Transport data and lessons learned from UNCTAD’s research

Trade Negotiations and Commercial Diplomacy Branch
Contents

1. Transport and the Global Value Chain
2. Who collects the data and where is it available
3. Way to the Ocean
4. Dry Ports
The Global Supply Chain

Source: “Logistics Management”, IML, Lausanne
Logistics
Demand forecasting
Purchasing
Requirements planning
Production planning
Manufacturing inventory
Warehousing
Materials handling
Industrial packaging
Finished goods inventory
Distribution planning
Order processing
Customer service
Strategic planning
Information technology
Marketing
Sales

The Global Supply Chain

SYSTEM EFFICIENCY

\[90\% \times 90\% = 81\%\]

\[90\% \times 90\% \times 90\% \times 90\% = 59.05\%\]
Connectivity

162 x 161 pairs of countries are connected by direct services.

Source: UNCTAD, based on data from Containerization International
Trends in transport costs

1980s  |  1990s  |  2000s  
--- | --- | ---
Developing Africa | '12.3 | '12.1 | '10.6
Developing Oceania | '11.6 | '12.0 | '9.5
Developing America | '8.3 | '8.3 | '8.2
Developing Asia | '8.9 | '8.4 | '7.4
Developed economies | '7.4 | '7.3 | '6.4
Quantifying costs - importing and exporting a TEU

<table>
<thead>
<tr>
<th></th>
<th>Export</th>
<th>Import</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 5 performing</td>
<td>520$ x3</td>
<td>530$ x3</td>
</tr>
<tr>
<td>countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World average</td>
<td>1,520$ x12</td>
<td>1,820$ x16</td>
</tr>
<tr>
<td>5 worst performing</td>
<td>6,400$</td>
<td>8,700$</td>
</tr>
<tr>
<td>countries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Doing Business 2015
# Shipping as a GVC

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Building</td>
<td><strong>2.</strong> Owning</td>
</tr>
<tr>
<td><strong>3.</strong> Registration</td>
<td><strong>4.</strong> Operation</td>
</tr>
<tr>
<td><strong>5.</strong> Scrapping</td>
<td><strong>6.</strong> Financing</td>
</tr>
<tr>
<td><strong>7.</strong> Classification</td>
<td><strong>8.</strong> Insurance services (P&amp;I)</td>
</tr>
<tr>
<td></td>
<td><strong>9.</strong> Seafarers</td>
</tr>
<tr>
<td></td>
<td><strong>10.</strong> Container terminal operators</td>
</tr>
</tbody>
</table>
World Shipping as a GVC

1. Building
2. Owning
3. Registration
4. Operation
5. Scrapping

6. Financing
7. Classification

8. Insurance services (P&I)
9. Seafarers
10. Container terminal operators

Republic of Korea and China: 72%
World Shipping as a GVC

No country in Africa or Oceania is among the top 35 shipowners owners.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Financing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Insurance services (P&amp;I)</td>
</tr>
<tr>
<td>9. Seafarers</td>
</tr>
<tr>
<td>10. Container terminal operators</td>
</tr>
</tbody>
</table>
World Shipping as a GVC

Panama, Liberia, Marshall Islands 41%

1. Building
2. Owning
3. Registration
4. Operation
5. Scrapping

6. Financing
7. Classification
8. Insurance services (P&I)
9. Seafarers
10. Container terminal operators
World Shipping as a GVC

11 of top 20 container ship operators are from developing countries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Financing

<table>
<thead>
<tr>
<th>7. Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Insurance services (P&amp;I)</td>
</tr>
<tr>
<td>9. Seafarers</td>
</tr>
<tr>
<td>10. Container terminal operators</td>
</tr>
</tbody>
</table>
World Shipping as a GVC

India, Bangladesh, China, Pakistan 94%
World Shipping as a GVC

Most services provided by developed countries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Financing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Insurance services (P&amp;I)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Seafarers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Container terminal operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
World Shipping as a GVC

