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Latin American Update: Innovation



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Moffatt & Nichol Economics Group

Moffatt & Nichol Background

- ENR Top 100 company, founded in 1945 in Long Beach, California
 - Offices: North America, **South America**, **Central America**, Europe, Middle East, and the Pacific Rim
 - More than 600 Employees
 - 6 Practices: Goods Movement, Energy, Ports, Coastal, Urban Waterfronts & Marinas, Inspection & Rehabilitation
- M&N combines the expertise of technical and commercial specialists gained over 65 years of planning and engineering experience on over 8,000 projects:
 - Freight planning and market analysis
 - Economic analyses of investment/privatization
 - Strategic development plans
 - Port selection/network analysis
 - Coastal engineering
 - Port and waterside construction (marinas)
 - Terminal design for freight and passenger movement
 - Railroads and capacity expansion
 - Environmental issues/emission modeling



American Society of Civil Engineers
John G. Moffatt – Frank E. Nichol
Harbor and Coastal Engineering Award

Summary

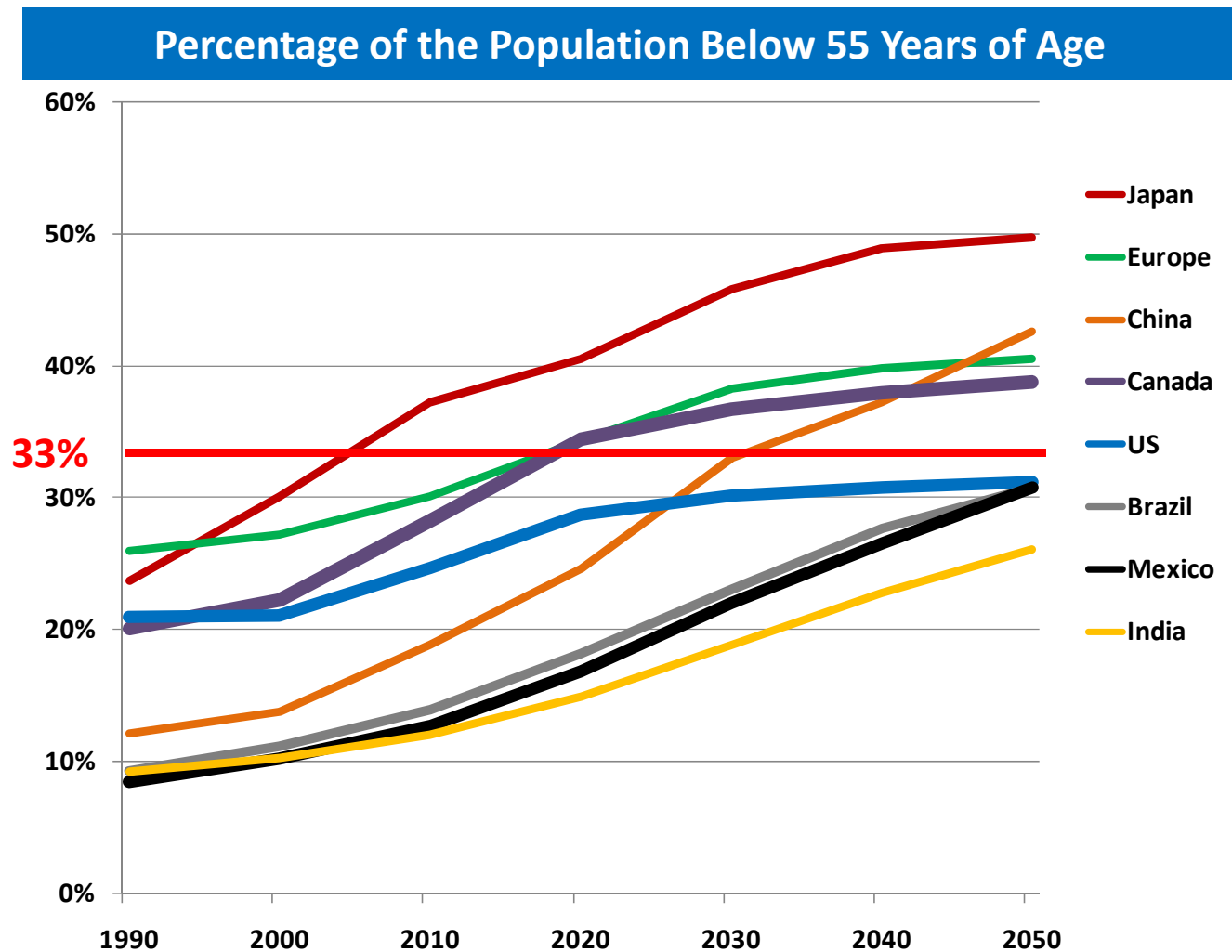
- Ugly** **Dependent on raw material exports**
Dependent on Asian demand but competing with Asian suppliers
Africa is resource rich and an emerging competitor
Borrowed in US\$ to finance infrastructure

- Bad** **Ports have long dwell times and slow truck turn times**
Intermodal freight is the exception not the rule
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Dredging in most major and many minor LatAm ports
Panama Canal expansion
Ambitious plans for freight infrastructure improvements

