

# Digitech, the future of trade and export-led development

**RICHARD BALDWIN**

PROFESSOR OF INTERNATIONAL ECONOMICS

Based on:

- 1) “The peak globalisation myth,” A four-column VoxEU series unrolled at <https://rbaldwin.substack.com/p/the-peak-globalisation-myth>
- 2) “Globotics and Development: When Manufacturing is Jobless and Services are Tradable,” Baldwin & Forslid, NBER w26731, Feb 2020 (first out in 2019 WIDER Working Paper 2019/94)
- 3) 2019 book, The Globotics Upheaval: Globalisation, Robotics, and the Future of Work, <https://global.oup.com/ushe/product/the-globotics-upheaval-9780197518618> (1st chapter free on google books)

# Outline of argument

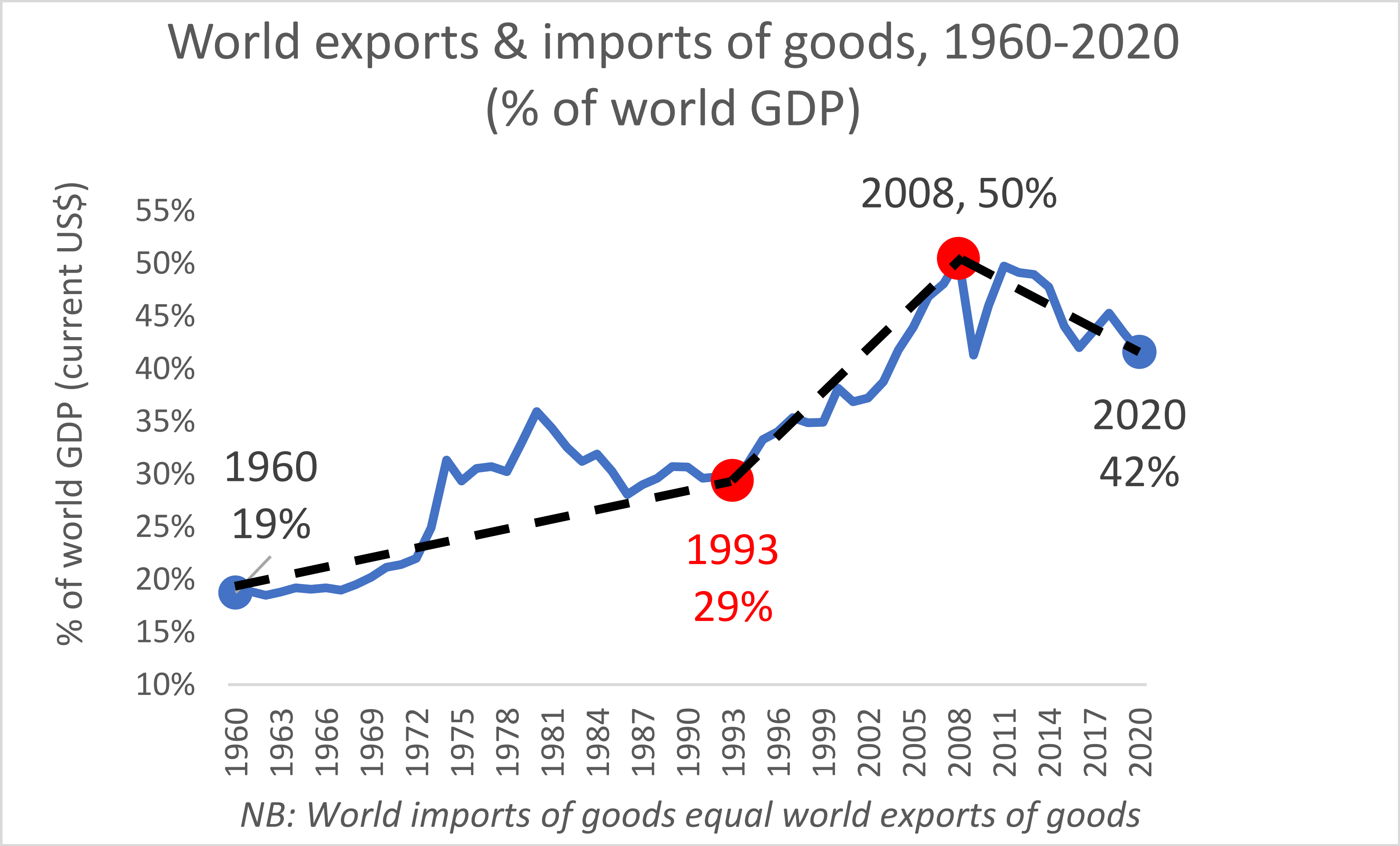
1. Goods trade peaked, service trade did not
2. Future of trade is intermediate services
3. Conjecture: What it means for export-led development

Goods trade  
peaked, service  
trade did not

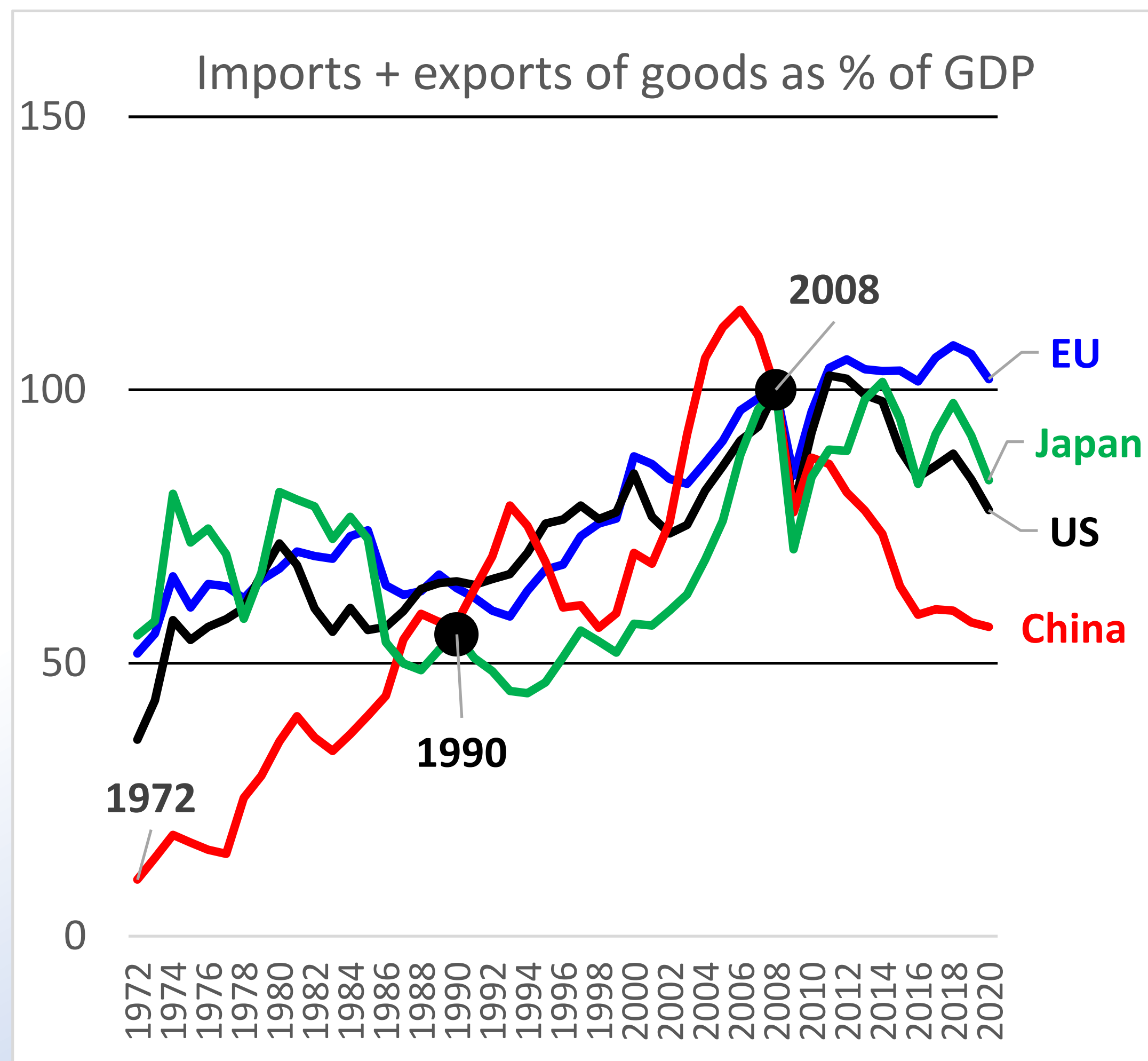
*Facts & economic mechanisms*

# 5 headline facts on how globalisation is changing

# #1. World goods trade ratio peaked in 2008



## #2. 2008 is a false peak (from national perspective)



- China peaked 10 years before Trump/Brexit
- US peaked after in 2011
- Japan peaked after in 2014
- EU has not peaked (mixed trends)
- ERGO: 2008 is not a 'thing'; it's a concatenation of distinct national developments

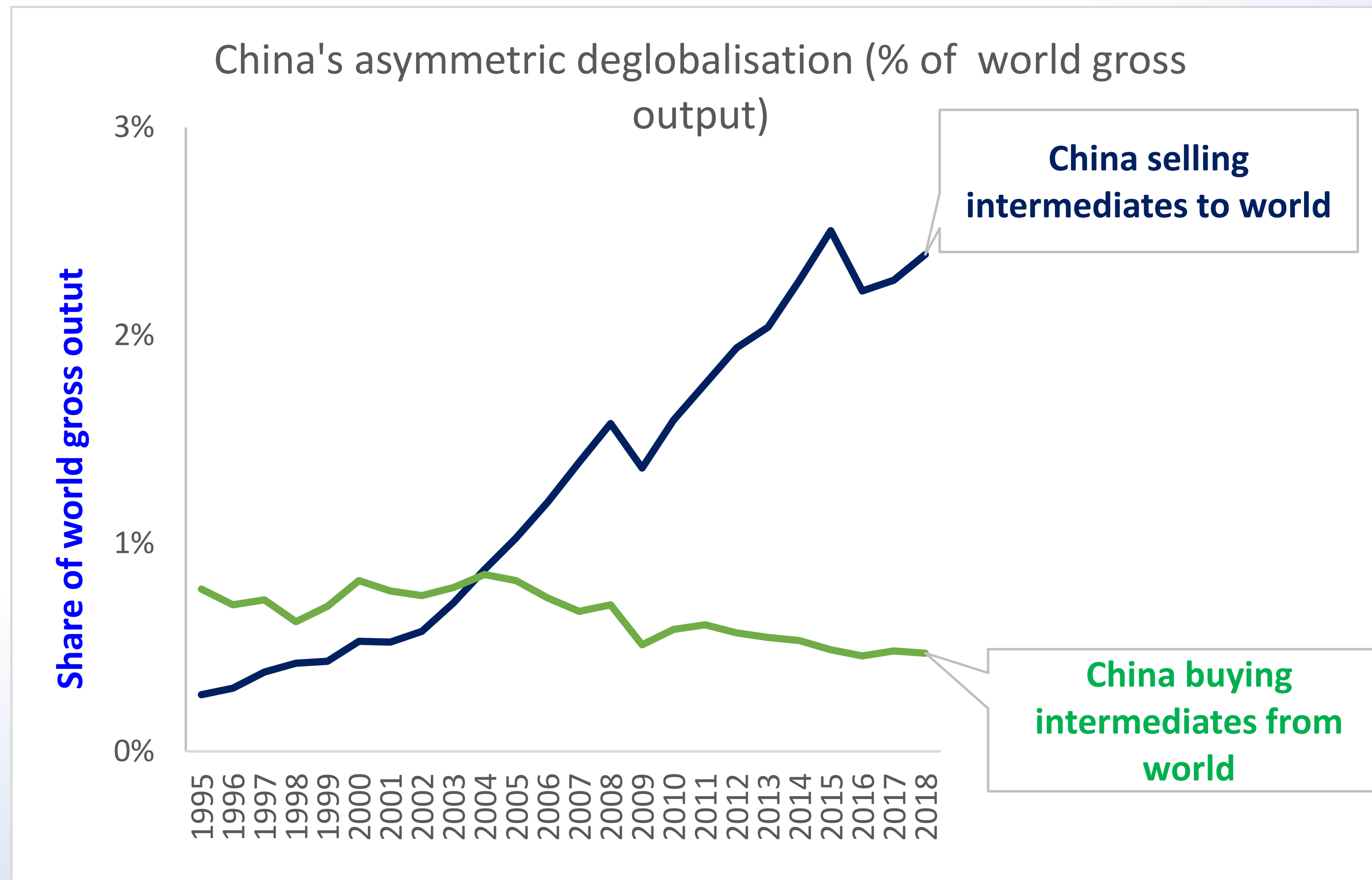


# National goods trade/GDP ratios: China is key:



- “Deglobalisation” of China is massive
- as China becomes normal mega-economies approaching trade/GDP ratios of US, Japan & EU

