

Foundations of Economic Analysis & Explanation

Lecture 5: International Trade – Facts and Models

Biwei Chen

Lux Mantis Scientia

Colby College
Department of Economics

Overview

- World Trade Fact Charts
- World Trade Historical Trends
- Summary of Key Observations
- Setting PPF Model to Explain Trade
- Absolute and Comparative Advantage

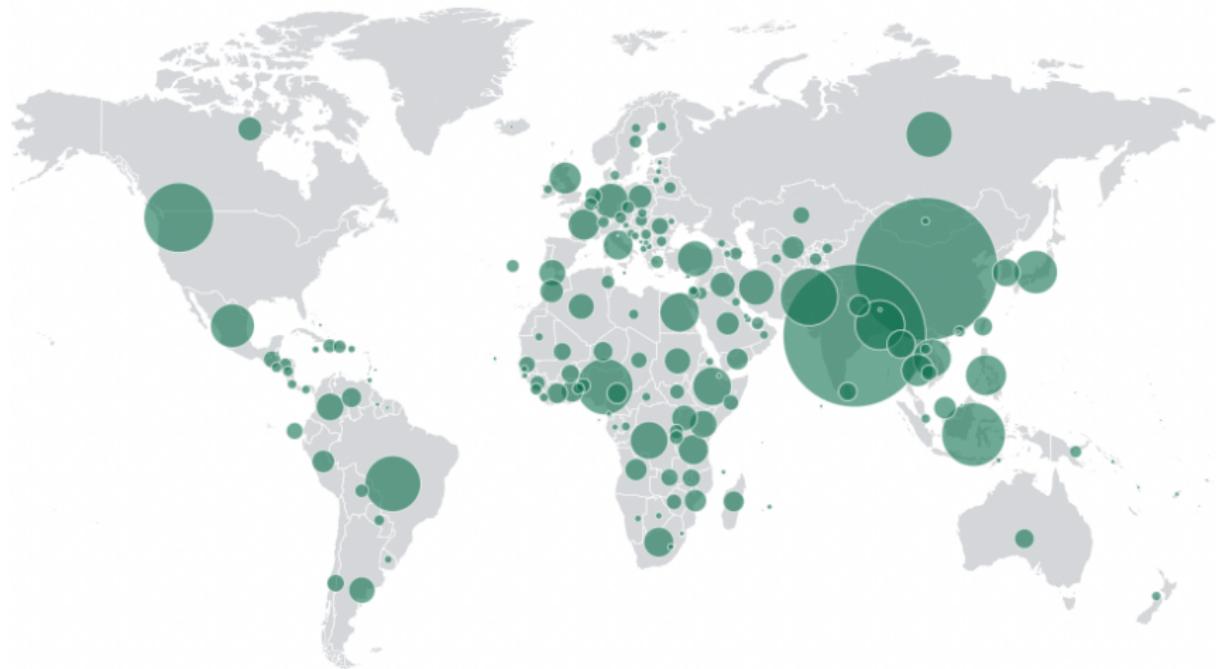


This lecture shows world trade patterns and applies the concept of opportunity cost in the PPF model to understanding fundamental drivers behind international trade. Two classical trade theories—absolute advantage and comparative advantage are studied. More substantially, students can learn how to appreciate economic explanation and enjoy the beauty of scientific models!

OUTLINE

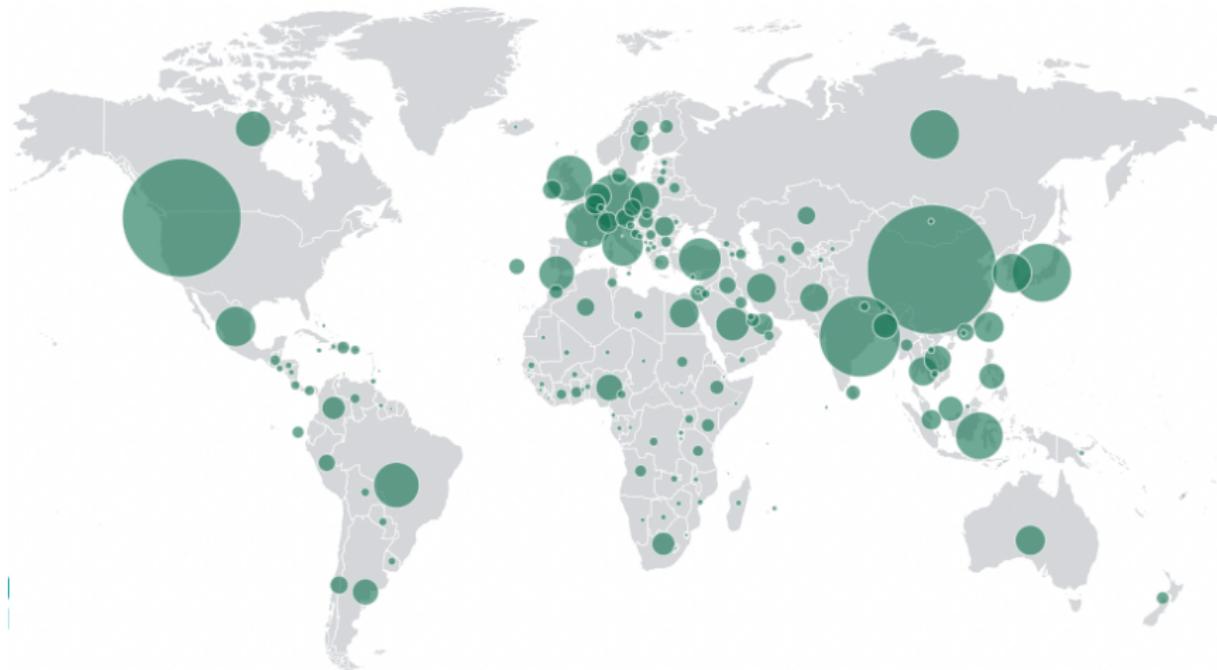
- ① World Trade Facts and Trends
- ② International Trade in PPF Model
- ③ Absolute and Comparative Advantage
- ④ Appendix

World Population Map, 2022



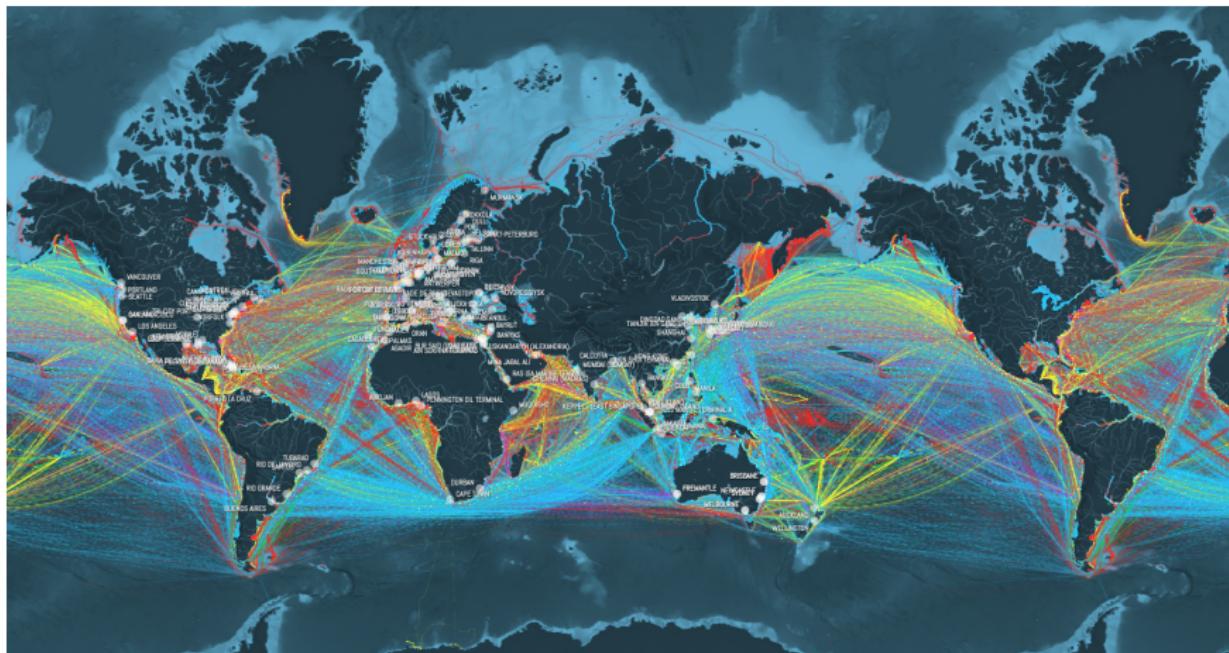
<https://www.imf.org/external/datamapper/LP@WEO/OEMDC/ADVEC/WEOWORLD>

World GDP (PPP), 2022



<https://www.imf.org/external/datamapper/PPPGDP@WEO/OEMDC/ADVEC/WEOWORLD>

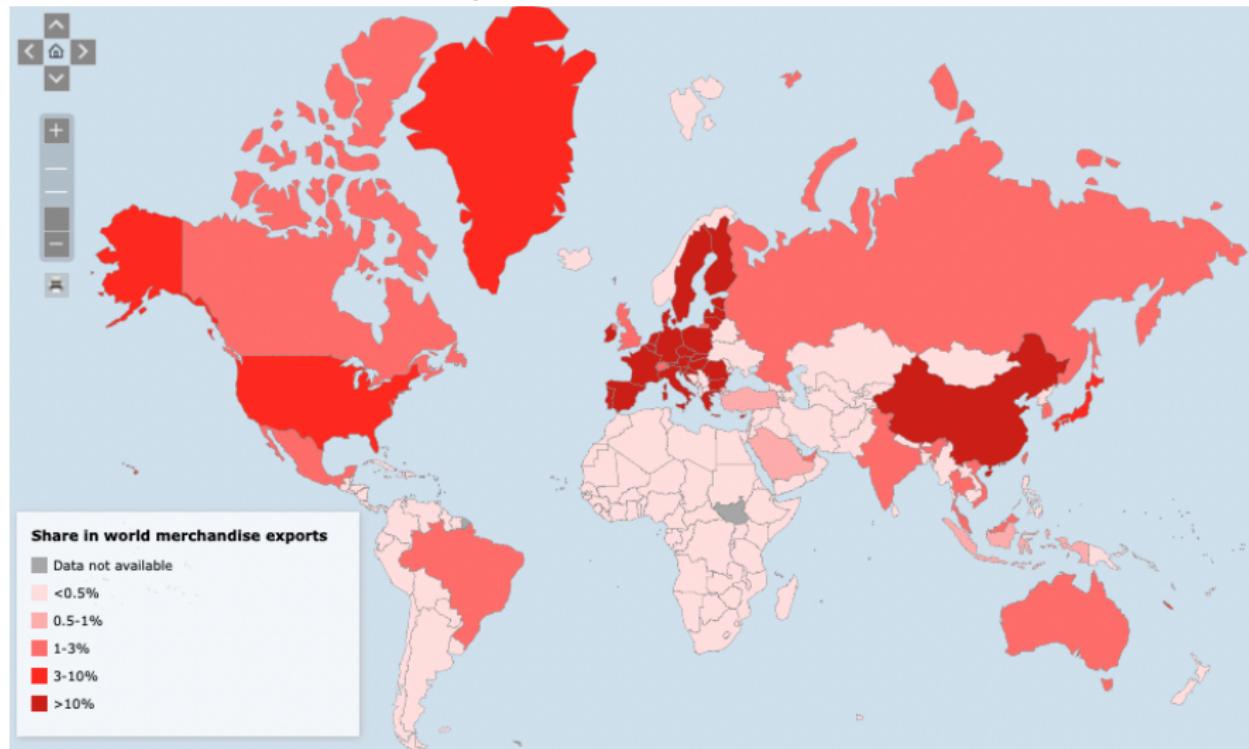
Global Shipping Map, 2012



Note: video link.

