Organization and Regulation of the Rail Industry in Japan

European University Institute, Theatre Room

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## Current Transport Situation in 2007

<table>
<thead>
<tr>
<th></th>
<th>Rail</th>
<th>Auto</th>
<th>Ship</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of passenger-km (million)</td>
<td>405,612</td>
<td>936,049</td>
<td>3,834</td>
<td>84,327</td>
</tr>
<tr>
<td>Market share in terms of passenger-km(%)</td>
<td>28.4</td>
<td>65.5</td>
<td>0.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Number of ton-km (million)</td>
<td>23,308</td>
<td>354,800</td>
<td>202,962</td>
<td>1,145</td>
</tr>
<tr>
<td>Market share in terms of ton-km (%)</td>
<td>4.0</td>
<td>60.9</td>
<td>34.9</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Major Railway Network in Japan

Total route-km: 27,337 km
Rail network density: 72m/km² (route-km/total area of Japan)
### Major Rail Operators in 2009

<table>
<thead>
<tr>
<th>Kinds of rail operators</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>JR</td>
<td>6 passenger JRs and 1 freight JR</td>
<td>JRs are the former JNR, which was privatized in 1987.</td>
</tr>
<tr>
<td>Subways</td>
<td>9 municipal subways and 1 Tokyo metro</td>
<td>Tokyo metro was privatized in 2004.</td>
</tr>
<tr>
<td>Large private railways</td>
<td>15 privately owned rail companies.</td>
<td>Considered as efficient railways</td>
</tr>
<tr>
<td>Other private railways</td>
<td>143 rail companies</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>175 rail organizations</td>
<td>163 passenger rails 12 freight rails</td>
</tr>
</tbody>
</table>
Urban Transportation in Three Large Metropolitan Areas in 2006

<table>
<thead>
<tr>
<th>Metropolitan Area</th>
<th>Rail (Total)</th>
<th>Rail (JRs)</th>
<th>Rail (others)</th>
<th>Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo Metropolitan Area</td>
<td>13,799</td>
<td>5,469</td>
<td>8,330</td>
<td>10,432</td>
</tr>
<tr>
<td></td>
<td>(56.9%)</td>
<td>(22.6%)</td>
<td>(34.3%)</td>
<td>(43.1%)</td>
</tr>
<tr>
<td>Osaka Metropolitan Area</td>
<td>4,596</td>
<td>1,365</td>
<td>3,231</td>
<td>5,005</td>
</tr>
<tr>
<td></td>
<td>(47.9%)</td>
<td>(14.2%)</td>
<td>(33.7%)</td>
<td>(52.1%)</td>
</tr>
<tr>
<td>Nagoya Metropolitan Area</td>
<td>1,111</td>
<td>229</td>
<td>882</td>
<td>4,026</td>
</tr>
<tr>
<td></td>
<td>(21.6%)</td>
<td>(4.5%)</td>
<td>(17.1%)</td>
<td>(78.4%)</td>
</tr>
</tbody>
</table>

(Note): (1) Unit: million passengers  
(2) Other rails are mainly private railway companies and subways.
Regulator and Major Law

• Main regulator: Ministry of Land, Infrastructure and Transport (MLIT), Railway Bureau

• Regulatory body is not separated from policy making.

• Main role of MLIT:
  (1) Policy making, (2) Regulating, (3) Giving subsidies, etc.

• Major Law: Rail Business Law, enacted in 1987

Major Regulatory Reforms

• 1987: The Rail Business Law (RBL) was established.
  – JNR was privatized.
  – All kinds of rail organizations are subject to this law.

• 1997: Reform of the RBL
  – Fare deregulation: Previously, price level had to be approved.
    • Ceiling price: approval by regulator
    • Below ceiling price: report to regulator
  – Yardstick regulation scheme was introduced.

• 2000: Reform of the RBL
  – Entry deregulation:
    • From a license system to a permission system
    • As a permission criterion, the matching of demand and supply was abolished.
  – Exit deregulation:
    • From a permission system to a notification system one year prior to exit
Privatization of JNR

• Japan National Railways were privatized in 1987. There are 7 characteristics of the privatization of the JNR.

