AAPA Annual Conference
October 25, 2016

Global and Domestic Outlooks

The supply chains are changing — sometimes radically

How are industry and governments adapting?

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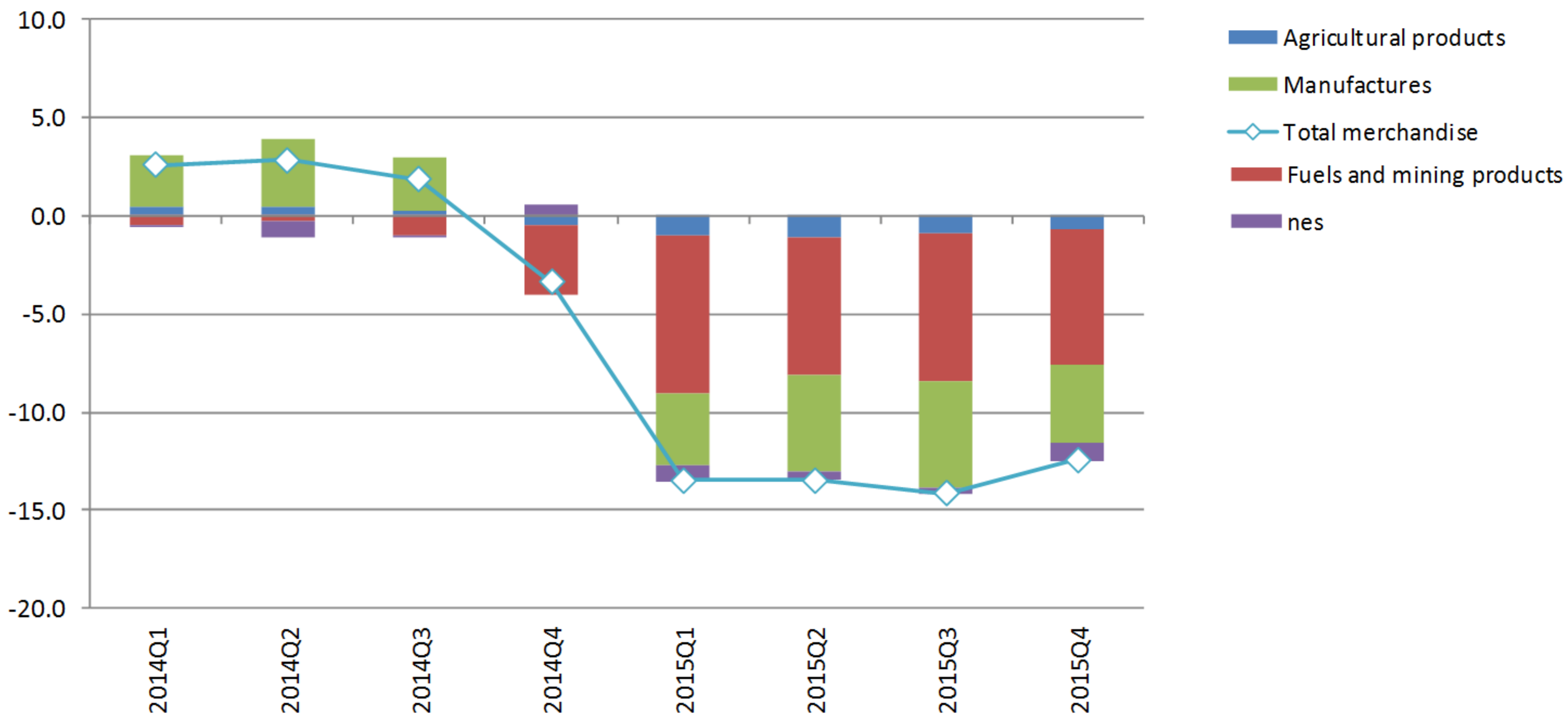
Overview

- Growth in maturing container market requires landside and oceanside efficiencies
- Landside effects of Hanjin may last longer than oceanside effects
- Big ships will concentrate and exacerbate port-related congestion
  - *Inland supply chain competitiveness an increasing industry concern*
- Our opportunity: U.S. public and private sector creativity and cooperation

Slowing Global Demand?

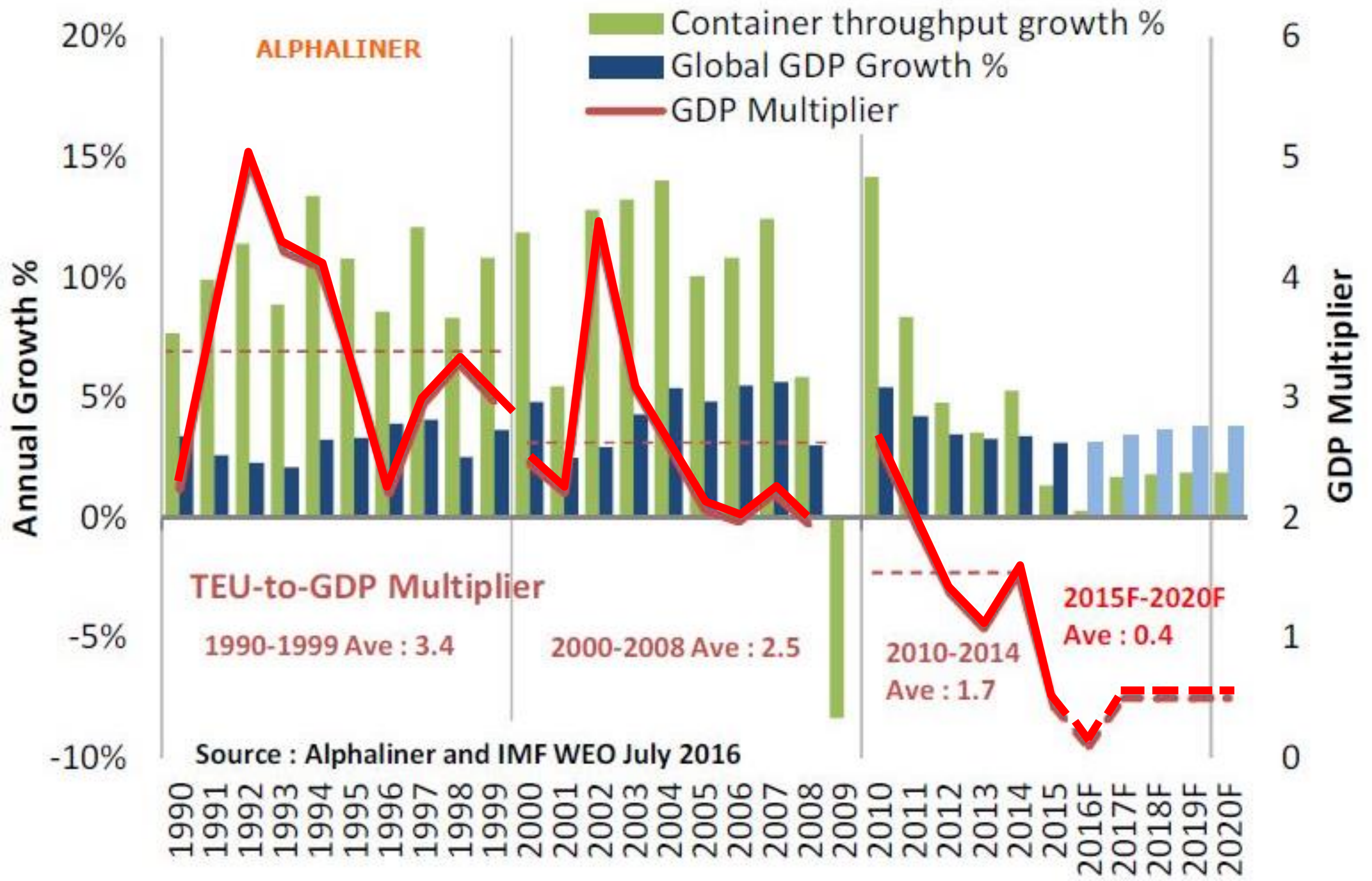
WTO Reduces Global Trade Growth Forecast from 2.8% to 1.7%



