International Economics I

Introduction and Main Facts about Trade

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Outline

Plan for today

- Motivation of the course:
  - What is international trade?
  - Are there welfare gains from international trade?
- Some "stylized facts"
- Some questions we'll try to answer during the course

Outline

Preliminaries

- **International Economics**
  - **International Trade**: Trade in goods and services, factor movement across space, economic integration, exporters and importers
  - **International Finance**: Exchange rate, international financial markets, trade in assets.

Preliminaries

- What is international trade?
  - The exchange of goods and services across borders
  - It's part of the process of globalization, which also includes movements of capital, labor, ideas, etc.
- How is international trade different from trade, for instance, across provinces within the same country?
  - Fundamentally speaking is the same: the incentives are the same!
- However...
  - Governments can impose barriers to international trade.
  - The movement of goods and services is more restricted across countries than within.
  - Often large natural and institutional barriers: Geography, language, legislation issues, contract enforcement...

Preliminaries

- How does international trade affect countries' welfare?

The Dark Side's weapon!!

A miracle that solves every problem!

- Usually **extreme views** in the media, social networks, politics, etc.
- We will use the tools from economics to analyze with rigor the facts related to international trade.
- Like almost every question in economics: very complicated!

Goal of the course and methodology

- **Goal:** To be able to understand and analyze the basic aspects of the global economy
- **Methodology:**
  - We will base our analysis in economic models
  - It's important to be familiar with the concept of a derivative and an integral.
  - Basic knowledge in microeconomics: consumption and production theory, equilibrium, surplus, etc.
  - I will try my best to motivate the models with examples and evidence

Models

What are "mathematical" **economic models** and why they are useful?

- An economic model helps us to organize our thoughts about a complex economic process.
- The math helps us to be transparent about the assumptions behind the model.
- Most of the models are very simple and will be unrealistic in many dimensions. This helps us to narrow our focus to the phenomena we want to study.
- The assumption behind the models should be well motivated. Unrealistic assumptions are fine, but be wary if the model needs them for their predictions.
- The model should give testable predictions and they must be confrontable against the data.

Outline

Some "facts" to start

(i) An increase in international trade after the Second World War.
- Reduction in transportation costs.
- Better political context.

(ii) Who trade with whom? Size and Closeness matters.

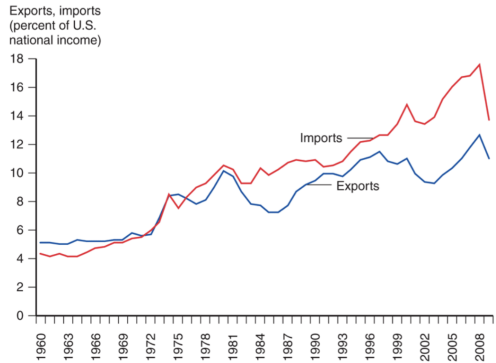
(iii) What kind of goods are traded most?
- Rich countries trade the same type of goods (intra-industry) with other rich countries
- Different types of goods (inter-industry) with developing countries

(iv) Who exports/imports in a given country? The most productive ones!

(v) An increase of the "offshoring": externalize services and de-locate production.

1. Large increase in Trade since WWII

- Large increase of international trade after the Second World War.
- Since 1960, the $\frac{Imports+Exports}{GDP}$ in selected countries:
  - Germany ($31\% \to 130\%$), Spain ($12\% \to 58\%$), UK($30\% \to 69\%$)
  - USA ($10\% \to 29\%$), China ($4\% \to 44\%$), South Korea ($9\% \to 83\%$).
- USA:



