Industrial Policy for SMEs

GLOBALISATION – NTERNATIONALISATION

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Previous classes:

Industrial Policy aims at favouring structural changes in industries

Industrial policy for SMEs addresses structural weaknesses of these firms

EU: industrial policy is implemented at different levels of government

Industrial policy in the EU:

- European: some common policies (competition, trade); bulk of industrial policy measures taken at national level (i.e. competence of Member States, which decide whether to implement them also/only at regional level)
- National: many EU countries have Industrial Strategies (e.g. Germany, UK, France)
- In Italy some measures are taken at national level, but there is no specific programme

Industrial policy in practice:

Should be defined on the basis of analysis of strengths and weaknesses of territorial industry and socio-economic system, given the megatrends in the competitive context (business environment)

In order to favour

- Upgrading of existing industries
- Development of new industries

Megatrends now:

- Fourth industrial revolution
- Globalisation
- Coronavirus will also have long-lasting effects on industries, and more broadly economies and societies

So in this and next classes we will see:

- Globalisation and internationalisation
- Characteristics of Italian industry and what industrial policy would be needed
- Cluster policy: examples in different countries
- Regional industrial policy: Emilia Romagna Region case (success)
- Smart specialisation (RIS3)
- Industrial policy for the manufacturing revolution: country cases

GLOBALISATION AND INTERNATIONALISATION

GLOBALISATION

WHAT DOES IT MEAN?

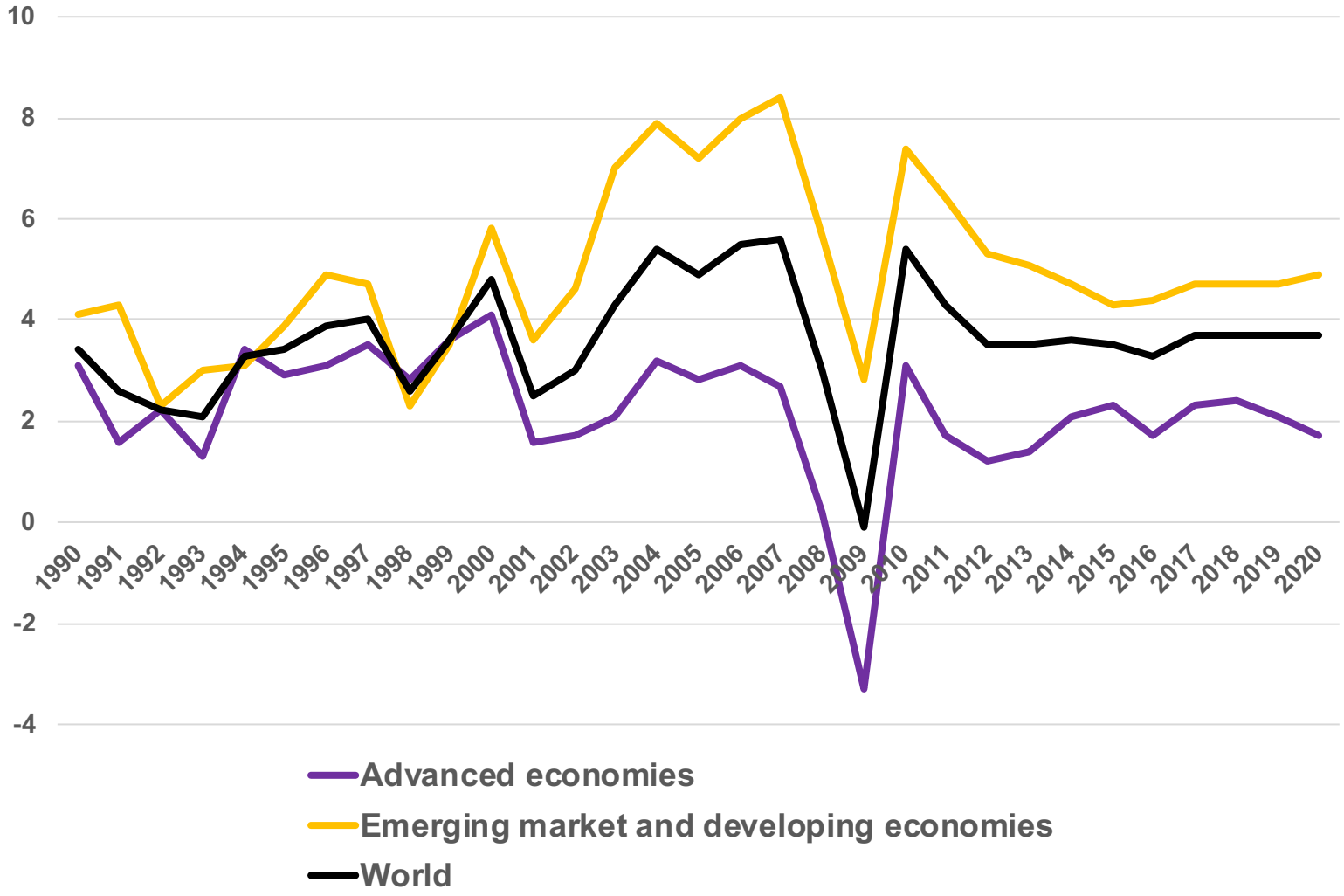
This term has been used since the 1990s to define an important characteristic of today's economy

Globalisation = substantial growth in international trade since 1990 (what is striking is the acceleration of the growth rate)

International trade is rising since 1945

But in the 1990s the growth rate reaches higher level (so the curve gets steeper)