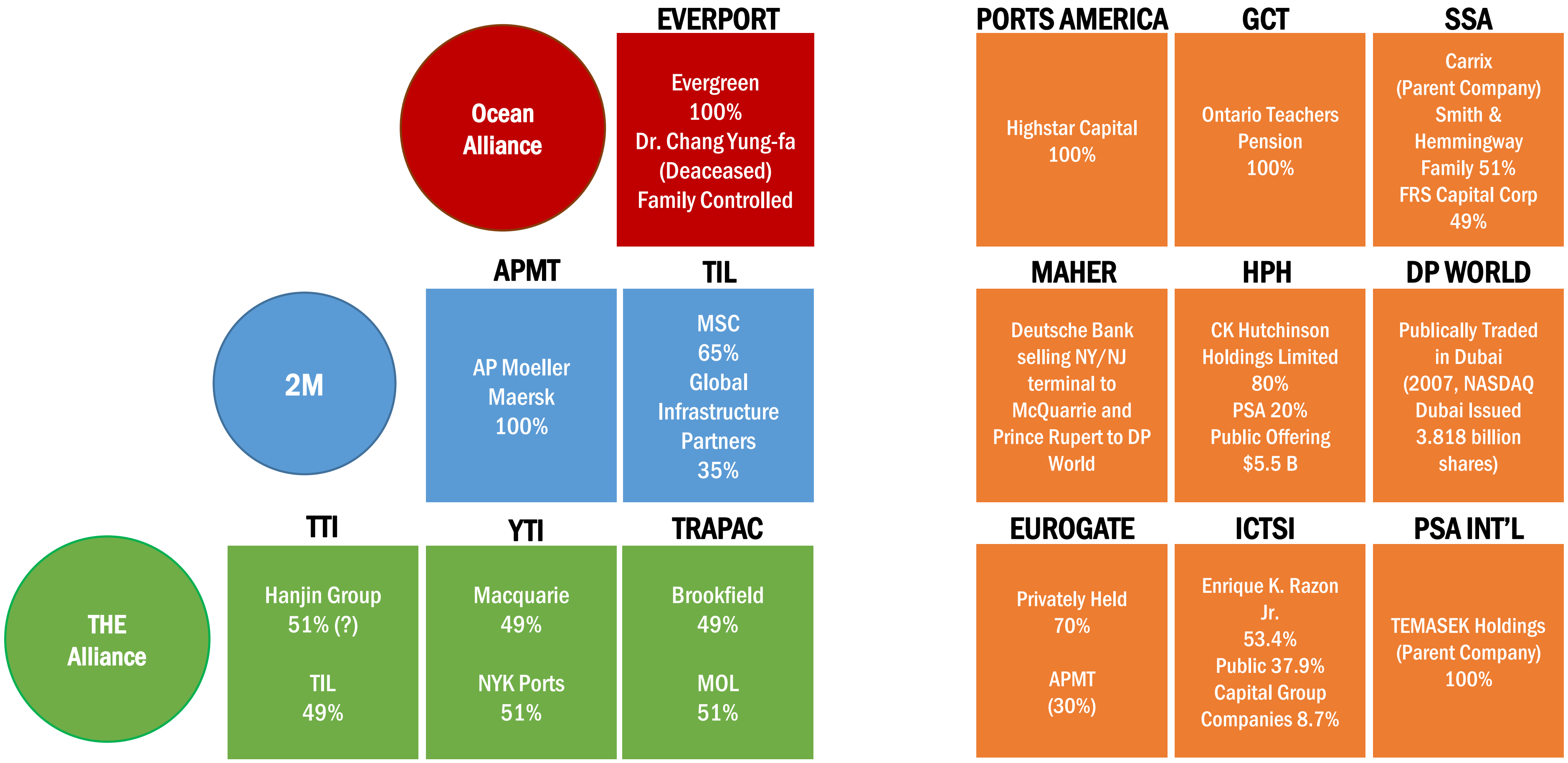
Source: WTO; Contributions to year-on-year growth in world merchandise trade by product, 2014Q1-2015Q4

A Maturing Container Market

GLOBAL CONTAINER THROUGHPUT VS GDP GROWTH (TEU-TO-GDP MULTIPLIER)

