Economics of Globalization

Sciences Po Saint-Germain-en-Laye

Last week

- Globalization is a multidimensional phenomenon.
- There exist different narratives about globalization.
- None of them is false: globalization has a variety of heterogeneous effects.
  - A society must trade-off these effects and make its choices according to the preferences of the population.
- The gravity framework is useful to describe the international movement of goods, services, peoples, *etc.*

An article recommendation

- Hyperglobalization rules tended to prioritize the interests big businesses: global access to market, IP protection, arbitration procedures against states rather than free trade (*multinational firms narrative*).
- Created tensions between U.S. and China (*geopolitics narrative*).
- Recent backlash against these policies to take into account social and environmental dimensions *e.g.* Biden's IRA.
- (Forms of) protectionism is not the real issue (such forms existed before such as during the post-45 Bretton-Woods era). The biggest risk is geopolitics.

Policy topics

- How to reform the institutions of globalization? **(24/09)**
- Should we sign new trade agreements? **(01/10)**
- Trade Policy Instruments: Industrial Policies vs. tariffs **(01/10)**
- Should we keep going with Investor-State Dispute Settlements (ISDS) **(08/10)**
- How should we make multinational firms accountable? **(08/10)**
- The green transition in globalization rules: creating a Carbon Border Adjustment Mechanism or a Climate Club? **(15/10)**
- How to deal with the losers of globalization? **(22/10)**
- Should we tax the rich and/or provide them tax incentives? **(05/11)**
- What policy to manage strategic dependencies? **(12/11)**

This week

- What is the state of globalization?
- How did we end up here?
- Who trade with whom?
- Reference for this course: Goldberg (2023).

This week

A lot a graphs but a few facts

- Fact 1: Trade is an old phenomenon.
- Fact 2: It has grown rapidly in the post-WW2 era with changes in geography and in composition.
- Fact 3: ICT and transport technologies drove the rise of global integration. Trade policy also played an important role.
- Fact 4: Global Value Chains (GVC) and value-added trade play a key role in today's globalization.
- Fact 5: Despite all of this, the world is not flat.

Globalization in the long run

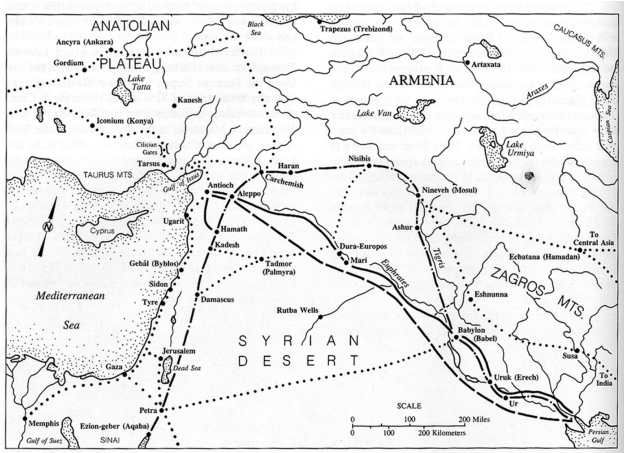
- Globalization is a very old phenomenon.
- Humans constantly traveled and exchanged goods, ideas, knowledge, money.
- Large body of evidence about trade in ancient Mesopotamia.
  - Local trade from 5000 BC (Ubaid era) and long-distance trade from 4100 BC (Uruk era).
  - Excess supply in some goods and demand elsewhere generated these practices.
  - Ceramics, glass, grain, leather, oils, textiles, *etc.* where traded.
  - Some goods where coming from out of Mesopotamia: copper, ivory, pearls (Indus Valley), gold, silver, metals (Egypt and Minor Asia), *etc.*
  - According to some theories, trade (as well as the development of the State, of accounting, etc.) is associated to the birth and the diffusion of writing (see *e.g.* Schmandt-Besserat).
  - Trade is also associated with the rise of contracts (*e.g.* loans) between merchants.

Globalization in the long run

- Around 1BC, luxury goods from Asia appeared at the other end of the continent, moving through the Silk Road
- Spice trade then developed around the 7th century.
- A new era began with the when Europeans explorers reached the Americas. New goods where introduced in Europe (*e.g.* potatoes, tomatoes, coffee, or chocolate) and new trade, colonization, and slavery routes where set up.

Long run evidence about globalization

Mesopotamian trade routes



The Mesopotamian Routes in Old Testament Times

——— Great Desert Route (Early)
– – – Great Desert Route (Medieval)
–·–·– Fertile Crescent Route
····· Main Connecting Routes
----- Median Wall

Long run evidence about globalization

Silk Roads (≈ 0-1500)

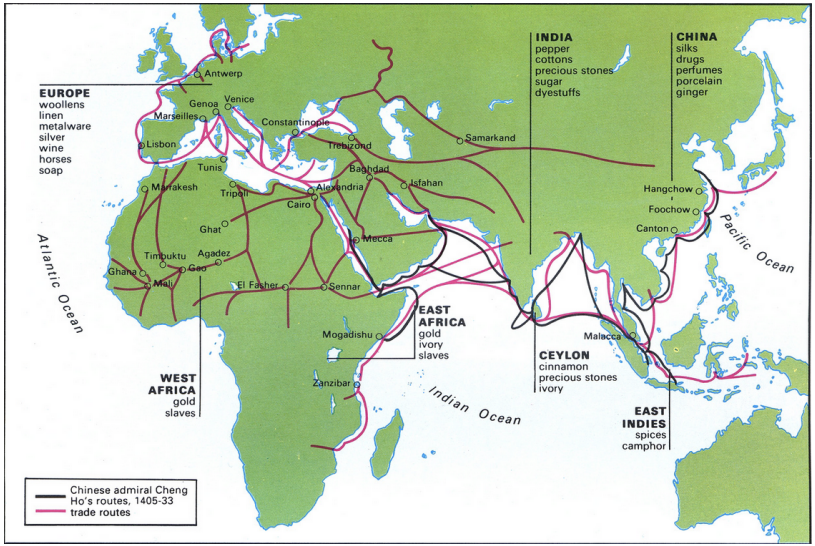
Globalization in the long run

TABLE 2.1. Interregional trade flows, ca. 1000.