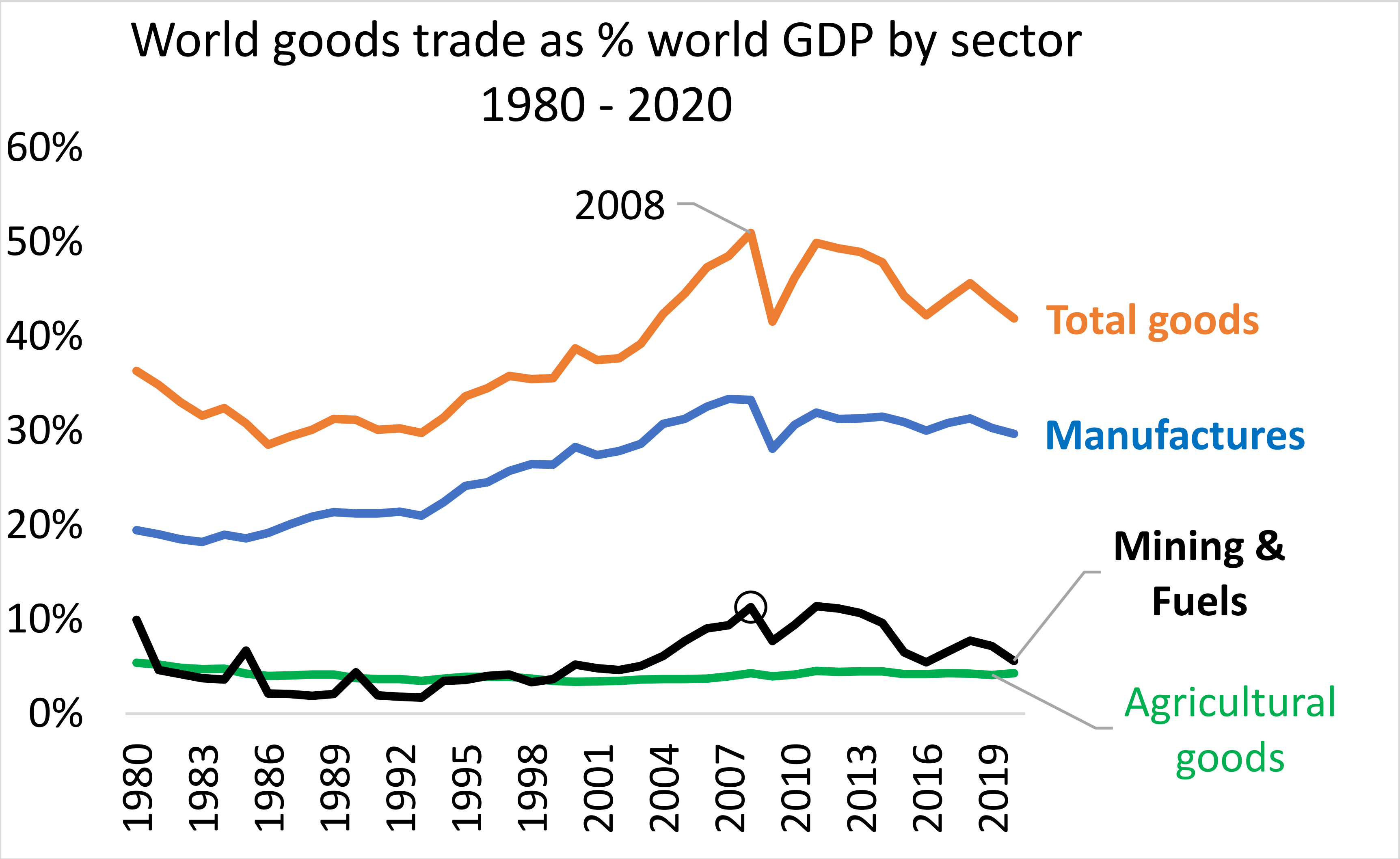
# But China's deglobalisation is massively asymmetric



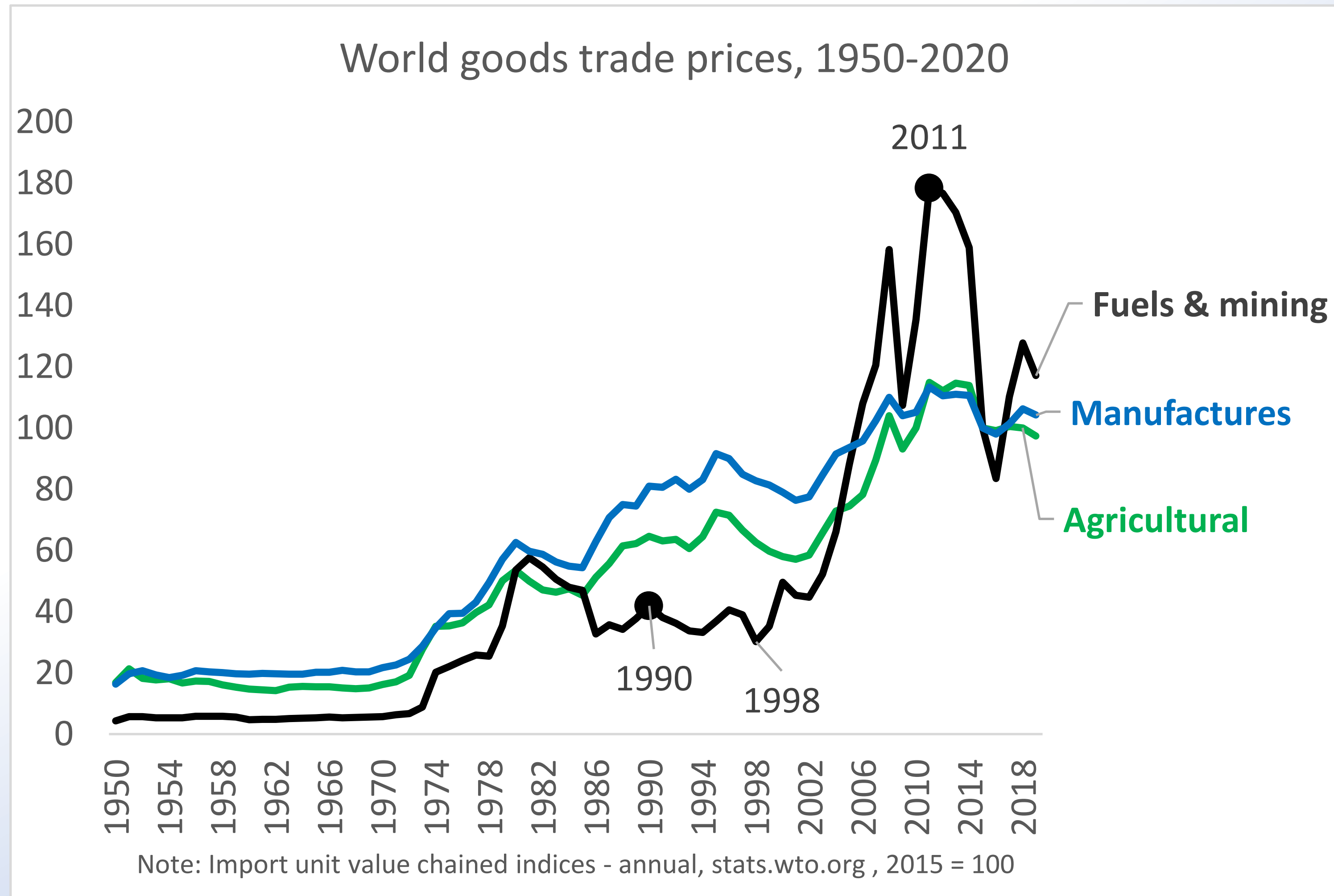
- China's import of manufactured intermediates is falling
- Its exports of manufactured exports is soaring



# #3. Drop is 60% commodities, 40% manufactures

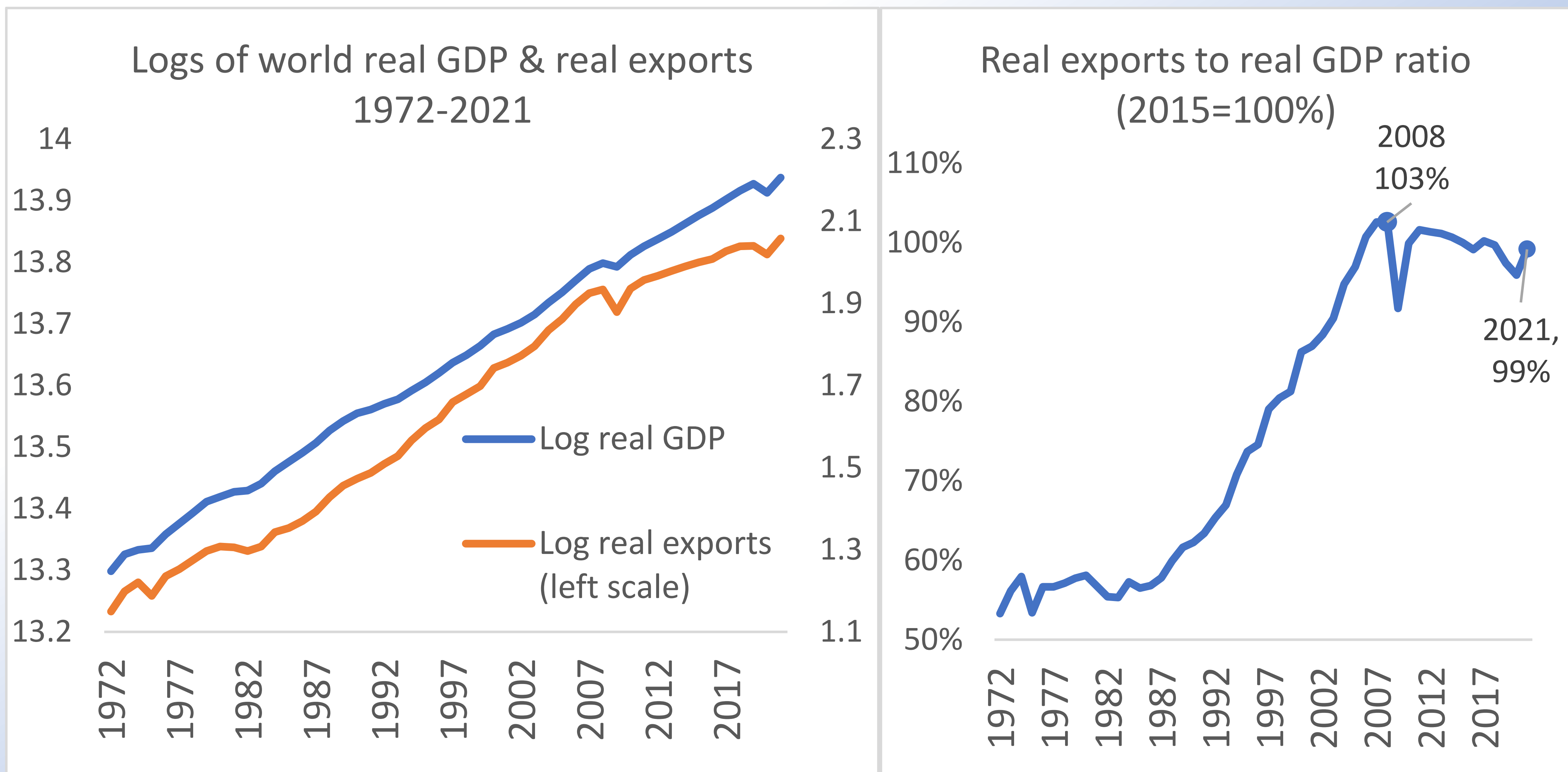


# #4. Prices peaks drove much of the 2008 peak (especially 'Commodity Supercycle')

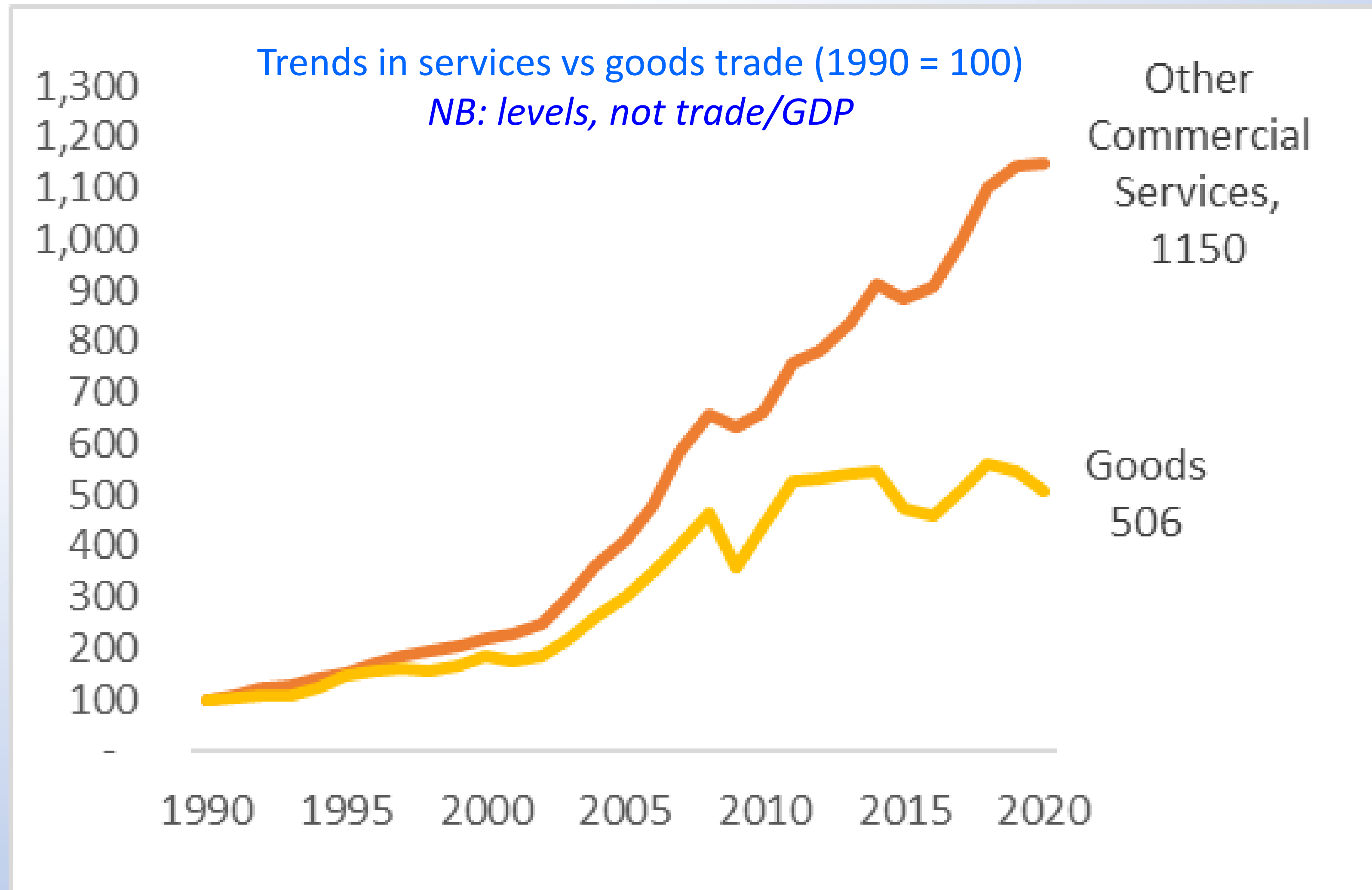


- Prices of all 3 categories of goods fell from 2010, or so
- Fuels & mining prices were particularly 'peaky' (peak at 2011)

