

KRUGMAN | OBSTFELD | MELITZ
INTERNATIONAL
ECONOMICS
THEORY & POLICY



TENTH EDITION

ALWAYS LEARNING

Chapter 2

World Trade: An Overview

PEARSON



Preview

- Largest trading partners of CR, EU, and USA
- Gravity model:
 - influence of an economy's size on trade
 - Distance and other trade impediments
- Borders and trade agreements
- Globalization: then and now
- Changing composition of trade
- Service outsourcing

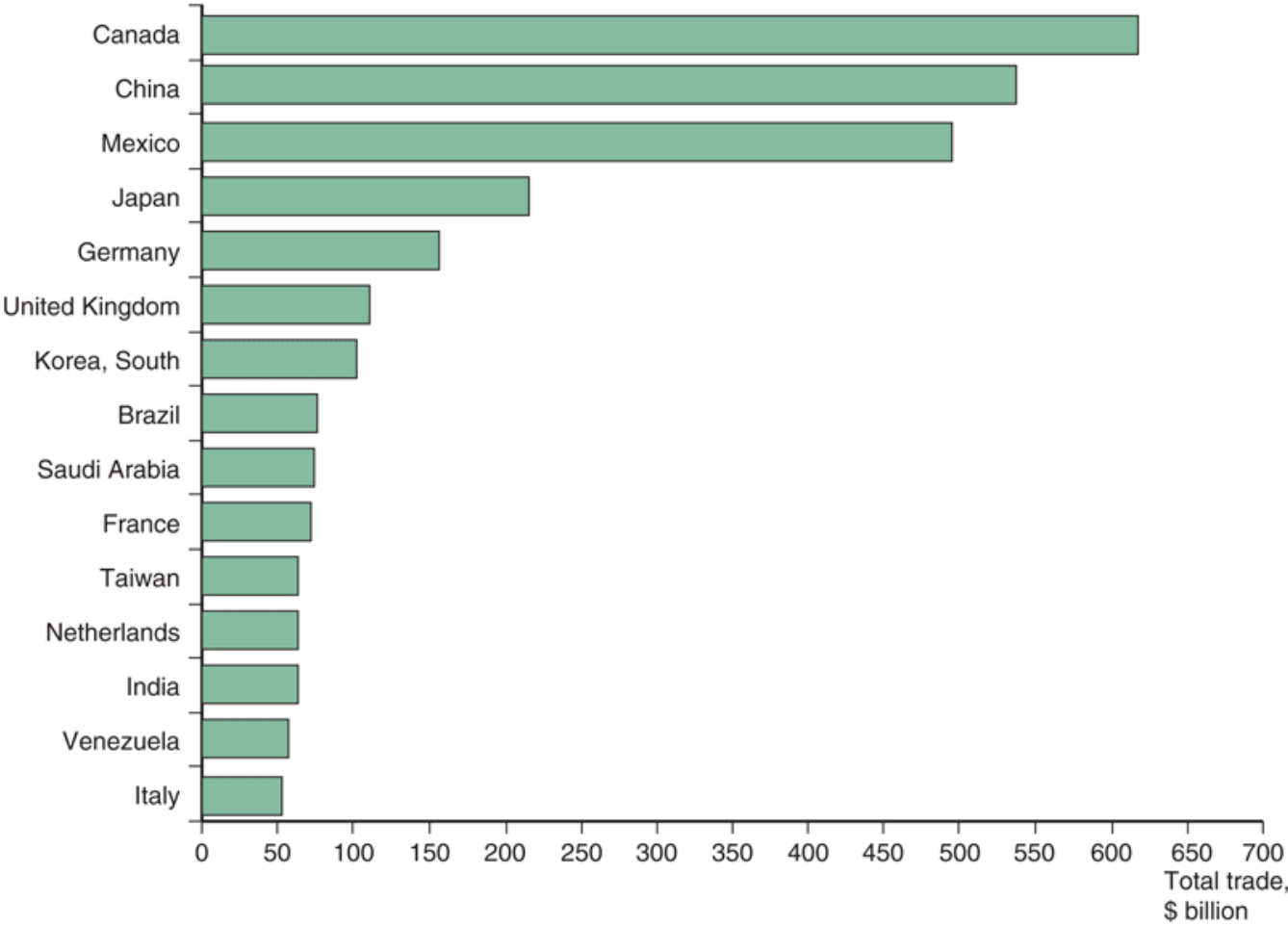


Who Trades with Whom?