From \ To	Western Europe	Eastern Europe	Islamic World	Central Asia	Sub-Saharan Africa	South Asia	Southeast Asia	East Asia
Western Europe	⊠	Swords	Slaves, swords	—	—	—	—	—
Eastern Europe	Slaves, furs, silver	⊠	Slaves, furs, silver	Furs, swords	—	—	—	—
Islamic World	Pepper, spices, textiles, silk, silver	Textiles, silver	⊠	Textiles	Salt, textiles, manufactures, swords, horses	War horses	Gold	Spices
Central Asia	—	Silver	Paper, silver, slaves	⊠	—	Silver, reexports from China and Muslim world	—	Horses
Sub-Saharan Africa	—	—	Gold, slaves, ivory, rice	—	⊠	Timber, iron	—	—
South Asia	—	—	Pepper, spices, silk, teak, textiles	Pepper, textiles	Textiles	⊠	Textiles, pepper	Textiles
Southeast Asia	—	—	Spices, perfumes	—	—	Silk, spices, teak, rice, rubies	⊠	Perfumes, spices, sandal-wood
East Asia	—	—	Silk, porcelain	Silk, tea	—	Silk, porcelain	Silk, copper, cash	⊠

Long run evidence about globalization

Trade around 1500



Long run evidence about globalization

Steamship Routes around 1900

Long run evidence about globalization

Orders of magnitude

- During the period 1950-2011:
  - World trade in value has been multiplied by a factor of 290.
  - World GDP has been multiplied by a factor of 8.9.
  - It corresponds to an annual growth of 11% and 3%.

Long run evidence about globalization

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Long run evidence about globalization

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  - It corresponds to an annual growth of 11% and 3%.
  - Side question: At the country level, can X>GDP?
    - Yes, because GDP is a value added concept and exports are not.
    - $GDP = C + I + G + (X - M)$.
    - If I import a lot, add few value and then re-export I boost my export-to-GDP ratio.

Long run evidence about globalization

Orders of magnitude

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  - It corresponds to an annual growth of 11% and 3%.
- Over this period:
  - Change in geography.
  - Change in composition.

Long run evidence about globalization

World exports over GDP

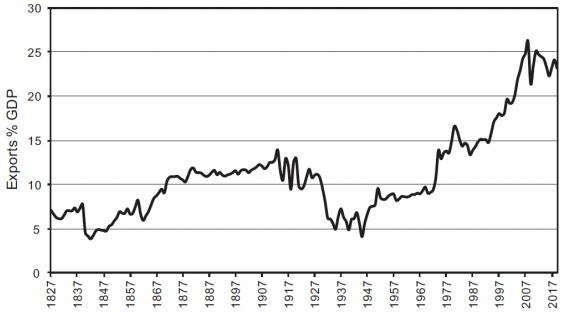
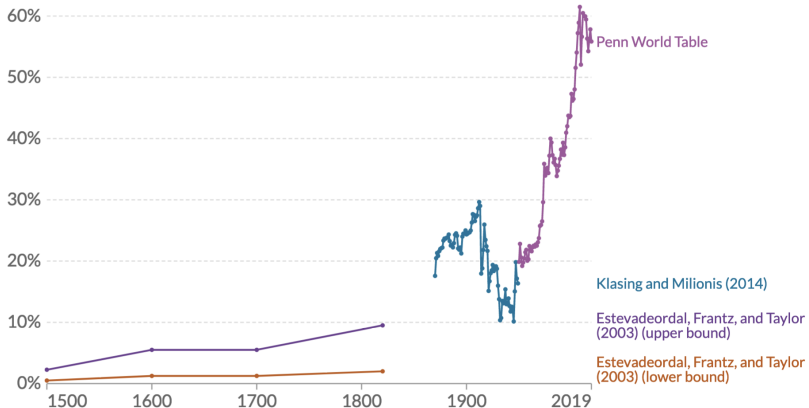


Figure 1.2
The age of globalization: World exports as percentage of GDP, 1827–2019. *Source:* Data from 1827 to 2014 from Michel Fouquin and Jules Hugot, "Two Centuries of Bilateral Trade and Gravity Data: 1827–2014" (CEPII Working Paper No. 2016–14, May 2016), http://www.cepii.fr/pdf_pub/wp/2016/wp2016-14.pdf. Data from 2015 to 2019 extends Fouquin and Hugot, "Two Centuries of Bilateral Trade and Gravity Data," using the author's estimates derived from World Bank, "Exports of Goods and Services (% of GDP)," World Bank Group, accessed July 25, 2022, https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS.

Long run evidence about globalization

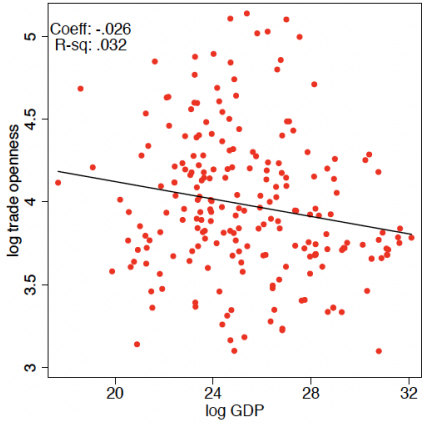
Openness rate: Exports + Imports over GDP

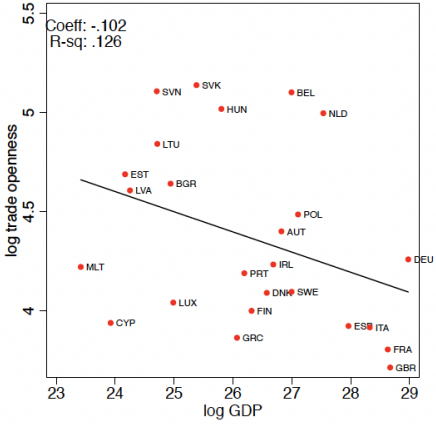


Source: Feenstra et al. (2015), Penn World Table (2021), Estevadeordal, Frantz, and Taylor (2003), Klasing and Milionis (2014)
OurWorldInData.org/trade-and-globalization • CC BY