LatAm is a young region in an aging world

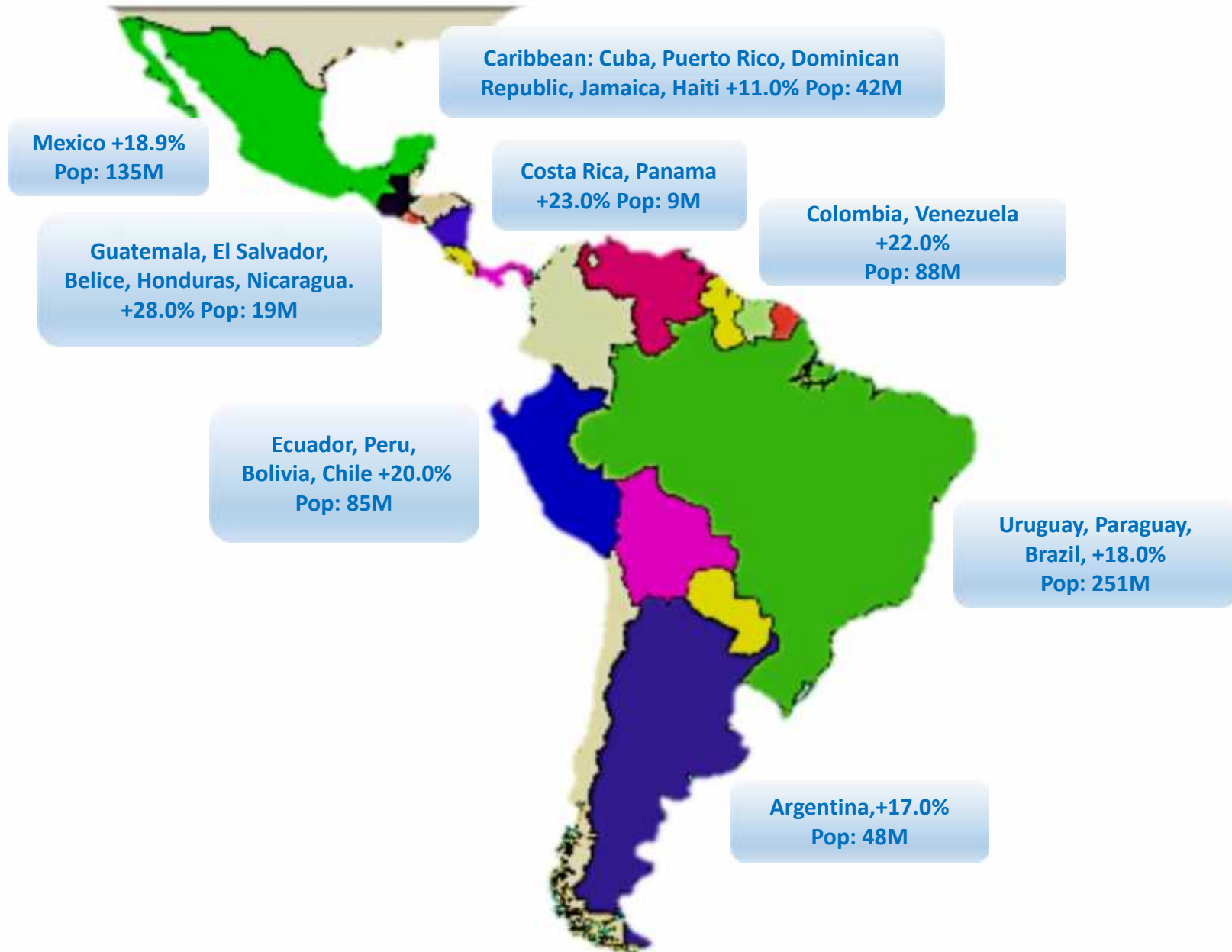
Economic growth is driven by population and output per capita growth. Countries with younger populations grow faster than countries with older populations. Younger people spend more of their money on goods than on services. UN demographic projections indicate LatAm has a younger population than most regions and is estimated to remain one of the “youngest” for many decades.



Source: International Monetary Fund, Moffatt & Nichol

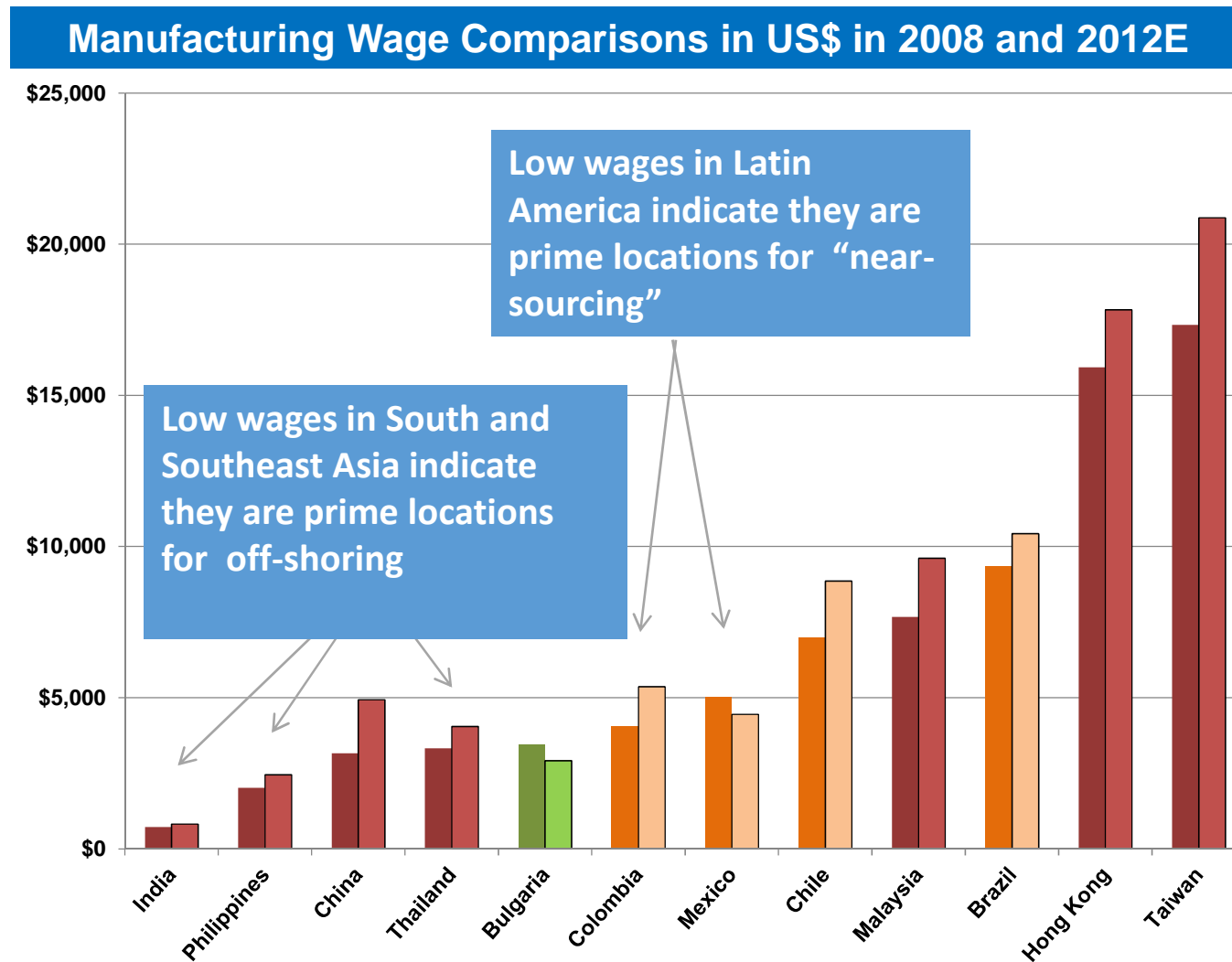
LatAm population growth 2010-2030

Overall population growth is estimated to be 19%, increasing the population to 700 million



If not China, then where?