REAL GDP GROWTH: world growth is pulled by emerging countries



REAL GDP GROWTH: China leader of growth

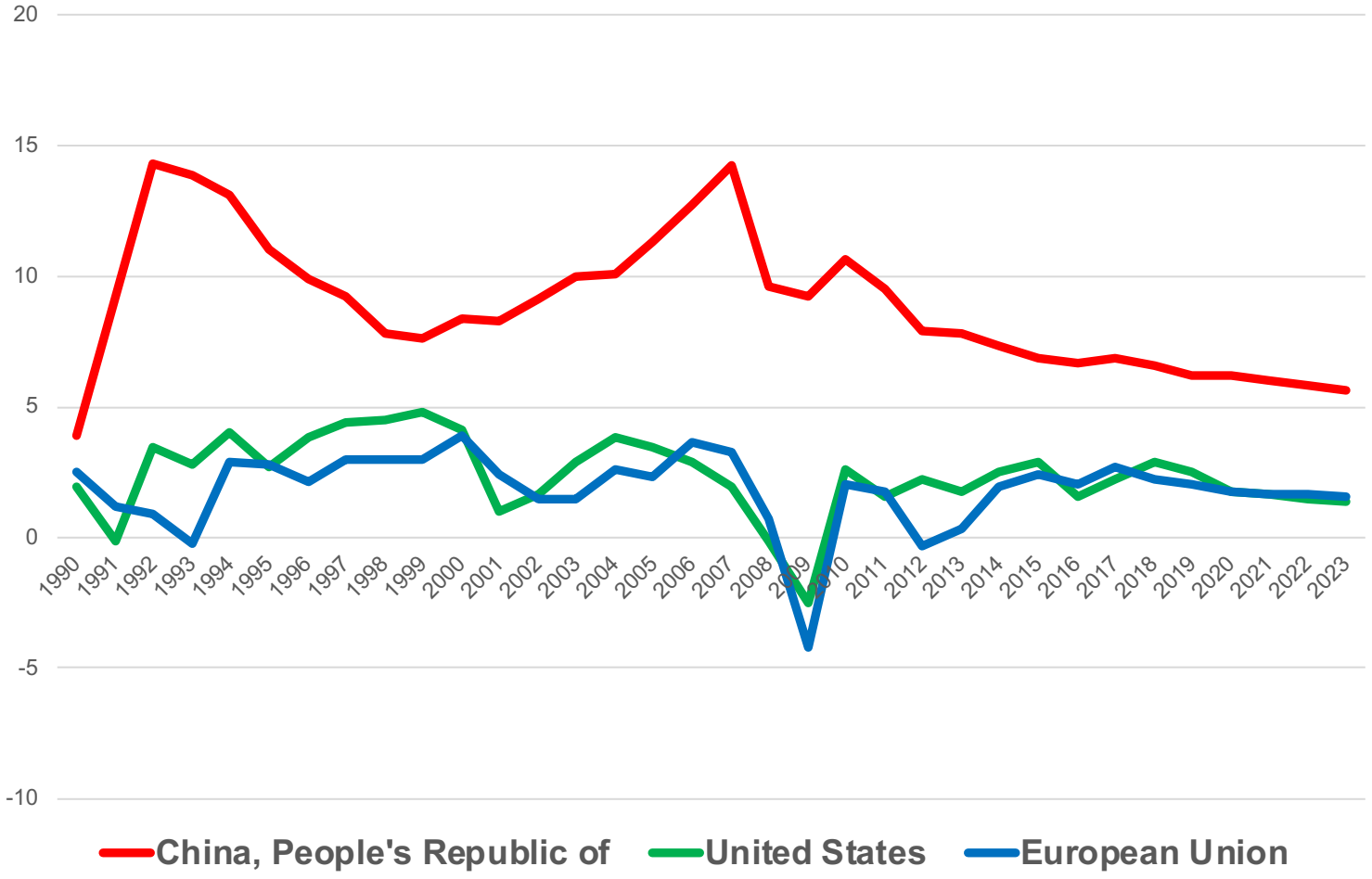
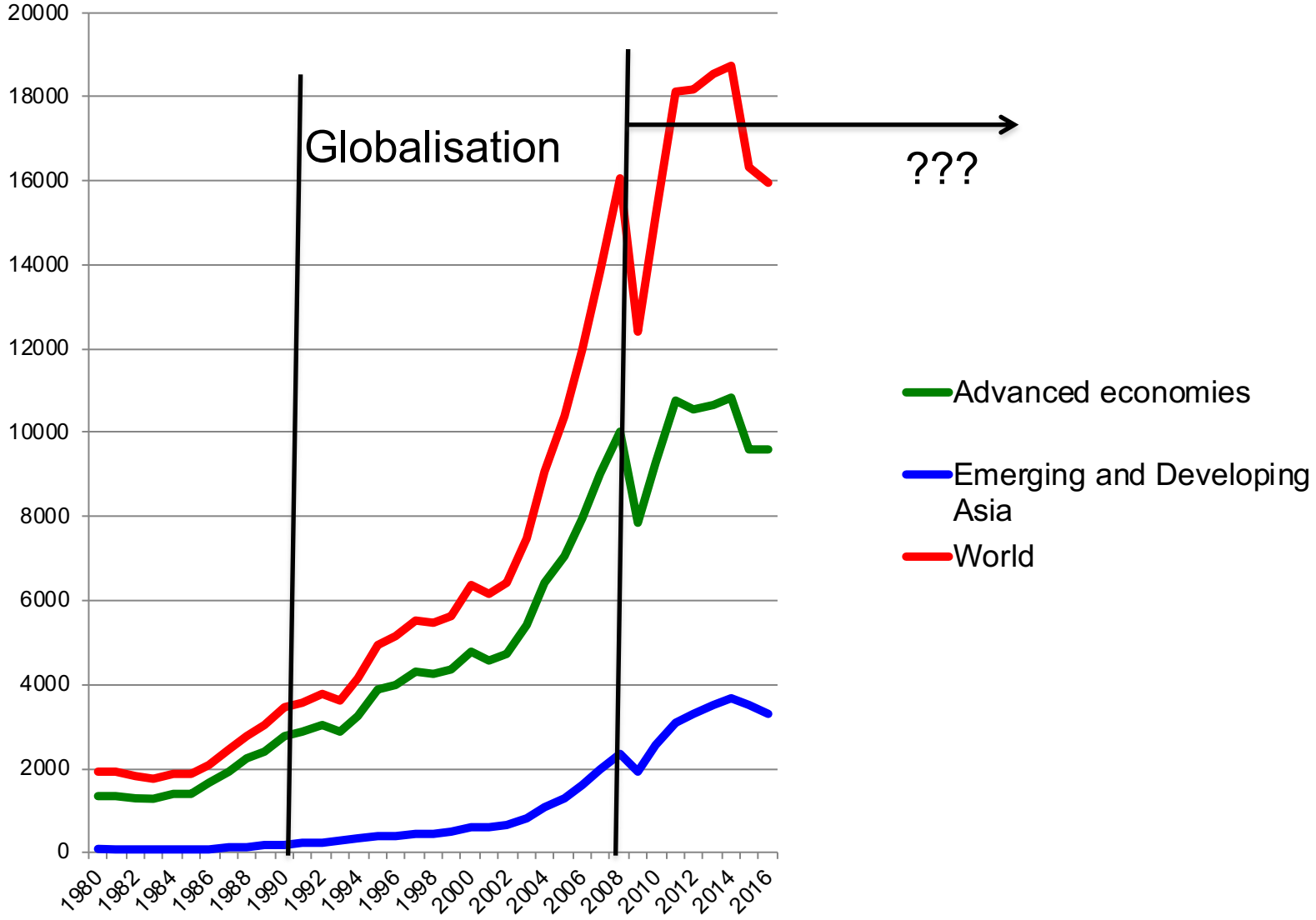


Figure 1: Growth in World Goods and Services Trade Volume and Real Gross Domestic Product (GDP)

Globalisation: strong growth of international trade decades 1990s and 2010s

Sources: World Bank World Development Indicators, World Bank (2018), and authors' calculations.
Note: Trade growth is the average of import and export growth rates.

NEW PHASE AFTER FINANCIAL CRISIS ???



Firm internationalisation

Globalisation ⇒ need for firms to sell on all world markets

In fact, internationalisation is increasing among firms of all sizes

Internationalisation = important competitive strategy

Firm Internationalisation

Two aspects:

1. **Internationalisation with the aim of: a) produce abroad (global value chains) and/or b) sell abroad**
2. **Effects on all markets: increase in competition (e.g. competition in Italy increases due to arrival of foreign firms and products)**

Firm internationalisation

Problems in Italy (see next class):

1. **SMEs prevail: few resources for internationalisation; in fact large firms have higher propensity to internationalise**
2. **SMEs tend to have informal linkages abroad (e.g. Italian entrepreneurs setting up firms in Romania to produce for the Italian district they come from)**

Internationalisation of Italian firms: 9th world exporter

Tavola 1.5 - I primi 10 esportatori mondiali di merci

Valori in miliardi di dollari correnti e variazioni percentuali rispetto all'anno precedente

Graduatorie			Paesi	Valori		Variazioni percentuali		Quote percentuali		
2011	2016	2017		2016	2017	2012-17(1)	2017	2011	2016	2017
1	1	1	Cina	2.098	2.263	3,0	7,9	10,4	13,1	12,8
2	2	2	Stati Uniti	1.451	1.547	0,7	6,6	8,1	9,1	8,7
3	3	3	Germania	1.334	1.448	-0,3	8,5	8,0	8,3	8,2
4	4	4	Giappone	645	698	-2,7	8,3	4,5	4,0	3,9
5	5	5	Paesi Bassi	571	652	-0,4	14,1	3,6	3,6	3,7
7	8	6	Corea del Sud	495	574	0,5	15,8	3,0	3,1	3,2
10	6	7	Hong Kong	517	550	3,2	6,5	2,5	3,2	3,1
6	7	8	Francia	502	535	-1,8	6,7	3,3	3,1	3,0
8	**9**	**9**	**Italia**	**462**	**506**	**-0,6**	**9,6**	**2,9**	**2,9**	**2,9**
9	10	10	Regno Unito	410	445	-2,1	8,6	2,8	2,6	2,5
			Somma dei primi 10 paesi	**8.485**	**9.219**	**0,4**	**8,7**	**49,0**	**52,9**	**52,0**
			Mondo	**16.029**	**17.730**	**-0,6**	**10,6**	**100,0**	**100,0**	**100,0**

(1) Tasso di crescita medio annuo.

Fonte: elaborazioni ICE su dati OMC

Imports (Italy = 10th)

Tavola 1.6 - I primi 10 importatori mondiali di merci

Valori in miliardi di dollari correnti e variazioni percentuali rispetto all'anno precedente

Graduatorie			Paesi	Valori		Variazioni percentuali		Quote percentuali		
2011	2016	2017		2016	2017	2012-17(1)	2017	2011	2016	2017
1	1	1	Stati Uniti	2.250	2.409	1,0	7,1	12,2	13,8	13,4
2	2	2	Cina	1.588	1.842	0,9	16,0	9,4	9,7	10,2
3	3	3	Germania	1.056	1.167	-1,2	10,5	6,8	6,5	6,5
4	5	4	Giappone	608	672	-3,9	10,6	4,6	3,7	3,7
6	4	5	Regno Unito	636	644	-0,8	1,2	3,7	3,9	3,6
5	6	6	Francia	572	625	-2,3	9,2	3,9	3,5	3,5
10	7	7	Hong Kong	547	590	2,4	7,8	2,8	3,4	3,3
7	8	8	Paesi Bassi	505	574	-0,6	13,7	3,2	3,1	3,2
9	11	9	Corea del Sud	406	478	-1,5	17,8	2,8	2,5	2,7
8	**10**	**10**	**Italia**	**407**	**453**	**-3,5**	**11,2**	**3,0**	**2,5**	**2,5**
			Somma dei primi 10 paesi	**8.576**	**9.454**	**-0,4**	**10,2**	**52,5**	**52,7**	**52,5**
			Mondo	**16.287**	**18.024**	**-0,4**	**10,7**	**100,0**	**100,0**	**100,0**

(1) Tasso di crescita medio annuo.

Fonte: elaborazioni ICE su dati OMC

PRODUCTIVE INTERNATIONALISATION = GLOBAL VALUE CHAINS OR GLOBAL PRODUCTION NETWORKS = OFFSHORING

Also concerns Italian firms and SMEs

Very strong in the 1990s and first decade of the 21st century

NOW: RE-SHORING OR BACK-SHORING

Particular problem regarding internationalisation is how to measure this phenomenon: usually data used are exports and imports, FDI, but they do not always capture the whole phenomenon.

