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100
1918 · 2018

forward together · saam vorentoe · masiye phambili

Transport Decarbonisation in Times of Unprecedented Global Crisis Railways

Jan Havenga

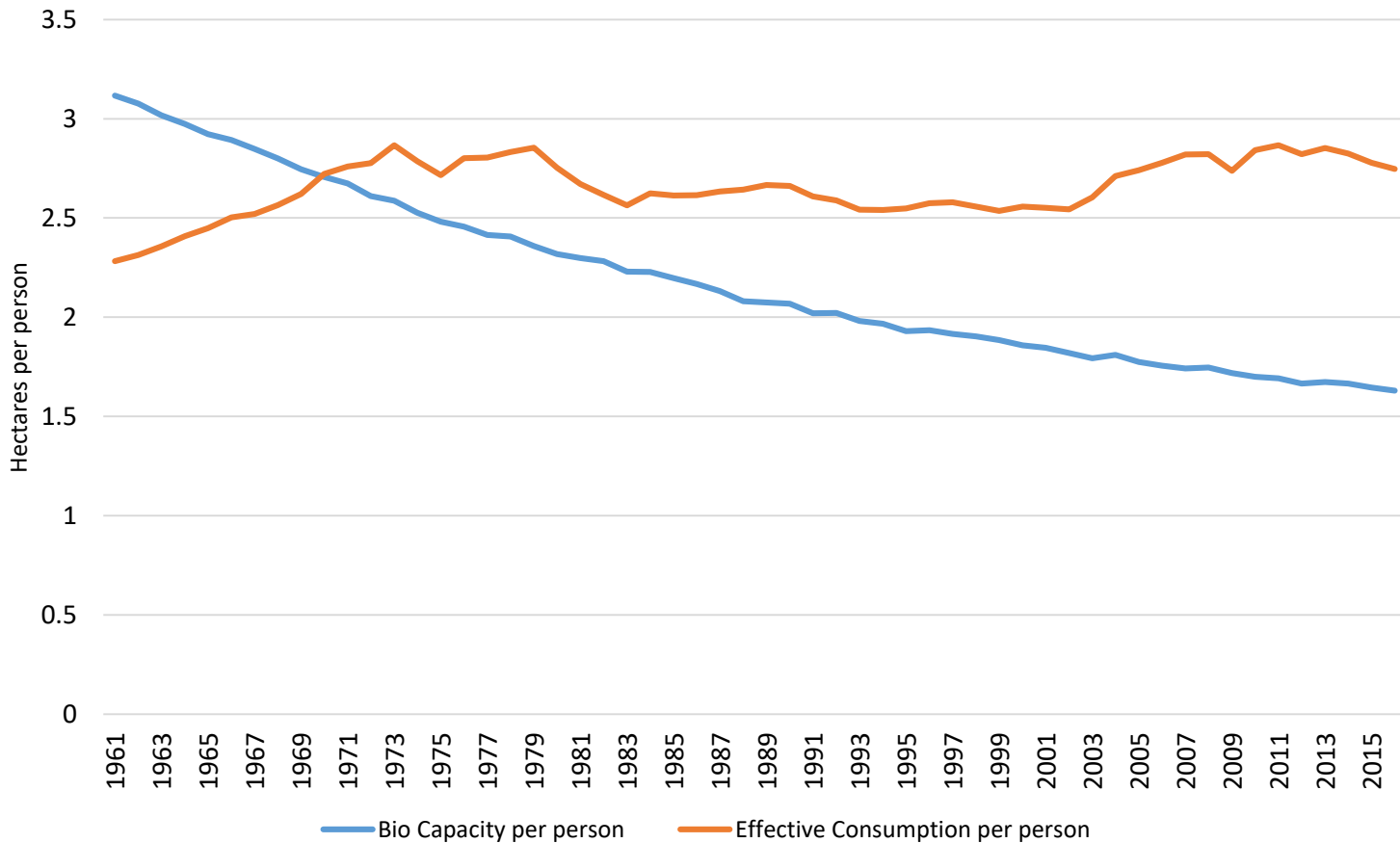
Zane Simpson

Stefaan Swarts

