

# LOGISTICS PERFORMANCE

## AN OVERVIEW



**WORLD BANK GROUP**

Trade & Competitiveness

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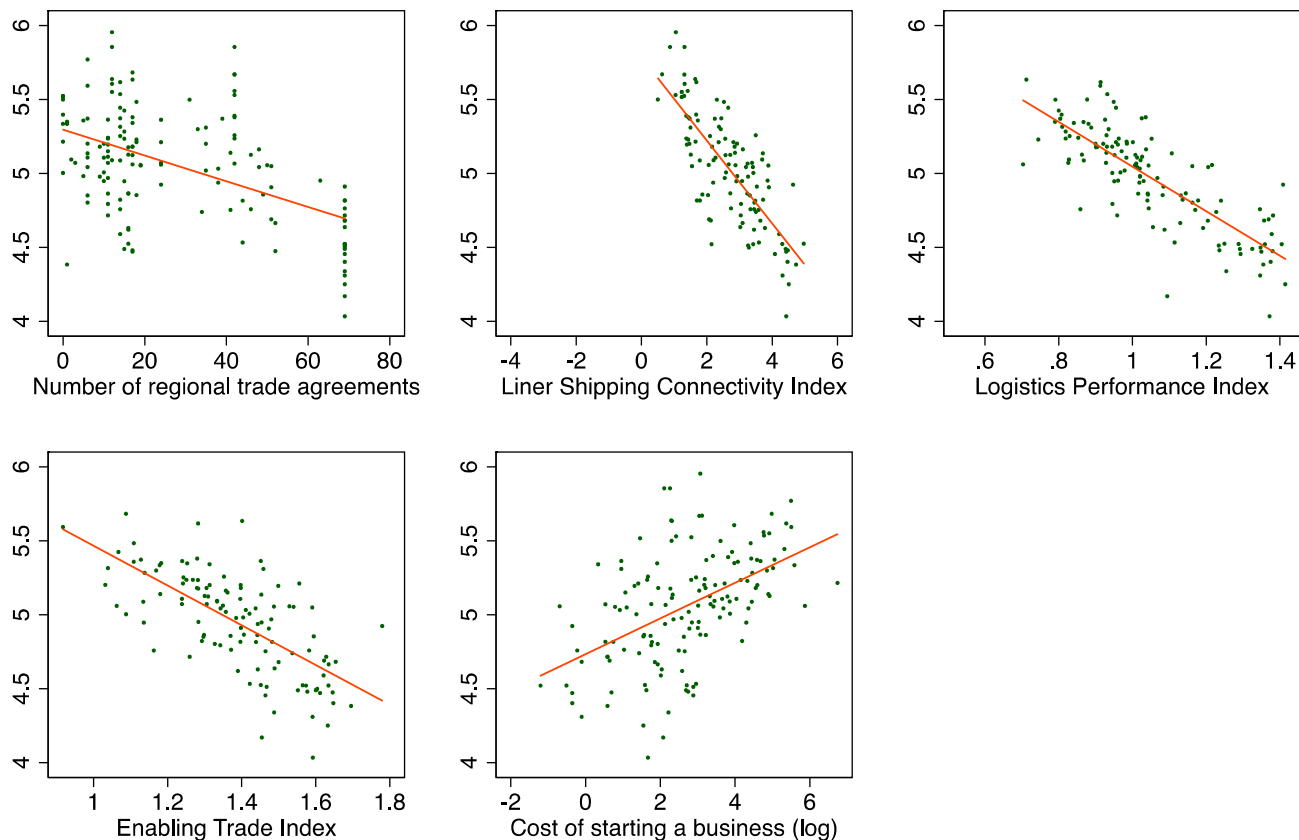
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Trade Department

Beijing September 20 2017

**1. Why does the World Bank care about logistics and connectivity?**

# The cost of trade is primarily associated with supply chain bottlenecks



• Average trade costs (log) — Fitted values

Supply chain and connectivity bottlenecks are the primary cause of friction in international trade (trade costs).

They are as important as geographical distance, and more important than e.g. trade policy.

# Logistics as a concern to policy makers.

- Logistics encapsulates a number of activities and functions in the supply chain of industry of commerce, either internally or as externalized services: transportation, warehousing, brokerage...
- Primarily implemented by private companies for private companies
- Takes the form of a globally connected network of services.
- Increasingly services are provided by integrators of different activities:
  - Logistics services providers: e.g. 3PLs
  - Express carriers
- The performance of logistics, efficiency and productivity of services, depends in large part upon national factors, including policy interventions (infrastructure, regulations, procedures applicable to freight and services
- Logistics Performance is about (i) outcome of supply chain performance (time, cost reliability) and (ii) the business environment of logistics services (infrastructure, regulations...
- ... Measured for instance by World Bank LPI

# Logistics: a cross-cutting policy concern

## Infrastructure

- Ports
- Road/rail corridors
- Airports
- Public-private partnerships

## Trade Procedures Trade Facilitation

- Customs, payments etc.:
  - Simplification & automation
  - Harmonization & standardization
  - Modernization & governance of border agencies

## Services

- Forwarders, truckers, brokers etc.
- Regulation of entry
- Market structure and competition
- Competence and quality of service

## Sustainable Logistics

- 'Green' Logistics
- City/Urban Logistics (=> E-commerce)
- Agro-logistics

# WB INTERVENTIONS IN LOGISTICS

**Lending** (7-8% of WB portfolio related to logistics):

- Project loans
- Policy loans

**Advisory work** (e.g. logistics strategies, legal framework, data tools...) to national governments and increasingly to regions

**Knowledge Bank** (= Public good)

- Data, research: LPI,
- Connectivity Toolkits for projects and reforms: TTF, ports, customs, corridors, skills

**Global engagement:** Participation in & support to global initiatives and knowledge networks

**Strong group of Bank experts** in logistics, intervening worldwide. Multidiscipline: economists, transport, agriculture, customs specialists

# EXAMPLES OF BANK PROJECTS & INTERVENTIONS IN LOGISTICS

## Advisory services (increasingly fee for service):

- Peru, Central America
- Morocco, Algeria
- Central Asia, Eastern Europe,
- India, Indonesia, Vietnam, Philippines, Cambodia, Laos
- Western Africa, East Africa, Zambia, Zimbabwe