1. Horizontal separation (or regional subdivision)
2. Functional distinction (or passenger-freight distinction)
3. Vertical integration (or operation and infrastructure integration)
4. Lump-sum subsidies for small JRs
5. Establishment of an intermediary institution
6. Allowance of non-rail service
7. Yardstick competition scheme (Yardstick Regulation)


## Entry and Exit Regulation

<table>
<thead>
<tr>
<th>Kinds of regulation</th>
<th>Major points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry regulation</td>
<td>Permission system (individual operator basis)</td>
</tr>
<tr>
<td></td>
<td>There are 3 classes.</td>
</tr>
<tr>
<td></td>
<td>Class 1: Integrated rail organization</td>
</tr>
<tr>
<td></td>
<td>Class 2: Rail operation organization</td>
</tr>
<tr>
<td></td>
<td>Class 3: Infrastructure organization</td>
</tr>
<tr>
<td>Exit regulation</td>
<td>Report in advance (1 year prior to exit)</td>
</tr>
</tbody>
</table>
Three Kinds of Rail Organization

Class 1: Integrated Rail Organization
- (Example) JR passenger companies, 15 Large private railways, 10 Subways etc.

Class 2: Rail Operation Organization
- (Example) JR Freight company etc.

Class 3: Infrastructure Organization
- (Example) Kobe Kosoku etc.
Rail Operator

Express intention of exit from the market

Regional Council

Coordination:
Provision of other transportation modes
Provision of operation subsidies   Etc.

Abolish current rail services and convert to local bus services

Continue current rail services by existing or other rail operators

Exit Procedure System in the Regional Council
### Fare Regulation

<table>
<thead>
<tr>
<th>Kinds of regulation</th>
<th>Major points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling price</td>
<td>Approval by a regulator</td>
</tr>
<tr>
<td>Price under ceiling price</td>
<td>Report to a regulator</td>
</tr>
<tr>
<td>Incentive system</td>
<td>Yardstick regulation</td>
</tr>
<tr>
<td>Fare level</td>
<td>Full cost principle</td>
</tr>
<tr>
<td>Other fares</td>
<td>Report to a regulator&lt;br&gt;There is a variety of rail fares (express, off-peak, discount tickets, etc.)</td>
</tr>
</tbody>
</table>
An Example in Price Changes

Case 1: Increase price over the ceiling price.
Case 2: Decrease price under the ceiling price.

Only report the price level to the regulator.

The price level must be approved by the regulator.

Price (Yen) vs Travel Length (km)
Competition in the Rail Industry

• Competition for tracks
  As rail companies provide rail services while in general holding their own tracks, there is no competition for tracks.

• Competition in the rail industry
  The yardstick competition scheme is applied to some rail operators.
  (ex.) (1) 15 large private rails, (2) 6 passenger JRIs, (3) 10 subways
Yardstick Competition

UK: Franchise bidding to decide train operators
Japan: Yardstick regulation for existing rail operators

Competition in the Market

Yardstick Competition
Yardstick Competition Scheme (Yardstick Regulation)

- Railway C is required to lower its costs.

<table>
<thead>
<tr>
<th>Standard Cost Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railway A</td>
</tr>
<tr>
<td>Railway B</td>
</tr>
<tr>
<td>Railway C</td>
</tr>
</tbody>
</table>
Effectiveness of Yardstick Regulation

• According to Mizutani et al. (2009), the introduction of yardstick regulation and competition tends to decrease a rail company’s variable cost.

• Between 1995 and 2000, railways to which yardstick regulation was applied improved cost efficiency by about 11.5%.

Non-Rail Business by Private Railways

- Private railways engage in non-rail business.
- These activities contribute to increasing rail ridership.
- Accounting rules strictly distinguish rail costs from non-rail business costs.
Vertical Separation or Integration?
Empirical Analysis of OECD Countries’ Rail Data

% of cost reduction by vertical separation

Vertical separation is cost effective.

Vertical integration is cost effective.

Degree of train density

Case 3
Case 4
Empirical Findings on Vertical Separation

• In our calculation, if train density reaches about 2.11 to 3.83 times the sample mean, vertical separation starts to increase the costs.

• Among our observations in 2007, railway organizations with the higher train density are BLS (Switzerland), SBB CFF FFS (Switzerland), JR (Japan), KOREAIL (South Korea), and NS (Netherlands).

• Except for NS, a vertical separation policy has not been taken in these rail organizations.
Summary of Major Characteristics of the Rail Industry in Japan (1)

- Most railways are privately owned.
- Passenger rail transportation is still vital, especially in large metropolitan areas.
- Most railways are vertically integrated systems.
- Many private railways run non-rail businesses (e.g. real estate development, department stores, bus operations, and so on).
- There is no competition for tracks. But the yardstick competition scheme is applied for three rail groups: (1) 15 large private railways, (2) 6 passenger JRIs, (3) 10 subways.
Summary of Major Characteristics of the Rail Industry in Japan (2)

• The regulator is not independent from the ministry.
• Fare Regulation:
  – Ceiling price: approval by regulator
  – Below ceiling price: report to regulator
• Entry Regulation
  – Permission system
• Exit Regulation
  – Notification system in advance (1 year prior to exit)
Thank you