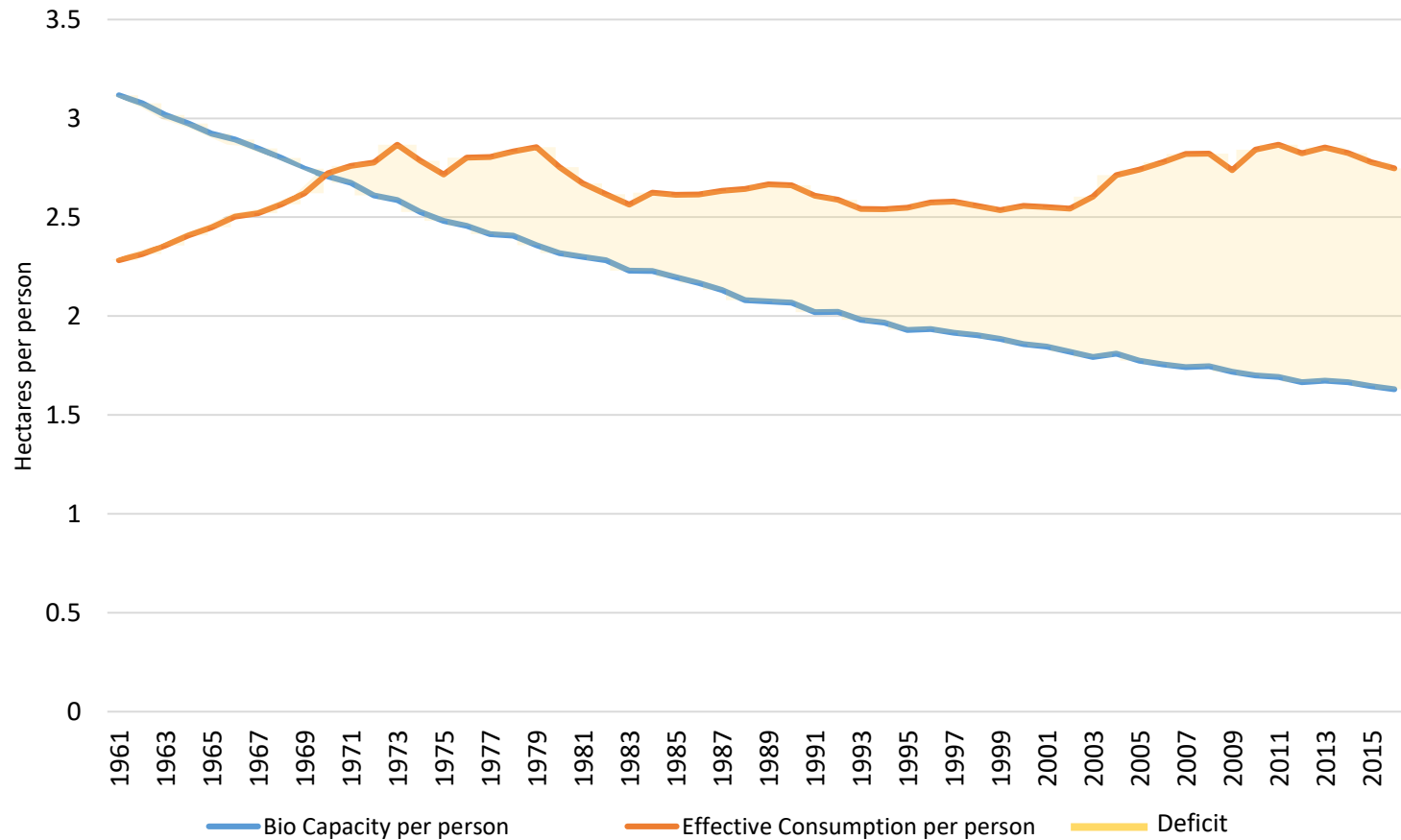
Four core lessons from Covid



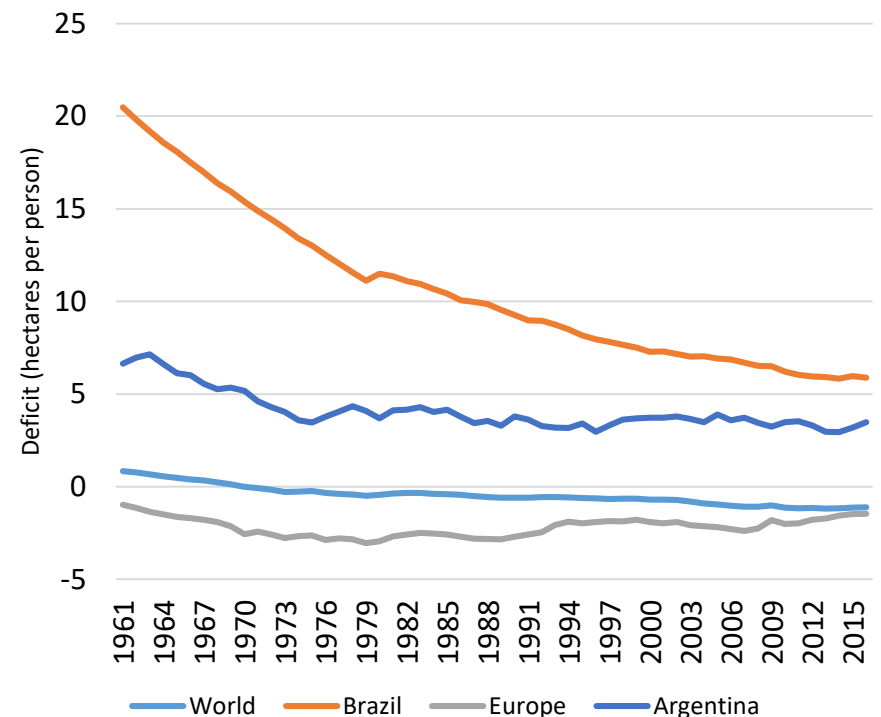
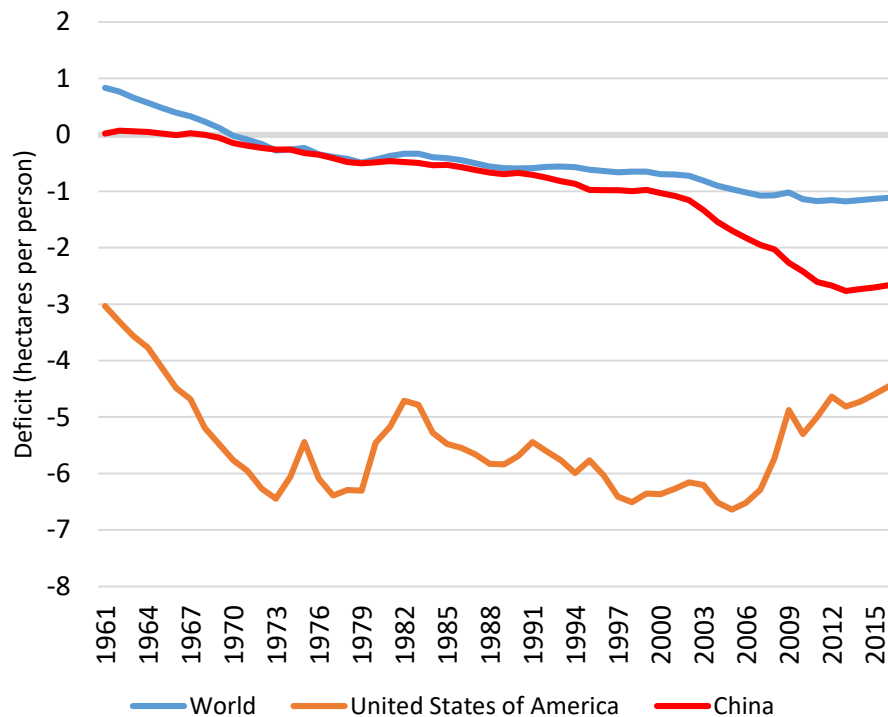
The world ran into a capacity deficit 50 years ago



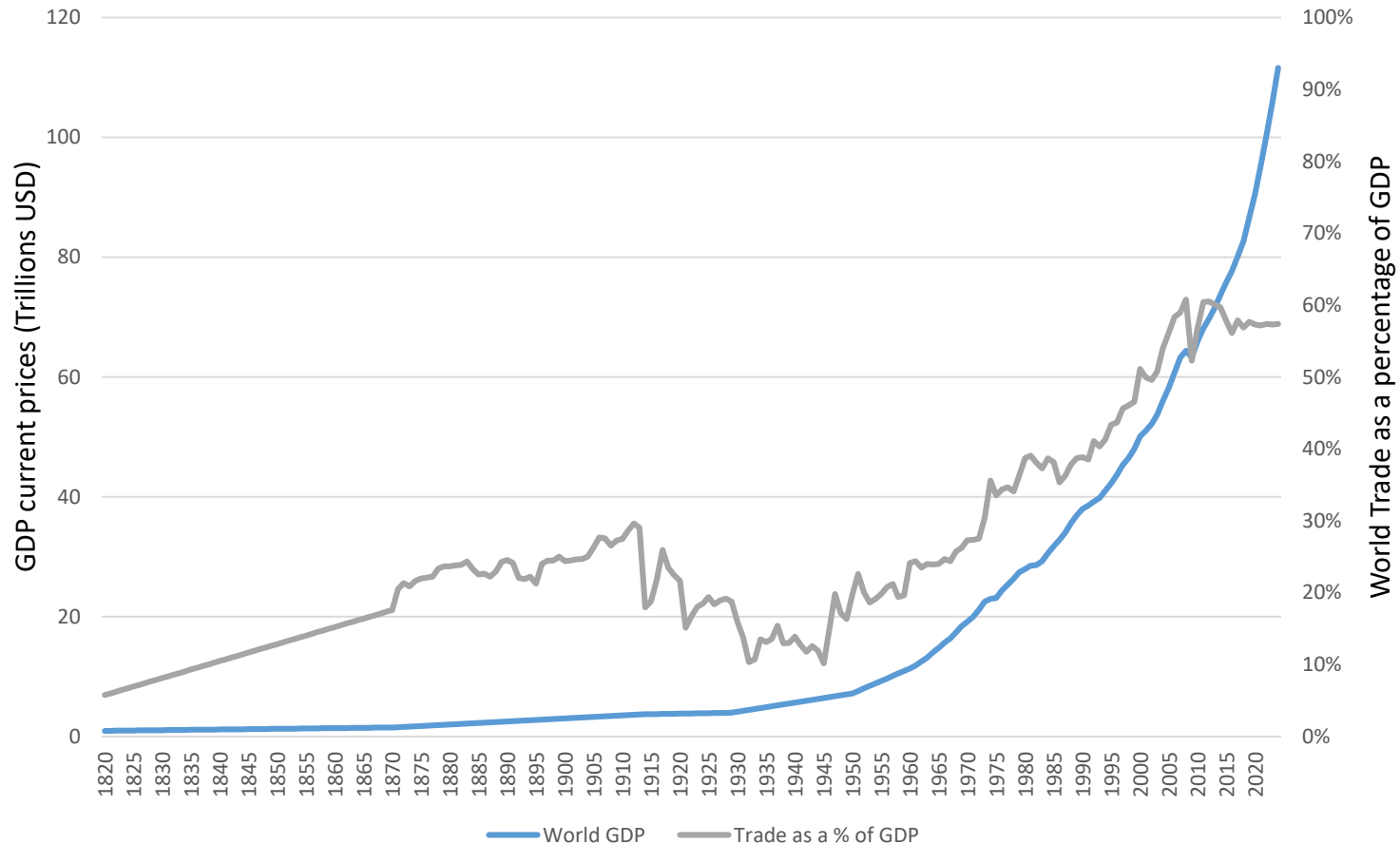
The world ran into a capacity deficit 50 years ago



