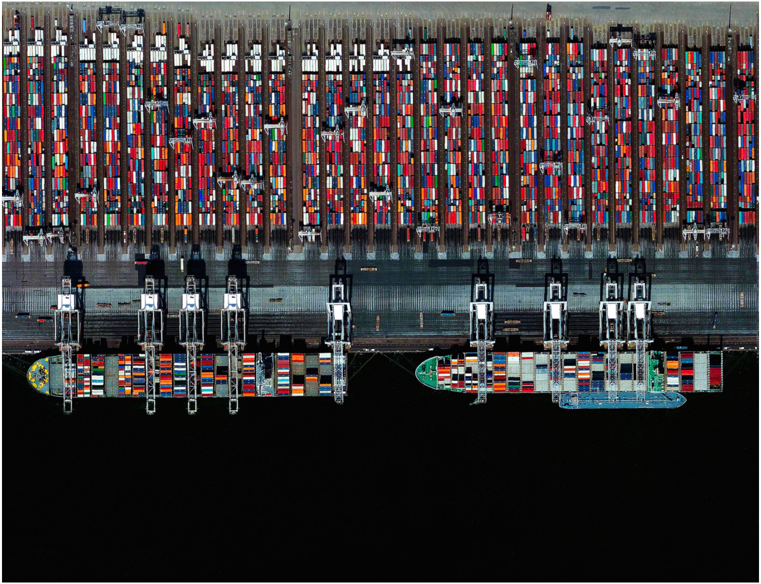
International trade patterns

School of Economics, University College Dublin

Autumn 2017

Port of Rotterdam (source: Daily Overview)



Studying international trade we consider:

1. Movement of goods and services from one country to another
   - Merchandise goods: everything but services
   - Services: transportation, insurance, etc.
2. Movement of factors of production across countries
   - Migration: flow of people/labour across borders
   - Foreign Direct Investment: flow of capital across borders

Countries trade goods and services with each other as it generates mutual benefits

- Norway imports oranges which they would have hard time producing
- Foreign produced goods could be cheaper or better in quality

Countries use finite resources to produce what they are most productive at and trade products for goods/services they want to consume

- Countries can specialise and still consume variety of goods/services through trade

The main insight from most theories on international trade is that countries can gain through specialisation

- Export goods made with abundant resources, import goods made with relatively scarce resources

Specialisation leads to efficiency through large-scale production (economies of scale)

- Countries could benefit from international lending and migration as well

Although in most theoretical models trade is predicted to benefit the whole country, particular groups might be harmed

- Owners of resources in industries that compete with imports
- Trade affects income distribution

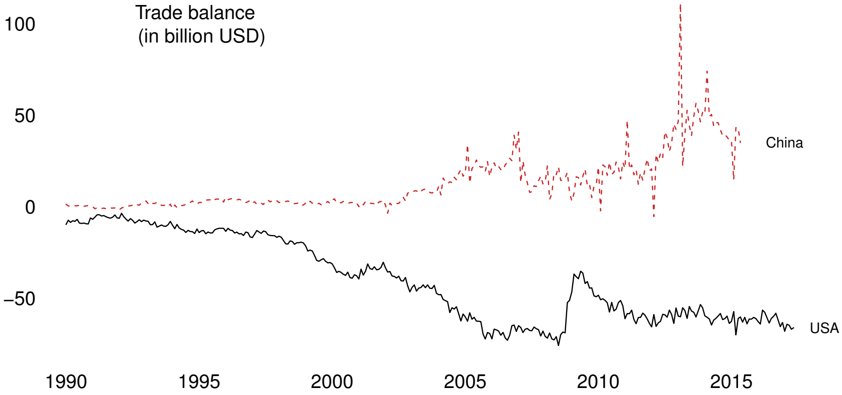
Additionally, there are some who argue that trade might have a negative effect on the local environment.

