Crossing borders lessons from experience

International Trade Department, The World Bank

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Feedback from Implementation:

The World Bank has been looking at facilitation problems at land borders and transit corridors in all regions.

1. Lending projects addressing access and costs:
   - Corridor projects combining infrastructure and improvement of transit regime
   - Customs modernization and facilitation in transit countries and LLDCs.

2. Diagnostics and TA:
   - Trade and Transport Facilitation Audits. 49

3. Specific program on transit facilitation where WB:
   - Compile global knowledge: global comparison of transit regimes (forthcoming), corridor indicators, costs
   - Pilot Technical Assistance (Central Africa and soon Southern)
Is the title of the conference wrong? Key messages.

Improving border crossing and clearance at the border are essential but:

- Most goods on trade corridors are not cleared at the border but at inland location after moving in transit.
- The factors affecting the supply chain performance extend much beyond the border.
- Unreliability and level of service is more important than transportation cost.
- Fragmentation of the supply chains in terms of procedures and services is the source of unreliability.
- Facilitation at the border may improve reliability and reduce cost when the market structure of services is efficient, otherwise limited impact.
- The transit regime is the overarching tools that control procedures as well as regulation of services.
Benchmarking: Logistics Performance Indicators (LPI)

<table>
<thead>
<tr>
<th>Region</th>
<th>LPI landlocked</th>
<th>Av. Rank/150</th>
<th>LPI coastal</th>
<th>Av. Rank/150</th>
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<tbody>
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<td>EU</td>
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<td>Sub-Saharan Africa</td>
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<td>115</td>
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<tr>
<td>South Asia</td>
<td>1.84</td>
<td>136</td>
<td>2.64</td>
<td>72</td>
</tr>
</tbody>
</table>

LPI 1 (Worst) to 5 (Best) scale = aggregate LP on several dimensions

⇒ LLDC are the most severely constrained countries with highly unpredictable supply chains.

*Source The World Bank Connecting to Compete 2007.*
Reliability before costs?

- Direct transportation costs not that discriminant...
- Low reliability/service have a huge cost and welfare impact.
The three components of logistics costs at firm level

1. **Freight costs**
   - Direct costs: e.g. Fees paid to transport operator

2. **Administrative costs**...
   - Transit overheads
     - Fixed costs per shipments

3. **Induced costs**: storage, inventory,
   - Delay and predictability: Inventory in motion + Induced costs of non service (e.g. express services...)

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Carrier

Forwarder

Shipper

LPI
Value of time, level of service.

- Value of time $\approx 0.1\%$ (= accounting concept $\approx 1/10$ of Hummels’ estimate)
- Mean delays in days or weeks.
- Much or Most time is not spent in motion, notably initiation of transit, borders...
- Significant variance. (CV~1) (universal)
- Asymmetric long tailed lead time distribution curve (log-normal shape)
  $\Rightarrow$ multiplier (3-5 or more) for inventories over mean delay.

Transit containers in Mombasa 2004
Inventory model (Baumol 70). Reference: a truckload or 40’ container

**The supply chain model**

Total transit cost = Administrative costs
+ (fixed truck cost) \times (truck use in days per shipment) \rightarrow efficient

\[
\text{Total cost} = \text{Fixed truck cost} \times \left( \frac{\text{number of rotations per truck per unit time}}{\text{load factor}} \right)
\]

\[
\text{Fixed truck cost} \times \left( \frac{\text{number of rotations per truck per unit time}}{\text{load factor}} \right) \rightarrow \text{cartel or syndicate.}
\]

\[
\text{variable truck cost} \times \text{Distance} \times \text{load factor}
\]

\[
\text{value of time} \times T(\gamma) \times \text{Value of shipment}
\]

\[
\text{Where } \gamma = \left( \frac{\text{cost stockout}}{\text{inventory cost}} \right) > 1
\]

\[
T(\gamma) = \frac{1}{\gamma} \int_{T}^{\infty} tP(t)dt \text{ where } \text{Prob}(t>T) = \int_{T}^{\infty} tP(t)dt = \frac{1}{\gamma}
\]

and \( P \) is the distribution of lead time \( t \)

![Graph showing probability distribution over lead time](chart.png)
Reduction in cost comes from improvement in level of service

Gains for the shipper on the Northern Corridor (Kenya):

Transportation costs = 130 x 2.2 (days saved in motion) = $286 (only 7% of freight costs).