Long run evidence about globalization

Globalization indexes





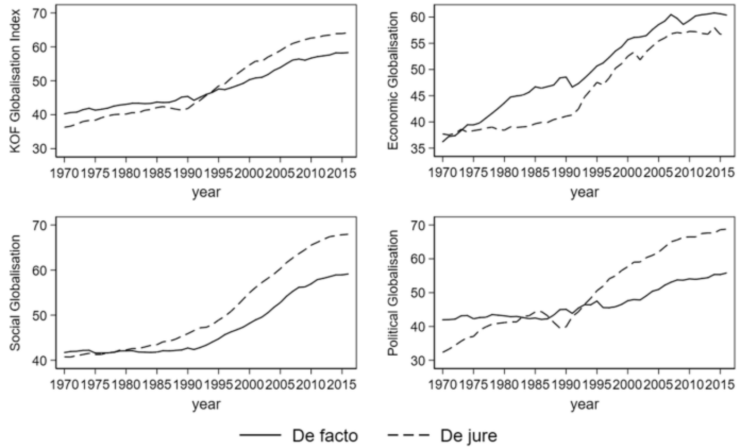
Long run evidence about globalization

Globalization: the multidimensional KOF globalization index

Globalisation Index, de facto	Weights	Globalisation Index, de jure	Weights
Economic Globalisation, de facto	***33.3***	***Economic Globalisation, de jure***	***33.3***
Trade Globalisation, de facto	*50.0*	*Trade Globalisation, de jure*	*50.0*
Trade in goods	38.8	Trade regulations	26.8
Trade in services	44.7	Trade taxes	24.4
Trade partner diversity	16.5	Tariffs	25.6
		Trade agreements	23.2
Financial Globalisation, de facto	*50.0*	*Financial Globalisation, de jure*	*50.0*
Foreign direct investment	26.7	Investment restrictions	33.3
Portfolio investment	16.5	Capital account openness	38.5
International debt	27.6	International Investment Agreements	28.2
International reserves	2.1		
International income payments	27.1		
Social Globalisation, de facto	***33.3***	***Social Globalisation, de jure***	***33.3***
Interpersonal Globalisation, de facto	*33.3*	*Interpersonal Globalisation, de jure*	*33.3*
International voice traffic	20.8	Telephone subscriptions	39.9
Transfers	21.9	Freedom to visit	32.7
International tourism	21.0	International airports	27.4
International students	19.1		
Migration	17.2		
Informational Globalisation, de facto	*33.3*	*Informational Globalisation, de jure*	*33.3*
Used internet bandwidth	37.2	Television access	36.8
International patents	28.3	Internet access	42.6
High technology exports	34.5	Press freedom	20.6
Cultural Globalisation, de facto	*33.3*	*Cultural Globalisation, de jure*	*33.3*
Trade in cultural goods	28.1	Gender parity	24.7
Trade in personal services	24.6	Human capital	41.4
International trademarks	9.7	Civil liberties	33.9
McDonald's restaurant	21.6		
IKEA stores	16.0		
Political Globalisation, de facto	***33.3***	***Political Globalisation, de jure***	***33.3***
Embassies	36.5	International organisations	36.2
UN peace keeping missions	25.7	International treaties	33.4
International NGOs	37.8	Treaty partner diversity	30.4

Long run evidence about globalization

Globalization: the multidimensional KOF globalization index

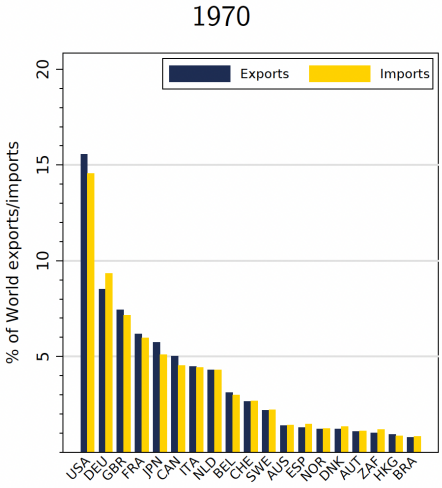


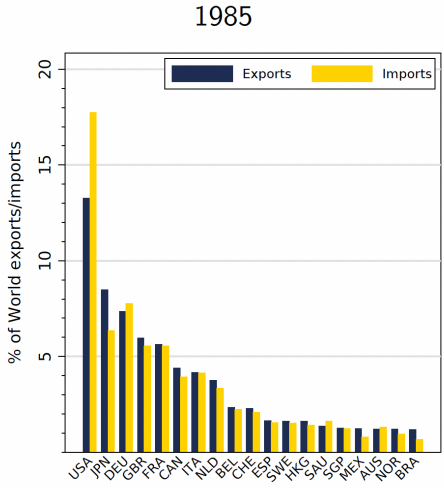
KOF Globalisation Index - de facto versus de jure globalization

Gygli et al. , 2019

Long run evidence about globalization

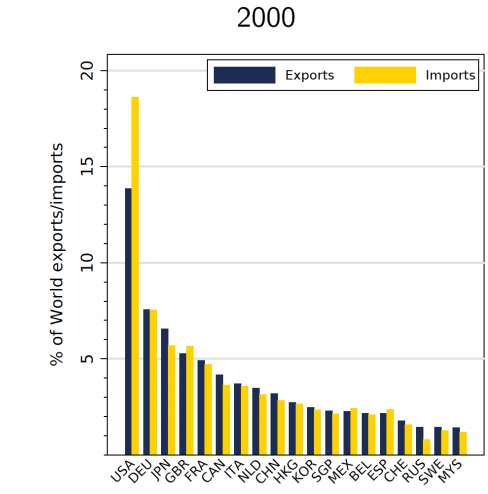
The evolving geography of trade

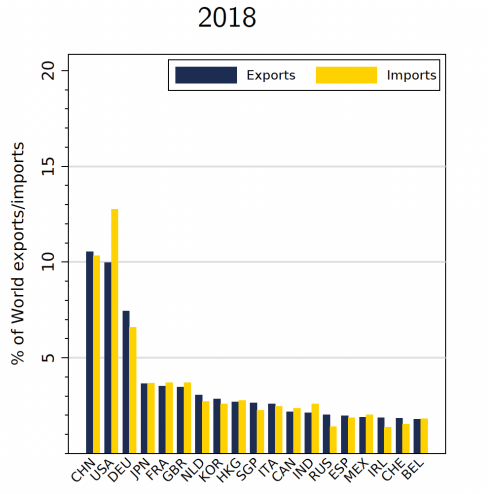




Long run evidence about globalization

The evolving geography of trade





Recent trends in globalization

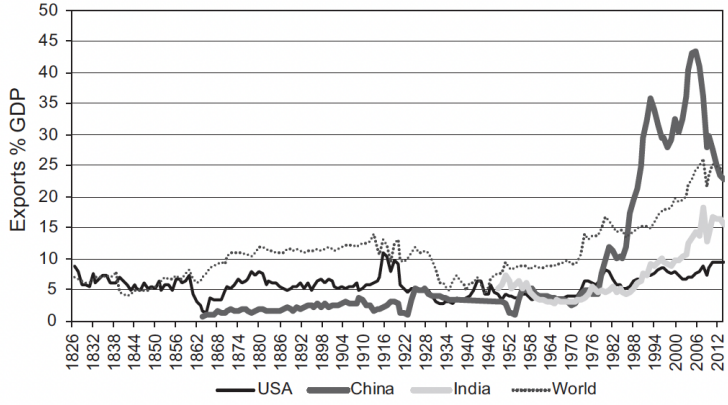


Figure 1.3
The age of globalization: Exports as percentage of GDP, 1827–2014. *Source:* Michel Fouquin and Jules Hugot, "Two Centuries of Bilateral Trade and Gravity Data: 1827–2014" (CEPII Working Paper No. 2016–14, May 2016), http://www.cepii.fr/pdf_pub/wp/2016/wp2016-14.pdf.