1. Large increase in Trade since WWII

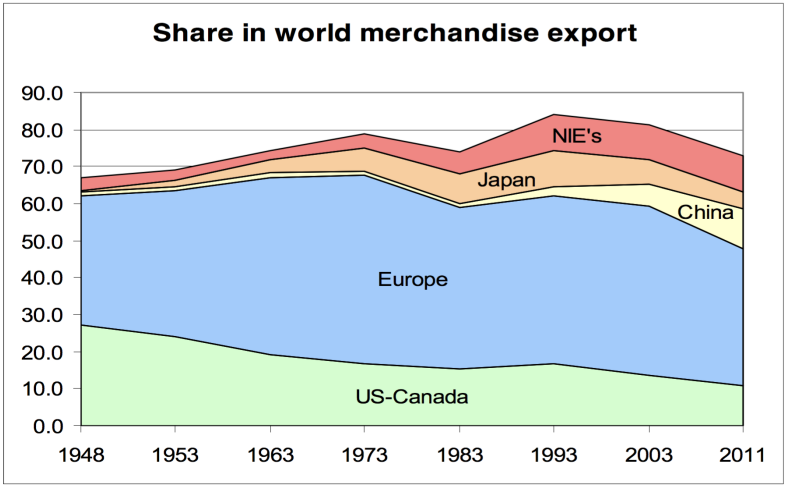
- Large increase of international trade after the Second World War.

Table 1A
World Trade

	World trade			*World trade*			
	All goods		*Manufactures*	*Quantities of nonbulk cargoes*			
	(2000 US$bn)	*Million tons*	*(2000 US$bn)*	*Million tons*		*Billion ton-miles*	
Year				*Ocean*	*Air*	*Ocean*	*Air*
1951			179				0.2
1955	505	880	222				0.3
1960	623	1080	301	307			0.7
1965	844	1640	453	434		1537	1.8
1970	1152	2605	684	717		2118	4.3
1975	2341	3072	1307	793	3.0	2810	7.7
1980	3718	3704	2009	1037	4.8	3720	13.9
1985	2759	3382	1683	1066	6.5	3750	19.8
1990	4189	4008	2947	1285	9.6	4440	31.7
1995	5442	4651	4041	1520	14.0	5395	47.8
2000	6270	5983	4688	2533	20.7	6790	69.2
2004	8164	6758	6022	2855	23.4	8335	79.2
Annualized growth rates							
Whole sample	7.40	5.37	7.04	5.20		4.43	11.72
1975–2004	4.40	2.76	5.41	4.52	7.37	3.82	8.35

1. Large increase in Trade since WWII

- Increase of international trade also for developing countries!



1. Large increase in Trade since WWII

Potential causes:

(i) Technological Improvements in communication and transports.

- Trains: from 0.18$ per tone/mile in 1890 to 0.02$ in 2000
- Costs of freight aircrafts: -92% between 1955 and 2004
- Costs of international phone calls: -90% between 1955 and 2005 (in Germany)

(ii) Better political context for cooperation and integration after the Second World War (↑ Multilateralism).

(iii) Economic policies: a fall in tariffs and non-tariff barriers (GATT, etc)

- the average tariff fell from 14% in 1952 to 3.9% in 2005 (in rich countries)

1. Large increase in Trade since WWII

- **Technology**: Decreasing in transportation costs.

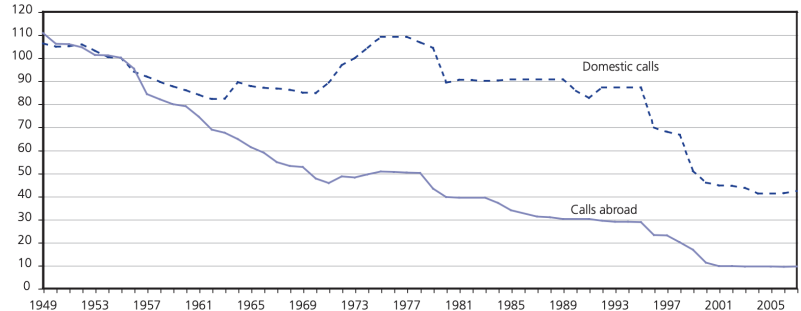
German real air transport prices by destination, 1954-99
(Indices,1954=100)

	Index		Average annual percentage change
	1954-56	1997-99	
Intra-Europe			
Rome	95	105	0.2
Paris	95	111	0.4
London	95	114	0.4
Average of 3 destinations	95	110	0.3
Inter-continental			
Hong Kong, China	97	24	-3.2
New York	95	27	-2.9
Bangkok	97	28	-2.9
Montreal	95	28	-2.8
Caracas	95	36	-2.2
Mexico City	95	37	-2.2
Teheran	97	50	-1.5
Tokyo	97	66	-0.9
Johannesburg	97	73	-0.7
Tel Aviv	98	73	-0.7
Cairo	97	73	-0.7
Sydney	95	72	-0.6
Rio de Janeiro	97	88	-0.2
Average of 13 destinations	97	52	-1.4

1. Large increase in Trade since WWII

- **Technology**: Decreasing in communication costs.