We can track a country's imports M and exports X using the trade balance

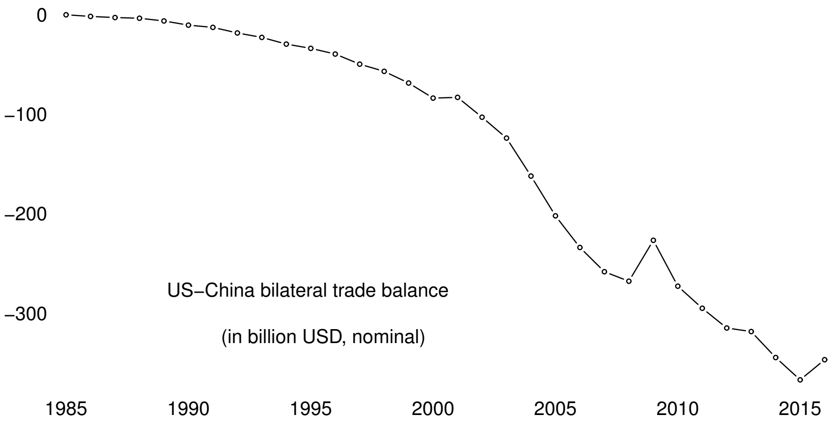
$$NX = X - M$$

- Trade surplus: $X > M$
- Trade deficit: $X < M$

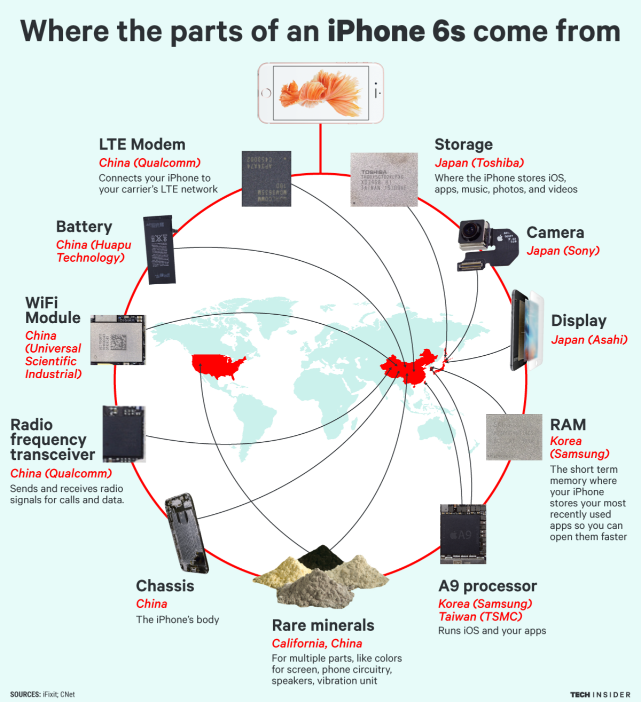
Trade balance USA and China



Bilateral trade balance USA and China



- Valued at €2 when imported to Ireland from Denmark
- Produced in Denmark but
  - Plastic from Taiwan
  - Paint produced in Czechia
  - Packaging from Sweden
- Value added in Denmark is $2 - X$, with X is total value of imported parts


Where the parts of an iPhone 6s come from
LTE Modem
China (Qualcomm)
Connects your iPhone to your carrier's LTE network
Storage
Japan (Toshiba)
Where the iPhone stores iOS, apps, music, photos, and videos
Battery
China (Huapu Technology)
Camera
Japan (Sony)
WiFi Module
China (Universal Scientific Industrial)
Display
Japan (Asahi)
Radio frequency transceiver
China (Qualcomm)
Sends and receives radio signals for calls and data.
RAM
Korea (Samsung)
The short term memory where your iPhone stores your most recently used apps so you can open them faster
Chassis
China
The iPhone's body
A9 processor
Korea (Samsung)
Taiwan (TSMC)
Runs iOS and your apps
Rare minerals
California, China
For multiple parts, like colors for screen, phone circuitry, speakers, vibration unit
SOURCES: iFixit; CNet
TECH INSIDER

The trade balance has a shortcoming in measuring things such as bilateral trade because of the assumption that a country produces goods that are

1. Consumed domestically
2. Exported

Ignores the fact that some products are not so much made but assembled in a particular country.

A somewhat misleading trade statistics such as a bilateral trade balance can lead to controversy since it is based on the assumptions that

- A country needs imports when domestic production is insufficient or too costly
- The idea that a country is a closed system in harmony with other countries

Hence a skewed trade balance could signal weakness.