DEFINITIONS

Multinational = Multinational corporation (MNC) = multinational enterprise (MNE) = a corporation that is registered and has operations in more than one country

= a corporation that produces and sells goods or services in various countries

Usually a large firm, but not necessarily

Foreign direct investment = FDI is defined as cross-border investment by a resident entity in one economy with the objective of obtaining a lasting interest in an enterprise resident in another economy. Ownership of at least 10% of the voting power, representing the influence by the investor, is the basic criterion used (OECD).

FDI TYPES

Greenfield investment

The multinational corporation builds a new plant in the foreign country

FDI by merger or acquisition

Merger with or acquisition of a firm already existing abroad

⇒ **About ¾ of FDI are done via M&A**

Global Production networks

Vertical FDI

Imply that the firm manages a global production network, where the different phases of production are realised in different countries, but the whole process remains within the firm (stages done abroad by foreign subsidiaries).

Production internationalisation

Involves either vertical FDI or agreements with foreign suppliers who realise part of the production process (not necessarily owned by the multinational)

Other forms of control

Agreements between firms including a share of the social capital of the foreign firm (joint venture) or not (franchising, supply contracts, ...)

<=> prevailing forms for SMEs

Other forms of internationalisation

Exports or imports

Importance of MNCs

MNCs play an important role in the world economy

Many multinationals have revenue higher than the GDP of many countries!

USA: about 50% of US imports result from transactions within MNCs

MNCs do not only have an economic influence: also social (consumerism) and political (lobby on governments)

EU: multinationals (MNCs) of foreign ownership employ 1 worker out of 5

They sell 1 euro out of 4 of the value of manufactured goods

USA: MNCs employ 1 worker out of 7

They sell 1 $ out of 5 of the value of manufactured goods

About 75% of world trade is due to MNCs

LARGEST FIRMS IN THE WORLD (Fortune bn = billion) 2014

1. Walmart Stores	REVENUE $ 500 Bn	EMPLOYEES 2,1 million
2. State Grid (Cina)	$ 350 Bn	101 000
3. Sinopec (Cina)	$ 327 bn	102 700
4. China National Petroleum	$ 326 bn	80300

5. Royal Dutch Shell	312 bn $
6. Toyota Motors	265 bn $
7. Volkswagen	260 bn $
8. British Petroleum	245 bn $
9. Exxon Mobil	244 bn $
10. Bershire Hathaway	242 bn $

Largest firms in the world (Bloomsberg) by market capitalisation 2008

Enterprise:	Year created	Value in $ bn
1. Petrochina	1999	728
2. Exxon	1870	492
3. General Electric	1892	358
4. China Mobile	1997	344
5. ICBC (China)	1984	336
6. Gazprom (Ru)	1989	332
7. Microsoft	1975	313
8. Royal Dutch Shell	1907	266
9. Sinopec (Ch)	2000	257
10. AT&T	1885	238

Largest firms in the world (Bloomsberg) by market capitalisation 2018

Enterprise	Year created	Value in $ bn
1. Apple	1976	890
2. Google	1998	768
3. Microsoft	1975	680
4. Amazon	1994	592
5. Facebook	2004	545
6. Tencent (China)	1998	526
7. Berkshire (holding)	1955	496
8. Alibaba	1999	488
9. J&J (farmaceutica)	1886	380
10. JP Morgan	1871	375

Comparing 2008 and 2018:

- **The market value of the first 10 firms in the world has significantly increased**
- **The classification has significantly changed**
- **Now dominated by DIGITAL PLATFORMS (new sectors: oil is no longer dominating)**
- **Current leaders are very young!**

➔ **Signs of ongoing industrial revolution!**

MNCs: empirical stylised facts

1. Strong growth of FDIs in the period 1985 to 2000, decrease in 2000 – 2003, followed by strong growth again up to 2007 (crisis).
2. FDIs are essentially done BY advanced countries, but FDI from developing countries and especially emerging countries are rising
3. FDI are mainly done IN advanced countries

MNCs: empirical stylised facts

4. **FDI mainly consist in M&A (less greenfield)**
5. **Most FDI are concentrated in skill-intensive and technology-intensive sectors**
6. **MNCs are larger and more productive than national firms on average**
7. **In the last years production has been increasingly fragmented on a global scale**

Internationalisation does not arise only through FDI:

1. FDI: acquiring shares or greenfield investments abroad;
2. Supply relationships with foreign suppliers (implies creation of export and import flows);
3. Informal production agreements or entrepreneurship in foreign countries: e.g. a district entrepreneur creates a firm abroad and continues working for the district.

⇔ Creation of global value chains

OFF-SHORING / RE-SHORING

Off-shoring: localisation of part or whole production in a foreign country

Outsourcing: externalisation of some phase of the production process (e.g. components previously made inside the firm are bought to an external supplier)

WHY OFFSHORING:

1. **Production cost reduction (lower input costs abroad)**
2. **Access to scarce or exhausted resources in the home country (high skills, knowledge, raw materials)**
3. **Constraint imposed by the client: many firms are suppliers that offshore to follow their client**

Consequences of offshoring:

- **Creation of global value chains (GVC) or global production networks: the firm manages global production networks, namely production processes organised on a world basis**
- **World trade becomes trade of tasks rather than trade of goods (Baldwin)**

GLOBAL VALUE CHAINS

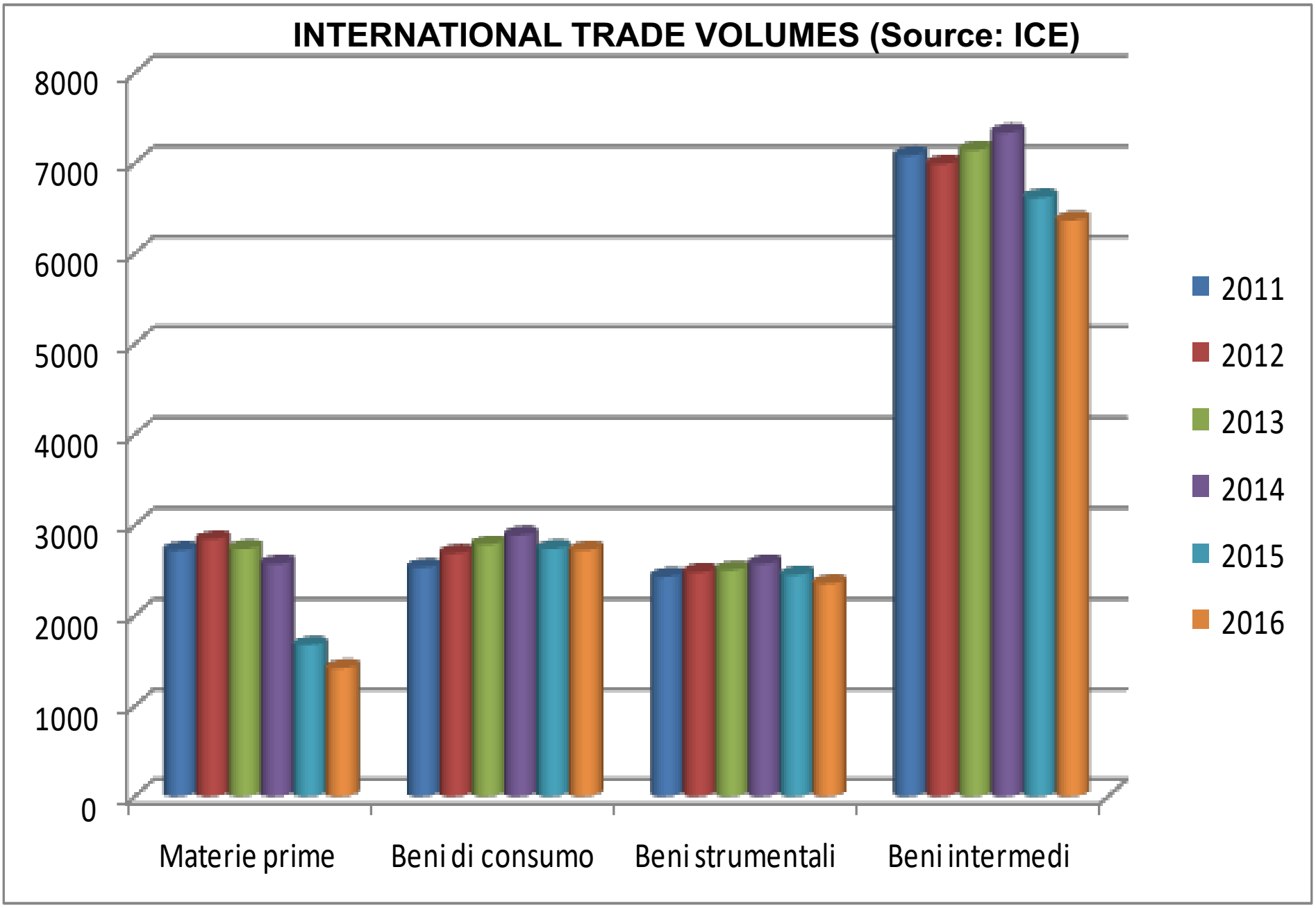
This concept has been defined and analysed by a group of US scholars (Gary Gereffi and Tim Sturgeon)