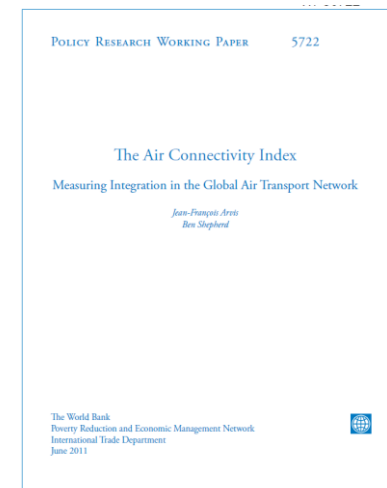
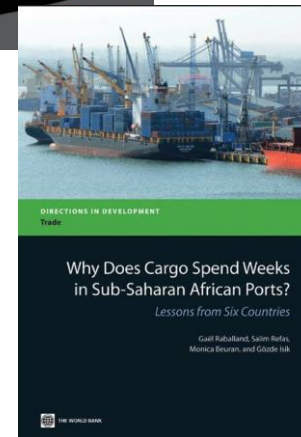
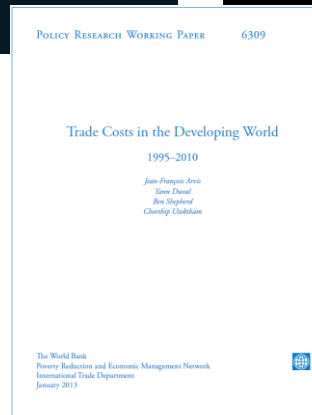
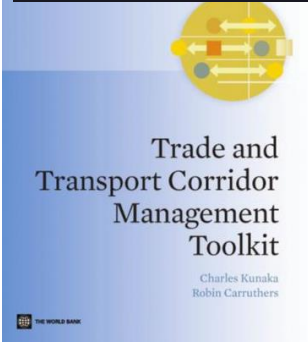
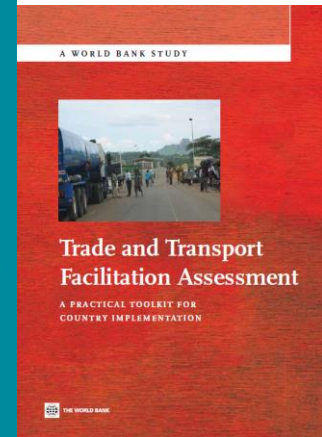
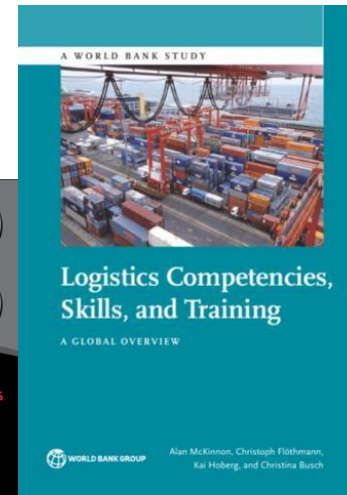
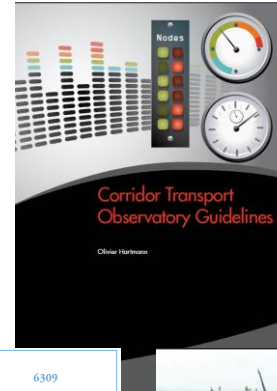
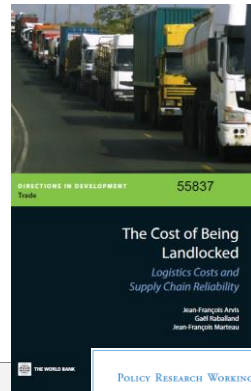
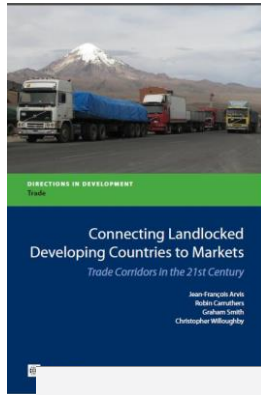
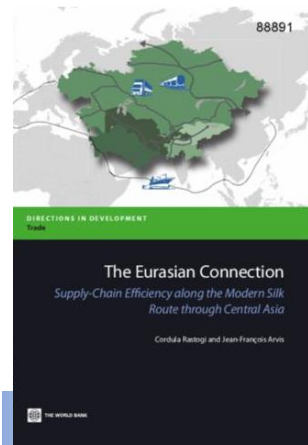
## Lending:

- **International Trade corridors, regional connectivity:** East & South Africa, Eastern Europe, Central Africa, India, Nepal, Central America, Central Asia
- **Internal corridors, ports:** Brazil, China, Argentina, Indonesia
- **Customs & fiscal reforms:** Mexico, Russia, Laos, Philippines, Cambodia, Kazakhstan, Nepal
- **Export development:** Africa, Latin America, Tunisia
- **DPL-DPO:** West Africa (DPOs)

## Concept:

Exploit synergies between institutional reforms and infrastructure investment.

# Some publications





## **2. World Bank's Logistics Performance Index (LPI)?**

# What do we measure?

## Here is a sample question:

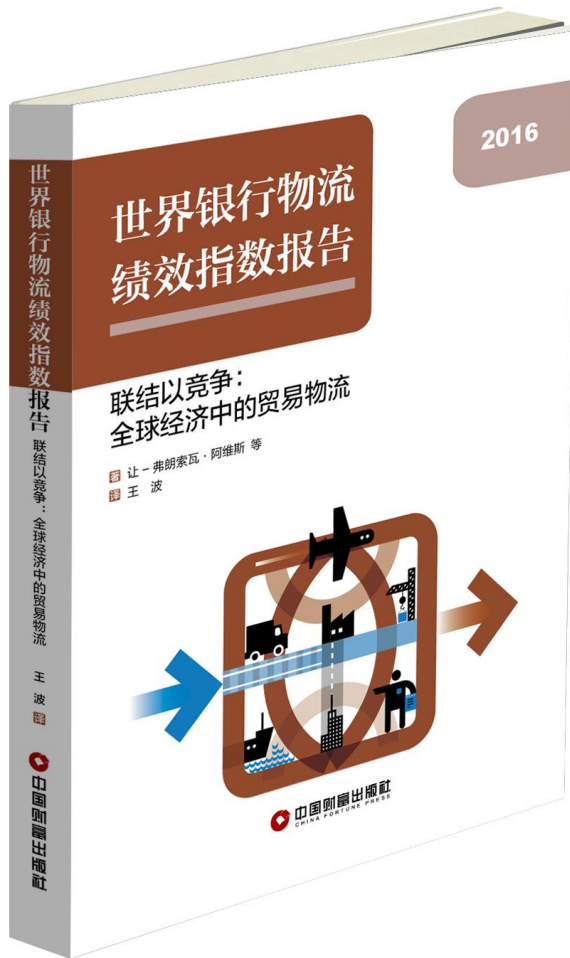
11/34 Evaluate the quality of trade and transport related infrastructure (e.g. ports, railroads, roads, information technology) in...