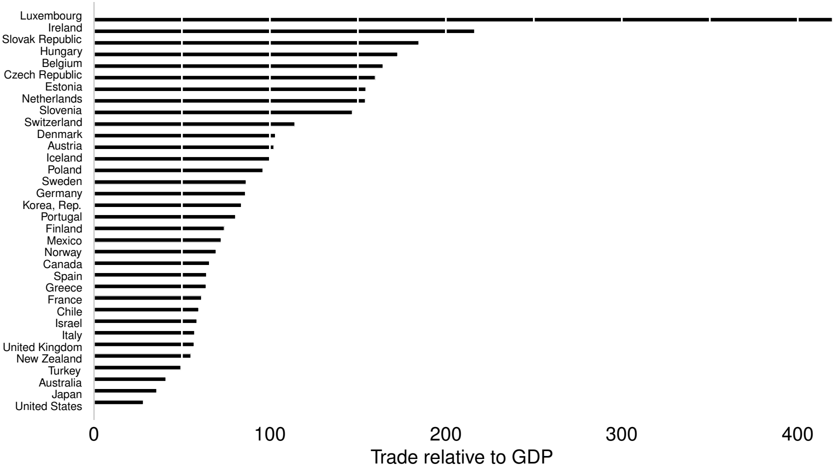
Another popular measure is the trade to GDP ratio, which measures trade intensity or openness of a country. Most countries have high trade to GDP ratios, and at the top end of the distribution we find countries that serve as shipping and processing centres

- Belgium, the Netherlands, Malaysia

Countries with low ratios tend to be

- Large economies: USA, Germany
- Just started trading: most of South America

Trade to GDP in OECD countries



Terms of trade (ToT) captures the relative price of exported versus imported goods

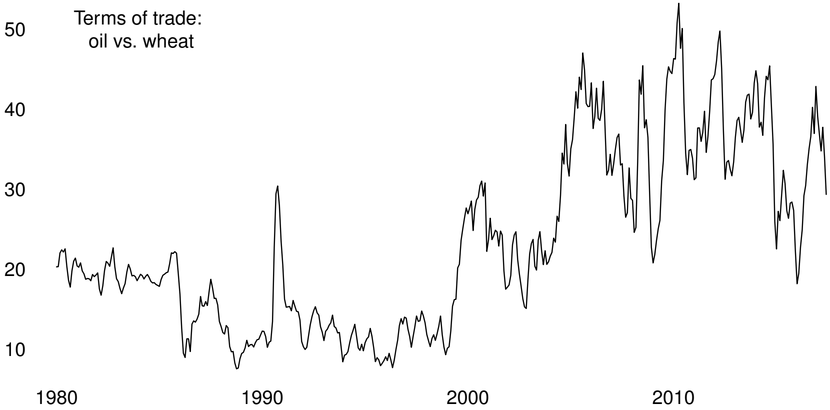
$$\frac{P_X}{P_M} * 100$$

The terms of trade increase when

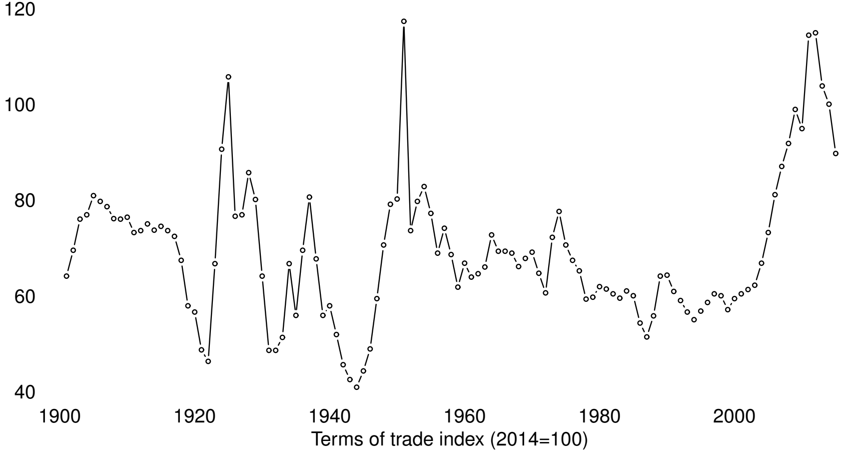
1. Export prices, P_X increase
2. Import prices, P_M decrease

An increase in the ToT increases general welfare

- For every unit of export sold it can buy buy more units of imported goods


Terms of trade:
oil vs. wheat
50
40
30
20
10
1980
1990
2000
2010

Terms of trade Australia



Australia's budget deficit to widen by A$10bn

15 December 2014 | Business

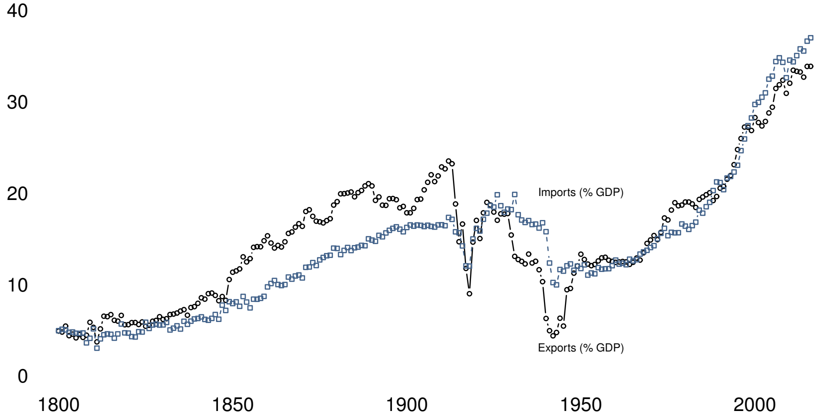
Share

The government said delays in passing legislation and negotiations with the Senate had cost the budget more than $A10.6bn