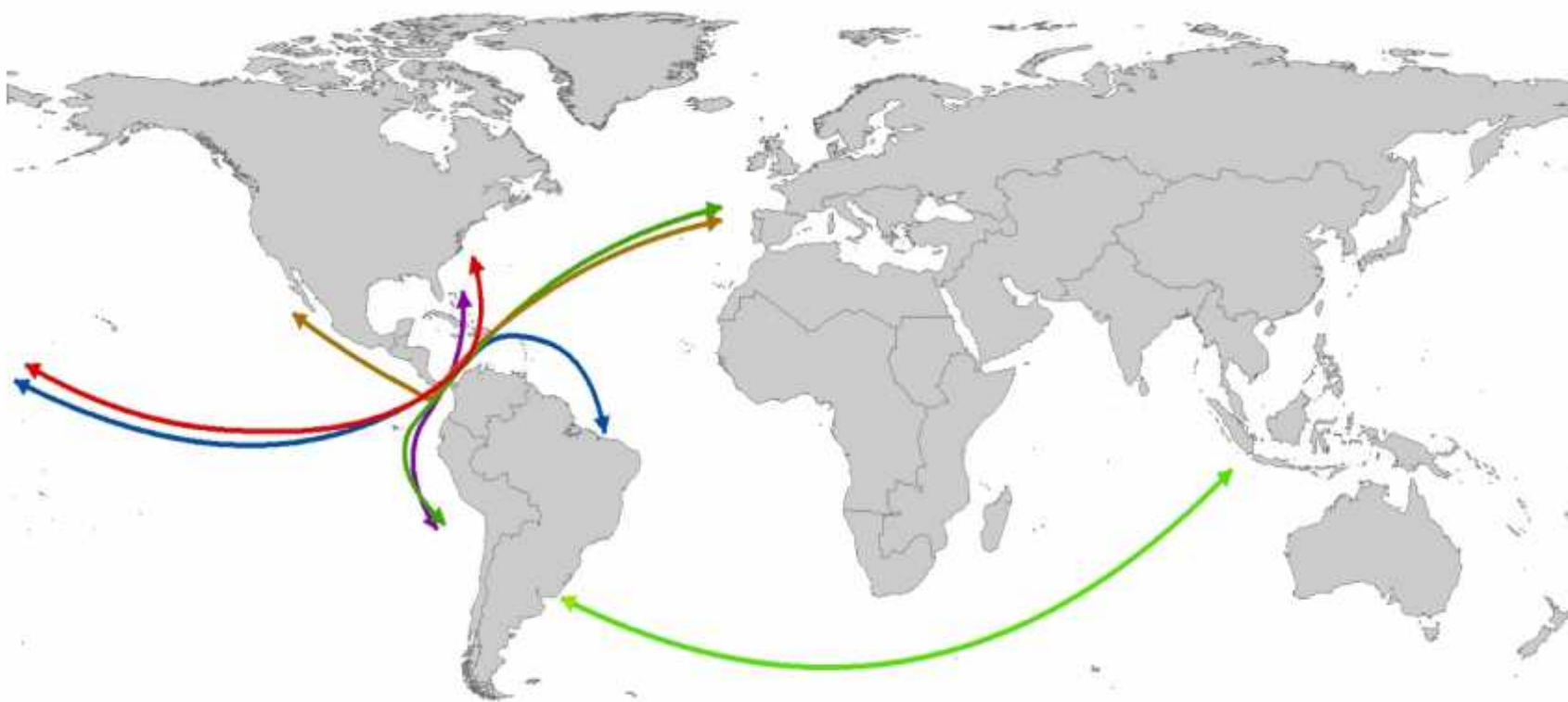
It is unlikely that manufactured goods which are labor intensive will be manufactured in the US. South/Southeast Asia and Central America appear to be well-positioned to take up the slack. South/SE Asia favors East Coast ports. Central America, Mexico in particular could hurt port volumes.



The Panama Canal is a major LatAm direct and feeder services link

A substantial share of Latin America's global trade flows through the Panama Canal. The southern half of the East Coast of South America connects via the Cape of Good Hope.