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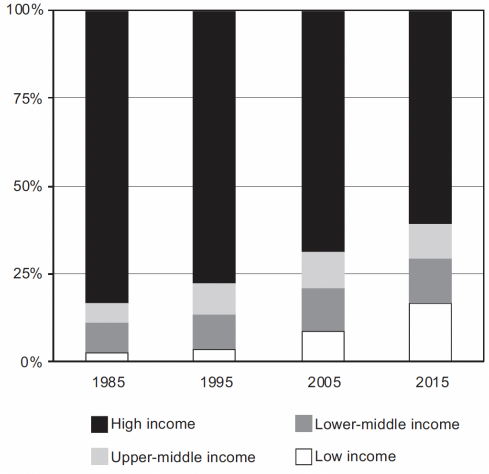
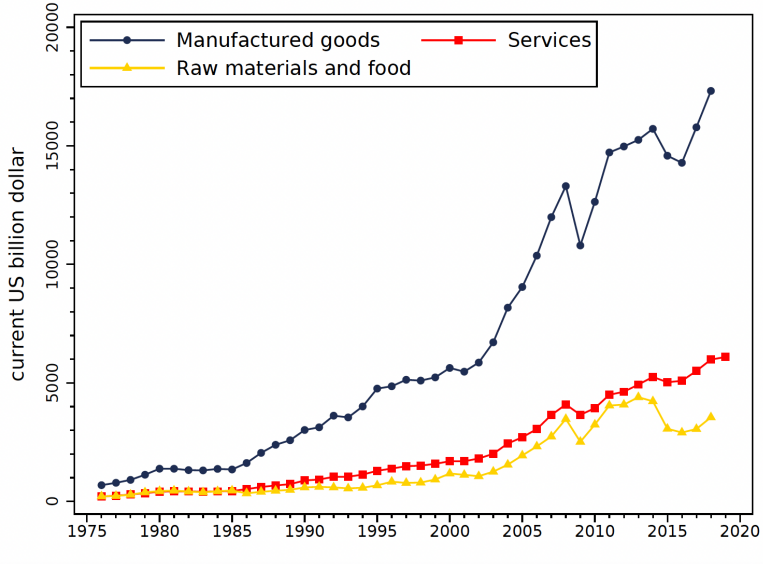


Figure 1.4
Composition of world exports by income group. *Source:* Nina Pavcnik, "The Impact of Trade on Inequality in Developing Countries," *Jackson Hole Economic Policy Symposium Proceedings* (Kansas City: Federal Reserve Bank of Kansas City, August 2017), 67.

Recent trends in globalization

What do country trade?



Recent trends in globalization

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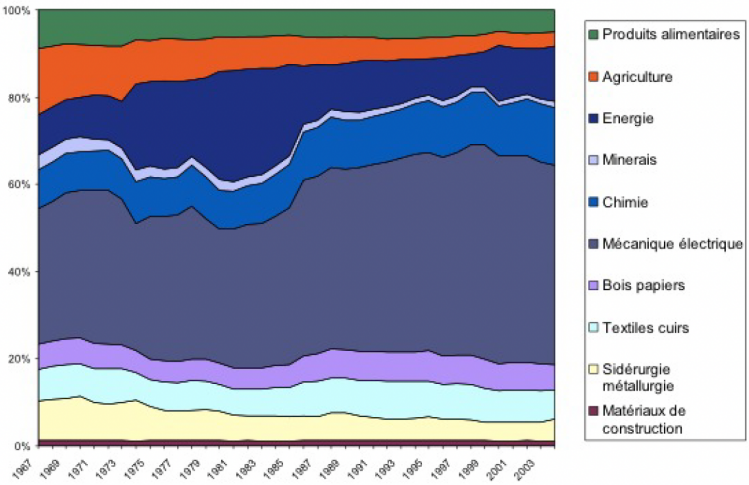
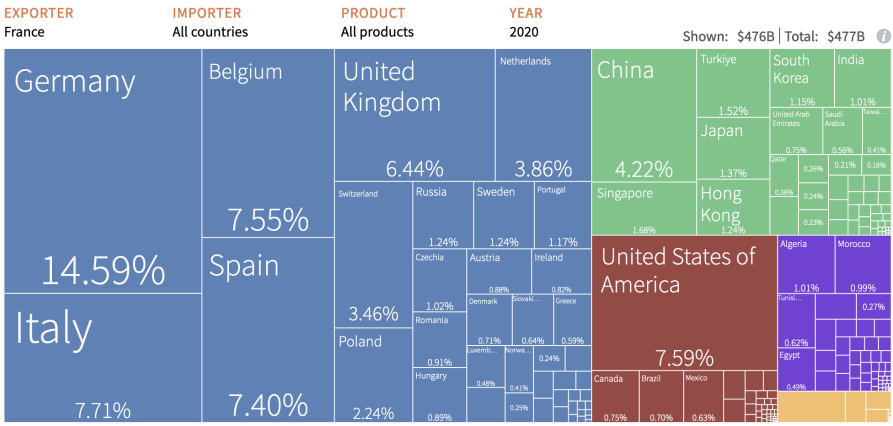