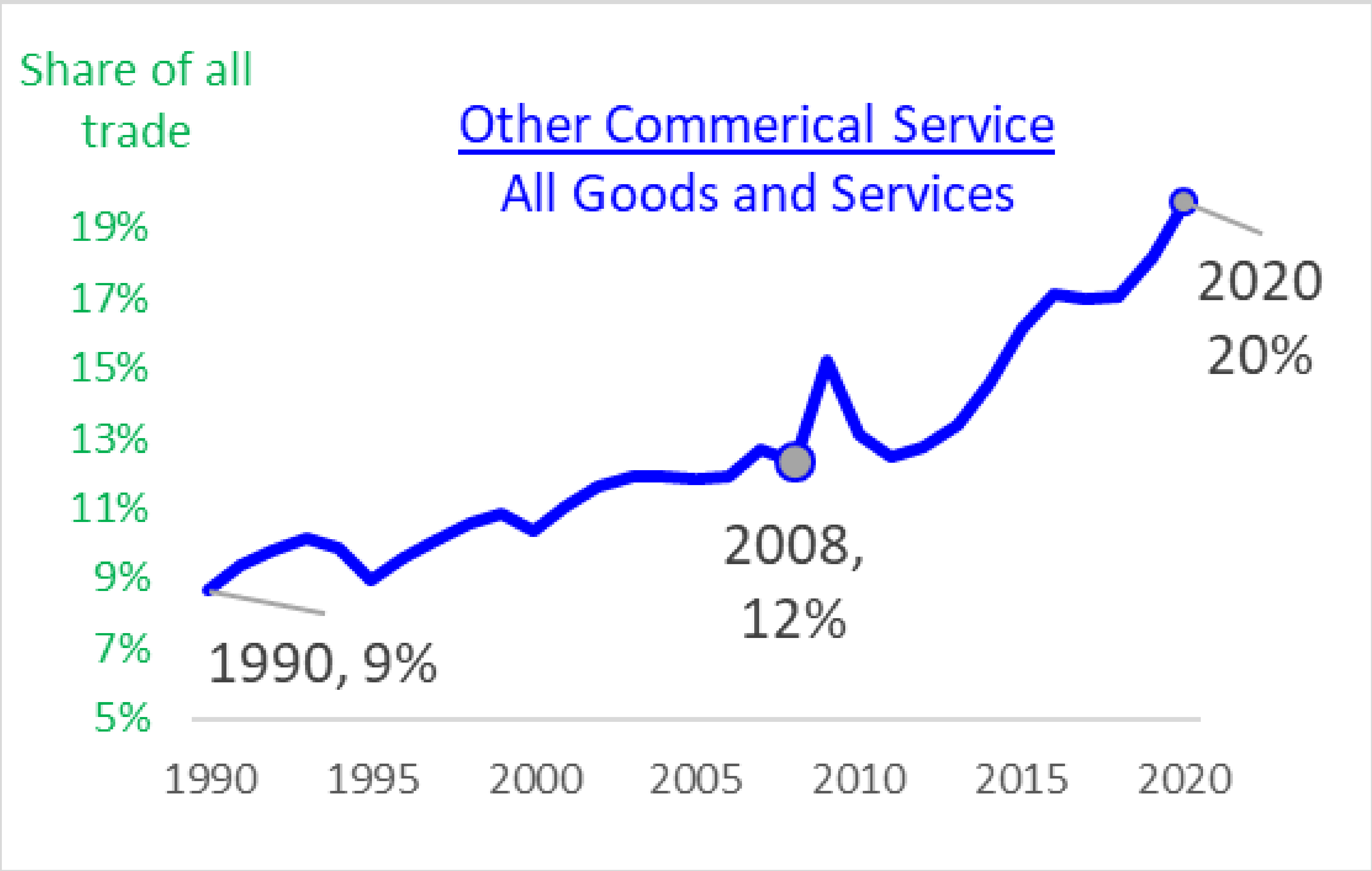
# #5. Goods trade volume didn't fall; GDP rose faster



# #6. Services trade didn't peak (world trends in levels, 1990=100)



# ERGO: OCS share of international commerce is rising





Recap: manufacturing  
exports peaked, service  
exports didn't

Hypothesised  
economic mechanisms

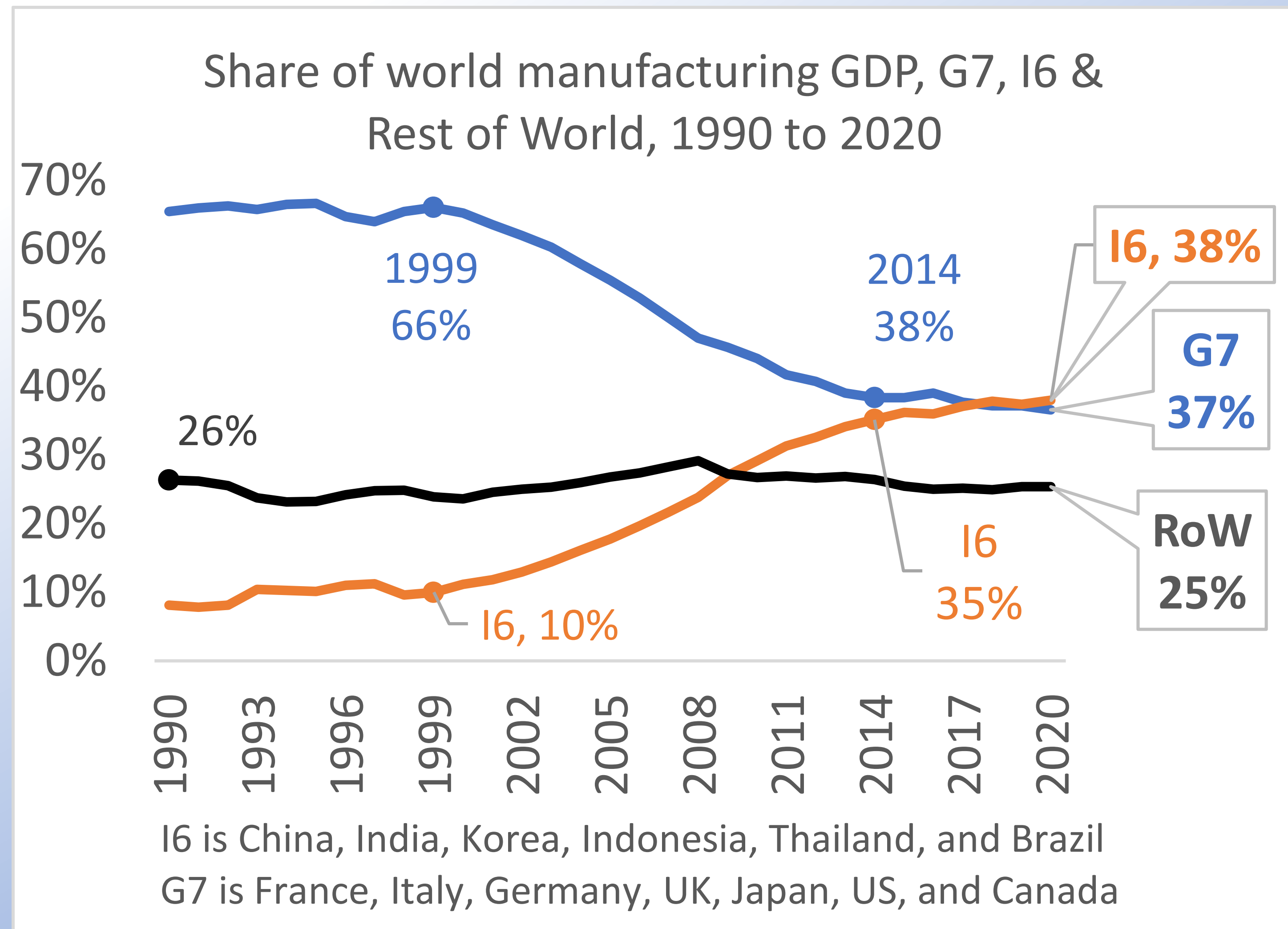
# What's up with manufacturing?

## 2 hypotheses:

1. Transitional expansion of offshoring ended
2. Supply chains unwinding

# Fact: Offshoring-expansion phase ended

- Manuf. offshoring boosted X/GDP as value added increasingly crossed borders repeatedly
- But that was transitional; offshoring expansion is over



I6 are nations whose share of world manufacturing GDP rose by at least 0.5pp

# Conjectured mechanism: Supply chain unwinding

- Digitech-drive automation in manufacturing is dampening cost differences
- Leading to re-shoring & near-shoring of value added, but not jobs



Exaggerate to make a key point: “No” cost advantage from traded inputs

- Assume unit cost fcn:  $c_i^n = \underbrace{w^n a_i^n}_{\text{Unit labour cost}} + \underbrace{r}_{\text{Traded inputs (same all nations)}}$

- Cost difference North vs South is:

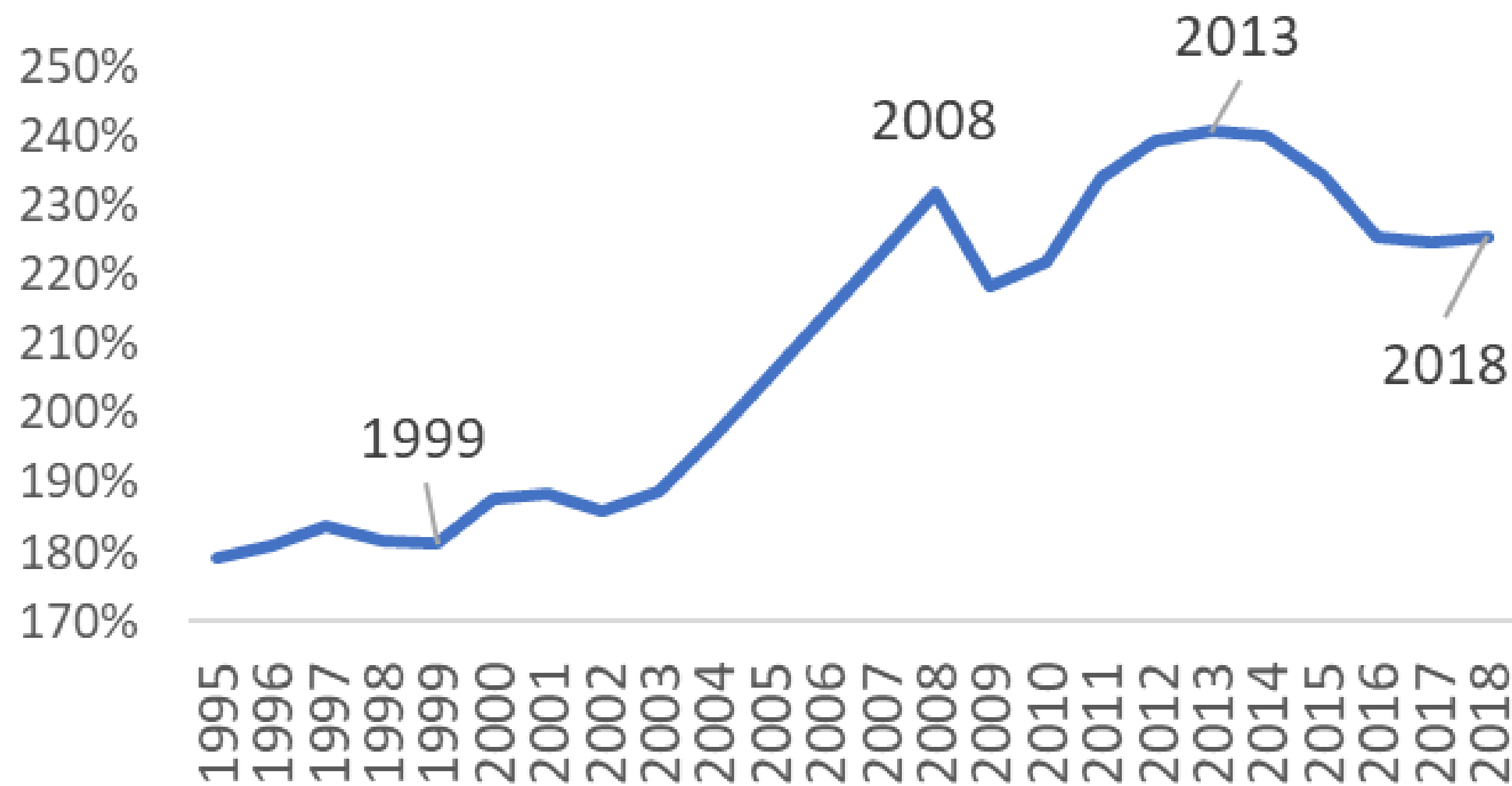
$$\frac{c_i^n - c_i^s}{c_i^n} = \theta_L \left( 1 - \frac{w^s a_i^s}{w^n a_i^n} \right)$$

( $\theta_L$  is labour cost share)