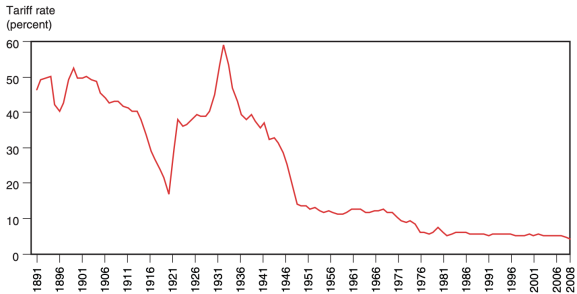
Prices for domestic and foreign phone calls of Germany, 1949-2007
(1955 = 100 in local currency, at current prices)



Source: Germany, Federal Statistical Office, Fachserie M Reihe 7 and Fachserie 17 Reihe 7 various issues.

1. Large increase in Trade since WWII

- **Tariffs**: Decreasing in tariffs in the US.



- Also in other countries!
  - European common market (Treaty of Roma, 1957 and single market, 1993).
  - Developing countries liberalization: Brazil (1990s), India (1990s), China joining the WTO (2001).

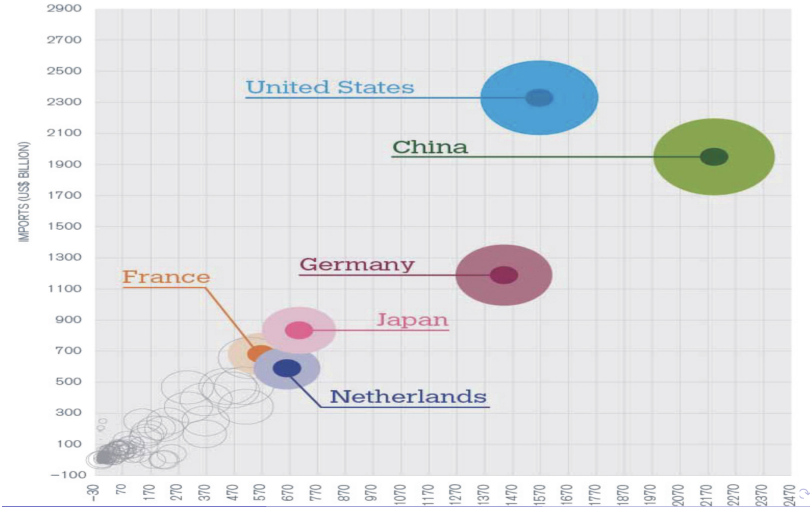
2. Who trade with whom?

Size matters

- exports/GDP
  - 24% in low income countries
  - 37% in middle income countries
  - 42% in high income countries
- the countries in the world that trade the most
  - USA
  - China
  - Germany
  - Japan
  - France

2. Who trade with whom?

Size matters



2. Who trade with whom?

- **Distance also matters!**
- Spain top 5 Export and Import partners (2018):

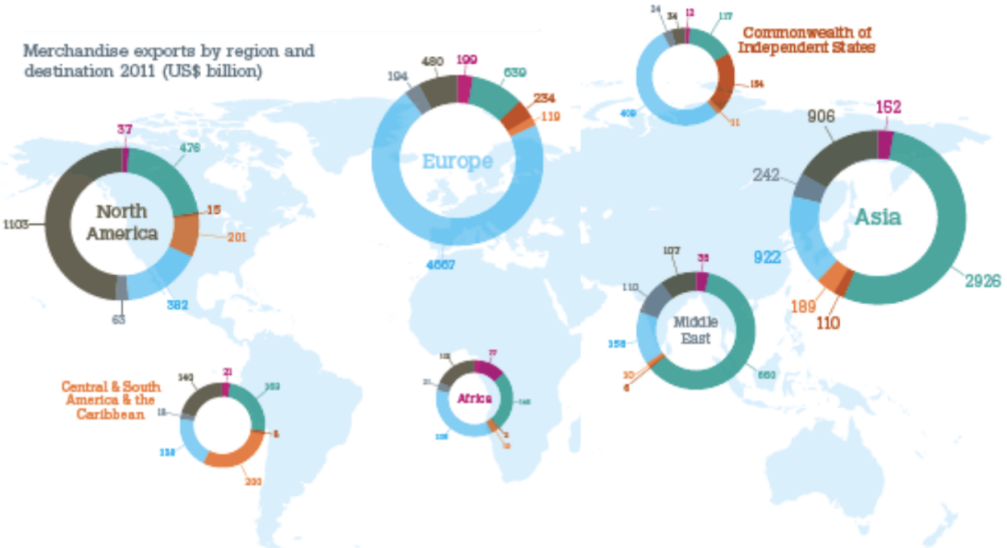
Import from	Share
Germany	12.57
France	10.81
China	8.44
Italy	6.61
United States	4.12