Philippines, China, Indonesia
25% of officers

1. Building
2. Owning
3. Registration
4. Operation
5. Scrapping
6. Financing
7. Classification
8. Insurance services (P&I)
9. Seafarers
10. Container terminal operators
World Shipping as a GVC

Hong Kong, Netherlands, Singapore, UAE 46%

1. Building
2. Owning
3. Registration
4. Operation
5. Scrapping
6. Financing
7. Classification
8. Insurance services (P&I)
9. Seafarers
10. Container terminal operators
Contents

1. Transport and the Global Value Chain
2. Who collects the data and where is it available
3. Way to the Ocean
4. Dry Ports
UNCTAD – Transport Data

- World Seaborne Trade
- Port Traffic
- World Merchant Fleet
- Liner Shipping Connectivity Index

- http://unctadstat.unctad.org/EN/
UNCTAD - LSCI

- Africa
  - 1. Morocco 71.5
  - 2. Egypt 70.3
  - 3. South Africa 40.1
  - 4. Djibouti 37.0
  - 5. Togo 35.9

- China 187.8
World Bank

Source: http://www.doingbusiness.org/
# World Bank - LPI

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>LPI Rank</th>
<th>LPI Score</th>
<th>Customs</th>
<th>Infrastructure</th>
<th>International Shipments</th>
<th>Logistics Competence</th>
<th>Tracking &amp; Tracing</th>
<th>Timeliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>2018</td>
<td>55</td>
<td>3.01</td>
<td>2.66</td>
<td>3.11</td>
<td>2.99</td>
<td>2.86</td>
<td>3.17</td>
<td>3.30</td>
</tr>
<tr>
<td>Brazil</td>
<td>2018</td>
<td>56</td>
<td>2.99</td>
<td>2.41</td>
<td>2.93</td>
<td>2.88</td>
<td>3.09</td>
<td>3.11</td>
<td>3.51</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2018</td>
<td>57</td>
<td>2.97</td>
<td>2.67</td>
<td>2.76</td>
<td>3.39</td>
<td>2.85</td>
<td>2.75</td>
<td>3.35</td>
</tr>
<tr>
<td>Colombia</td>
<td>2018</td>
<td>58</td>
<td>2.94</td>
<td>2.61</td>
<td>2.67</td>
<td>3.19</td>
<td>2.87</td>
<td>3.08</td>
<td>3.17</td>
</tr>
<tr>
<td>Bahrain</td>
<td>2018</td>
<td>59</td>
<td>2.93</td>
<td>2.67</td>
<td>2.72</td>
<td>3.02</td>
<td>2.86</td>
<td>3.01</td>
<td>3.29</td>
</tr>
<tr>
<td>Philippines</td>
<td>2018</td>
<td>60</td>
<td>2.90</td>
<td>2.53</td>
<td>2.73</td>
<td>3.29</td>
<td>2.78</td>
<td>3.06</td>
<td>2.98</td>
</tr>
<tr>
<td>Argentina</td>
<td>2018</td>
<td>61</td>
<td>2.89</td>
<td>2.42</td>
<td>2.77</td>
<td>2.92</td>
<td>2.78</td>
<td>3.05</td>
<td>3.37</td>
</tr>
<tr>
<td>Ecuador</td>
<td>2018</td>
<td>62</td>
<td>2.88</td>
<td>2.80</td>
<td>2.72</td>
<td>2.75</td>
<td>2.75</td>
<td>3.07</td>
<td>3.19</td>
</tr>
<tr>
<td>Kuwait</td>
<td>2018</td>
<td>63</td>
<td>2.86</td>
<td>2.73</td>
<td>3.02</td>
<td>2.63</td>
<td>2.80</td>
<td>2.66</td>
<td>3.37</td>
</tr>
<tr>
<td>Iran, Islamic Rep.</td>
<td>2018</td>
<td>64</td>
<td>2.85</td>
<td>2.62</td>
<td>2.77</td>
<td>2.76</td>
<td>2.84</td>
<td>2.77</td>
<td>3.36</td>
</tr>
<tr>
<td>Serbia</td>
<td>2018</td>
<td>65</td>
<td>2.84</td>
<td>2.60</td>
<td>2.60</td>
<td>2.97</td>
<td>2.70</td>
<td>2.79</td>
<td>3.33</td>
</tr>
<tr>
<td>Ukraine</td>
<td>2018</td>
<td>66</td>
<td>2.83</td>
<td>2.49</td>
<td>2.22</td>
<td>2.83</td>
<td>2.84</td>
<td>3.11</td>
<td>3.42</td>
</tr>
<tr>
<td>Egypt, Arab Rep.</td>
<td>2018</td>
<td>67</td>
<td>2.82</td>
<td>2.60</td>
<td>2.82</td>
<td>2.79</td>
<td>2.82</td>
<td>2.72</td>
<td>3.19</td>
</tr>
<tr>
<td>Kenya</td>
<td>2018</td>
<td>68</td>
<td>2.81</td>
<td>2.65</td>
<td>2.55</td>
<td>2.62</td>
<td>2.81</td>
<td>3.07</td>
<td>3.18</td>
</tr>
<tr>
<td>Malta</td>
<td>2018</td>
<td>69</td>
<td>2.81</td>
<td>2.70</td>
<td>2.90</td>
<td>2.70</td>
<td>2.80</td>
<td>2.80</td>
<td>3.01</td>
</tr>
</tbody>
</table>