>As labour cost share goes to zero, cost advantage disappears

## #6. Supply chains shortening since 2013

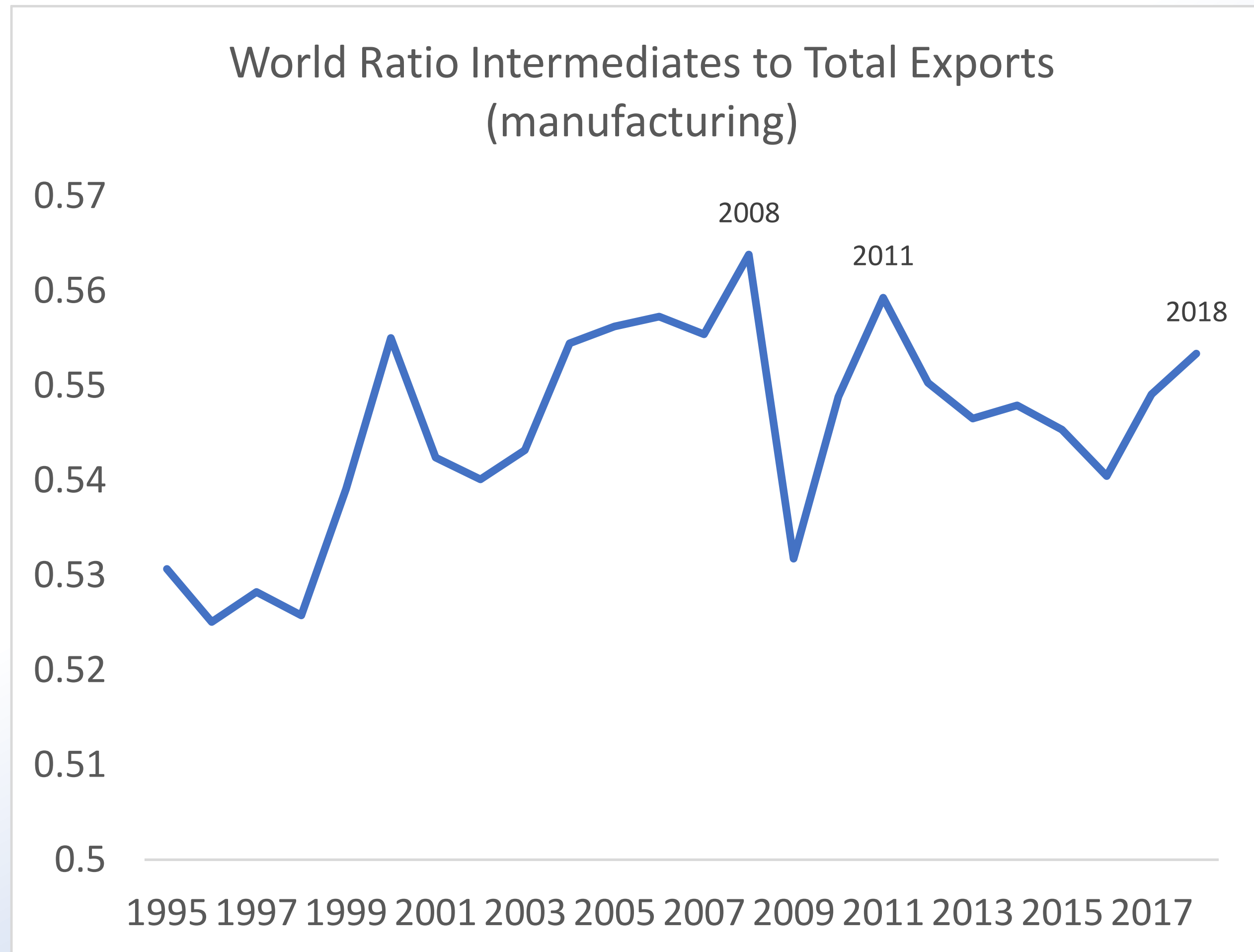
World Intermediates to Value-Added Ratio,  
Manufacturing, 1995-2018



Source: TiVa database

- World ratio of intermediates-to-GDP in manufactures falling since 2013
- Evidence of unwinding supply chains
  - Domestically & internationally

# World (Intermediate/Total Exports) falling since 2008



- Intermediates share of world manufactures trade falling since 2008
- Evidence of unwinding of international supply chains

# What's up with services?

2 hypotheses:

- > Digitech-drive automation is dampening cost advantage in services, but also lowering service trade barriers at an explosive pace
- > Trade opening offsetting cost advantage dampening for 2 decades & in future



Recap: Digitech is affecting  
manufacturing and services  
trade in radically different  
ways





*The future is unknowable, but also  
inevitable*

*The future is already  
here – its just not  
evenly distributed  
- Gibbons*

The future of trade is  
intermediate services



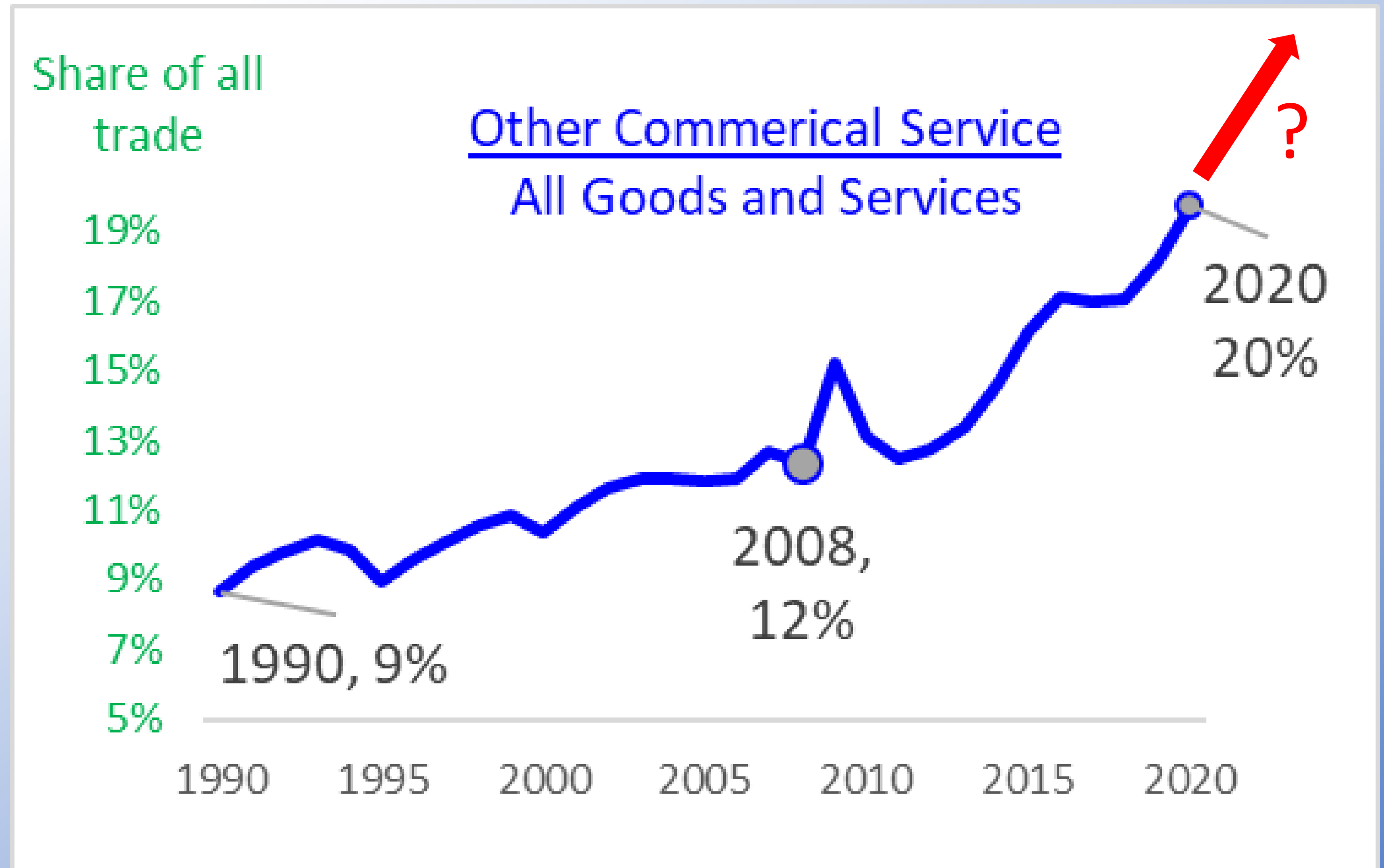
# What are intermediate services?

- All the service tasks done in service sector, manufacturing sector, and primary sector that are not sold directly to customers.
- For example:  
tasks done by bookkeepers, forensic accountants, CV screeners, administrative assistants, online client help staff, graphic designers, copyeditors, personal assistants, corporate travel agents, software engineers, lawyers checking contracts, financial analysts writing reports, cybersecurity engineers, etc.
- In data, roughly Other Commercial Services (OCS, broad), or Other Business Services (OBS, narrow)

# How are intermediate services traded?

- Modes of “telemigration”:
  - Freelancing platforms (Upwork, Freelancer, Fivver, etc)
  - BPO/KPO
  - Call centres
  - Shared Service Centres

# The extrapolation argument



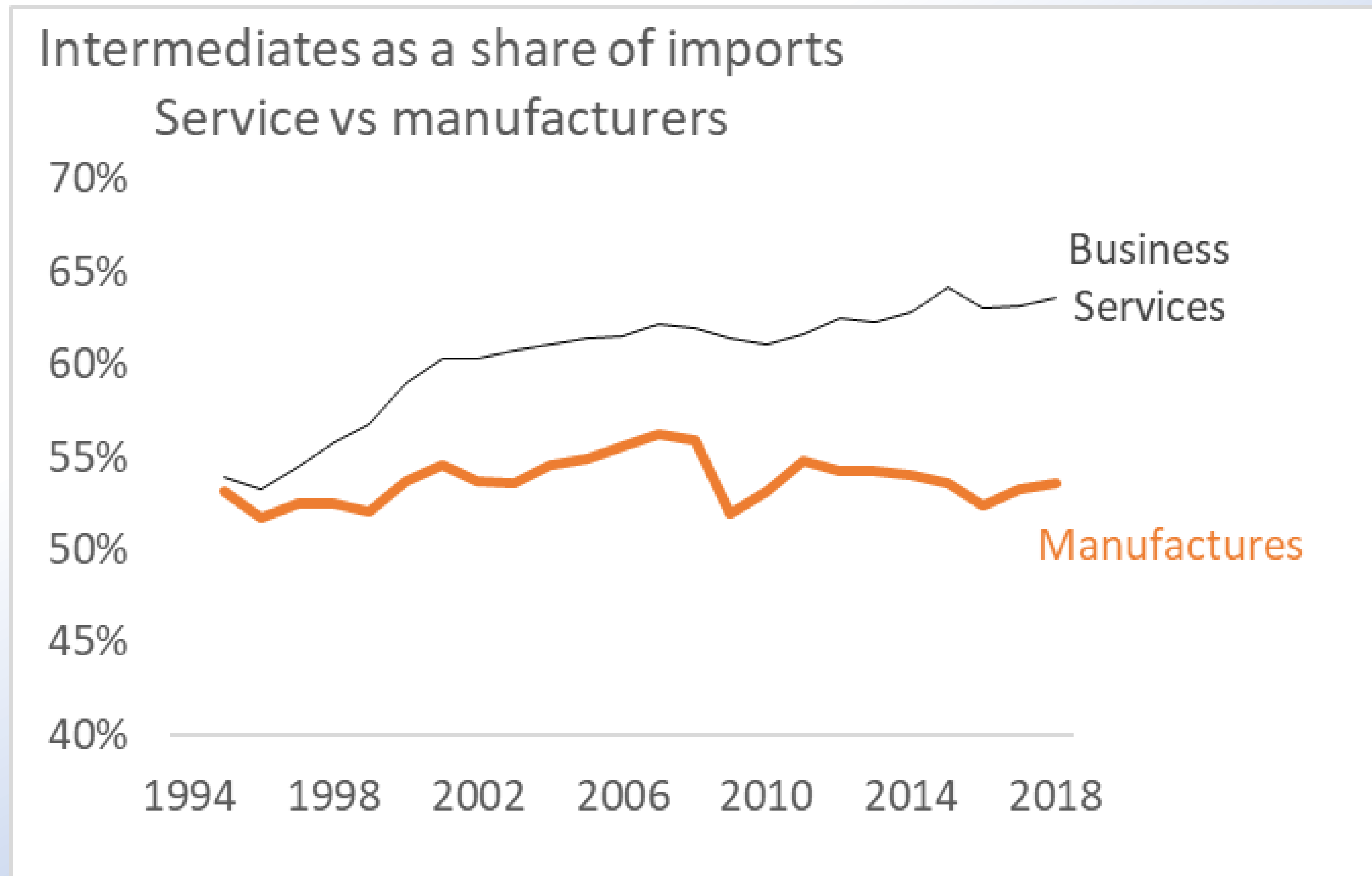


# The forecast argument: 5 facts & a conclusion

1. Barriers to services trade are much higher than barriers to goods trade (gravity model estimates, etc)
2. Most barriers to trade in intermediate services are technology-linked, not policy linked (TSRI, etc)
3. Digitech is lowering barriers to intermediate services at an explosive pace (+ Covid forced adjustment)
4. Demand is huge in rich nations;
5. Capacity is big in emerging markets

ERGO: Intermediate services trade will grow much faster than goods trade for foreseeable future

FACT: Intermediate inputs are more important in services imports than manufactured imports



FACT: Service intermediates are 3x more important than manufacturing intermediates in overall economy

<i>Column sector's inputs into row sector (gross output) 2018</i>	Service intermediate inputs	Manufactures intermediate inputs		Sector share of total gross output
Service sector	32%	5%		68%
Manufacturing sector	24%	25%		26%
Total economy	30%	11%		100%

# What about export capacity?

- Every developing nation already has intermediate service providers
- Increasing the supply of such workers is relatively quick (think Philippines call centres and Bangalor IT workers)



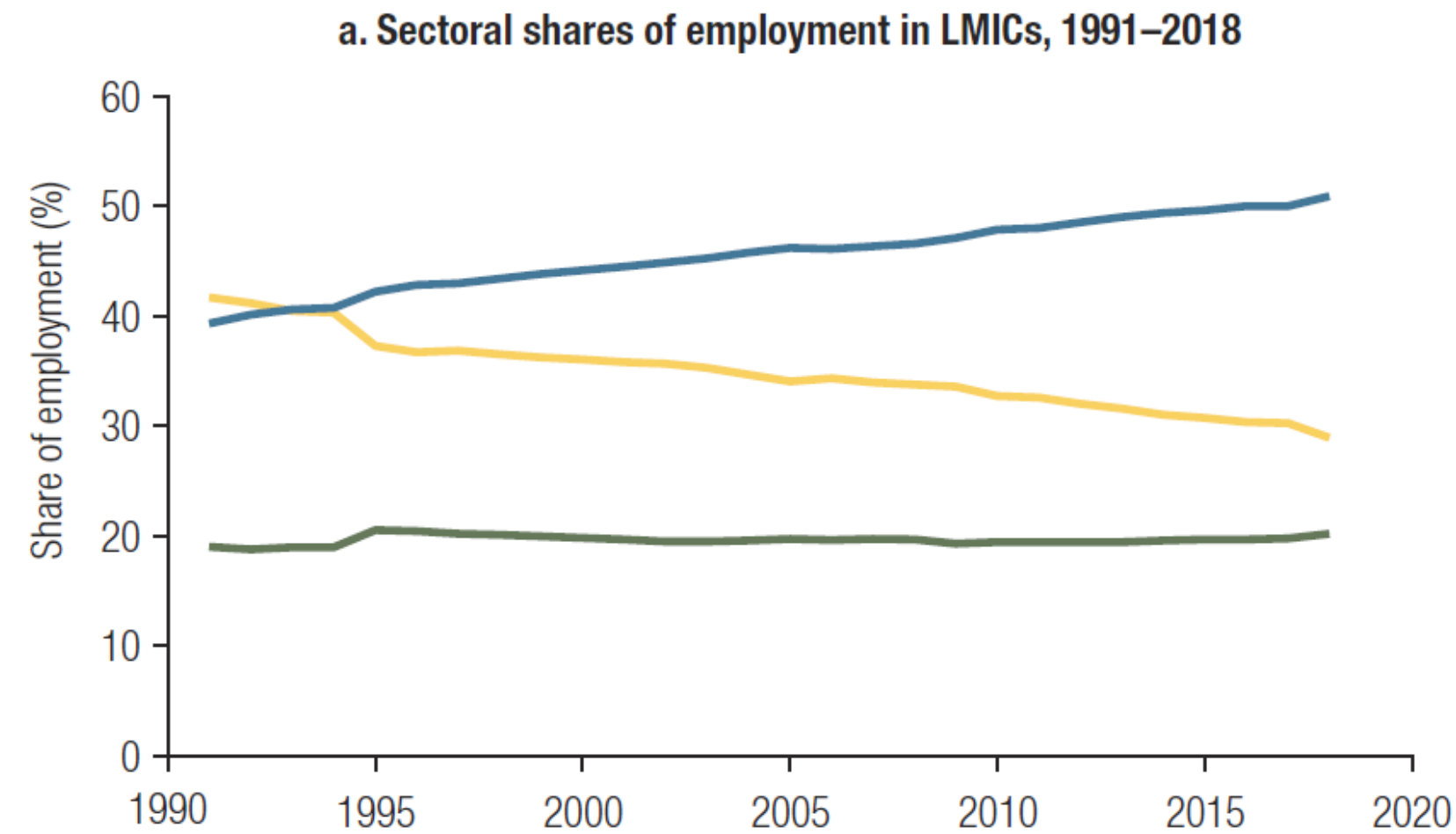
Recap: Future of trade for most developing economies lies in intermediate services, not manufactures