Australia's government has said it expects the nation's deficit to grow to $40.4bn Australian dollars ($33.2bn; £21.2bn) in the 12 months to June.

Earlier in the year, the deficit for the period had been forecast to come in at A$29.8bn.

UK imports and exports over time as ratio of GDP



World trade shares per region for 2012

Region	Exports	Imports
Africa	3.5	3.3
Asia	33.2	33.4
Commonwealth of Independent States	4.3	3.1
Europe	34.7	35.1
EU internal trade	19.8	19.5
Middle East	7.3	3.9
North America	12.9	17.2
South and Central America	4.1	4.1

European trade flows are large

- Many countries, zero tariffs

Asian trade rivals that of Europe

- Cheap labour in China, Bangladesh, Vietnam, Cambodia
- Efficient production of high quality goods in Japan, South Korea

Former USSR and Middle East account for 10% of world trade

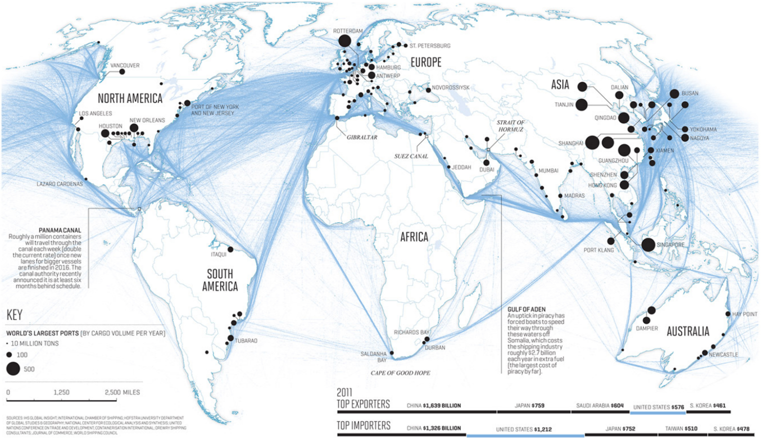
- Exports of oil and natural gas

Low trade levels in South and Central America, but growing while Africa accounts for just 3.5% of world trade