= productive processes where some phases are offshored, i.e. organised on a world (global) scale

According to Baldwin (2006),

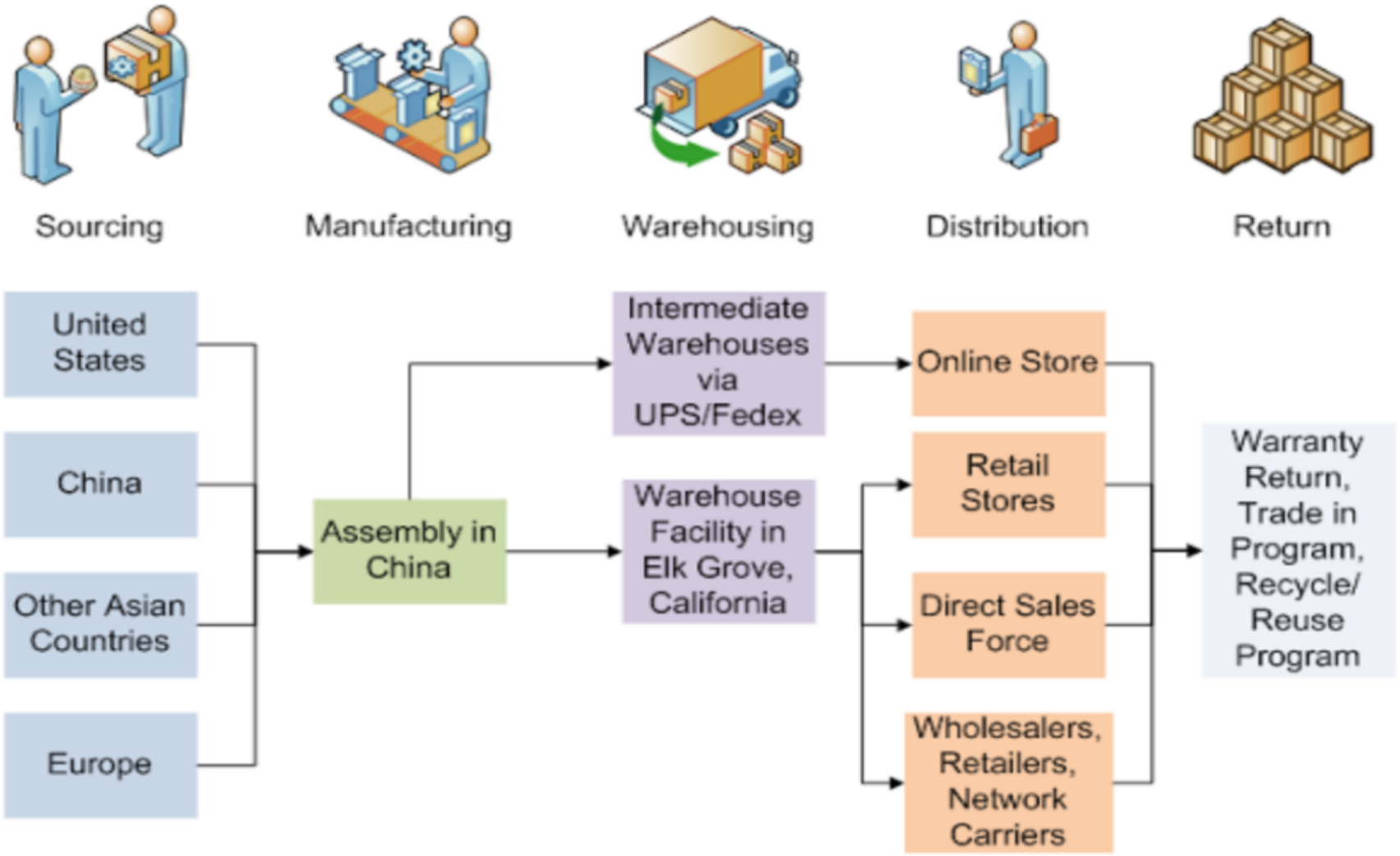
GVC → shift from trade in goods to trade in tasks

Hence international trade of intermediate goods should increase relative to trade of final goods as a result of the spread of GVCs



Raw materials Consumption goods Instrumental goods Intermediate goods

Example: Apple's GVC (Source: SupplyChainOpz)



Therefore exports do not correctly measure firm competitiveness:

- **Many firms shift production to markets where their products are sold;**
- **A firm can export few final products (because sales are mainly on the domestic market) but export lots of components: measures based on exports of final goods will underestimate its competitiveness**

A firm can be competitive because it shifts activities across countries, but export statistics will not show it

⇒ we would like to know how much added value is incorporated in products and their use

⇒ example: in China many firms assemble final products with imported parts: the added value of their activity is rather low, so that they are much less competitive than what export statistics would suggest

Firms' international competitiveness should not be measured by total exports of their country but by the capacity of firms to realise competitive activities that generate income and employment

MEASURE OF PRODUCTIVE INTERNATIONALISATION

Traditional measures of internationalisation:

- Exports / imports
- FDI flows (investment in a foreign country, which can be creation of a firm's division abroad, or M&A – acquisition of at least 10% of the foreign firm's shares): problem is that FDI often have speculative aims, and underestimate internationalisation of SMEs who often prefer joint ventures or other agreements to FDI

Useful method to measure productive internationalisation:

World input-output tables

Timmer et al. (2012): The World Input-Output Database

www.wiod.org

Input-output tables:

= matrices show what and what quantity of goods and services (output) from each sector in a country are used by other sectors as input in their productive process (Leontief, 1936, 1941).

Intermediate consumption: **Final goods:**	**Sect. 1**	**Sect. 2**	**Sect. 3**	**Sect. 4**	**…**	
Sector 1						
Sector 2						
Sector 3						
…						

The WIOD database

(created by European research project)

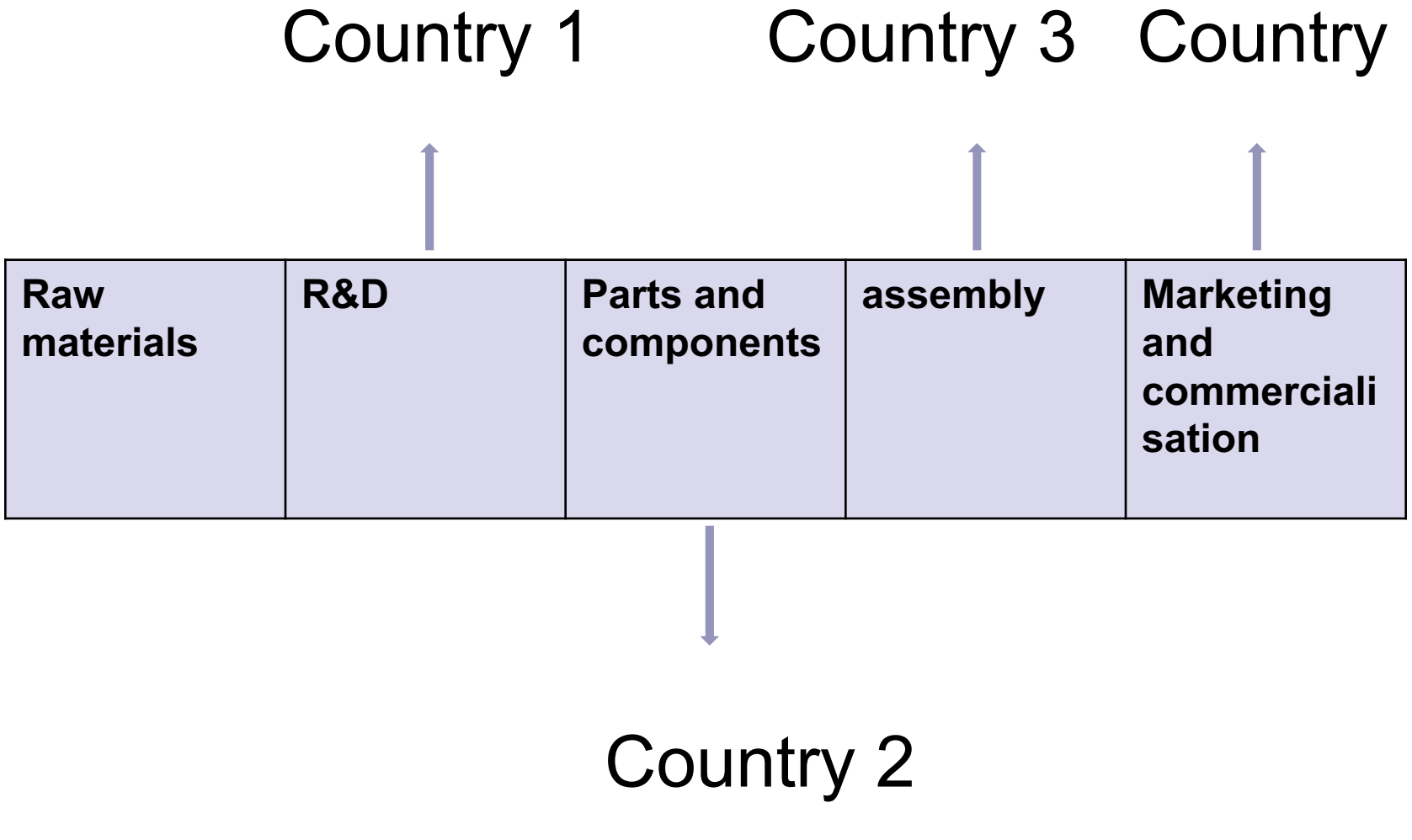
Provides input-output tables for various years (dal 1995), in 56 sectors and 43 countries: i 27 EU members + UK, Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, Russia, South Korea, Taiwan and Turkey...