Conjectures about  
service-export-led  
development

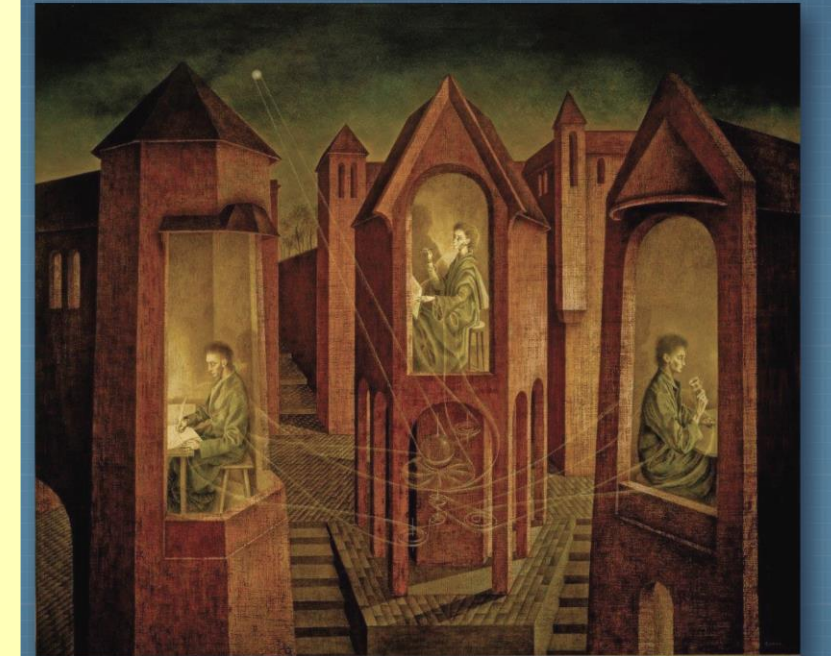
Service-led development is happening (by default mostly)

**FIGURE 1.1** Much of the Decline in Agriculture's Share of Employment and GDP in LMICs since the 1990s Has Been Offset by Services



### At Your Service?

The Promise of Services-Led Development



Gaurav Nayyar, Mary Hallward-Driemeier, and Elwyn Davies



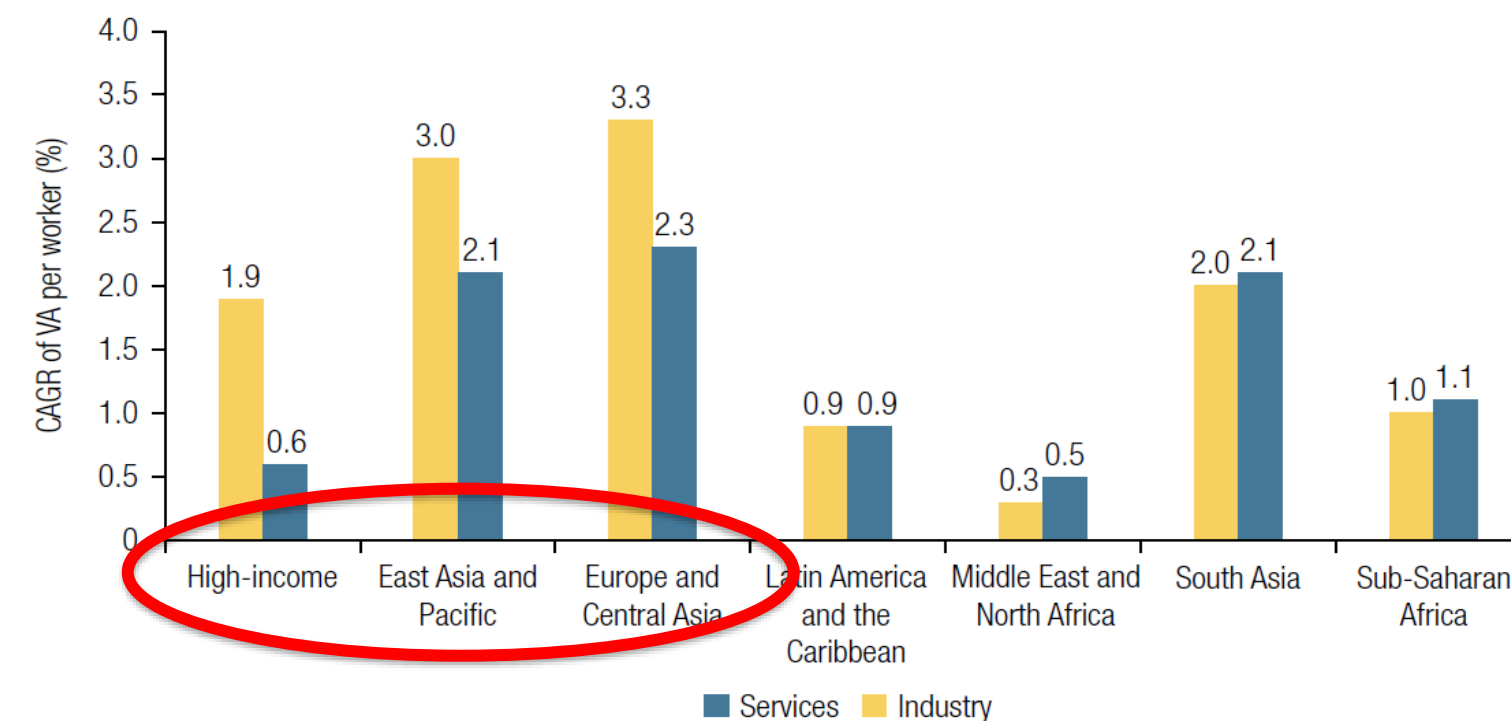
# Geography is too hard to overcome in manufacturing

**Factory N.Amer.**  
**(19%)**

**Factory Europe**  
**(20%)**

**2000 kms**  
**2000 kms**  
**3000 kms**  
**Factory N.E. Asia**  
**(38%)**

**FIGURE 1.4 Labor Productivity Growth in Services Has Matched That in Industry across LMICs in Many Regions since the 1990s, Typically Exceeding That of HICs**  
*Growth in value added per worker in LMICs, by broad sector and relative to high-income countries, 1995–2018*



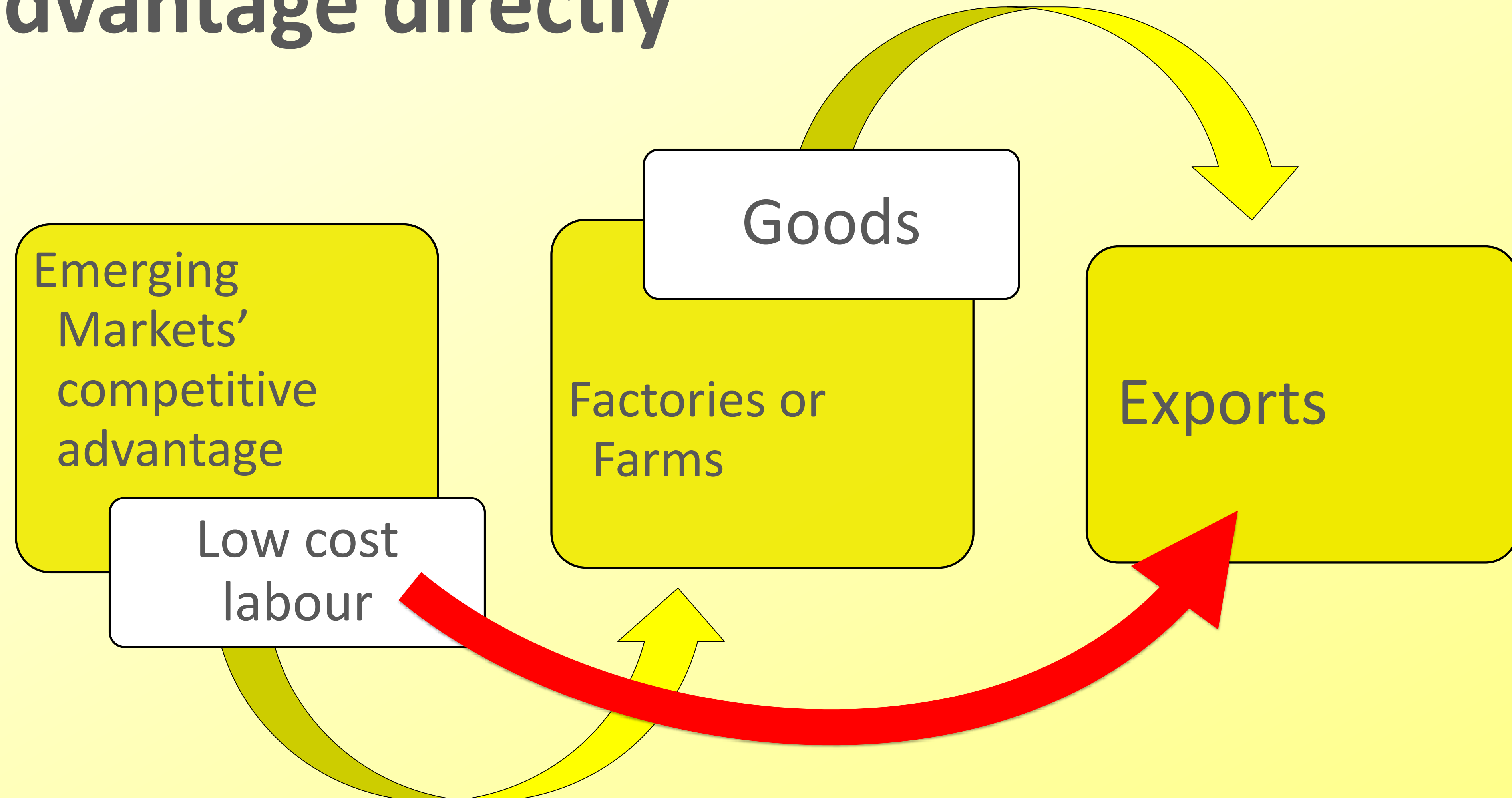
**The Emerging Market miracle  
will continue and spread but  
this time based on exports of  
intermediate services**

# **NB: Services are easier**

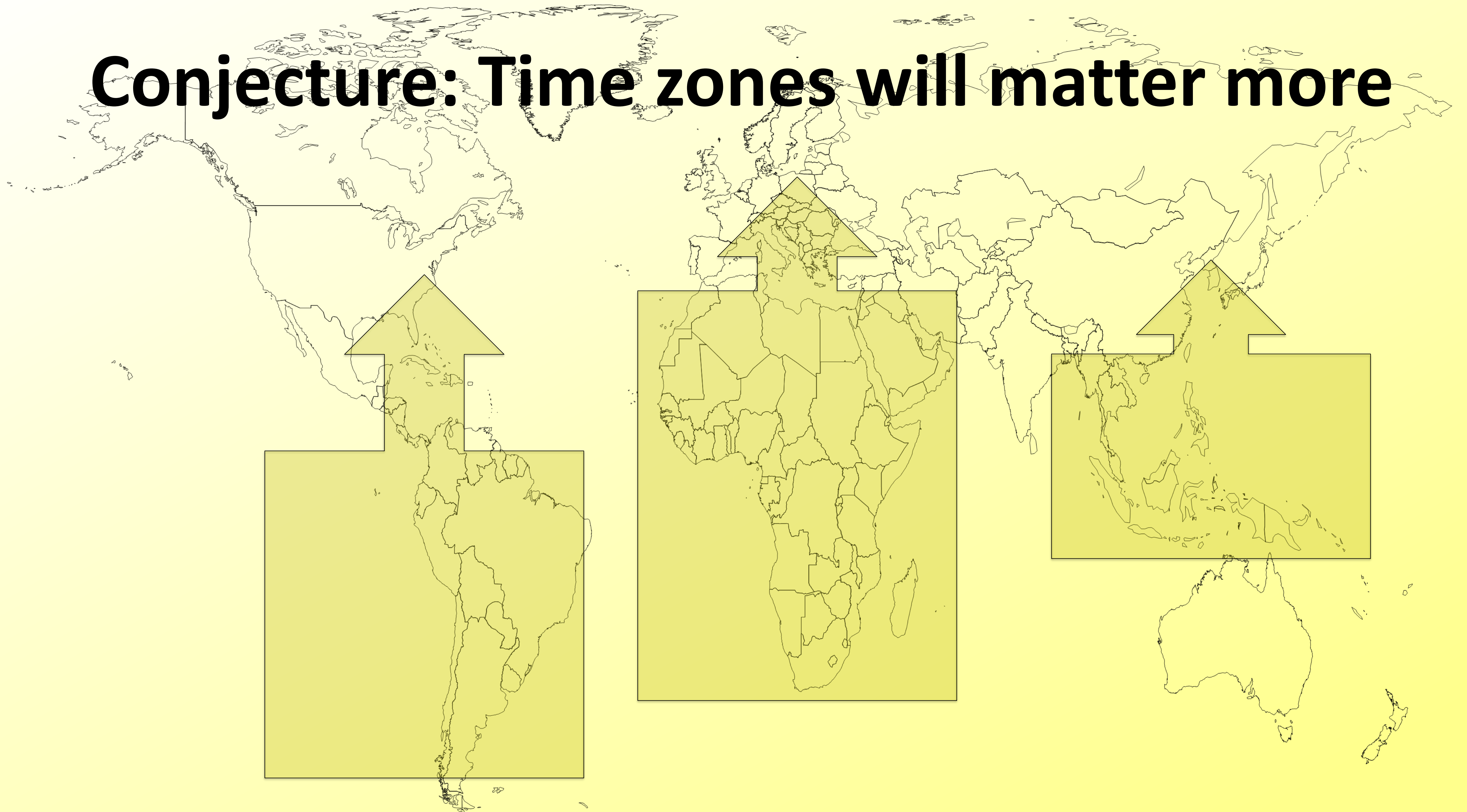
- 1. Lower scale economies**
- 2. Capacity is less of an issue**
- 3. Geographic distance matters less**
- 4. Big demand in N, big supply in S**