- Very marginal given population size
- Largely dependent on primary commodities

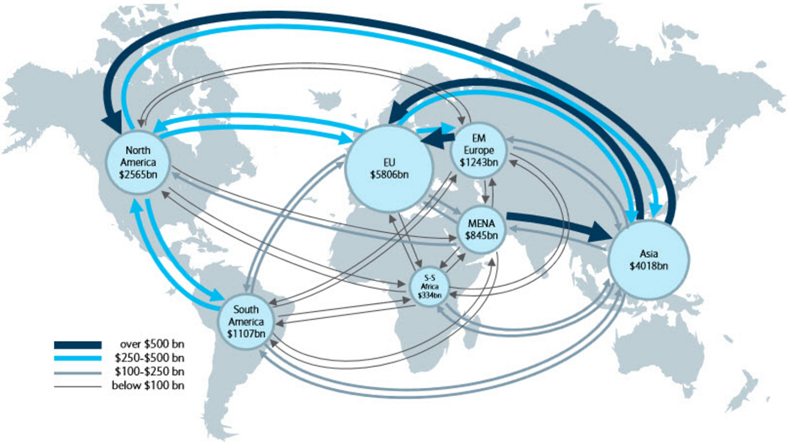
Major shipping routes

source: Nicolas Rapp



World merchandise trade flows Nov-Dec 2012

source: Barclays research



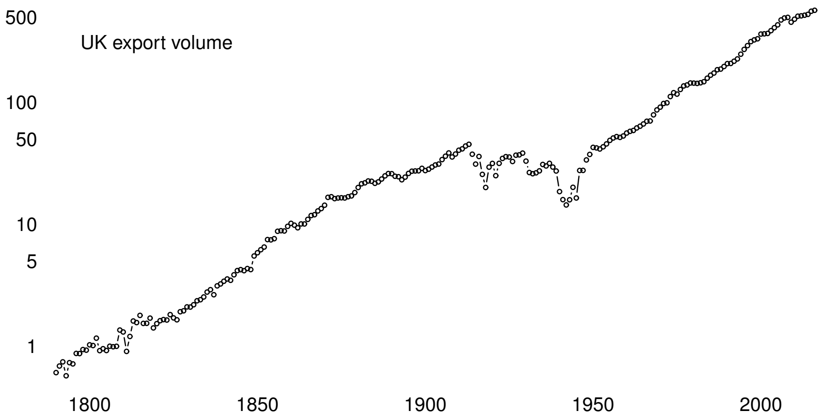
There are large differences in trade across regions which are due to

1. Import tariffs
2. Transportation costs
3. Other factors such as conflict

Trade barriers refer to all factor that influence the amount of goods/services shipped across international borders

- Trade barriers change over time as a result of changes in policies, technology, etc.

UK export volumes



First golden age of trade between 1890-1913

- Significant technological improvements, e.g. steamships, railroads, telephones, refrigeration

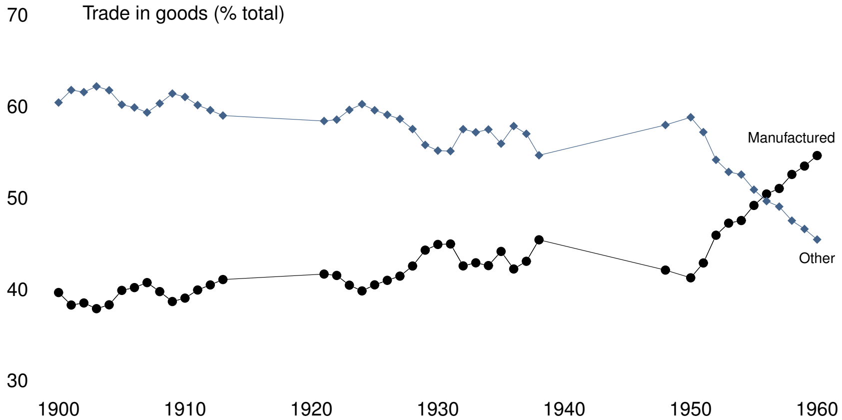
This ended with the First World War which led to a large decrease in trade during the interbellum (1918-1939)

- Trade decline due to Great Depression
- Increase in world-wide tariff rate of 25%, trade decline of about 33%

Second golden age of trade since 1950s

- Low tariffs through GATT, later WTO
- Improved transportation, e.g. shipping container (1956)
- Trade surpassed pre-WWI levels