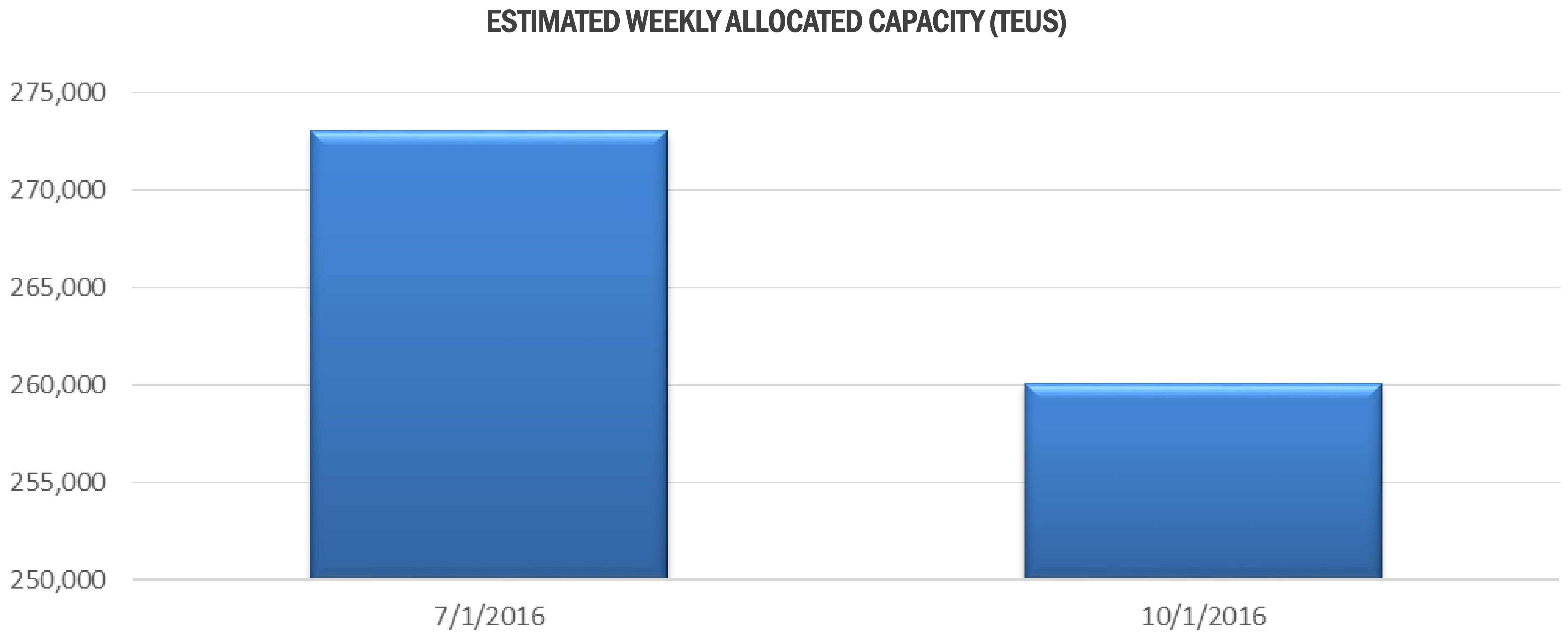


Carrier Alliances Intertwined with Terminal Operators



Declining East Asia – North America Capacity

Bluewater Estimate: Adequate Ocean Carrier Capacity After Hanjin

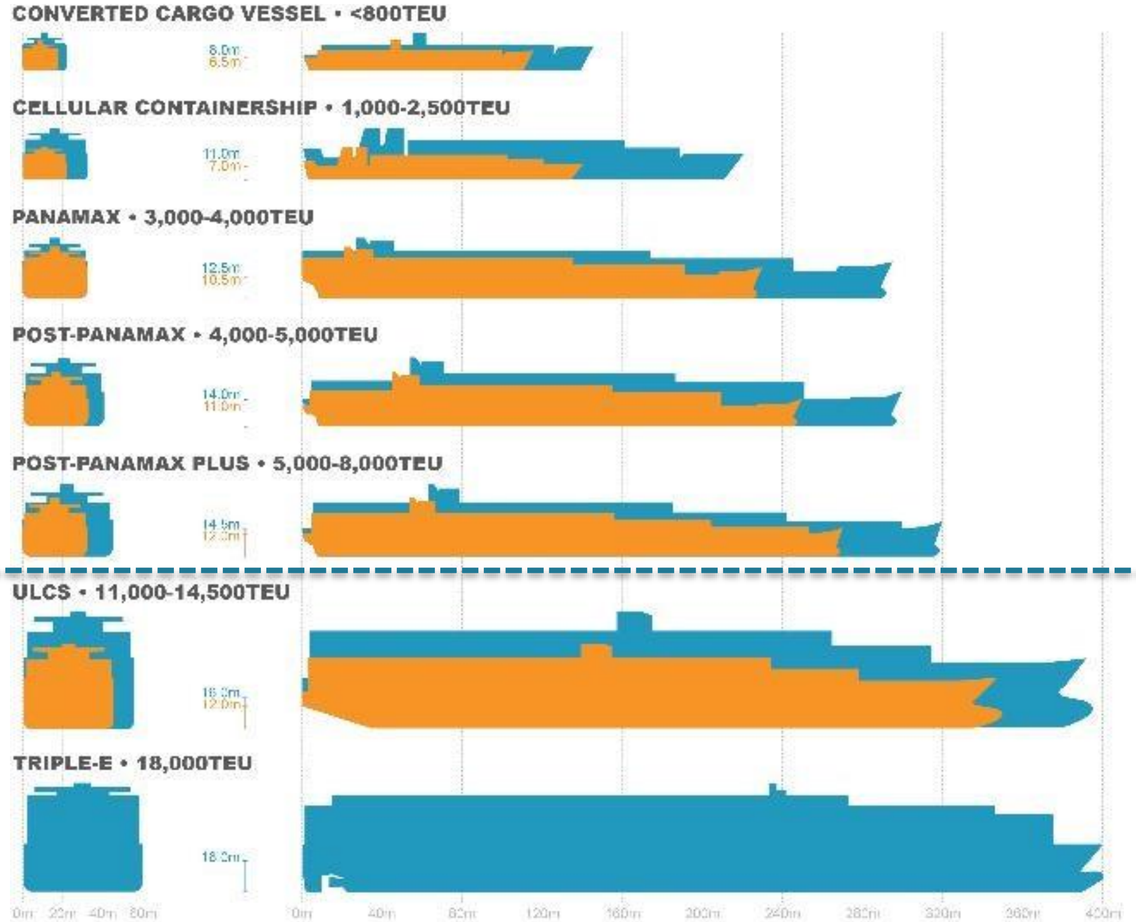


Hanjin – Stranded Assets Throughout the Supply Chain

Source: Photo by Scott Varley, Daily Breeze/SCNG

- Cargo
- Containers
- Chassis
- Commitments

Bigger Ships, Fewer Calls, More Congestion



SHARE OF FLEET CAPACITY

	2015	2012
Up to 8,000 TEU	78% ↓	88%
11,000 TEU and above	22% ↑	12%

Coming soon - 20,000+ TEU

Congestion is a Global Problem That Needs Local Solutions

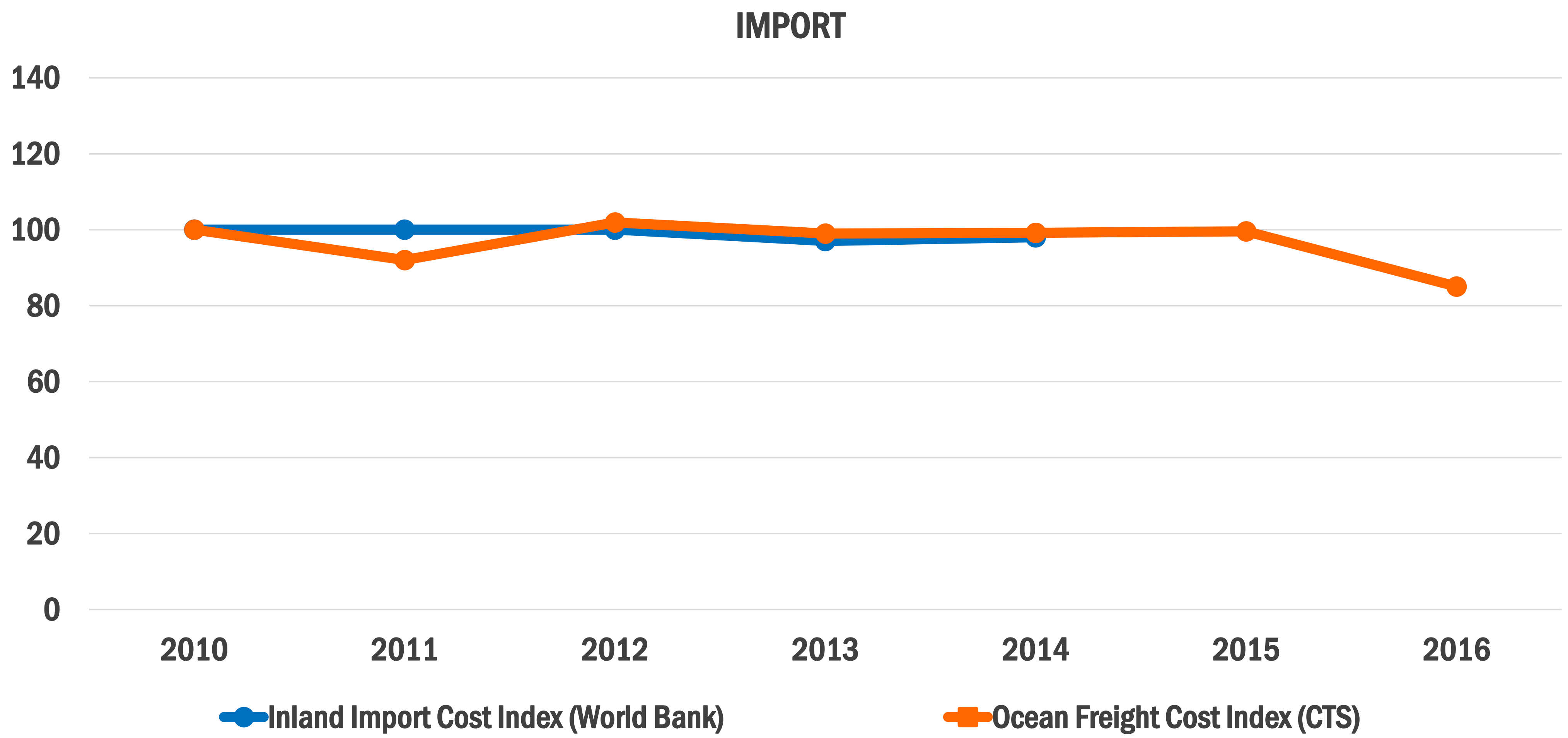
TRUCK TRAFFIC IN ROTTERDAM

PORT TRAFFIC IN SOUTHERN CALIFORNIA

PORT OF SHANGHAI, CHINA

- Unbalanced Investment – bigger ships but not bigger roads
- Chassis Shortages – physical and structural
- Labor Shortages – regulatory and demographic
- Unstable Seasonal Patterns – reaction to anticipated issues
- Customs Slowdowns – government budget issues
- Inclement Weather – climate change

U.S. Inland Import Costs Competitive?