**Same comparative advantage: telemigration allows Emerging Markets to export their advantage directly**



# Conjecture: Time zones will matter more



# **It'll be a different structural transformation**

**“Service-led” development, not  
“manufacturing-led” development**

**- Think India, not China**

**- Think “Service Value Chains”, not  
GVCs**

# **New Development Strategies Needed**

**Think cities, services, and training**

**Not factories, industrial equipment,  
and technology**



# **New development theory needed**

**Probably will be an extension of urban  
growth theory, like Hoyt model**

# New diagnostics needed

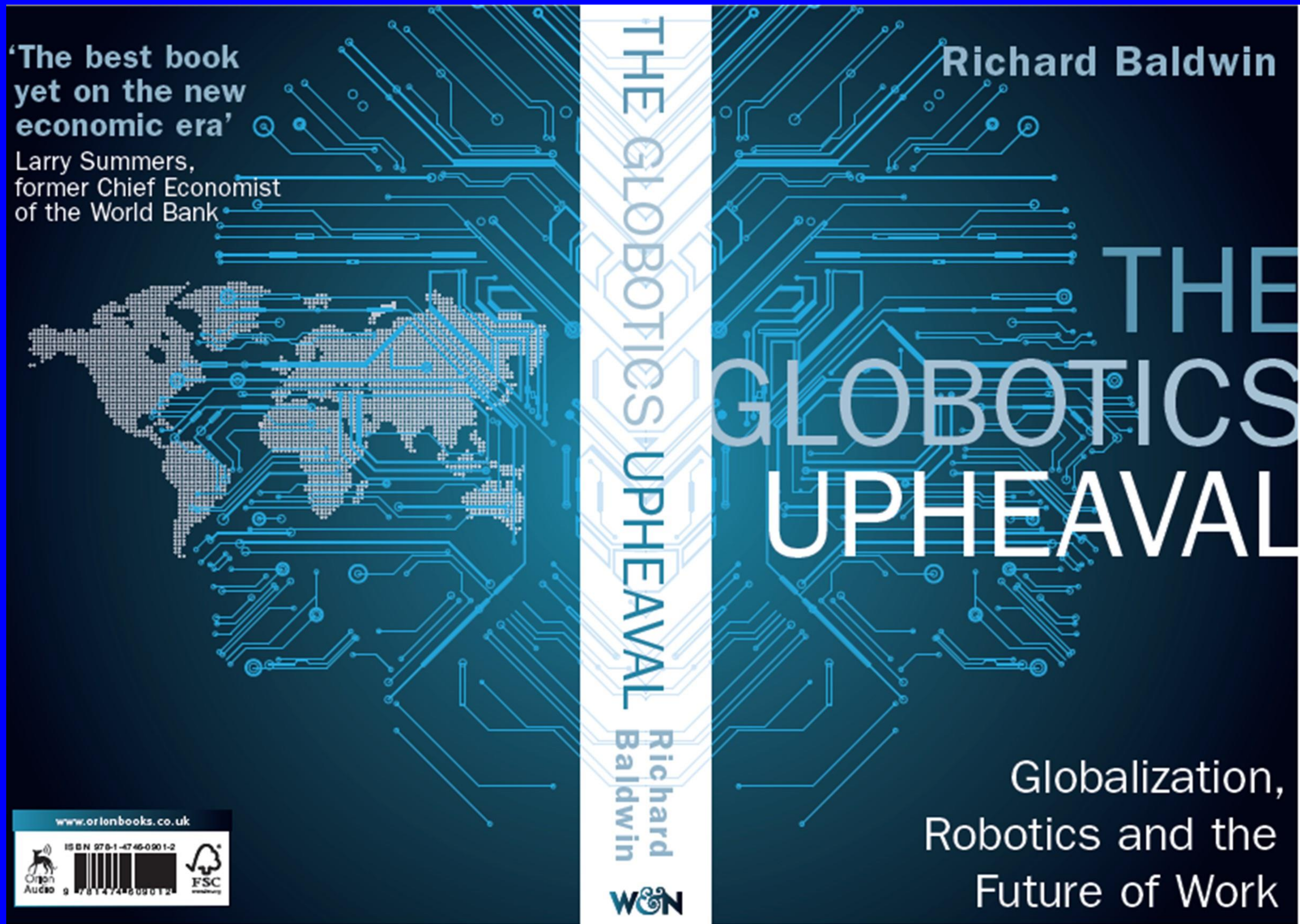
Service wage differences in  
teleworkable sectors adjusted by  
productivity differences  
(Productivity = service GDP per worker???)

BPO competitiveness (AT Kearney)

**Telemigration will foster a new  
backlash against globalisation  
in advanced economies**



Thanks  
for  
listening





# Slides for Q&A

# ‘US globotics quadrant’

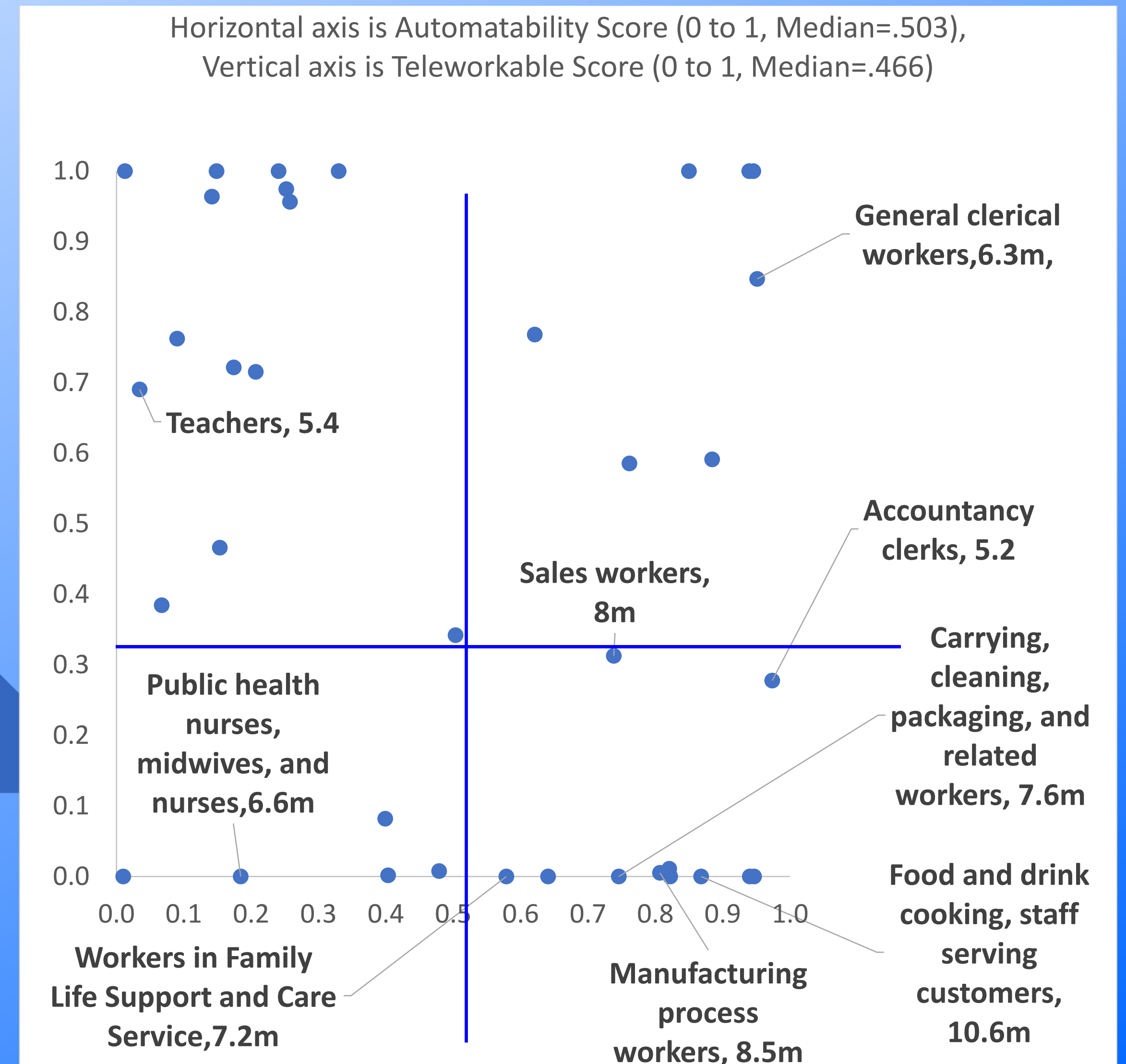
*Susceptibility  
by occupation*

*x-axis = white-  
collar automation*

*y-axis = white-  
collar globalisation*

Offshorability

Automatability

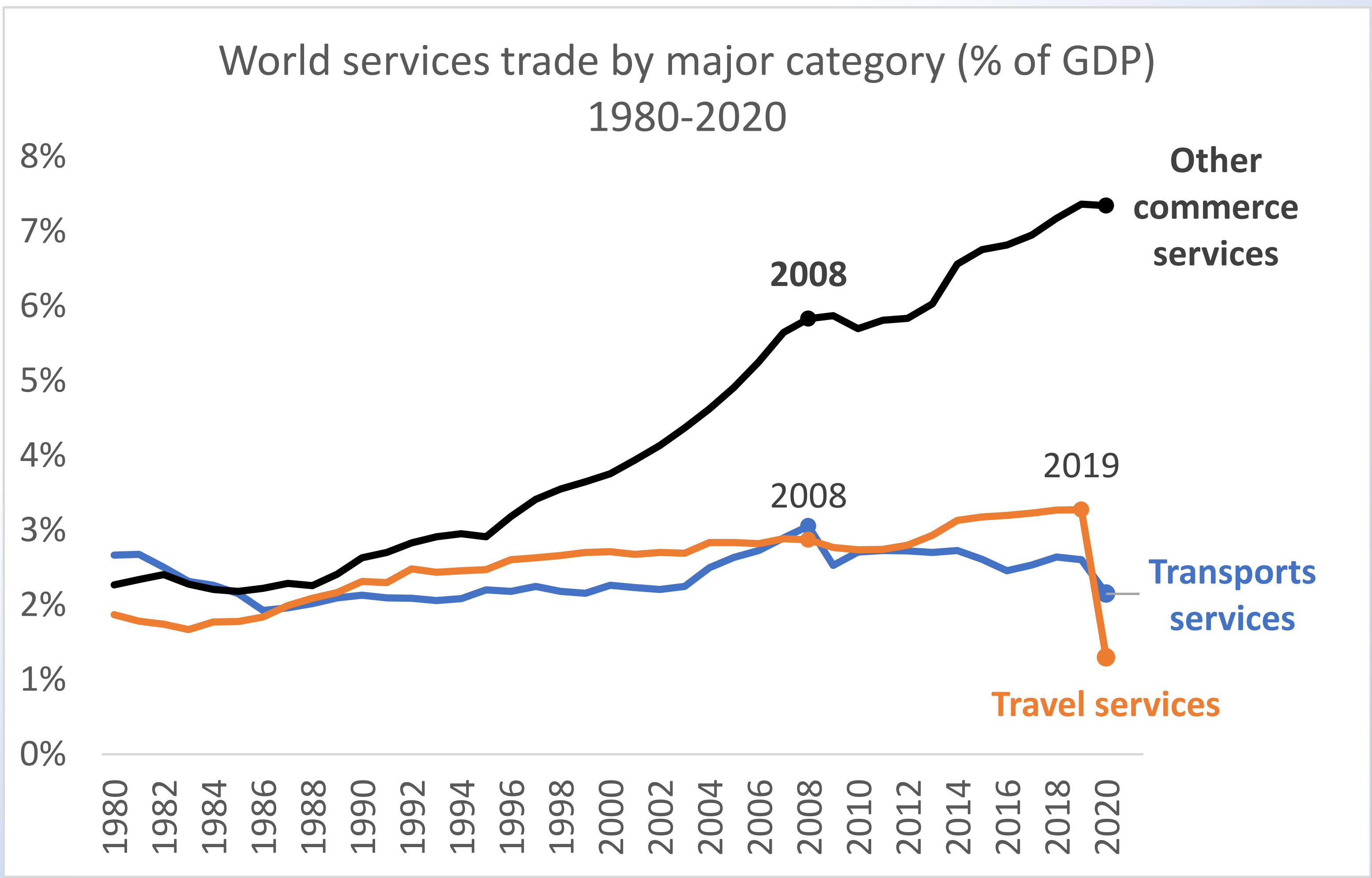


US: Million jobs per quadrant: NW = 57, NE = 11, SW = 16, SE = 20

# Occupations by quadrant with number of jobs

NW quad	Million jobs	NE quad	Million jobs	SW quad	Million jobs	SE quad	Million jobs
Food and drink cooking, staff serving customers	10.6	General clerical workers	6.4	Public health nurses, midwives, and nurses	6.6	Workers in religion	0.1
Manufacturing process workers	8.6	Management, finance and insurance professionals	1.6	Security workers	2.8	Authors, journalists, editors	0.2
Sales workers	7.9	Sales clerks	1.3	Medical Technology and Healthcare Professionals	1.8	Artists, designers, photographers, film operators	0.6
Carrying, cleaning, packaging, and related workers	7.6	Transport and post clerical workers	0.5	Occupational health and hygiene service workers	1.8	Architects, civil engineers and surveyor	0.6
Workers in Family Life Support and Care Service	7.2	Outdoor service workers	0.4	Professional social welfare workers	1.7	Legal Professionals	0.8
Accountancy clerks	5.2	Manager of residential facilities and buildings	0.4	Doctors, dentists, veterinarians, and pharmacists	0.9	Researchers	1.0
Transport and machine operation workers	3.8	Office appliance operators	0.2			Other specialist professionals	1.1
Construction and mining workers	3.4					Manufacturing engineers	1.4
Production-related clerical workers	1.1					Management and business consultants	1.4
Other service workers	1.0					Administrative and managerial workers	2.5
Agriculture, forestry and fishery workers	0.5					Data processing and communication engineers	4.6
Agriculture, forestry, and fishery engineers	0.0					Teachers	5.4
	57.0		10.7		15.6		19.8