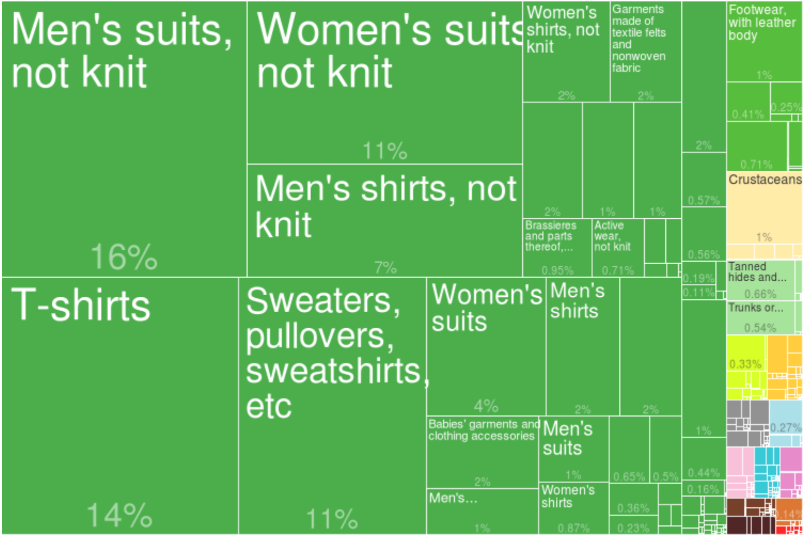
Trade composition between 1900-1960



Current trade composition is roughly

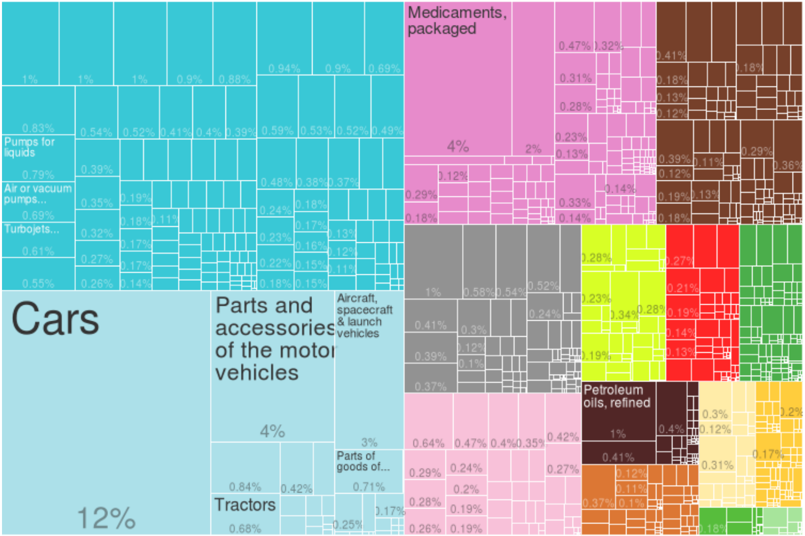
- 50% manufactured goods
  - clothing from low-wage countries, capital-intensive goods from industrialised countries
- 20% services (e.g. transport, tourism, insurance)
- 20% mining products
  - Fossil fuels from America, Australia, and the Middle East
  - Natural resources such as copper from Chile and those conflict minerals from Congo for your telephone
- 10% agricultural products
  - e.g. food from the EU and Latin America, cotton from India, timber from West Africa

$29.2B USD

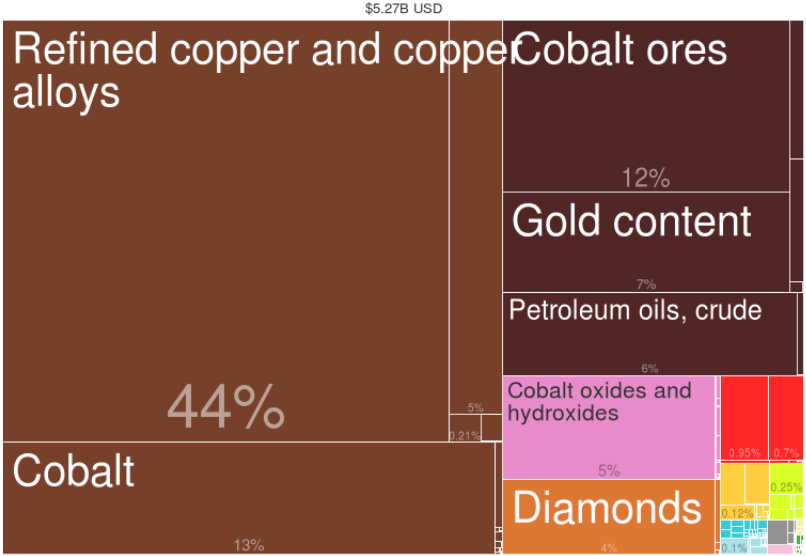


Men's suits, not knit
16%
Women's suits, not knit
11%
Men's shirts, not knit
7%
Women's shirts, not knit
2%
Garments made of textile felts and nonwoven fabric
2%
2%
1%
1%
Brassieres and parts thereof,...
0.95%
Active wear, not knit
0.71%
2%
0.57%
0.56%
0.19%
0.11%
Footwear, with leather body
1%
0.41%
0.25%
0.71%
Crustaceans
1%
Tanned hides and...
0.66%
Trunks or...
0.54%
0.33%
0.27%
0.14%
T-shirts
14%
Sweaters, pullovers, sweatshirts, etc
11%
Women's suits
4%
Men's shirts
2%
2%
Babies' garments and clothing accessories
2%
Men's...
1%
Men's suits
1%
Women's shirts
0.87%
0.65%
0.5%
0.36%
0.23%
1%
0.44%
0.16%