- Largest trading partners of EU
 - European countries outside EU, China, USA, Japan
- Largest trading partners of USA (2012)
 - Canada, China, Mexico, Japan, and Germany.
 - The largest 15 trading partners with the U.S. accounted for 69% of the value of U.S. trade in 2012.
- Largest trading partners of CR
 - Germany, SR, China, Poland, France, Italy, Austria, Russia, the Netherlands, Great Britain



Fig. 2-1: Total U.S. Trade with Major Partners, 2012



Source: U.S. Department of Commerce.

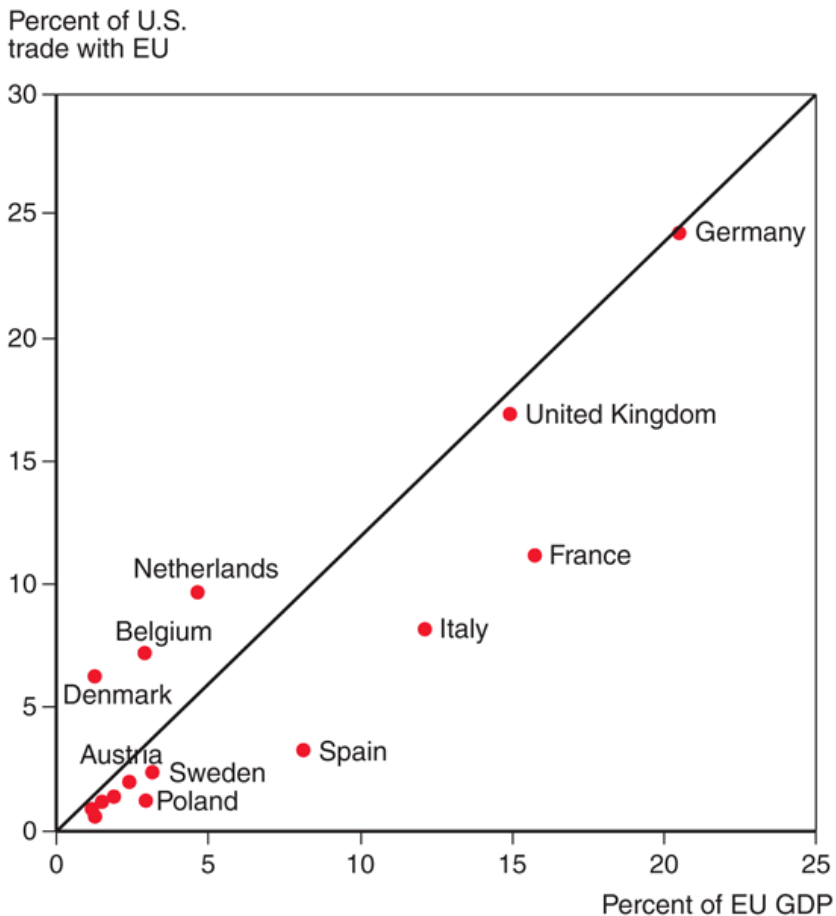


Size Matters: The Gravity Model

- 3 of the top 10 trading partners with the U.S. in 2012 were also the 3 largest European economies: Germany, the United Kingdom, and France.
- Why does the United States trade more with these European countries than with others?
 - The size of an economy is directly related to the volume of imports and exports.
 - Larger economies produce more goods and services, so they have more to sell in the export market.
 - Larger economies generate more income from the goods and services sold, so they are able to buy more imports.



Fig. 2-2: The Size of European Economies, and the Value of Their Trade with the United States



Source: U.S. Department of Commerce, European Commission.



Size Matters: The Gravity Model

- The gravity model assumes that size and distance are important for trade in the following way:

$$T_{ij} = A \times Y_i \times Y_j / D_{ij}$$

where

T_{ij} is the value of trade between country i and country j

A is a constant

Y_i the GDP of country i , Y_j is the GDP of country j

D_{ij} is the distance between country i and country j

- Or more generally

$$T_{ij} = A \times Y_i^a \times Y_j^b / D_{ij}^c$$

where a , b , and c are allowed to differ from 1.