# Traditional versus digitally enabled services



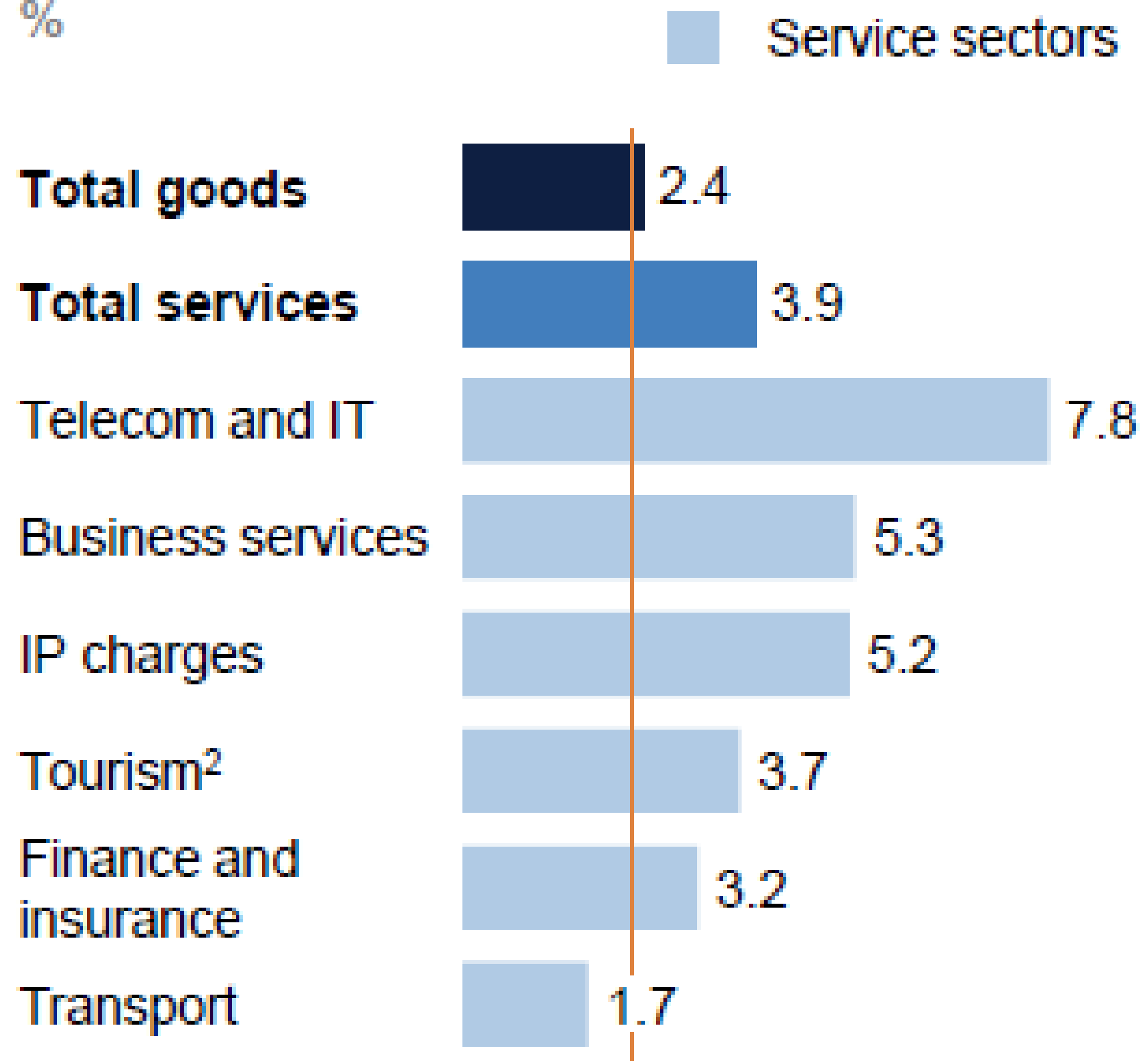


Fact: Service  
trade growing  
faster than  
goods

“Telemigration  
services”  
growing 2-3  
times faster

Global compound annual growth rate,  
2007–17

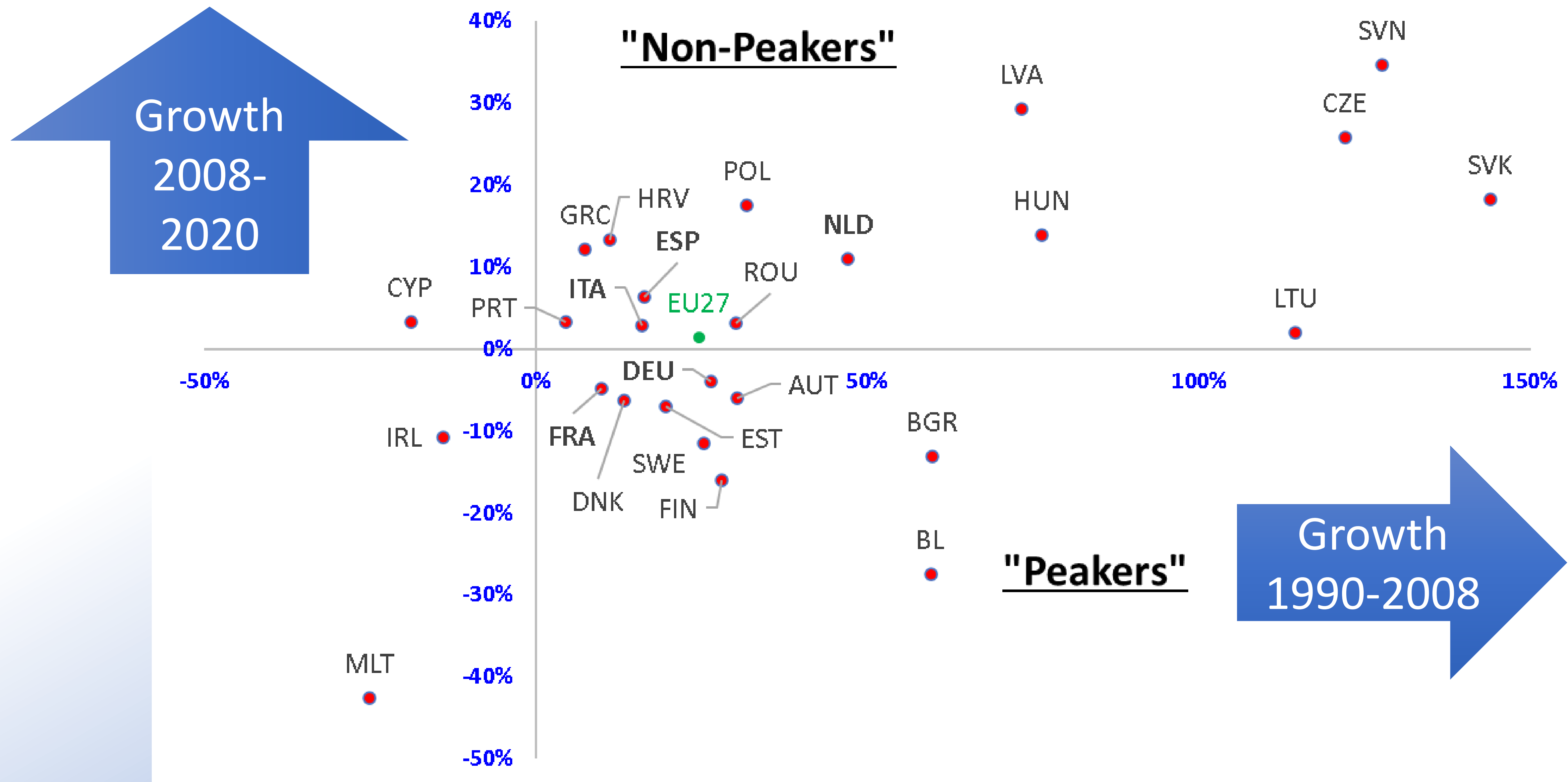
%



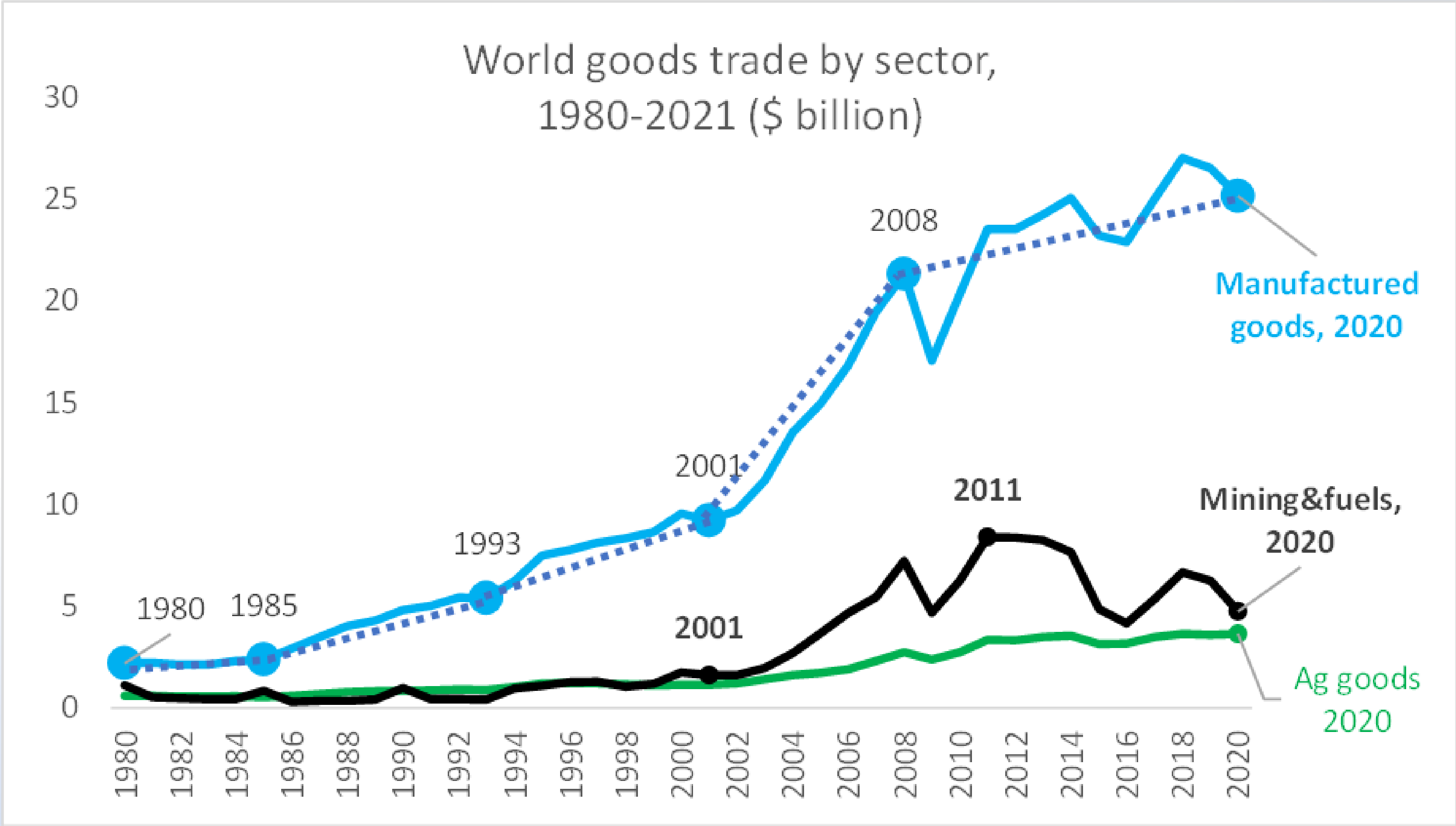
# Wage gap: How competitive would Colombian workers be in US?