Slow turnaround – not in time

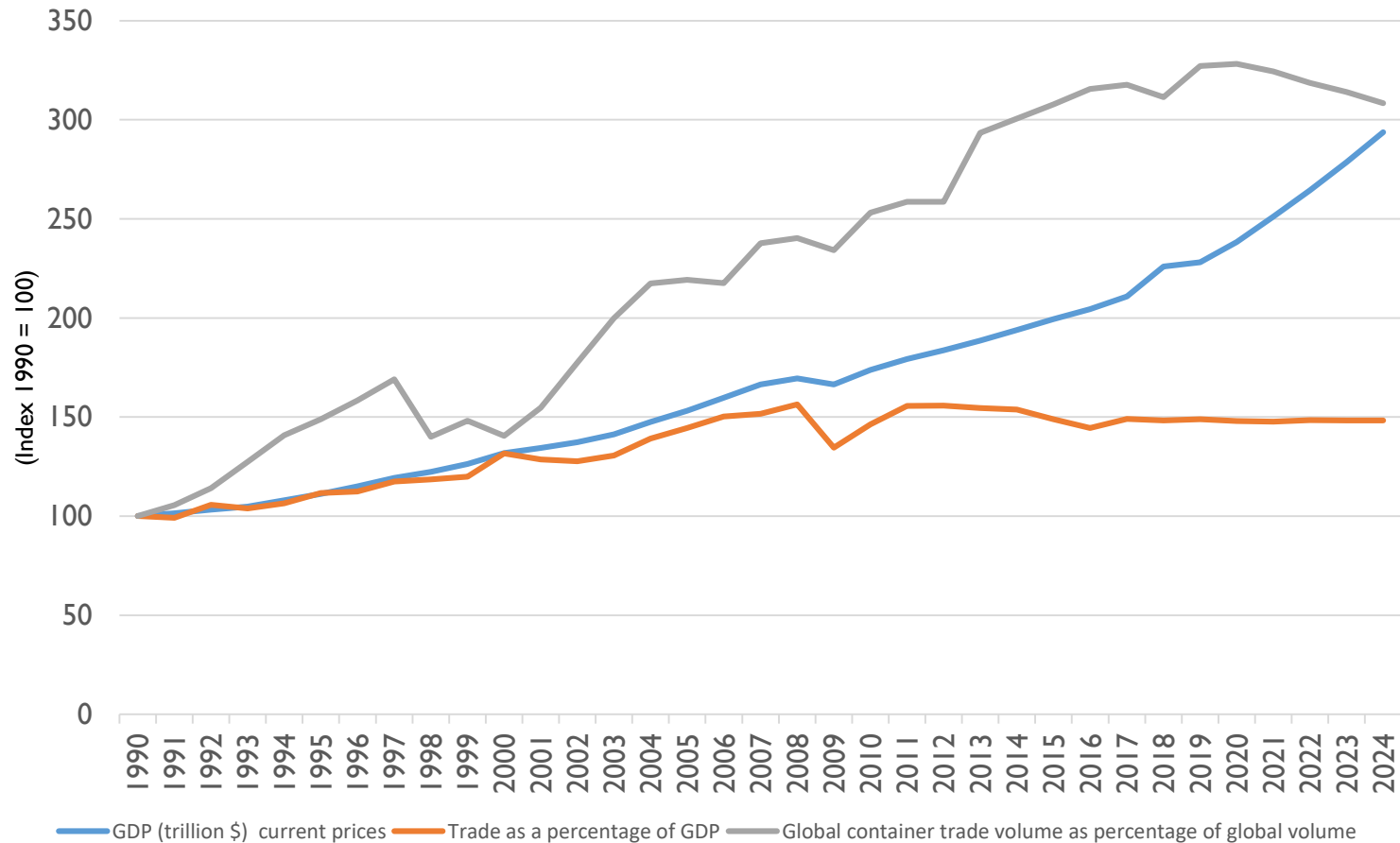


Global trade growth has reached a ceiling – before COVID

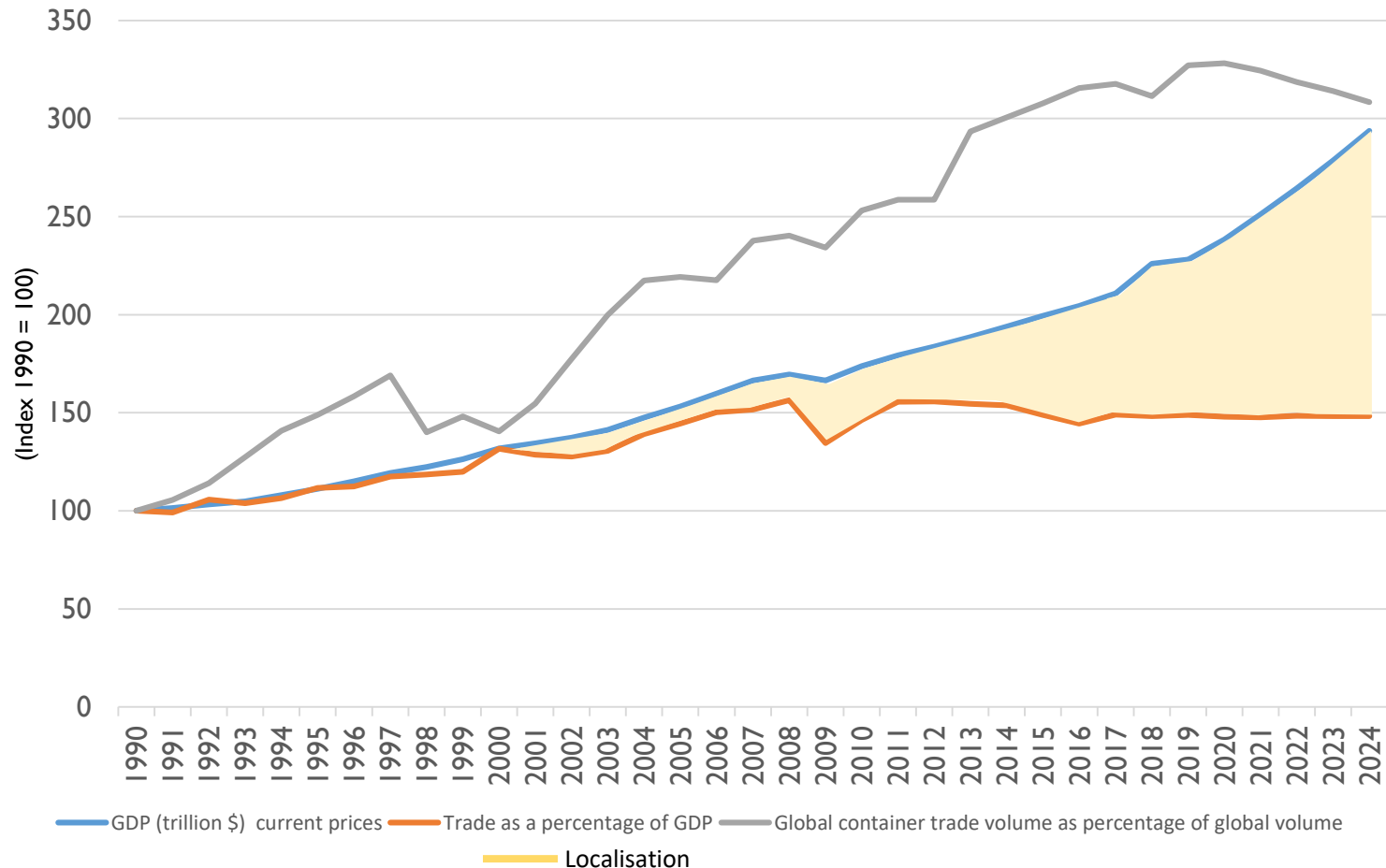