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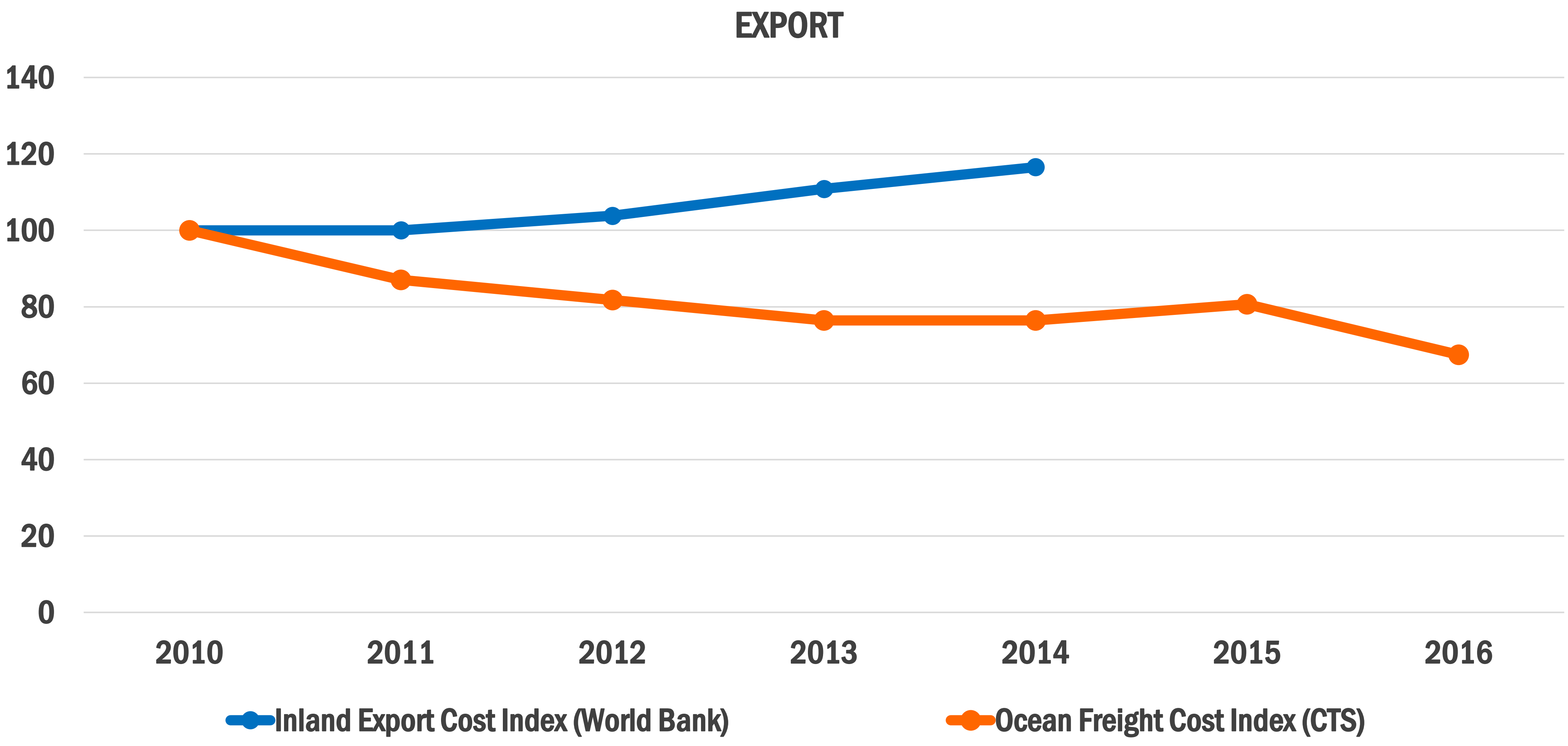
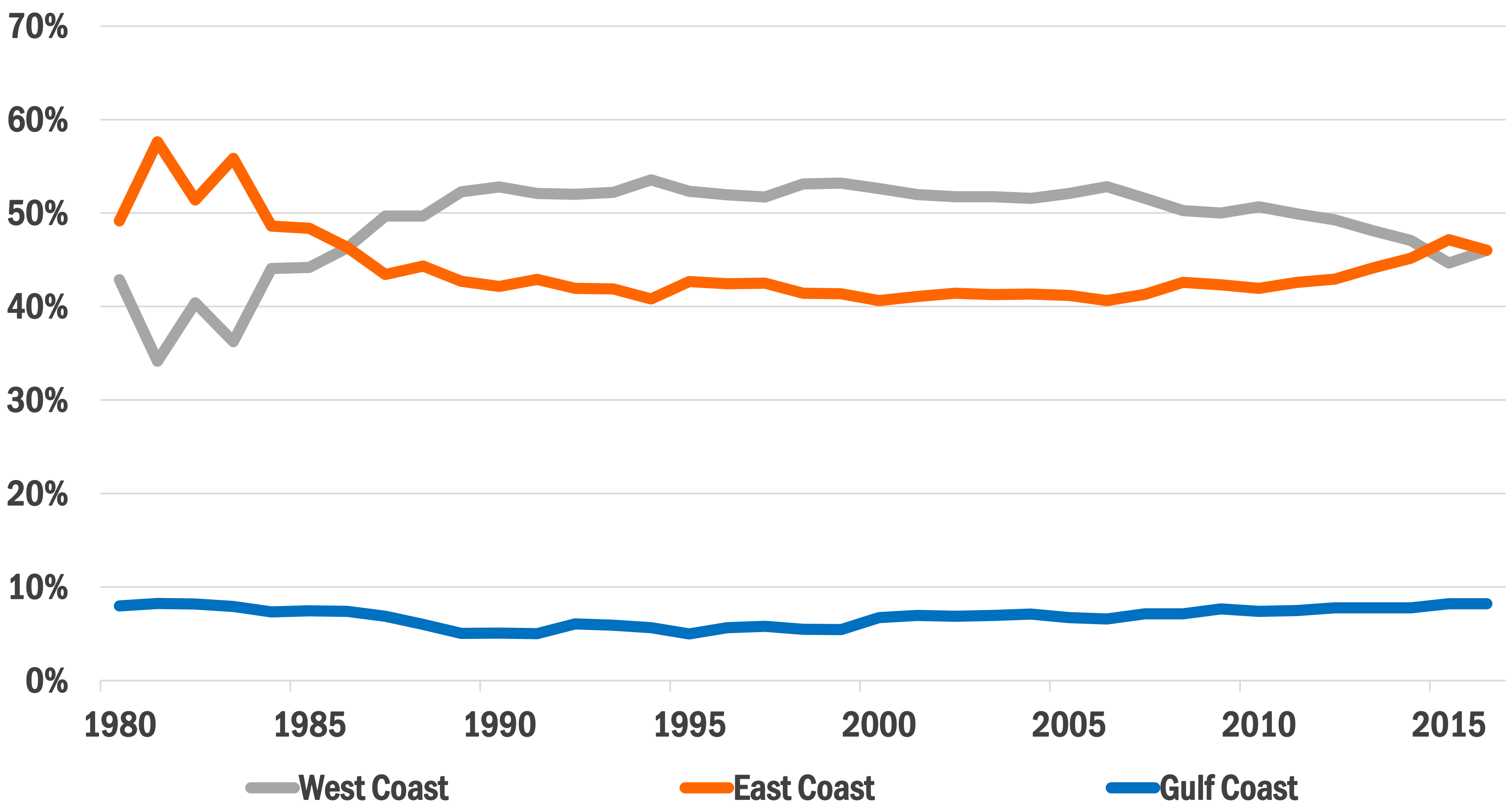
U.S. Inland Export Costs Competitive?

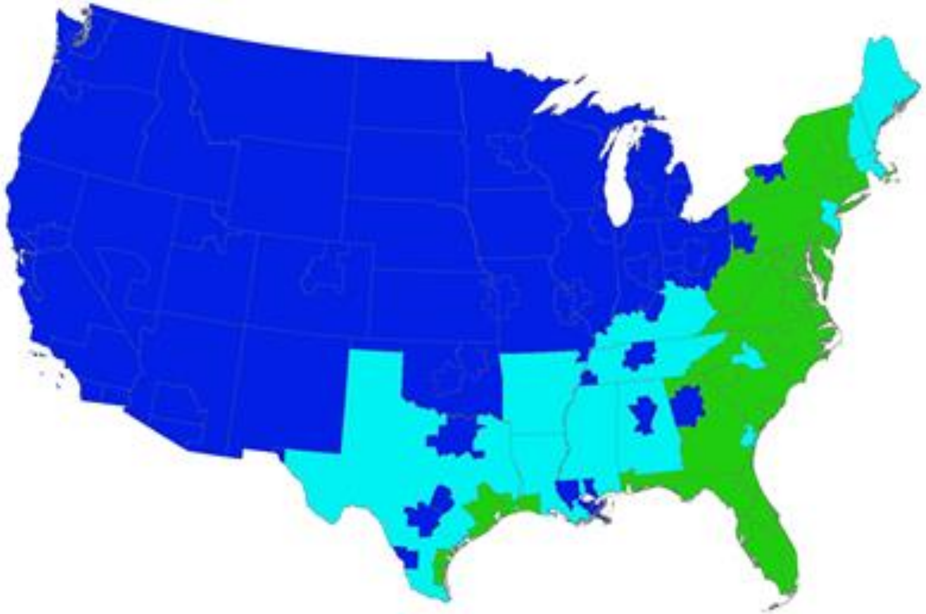


Coastal Share of Container Cargo



U.S. – North Asia Container Imports Trending Population Growth and Inland Improvements

SHARES OF IMPORT (TONS)