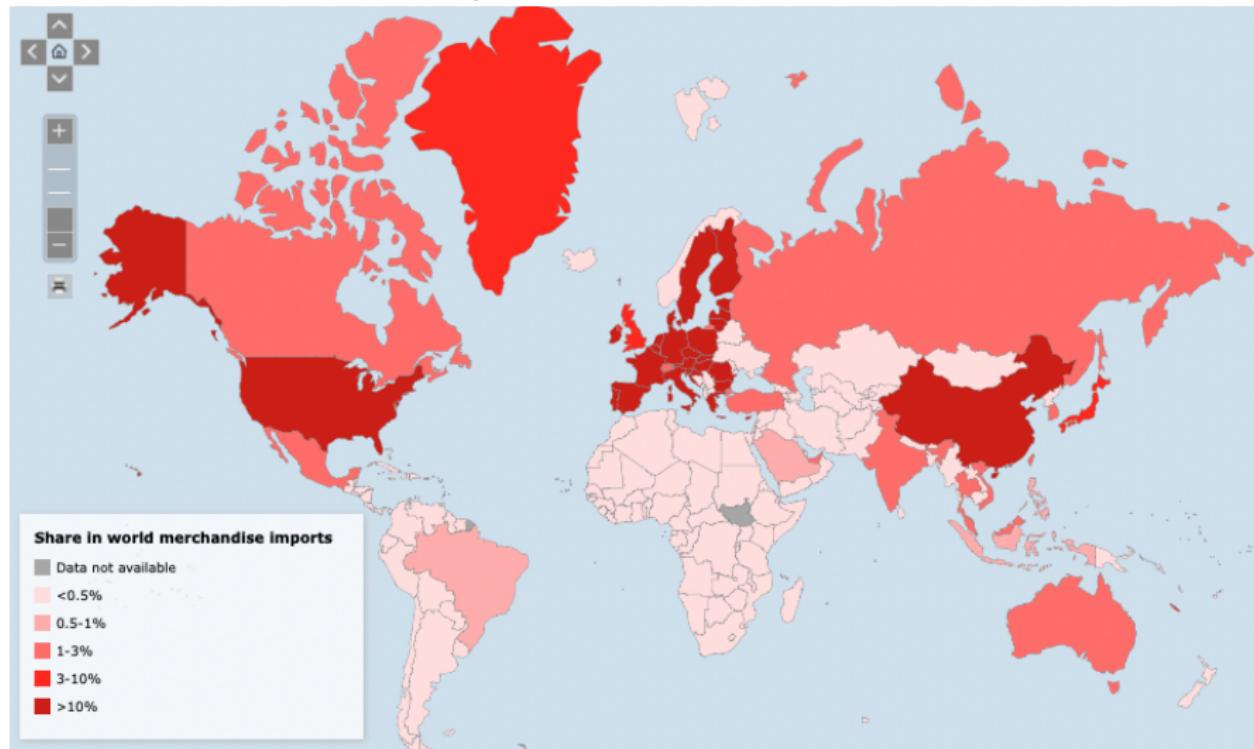
<https://www.shipmap.org>

Global Merchandise Exports Share, 2020

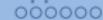


https://www.wto.org/english/res_e/statis_e/statis_maps_e.htm

Global Merchandise Imports Share, 2020



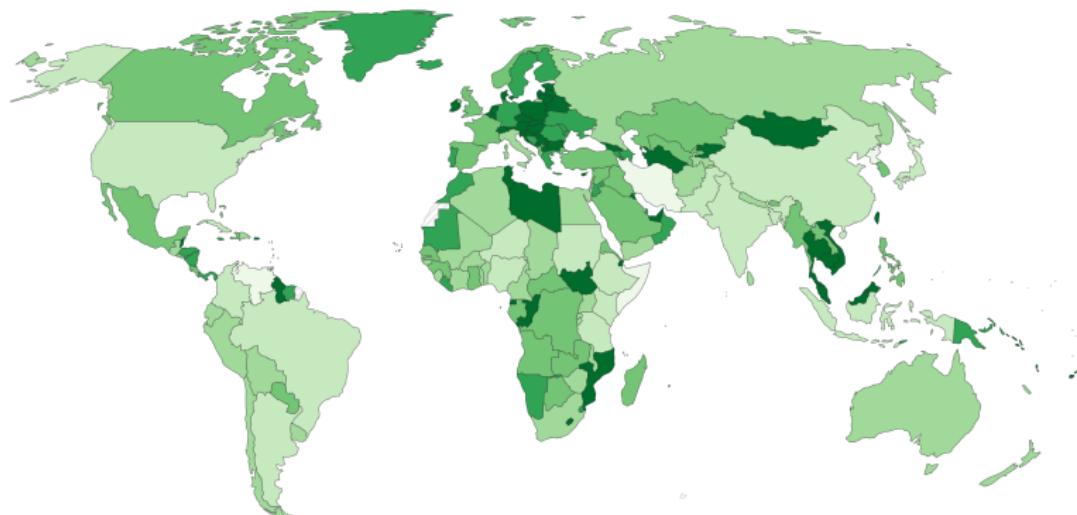
https://www.wto.org/english/res_e/statis_e/statis_maps_e.htm



Trade openness, 2019

Trade openness is measured as the sum of a country's exports and imports as a share of that country's GDP (in %).

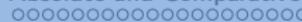
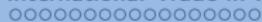
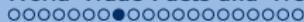
Our World
in Data



Source: Feenstra et al. (2015), Penn World Table 10.0

OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/trade-openness>



World GDP over the last two millennia

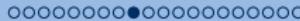
Total output of the world economy; adjusted for inflation and expressed in international-\$ in 2011 prices.



Source: World GDP - Our World In Data based on World Bank & Maddison (2017)

OurWorldInData.org/economic-growth • CC BY

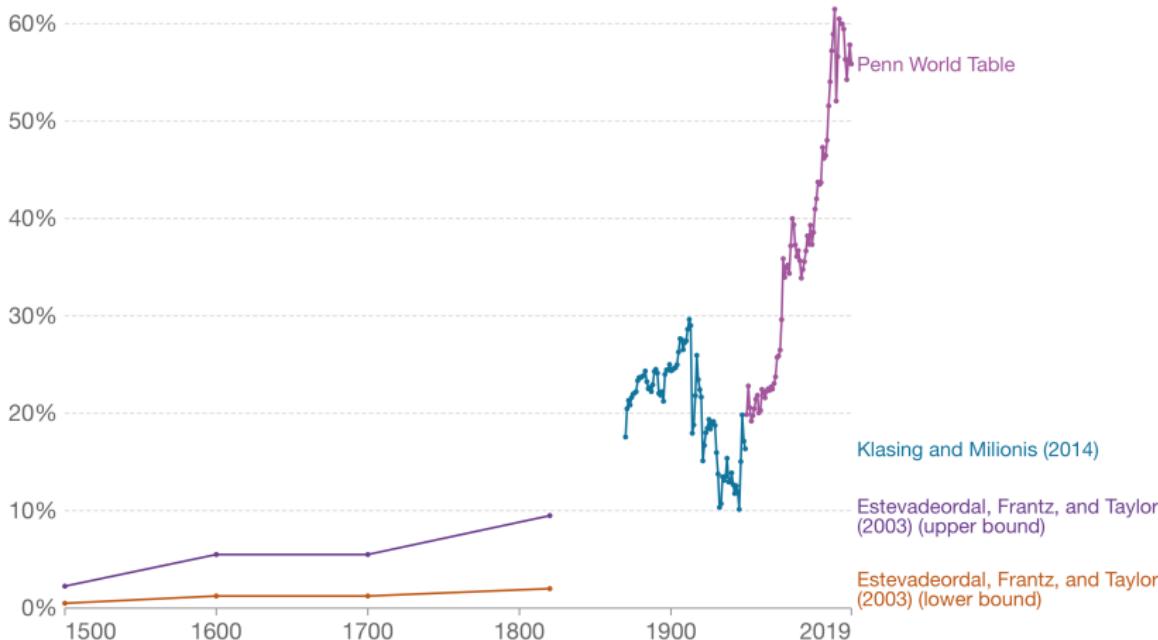
<https://ourworldindata.org/grapher/world-gdp-over-the-last-two-millennia>



Globalization over 5 centuries

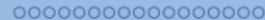
Our World
in Data

Shown is the "trade openness index". This index is defined as the sum of world exports and imports, divided by world GDP. Each series corresponds to a different source.



Source: Estevadeordal, Frantz, and Taylor (2003), Klasing and Milionis (2014), Penn World Tables v10
OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/globalization-over-5-centuries-km>



Growth of global exports

Our World
in Data

Total world exports adjusted for inflation (constant prices), relative to 1913. Values correspond to world export volumes indexed to 1913.



Source: Federico and Tena-Junguito (2016)

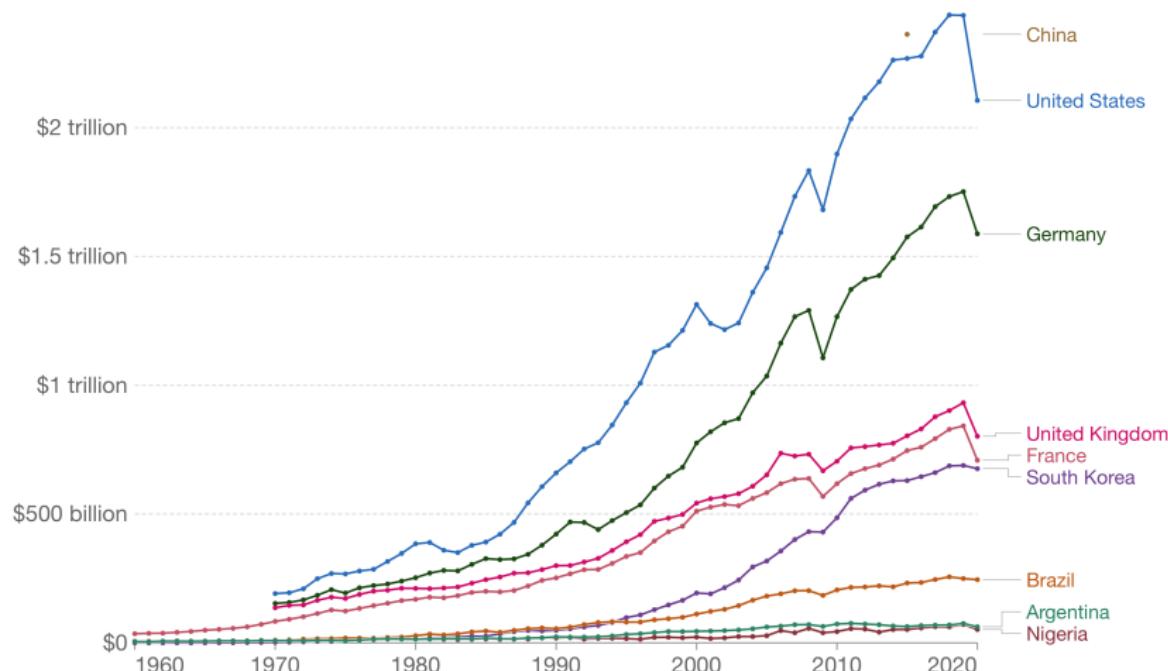
OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/world-trade-exports-constant-prices>

Value of exports of goods and services, 1960 to 2020

This is adjusted for inflation and shown in constant U.S. dollars.