	Very low	Low	Average	High	Very high
Korea, Rep.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taiwan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Source: LPI 2015/2016 Survey

The LPI is mostly perception-based.

# LPI Methodology



- Built on **> 5,000 country assessments** by over **1000 freight forwarders & express carriers** worldwide
- Survey done **in cooperation with partners** (see left)
- Respondents rate logistics performance of own country and 8 other countries on a **scale from 1 to 5**
- Coverage: **160 countries**
- Published **every 2 years** (2007, 2010, 2012, 2014, 2016)
- How do respondents get to participate?
  - Respondents are invited to answer an electronic survey
  - Outreach via partners such as FIATA, national associations of freight forwarders, & large logistics firms
  - Direct contacts via a mailing list of logistics operators
  - Wide respondent base: Multinationals, large local firms and SMEs
  - No sampling involved

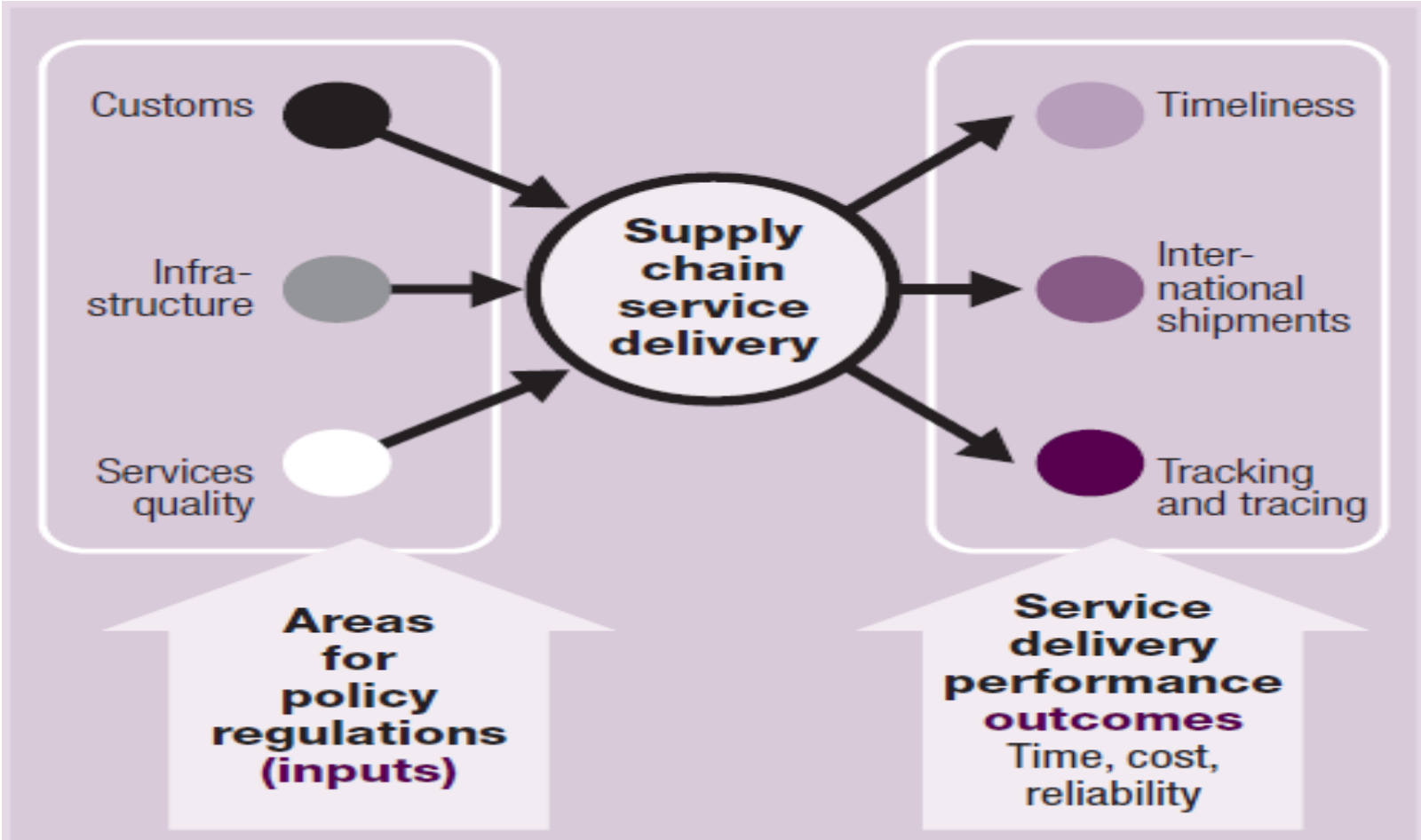
# How the LPI is constructed

- The LPI measures performance along the logistics supply chain within a country and offers two different perspectives: international and domestic.
- Based on a worldwide survey of freight forwarders and express carriers, providing feedback on the logistics “friendliness” of the countries in which they operate and those with which they trade.