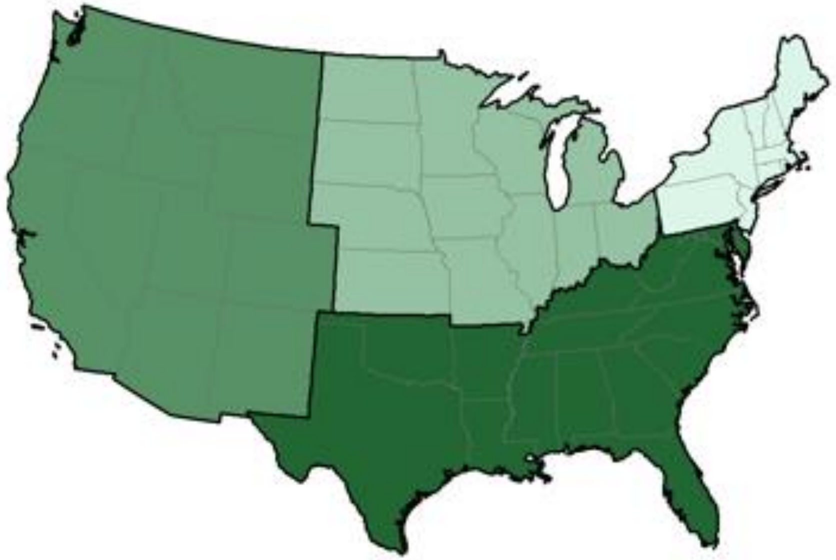


West Coast Share > 60%

East Coast Share > 60%

No share > 60%

PROJECTED GROWTH IN POPULATION, BY REGION



Growth 2000-2014

0.3319%

0.3591%

1.2313%

1.2718%

Source: U.S. Census Bureau

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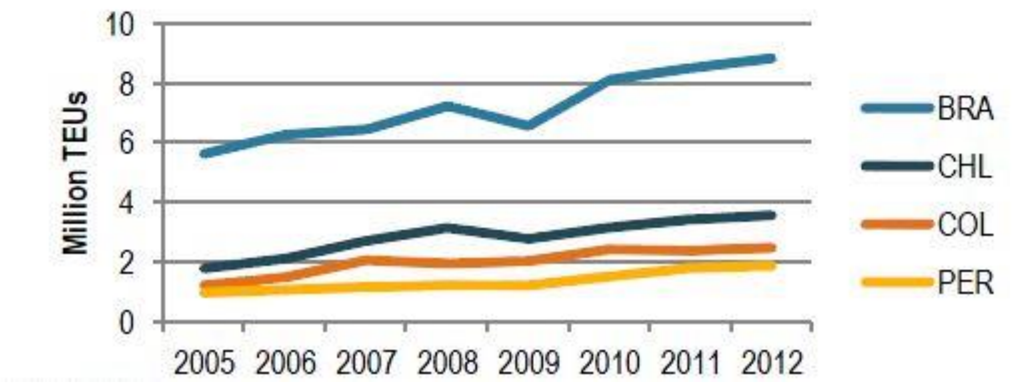
Source: U.S. DOT – Freight Analysis Framework

Brazil: Increasing Volumes and Quayside Efficiencies

- 2007-2012 CAGR:
  - BRA: 6.6%
  - CHL: 10.3%
  - COL: 10.6%
  - PER: 9.6%
  - USA: 1.6%
  - CHN: 12.7%
- Brazil's historical and projected improvement in vessel productivity (mpvh) matches its volume growth

CONTAINER PORT TRAFFIC



Source: World Bank

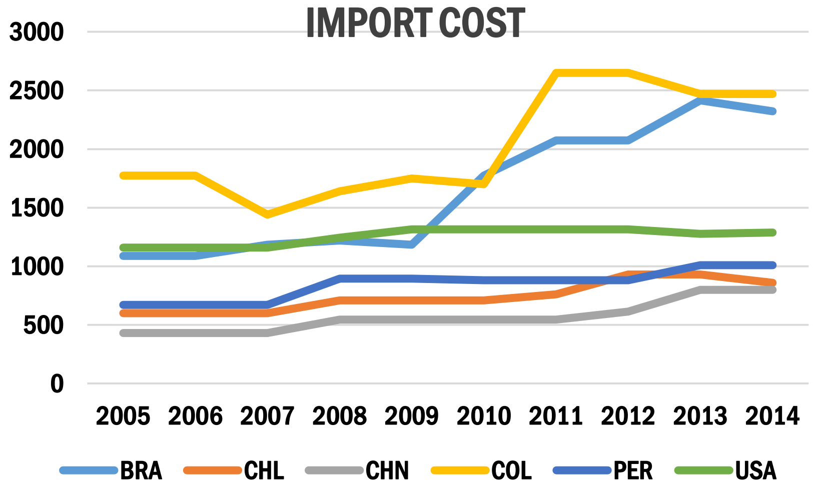
CHANGE IN BRAZIL'S PORT PRODUCTIVITY

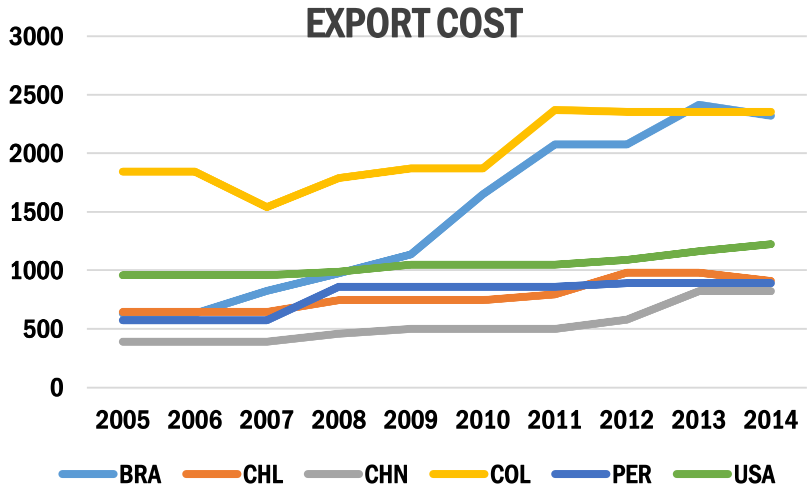
Improvements	Accomplished 1996	Accomplished 2010	Ongoing 2016
Quay length (m)	3,313	9,105	11,965
Container yard (m2)	940,141	3,743,000	4,441,969
Productivity (mph)*	22.7	48.0	73.0
Jobs	1,602	10,402	11,457
Ship-to-shore container cranes	11	83	150

Source: ABRATEC; Note: *=productivity (mph) refers to container moves per hour per ship

Brazil – Seaport Efficiencies More than Offset by Landside Inefficiencies and Higher Costs

- Cost of import and export has changed drastically for some South American countries since 2005
- Landside congestion, dwell times
- Substantial negative impact on the bottom line of the beneficial cargo owner





Source: World Bank

2012 Logistics Performance

- World Bank survey of one thousand international freight forwarders
- 155 countries ranked

RANKING BREAKDOWN (2012)

	Logistics Performance Index Ranking	Customs	Infrastructure	International Shipments	Logistics Quality & Competence	Tracking & Tracing	Timelines
Brazil	45	78	46	41	41	33	49
Chile	39	35	37	44	46	41	54
Columbia	64	64	68	78	52	85	57
Peru	60	58	67	66	56	60	62
United States	9	13	4	17	10	3	8
China	26	30	26	23	28	31	30

Source: Connecting to Compete 2012 - Trade Logistics in the Global Economy (2012)

2016 Logistics Performance

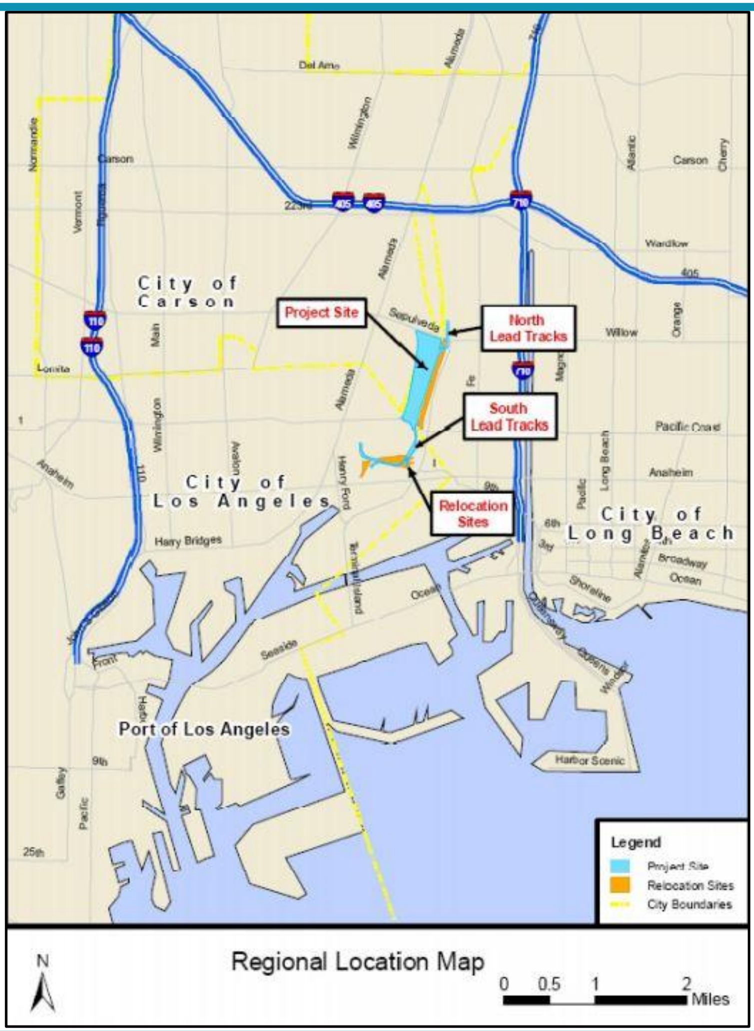
RANKING BREAKDOWN (2016)