Our World
in Data



Source: World Bank and OECD

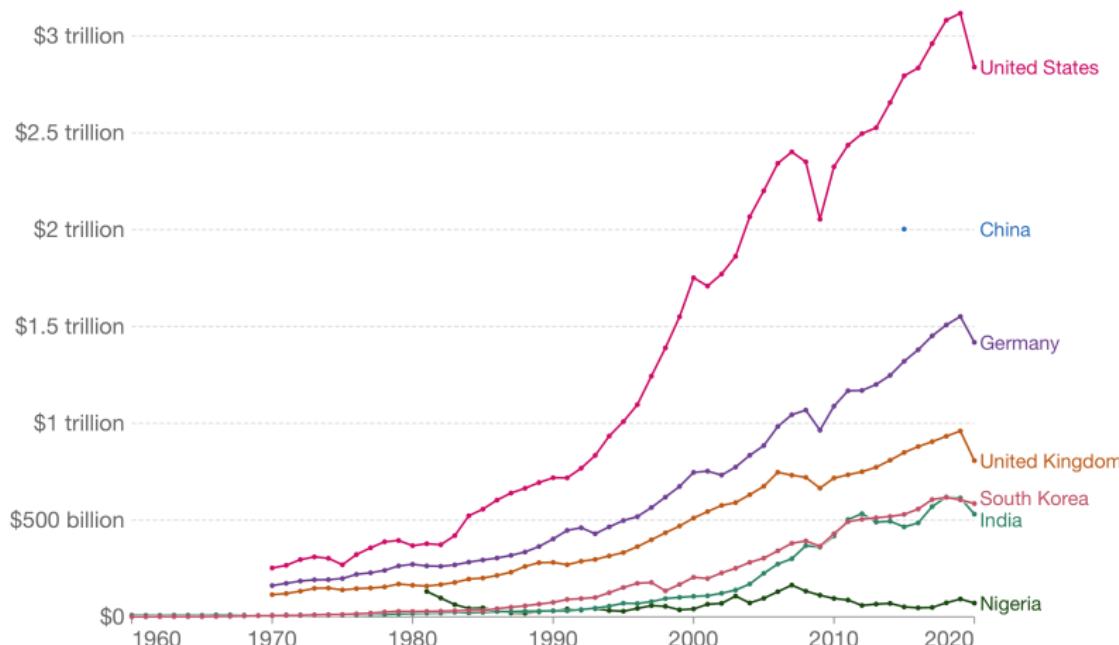
OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/exports-of-goods-and-services-constant-2010-us>

Imports of goods and services, 1960 to 2020



Imports of goods and services represent the value of all goods and other market services received from the rest of the world. Data are in constant U.S. dollars. This means values are corrected for inflation.



Source: World Bank and OECD

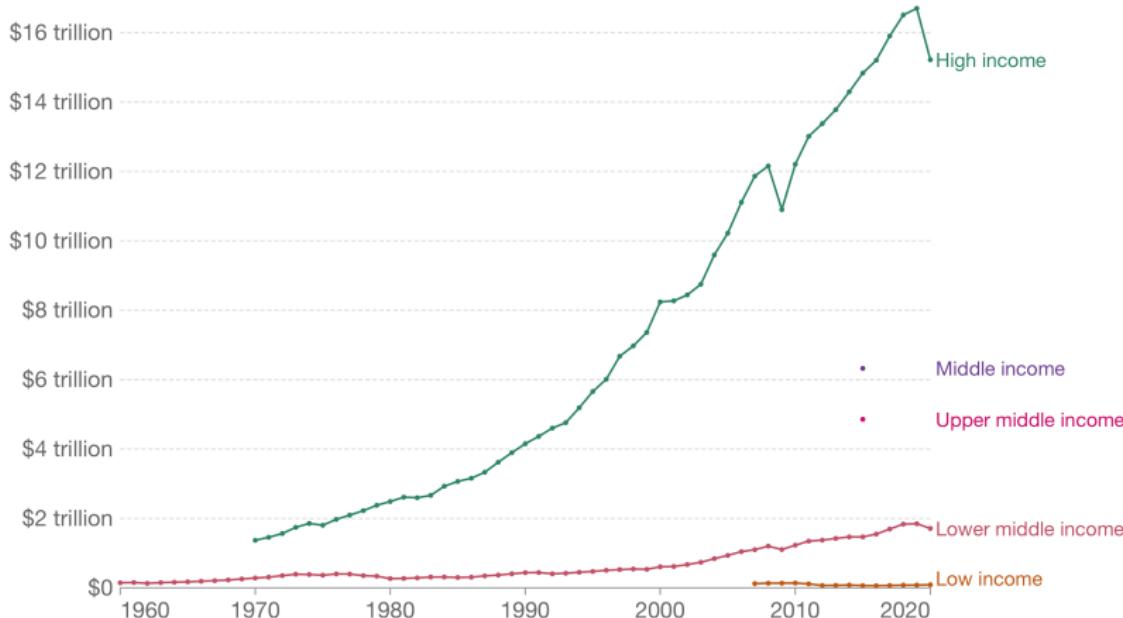
OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/imports-of-goods-and-services-constant-2010-us>

Exports of goods and services by income group, 1960 to 2020

Our World
in Data

Total export value of goods and services aggregated by World Bank income group. Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. This data is adjusted for inflation and expressed in constant 2015 US\$.



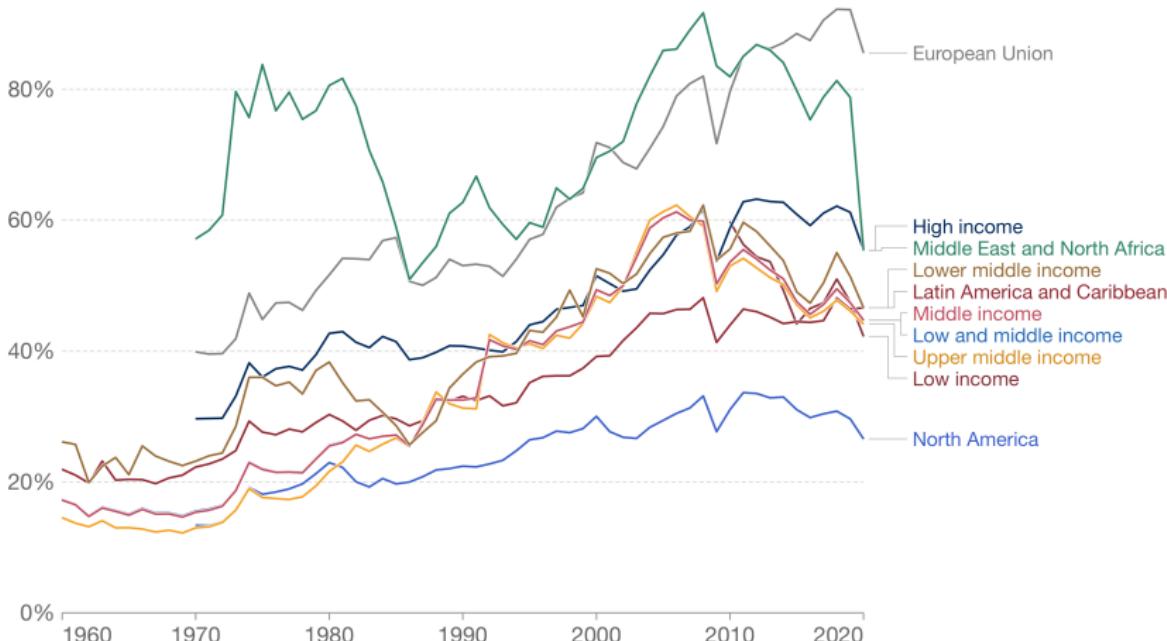
Source: World Bank and OECD

CC BY

<https://ourworldindata.org/grapher/imports-of-goods-and-services-constant-2010-us>

Trade as share of GDP, 1960 to 2020

Shown is the 'trade openness index' – the sum of exports and imports of goods and services, divided by the gross domestic product.



Source: World Bank and OECD

OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/trade-as-share-of-gdp>

Growth of income and trade, 1956 to 2016

Average annual change in real GDP per capita vs Average annual change in export volumes.



Source: Fouquin and Hugot (CEPII 2016); Maddison Project Database 2020 (Bolt and van Zanden, 2020)

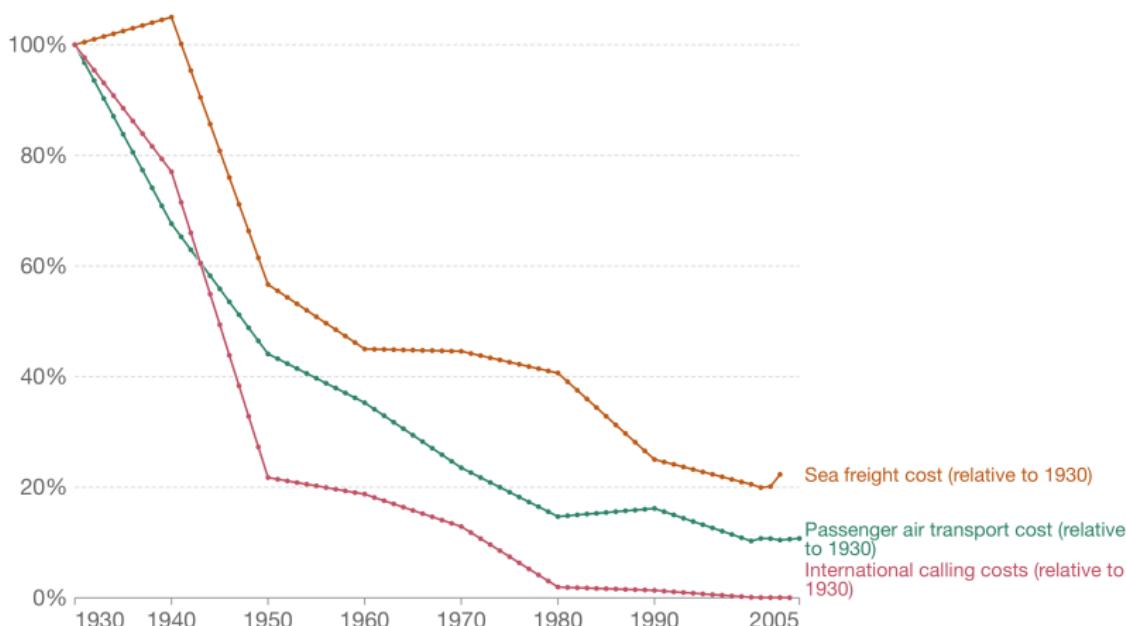
CC BY

<https://ourworldindata.org/grapher/growth-of-income-and-trade-alt>

The decline of transport and communication costs relative to 1930

Our World
in Data

Sea freight corresponds to average international freight charges per tonne. Passenger air transport corresponds to average airline revenue per passenger mile until 2000 spliced to US import air passenger fares afterwards.
International calls correspond to cost of a three-minute call from New York to London.