Source: Our World in Data, World Bank, and OECD data

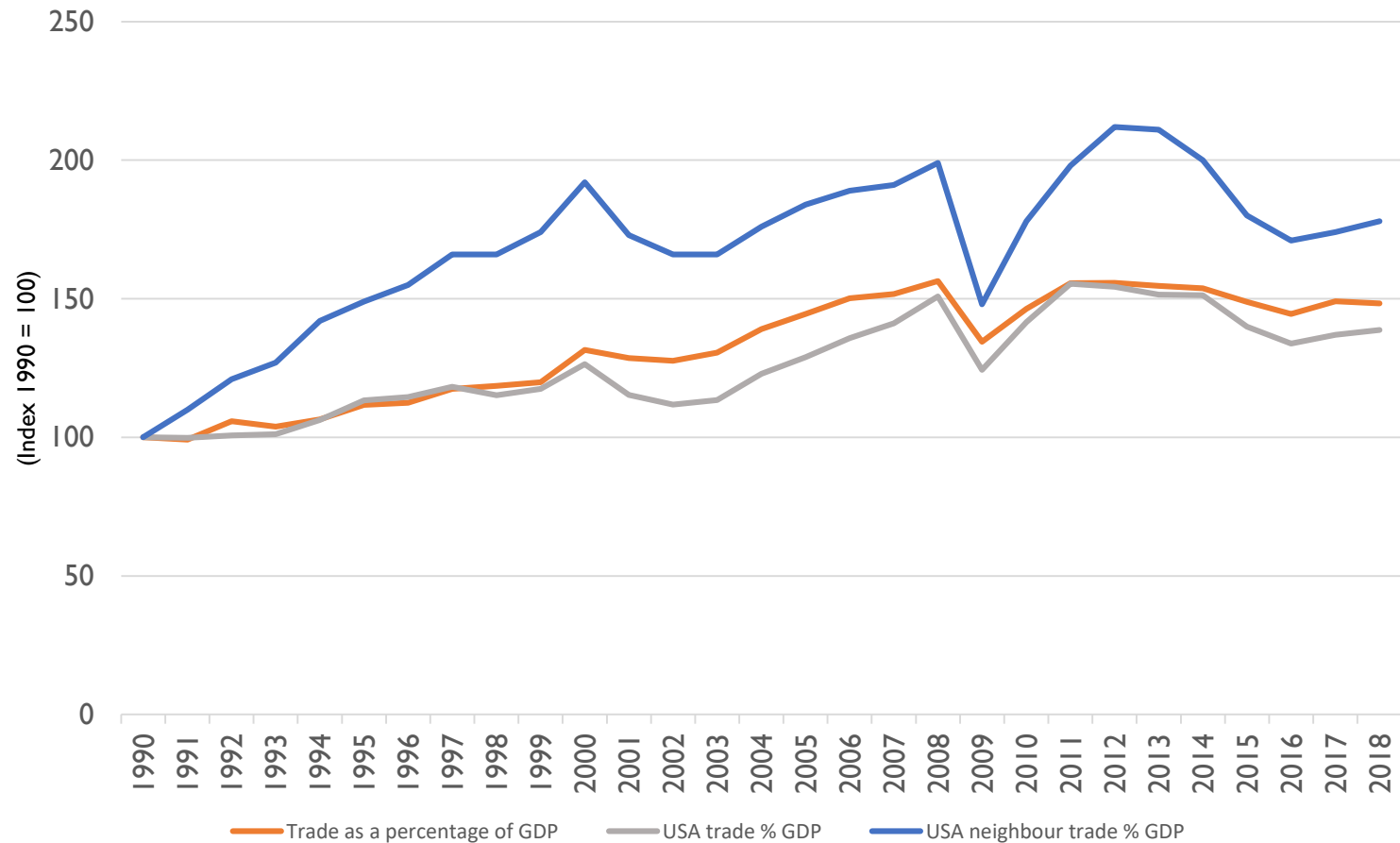
But the previous crisis confirmed a permanent trend