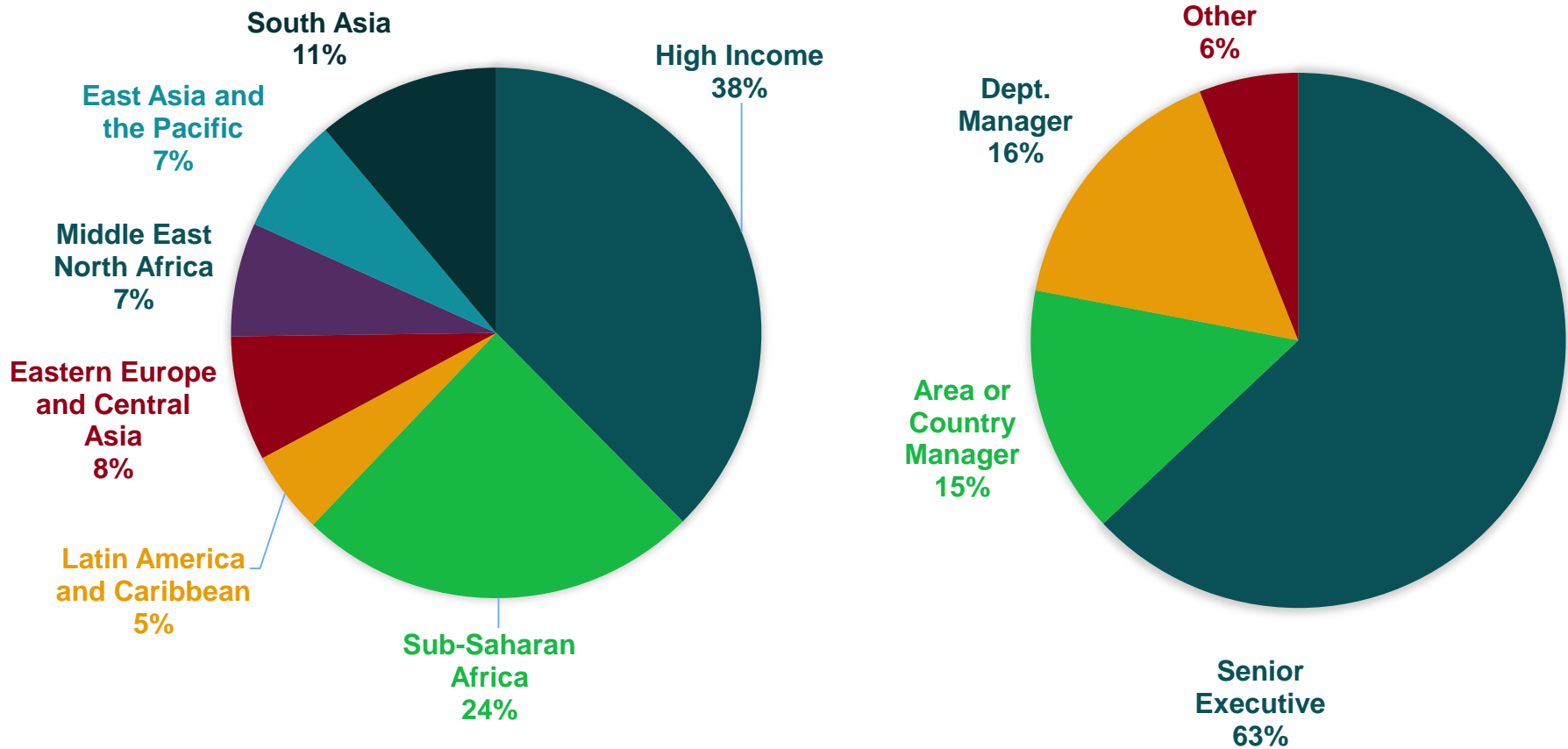
International LPI	Domestic LPI
<ul style="list-style-type: none"><li>• Provides qualitative evaluations of a country in six areas by its trading partners (i.e. professionals working <i>outside</i> the country)</li><li>• Areas of evaluation:<ol style="list-style-type: none"><li>1. Customs and border management</li><li>2. Infrastructure</li><li>3. Logistics competence and quality</li><li>4. International shipments</li><li>5. Tracking &amp; tracing</li><li>6. Timeliness of shipments</li></ol></li></ul>	<ul style="list-style-type: none"><li>• Provides qualitative and quantitative evaluations of a country by logistics professionals working <i>inside</i> it.</li><li>• Includes detailed information on the logistics environment, core logistics processes, institutions, and performance time &amp; cost data</li></ul>

**The LPI score is solely based on the *International* LPI  
=> India overall LPI comes from logistics professional out of India.**