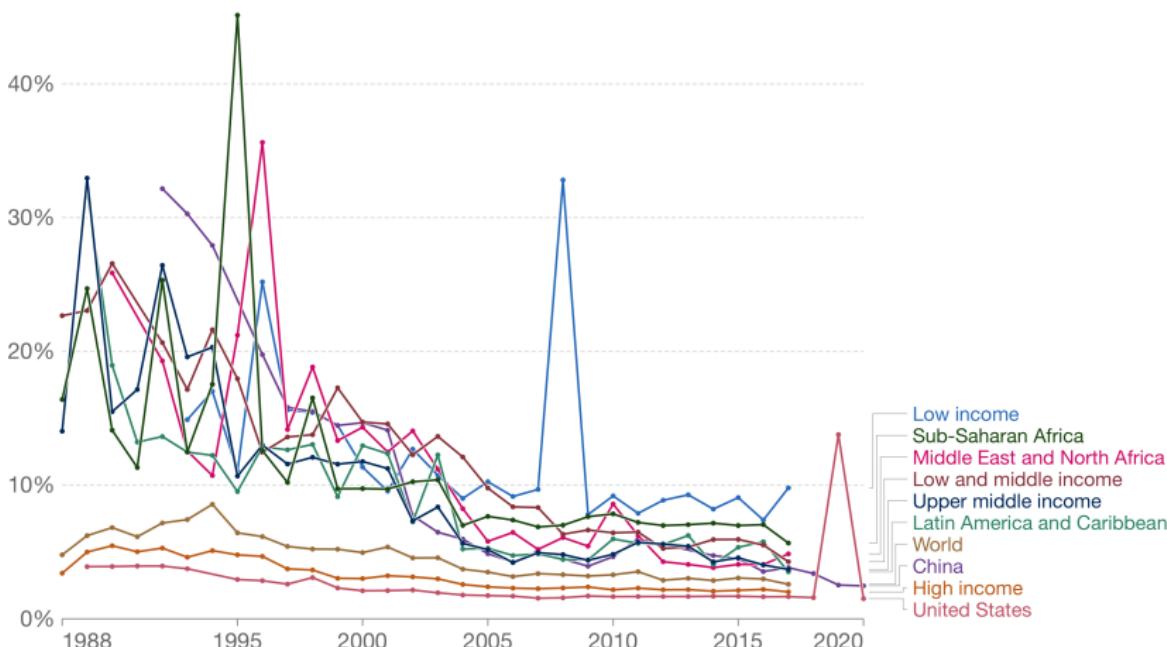
Source: Transaction Costs - OECD Economic Outlook (2007)

OurWorldInData.org/trade-and-globalization • CC BY

<https://ourworldindata.org/grapher/real-transport-and-communication-costs>

Tariff rate across all products, 1988 to 2020

Weighted mean applied tariff is the average of effectively applied rates weighted by the product import shares corresponding to each partner country.

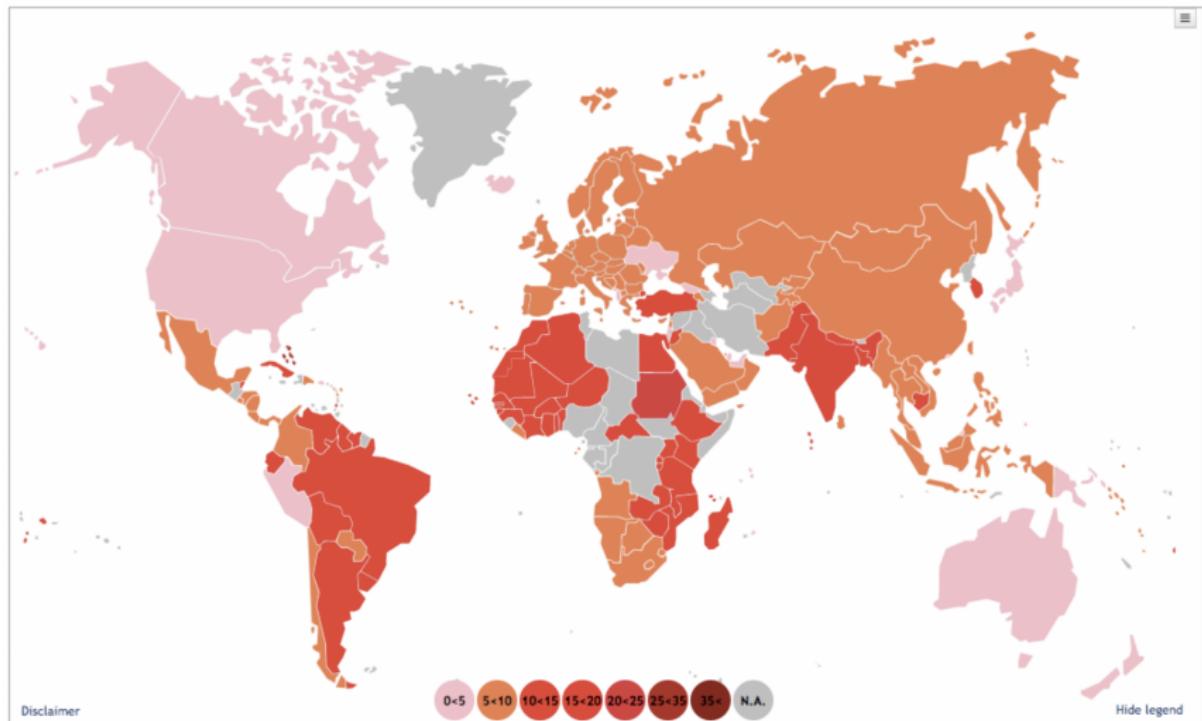


Source: World Bank based on data from the World Integrated Trade Solution platform

CC BY

<https://ourworldindata.org/grapher/tariff-rate-applied-weighted-mean-all-products>

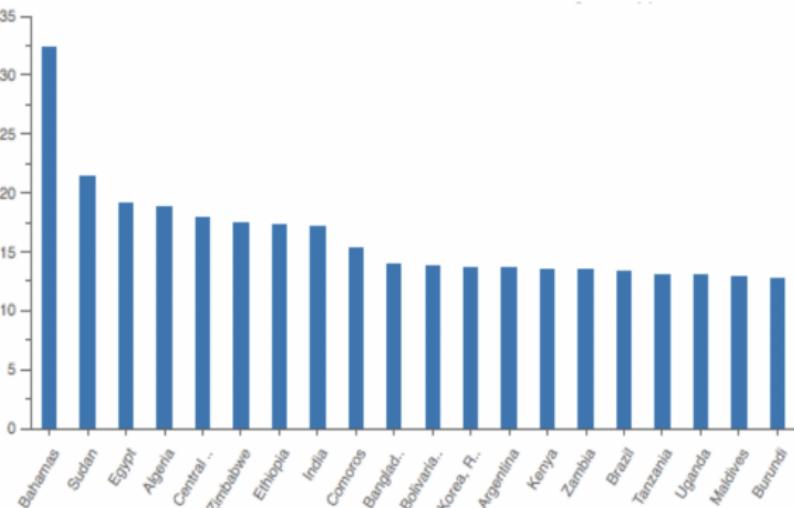
2018 Simple Average Applied MFN Tariff—All Products



https://www.wto.org/english/res_e/statis_e/statis_maps_e.htm

2018 Simple Average Applied MFN Tariff—All Products

- What are those highest-tariff countries?
- How is their economic performance?
- How is people's living standard in these countries compared with Americans?
- Are these countries rich or poor? Why?
- Do you think it is related to trade?



https://www.wto.org/english/res_e/statist_e/statist_bis_e.htm

Summary: Key Facts on World Trade

- Fact 1: CH and US are the largest trade countries in the world today.
- Fact 2: After WWII, world trade has experienced the most spectacular growth in history, along with stunning economic growth worldwide.
- Fact 3: GDP growth is positively associated with trade growth.
- Fact 4: Trade barriers (transaction costs) have witnessed phenomenal decline in the past century.
- Fact 5: High tariff countries are usually remaining at low income levels.

Question: Why can we observe such patterns in world trade? How can we explain these phenomena in economic theory? But first and foremost, it is more fundamental to ask "why do countries trade?" and "why are CH and US the global leaders in trade?"

OUTLINE

- ① World Trade Facts and Trends
- ② International Trade in PPF Model
- ③ Absolute and Comparative Advantage
- ④ Appendix

Setting up the PPF Model

To explain why countries trade using a model, economists can make the following (over-simplified)

Assumptions:

- Two countries, two goods, one production factor (labor)
- US can either produce 4 apples per hour or 6 bananas per hour
- CH can either produce 6 apples per hour or 4 bananas per hour
- Both countries prefer average consumption (equal time allocation in production) on both goods.
- No transportation and transaction costs (searching, bargaining and contracting; currency conversion, tariff, insurance...)

Now, draw the PPF for both countries.

Draw the PPF for US and CH

Production Measure		US	CH
Productivity (output/hour)	apple	4	6
	banana	6	4
Unit product input requirement (hours/output)	apple		
	banana		
Opportunity cost of unit production	apple		
	banana		

- PPF for US (graph below)
- PPF for CH (graph below)

Describing Autarky Equilibrium

An autarky equilibrium is a stable condition in which a closed economy consumes all its outputs in each period (consumption = production).

Production & Consumption		US	CH
Productivity (products/hour)	apple	4	6
	banana	6	4
Autarky equilibrium ($C=P$)	apple		
	banana		

- Autarky equilibrium in US
- Autarky equilibrium in CH

Will Trade Occur between US and CH?

Can countries gain from pure exchange after opening up?

- Starting from the autarky equilibrium (closed economy when consumption equals production), we can trace out a new consumption possibilities frontier (CPF) under the exchange rate of 1 apple for 1 banana.
- The question is whether both countries are willing to trade under such arrangement. Why?
- To answer this question, we would need to understand the incentive facing the economic agents—will trade improve their welfare compared with autarky equilibrium?
- An easy way to compare is simply looking at the new CPF and the autarky equilibrium on the PPF. Which is more efficient?

Will Trade Occur between US and CH?

Economists make further assumptions to visualize the trade process.

- Suppose US and CH agree to trade 1 banana for 1 apple.
- What if US trades out 1, or 2, or 3 bananas with CH?
- Derive US consumption possibilities frontier (CPF); then for CH.
- PPF & CPF for US (graph below) • PPF & CPF for CH (graph below)

Can Countries Gain from Division of Labor?

Can countries improve upon pure exchange CPF after opening up?

- Trade will be preferred if it can enrich both parties.
- Can countries do better than just pure exchange?
- Recall the implication of rationality, what does it say?
- Check which country has lower cost in producing apple? Which countries has lower cost in producing banana?
- What decisions are they going to make as rational economic agents?
- In other words, based on cost minimization, who should produce what?
- After division of labor (specialization), suppose both countries would still trade at 1 apple for 1 banana.
- Trace out the trade possibilities frontiers (TPF) under full specialization and trade.

Specialization and Trade (1a:1b)

		US	CH
Opportunity cost of production	apple	1.5b	0.67b
	banana	0.67a	1.5a
Specialization pattern	apple		
	banana		

- PPF & TPF for US (graph below)
- PPF & TPF for CH (graph below)

Specialization Driven by Productivity

What determines who specialize in what (specialization pattern)?

- Based on the cost-minimization principle, both countries will tend to produce the good of their own advantage.
- US will specialize in producing only bananas since its production cost is lower than that of CH; CH will specialize in producing only apples.
- Intuitively, in this model setup, the specialization pattern between the two countries is driven by their respective productivity, or absolute advantage in production.
- Specialization requires concentration and commitment. Specialization makes production more efficient as both countries can learn and improve the process by doing.

Trade Equilibrium: Most Efficient

- After specialization, US and CH will begin to trade.
- What are the possible trade solutions if they agree with an exchange rate of one apple for one banana?
- After complete specialization, US produces 6 bananas and can at most import 6 apples from CH; vice versa for CH.
- The new possibilities frontier after trade is called trade possibilities frontier TPF. Trace them out for US and CH.
- In terms of efficiency, $TPF > CPF > PPF$. Show it graphically.
- How many apples and bananas will US consume after trade? In the trade equilibrium, US and CH both must satisfy two conditions:
 - 1) consumption=production and 2) total import value=total export value.US (3a, 3b) and CH (3a, 3b).

Summary Table: Benefits from Trade

		US	CH	Total
Autarky equilibrium	apple	2	3	
	banana	3	2	
Specialization in production	apple	0	6	
	banana	6	0	
Trade equilibrium	apple			
	banana			
Net gain from trade	apple			
	banana			

- Why do countries favor trade? Why is each country willing to trade?
- What is the economic basis for trade?
- What determines specialization pattern?
- Is trade fair to both countries? Which country gains more from trade?
- What determines the exchange rate or terms of trade (TOT)?