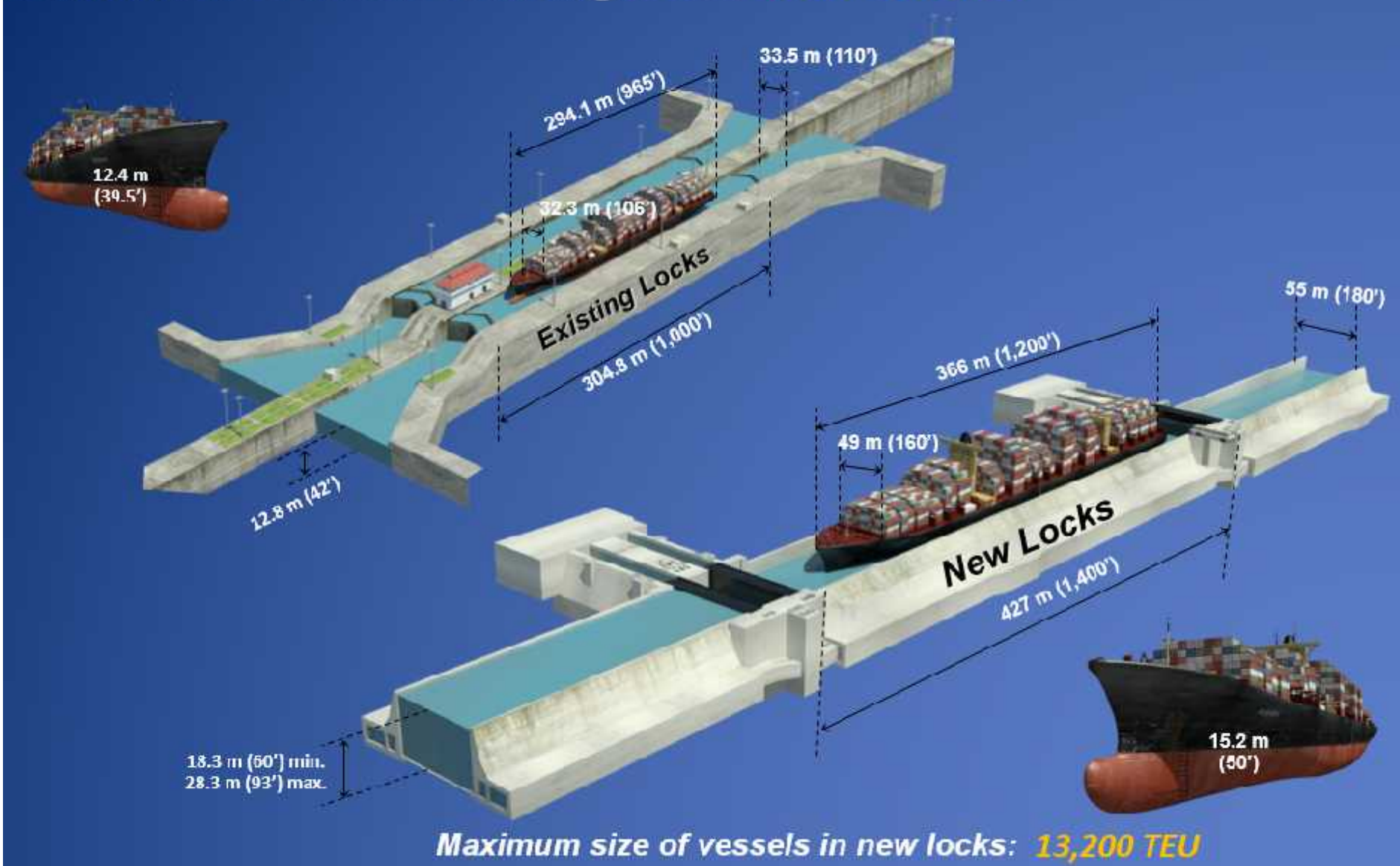
Major Latin America Trade Routes and Services Transiting The Panama Canal



Source: ACP, Moffatt & Nichol

Existing and new dimensions of Panama Canal locks and ships

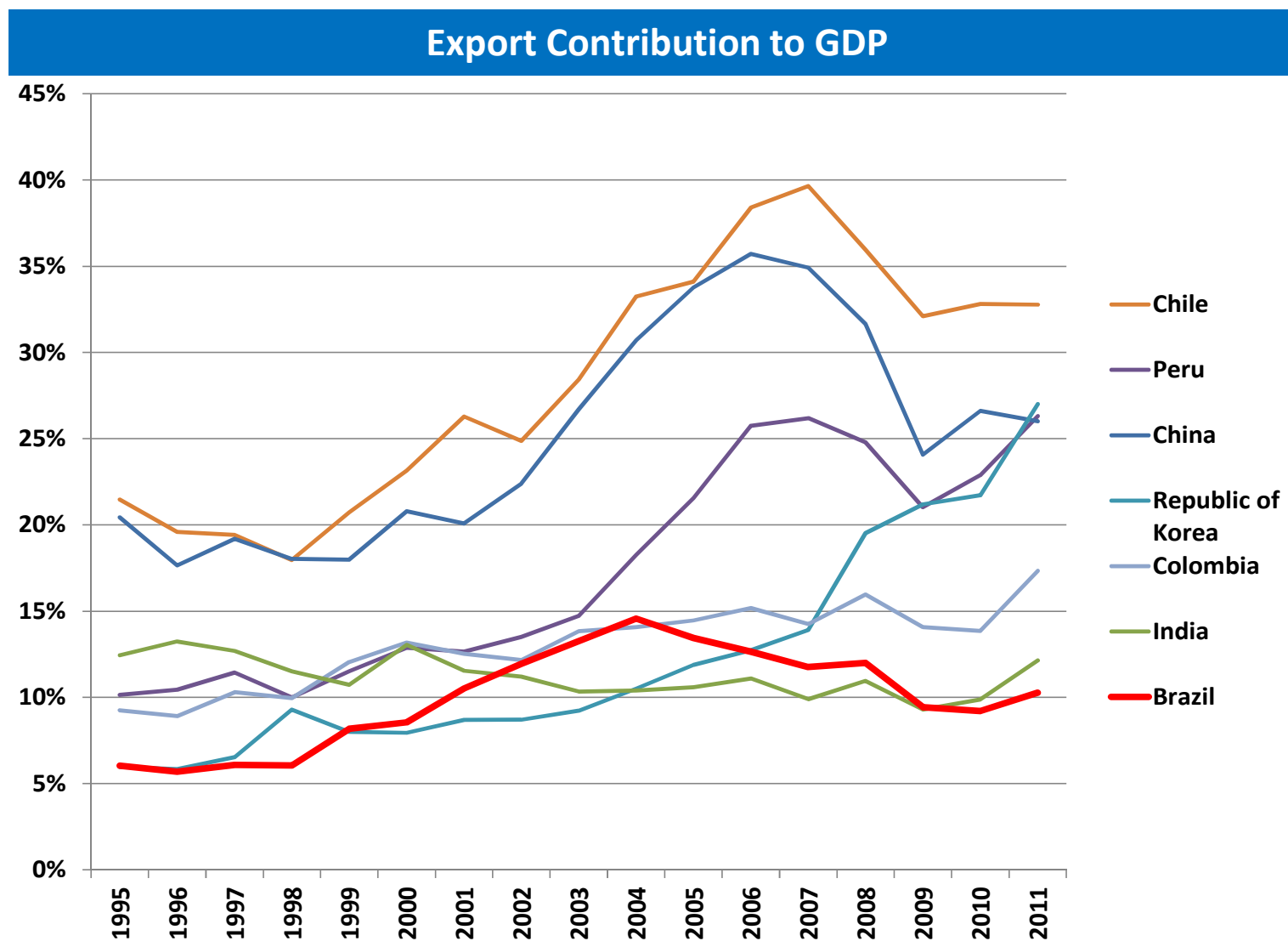
Maximum size of vessels in existing Locks: 4,400 – 5000 TEU



Source: Panama Canal Authority

Latin America's Port Infrastructure: Top Down Perspective

Countries with better ports, hinterland connectivity and direct services to major ports have higher export contributions to GDP.



