Challenges to the development of seaports in a globalised world

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Challenges

Integration/concentration
- Competition
- Investment
- Congestion
- Environment
More competition between ports
less market power for individual ports

- Commercialisation of port authorities
- Larger container vessels
- Globalising supply chains
- Integration of supply chains
Concentration of market power in global supply chains

Notteboom 2008, JTRC Discussion Paper 2008/10

- Top 20 shipping lines share of TEU slot capacity:
  - 1980: 26%
  - 2007: 81%

- Top 10 terminal operators share of throughput:
  - 1980: 42%
  - 2007: 55%
Port Responses

• Integration
  – Terminal concession agreements
  – To spread long term demand risk for investment
  – To compensate for loss of market power
  – May reduce competition in port itself

• Public investment
  – Rationale to limit integration?
  – temptation to price below marginal cost
  – unfair competition with other ports
Hinterland dimension

• Lengthening hinterland corridors expand port markets but result in more competition
• Congestion - Port region can increase competitiveness by investing in improved hinterland transport services
Hinterland Congestion

- LA/LB growth in container traffic strongly negatively correlated with congestion

<table>
<thead>
<tr>
<th></th>
<th>Total delay (person-hrs)</th>
<th>Delay per peak traveler (person-hrs)</th>
<th>Travel time index</th>
<th>Total congestion cost ($)</th>
<th>Congestion cost per peak traveler ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughput growth</td>
<td>-0.683</td>
<td>-0.649</td>
<td>-0.716</td>
<td>-0.684</td>
<td>-0.642</td>
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<tr>
<td>Market share</td>
<td>-0.414</td>
<td>-0.353</td>
<td>-0.301</td>
<td>-0.405</td>
<td>-0.367</td>
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Hinterland congestion

- But evidence suggests benefits of concentration outweigh costs of congestion
  - US West Coast, LA/LB: 70% TEU share constant
  - Large ports remain dominant in N. Europe →
  - Or congestion problem in small ports too

Notteboom 2008
Responses to congestion

• Port traffic only part of total traffic
  – Road infrastructure investment and pricing
  – Rail investment and terminal access
  – More productive trucks

• Congestion at port gate
  – Southampton – reservation & charge
  – LA/LB Pierpass peak charge
Environmental impact of globalisation

- More concentrated trade flows → large local congestion & air pollution impacts
- For global logistics – local costs small compared to benefits of concentration
- Local regulations ignore national benefits
Environmental Mitigation

• Not only a port issue – mainly truck regulation and management
• Planning consents and air quality regs.
  – Proactive port policy - LA/LB
  – Port side power
  – Electric and hybrid vehicles
  – Truck retrofits
CO₂ emissions

- CO₂ – global regulation for global problem direct effect on shipping rather than ports
- Port fees differentiated by IMO class
- Emissions trading based on fuel purchase declarations
- Fuel tax
Balance between integration & competition?

• Integration good for investment & congestion
• Integration complicates port-to-port and intra-port competition
  – Specific market power issues?
  – Competition policy remedies?
  – Competence of regulatory authorities?
Local costs *versus* global benefits

- **Environment**
  - National resources for local air pollution

- **Congestion**
  - National resources for gateway hinterland investment
  - National facilitation of long distance corridor investments (CREATE)
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