Absolute Advantage and Comparative Advantage

- The main concept of Absolute Advantage (A.A.) is generally attributed to Adam Smith (1776) *The Wealth of Nations* in which he countered mercantilist ideas (against free trade).
- The principle of Absolute Advantage refers to the ability of a party to produce more of a good or service than its competitors, given the same amount of time or resources (productivity advantage).
- Since absolute advantage is determined by a simple comparison of labor productivities, it is possible for a party to have no absolute advantage in anything; in that case, according to the theory of absolute advantage, no trade will occur with the other party (not true in fact).
- Going beyond A.A., Comparative Advantage (C.A.) refers to the ability of a party to produce specific goods at a lower opportunity cost than its competitors. Indeed, trade could happen even if a party does not have any A.A.. The C.A. theory of David Ricardo became one of the most influential theories in economics and international trade.

Take-home Question:

Production Measure		US	CH
Productivity (products/hour)	apple	4	3
	banana	6	2
Unit product input requirement (hours/output)	apple		
	banana		
Opportunity cost of production	apple		
	banana		

- What are the differences between this model and the previous one?
- Which country is absolutely more productive in both goods?
- Could trade take place between US and CH in this setting?

Smith on the Division of Labor

It is the great multiplication of the productions of all the different arts, in consequence of the division of labour, which occasions, in a well-governed society, that universal opulence which extends itself to the lowest ranks of the people.

The Wealth Of Nations, Book I, Chapter I, p. 22, para. 10.

It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy...What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom.

The Wealth Of Nations, Book IV Chapter II, pp. 456-7, paras. 11-12.
<https://www.adamsmith.org/adam-smith-quotes>

Smith on the Benefits of Specialization

It was the division of labour which probably gave occasion to the invention of the greater part of those machines, by which labour is so much facilitated and abridged. When the whole force of the mind is directed to one particular object, as in consequence of the division of labour it must be, the mind is more likely to discover the easiest methods of attaining that object than when its attention is dissipated among a great variety of things.

This quote from an early draft of the Wealth of Nations is interesting for not only making the point that the division of labor creates greater productivity but also for stating clearly that it stimulates technological innovation as well.

<https://oll.libertyfund.org/quotes/316>

By means of glasses, hotbeds, and hotwalls, very good grapes can be raised in Scotland, and very good wine too can be made of them at about thirty times the expense for which at least equally good can be brought from foreign countries. Would it be a reasonable law to prohibit the importation of all foreign wines, merely to encourage the making of claret and burgundy in Scotland?

The Wealth Of Nations, Book IV, Chapter II, p. 458, para. 15.
<https://www.adamsmith.org/adam-smith-quotes>

Smith on Trade Policy Distortion

A regulation which obliges all those of the same trade in a particular town to enter their names and places of abode in a public register, facilitates such assemblies... A regulation which enables those of the same trade to tax themselves in order to provide for their poor, their sick, their widows and orphans Š renders such assemblies necessary. An incorporation not only renders them necessary, but makes the act of the majority binding upon the whole. In a free trade, an effectual combination cannot be established but by the unanimous consent of every single trader, and it cannot last longer than every single trader continues of the same mind. The majority of a corporation can enact a bye-law, with proper penalties, which will limit the competition more effectually and more durably than any voluntary combination whatever.

The Wealth Of Nations, Book IV Chapter VIII, p. 145, paras. c29-30.
<https://www.adamsmith.org/adam-smith-quotes>

Mercantilism vs Smith & Ricardo

- Mercantilism is economic nationalism for the purpose of building a wealthy and powerful state. This system dominated Western European economic thought and policies from the 16th to the late 18th centuries.
- Mercantilists believed that exporting was good because it generated gold and importing was bad because it drained gold from the national treasury. Mercantilists favored high tariffs to ensure high exports and low imports.
- Mercantilism as a major system of thought lost dominance after the harsh treatment it received in Book IV of Adam Smith's Wealth of Nations in 1776. According to Smith, international trade happens and is beneficial because of countries' difference in Absolute Advantage.
- More insightfully, David Ricardo (1800s) showed that, based on the principles of Comparative Advantage, countries could benefit from international trade without having to use tariffs.

OUTLINE

- ① World Trade Facts and Trends
- ② International Trade in PPF Model
- ③ Absolute and Comparative Advantage
- ④ Appendix

International Trade: Views and Debates

On the topic of international trade, the views of economists tend to differ from those of the general public. There are three principal differences.

- ① Many noneconomists believe that it is more advantageous to trade with other members of one's nation or ethnic group than with outsiders. Economists see all forms of trade as equally advantageous.
- ② Many noneconomists believe that exports are better than imports for the economy. Economists believe that all trade is good for the economy.
- ③ Many noneconomists believe that a country's balance of trade is governed by the competitiveness of its wage rates, tariffs, and other factors. Economists believe that the balance of trade is governed by many factors, including the above, but also including differences in national saving and investment.

The noneconomic views of trade all seem to stem from a common root: the tendency for human beings to emphasize tribal rivalries.

<https://www.econlib.org/library/Enc/InternationalTrade.html>

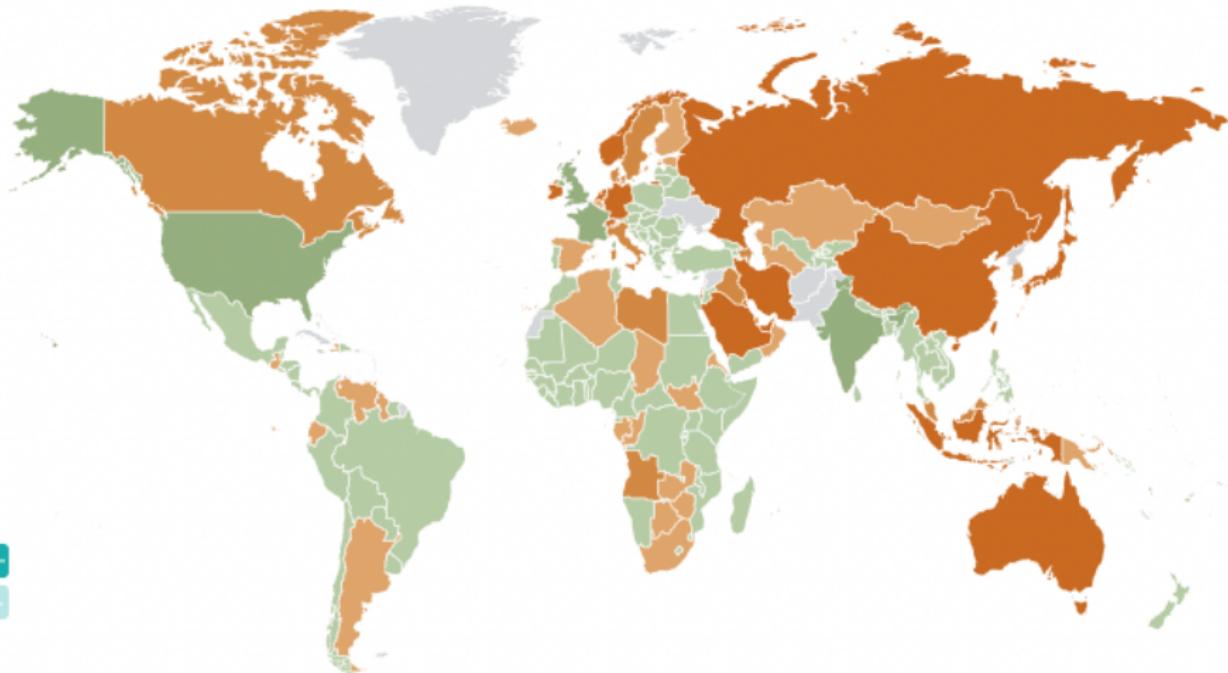
International Trade Competitiveness

How does a nation fare in international commerce and trade? To evaluate a nation's or region's trade competitiveness, economists focus on its trade balance (or net exports) and current account balance.

- Exports: the value of the goods and services that a country sells to the rest of the world.
- Imports: the total market value of the goods and services that a country purchases from the rest of the world.
- Trade balance is the amount of total export minus total import, or the net exports. Trade surplus means positive trade balance. Trade deficit is negative trade balance. Their trends indicate trade competitiveness.
- Current account is the record of all transactions in the balance of payments covering the exports and imports of goods and services, payments of income, and current transfers between residents of a country and nonresidents (World Economic Outlook, 2022).

Current Account Balance, Billions of USD, 2022

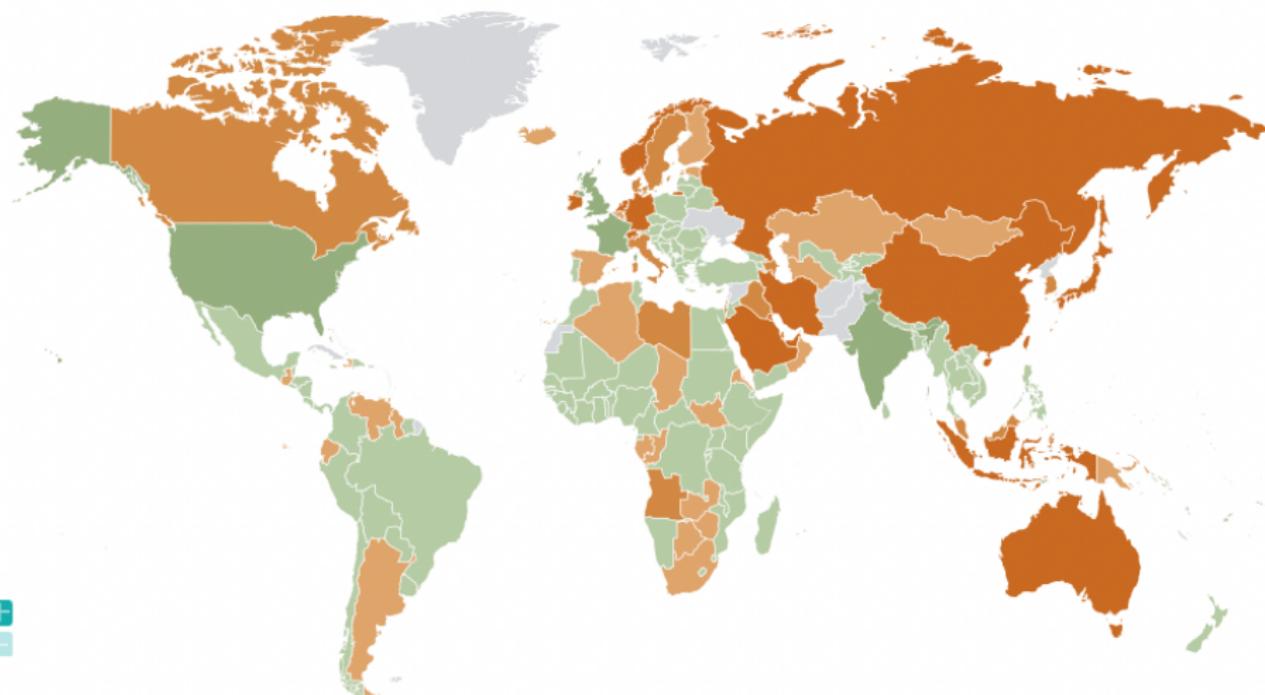
- 50 or more
- 10 - 50
- 0 - 10
- -50 - 0
- less than -50
- no data