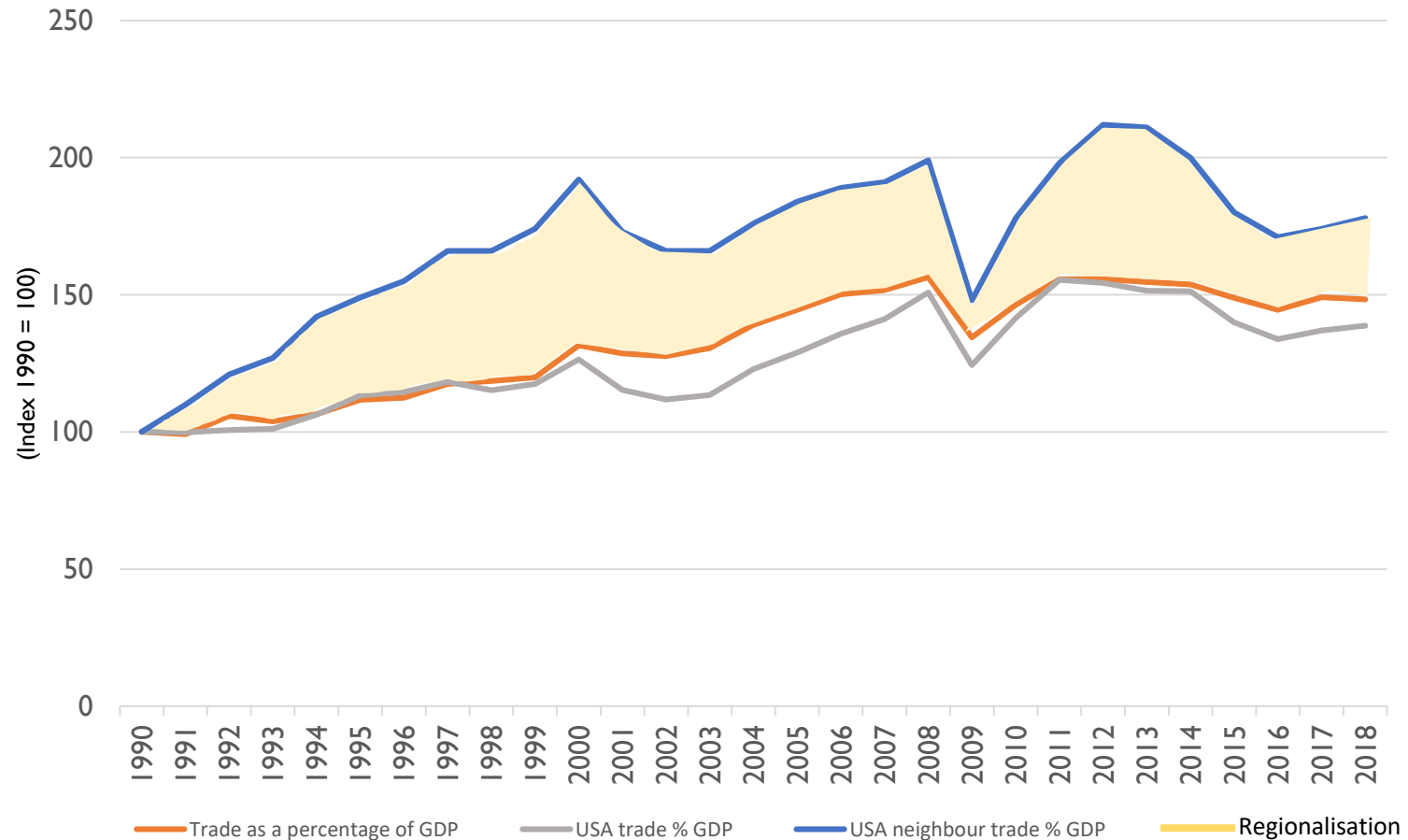
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Not all continents are the same, but clear developments in this direction



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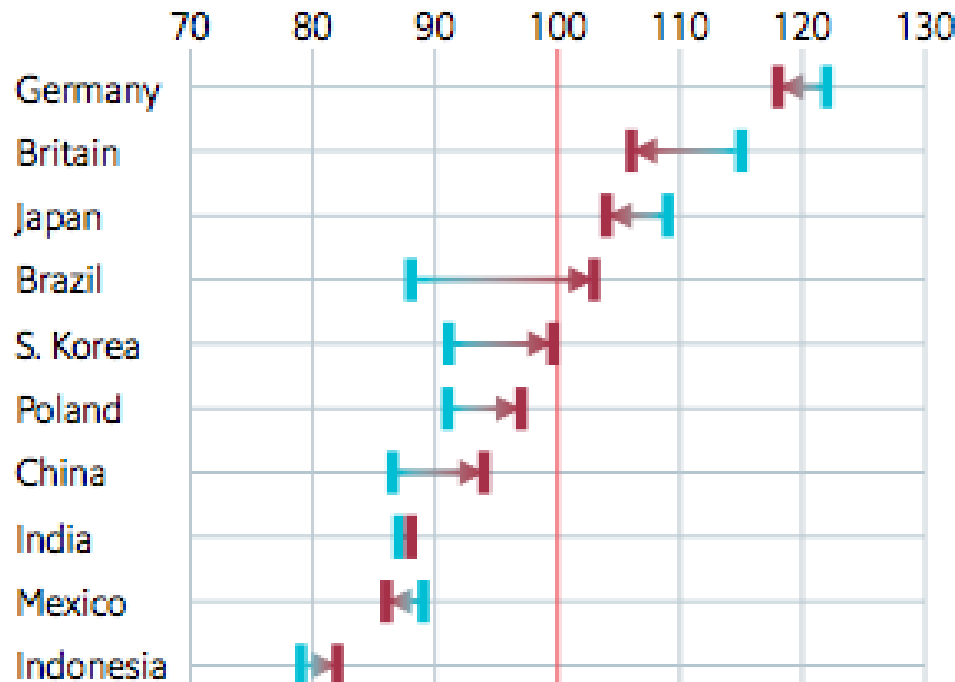
Driven by the new convergence of production factor normalisation



The new convergence

Manufacturing-cost index*, United States=100

■ 2004 ■ 2018



Source: Boston Consulting Group

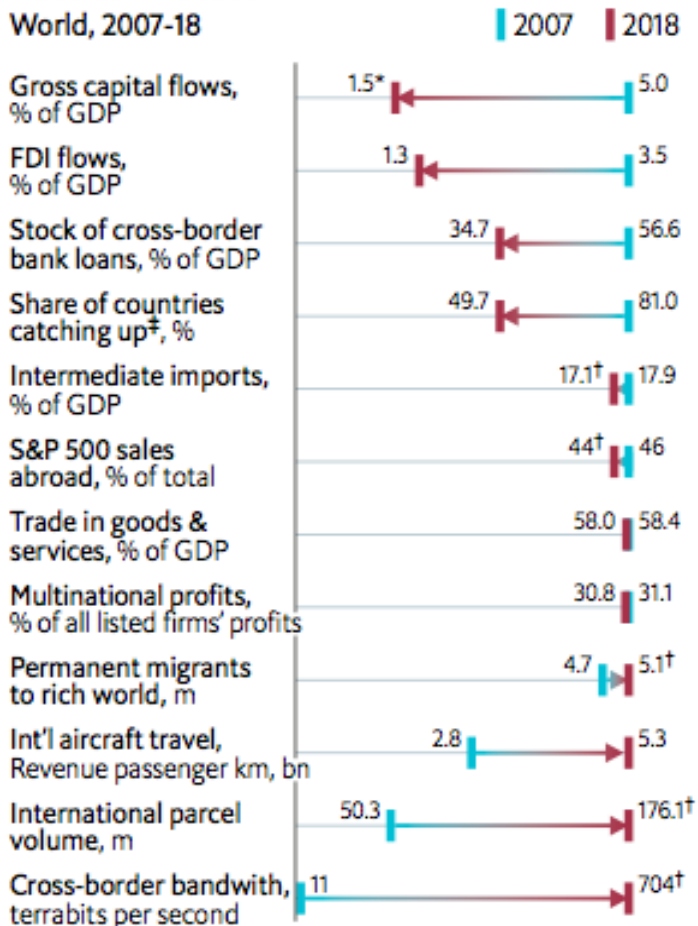
*Incorporates wages, productivity, energy costs and exchange rates