# Input and outcome indicators in the LPI

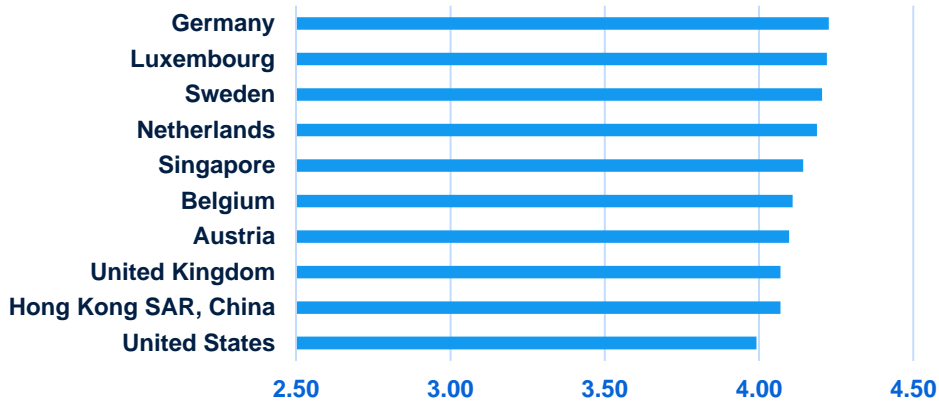


# LPI 2016 respondent base

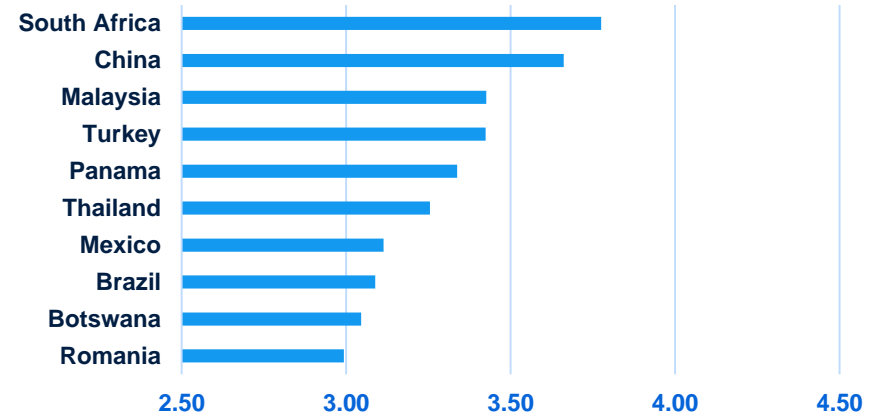


# LPI 2016 results: Top 10 by country groups

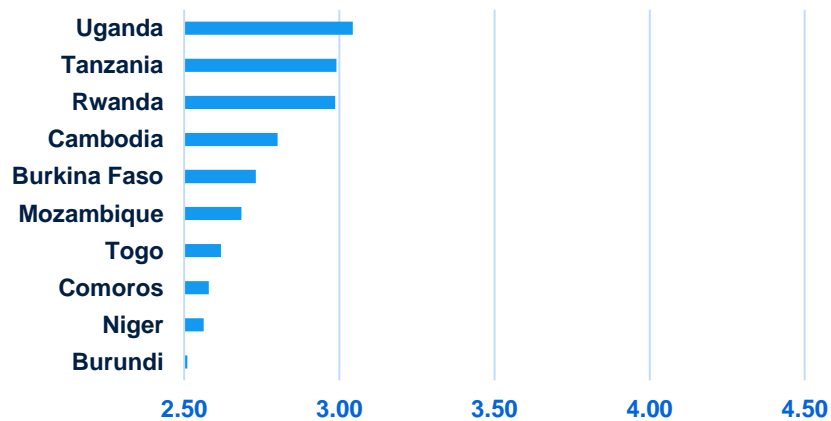
## TOP 10 OVERALL



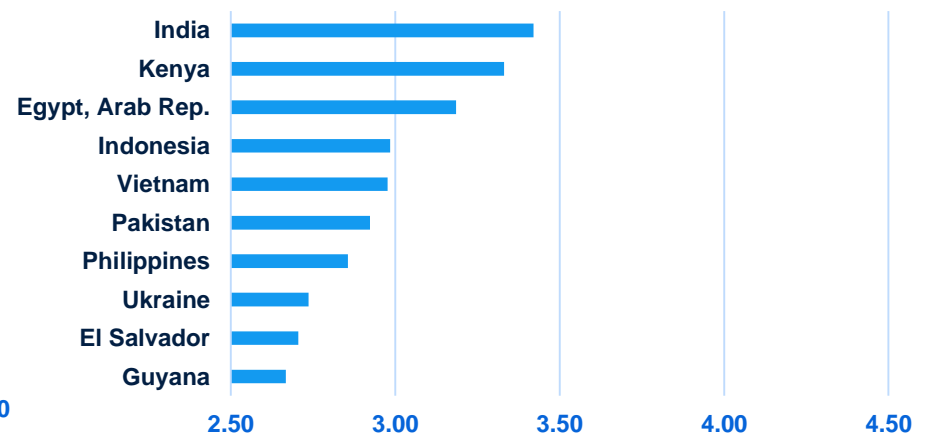
## TOP 10 UPPER MIDDLE INCOME



## TOP 10 LOW INCOME



## TOP 10 LOWER MIDDLE INCOME



Axis = LPI 2016 overall score (1 = min; 5 = max)

# What is the role of the LPI?

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The LPI is a well-established benchmark, but it does not do everything.

The LPI:

- Is a synthetic measure of supply chain efficiency.
- Provides information of where a country stands and gives a crude indication of problems.
- **Is not, on its own, a diagnostic tool and needs to be supported by specific tools designed to perform that function.**
- Targets international supply chains, and may not fully reflect the quality of internal connectivity and logistics, especially in geographically large countries.

The LPI has had a significant impact in establishing logistics as a cross-cutting policy concern.

It has contributed to motivating several national and regional initiatives in many emerging and middle income countries and in several OECD countries.

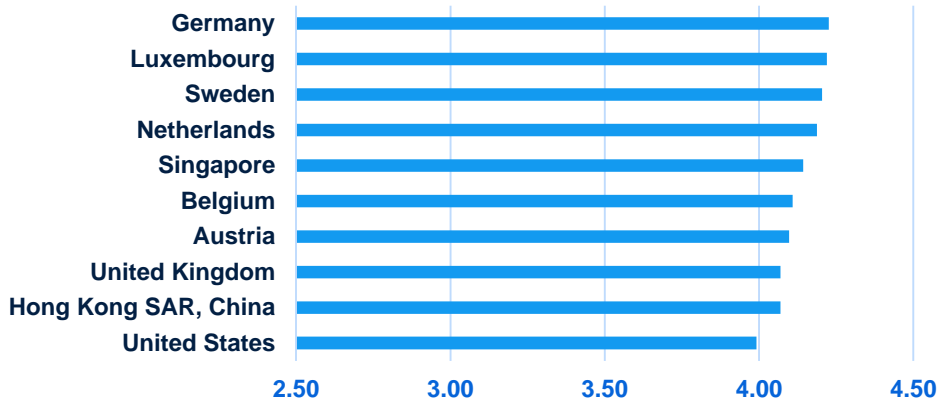


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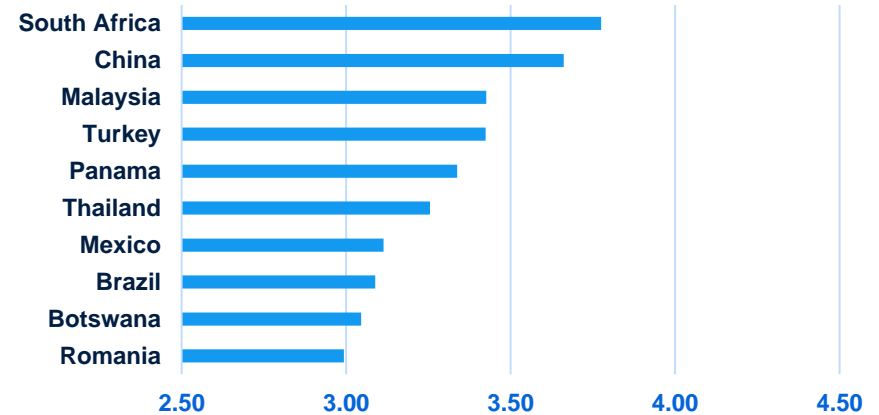
## 3. LPI 2016 worldwide results