<https://www.imf.org/external/datamapper/BCA@WEO/OEMDC/ADVEC/WEOWORLD>

Current Account Balance, percent of GDP, 2022

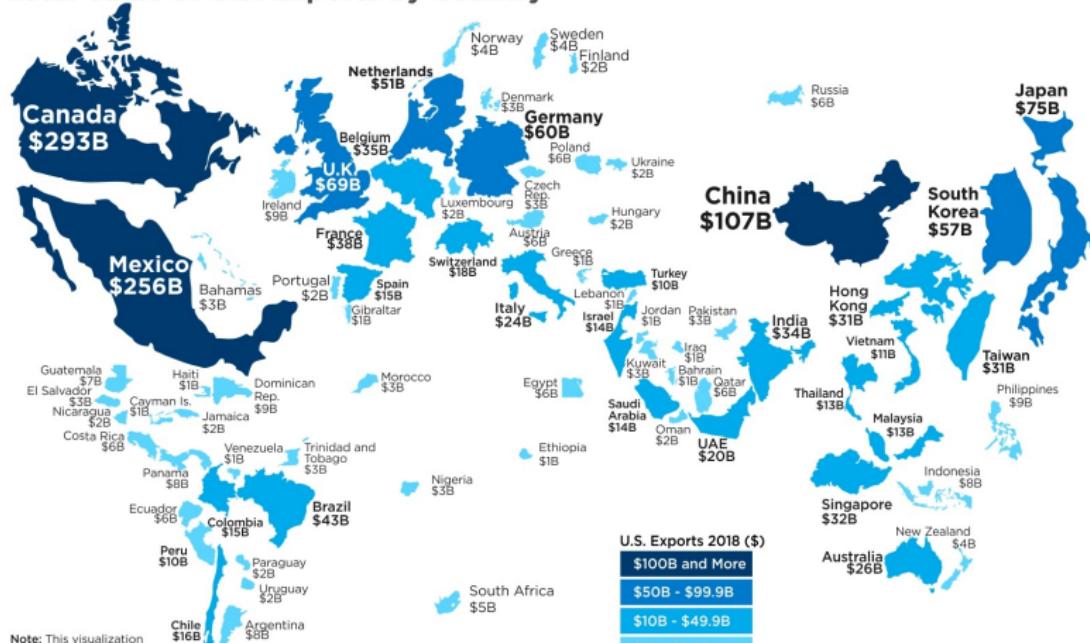
● 50 or more ● 10 - 50 ● 0 - 10 ● -50 - 0 ● less than -50 ● no data



https://www.imf.org/external/datamapper/BCA_NGDPD@WEO/OEMDC/ADVEC/WEOWORLD

United States' Biggest Exports

Total Value of U.S. Exports by Country



Note: This visualization shows countries where the U.S. has \$1 billion or more in exports.

How to read this map: Size and color of the countries correspond to the value of U.S. exports to those countries. Countries appear bigger and darker as the value of U.S. exports to those countries is higher. E.g. Canada.

Achieve & Sustain

Article & Sources:
<https://howmuch.net/articles/us-exports-imports-trade-balance>
United States Census Bureau: <https://www.census.gov/>

United States Census Bureau: <https://www.census.gov/>

<https://www.census.gov/>

howmuch.net

United States' Biggest Imports

Total Value of U.S. Imports by Country



Note: This visualization shows countries from where the U.S. imports \$1 billion or more of goods.

How to read this map: Size and color of the countries correspond to the value of U.S. imports from those countries. Countries appear bigger and darker as the value of U.S. imports from those countries is higher. E.g. China.

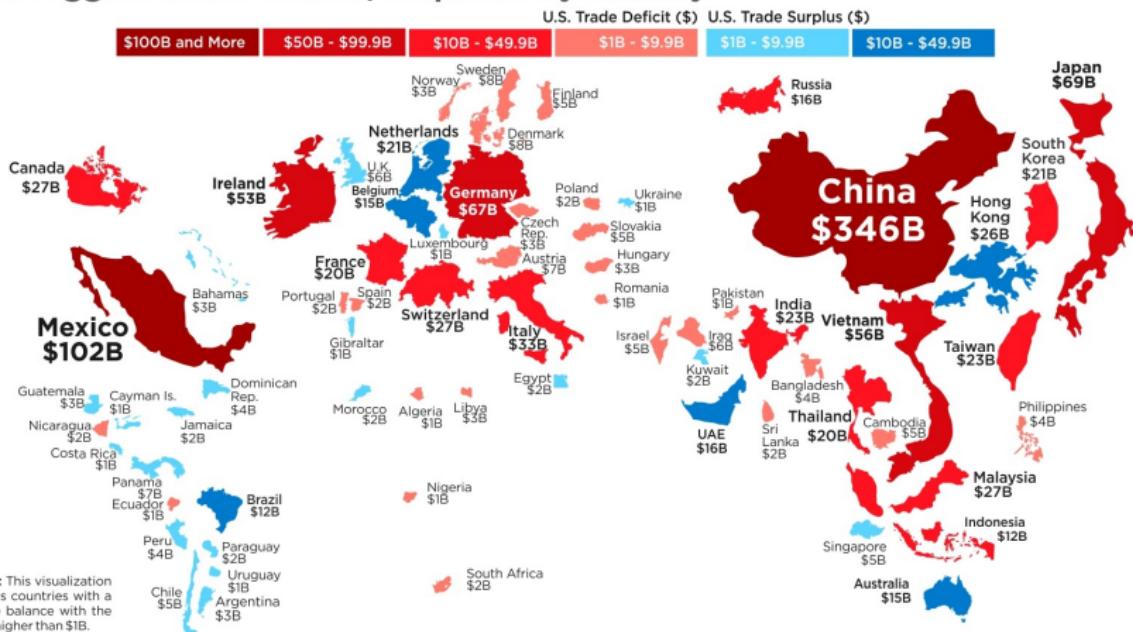
Article & Sources:

<https://howmuch.net/articles/us-exports-imports-trade-balance>
[United States Census Bureau - https://www.census.gov/](https://www.census.gov/)

<https://howmuch.net/articles/us-exports-imports-trade-balance>

United States' Trade Balance

U.S. Biggest Trade Deficits/Surpluses by Country



How to read this map: Size and color of the countries correspond to the value of trade balance with the U.S. Countries appear in red color if the U.S. imports more from those countries than it exports to the same. Countries appear bigger and darker red as the value of U.S. imports from those countries is higher. E.g. China. Countries appear in blue color if the U.S. exports more to those countries than it imports from the same. Countries appear bigger and darker blue as the value of U.S. exports to those countries is higher. E.g. Hong Kong.

Article & Sources:

<https://howmuch.net/articles/us-exports-imports-trade-balance>
 United States Census Bureau: <https://www.census.gov/>

<https://howmuch.net/articles/us-exports-imports-trade-balance>

Each State's Main Export Partner

Export Value & Percentage of Total State Exports in 2020



Article & Sources:

<https://howmuch.net/articles/each-states-main-export-partner>
United States Census Bureau - <https://www.census.gov/>

<https://howmuch.net/articles/each-states-main-import-partner>

howmuch .net

Each State's Main Import Partner

Import Value & Percentage of Total State Imports in 2020



Article & Sources:

<https://howmuch.net/articles/each-states-main-import-partner>
 United States Census Bureau - <https://www.census.gov/>

howmuch.net

<https://howmuch.net/articles/each-states-main-export-partner>

Top 5 U.S. Exports by Category

Category	Export Value (2020)
1. Capital goods, except automotive	\$1.84T
2. Industrial supplies and materials	\$1.82T
3. Consumer goods, except food and automotive	\$698.9B
4. Foods, feeds, and beverages	\$551.4B
5. Automotive vehicles, engines, and parts	\$515.8B

Top 5 U.S. Imports by Category

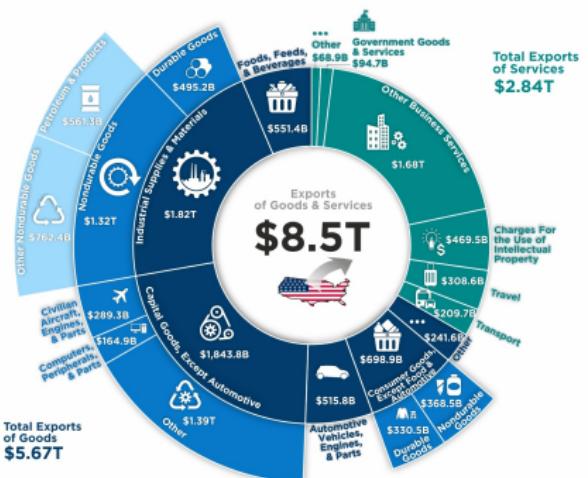
Category	Import Value (2020)
1. Capital goods, except automotive	\$2.59T
2. Consumer goods, except food and automotive	\$2.55T
3. Industrial supplies and materials	\$1.70T
4. Automotive vehicles, engines, and parts	\$1.25T
5. Foods, feeds, and beverages	\$622.2B

<https://howmuch.net/articles/us-exports-imports-of-goods-and-services-by-type-of-product>

U.S. Imports and Exports, 2020

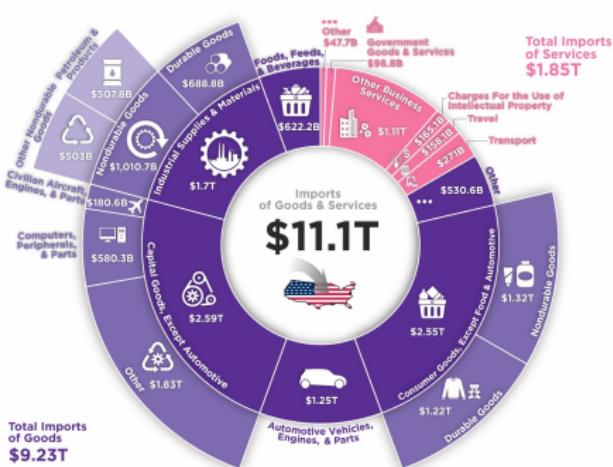
Exports of Goods & Services by Type of Product

Total Value of the U.S. Exports in 2020



Imports of Goods & Services by Type of Product

Total Value of the U.S. Imports in 2020



Article & Source:
<https://howmuch.net/articles/us-exports-imports-of-goods-and-services-by-type-of-product>
Bureau of Economic Analysis - <https://www.bea.gov/>

howmuch.net

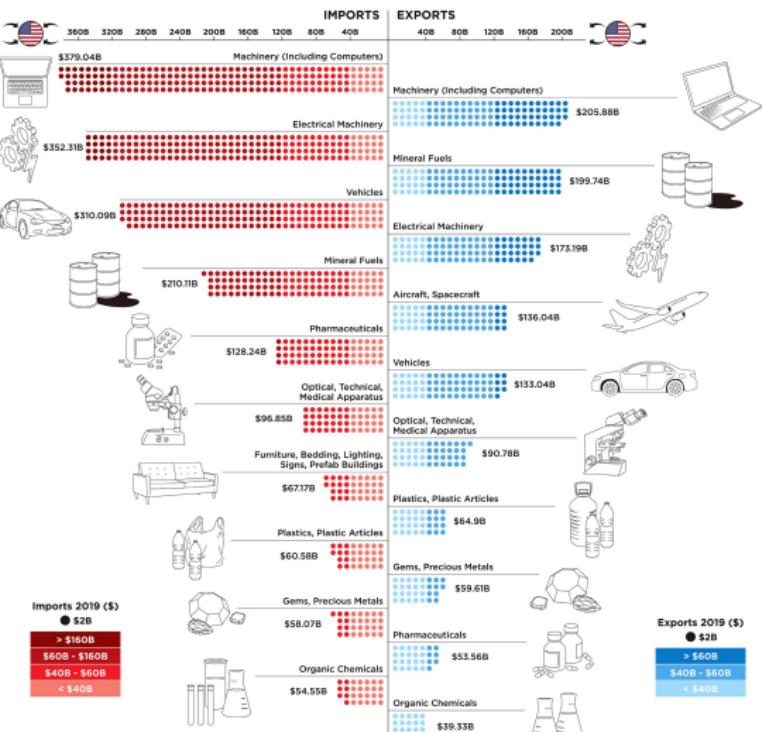
Article & Source:
<https://howmuch.net/articles/us-exports-imports-of-goods-and-services-by-type-of-product>
Bureau of Economic Analysis - <https://www.bea.gov/>

howmuch.net

<https://howmuch.net/articles/us-exports-imports-of-goods-and-services-by-type-of-product>

Top 10 Most Highly Traded Goods in the U.S.