Timmer et al. (2012) use this database to decompose added value in GVC production.

New indicator: GVC income

= value added by a country in the activity(ies) of the production process of a specific good

When the product is realised in a GVC, each country adds value according to the type of activity performed in the chain, thanks to the use of capital and labour


Country 1
Country 3
Country 1
Raw materials
R&D
Parts and components
assembly
Marketing and commercialisation
Country 2

IO Structure of an industry = volume and type of input that are necessary to the production of one unit of final good.

Input are realised by other industries, in the same country or abroad, so that productive processes of different countries are interrelated.

The IO data allows to estimate these links

Example: German cars

Production is realised using components produced abroad, such as braking systems, engines, wheels, etc. but also energy and services (logistics, transport, marketing and financial services)

The demand for German cars therefore also determines the production of services for German car makers, of braking systems from the Czech Republic, and the Indian textile industry.

It is possible to determine the added value produced by the different participants in the production process of German cars, on the basis of the output flows generated by demand flows in a certain period.

In addition, the number of workers employed in the production process (GVC) can be derived.

Example: Porsche Cayenne

Final assembly: Leipzig

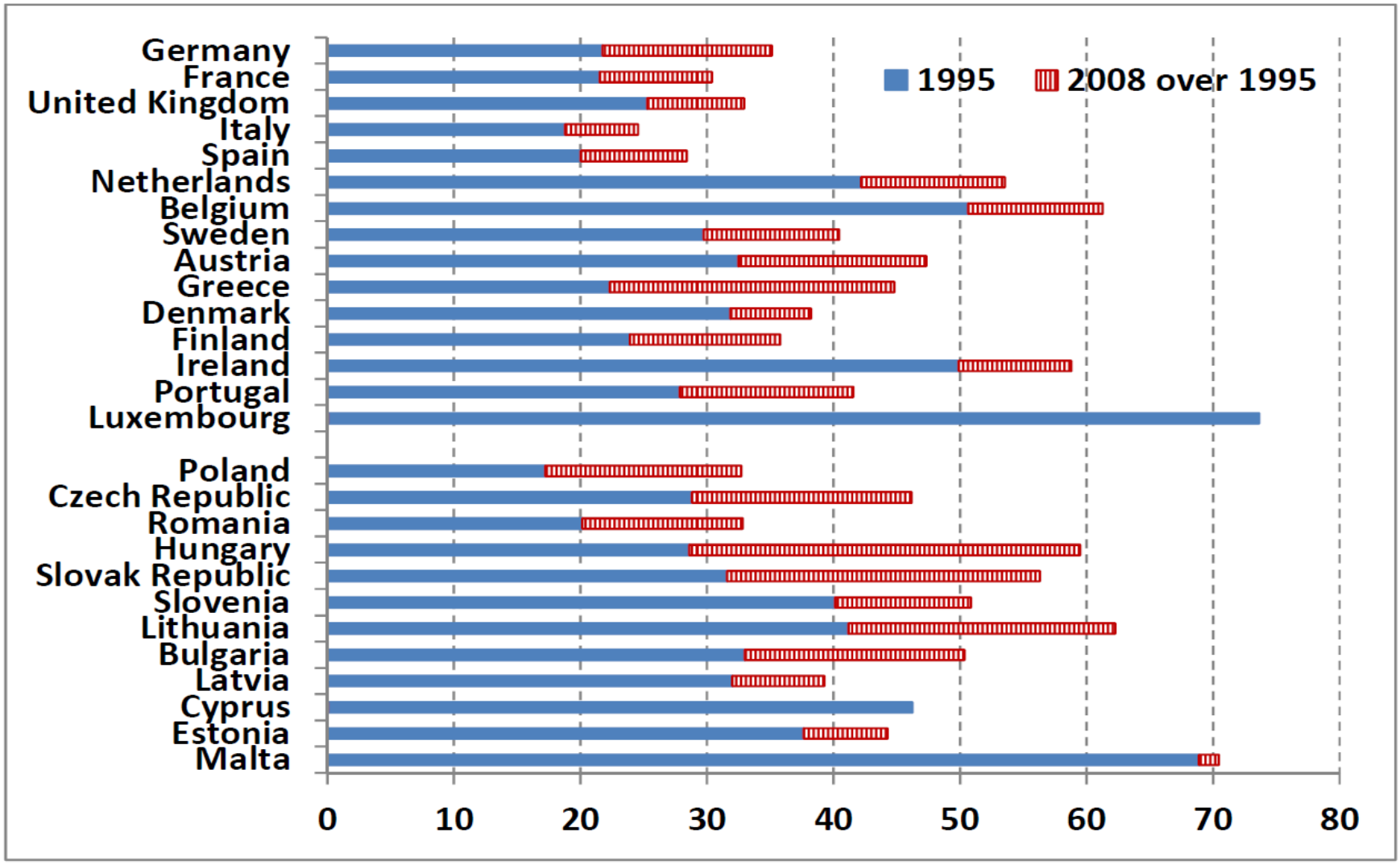
Previous production phases: Bratislava (Slovakia), which uses parts and components produced in different countries, including Germany

Dudenhöffer (2005) estimates that only a third of the value of the Porsche Cayenne is realised by German firms.

GVC German cars analysed with WIOD

- The share of value added produced in foreign countries (not Germany) has risen from 21% in 1995 to 34% in 2008.
- The share of employees involved in the GVC who where not localised in Germany was 50% in 1995, 62% in 2008.
- Employees remaining in Germany have higher skills
- The total demand for German cars has increased in the period

Figure 2 International fragmentation index

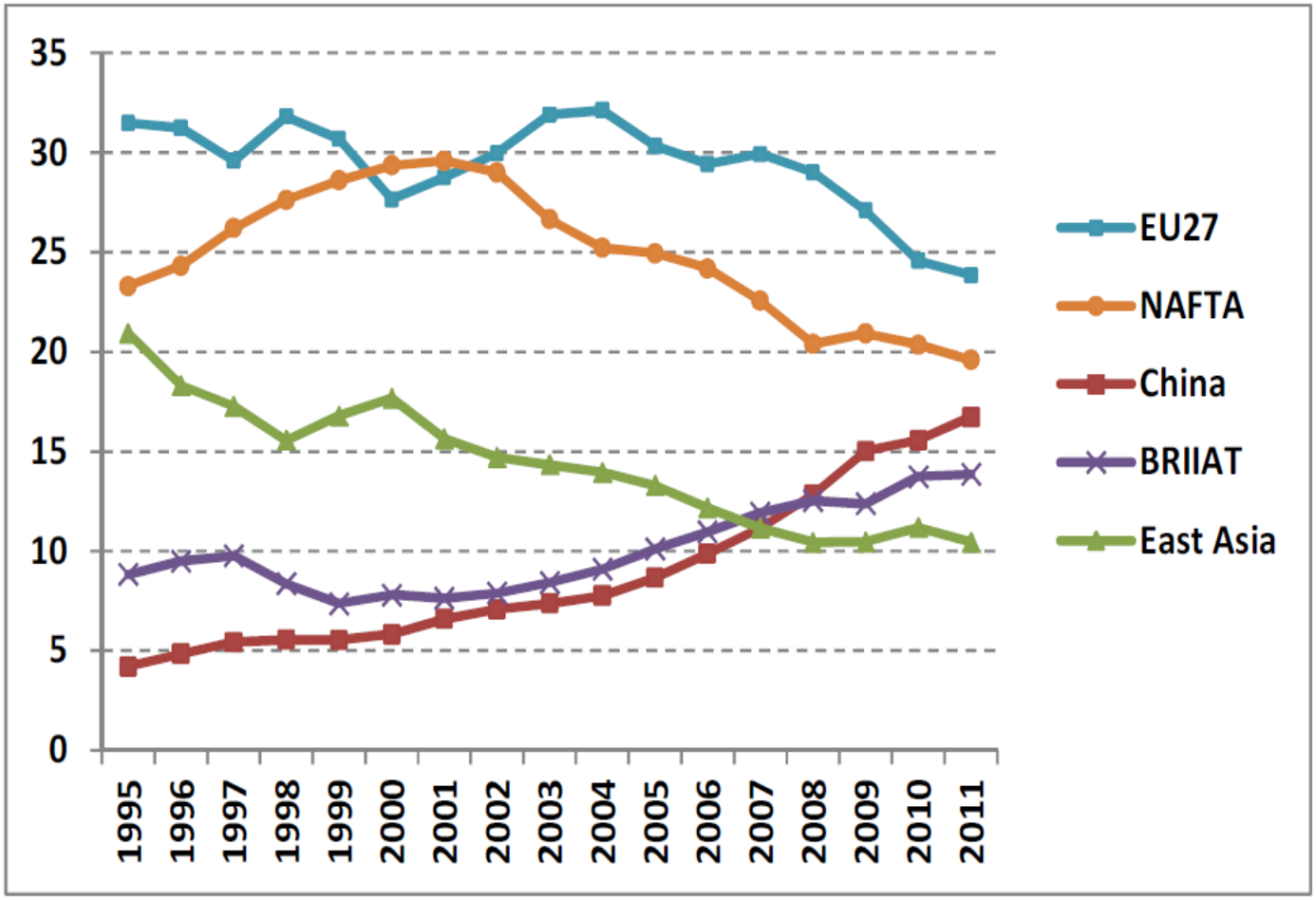


Note: Imported intermediate inputs as share of total intermediate inputs in manufacturing industry (in %) in 1995 and 2008. A higher share indicates more international fragmentation of domestic production. Countries are grouped into EU15 and EU12 and within the group ranked on GDP in $ 2008.