# LPI 2016 results: Top 10 by country groups

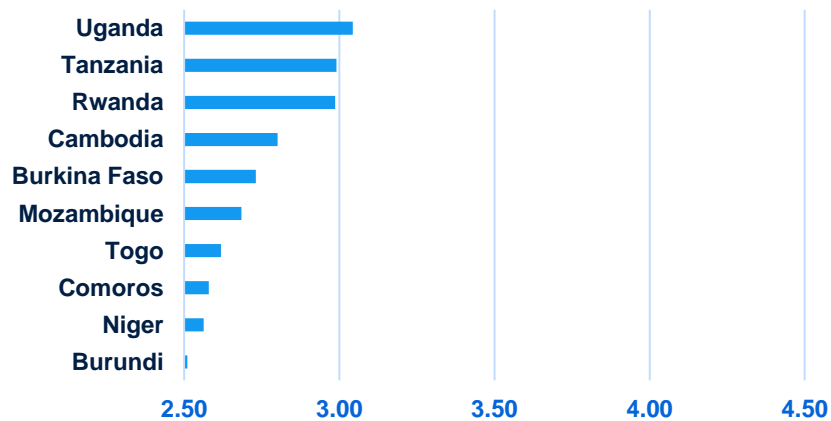
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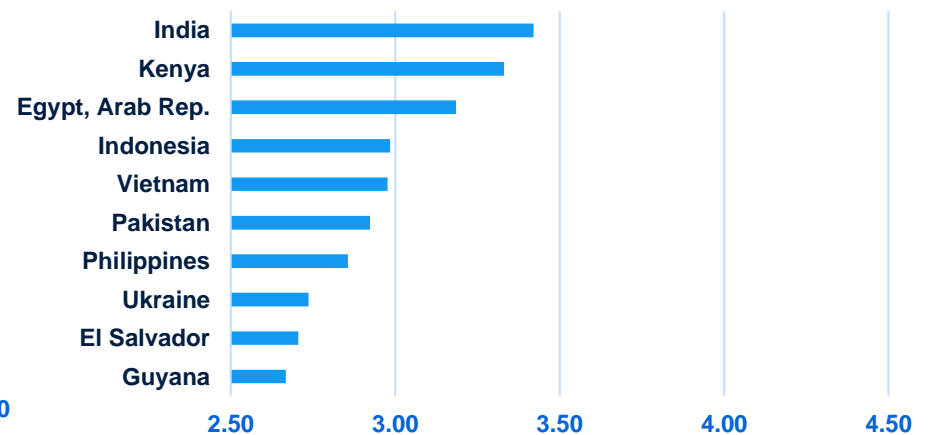
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## TOP 10 LOW INCOME

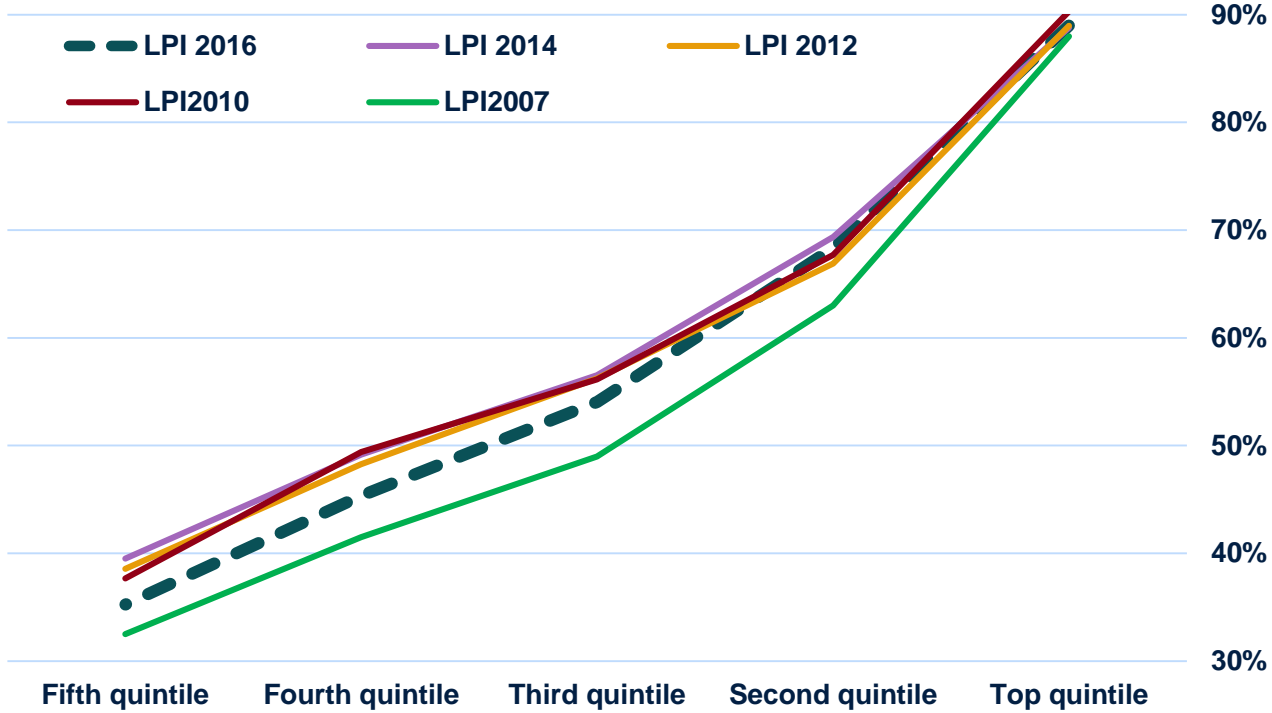


## TOP 10 LOWER MIDDLE INCOME



Axis = LPI 2016 overall score (1 = min; 5 = max)