In a world that is becoming less connected – not more



Less connected

World, 2007-18



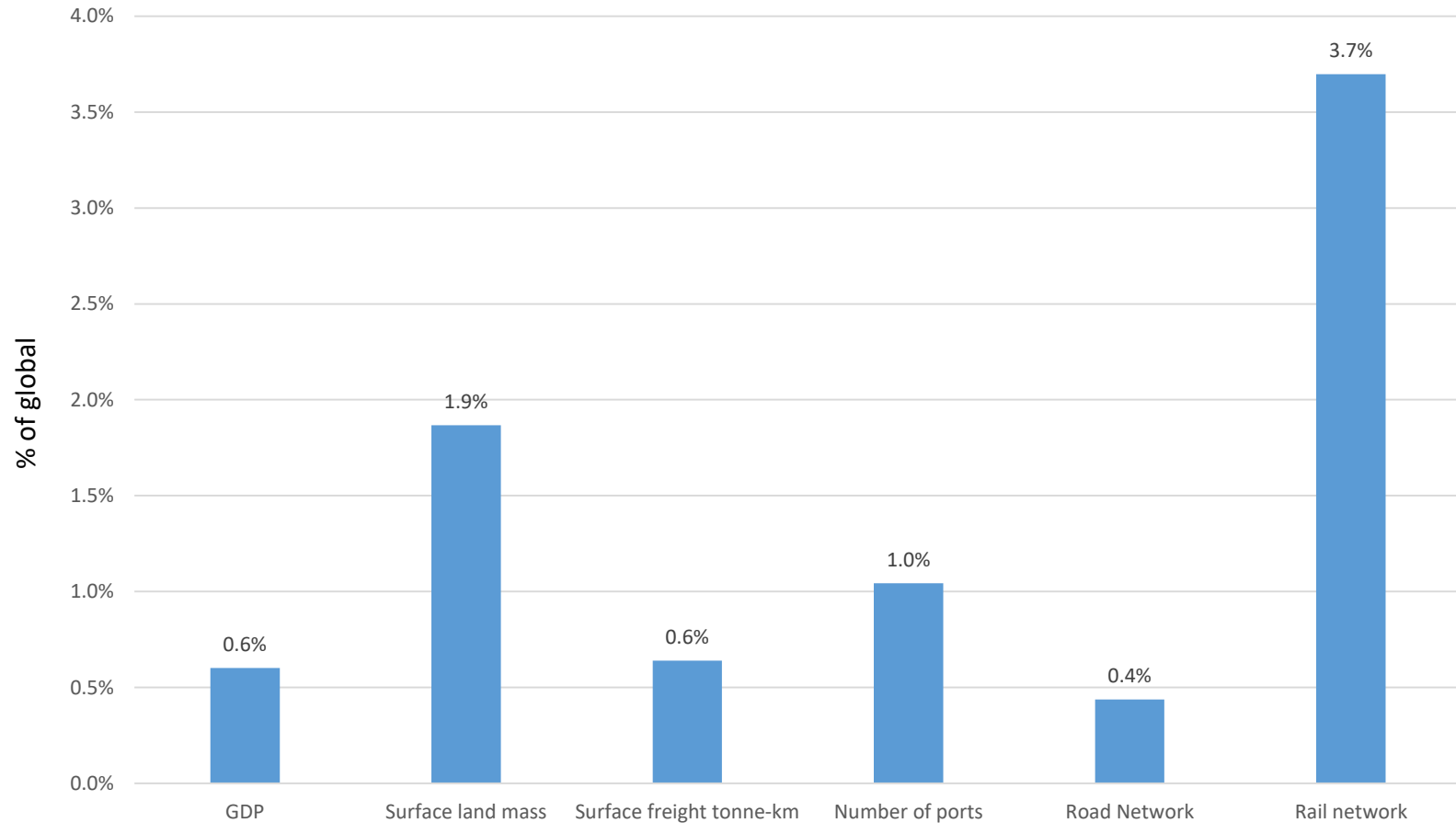
*2016 †2017 ‡Compared with US GDP per person, growth rate at PPP
Sources: IMF; UNCTAD; BIS; OECD; Bloomberg; IATA; UPU; McKinsey

- We defined “connectedness” with communication and trade in “small” things
- But where it really matters we might be drifting apart

Railways are forever – many storms to come



Argentina's abundant rail network?



Rail renaissance principles



- **Rail is not a market**
 - Theodore Levit – “Marketing Myopia”
 - Logistics provide time and place utility
 - Modal shift is only sustainable where the total time and place solution is better
- **Rail should be “inserted” into value chains**
 - The “customer” of rail is value chains
 - All value chains in a country is the market
- **On a country level rail assists value chains**
 - To solve the time and place utility at the lowest cost
 - Lowest cost include externalities of which emissions is one
 - And to make an economy more competitive
 - And to connect the world more efficiently
- **Rail’s most important tool is density**

Like any other business it requires segmentation of value chain flows – we’ve identified five

Rail market space	Current Rail market share	Target Rail market share	Market share to gain	Tonne-km to shift (billions)
Export Mining Flows				
Domestic Mining				
Intermediate Manufacturing				
Finished Palletized Goods				
Rural Extraction and Delivery				