- Productive fragmentation has increased in the EU over the period 1995 to 2008

- Offshoring mostly in CEECs

Figure 3 Regional share in world GVC income for all manufactures (%)



Note: East Asia includes Japan, South Korea and Taiwan. BRIIAT includes Brazil, Russia, India, Indonesia, Australia, and Turkey. EU27 includes all European countries that have joined the European Union. NAFTA includes Canada, Mexico and the US. Shares do not add up to 100% as the remainder is the share of all other countries in the world.

- The EU share has slightly reduced over the period 1995 to 2008, to 24% in 2011; it remains the highest in the world.
- Canada, Mexico and USA (NAFTA): share increases during the speculative bubble, but rapidly reduces afterwards.
- The share of Eastern Asia reduces essentially due to falling demand in Japan.
- The share of BRICS and other emerging countries constantly rises

GVC income (added value) versus exports:

Germany

Increase in exports 1995-2008: + 180%

Increase in GVC income: + 52%

Why?:

- The added value of German domestic production has reduced in the period due to offshoring and increase in imports of intermediary goods
- German internal demand is low in the period

⇒ The rising productive fragmentation implies increasing gap between exports and GVC income

⇒ and export data do not reflect countries' competitiveness well: firms could be exporting a lot because they are suppliers in GVCs, but they do not add much value to products

⇒ vulnerability if firms are not leaders of GVCs

EFFECTS OF PRODUCTIVE INTERNAZIONALISATION ON EMPLOYMENT?

Does employment reduce in countries where firms do a lot of offshoring?

What is the effect on skills?

Number of employees: variation 1995 - 2008

	Agricult.	Manuf.	Services	Total
Germany	- 161	- 666	1388	561
France	- 96	- 423	368	- 151
Italy	- 192	- 234	517	91
UK	- 128	- 1148	- 347	- 1624
EU-15	- 1149	- 2758	2936	- 971

- **Offshoring implies reduction of employment in the manufacturing sector and increase in employment in services (remember labour market trends outlined in class on megatrends)**
- **Offshoring also implies a rising demand for skilled labour: a higher share of the labour force has high skills**

Limits of this analysis:

- The methodology assumes that productive sectors produce homogenous products and that production processes are the same for all products in the sector

- An analysis at firm level would be needed, but is very difficult.

FINANCIALISATION

Some studies argue that offshoring is not due to efficiency motives but to its short-term gains on financial markets, hence to financialisation

= firm strategies decided in order to maximise the short-term value of shares on markets without regard to long-term growth

Example: Milberg e Winkler (2011): «Financialisation and the dynamics of offshoring in the USA», Cambridge Journal of Economics

- Analysis of a sample of 35 US industries in the period 1998 – 2006.

Results:

- offshoring is associated with a high share of profits in total value added

- **Productive fragmentation has allowed cost reductions that have served financialisation**

⇒ Globalisation and financialisation have reinforced each other

Critics:

- It is difficult to demonstrate the causality between rising share value and offshoring

- offshoring may result from a long-term trend that is independent from financialisation

BACK-SHORING / RE-SHORING

= relocalisation fo productive activities in the country of origin or nearby

Trend is not so new: evidence already in 2012

Many cases of reshoring have been observed:

-Ikea Italia reshores furniture production from Asia to Italy (Piemonte)

-General Electric reshores production of elettrodomestici from China to the USA

-Survey by the Boston Consulting Group April 2012: 37% of US firms with revenue higher than $ 1 bn expected to reshore

(trend has been growing since then)

Why reshoring?

1.Labour cost rise even in low-labour cost countries:

- Annual growth of real wages in Asia in 2000 - 2008 = 7,1 – 7,8 %

(= 0,5% in advanced countries in the same period)

- wages + other benefits ↑ by 19% in 2005 - 2010 in Chinese firms according to BCG

2. Robotisation: substitution of humans with robots

3. Transport costs ↑ with ↑ oil prices

4. Reshoring allows to produce more rapidly (the transport of components and unfinished goods across countries is time-consuming): products therefore arrive more quickly on markets

5. The quality of production in offshored factories was often low

6. Producing all phases in proximity also allows to exploit complementarities between phases of the production process and improves its coordination

7. «when you outsource, your whole business goes with it»; problem especially for innovative firms which can loose control of strategic phases of production

8. Industrial policy can also favour reshoring: Obama Initiative 2012

= policy to favour reshoring in the US, in order to create jobs in the US and reduce the trade deficit

9. Many firms have had reputation problems following scandals of working conditions in their factories in developing countries: e.g. H&M

Precarious Work in the H&M Global Value Chain

WORKERS VOICES FROM THE GLOBAL SUPPLY CHAIN
A Report to the ILO 2016

CONCLUSIONS

Jeff Imelt, CEO General Electric (2012)

"outsourcing is "quickly becoming mostly outdated as a business model for GE Appliances"

Is this also due to the 4th Industrial Revolution?

1. **Automation and robots => no need to look for low-labour cost countries**
2. **Smart manufacturing => easy reproduction of the production process in various places => better producing everything together and near the market**
3. **3D printing => no need for factories abroad, only infrastructure to print the product abroad**

There are many examples of reshoring linked to Industry 4.0, both large and small firms

Adidas:

Had offshored production in China, Indonesia and Vietnam since 1993

2016: announces reshoring and creation of a new (smart) factory (Speedfactory) in Bavaria (Germany)

Italy:

Furla (Bologna) reshores due to quality problems in production in China

Nannini (Florence) reshores from Eastern Europe for the same problems

Bonfiglioli (mechanical eng.) reshores due to Industry 4.0

Many Italian firms also reshore in order to be closer to Italian R&D centres

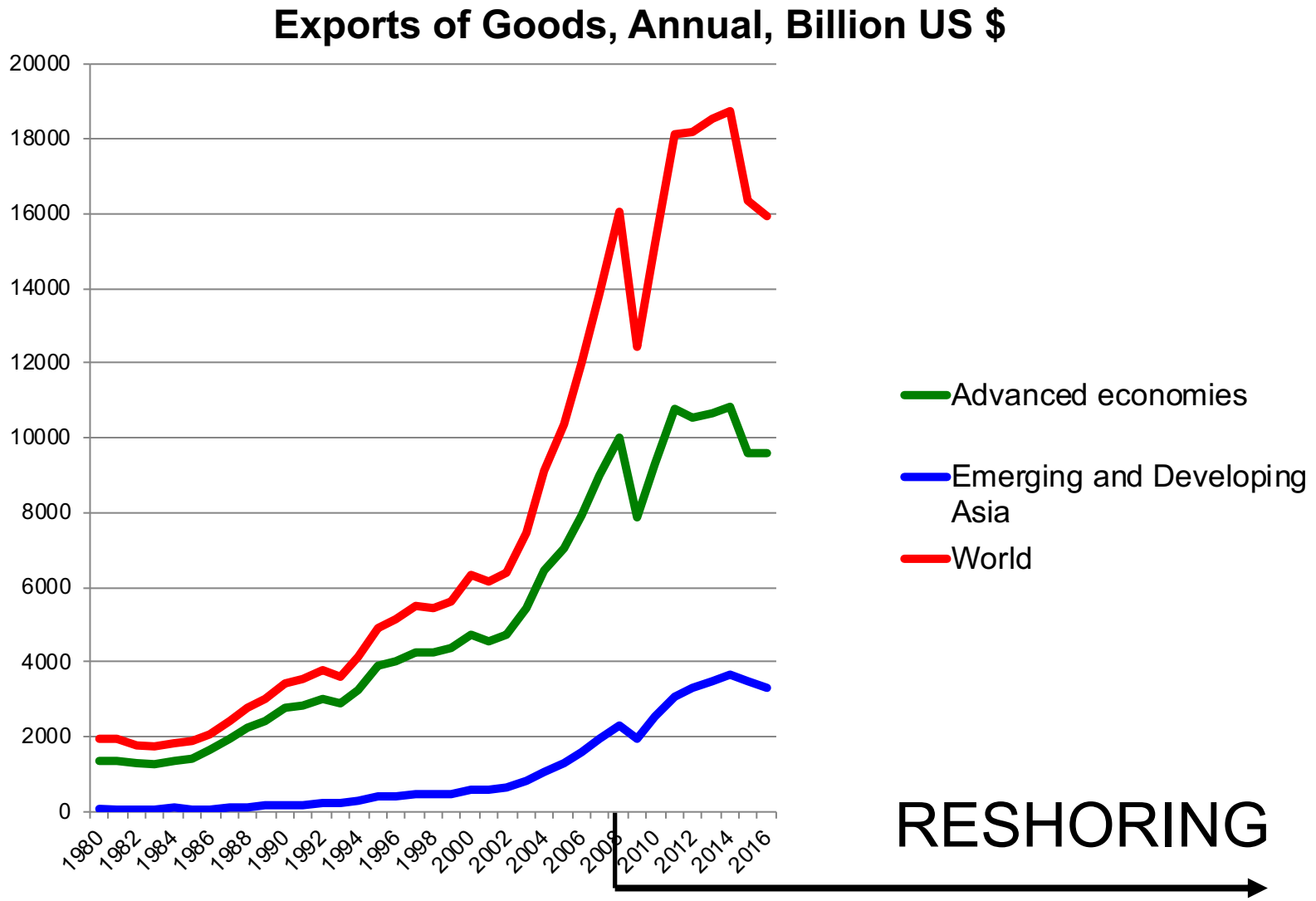
Research by Uni-Club MoRe Back Reshoring

