Round-Table on Vertical Relations between Transport and Logistics Businesses
OECD-ITF – February 5-6, 2009

Railroad Industry Structure and Competition

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RAILROAD CORNERTSTONES
Two technological constraints

• Wheels must be round
• Trains are made of single wagons
Wheels must be round

- **Two rules**
  - The longer a wagon is operating, the more irregular the shape of wheels becomes
  - Irregular wheels increase the wear-and-tear on tracks, and hence the risk of accidents

- **Solution**
  - Use of novel technologies (sensors, transponders),

- **Requirement**
  - Investment below and above the wheel
  - Standardized data
The single wagon problem

• Network
  – A – B market: long haulage
  – $C_1, C_2, \ldots, C_n$ – A markets: short haulage

• Market
  – N containers or N trucks or N single wagons
Different cost structures: Which scope for intermodal competition?
THE POLICY DEBATE
Which industry structure?

Infrastructure

Integrated utility

Infrastrucure manager

Firm A  Firm B

Integrated “competitor”

Challenger

Rail services

Vertical integration

Vertical separation

Partial disintegration
Separation versus integration

- **Contra integration**
  - Infrastructure under the control of the incumbent
    - Depress competition (problem of discrimination to entry)
    - Costly for the consumers

- **Pro integration**
  - Reinforce the efficiency of the incumbent
  - Increase the competitiveness of rail vis-à-vis other transportation modes
EMPIRICAL EVIDENCES
Experiences

• In most countries, integration
• Separation
  – UK
  – Japan
  – The Netherlands
  – France?
Separation of the US railroad industry
Simulation exercise based on a McFadden cost model

<table>
<thead>
<tr>
<th>Projected Costs</th>
<th>Integrated Firm</th>
<th>Separated Firms</th>
<th>Diversified Firms</th>
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</thead>
<tbody>
<tr>
<td>Fixed Cost</td>
<td>169,067</td>
<td>338,134</td>
<td>169,067</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>217,410</td>
<td></td>
<td>217,410</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulk</td>
<td></td>
<td>823,799</td>
<td></td>
</tr>
<tr>
<td>General Freight</td>
<td></td>
<td>984,802</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>1,065,292</td>
<td>1,808,601</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,150,860</td>
<td>1,451,769</td>
<td>1,620,836</td>
</tr>
</tbody>
</table>
The US freight railroad industry
HHI versus number of firms
The US freight railroad industry
High price cost margins!!!

<table>
<thead>
<tr>
<th>Railroad Market</th>
<th>BNSF</th>
<th>UPSP</th>
<th>CSX</th>
<th>NSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk</td>
<td>59%</td>
<td>89%</td>
<td>90%</td>
<td>70%</td>
</tr>
<tr>
<td>General freight</td>
<td>74%</td>
<td>83%</td>
<td>73%</td>
<td>71%</td>
</tr>
<tr>
<td>Intermodal freight</td>
<td>84%</td>
<td>87%</td>
<td>55%</td>
<td>41%</td>
</tr>
</tbody>
</table>
The US freight railroad industry
Consumer surplus basically stable, increasing lately

SURPLUS

$2 billion

1978-2008
The US freight railroad industry
Increase in welfare
Why does the US structure work? How should we organize the EU rail industry?

**Figure:** Structure of the model.
Main results

• Integration can be optimal if Downstream returns to scale
  – Key factors: Double-double marginalisation
Concluding remarks

- The burden of proof should be now on the side on the pros of separation??
  - The research agenda must go on
- Policy recommandations
  - A size does not fit all