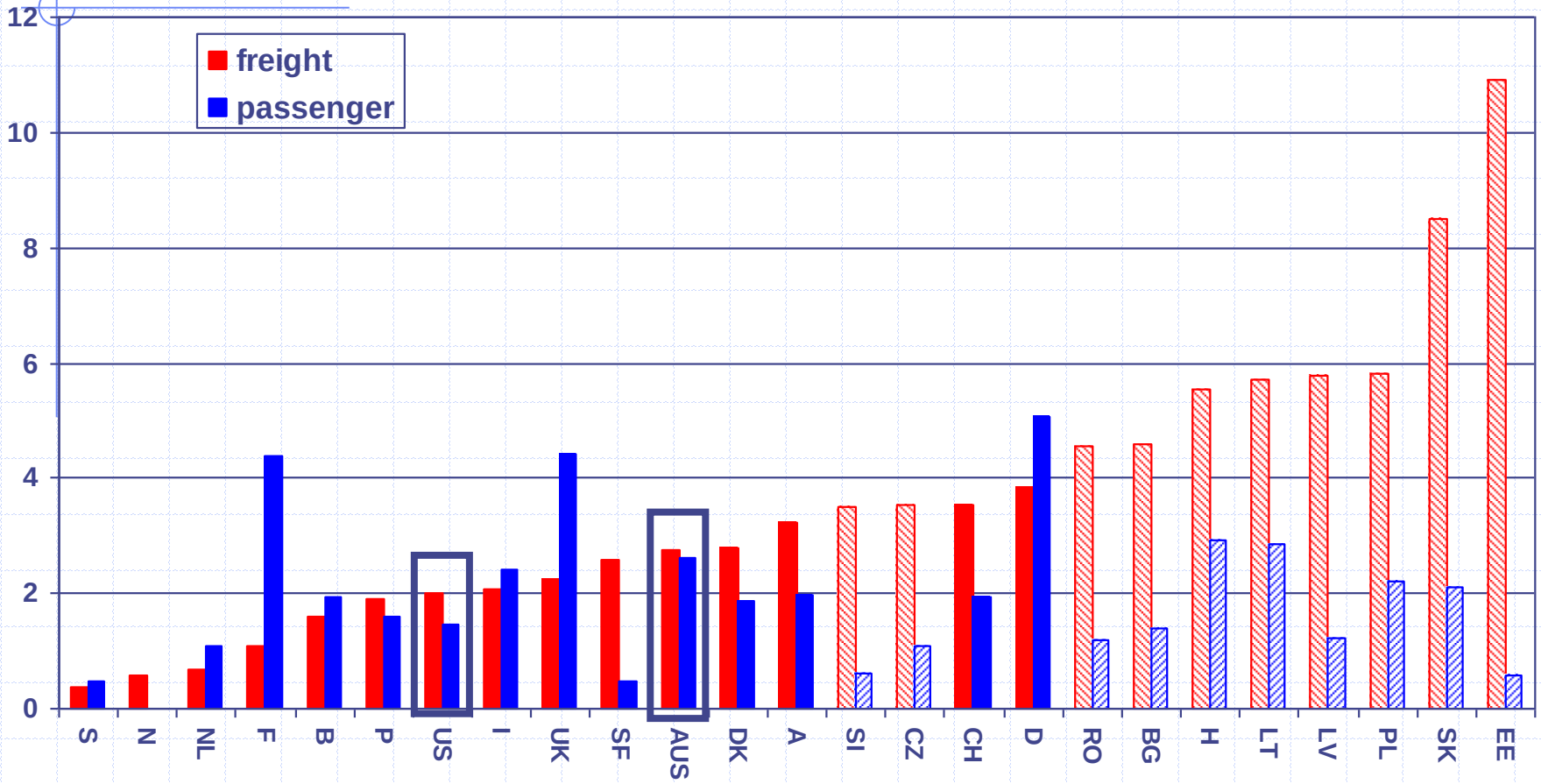


Tenancy vs. Separation

(Percent Passenger Traffic)



