Emerging Trends on Demand & Mode Choice –

Belt & Road Initiative (BRI) and Indian Ocean Rim Association (IORA)

Nora Nezamuddin

28-29 June 2018
1- KEY POINTS

2- CURRENT TREND

3- EFFECTS OF THE BELT & ROAD INITIATIVE + INDIAN OCEAN RIM ASSOCIATION

4- IMPLICATIONS

5- CONCLUSIONS
Key Points

- The change in economic production to higher value-added goods, population growth, and economic growth in developing countries (China, India, and KSA) is having a number of implications on modal choice and fuel demand.

- Long-term objectives to shift from road to rail can be aided by investment in infrastructure and economic policies that showcase rail as an economically viable option.

- In the short-term, relieving urban air pollution can be done via efficiencies in vehicles and logistics.
Changing the energy consumption demand and freight demand in ‘fast growing’ economies are caused by:

1) Growth in population
2) Changing production towards ‘higher’ value-added goods has lead to an
   2.1) Increase in per capita income (and more demand)
   2.2) Leading to demand for higher transport speeds and accessibility
3) Investment in national infrastructure and global connectivity (Belt & Road Initiative + Indian Ocean Rim Association)
4) Advancement in Technologies
Current Trend:
Movement towards higher value-added goods

This growth is also related to the shift in these ‘fast growing economies’ towards higher value-added goods

Source: OECD.stat
Current Trend: 
China’s freight movement by final demand 1995 - 2011 (billion TKM)
Current Trend: India’s freight movement by final demand 1995 - 2011 (million Ton)
Current Trend:
China’s freight movement by final demand & mode (billion TCM)
Current Trend:
India’s freight movement by final demand & mode (million Ton)
Effects of BRI & IORA:

Belt & Road Initiative (BRI)

- China’s investments underway in BRI involved countries are an estimated $900bn loans underwritten.
- An estimated 71 countries involved in the project along the route, including some:
  - Pakistan, Kazakhstan, Georgia, among others
- Move parts of manufacturing value chain to participating countries
- Active move towards Producing higher value-added goods

Several routes are proposed for the ‘new Silk Road.’

Indian Ocean Rim Association (IORA)

- IORA inter-governmental organization which aims to strengthen regional cooperation and sustainable development within Indian Ocean region
  - 21 member states & 7 dialogue partners
- Not an active creation of economic routes but rather a forum for dialogue on common issues, including:
  - Maritime safety & security
  - Trade & investment facilitation
  - Fisheries management
  - Disaster risk management
  - Tourism & cultural exchange
  - Academic, Science.& technology
  - Blue Economy
  - Women’s. Economic Empowerment
Mode Choice Implications

- Economic Flexibility
- Dedicated freight corridor
- Fuel Efficiency
- Road Improvements
- Vehicle Technology Improvements
- Co-modality
Conclusion

- The change in economic production to higher value-added goods, population growth, and economic growth in countries growing developing countries (China, India, and KSA) is having a number of implications on modal choice and fuel demand.

- Long-term objectives to shift from road to rail can be aided by investment in infrastructure and economic policies that showcase rail as an economically viable option.

- In the short-term, relieving urban air pollution can be done via efficiencies in vehicles and technologies.

- Co-modality is key to rationalizing the use of mode choice (rail+road).
Given the difference in regulations and legislation in countries, can China’s BRI create an environment for co-modality?

Will new technologies in road transport continue the reverse modal shift in international trade and local movement?

How will the economic repositioning of Chinese and Indian firms have an effect on global and national movements of goods and will it favor road even more?
Thank You!
Appendix
China’s freight movement by final demand & mode (billion TKM)
India’s freight movement by final demand & mode (million Ton)
India’s freight movement by actual sectoral demand (million Ton)

- **1997**: Construction
- **2002**: Mining
- **2011**: Construction
- **2007**: Mining

- International shipping
- Coastal shipping
- Inland water
- Truck
- Rail
### Driving forces of China’s freight movement by final demand (billion TKM)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GFCF</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cons</td>
<td>29%</td>
<td>25%</td>
<td>36%</td>
</tr>
<tr>
<td>Mach</td>
<td>4%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Tran</td>
<td>2%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td>11%</td>
<td>14%</td>
<td>10%</td>
</tr>
<tr>
<td>Mine</td>
<td>8%</td>
<td>8%</td>
<td>Electronics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>BaseMet</td>
<td>4%</td>
<td>4%</td>
<td>PetProd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td><strong>HH Con</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>3%</td>
<td>Food</td>
<td>4%</td>
</tr>
<tr>
<td>Mine</td>
<td>3%</td>
<td>Heal</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agri</td>
<td>2%</td>
</tr>
<tr>
<td>RestHotl</td>
<td>3%</td>
<td>Tran</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Text</td>
<td>1%</td>
</tr>
</tbody>
</table>
### Driving forces of India’s freight movement by final demand (million Ton)

#### 1997-2002

- **HH Con**: 42%
- **Gov Con**: 21%
- **GFCF**: 3%
- **Inventory Change**: 3%
- **Exports**: 45%
- **Total**: 42%

#### 2002-2007

- **HH Con**: 42%
- **Gov Con**: 61%
- **GFCF**: 3%
- **Inventory Change**: 34%
- **Exports**: 34%
- **Total**: 45%

#### 2007-2011

- **HH Con**: 9%
- **Gov Con**: 61%
- **GFCF**: 126%
- **Inventory Change**: 3%
- **Exports**: 126%
- **Total**: 126%

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HH Con</strong></td>
<td>Tran 15%</td>
<td>Food 4%</td>
<td>Agri 30%</td>
</tr>
<tr>
<td></td>
<td>PetProd 9%</td>
<td>Agri 3%</td>
<td>Food 26%</td>
</tr>
<tr>
<td></td>
<td>Food 5%</td>
<td>Cons 2%</td>
<td>Tran 25%</td>
</tr>
<tr>
<td><strong>GFCF</strong></td>
<td>Cons 15%</td>
<td>Cons 33%</td>
<td>Tran 10%</td>
</tr>
<tr>
<td></td>
<td>BaseMet 3%</td>
<td>BaseMet 3%</td>
<td>OtMFG 4%</td>
</tr>
<tr>
<td></td>
<td>Electron 1%</td>
<td>Tran 3%</td>
<td>Cons 3%</td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td>Mine 31%</td>
<td>Mine 11%</td>
<td>OtMFG 29%</td>
</tr>
<tr>
<td></td>
<td>BaseMet 4%</td>
<td>BaseMet 7%</td>
<td>Electron 9%</td>
</tr>
<tr>
<td></td>
<td>Chem 2%</td>
<td>OtMFG 4%</td>
<td>Tran 8%</td>
</tr>
</tbody>
</table>
Freight movement and economic structural change

Freight movement by economic sectors in China and India

- US benchmark: Commodity flow survey, Freight analysis framework
- Economic structural change among the most important determinants

Diagram:
- Development of light industries
- Housing market reform
- Infrastructure development
- Reform of SOEs
- Entry into WTO
- 4 Trillion stimulus package

Graph:
- Million Ton
- Billion TKM
- Years from 1985 to 2015