Exports/Imports by Commodity Group in 2019

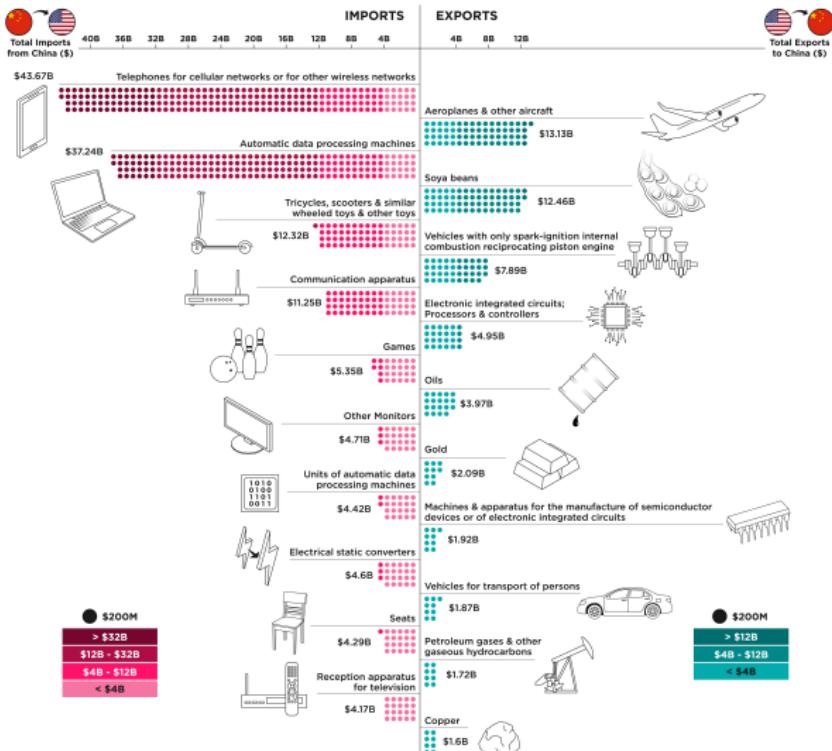


Articles & Sources:
<https://howmuch.net/articles/top10-most-traded-goods-us>
 International Trade Centre - <http://www.intarcen.org/>

howmuch.net

<https://howmuch.net/articles/top10-most-traded-goods-us>

Most Traded Goods Between U.S. & China



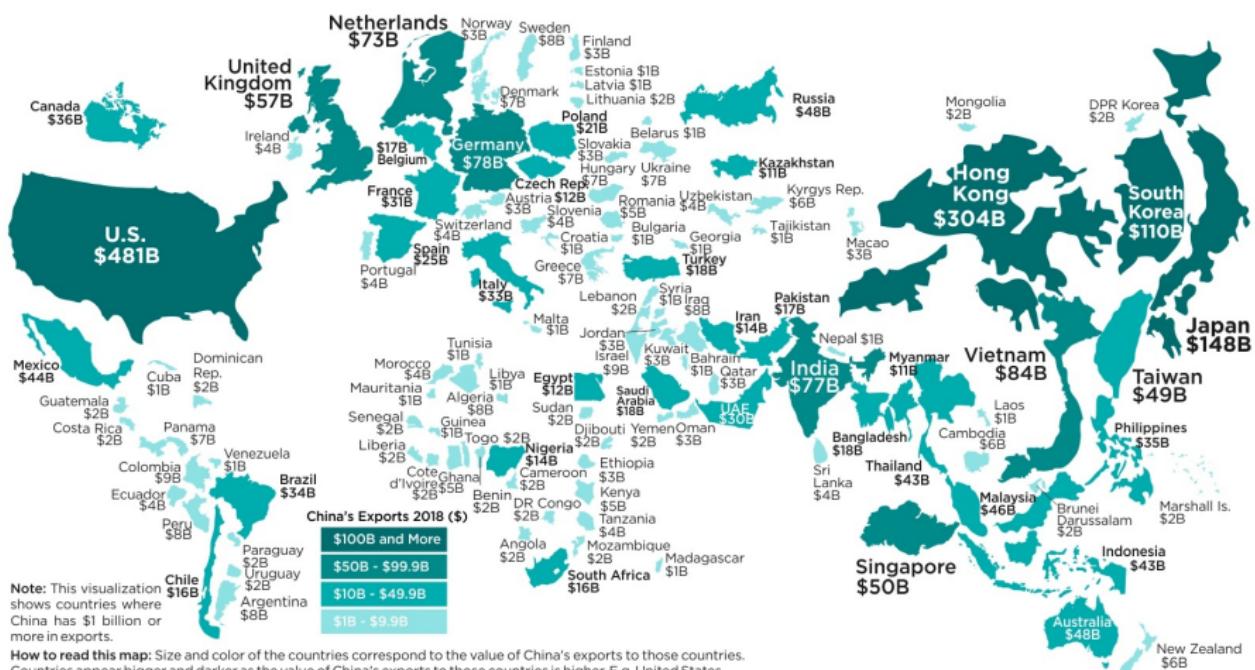
Articles & Sources:
<https://howmuch.net/articles/trade-goods-us-china>
Observatory of Economic Complexity (OEC) - <https://oeconomy.org>

howmuch.net

<https://howmuch.net/articles/trade-goods-us-china>

China's Biggest Exports

Total Value of China's Exports by Country

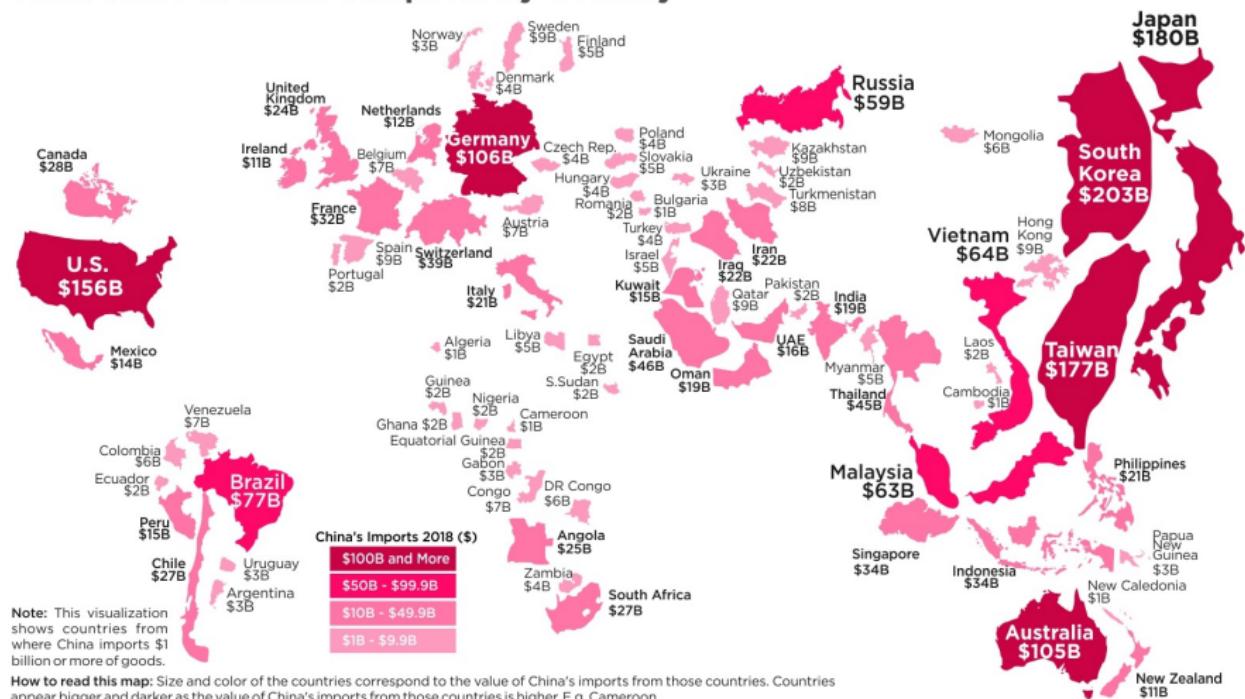


howmuch .net

<https://howmuch.net/articles/chinas-exports-imports-trade-balance>

China's Biggest Imports

Total Value of China's Imports by Country



How to read this map: Size and color of the countries correspond to the value of China's imports from those countries. Countries appear bigger and darker as the value of China's imports from those countries is higher. E.g. Cameroon.

Article & Sources:

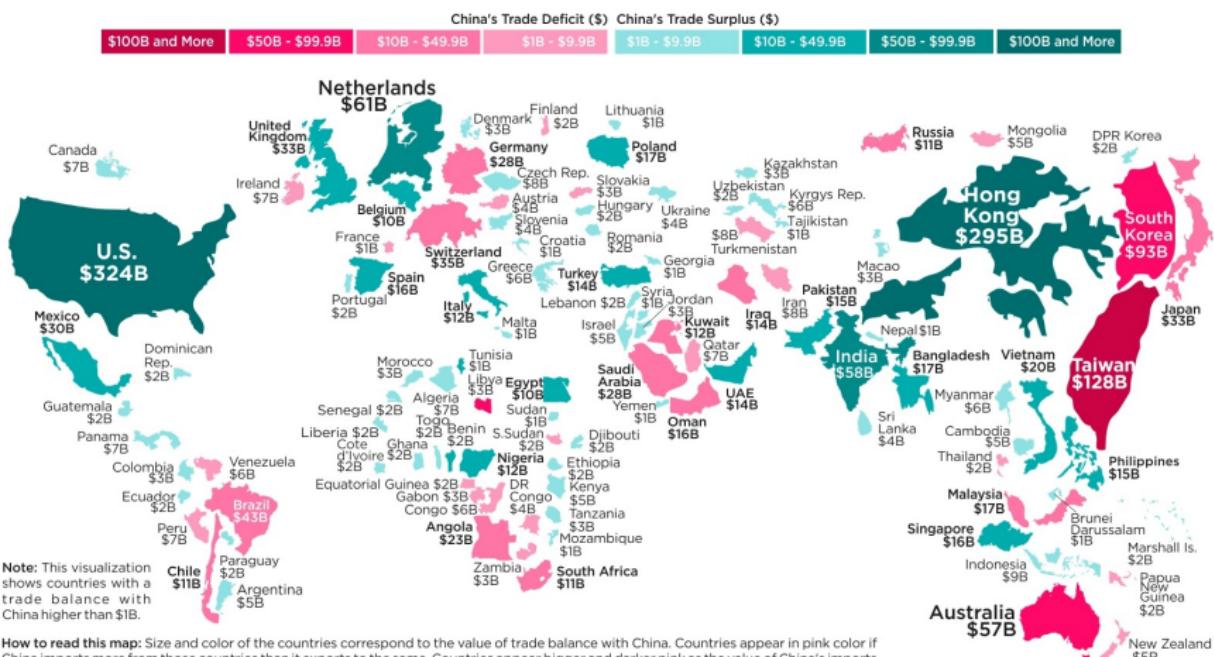
<https://howmuch.net/articles/chinas-exports-imports-trade-balance>
International Monetary Fund - <https://data.imf.org/>

howmuch .net

<https://howmuch.net/articles/chinas-exports-imports-trade-balance>

China's Trade Balance

China's Biggest Trade Deficits/Surpluses by Country



How to read this map: Size and color of the countries correspond to the value of trade balance with China. Countries appear in pink color if China imports more from those countries than it exports to the same. Countries appear bigger and darker pink as the value of China's imports from those countries is higher. E.g. Taiwan. Countries appear in turquoise color if China exports more to those countries than it imports from the same. Countries appear bigger and darker turquoise as the value of China's exports to those countries is higher. E.g. United States.

