Analysis of Seaport hinterland traffic (IWT and Rail) and market shares of ARA and German seaports in German federal states, Austria and Switzerland

UNECE Working party on Transport Statistics

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Introduction: River Rhine and main seaports
Main European sea ports and River Rhine

Source: Eurostat
Data sources and objects of investigation
I Regionalized official data

- The German Statistical Office (Destatis) publishes annual statistical reports about Railway traffic and Inland waterway traffic

- Within these reports, the following tables about seaport hinterland traffic are found:
  - Export of goods from regions / countries to main seaports
  - Import of goods to regions / countries from main seaports

- Definition Regions = all 16 federal German states

- Definition Countries = Countries that receive or send goods from / to seaports via German territory (e.g. Switzerland, Austria, Czech Republic, Slovakia, Hungary, etc.)

- The quantitative analysis was done for the 16 German states, Austria and Switzerland

Source: CCNR / Destatis
Object of investigation: Germany, Austria and Switzerland

AUT = Austria
CH = Switzerland

BY = Bavaria
BW = Baden-Wurttemberg
HE = Hessen
RP = Rhineland-Palatinate
SAA = Saarland
NRW = North-Rhine-Westphalia
TH = Thuringia
SA = Saxony
BRA = Brandenburg
BER = Berlin
SAC = Saxony-Anhalt
MWP = Mecklenburg-Western Pomerania
LS = Lower Saxony
BRE = Bremen
HH = Hamburg
SH = Schleswig-Holstein

Overall results
Seaports' hinterland traffic by Rail and IWT for GER, AUT, CH

- Import figures (IWT + Rail) are in general higher
- Large volumes of mass cargo imports from seaports by IWT (iron ore, coal, etc.)

- ARA seaports have a high affinity to IWT
- German seaports have a higher affinity to rail transport

Source: Destatis, calculation CCNR
Seaports’ hinterland traffic for Germany, Austria and Switzerland – traffic volume per port (in Mio. t)

Source: calculation CCNR based on Destatis data
2/3 of Seaport Hinterland Traffic related to Rotterdam (41%) and Hamburg (25%)

<table>
<thead>
<tr>
<th>Share ARA ports</th>
<th>Share port of Rotterdam</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 60 % overall</td>
<td>- 40 % overall</td>
</tr>
<tr>
<td>- 70 % of total import traffic (IWT + Rail)</td>
<td>- 50 % of total import traffic (IWT + Rail)</td>
</tr>
<tr>
<td>- 43 % of total export traffic (IWT + Rail)</td>
<td>- 23 % of total export traffic (IWT + Rail)</td>
</tr>
<tr>
<td>- 85 % of total IWT traffic</td>
<td>- 58 % of total IWT traffic</td>
</tr>
<tr>
<td>- 26 % of total rail traffic</td>
<td>- 16 % of total Rail traffic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Share German seaports</th>
<th>Share port of Hamburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 40 % overall</td>
<td>- 25 % overall</td>
</tr>
<tr>
<td>- 30 % of total import traffic (IWT + Rail)</td>
<td>- 22 % of total import traffic (IWT + Rail)</td>
</tr>
<tr>
<td>- 57 % of total export traffic (IWT + Rail)</td>
<td>- 32 % of total export traffic (IWT + Rail)</td>
</tr>
<tr>
<td>- 15 % of total IWT traffic</td>
<td>- 8 % of total IWT traffic</td>
</tr>
<tr>
<td>- 74 % of total rail traffic</td>
<td>- 49 % of total rail traffic</td>
</tr>
</tbody>
</table>

Source: calculation CCNR based on Destatis
Results from a regional perspective
IWT share is 85% in the largest federal state of Germany – North-Rhine-Westphalia

Source: Destatis, calculation CCNR
The IWT share is 45% in the largest Northern federal state of Germany – Lower Saxony.