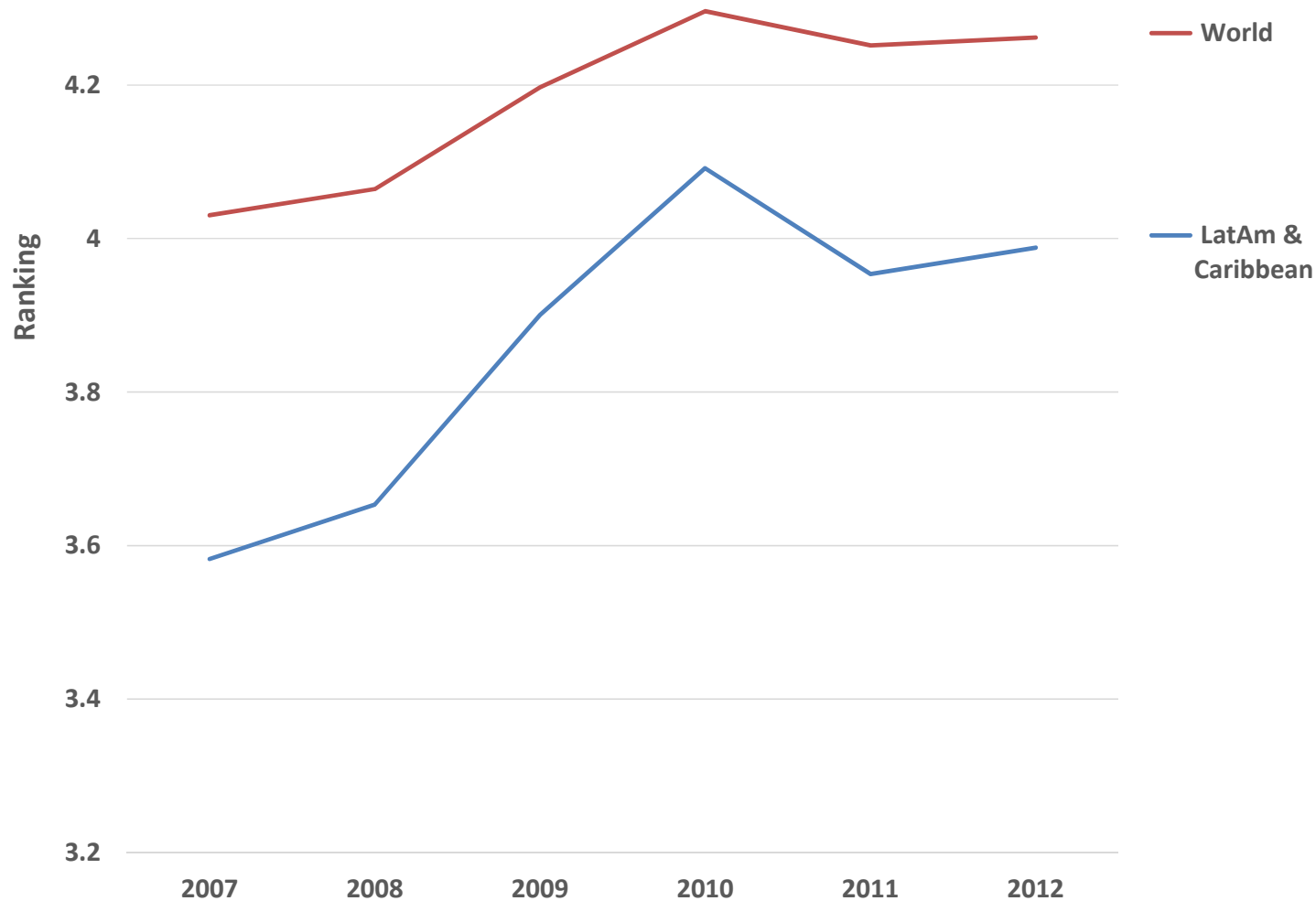
Source: World Trade Organization, International Monetary Fund, Moffatt & Nichol

Latin America's Port Infrastructure Is Rated Below Average

Port investment in Latin American has been increasing, but sufficient channel capacity, productivity and berthing delays continue to be an issue.