ISCO Title	Wage ratio
Managers	14.6
Professionals	9.4
Technicians and associate professionals	13.9
Clerks	11.8
Service workers and shop and market sales workers	12.9
Craft and related trades workers	12.6
Primary industries	11.6
Weighted average (ISCO 1D level)	11.8
Median	17.6

Percentage points change (1990 to 2008, x-axis; 2008 to 2020 y-axis)

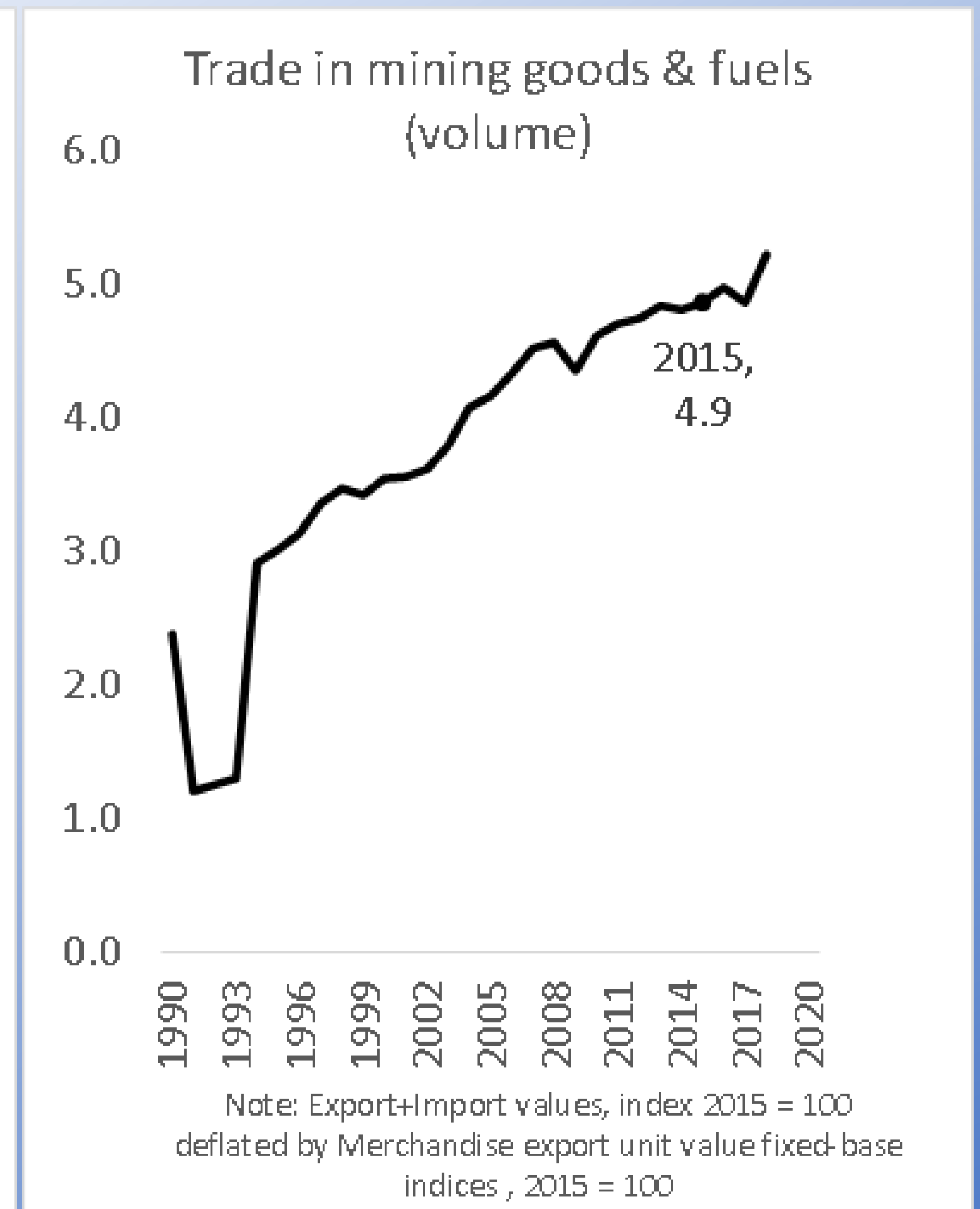
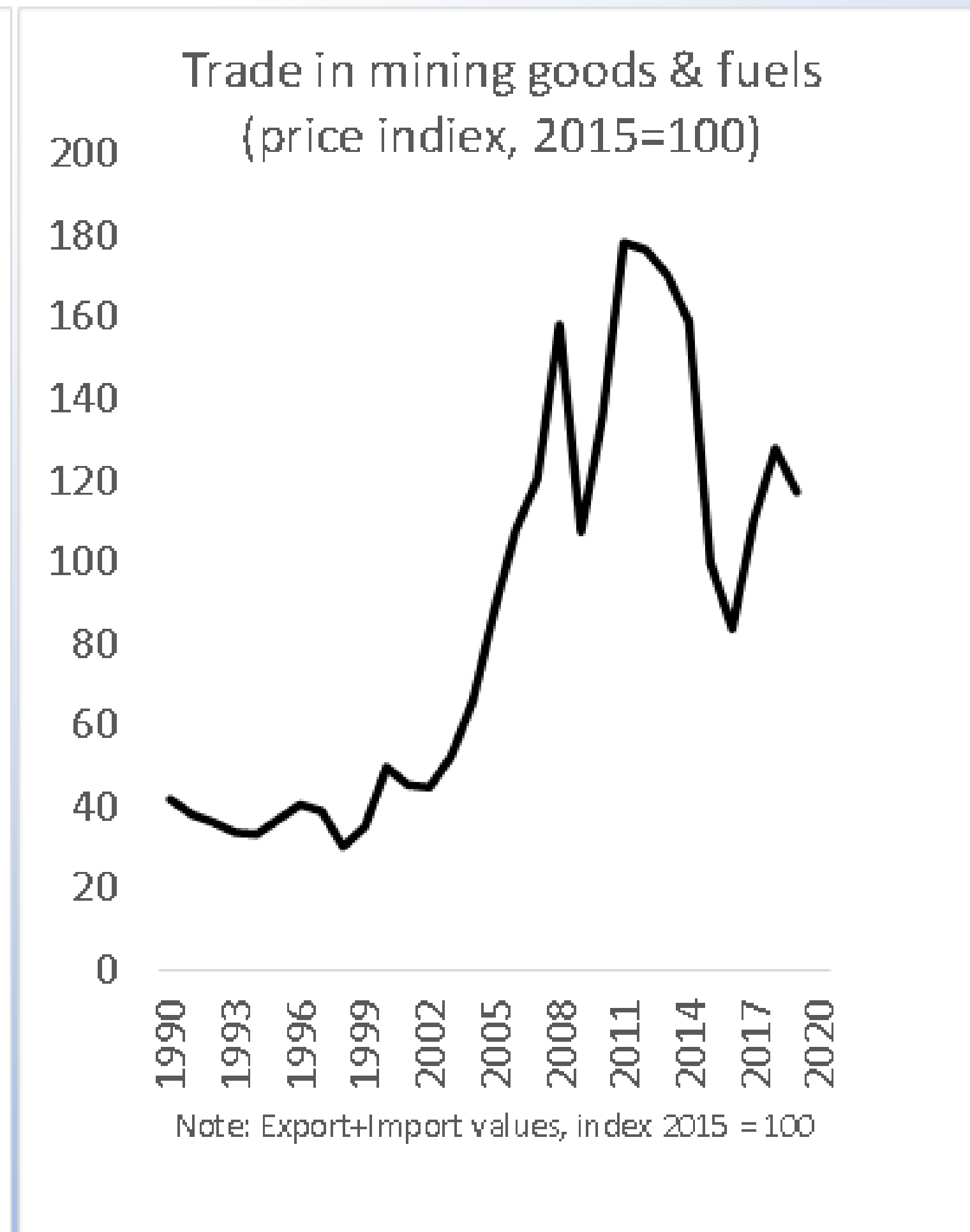
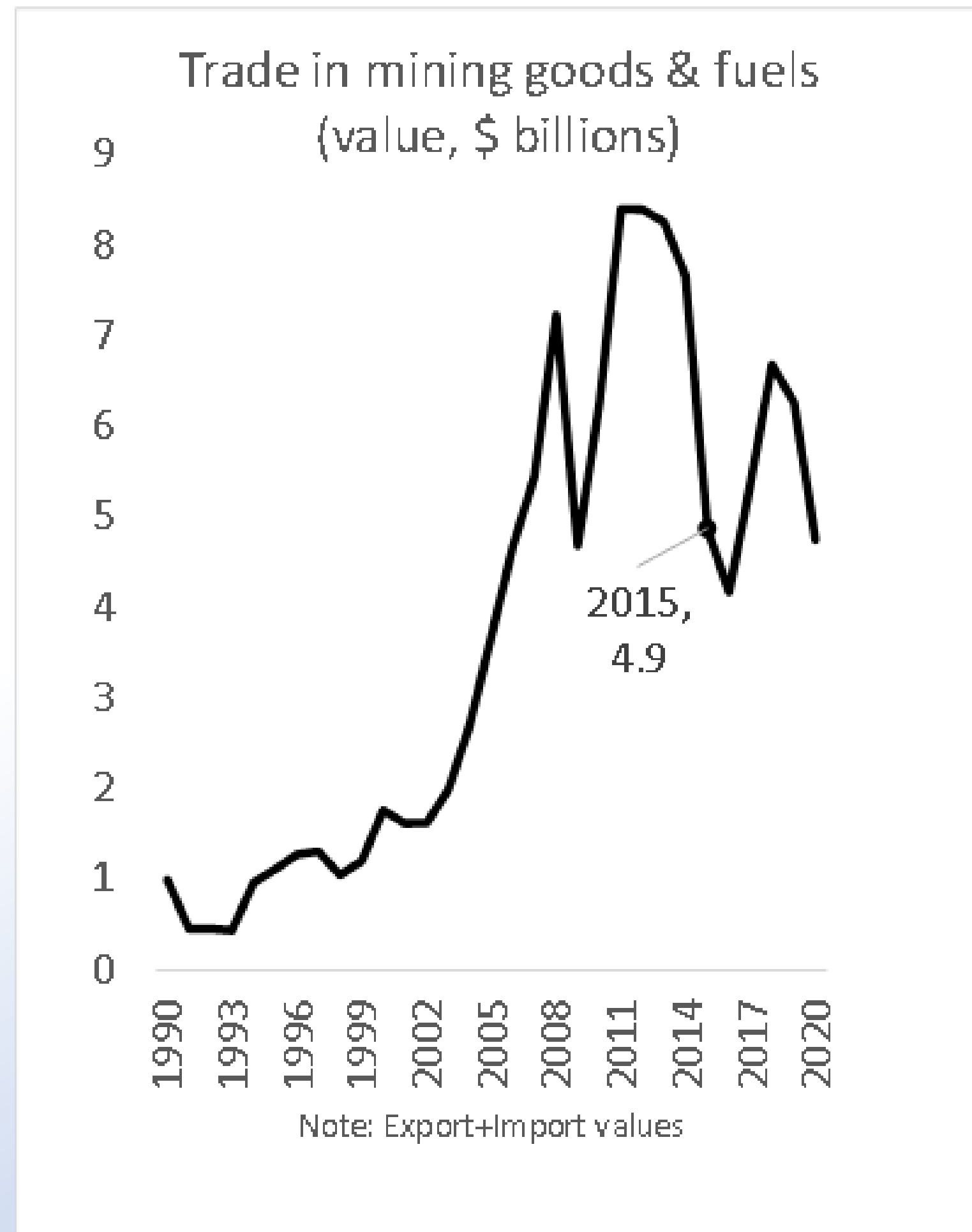


# Value of world goods trade by sector



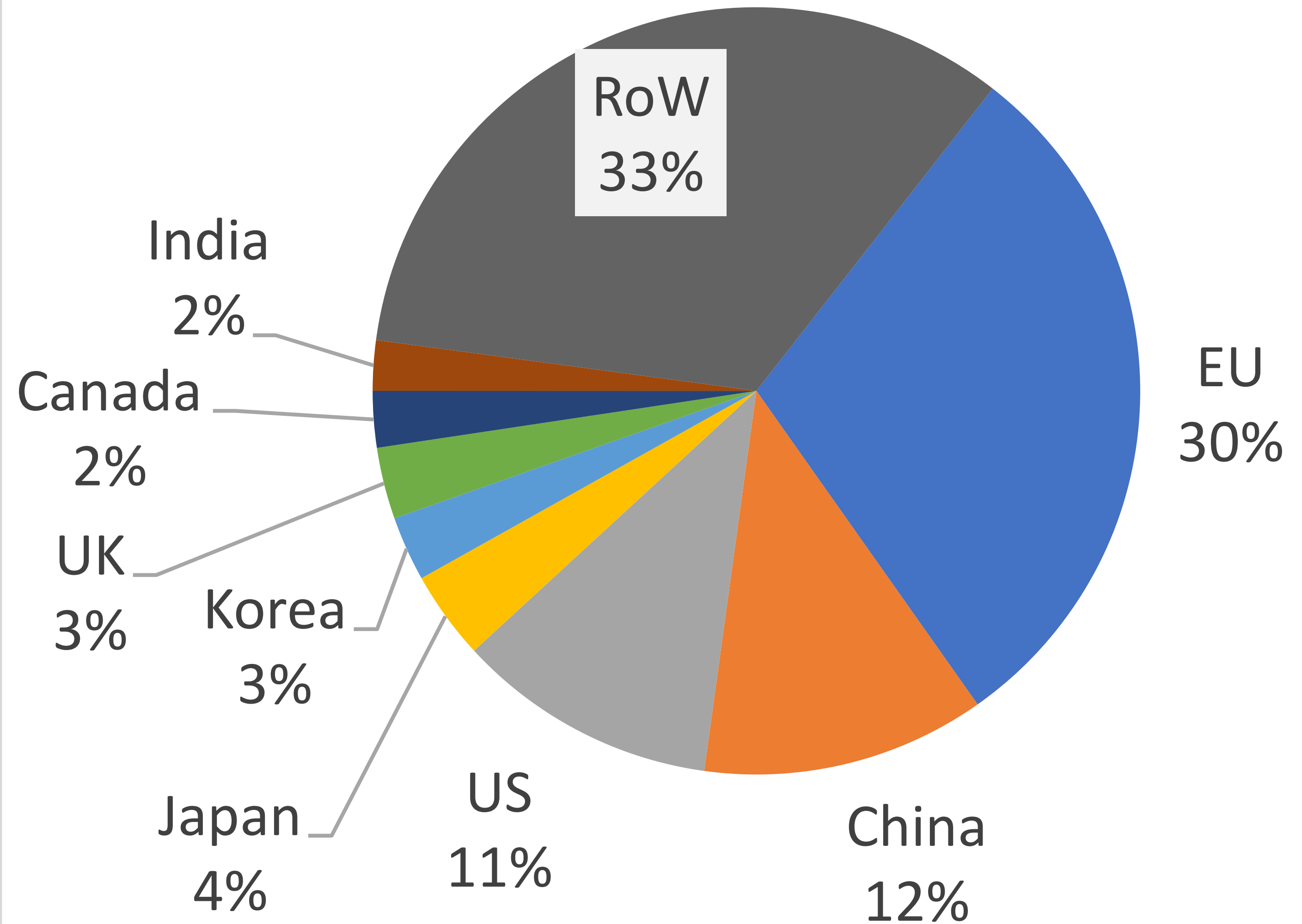


# Breaking down the commodity super cycle into prices & volumes



# Big traders

Largest traders of goods,  
2019



Fact: Every  
sector uses  
lots of service  
intermediates

*Blue=service  
intermediate share  
Orange = manuf  
intermediate share*