Export to	Share
France	15.42
Germany	11.04
Italy	8.15
Portugal	7.55
United Kingdom	6.79

2. Who trade with whom?

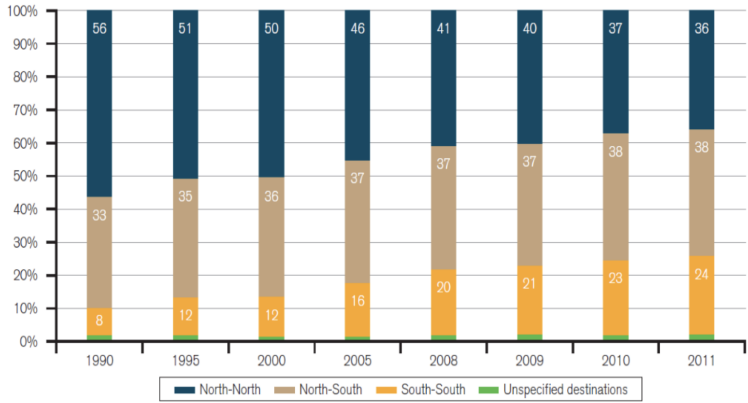
- Structure of international trade
  - By level of development
    - ⋆ developed-developed countries $\simeq$ 40% of World's international trade
    - ⋆ developed-developing countries $\simeq$ 40% of World's international trade
    - ⋆ developing-developing countries $\simeq$ 20% of World's international trade
  - By geographic zones
    - ⋆ EU-EU = 71% of EU exports
    - ⋆ North America-North America = 48% of NA exports
    - ⋆ Asia-Asia = 53% of Asia exports

2. Who trade with whom?



2. Who trade with whom?

Trade between developing markets are becoming more important over time.



2. Who trade with whom?

The gravity model

- Empirical regularity: it explains surprisingly well trade across countries
- Imagine that T_{ij} is the amount of trade between countries i y j:

$$T_{ij} = \frac{A \times Y_i^{\alpha} \times Y_j^{\beta}}{D_{ij}^{\gamma}} \tag{1}$$

- Again: size (GDP=Y_i, Y_j) matters:
  - Increase in Y_i or $Y_j \rightarrow$ increases trade flow between countries.
- Distance (D_{ij}) matters:
  - Increase in $D_{ij} \rightarrow$ decreases trade between countries.

2. Who trade with whom?

The gravity equation

- Empirical regularity: it explains surprisingly well trade across countries
- Imagine that T_{ij} is the amount of trade between countries i y j:

$$T_{ij} = \frac{A \times Y_i^{\alpha} \times Y_j^{\beta}}{D_{ij}^{\gamma}} \tag{2}$$

- Again: size (GDP=Y_i, Y_j) matters:
  - Increase in Y_i or $Y_j \rightarrow$ increases trade flow between countries.
- Distance (D_{ij}) matters:
  - Increase in $D_{ij} \rightarrow$ decreases trade between countries.