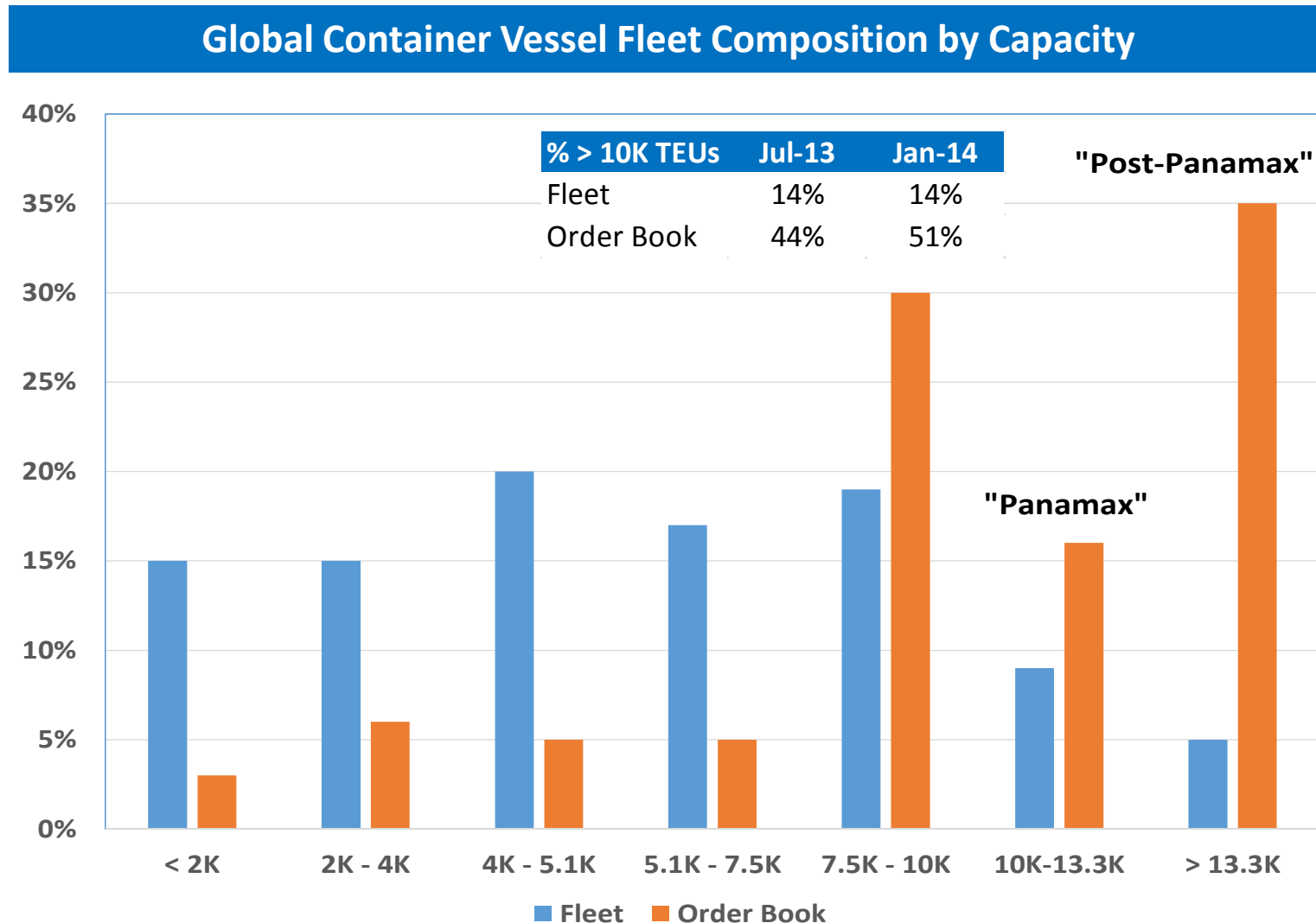
World Bank Port Infrastructure Rating



Source: World Bank

Larger container, bulk and ro-ro vessels are gaining share

Ocean carriers are ordering larger vessels to offset fuel costs and remain competitive. Ports everywhere need to be able to turn ships much faster than ever before via densification, automation and dwell time reduction.



Source: Alphaliner

Mexico transportation infrastructure development

Mexico is developing an impressive track record of infrastructure investment milestones, not just new marine terminals and dredging, but rail investments and highway improvements. However, recent policy announcements give pause.

Fidernor-Este Logistic Corridor - The Baluarte Bridge



Source: New York Times

Colombia's Trade is Diversifying

Imports of consumer and construction related goods have grown, but exports of mining, agriculture and industrial products remain large, staple trade volumes

Development Curve

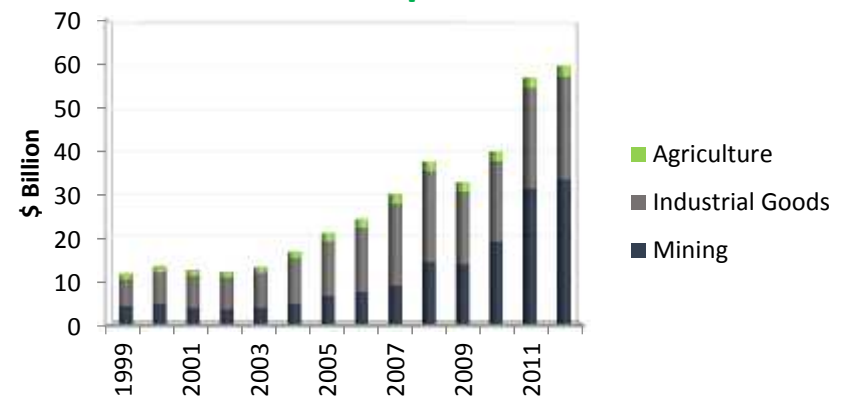
Emerging Economies:

- Industrial production for local consumption
- Low consumer related import demand
- Limited international trade except for naturally endowed commodities

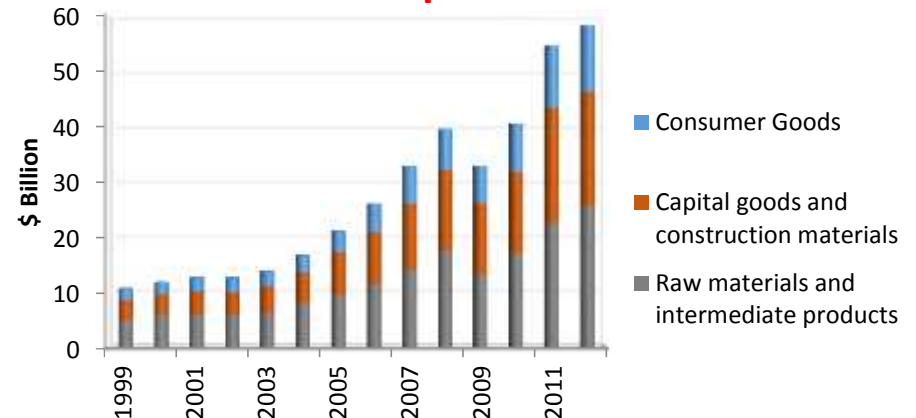
Developing Economies:

- Investment in freight movement infrastructure
- International trade growth mixed with export volumes of manufactured and naturally endowed goods, as well as growing import volumes of construction and consumer related goods