Recent trends in globalization

What do France trade, and with whom? Source: The Atlas of Economic Complexity



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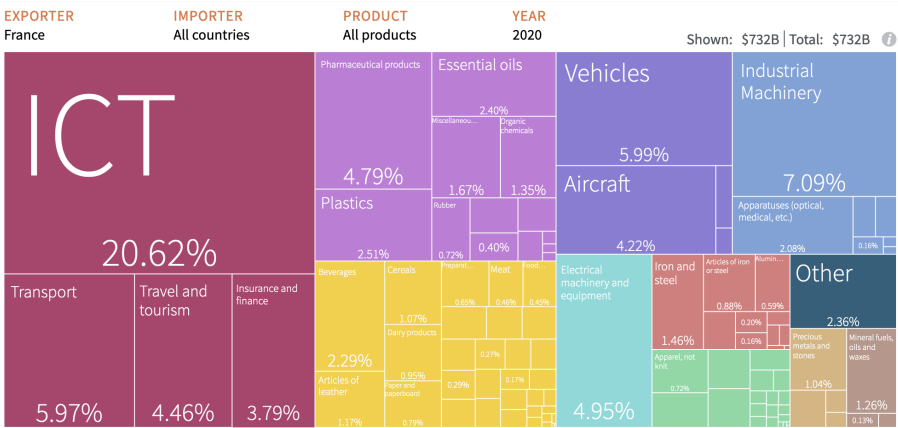

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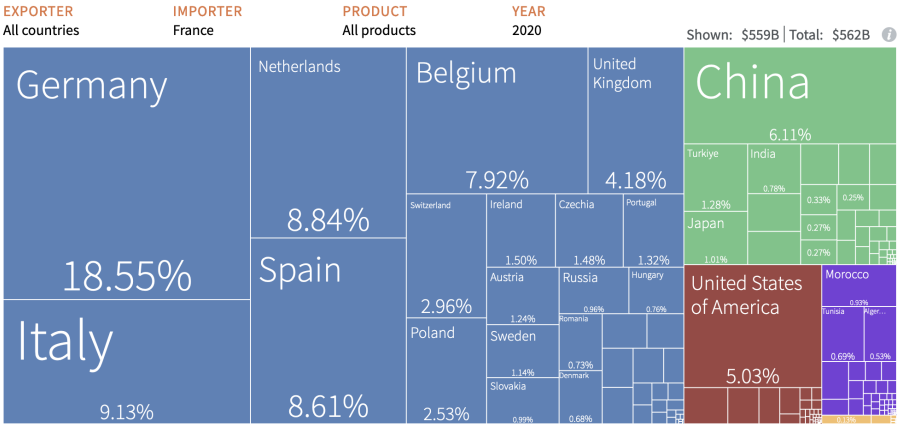

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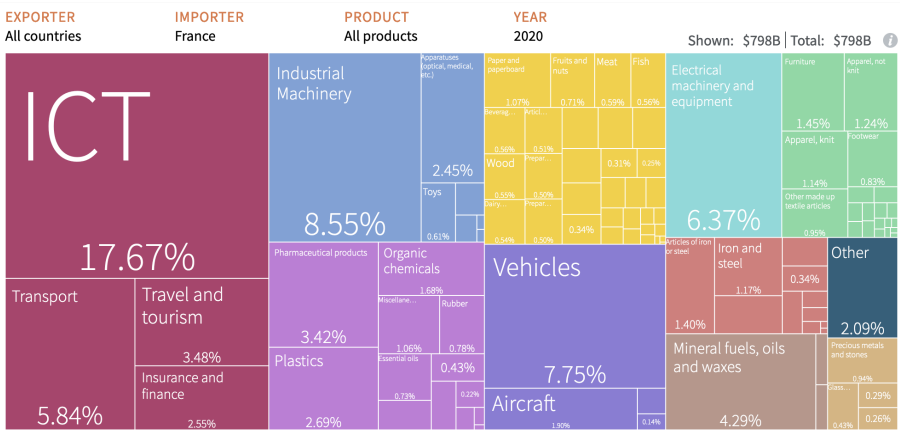
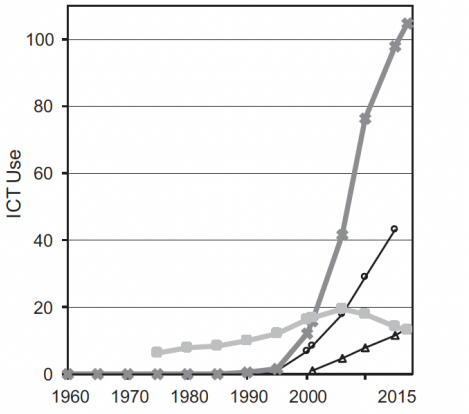


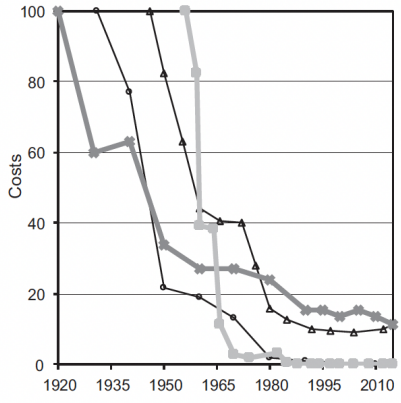
The drivers of the expansion of trade

- Technology
  - ICT (telegraph, phone, mobile phones, internet) ease communication around the world
  - Ease the diffusion of information.
- Transport costs
  - Many transport innovations (steamship, canals, planes, containers, *etc.*)
- Trade costs
  - Better access to trade finance, to insurance, less exchange rate volatility.
- Trade policy
  - Global organization of trade through GATT and WTO.
  - Regional integration (EU, NAFTA, Mercosur).
  - Political choices matter!

The role of technology

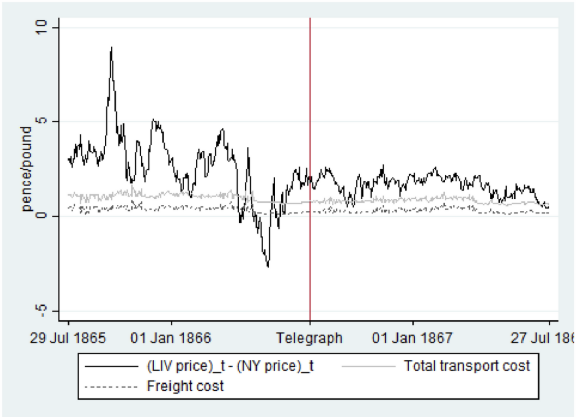


The role of technology



The role of technology

The introduction of the telegraph in the 19th century: effect on cotton prices



The role of technology: the case of transport

- Important innovations in terms of transport and transport infrastructures have always fueled trade.
  - e.g. Steamship, canals, maritime chronometer, etc.
  - Steamship reduced sailing time by one-half and might be responsible of half of the trade boom observed at the end of the 19th century.
- The invention of containers in key to understand the development of world trade.
  - Estimation of +700% of trade over 20 years (Bernhofen et al., 2016).
  - Way larger effect than trade agreements.
  - Effect on non-container goods.