2. Who trade with whom?

The gravity equation

- In its simplest form it is very easy to bring to the data. Taking logs to both side and adding an error ε_{ij} gives:

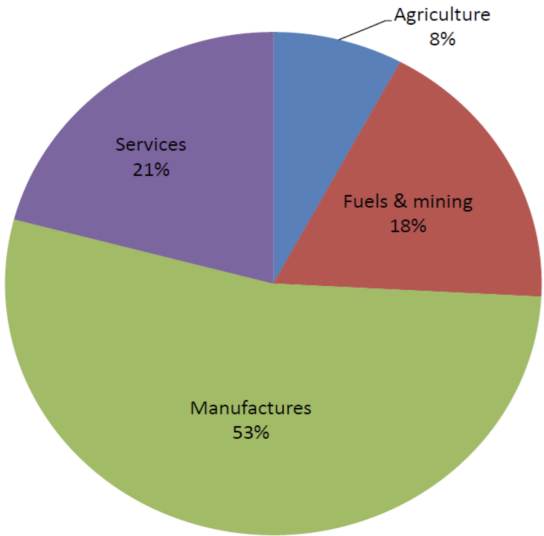
$$\ln T_{ij} = \ln A + \alpha \ln Y_i + \beta \ln Y_j - \gamma \ln D_{ij} + \varepsilon_{ij} \tag{3}$$

- We can use a linear regression to estimate this equation (using GDP and distance in KM as a proxy for Y and D).
- Usually: $\hat{\alpha}, \hat{\beta} \approx 1$ and $\gamma \approx 0.94$ (although there are certain biases that we have to be careful!).
- The gravity equation can be derived from many theoretical models of international trade.

3. What type of goods are traded most?

- 80% are goods [=merchandise = agr. + ind.] and 20% are services.
- The patters change a lot over time.
  - Trade in agriculture decreased from 40% in 1950 to 7% in 2008 (and still going down)
  - Developing countries: they went from being the main exporters in agriculture to be the main exporters in manufacturing.
  - The developed countries are the ones which export most in "high-tech".
- Developed countries trade:
  - Similar goods (intra-industry trade) with other developed countries.
  - Different goods (inter-industry trade) with developing countries.

3. What type of goods are traded most?



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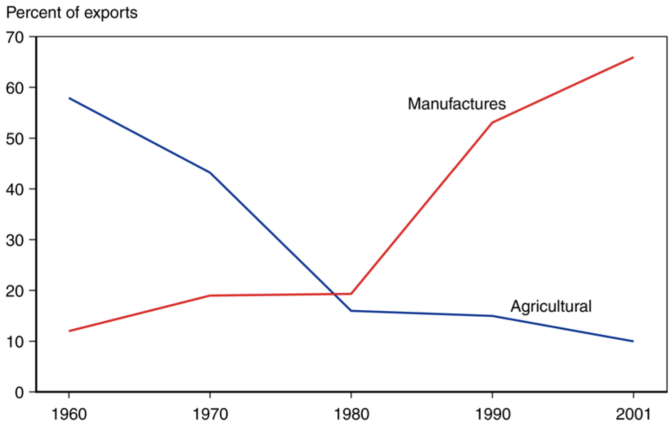


4. Who exports in a given country?

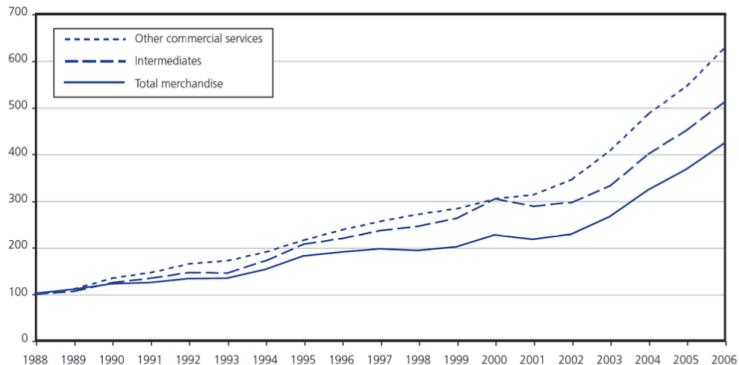
- Not all firms export.
- Only the most productive ones!
- Of which only the **most** productive ones are multinationals.

Share of exporting firms in total number of manufacturing firms

	Year	Share of exporters in total number of manufacturing firms
United States	2002	18
Norway	2003	39.2
France	1986	17.4
Japan	2000	20
Chile	1999	20.9
Colombia	1990	18.2

5. A rise in Offshoring

- Large reallocation of production and/or supporting processes to foreign countries.
- **Offshoring**: the sourcing of input goods or services from a foreign country.