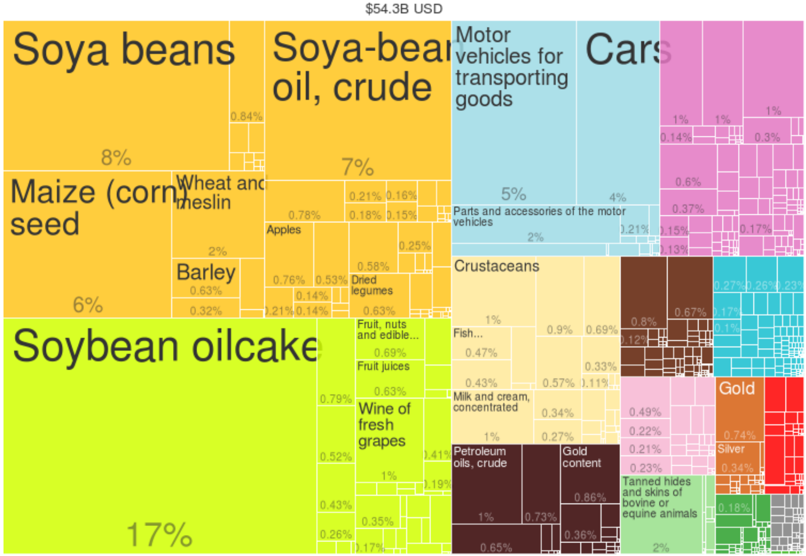
$1.22T USD



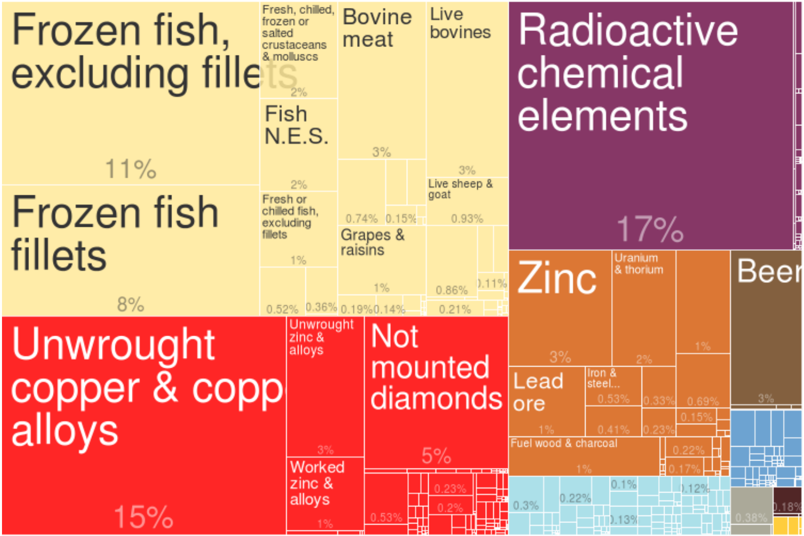
Cars
12%
Parts and accessories of the motor vehicles
4%
Aircraft, spacecraft & launch vehicles
3%
Parts of goods of...
0.71%
Tractors
0.68%
0.84%
0.42%
Pumps for liquids
0.79%
Air or vacuum pumps...
0.69%
Turbojets...
0.61%
0.55%
0.83%
1%
1%
1%
0.9%
0.88%
0.94%
0.9%
0.69%
Medicaments, packaged
4%
2%
Petroleum oils, refined
1%
0.41%
0.4%



$5.27B USD
Refined copper and copper alloys
44%
5%
0.21%
Cobalt
13%
Cobalt ores
12%
Gold content
7%
Petroleum oils, crude
6%
Cobalt oxides and hydroxides
5%
0.95%
0.7%
Diamonds
4%
0.25%
0.12%
0.1%


$54.3B USD
Soya beans
8%
0.84%
Soya-bean oil, crude
7%
Motor vehicles for transporting goods
5%
Cars
4%
Parts and accessories of the motor vehicles
2%
0.21%
1%
1%
1%
0.14%
0.3%
0.6%
0.37%
0.15%
0.17%
0.13%
Maize (corn) seed
6%
Wheat and meslin
2%
Barley
0.63%
0.32%
0.78%
0.21%
0.16%
0.18%
0.15%
Apples
0.76%
0.53%
0.14%
0.21%
0.14%
0.25%
0.58%
Dried legumes
0.63%
Crustaceans
1%
0.9%
0.69%
Fish...
0.47%
0.43%
0.57%
0.33%
0.11%
Milk and cream, concentrated
1%
0.34%
0.27%
0.8%
0.67%
0.12%
0.27%
0.26%
0.23%
0.17%
0.1%
0.49%
0.22%
0.21%
0.23%
Gold
0.74%
Silver
0.34%
Soybean oilcake
17%
0.79%
0.52%
0.43%
0.26%
Fruit, nuts and edible...
0.69%
Fruit juices
0.63%
Wine of fresh grapes
1%
0.41%
0.19%
0.35%
0.17%
Petroleum oils, crude
1%
0.73%
0.65%
Gold content
0.86%
0.36%
Tanned hides and skins of bovine or equine animals
2%
0.18%