The role of technology: the case of transport

Pascali, 2017

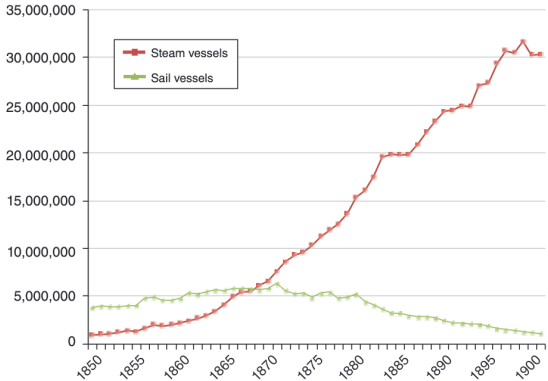


FIGURE 3. TOTAL TONNAGE OF BRITISH VESSELS ENTERED IN BRITISH PORTS FROM AND TO FOREIGN COUNTRIES AND BRITISH POSSESSIONS

Source: Statistical Abstract for the United Kingdom (various years from 1851 to 1901)

The role of technology: the case of transport

Containerization






Breakbulk shipping, 1950s

The role of technology: the case of transport

Containerization

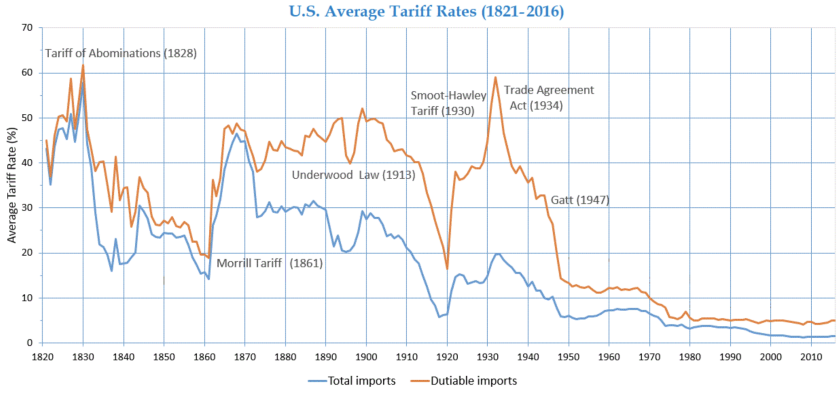
The role of technology: the case of transport

Bernhofen et al. (2016)

The role of trade policy

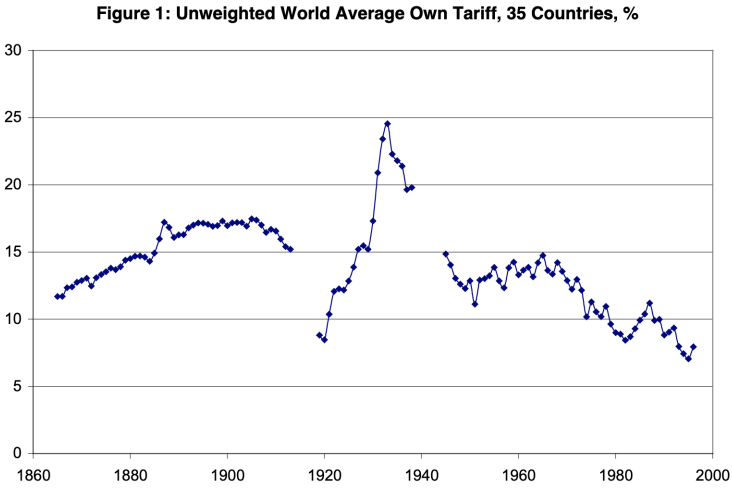
- Trade policy consists in the set of tools a government can use to open (or close) its country to trade
    - More on this in a few classes.
- After WWII, institutions have developed to coordinate trade policies: the GATT and then the WTO but also regional trade agreements such as NAFTA or the EU.
- Countries have access to a varieties of tools such as tariffs (taxes on imports), export subsidy, export taxes, non-tariff barriers (norms for instance).
- View among economist that the reduction of trade barriers cannot be the only driver of trade expansion, in particular recent ones.

The role of trade policy



Source: US Departement of Commerce, Bureau of the Census, Historical Statistics of the United States 1789-1945, U.S. International Trade Commission, dataweb.usitc.gov

The role of trade policy



Clemens and Williamson (2001)

The role of trade policy

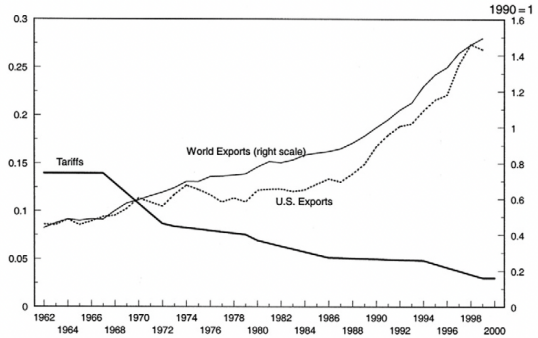


Figure 1.5
Manufacturing export share of GDP and manufacturing tariff rates. *Source:* Kei-Mu Yi, "Can Vertical Specialization Explain the Growth of World Trade?," *Journal of Political Economy* 111, no. 1 (February 2003): 54.

The role of trade policy

- Goldberg (2023) argues that reducing trade barriers matter a lot to boost trade.
  - If tariffs decrease slowly in developed countries in the recent periods, the decrease is more important in developing countries.
  - GVC magnify the impact of tariffs (because many frontiers need to be passed for one good to be made). Then it should magnify the elasticity of trade to tariffs: small tariff change can have big effects.
  - Non-trade barriers decreased a lot with standardization efforts of international institutions and regional agreements.

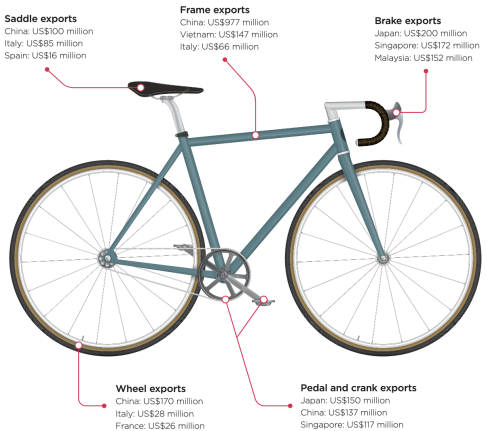
The fragmentation of production processes: Global Value Chains (GVCs)

- Trade is more and more fragmented. What does it mean?