	Logistics Performance Index Ranking	Customs	Infrastructure	International Shipments	Logistics Quality & Competence	Tracking & Tracing	Timelines
Brazil	54	70	49	68	45	46	57
Chile	44	38	57	43	50	36	44
Columbia	87	106	88	102	77	97	77
Peru	66	67	69	69	68	63	70
United States	9	15	5	21	7	4	10
China	26	32	24	17	26	28	32

U.S. – Successful Supply Chain Innovations

- 66 supply chain TIGER grants totaling approximately $1 Billion
  - Marine terminals
  - Rail and intermodal facilities
  - Last mile highway and bridge connectors
- San Pedro supply chain investments
  - Alameda Corridor
  - Alameda Corridor East
  - Pier Pass
- Five Southeastern states have focused on major supply chain investments
  in dredging, highways, rail and logistic improvements
  - Recent and committed future ***non-port** state and federal funding for* these improvements
    in the range of $2.8 Billion to $3.7 Billion
  - Regional and statewide freight planning efforts likely to continue investment strategies

California Innovation – Southern California International Gateway



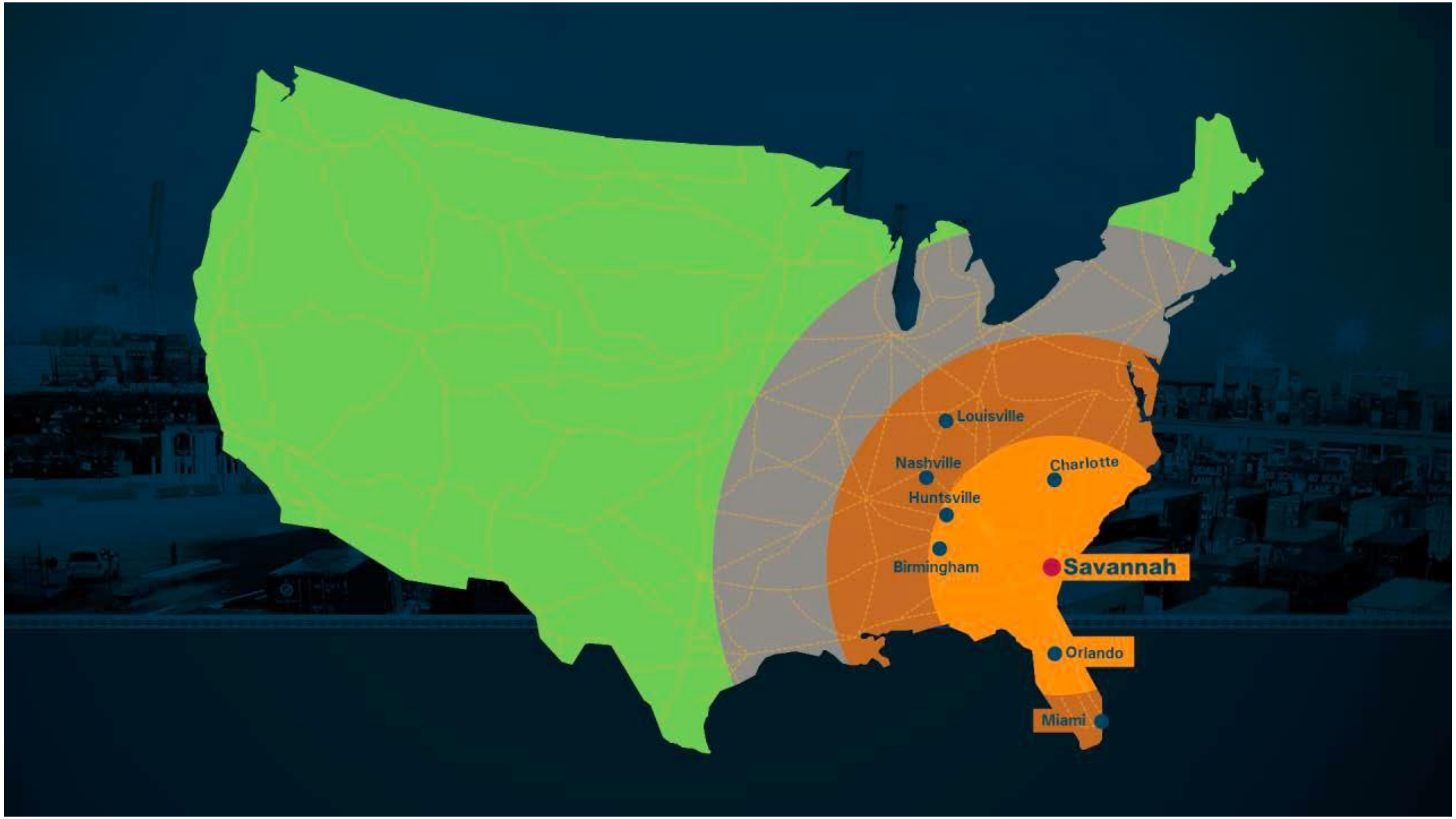
Source: Port of Los Angeles

How good environmental legislation goes wrong

Members of the International Brotherhood of Electrical Workers union show their support for BNSF Railway's proposed Southern California International Gateway (SCIG) facility during a public hearing in San Pedro in 2013.

Source: *LA Times*

Georgia Innovation – Mid-American Arc

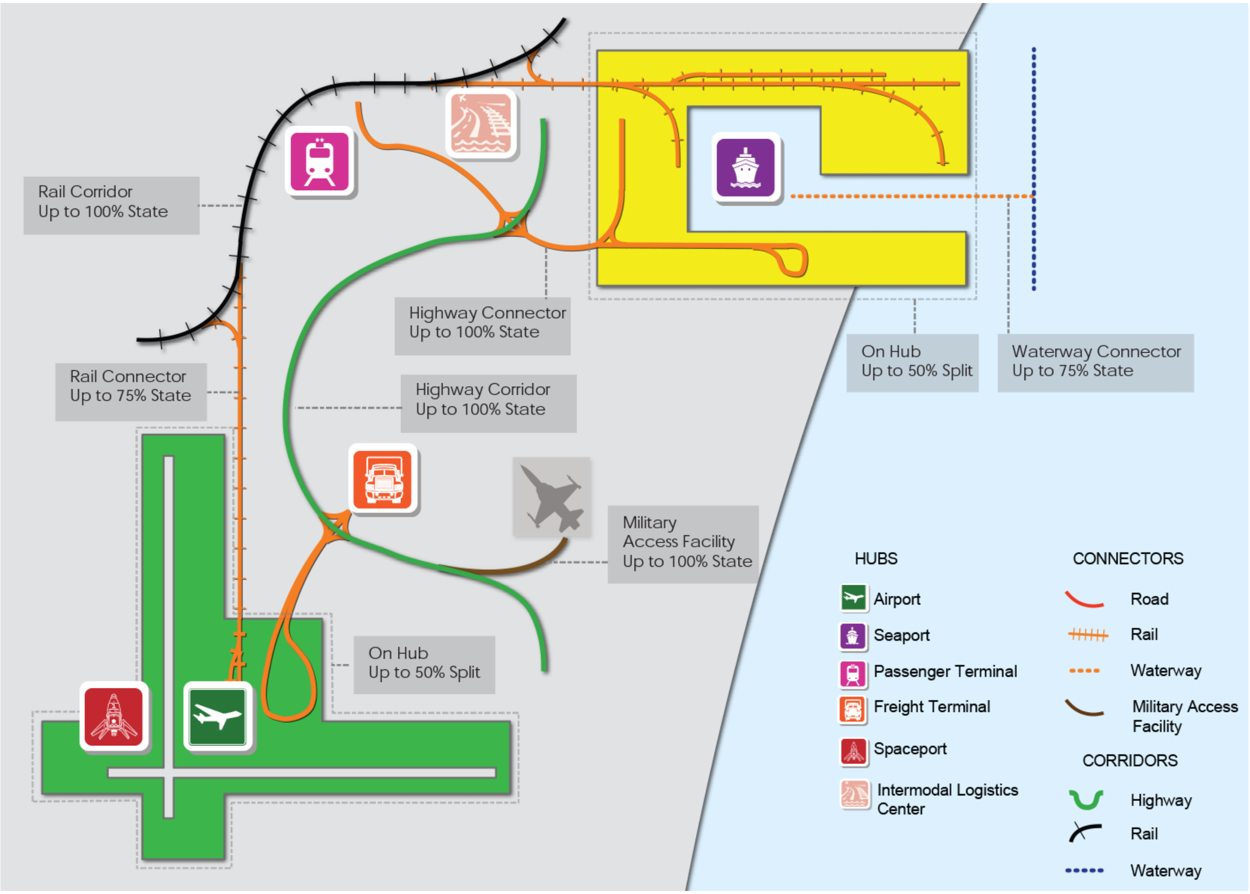


Source: Georgia Port Authority

Florida Innovation

FDOT Inland Logistic Centers (ILC)