WCO – Time Release Study

Taking measures to resolve the bottlenecks diagnosed

WEF

• Port quality index

Namibia 5.2
South Africa 4.8
Kenya 4.5
Seychelles 4.5
The Gambia 4.4

World 4.063
Ethiopia 2.7
Djibouti no data
Somalia no data
Sudan no data

2017-Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards)

- 1.9 : 2.7
- 2.7 : 3.1
- 3.1 : 3.4
- 3.4 : 3.9
- 3.9 : 5.2

WEF data available at World Bank


World Economic Forum, Global Competitiveness Report.
OECD – Analysis Trade Facilitation by region

Figure 4. TFIs and geographic country groups

Note: The TFIs values range between 0 and 2, where 2 corresponds to the best performance. The values indicate the average TFI performance by country group.
WTO – OECD TiVA
WTO – OECD TiVA database countries
The United Nations World Food Programme (WFP) logistics base in Las Palmas de Gran Canaria is preparing a shipment of 11,500 tonnes of sorghum for Djibouti and its subsequent distribution in humanitarian operations in East Africa.

23 November 2018
UN Regional Commissions

United Nations Economic Commission for Europe

United Nations Economic Commission for Africa

Comisión Económica para América Latina y el Caribe
UNECE

UN Transport Conventions and Agreements per country
Provides key data to inform the Inland Transport Committee (ITC) on developments in the inland transport sector and facilitate the work of other Working Parties and individual member States. For this purpose, each year the secretariat prepares country profiles (Infocards).
Changing landscape

Lamu Port and Lamu-Southern Sudan-Ethiopia Transport Corridor
ECLAC

• **Exports of goods by Broad Economic Categories:** Transport equipment and parts and accessories thereof

• **Maritime World Transport**

• **Modal distribution of the means of transport** Transport supply in Latin America and the Caribbean and major routes (deployed vessels)

• **Transport Supply in Latin America and the Caribbean and Major Routes (TEU capacity)**
Private sector analysis

- Journal of Commerce
Operational Efficiency

• E.G.:
  • Cargo dwell time
  • Crane moves ph
  • Loading/discharging volume ph
  • Ship turnaround time
    • Time in port
    • Time at berth
Two most import things
Transparency matters

Make a commitment to publish regardless of the numbers
The data should ideally be in one place

- Raw data should be freely downloadable and open to interpretation by anyone
  - Including academia

- Best practices can quickly be identified

- Investment targets can be identified

- Ports can thus advertise their best light e.g. “the most efficient port in the south west”
But it can be global or regional

“Count what is countable: Measure what is measurable. What is not measurable, make measurable.”