$2.03B USD

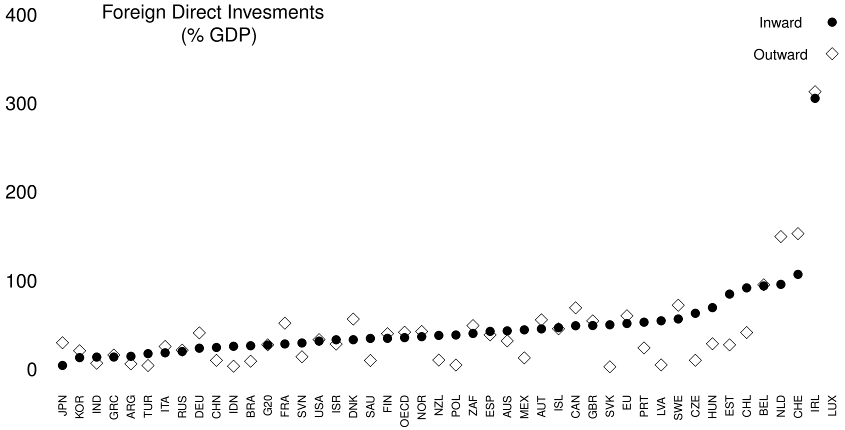

Frozen fish, excluding fillets
11%
Frozen fish fillets
8%
Fresh, chilled, frozen or salted crustaceans & molluscs
2%
Fish N.E.S.
2%
Fresh or chilled fish, excluding fillets
1%
0.52%
0.36%
Bovine meat
3%
0.74%
0.15%
Grapes & raisins
1%
0.19%
0.14%
Live bovines
3%
Live sheep & goat
0.93%
0.86%
0.21%
Radioactive chemical elements
17%
Unwrought copper & copper alloys
15%
Unwrought zinc & alloys
3%
Worked zinc & alloys
1%
Not mounted diamonds
5%
0.53%
0.23%
0.2%
Zinc
3%
Uranium & thorium
2%
1%
Lead ore
1%
Iron & steel...
0.53%
0.41%
0.33%
0.23%
0.69%
0.15%
Fuel wood & charcoal
1%
0.22%
0.17%
Beer
3%
0.3%
0.22%
0.1%
0.13%
0.38%

Differences in geographic factors such as climate and natural resources explains why Congo DR exports metals and Argentina soybeans.
The fact that Bangladesh exports clothing and Germany cars stems from difference in

- Labour productivity
- Relative supply of production factors such as capital and labour, and their used in production of different goods

Food for thought: Mexico is the world's largest exporter of fresh tomatoes; which country is the second largest?

Foreign direct investments flows in 2015

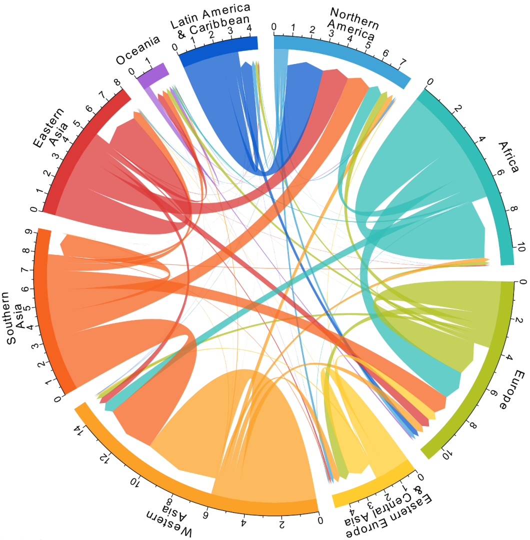


There are two types of FDI

1. Horizontal: Firm from country i owns company in country j that has same production activity as domestic
    - Allows firms to circumvent export tariffs or quotas
    - Better access to local market
    - Sharing of technical expertise

2. Vertical: Firm from country i owns company on country j that operates a different stage of the production process
    - Predominantly firms from industrialised countries owning factories in low-wage countries
    - Reduces costs of production

Migration flows between 2005-2010



Based on estimates from:
Abel G.J. (2016) *Estimates of Global Bilateral Migration Flows by Gender between 1960 and 2015*. Vienna Institute of Demography Working Papers. 2/2016

In contrast with FDI flows, most migration occurs in the developing world where migrants move to seek employment or other reasons such as conflict or famine.

- Migration is often stricter regulated that the flow of goods or capital

From an economic perspective international trade can theoretically help reduce migrant flows

1. Trade can increase living standards in same way moving to a higher-wage country can
2. More trade entails more workers needed in export industries