Reshoring in Italy:

20% of electronic firms

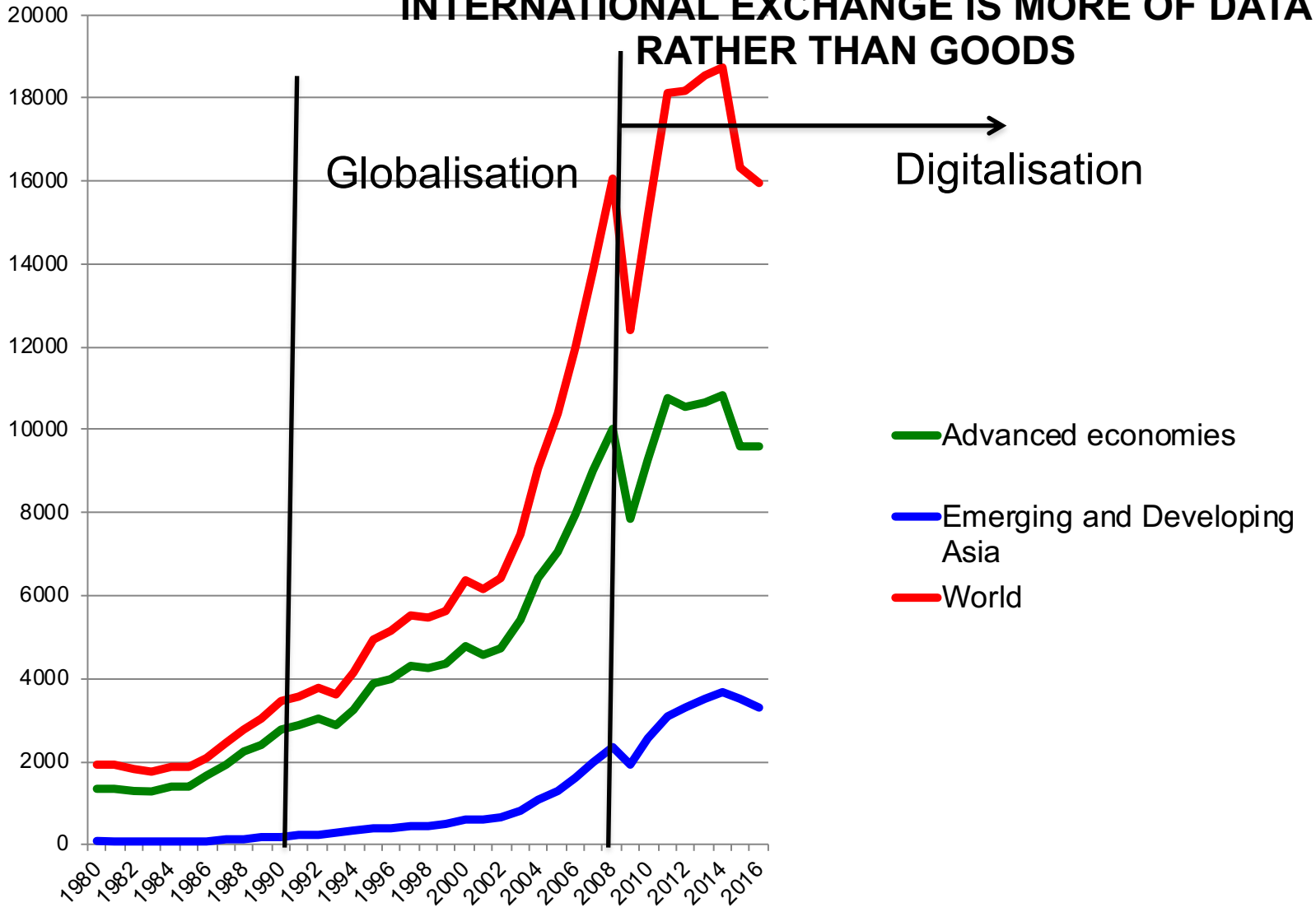
40% of firms in Made-in-Italy sector

Among firms that had reshored already in 2014

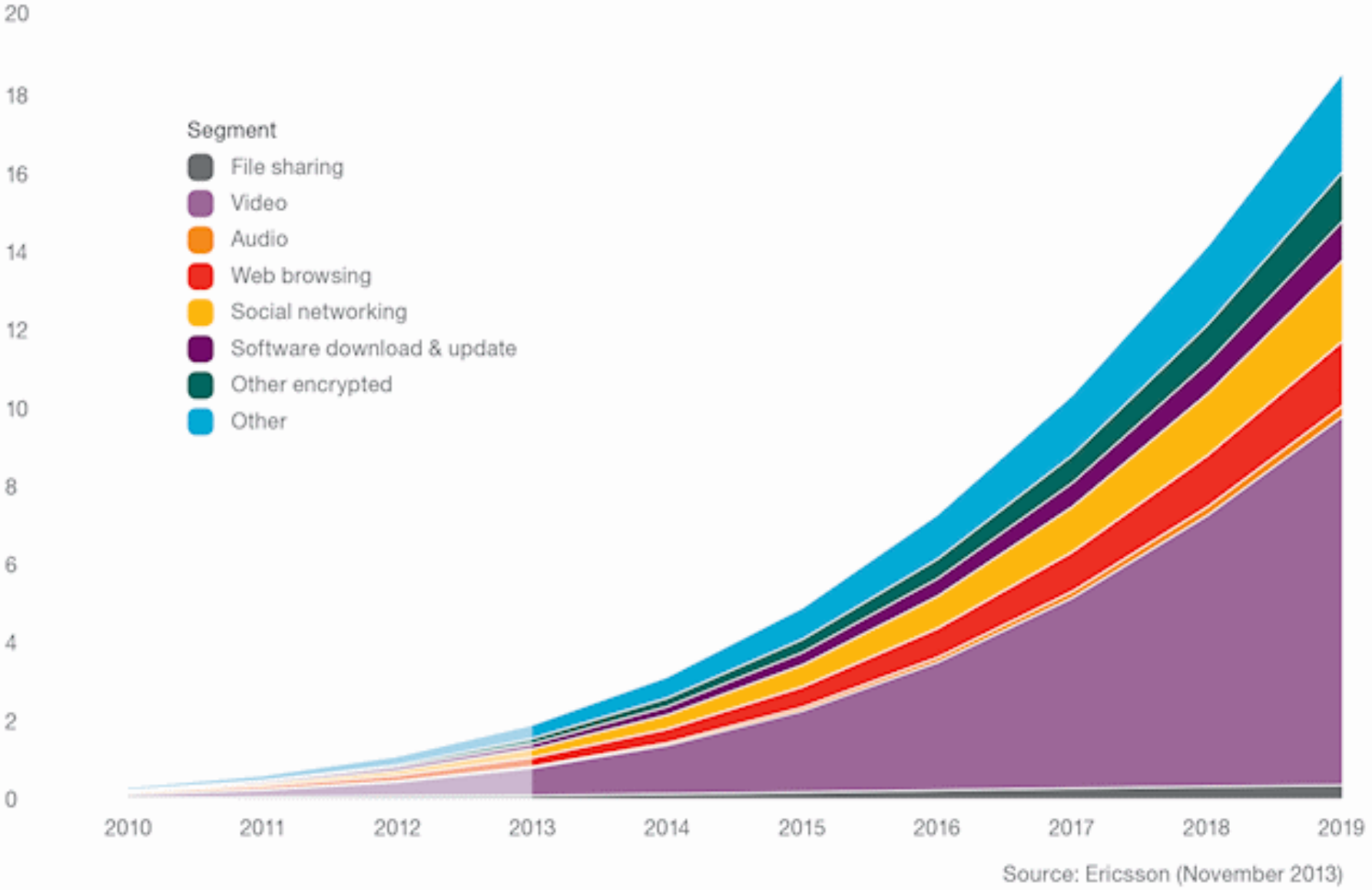


THIS CONTRIBUTES TO EXPLAIN THE TREND IN INTERNATIONAL TRADE OBSERVED SINCE THE FINANCIAL CRISIS

GLOBALISATION CARRIES ON: NOW IT IS INTERNATIONAL EXCHANGE IS MORE OF DATA RATHER THAN GOODS

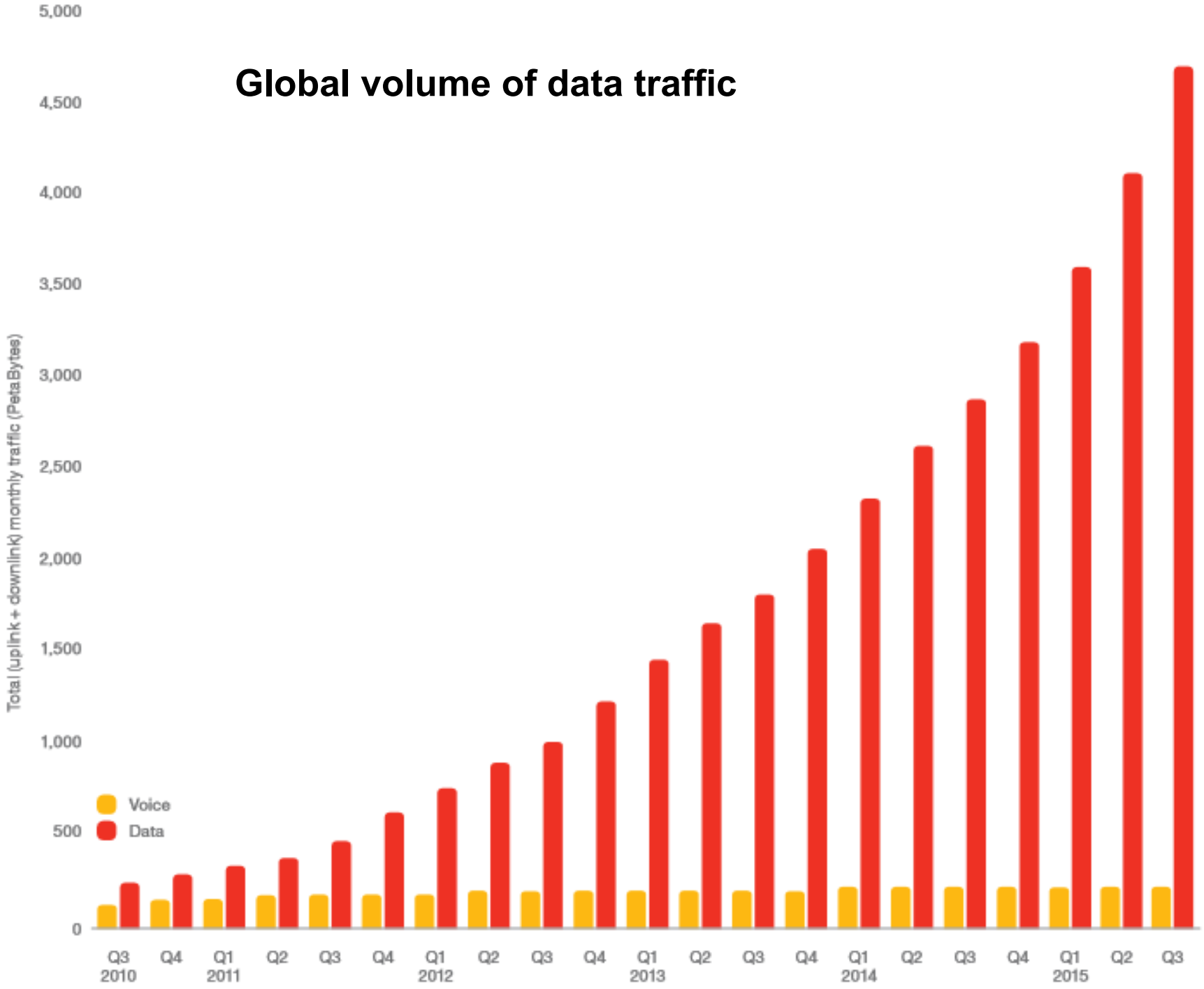


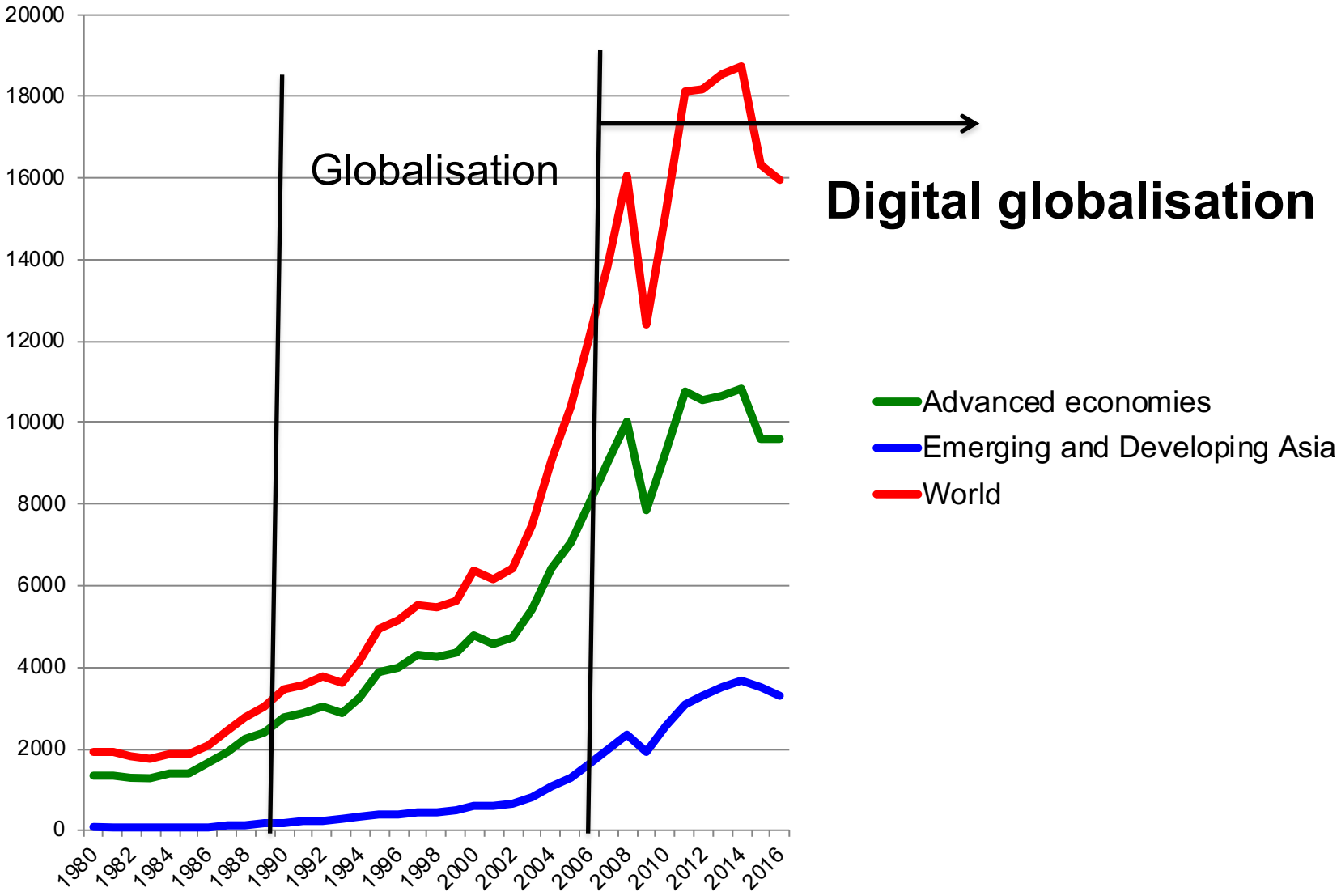
Mobile data traffic by application type
(monthly ExaBytes)



Source: Ericsson (November 2013)

Global volume of data traffic

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18000
16000
14000
12000
10000
8000
6000
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2000
0
1980
1982
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1996
1998
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2002
2004
2006
2008
2010
2012
2014
2016
Globalisation
Digital globalisation
Advanced economies
Emerging and Developing Asia
World

OVERALL CONCLUSIONS

- **MEGATRENDS ARE RELATED**

Financialisation ➔ looking for short-term value: favours reduction of employment in firms (all skills)

4th industrial revolution: automation processes: favours reduction of employment in firms (low skills)

- MEGATRENDS ARE RELATED (cont.ed)

GVCs: favours reduction of employment in firms that delocalise to low labour-cost countries (country of origin loses low-skilled jobs)

But 4th industrial revolution is changing GVCs towards re-shoring (increase in jobs with medium and high skills)

- **DATA AS THE RAW MATERIAL OF THE NEW ERA**

Data as source of power (market and political power)

Data storage and analytics capacity is key competitive asset

Big transformations to be expected in industries in coming years: new products and technologies (new industries and changing industries)