Galileo (1564 – 1642)

Ad Hoc Experts Meeting on Development of Transport Observatories

25 October 2013 Geneva, Switzerland
Why hasn’t it been done?

• Ports don’t want to be publically compared
• Ports can do their own *ad hoc* private studies when they need.
• The long term benefit of being compared don’t outweigh the immediate cost (embarrassment).
  • Similar to sustainable transport issues
• The positive arguments for are too weak: e.g.
  • Lowering transport cost (for port users/end users)
  • Identifying investment areas
  • Identify best practices
• Governments don’t want their country rankings shown (e.g. LPI)
A different approach (controversial)

• Present in 90+ countries ASYCUDA data could be used as a proxy for cargo dwell time....

• This would require a country’s agreement... hence it does not exist!
Average time bulk vessels spend waiting for, and alongside, a berth by
country (2015)

<table>
<thead>
<tr>
<th>Row Labels</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sample</td>
<td>Quanity</td>
</tr>
<tr>
<td></td>
<td>Size</td>
<td>(tonnes in '000s)</td>
</tr>
<tr>
<td>Australia</td>
<td>4 438</td>
<td>455 907</td>
</tr>
<tr>
<td>Brazil</td>
<td>1 533</td>
<td>252 707</td>
</tr>
<tr>
<td>Canada</td>
<td>151</td>
<td>17 779</td>
</tr>
<tr>
<td>China</td>
<td>599</td>
<td>76 347</td>
</tr>
<tr>
<td>Colombia</td>
<td>48</td>
<td>4 838</td>
</tr>
<tr>
<td>India</td>
<td>2 302</td>
<td>163 729</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2 609</td>
<td>182 875</td>
</tr>
<tr>
<td>Korea, Republic Of</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Netherlands</td>
<td>51</td>
<td>7 416</td>
</tr>
<tr>
<td>South Africa</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Taiwan, Republic of China</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>United States</td>
<td>188</td>
<td>13 819</td>
</tr>
<tr>
<td>Grand Total</td>
<td>11 925</td>
<td>1 176 315</td>
</tr>
</tbody>
</table>

Source: UNCTAD secretariat, derived from data supplied by Wilhelmsen Ships Service (2016)
Note: “..” indicates data unavailable

Port Calls in the Africa Region (2015)

The AIS data represents 73 ports located in 37 countries.

Source: UNCTAD secretariat, derived from AIS data supplied by MarineTraffic (2016)
Contents

1. Transport and the Global Value Chain
2. Who collects the data and where is it available
3. Way to the Ocean
4. Dry Ports
The way to the Ocean

Transit corridors servicing landlocked developing countries trade

Available in English, French and Russian
Various corridor studies organising stakeholders into clusters

Corridor: Arica – La Paz

Corridor: Walvis Bay – Gaborone

Corridor: Bangkok – Vientiane

UNCTAD’s Other corridor studies

“Way to the Ocean” study report
Different types of Landlockedness

Long land distance and low volumes of trade

Short land distance and high volume of trade

The LLDC is a small customer for the port (<5%)

LLDC – the main customer for the port (>85%)
Examples of other regions

• East Africa - Almost 90% of the international trade of Burundi, Rwanda, and Uganda is handled by the port of Mombasa, but combined this represents not more than 15 per cent of the port’s traffic.

• West Africa - Around 75% of the international trade of Burkina Faso and Mali transits through Abidjan (Côte d’Ivoire), yet this figure represents only 10 per cent of total traffic at the port.