Value of time = 0.1% x container value x ΔT(γ) = 0.1% x 50000 x 25 = $1250
Regulatory arrangements affect freight costs

Intended to protect weaker suppliers, regulations allow all suppliers to maintain high prices.

- On the Douala-Ndjamena Corridor, tariff setting by the Freight Bureau doubles road freight rates.
- On the Vientiane-Bangkok Corridor, opening Lao transit trade to all Thai truckers reduced logistics costs by 30%.

⇒ If the market is not efficient, as often the case, gains of time at the border do not translate in better use of trucks and reduce prices:
  - Durban Lusaka is 30% more expensive than Durban Blantyre with same efficient SA truckers due to waiting time at Zambian borders (# days).
  - In francophone Africa dominated by queuing arrangement reducing in time and investment in border facilitation are irrelevant for freight costs.
And transit “overheads” add 30-100% to transport costs

- For a 40 foot container transiting from Lome to Ouagadougou:
  - Transit overhead should run 5-20% of the transport cost
  - US Department of Transport allows adding 4%

  Needed services in Togo and Burkina should add 14%, within the range

  But excess charges and unnecessary public services add another 14%
  Those for unnecessary private services add a further 16%
  And bribes for passage add another 28%

- For a grand total of 72%! 
What’s needed to hold down these costs and improve services?

- Performance depends on a combination of infrastructure procedural arrangements and services.
  Much more than infrastructure and border crossing delays which are not the primary source of costs:
  Two over-arching issues are
  - Proper set up of the transit systems including implementation mechanisms.
  - Align the incentives and improve the political economy of transit in landlocked and transit countries. Including:
    market oriented regulations of services and governance.
Implementation bottlenecks

- Transit regime implementation (only Europe works fully and developing areas have very dysfunctional transit systems)
- Poor quality service
- Inadequate service markets
- Weak national institutions
- Mentality of control and rent-seeking
- Lack of commitments in transit countries (for landlocked)
- Perceived incompatibility of TF with security or (wrongly) with fiscal needs
- Ports and railroad performance
What it takes to build them

Implementation

Transit regimes and procedures

Regional Framework:
- Transport & transit agreements
- Physical infrastructure

Services:
- Truckers, FF...

Institutions:
- National: CC customs
- Cross-border

Framework
What the global review shows

<table>
<thead>
<tr>
<th></th>
<th>West A.</th>
<th>Central</th>
<th>East</th>
<th>South</th>
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</thead>
<tbody>
<tr>
<td><strong>Regional Framework</strong></td>
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<td>Open</td>
<td>Open</td>
<td>Open</td>
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<tr>
<td><strong>Institutions</strong></td>
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<td>weak</td>
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<td>Strong</td>
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<tr>
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<td>Nominal</td>
<td>National systems, no chain</td>
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<tr>
<td><strong>Regulation Services</strong></td>
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<td>Very poor</td>
<td>depends</td>
<td>Better</td>
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<td><strong>Market structure</strong></td>
<td>Very bad</td>
<td>Bad</td>
<td>good</td>
<td>Very good</td>
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<tr>
<td>Port Perf</td>
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<td>Delays</td>
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<tr>
<td>Costs</td>
<td>Very poor</td>
<td>Very poor</td>
<td>depends</td>
<td>Better</td>
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Set priorities

- Re-engineer Transit Regime,
- Improve markets of services:
  - Trucking
  - Brokers
- Non customs agencies
- Classical agenda
  - Infrastructure bottlenecks
  - Multimodal transport IT guidelines for operators and for customs
  - IT
  - Border posts
Improving transit regime enhance performance and predictability at all steps: initiation, road, border, discharge
References

- WP papers
  - The costs of Being landlocked
  - Connecting to Compete
  - Improving Trade and Transport for Landlocked countries.
- Transport costs in African Corridors (Raballand et al.)
- DTIS (IF)