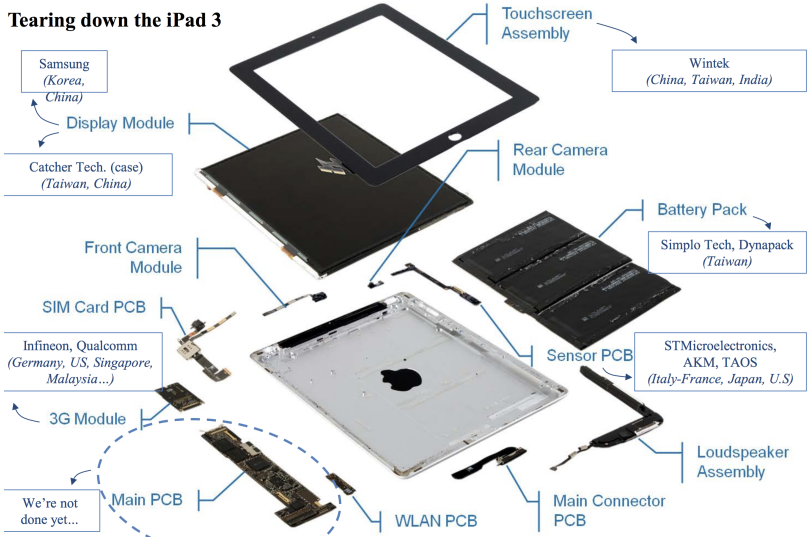


5. A rise in Offshoring

An Example: the iPad 3

- Assembled in China (and now also Brazil) by Taiwan-based Foxconn and Pegatron

5. A rise in Offshoring



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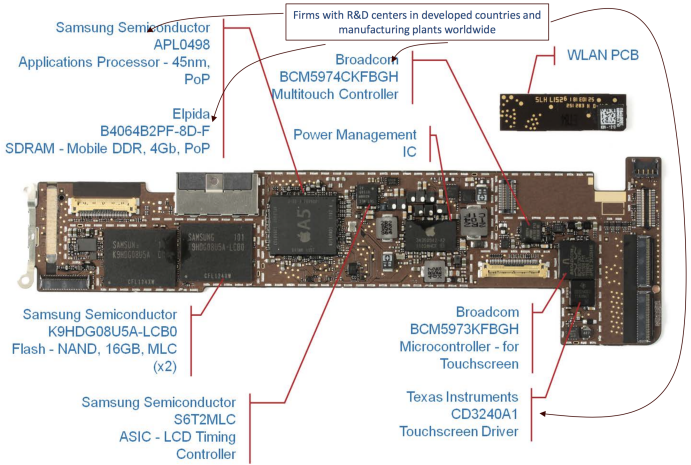
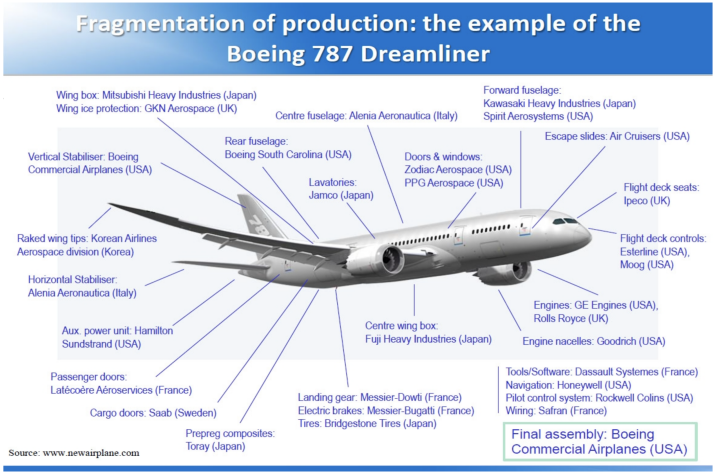


- Global value chains make trade policy much more challenging!

5. A rise in Offshoring and Outsourcing



Taking Stock

Facts:

- Large increase in trade flows in the last 60 years.
- Size and distance matters for international trade.
- Nowadays developing countries export manufacturing, while developed countries technological advanced goods and services.
- Only a few firms actually export.
- Offshoring and global value chains are becoming very important.

Questions we will try to answer

- Why do countries trade? Why do countries trade some goods and not others?
- How do the trade patterns change over time and across development?
- Why not all firms export? Why are not all firms multinationals?
- How does international trade affect unemployment and inequality?
- How do trade barriers exist? How are the trade policies determined?