• Asia - The majority of Nepal’s foreign trade transits through only one port (Kolkata) and shippers are therefore "captive" customers. [1]

---

Trade imbalances

• When trade is imbalanced one party (usually the importer) subsidizes the other (usually the exporter).

• E.G. it costs twice the price to import goods from Côte d’Ivoire to the East Coast of the United States than it does to import goods to the West Coast of the United States from Japan (both countries are equidistant from the United States).\[1\]

• Because trade between the United States of America and Japan is more balanced, importers and exporters share more equally the costs of providing liner services.

\[1\] Hummels D and Skiba A (2002). A virtuous circle? Regional tariff liberalization and scale economies in transport. Purdue University, West Lafayette.
Lessons learned

• The three corridors considered in this report share similarities:
  • They are served by a single major port that accounts for over 90% of the host transit country’s imports and exports;
  • LLDCs also rely heavily upon these ports;
  • Import volumes are far greater than export volumes;
  • Rail connections are poor, albeit with improvement plans underway;
  • There is overreliance upon road transport and no inland waterway connection to ports.
Recommended Course of Action (abridged)

1. Reliance and cooperation
   - Build trust (e.g. replace ownership with trust)
   - Engage with Multiple stakeholders (e.g. build corridor management arrangements)

2. Critical mass
   - Establish small consolidation centre (LCL)
   - Improve finance (e.g. infrastructure, release of bonds, etc.)

3. Operational needs and tailored arrangements
   - Improve transport reliability and predictability
Contents

1. Transport and the Global Value Chain
2. Who collects the data and where is it available
3. Way to the Ocean
4. Dry Ports
Dry ports in different locations have differing roles

- **Nearby dry ports**
  - relieve congestion within seaports thereby allowing more cargo to enter/exit the port/country

- **Distant dry ports**
  - In addition to relieving congestion by taking cargo from the seaport but their role should also be focused upon feeding cargo to the seaport (exports).
    - Must be located at a transport modal change point (rail/IWT).
    - Must have cargo consolidation facilities
Tanzania

- The Port of Dar es Salaam experienced congestion caused by:
  - Insufficient container storage space
  - Long container dwell times
  - Sharp increase in container volumes.
  - Roads were not fully paved resulting in long travel times
  - Poor inland transport especially railway systems.
  - Low availability of locomotives and rolling stock
Local “dry ports”

- 5 local dry ports to ease space within the port
- Cargo (mainly cars) are driven by road
- Import, ownership, tax paid documents and license plates issued here.
- Port area now able to accommodate more cargo
Distant dry port (Isaka)

- 982kms by rail from Dar es Salaam with onward road connection to Burundi, Rwanda and Uganda.

- Exports arrive by truck and then loaded on train to be taken to the port.

- Cargo is mainly imports
Dry Port (DP)

- Less than a container load (LCL)

Lower land and Labour costs

Must be:
- Reliable
- Predictable
- Frequent

Need not be:
- Fast
- nor cheap
- but it helps!

In deciding to relocate any business needs price stability.

New business need to know they can reach their market at a good price.

DP – Dry Port

LCL – Less than a container load
Businesses locate close to ports because they want to avoid the uncertainties of overland transport.

A manufacturer of foodstuff is not in the business of owning a truck fleet - the fleet is simply a tool to remove his exposure to...

Unreliability, unpredictability and infrequency

By focusing upon reliability, predictability and frequency...

Leading to increased employment and greater trade, equality, reduced environmental impact...

The capital released from asset retention can be used to promote further investment...
How to address unreliability, unpredictability and infrequency?

- Undertake research
  - Listen to the users concerns

- Understand the underlying issues
  - Competing government demands (public services/private)
  - Cultural change (safety first, record keeping-reviewing)
  - Finance (viability/sustainability)
  - Define priorities (trade/passengers/environment etc.)

- Gather political and institutional support
- Develop a multi-stakeholder plan