# The performance gap is increasing again

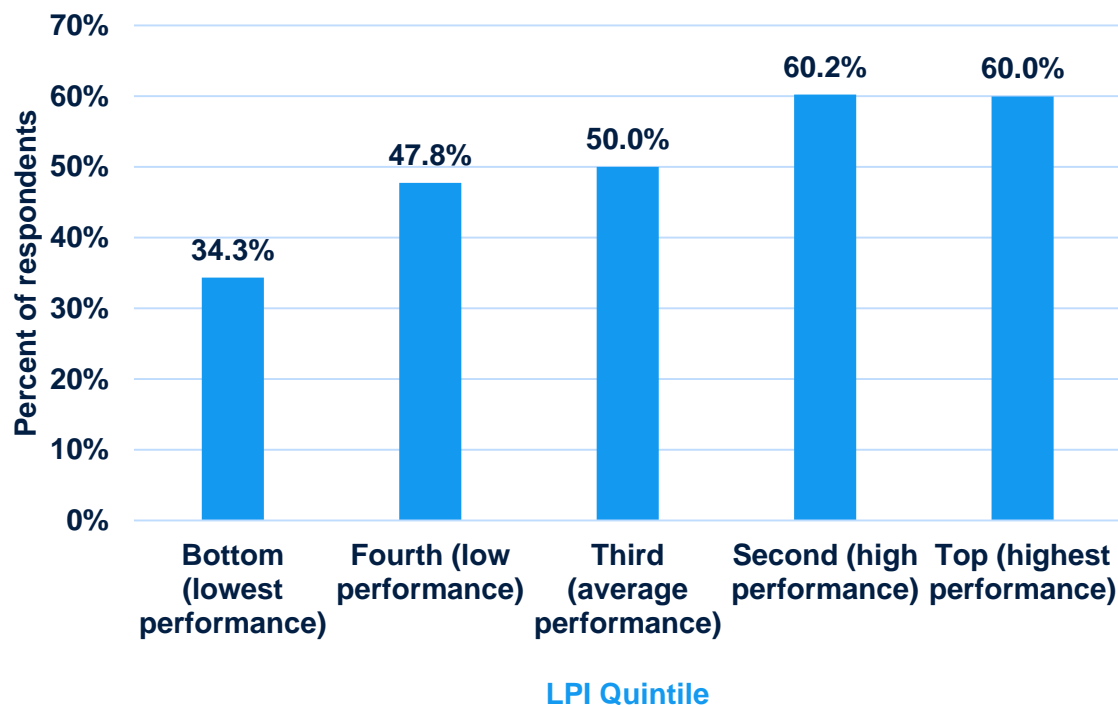


LPI score as percentage of highest LPI score by LPI quintile; 2007, 2010, 2012, 2014 and 2016

Logistics performance converges at the top, but the gap is spreading between the lowest and highest performers

# Quality of infrastructure

Respondents rating the quality of trade and transport infrastructure as “improved” or “much improved” since 2014, by LPI quintile



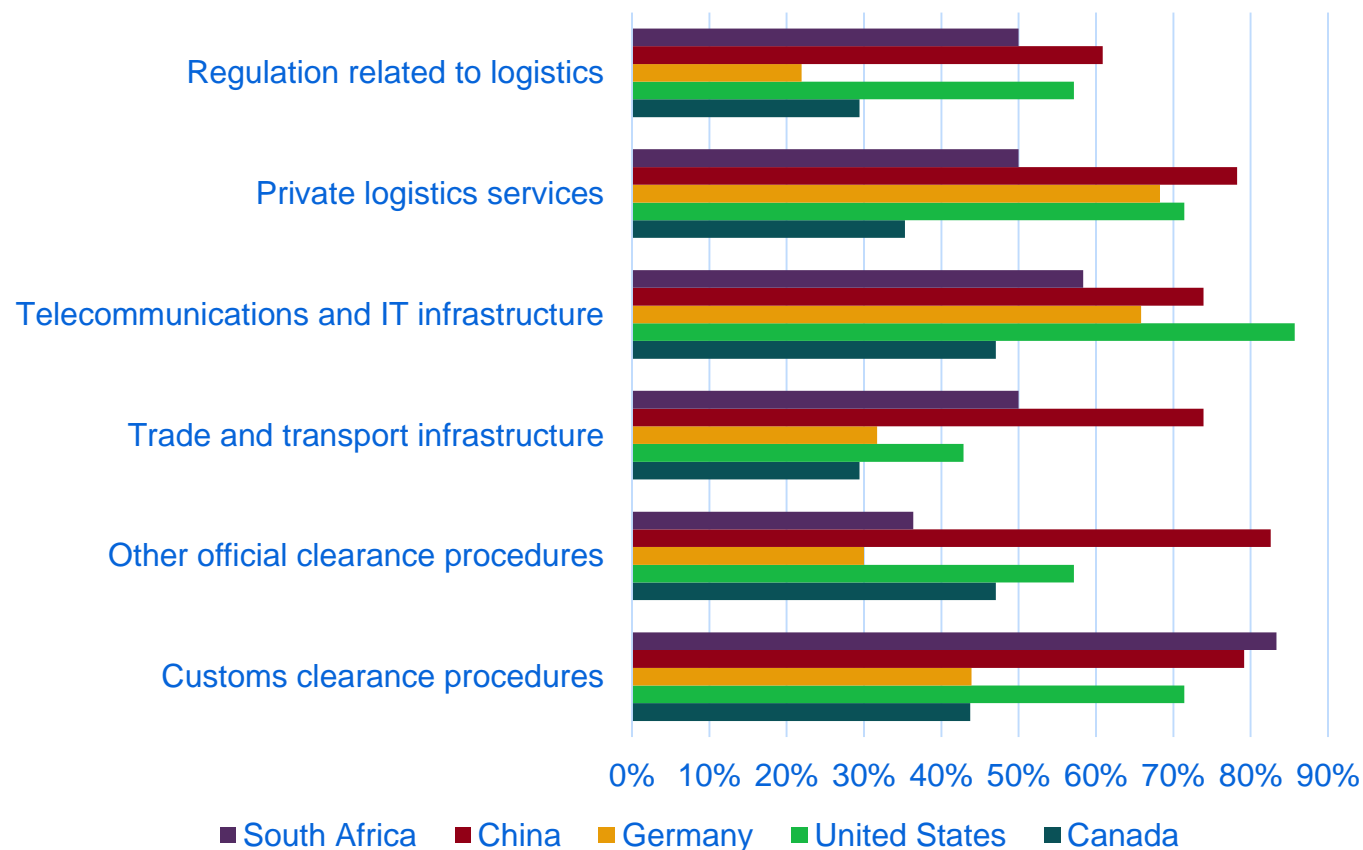
Infrastructure is a constraint for countries ranking towards the bottom more than for those ranking towards the top.