India

**Current Rail
market share**

**Target Rail
market share**

**Market share
to gain**

**Tonne-km to
shift (billions)**

Export Mining Flows

Bulk long-haul (heavy haul) – high competency

74%

80%

6%

1

Domestic Mining

Mineral unit trains – effectively clawing back

43%

60%

17%

135

Intermediate Manufacturing

Siding to siding industrial – various global initiatives

21%

50%

29%

145

Finished Palletized Goods

Not enough attention in the developing world

3%

60%

57%

188

Rural Extraction and Delivery

Low density freight – new short line approaches

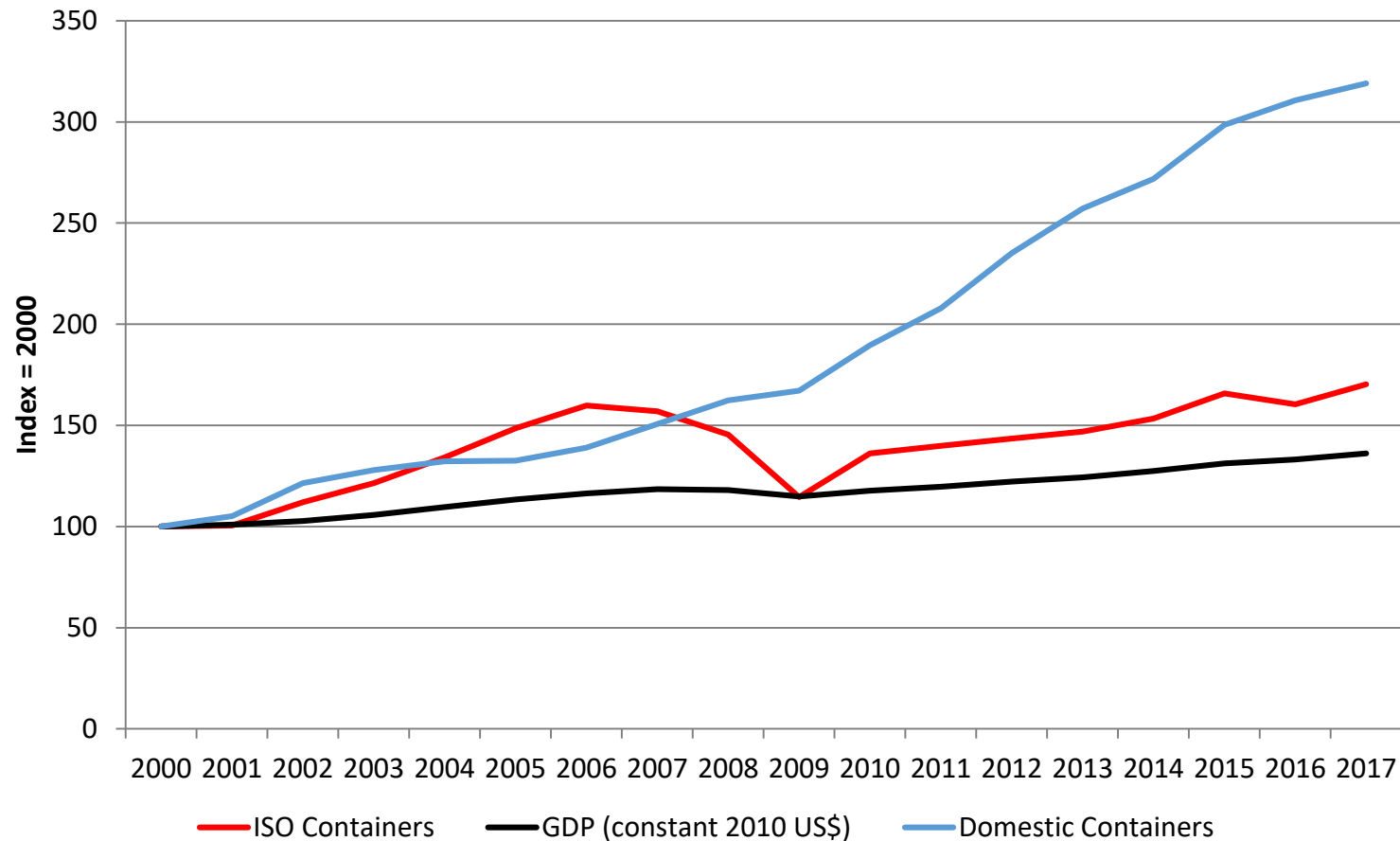
9%

15%

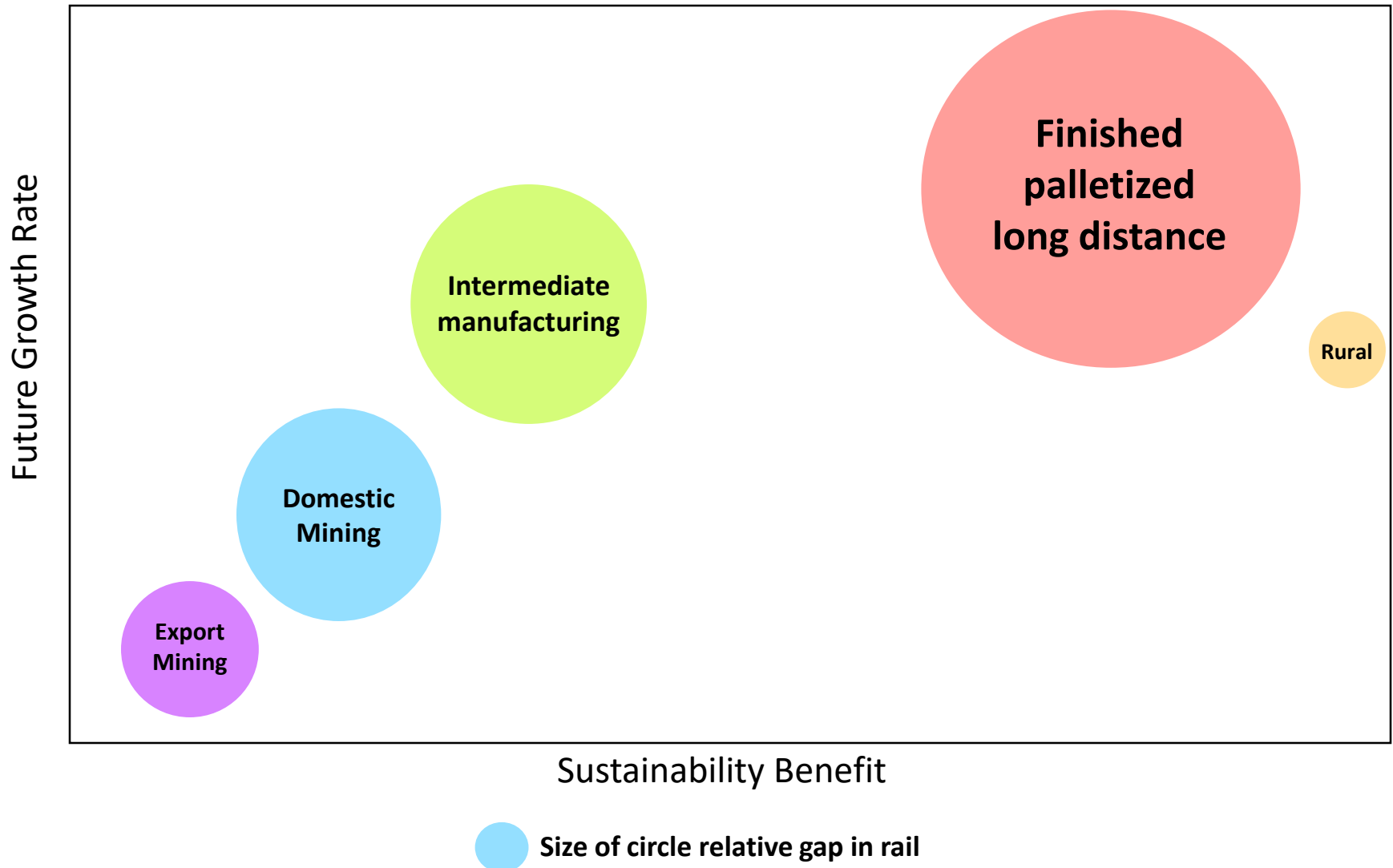
6%

81

Domestic intermodal growth in the USA a significant example



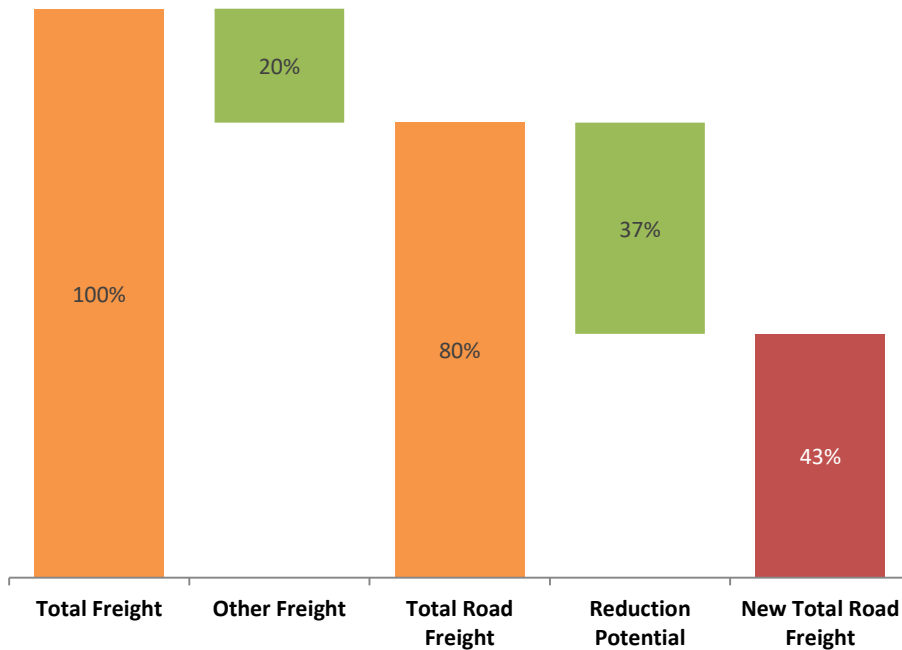
Pathways of contribution



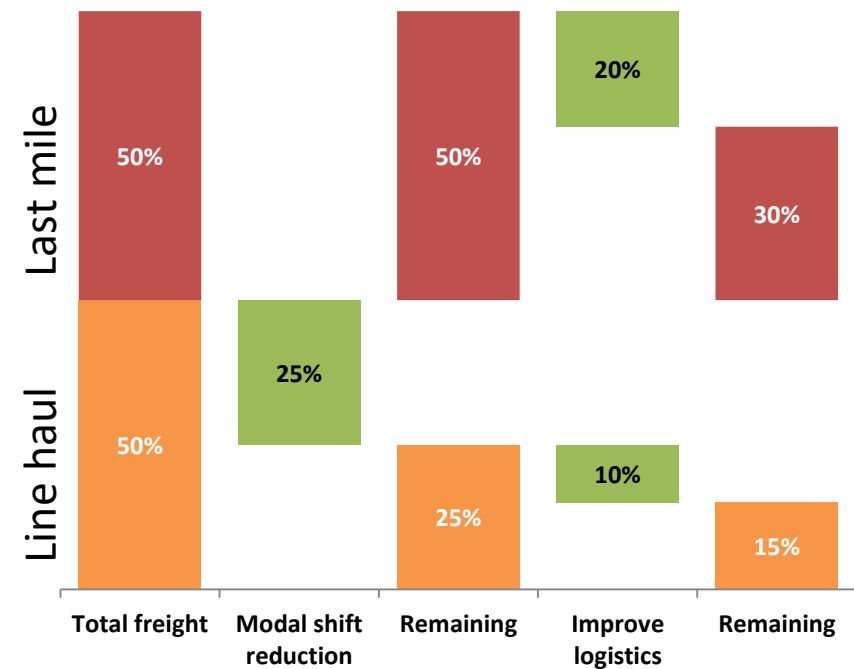