- Generally, the ILC Infrastructure Support Program is used to support on-site investments at a designated ILC
- For those ILCs that meet certain criteria, statewide FDOT funds can be used to support improvements to designated intermodal connectors or to the state's major highway and rail corridors



Source: Florida Department of Transportation (FDOT)

Amazon Supply Chain Innovation

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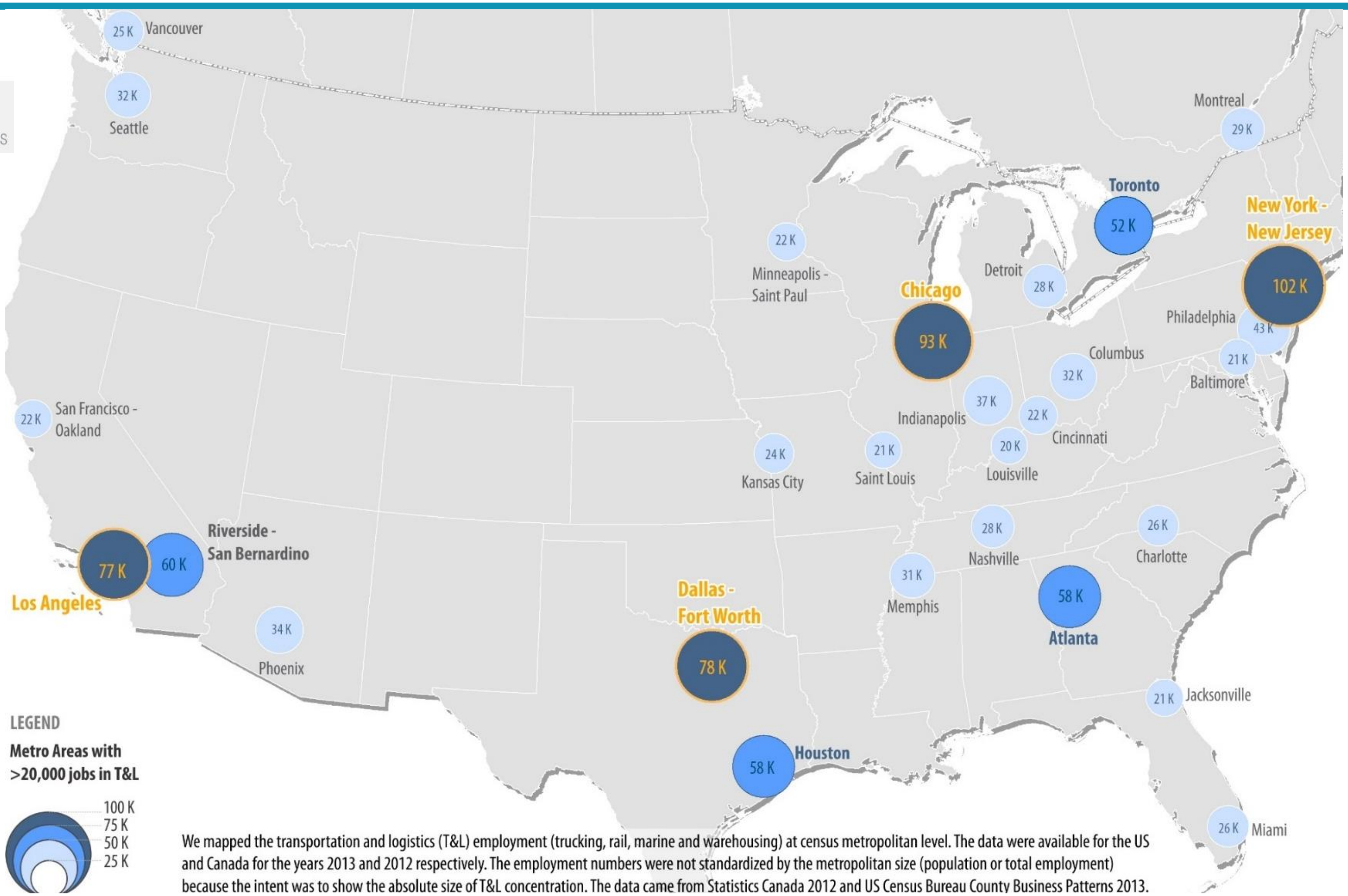
Source: MWPVL International

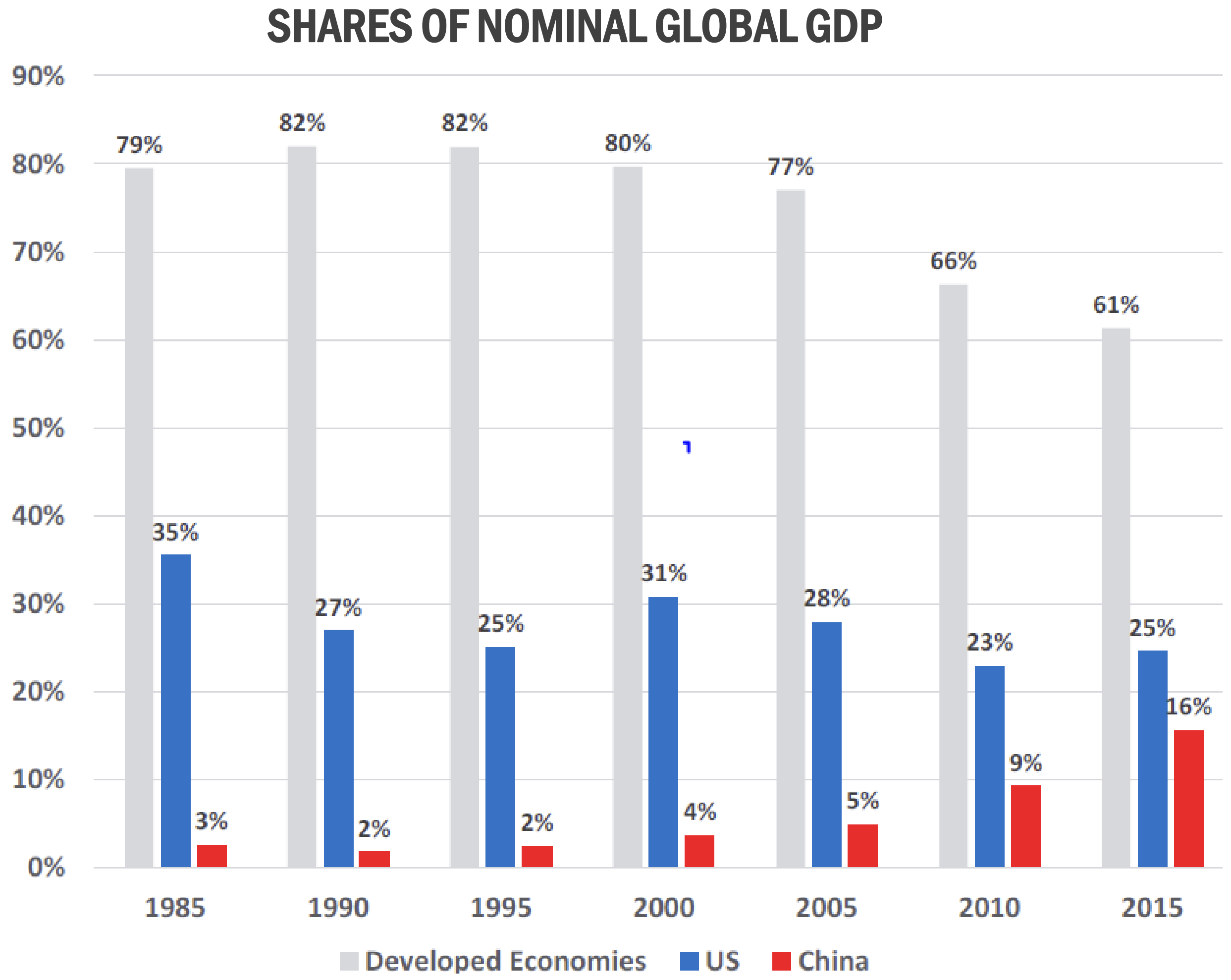
Where are Transportation & Logistics Jobs Concentrated in U.S.?