**Imports from Seaports by IWT**

- Antwerp (BEL)
- Amsterdam (NL)
- Rotterdam (NL)
- Emden (GER)
- Bremen (GER)
- Hamburg (GER)

**Exports to Seaports by IWT**

- Antwerp (BEL)
- Rotterdam (NL)
- Hamburg (GER)
- Emden (GER)
- Bremen (GER)

Source: Destatis, calculation CCNR
IWT share is 78 % in the most northern federal state of Germany – Schleswig-Holstein

Source: Destatis, calculation CCNR
IWT share is 67% in Switzerland

Switzerland

Imports from Seaports by IWT

Imports from Seaports by Rail

Exports to Seaports by Rail

Exports to Seaports by IWT

Source: Destatis, calculation CCNR
IWT share is 22% in Austria

Austria

Source: Destatis, calculation CCNR
Hinterland traffic by IWT is in particular important in western and northern parts of Germany and in Switzerland.

IWT share gets smaller, the farther to the east and the south-east a state is located.

Exception: Austria, with a rather high IWT share, although it is the most south-eastern entity within this study.
Market shares of seaports in hinterland traffic
I Share of port of Rotterdam in total hinterland traffic per region (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saarland</td>
<td>73</td>
</tr>
<tr>
<td>North-Rhine-Westphalia</td>
<td>68</td>
</tr>
<tr>
<td>Switzerland</td>
<td>53</td>
</tr>
<tr>
<td>Rhineland-Palatinate</td>
<td>44</td>
</tr>
<tr>
<td>Baden-Württemberg</td>
<td>41</td>
</tr>
<tr>
<td>Hesse</td>
<td>31</td>
</tr>
<tr>
<td>Austria</td>
<td>30</td>
</tr>
<tr>
<td>Bavaria</td>
<td>14</td>
</tr>
<tr>
<td>Saxony-Anhalt</td>
<td>5</td>
</tr>
<tr>
<td>Lower Saxony</td>
<td>4</td>
</tr>
<tr>
<td>Bremen</td>
<td>2</td>
</tr>
<tr>
<td>Saxony</td>
<td>1</td>
</tr>
<tr>
<td>Brandenburg</td>
<td>0</td>
</tr>
<tr>
<td>Schleswig-Holstein</td>
<td>0</td>
</tr>
<tr>
<td>Hamburg</td>
<td>0</td>
</tr>
<tr>
<td>Berlin</td>
<td>0</td>
</tr>
<tr>
<td>Mecklenburg-...</td>
<td>0</td>
</tr>
<tr>
<td>Thuringia</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Destatis, calculation CCNR
Share of port of Antwerp in total hinterland traffic per region (%)

- **Blue** = Western Germany, Switzerland
- **Green** = Bavaria, Austria
- **Yellow** = Northern Germany
- **Red** = Eastern Germany

Source: Destatis, calculation CCNR
Share of port of Amsterdam in total hinterland traffic per region (%)

- Blue = Western Germany, Switzerland
- Green = Bavaria, Austria
- Yellow = Northern Germany
- Red = Eastern Germany

Source: Destatis, calculation CCNR
### Share of port of Hamburg in total hinterland traffic per region (%)

**Blue = Western Germany, Switzerland**

**Green = Bavaria, Austria**

**Yellow = Northern Germany**

**Red = Eastern Germany**

Source: Destatis, calculation CCNR
Share of port of Bremen in total hinterland traffic per region (%)

Blue = Western Germany, Switzerland
Green = Bavaria, Austria
Yellow = Northern Germany
Red = Eastern Germany

Source: Destatis, calculation CCNR
In 8 out of 16 German federal states, the port of Hamburg is the most important seaport for hinterland traffic.

In 5 out of 16 German states, the port of Rotterdam is the most important seaport. These 5 states are in the western and southern part of Germany.

Source: CCNR
Conclusions
First Conclusions

- The **ARA ports** have a high share in **import traffic** to the German, Austrian and Swiss hinterland.

- At the same time, **ARA ports** have a high affinity to **inland shipping** hinterland traffic.

- **German seaports** have a strong affinity to **rail traffic** in the hinterland, especially for **export** traffic. The port of Bremen has much higher market shares in export traffic than in import traffic.

- **Parts of northern Germany are also very IWT-related** (Schleswig-Holstein), in combination with the seaport of Hamburg.

- The hinterland traffic to / from **Switzerland** resembles, in its structure, very much the patterns observed in **western and southwestern parts of Germany**.

- The hinterland traffic to / from **Austria** resembles, in its structure, very much the patterns observed for **Bavaria**.

Source: CCNR
THANK YOU VERY MUCH