Calculating rail pathway? Look at road “overspend”



- Emissions reduction roadmap



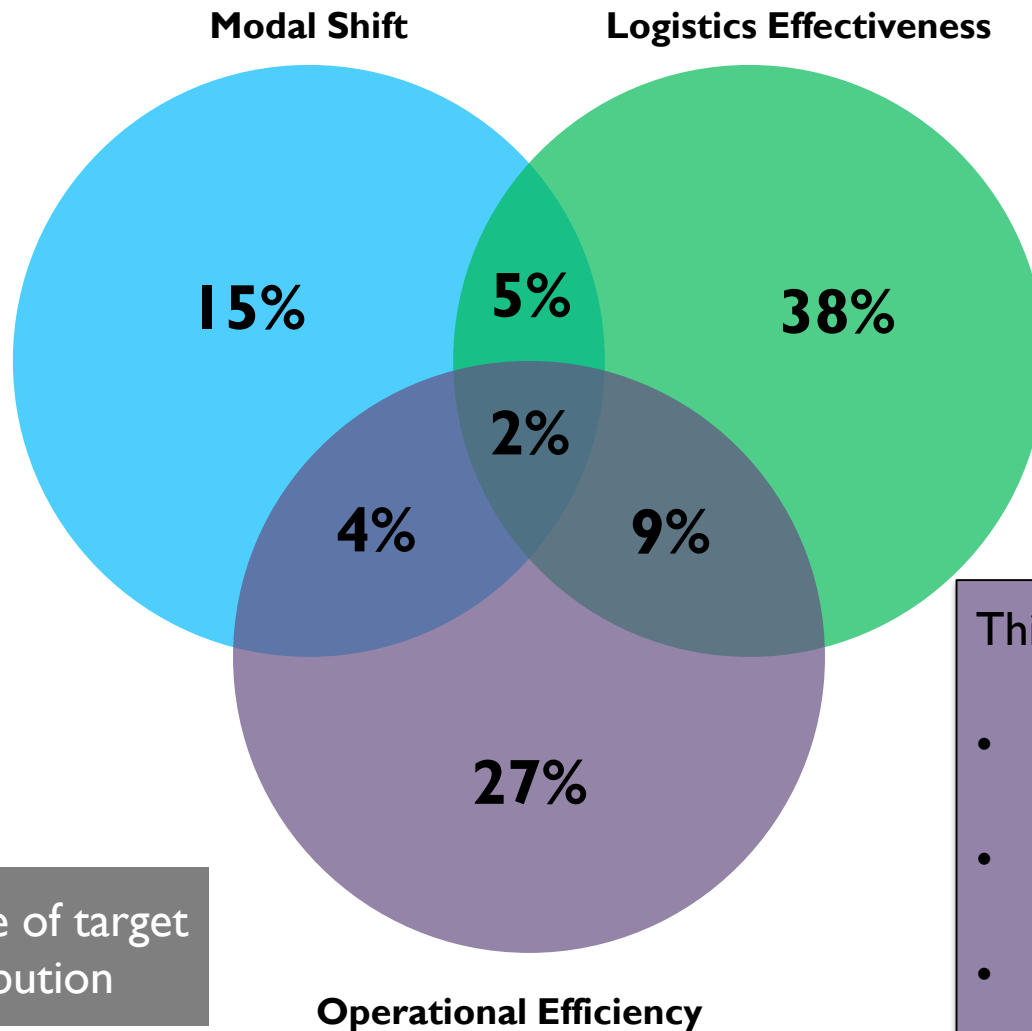
- Kilometer reduction roadmap



Target deconstructed

This is caused by:

- Poor modal choice
- Wrong investments
- Rail service levels and decline



This is caused by:

- Missed slot times
- Unnecessary trips
- Poor load factors

This is caused by:

- Inefficient trucks
- Poor driving habits
- Poor maintenance

Percentage of target contribution

Rail's most important contribution to decarbonisation and resilience



- Occupy the market spaces that it should
- Insert the mode into value chains
- Seamlessly integrate with other modes
- Increase line density
- Provide natural consolidation of freight

“If God had intended us to fly, he'd have never given us railways.”

- Michael Flanders