The fragmentation of production processes: Global Value Chains (GVCs)

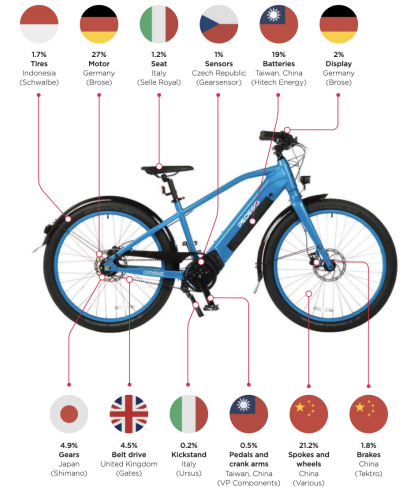
- Trade is more and more fragmented. What does it mean?
- The production of a given good is more and more fragmented between firms and countries.
- Firms are looking for the best opportunities to produce: parts and components are then moving across the globe.

The fragmentation of production processes: Global Value Chains (GVCs)



Source: WDR 2020 team, using data from UN Comtrade database. See appendix A for a description of the databases used in this Report.

The fragmentation of production processes: Global Value Chains (GVCs)



Source: Frothingham 2018.

Note: Diagram shows the percent of total value added from each component.

The fragmentation of production processes: Global Value Chains (GVCs)

Share of World Exports that flow through at least two borders

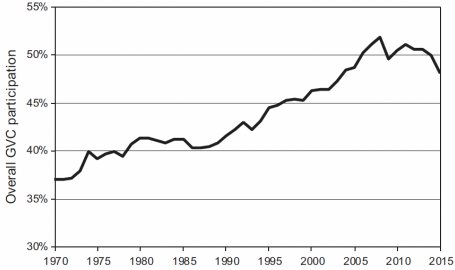
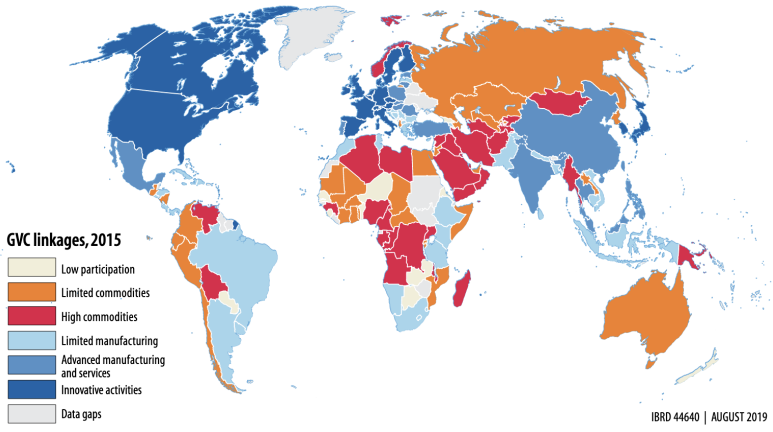


Figure 1.8
GVC trade, 1970–2015. *Note:* GVC participation measures used in this and subsequent figures throughout the monograph follow the methodology from Alessandro Borin and Michele Mancini, "Follow the Value Added: Bilateral Gross Export Accounting" (Temi di discussione [Economic Working Paper] 1026, Economic Research and International Relations Area, Bank of Italy, 2015); Alessandro Borin and Michele Mancini, "Measuring What Matters in Global Value Chains and Value-Added Trade" (Policy Research Working Paper 8804, World Bank, Washington, DC, April 2019), https://openknowledge.worldbank.org/handle/10986/31533. *Sources:* World Bank, *World Development Report 2020: Trading for Development in the Age of Global Value Chains* (Washington, DC: World Bank, 2019), 20 using data from Eora26 database; Borin and Mancini, "Measuring What

The fragmentation of production processes: Global Value Chains (GVCs)



Source: WDR 2020 team, based on the GVC taxonomy for 2015 (see box 1.3 in chapter 1).

The fragmentation of production processes: Global Value Chains (GVCs)

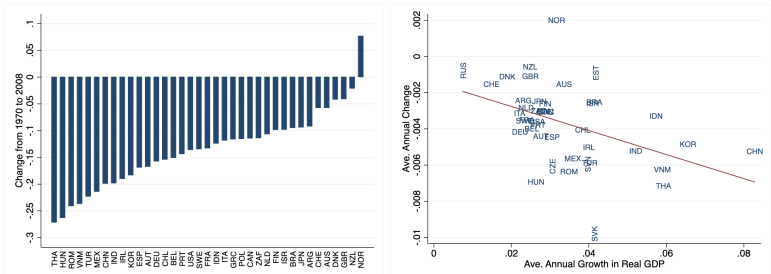
Trade in value added

- Exports and imports do not measure the value added by the exporter.
- Studies suggest that the Chinese manufacturer of the Iphone only adds $\approx$ 3% of the value of the factory gate price ($\approx$ 200\$).
- The rest come from the value of inputs imported from other countries.
- However it still counts as 200\$ of exports from China to the U.S, increasing artificially China's trade.
- The OECD now tries to measure trade in value-added.
- Note that intermediate services add a lot a value added: distribution, transport, finance and insurance, business services, communication and information.

The fragmentation of production processes: Global Value Chains (GVCs)

Trade in value added (Johnson and Noguera, 2017)

Figure 3: Changes in Ratio of Value-Added to Gross Exports, by Country



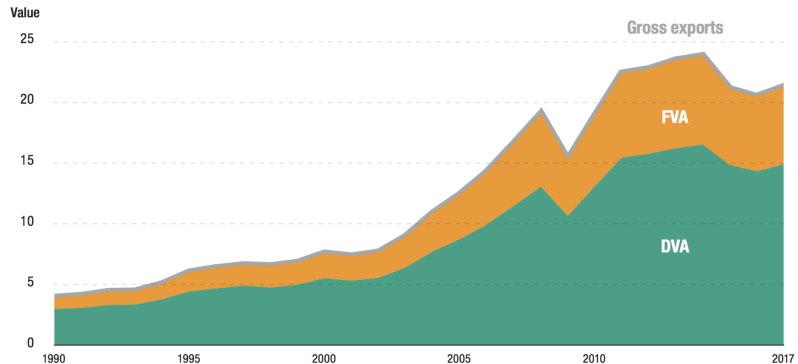
(a) Cumulative Changes (1970-2008)

(b) Average Annual Change vs. Average Annual Real GDP Growth

Note: Real GDP data is from the UN National Accounts Database. Panel (a) includes 37 countries for which we have data back to 1970. All countries are included in Panel (b), and vertical labels denote countries with less than 40 years of data. Red line denotes least squares regression line.