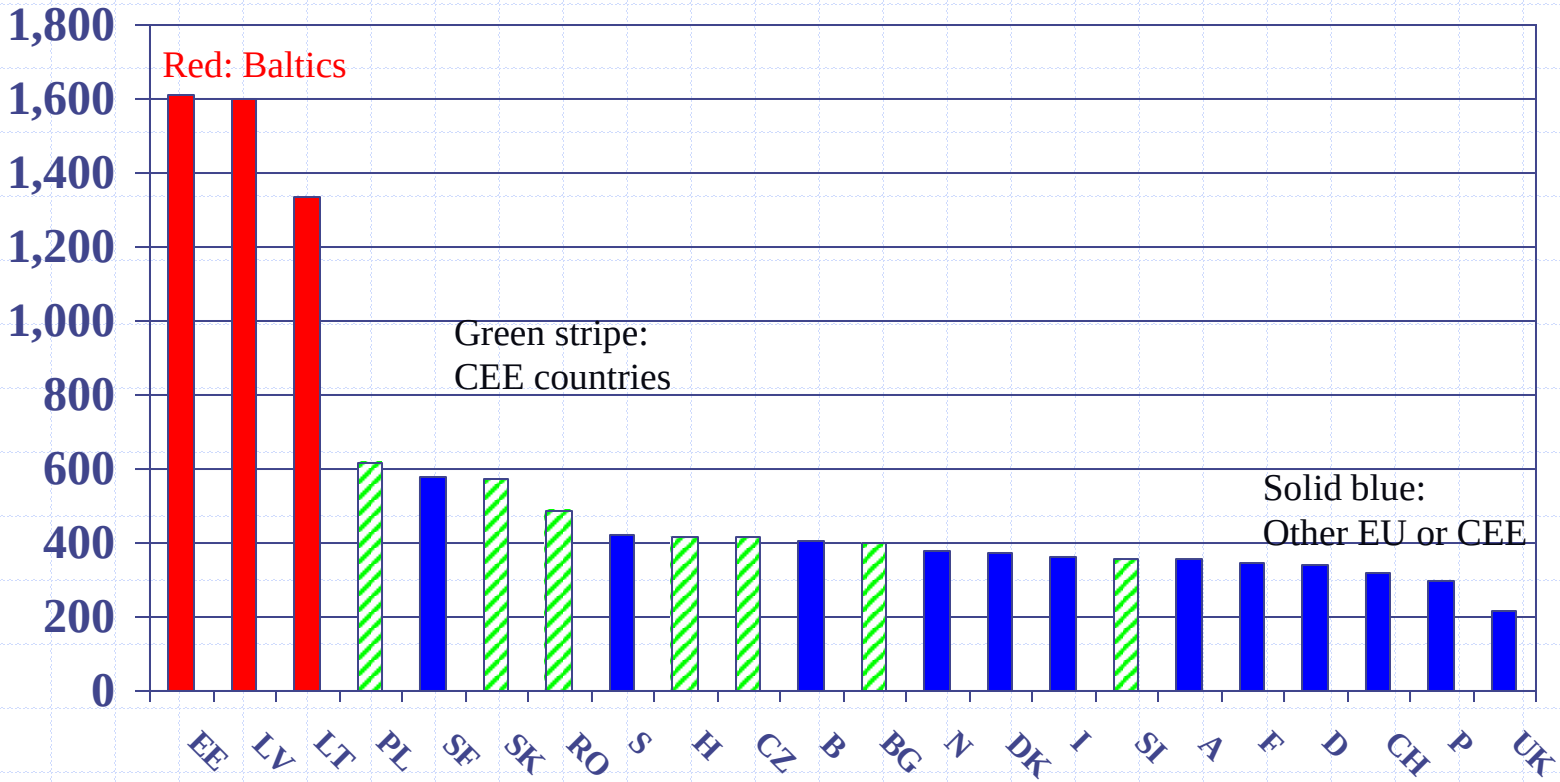
Average Access Charges
(€/Train-Km)



Cross-hatch indicates CEEC

Average Freight Train Size (net tons):

The Baltics are Different



RU=2000, US=2700, CHA=2500, IR=1800