Use of benchmarking by British regulators

Seminar on Yardstick Competition in Transport, Turin

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RPI-X regulation has been credited with achieving very significant unit cost reductions in the UK.

Efficiency benchmarking – or yardstick competition - is a key input into setting the X factor.

Price change = RPI - X

Expected productivity gain

Scale effects

Input price trends

E.g. RPI-1, RPI-2, RPI-5

Efficiency gains

Technological progress
Yardstick Competition
Conceptual Approach

- Regulator eliminates inter-company efficiency differences

Cost frontier (T=0)
Cost frontier (T=5)

Step 1: catch-up

Step 2: frontier shift

Data points can be regulated firms in same country, or different countries (or different zones within a company)
Example: Rail International benchmarking study

- Panel data: 13 European countries over 11 years
- Used by International Union of Railways (UIC) in its benchmarking
- Standard definitions – to an extent

<table>
<thead>
<tr>
<th>Cost Data</th>
<th>Network Size</th>
<th>Final Outputs</th>
<th>Network Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Maintenance costs</td>
<td>Track kilometres</td>
<td>Passenger train kilometres</td>
<td>Ratio of single track to route kilometres (as a measure of the extent of single / multiple track)</td>
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<tr>
<td>Total costs (Maintenance + renewals)</td>
<td>Route kilometres</td>
<td>Passenger tonne kilometres</td>
<td>Proportion of track electrified</td>
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<td></td>
<td>Single track kilometres</td>
<td>Total tonne kilometres</td>
<td>Number of stations per route km</td>
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<td></td>
<td>Electrified track kilometres</td>
<td>Freight train kilometres</td>
<td>Number of switches per track km</td>
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Efficiency estimates for Network Rail

Profile of Network Rail Efficiency Scores: Flexible Cuesta00 Model

Score against frontier vs. Time (1996-2006)

- 40% gap
- Speed of adjustment?

Implies a gap against the frontier of 40% in 2006
Regulatory challenges

• Do we believe the model? Will the companies accept it?
  ❑ Eg. CMA enquiry in 2015; 17 of 18 water companies accepted; 1 appeal
  ❑ Engineering / management evidence?
  ❑ Do different methods and specifications produce similar results?

• Time consuming to collect data set – long-term commitment

• Modelling fundamental differences in characteristics and quality of railways

• Understanding uncertainty in efficiency modelling

• How to deal with lumpy / cyclical capital costs?
Lumpy capex renewals – rail (whole network)
• There are solutions to this problem though they are not perfect…
Regulatory approaches to uncertainty

• Range 13-24%

• Ignoring the extremes would suggest a gap of 23% (ORR)

• Bottom-up engineering methods now starting to dominate though in rail regulation in Britain

• 16% for maintenance; 20% for renewals

Source: Office of Rail Regulation (2013)
Concluding remarks

• Britain: multiple decades of experience of economic regulation of privatised (and non-profit / state-owned) firms

• Cost benchmarking, combined with high powered incentives, credited with achieving substantial productivity gains

• Critical success factors?
• Good quality data; common definitions between firms; over time
• Appropriate cost efficiency model / use of multiple models
• Supporting evidence from business plans and bottom-up studies
• Use of regulatory judgement e.g. on speed of adjustment and special factors
• Transparency and communication – esp. in GB system