Article & Sources:

<https://howmuch.net/articles/chinas-exports-imports-trade-balance>
[International Monetary Fund - https://data.imf.org/](https://www.imf.org/)

howmuch.net

<https://howmuch.net/articles/chinas-exports-imports-trade-balance>

Trade Timelapse: USA vs. China

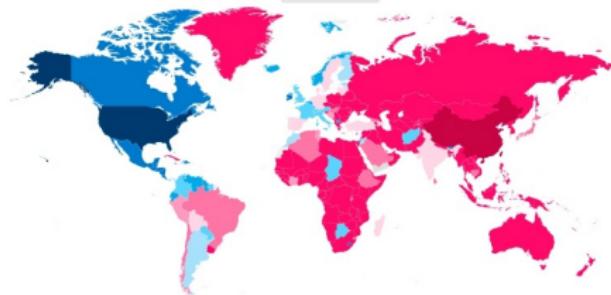
Each Country's Biggest Trading Partner by Year (1980 vs. 2018)



1980



2018



* Each country's biggest trading partner is determined by comparing its total amount of merchandise imports and exports with China and the U.S. The percentage represents the total trade ratio between China and the U.S. with each country.

Note: Countries shown must have U.S. or China trade data at minimum. Those in gray lack either.

Article & Sources:

<https://howmuch.net/articles/trade-timelapse-usa-china>
[International Monetary Fund - https://data.imf.org](https://data.imf.org)

howmuch.net

<https://howmuch.net/articles/trade-timelapse-usa-china>

Each Country's Top Export in World

**Product Category**

Animals	Clothing & Derivatives	Electrical Energy	Luxury Goods	Medical Goods	Ores	Wood	N/A
Chemicals	Drugs & Beverages	Food	Machinery	Vehicles	Other		

Article & Sources:

<https://howmuch.net/articles/top-export-around-the-world>

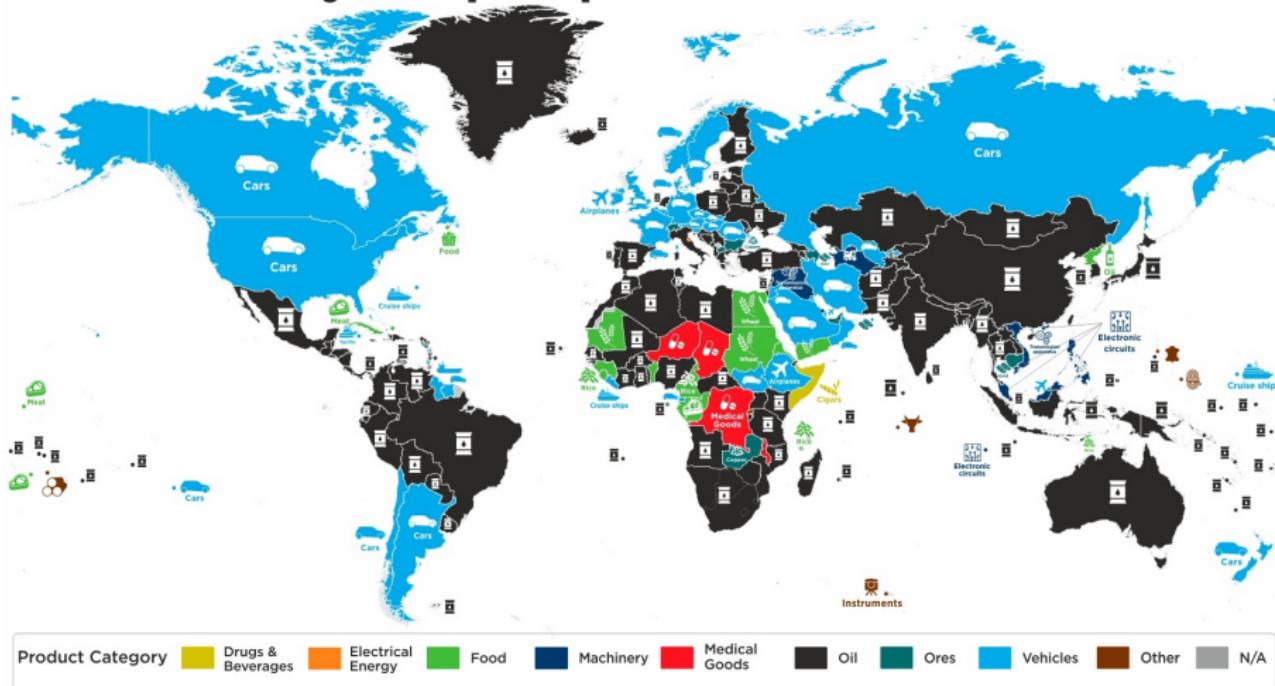
UN Comtrade Database 2018 - <https://comtrade.un.org>

CEPII - BACI - <http://www.cepii.fr/CEPII/>

howMuch.net

<https://howmuch.net/articles/top-export-in-every-country>

Each Country's Top Import in World

**Article & Sources:**

<https://howmuch.net/articles/top-import-around-the-world>
UN Comtrade Database 2018 - <https://comtrade.un.org>
CEPII - BACI - <http://www.cepii.fr/CEPII/>

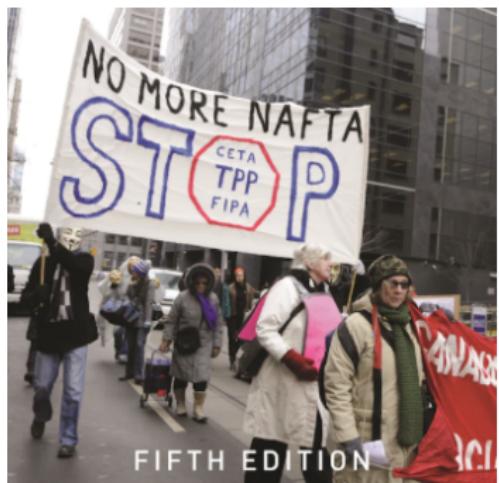
howMuch.net

<https://howmuch.net/articles/top-import-around-the-world>

OUTLINE

- ① World Trade Facts and Trends
- ② International Trade in PPF Model
- ③ Absolute and Comparative Advantage
- ④ Appendix

Free Trade under Fire 5E



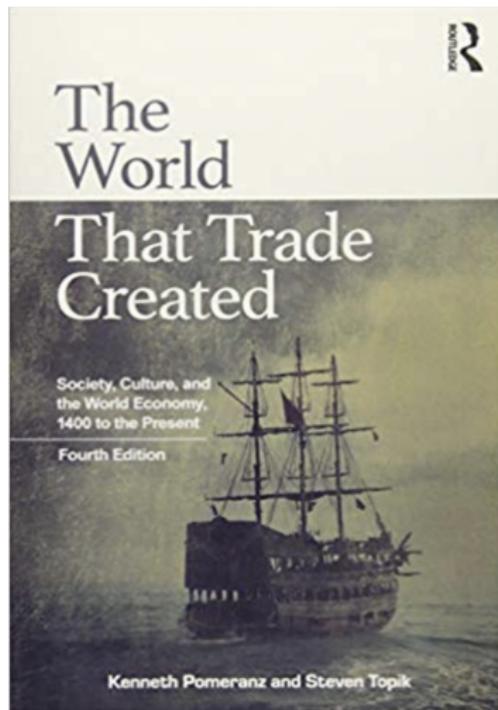
FREE TRADE UNDER FIRE

DOUGLAS A. IRWIN

Free trade is always under attack, more than ever in recent years. The imposition of numerous U.S. tariffs in 2018, and the retaliation those tariffs have drawn, has thrust trade issues to the top of the policy agenda. Critics contend that free trade brings economic pain, including plant closings and worker layoffs, and that trade agreements serve corporate interests, undercut domestic environmental regulations, and erode national sovereignty. Why are global trade and agreements such as the Trans-Pacific Partnership so controversial? Does free trade deserve its bad reputation? In *Free Trade under Fire*, Douglas Irwin sweeps aside the misconceptions that run rampant in the debate over trade and gives readers a clear understanding of the issues involved. The book has been updated to address the sweeping new policy developments under the Trump administration and the latest research on the impact of trade.

<https://press.princeton.edu/books/paperback/9780691201009/free-trade-under-fire>

The World that Trade Created 4E



Covering over seven hundred years of history, this book, now in its fourth edition, takes the reader around the world from the history of the opium trade to pirates, to the building of corporations and migration to the New World. It includes ten new essays, on topics ranging from the early modern ivory and slave trades across the Indian Ocean, to the ways in which the availability of new consumer goods helped change work habits in both Europe and East Asia, and from the history of chewing gum to that of rare earth metals.

References

<https://www.shipmap.org>

<https://www.trademap.org/Index.aspx>

https://www.wto.org/english/res_e/statis_e/statis_bis_e.htm

https://www.wto.org/english/res_e/statis_e/statis_maps_e.htm

<https://ourworldindata.org/trade-and-globalization>

http://en.wikipedia.org/wiki/Absolute_advantage

http://en.wikipedia.org/wiki/Comparative_advantage

<https://howmuch.net/articles/trade-goods-us-china>

Pierce, Justin R., and Peter K. Schott. 2020. "Trade Liberalization and Mortality: Evidence from US Counties." *American Economic Review: Insights*, 2 (1): 47-64.
<https://www.aeaweb.org/research/deaths-despair-trade-liberalization-china>

Reference: ECONLIB

CEE Encyclopedia <https://www.econlib.org/cee/>

Free Trade <https://www.econlib.org/library/Enc/FreeTrade.html>

Mercantilism <https://www.econlib.org/library/Enc/Mercantilism.html>

Protectionism <https://www.econlib.org/library/Enc/Protectionism.html>

Competitiveness <https://www.econlib.org/library/Enc/Competitiveness.html>

International Trade <https://www.econlib.org/library/Enc/InternationalTrade.html>

Balance of Payments <https://www.econlib.org/library/Enc/BalanceofPayments.html>

Comparative Advantage <https://www.econlib.org/library/Enc/ComparativeAdvantage.html>

International Capital Flows <https://www.econlib.org/library/Enc/InternationalCapitalFlows.html>

International Trade Agreements

<https://www.econlib.org/library/Enc/InternationalTradeAgreements.html>

Adam Smith (1723-1790) <https://www.econlib.org/library/Enc/bios/Smith.html>

David Ricardo (1772-1823) <https://www.econlib.org/library/Enc/bios/Ricardo.html>

Jacob Viner (1937) Studies in the Theory of International Trade. (w)

Douglas A. Irwin (2001) A Brief History of International Trade Policy. (w)

Morgan Rose (2001) A Brief History of the Concept of Comparative Advantage. (w)

Videos

201701 What would a U.S.-China trade war look like? | CNBC 4:23

<https://www.youtube.com/watch?v=gZFINBUxf6Y>

201907 What's happening with Trump's trade fights? | WSJ 5:41

<https://www.youtube.com/watch?v=o8VqxwJYTu0>

201911 America v China: why the trade war won't end soon | The Economist 9:17

https://www.youtube.com/watch?v=ErwIlvQ_RVk

201808 How do tariffs work? | CNBC Explains 4:57

<https://www.youtube.com/watch?v=LKCMnCZyxiQ>

201801 Why cities exist? 13:03 (specialization and trade)

<https://www.youtube.com/watch?v=IvAvHjYoLUU>

201110 Empires of Trade 5:51

<https://www.youtube.com/watch?v=ZgP7EEE1MM0>