Benchmarking in transport: the case of European rail systems

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1. All European countries have a single national infrastructure manager

2. Competition in the market between train operating companies is confined to commercial services and remains limited esp in passenger services

3. Competition for the market is only used for commercial passenger services in Britain, and is rare for subsidised services except in Britain, Sweden and Germany

So benchmarking important esp for infrastructure.

For services competition is possible and growing, but still many debates on how best to introduce it

- May be used to identify efficient costs for regulatory purposes (e.g. Rail Regulator in Britain)

- May be used by firms to understand how to become more efficient (e.g. British Rail)

- May also aim to inform policy decisions influencing efficiency (e.g. strength and form of regulation, degree of vertical separation, how best to introduce competition for or in the market – e.g. size and length of franchises

e.g. Evesrail study specifically on firms of vertical separation

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Most authors use data collected and published by UIC but many problems

- Varying degrees of subcontracting

- New entrants often not members of UIC

- Geographical issues – some operators (incl DB and SNCF) pool data for different countries

- Definitions e.g. what is a vehicle?

- Treatment of subsidies (e.g. for DB assets bought with government grants do not enter the capital value of the firm and are not depreciated in the accounts)

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Cost regression: Model

- ## 26 OECD countries – 1994-2010

- ## Total rail industry cost = f (control variables, test variables)

Control variables (cost drivers not related to policy)	Test variables (policy variables that may affect costs)
• Passenger output	• Vertical separation dummy variable
• Freight output	• Vertical separation dummy variable * train density
• Route length	• Vertical separation dummy variable * freight revenue proportion
• Technology index	• Holding company dummy variable
• Wage rate	• Holding company dummy variable * train density
• Energy price	• Holding company dummy variable * freight revenue proportion
• Materials price	• Horizontal separation dummy variable
• Capital price	• Passenger competition measure
	• Freight competition dummy variable

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Passenger km and freight tonne km often used.

But frequency and degree of crowding important quality variables

For freight a train of coal achieves a much higher output in tonne km than a same length train of containers

Often, a certain level of train km contractually required.

Traffic volumes heavily influenced by geography and policy decisions (relative prices).

So train km a better measure (preferably disaggregated e.g. high speed, commuter, regional, container, bulks). Ideally use train km, vehicle km and passenger/freight tonne km.

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- Railways subject to economies of scale (up to some efficient scale) and density

- Geography and policy determine length of the network

(route km) and heavily influence traffic density

Other exogenous factors include inherited quality and capacity of infrastructure (e.g. degree of electrification), climate, length of tunnels and bridges etc

Need to introduce control variables to reflect these wherever possible.

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- **At higher traffic densities, vertical separation increases costs**

  - At mean traffic densities, vertical separation does not significantly change costs

  - Whereas a holding company model reduces them, compared with complete vertical integration (weakly significant)

- **A higher share of freight in total revenues increases the costs of vertical separation**

  - Freight traffic may cause more coordination problems in a separated environment than passenger traffic

Benchmarking may be useful for

- Identifying efficient cost

- Understanding how to improve efficiency

- Informing policy decisions (e.g. industry structure, nature of regulation, how best to introduce competition, form of franchising etc

But studies need careful thought about model specification and are demanding in terms of data requirements

In practice, models can never be precise, but provide important evidence.