Colombia's Exports



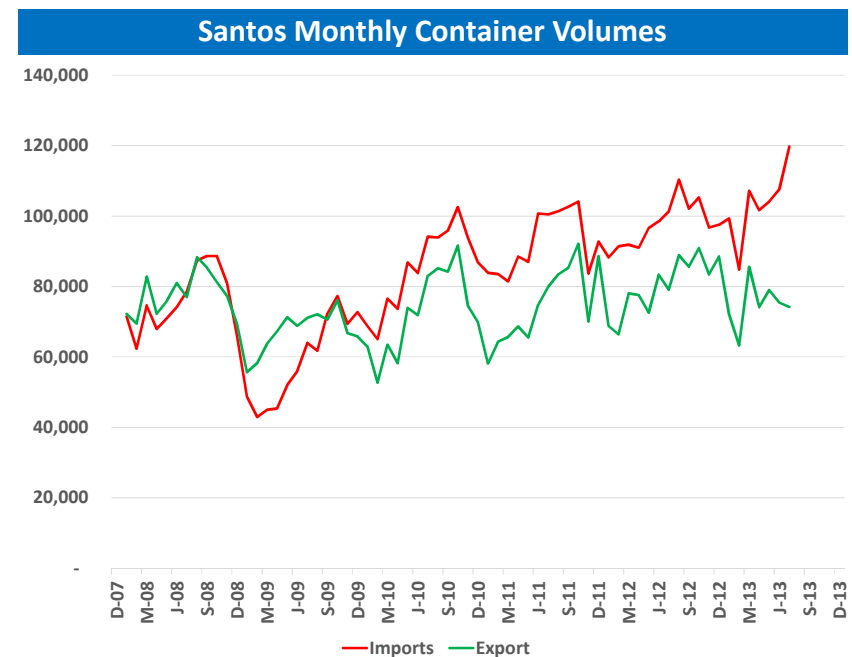
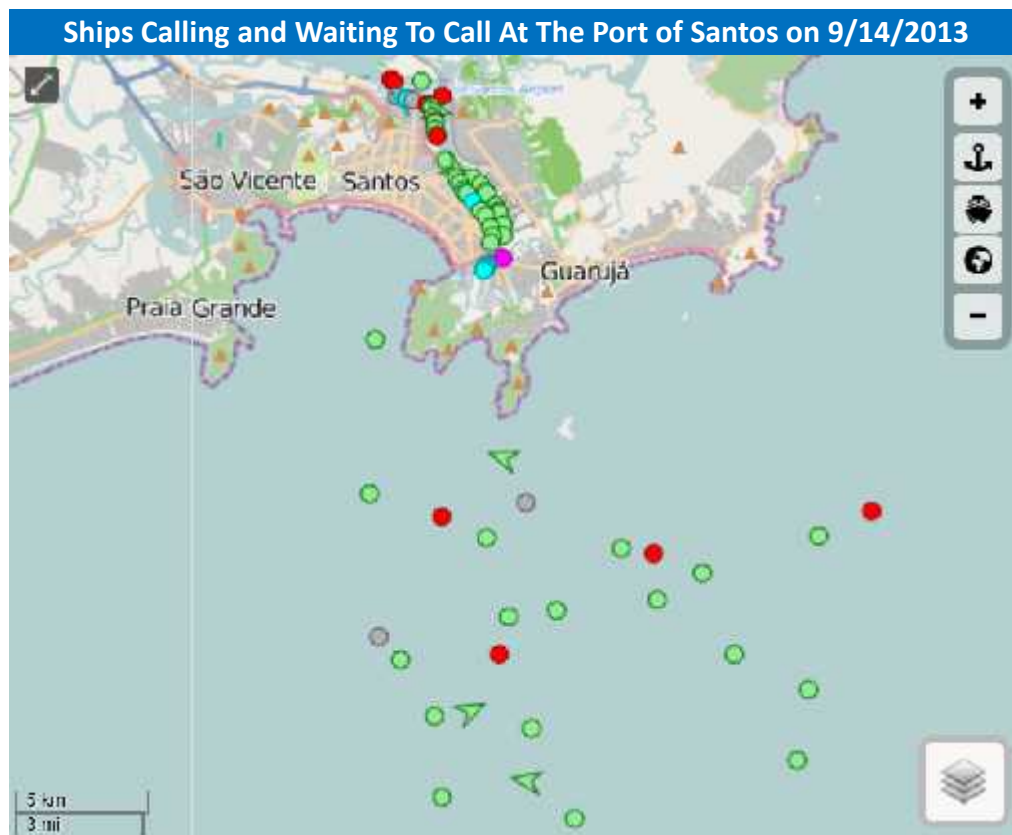
Colombia's Imports



Santos handles 780,000 tons of goods a day and is severely congested



The average wait time for vessels arriving in Santos is about **3 days**. Due to inland infrastructure issues, it can take about **7 days** to get shipments into and out of the terminals. The dwell time for containers is **21 days**, while internationally this would take 2-4 days. Truckers may also need to wait **12-24 hours outside of ports**, and this leads to extra costs and knock-on effects for all cargo moving through the ports, including finished vehicles. The Port of Long Beach targets **one hour** turnaround time for trucks.



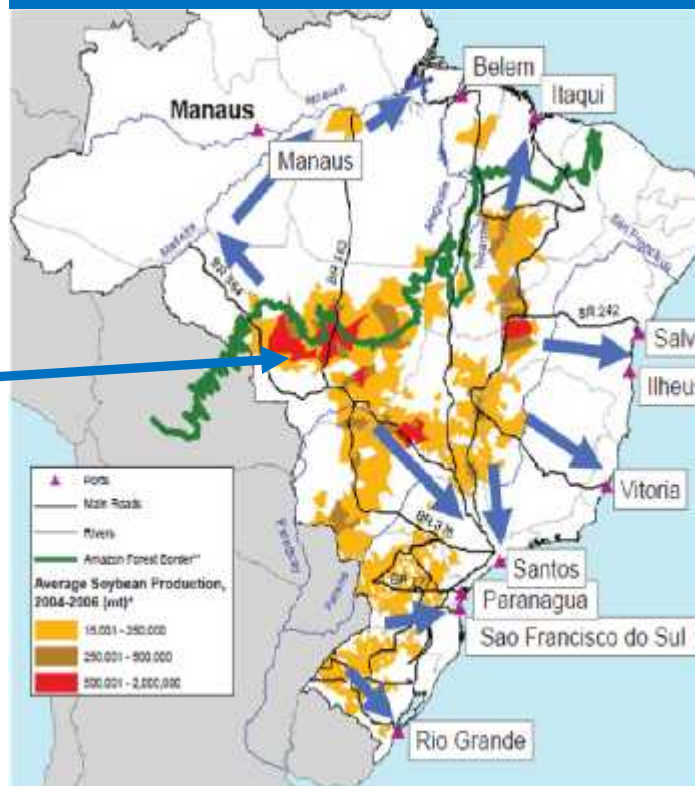
Brazil Is making a major infrastructure development policy change

Brazil's exports have underperformed but a major infrastructure development policy is in the process of being rolled out. Panama Canal expansion could be a game changer for Brazilian soy exports as the government seeks to develop inland ports on rivers feeding into the Amazon River for transshipment to large bulkers transiting the canal.