Cities with 20,000 or more Jobs in the Transportation & Logistics Sector



We mapped the transportation and logistics (T&L) employment (trucking, rail, marine and warehousing) at census metropolitan level. The data were available for the US and Canada for the years 2013 and 2012 respectively. The employment numbers were not standardized by the metropolitan size (population or total employment) because the intent was to show the absolute size of T&L concentration. The data came from Statistics Canada 2012 and US Census Bureau County Business Patterns 2013.

U.S. Economic Growth Keeping Pace Globally



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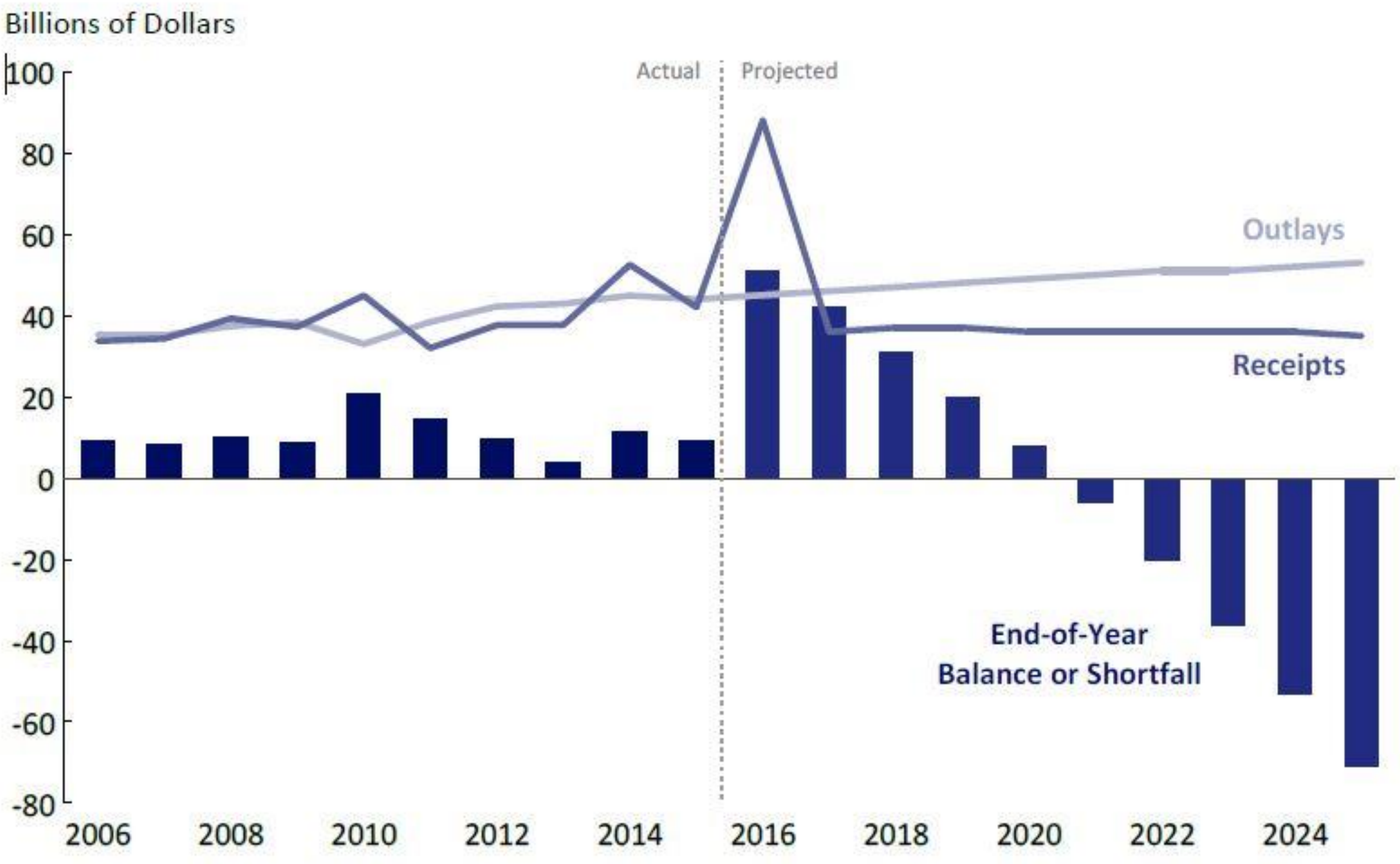
Source: World Trade Organization (WTO)

U.S. – Federal Infrastructure Funding Must Become Reliable

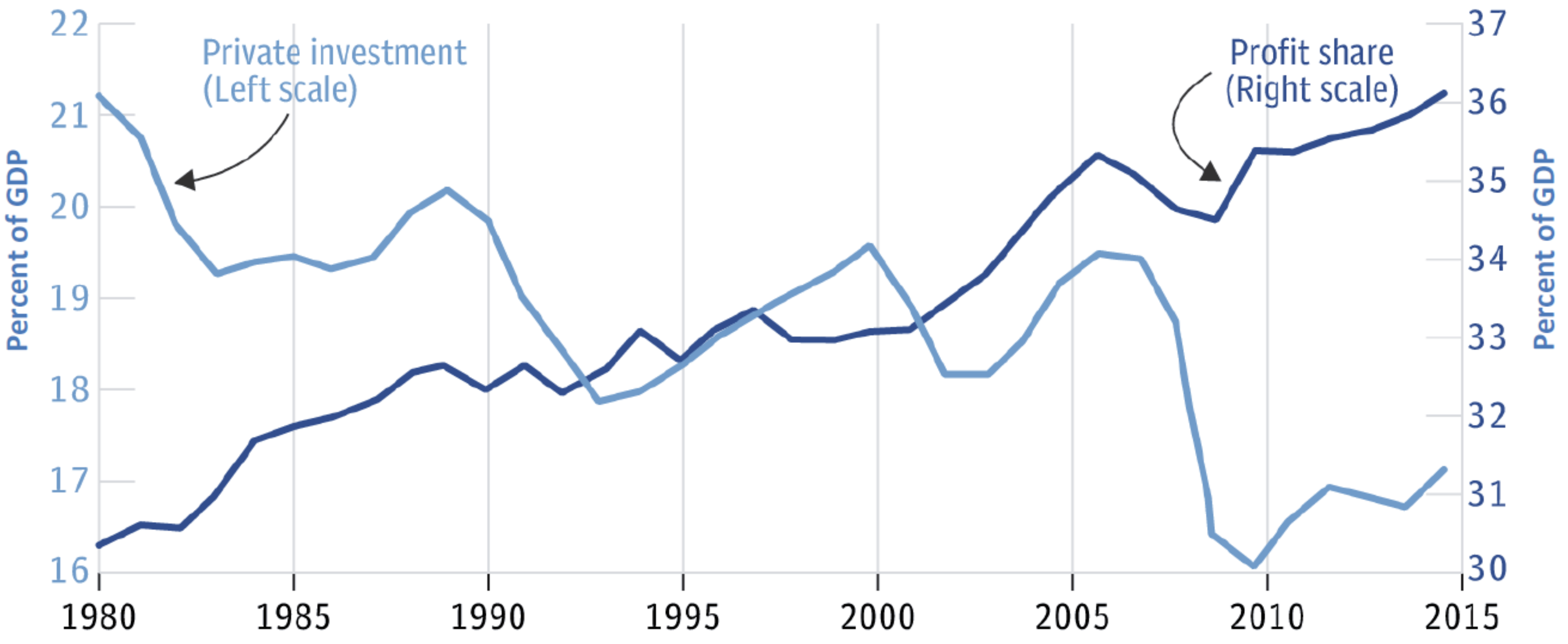


Source: U.S. Department of Transportation (USDOT)

U.S. – Policies Needed to Reward & Incent Private Investment

Low investment and therefore low growth in developed economies

PRIVATE INVESTMENT & PROFITS IN DEVELOPED ECONOMIES



Source: UNCTAD

CONCLUSIONS

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- Landside effects of Hanjin may last longer than oceanside effects
- Big ships will concentrate and exacerbate port-related congestion
  - *Inland supply chain competitiveness an increasing industry concern*
- Our opportunity: U.S. public and private sector creativity and cooperation

THANK YOU

Questions?

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