The fragmentation of production processes: Global Value Chains (GVCs)

Trade in value added



Is the World flat?

Is the World flat?

- Clearly no !
- Borders do reduce the movement of goods, services, people, ideas, etc.
- In a flat world everybody should spend the same share of its GDP on a given country's good.
  - Is it true?
- The elasticity of trade to distance helps us to think about this question.
  - By how much (in %) trade increases when distance decreases by 1%?
  - Naive gravity equation: $X_{ij} = \frac{X_i X_j}{d}$. What is the elasticity here?

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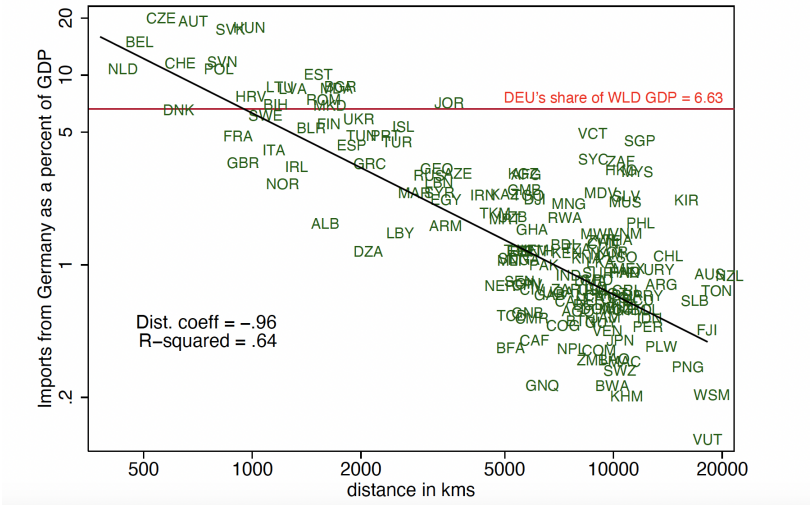
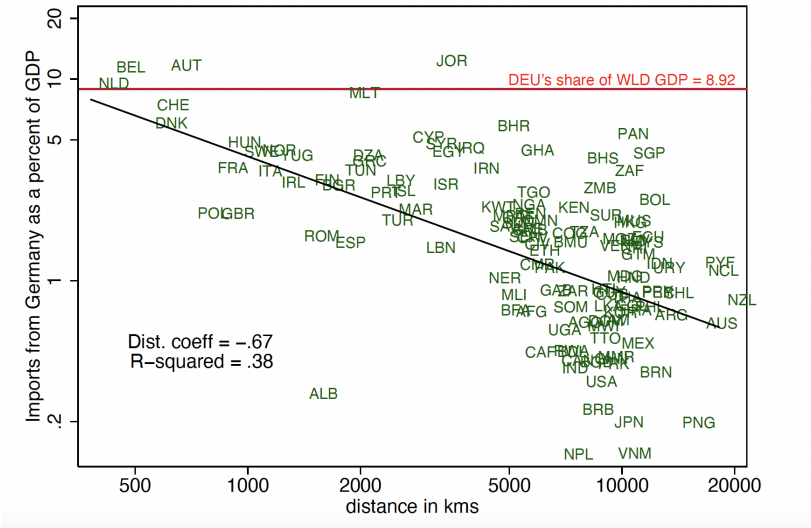
Is the World flat?

Germany in 2006



Is the World flat?

Germany in 1976



How Much More Integration Could There Be?

The links between globalization, sovereignty and politics (Rodrik, 2000)

- International economic integration remains particularly limited.
  - e.g. U.S.-Canada Borders have an important depressing effect on trade despite no tariff, no serious trade barrier, same languages, etc.
  - Investment portofolio still favors investors home countries (*home bias*).
  - Restriction on the free mobility of labor.
  - *etc.*

$\longrightarrow$ Different political and legal systems introduce transaction costs.

- *e.g.* enforcement of contracts across borders is made more complicated.
- International law provides only limited protection against incomplete contracts.

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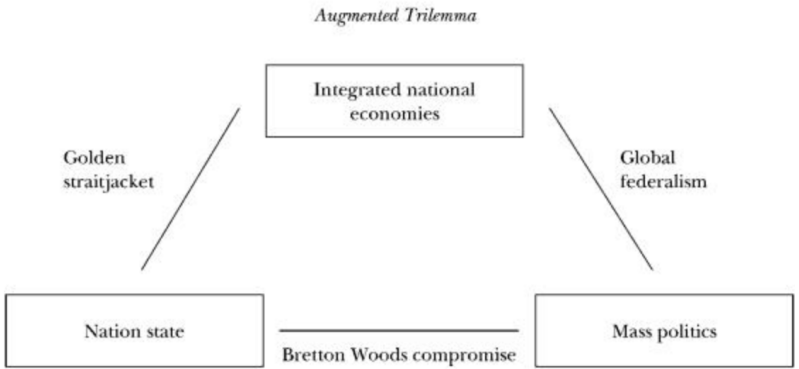
The links between globalization, sovereignty and politics (Rodrik, 2000)



How Much More Integration Could There Be?

The links between globalization, sovereignty and politics (Rodrik, 2000)

- Perfectly integrated global economy.
  - National jurisdictions do not interfere with arbitrage in market for goods, services, or capital. Transaction costs are minor. This implies federalism in a global scale, and then a loss of sovereignty for states.
  - Or, nations-states can be maintained, but to ensure that national jurisdiction do not get in the way of economic transactions (facilitating trade and capital mobility). Politics is exercised over a much narrower domain.
    - National policy-making institutions (central bank, fiscal authorities, etc.) are insulated from political participation.
- If we sacrifice an integrated global economy (*Bretton Woods compromise*)
  - Countries are allowed to maintain restriction on capital mobility.
  - Trade policy has some margins.
  - Countries can follow their paths of development.