Brazil's Serrado Is Larger Than The Top 10 Cornbelt States Combined



Brazilian Soy Production and Export Locations



Soy Export Routes To China



Brazil could overcome US agricultural export competitiveness

Agricultural productivity is rising in the Americas but weakening in Asia. The US can benefit from this, if US can get products to the market, but its competitors are gaining. Brazilian exports are likely to benefit from the Panama Canal expansion. **Press reports indicate Brazil soy exports could decline 34%** and have a \$180 per ton advantage from the Cerrado to Shanghai over Davenport to Shanghai.

Costs of transporting soybeans, U.S. vs. Brazil. Price per metric ton in 2012 – Q3

	Davenport to Shanghai	Sioux Falls to Shanghai	N. Mato Grosso to Shanghai
Truck	\$13.51	\$13.51	\$109.73
Barge	\$24.86		
Rail		\$55.66	
Ocean	\$46.82	\$23.88	\$32.00
Total Transportation	\$85.19	\$93.05	\$141.73
Farm Value	\$565.85	\$552.38	\$570.66
Customer Cost	\$651.04	\$645.43	\$712.39

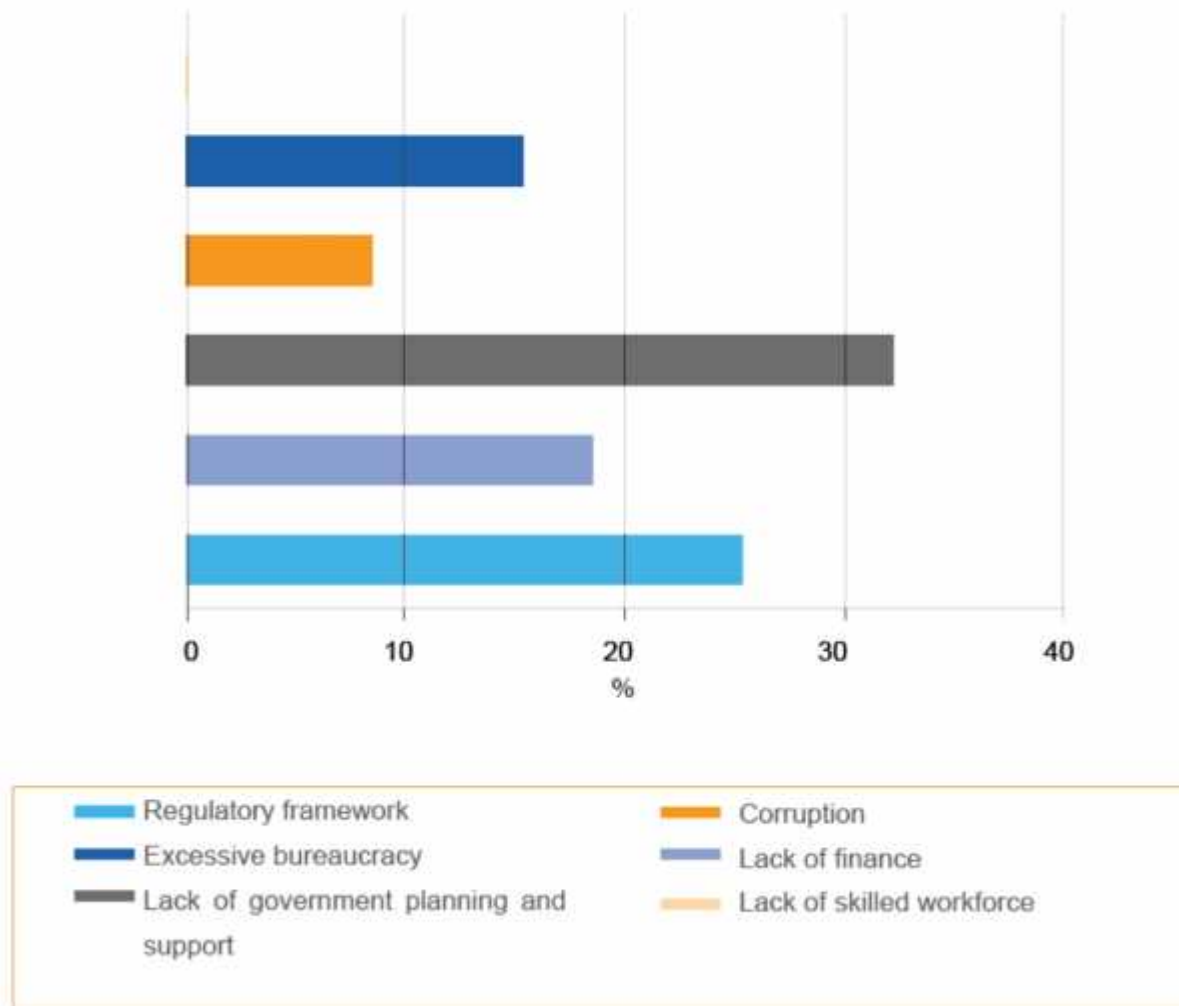
Source: U.S. Department of Agriculture



Infrastructure investment obstacles in LatAm

BNamericas surveyed participants in LatAm infrastructure to identify the main obstacles. If these can be overcome... look out above!

What is the main obstacle to the implementation of infrastructure projects in the country where you work?



Source: BNamericas

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Moffatt & Nichol was founded in 1945 to provide engineering and consultancy services to the world's maritime industry.

Today, Moffatt & Nichol supports port and maritime projects, transportation infrastructure, coastal and environmental restorations, and waterfront developments worldwide.

Our capabilities allow us to take a project from conception, through the critical study and analysis process and on to design, engineering and program management. Clients can expect thoroughly integrated projects, completed under exacting quality control standards, with the innovation and creativity for which our firm is known worldwide.

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