## **3. China and logistics**

# China: a logistics powerhouse

- China has developed logistics capabilities and competences of global reach:
  - Shipping: COSCO
  - Express, 3PLs: Sinotrans
  - E-commerce: Alibaba
- Dedicated policy organization: Chinese Federation of Logistics and Purchasing
- Large networks of academic thought leaders
- Overall excellent performer in logistics, high performance in high volume gateways, but with disparities in performance internally.
- Specific policy challenges:
  - Organizing logistics networks on a very large scale, including remote regions. The Bank has been involved with regional projects of logistics zones and multimodal facilities (e.g. Hunan)
  - Sustainability and logistics in very dense environment

# LPI: Changes in the logistics environment



**Chinese operators are positive with the business environment in logistics**

Percentage of respondents indicating “improved” or “much improved”.

# Quality of infrastructure

	Ports	Airports	Roads	Rail	Logistics	ICT
Canada	6%	0%	6%	18%	0%	0%
United States	20%	0%	11%	30%	10%	0%
Germany	0%	0%	0%	15%	0%	0%
China	4%	0%	8%	13%	12%	16%
South Africa	21%	0%	0%	50%	0%	14%

Percentage of respondents indicating a low or very low quality

Chinese are quite positive about infrastructure



# Quality of service

Respondents rating the quality and competence of each service provider type as “high” or “very high,” by LPI quintile

LPI quintile	Road transport	Rail transport	Air transport	Maritime transport and ports	Warehousing, transloading, and distribution	Freight forwarders	Customs brokers	Trade and transport associations	Consignees or shippers
Bottom quintile	17%	6%	30%	36%	16%	34%	17%	19%	31%
Fourth quintile	23%	13%	36%	33%	22%	41%	30%	18%	29%
Third quintile	26%	15%	50%	53%	41%	54%	40%	28%	33%
Second quintile	37%	18%	48%	54%	41%	56%	40%	29%	28%
Top quintile	66%	40%	75%	68%	74%	80%	79%	62%	49%

A strong advantage in services at the top.

## **5. Global Logistics: emerging issues**

# Logistics and Supply Chain Connectivity: shifting concerns for policy makers

1 **Initial policy focus (10 years ago)** = mostly trade and transport facilitation at the gateways.=> still important for countries with bottom performance.

2 Gateways and global connectivity => Not fully understood (important area for us)

3 Internal logistics is increasingly and area of focus with Bank's client:

- Develop sub-national performance metric (sub-national LPI)
- Look at internal trade networks (typically not linear but complex).
- Other modes (air-cargo)
- Service reforms complicated in some sectors (e.g. trucking).

4 New generation of tools and Potential from data intensive models:

- Bank has experience with port dwell time and trucks on corridors, domestic shipping
- Big data ??

=> New trends and policy concerns

# New macro-trends and policy concerns

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## 1. Global trends not so good:

- Lower growth of demand (trade is recoupled with GDO since the great recession), means lower prices and margins (e.g. shipping)
- Increase competition and concentrating global industry in most segment but notably, express and shipping.

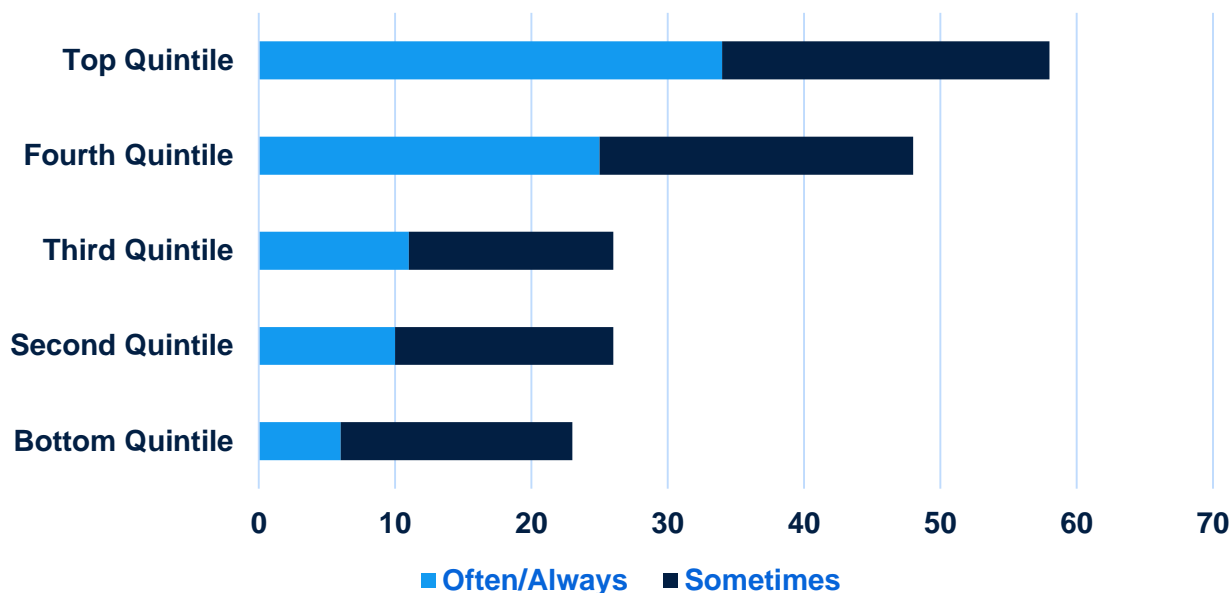
## 2. Paradigm shifts and disruptive changes

- Change brought by demand:
  - E-commerce,
  - Additive Manufacturing (3D printing)
- New supply chain technologies, and practices
- Supply Chain data: visibility, Big data, Blockchains....

## 3. Sustainability concern: green, urban, resilience

# Sustainable/ 'Green' Logistics

From the LPI questionnaire:  
How often do shippers ask for environmentally friendly options?



The demand for environmentally friendly solution is strongly and positively associated with logistics performance.

## Other Sustainability:

1. Urban logistics: last mile, impact of e-commerce...
  - Inclusion of logistics and delivery in urban planning
  - Port cities
  - Fleet management.
  - Policing
  
2. Supply chain Resilience: there is quite some interest worldwide (Japan, Canada in OECD): Among sources or disruption, climate change is coming often.
  - Countries (and operators) are willing to diversify their connectivity patterns (dependence).
  - Development of contingency plans with the private sector.

**Thank you**