Using the Gravity Model: Looking for Anomalies

- A gravity model fits the data on U.S. trade with European countries well but not perfectly.
- The Netherlands, Belgium and Ireland trade much more with the United States than predicted by a gravity model.
 - Ireland has strong cultural affinity due to common language and history of migration.
 - The Netherlands and Belgium have transport cost advantages due to their location.



Impediments to Trade: Distance, Barriers, and Borders

Other things besides size matter for trade:

1. *Distance* between markets influences transportation costs and therefore the cost of imports and exports.
2. *Cultural affinity*: close cultural ties, such as a common language, usually lead to strong economic ties.
3. *Geography*: ocean harbors and a lack of mountain barriers make transportation and trade easier.
4. *Multinational corporations*: corporations spread across different nations import and export many goods between their divisions.
5. *Borders*: crossing borders involves formalities that take time, often different currencies need to be exchanged, and perhaps monetary costs like tariffs reduce trade.



Impediments to Trade: Distance, Barriers, and Borders

- Estimates of the effect of distance from the gravity model predict that a 1% increase in the distance between countries is associated with a decrease in the volume of trade of 0.7% to 1%.
- Besides distance, borders increase the cost and time needed to trade.
- *Trade agreements* between countries are intended to reduce the formalities and tariffs needed to cross borders, and therefore to increase trade.

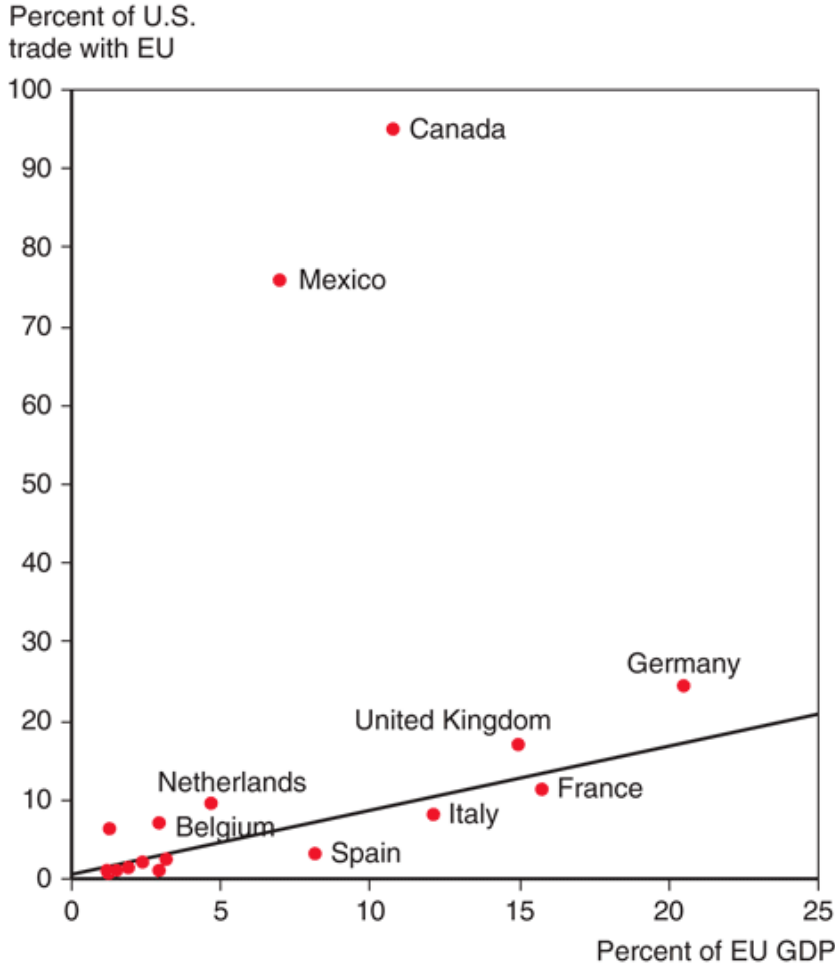


Impediments to Trade: Distance, Barriers, and Borders

- Gravity model is able to assess the impact of trade agreements on actual international trade.
 - Do trade agreements matter? Is there more trade among trading partners than one would otherwise predict given their GDPs and distances from one another?
- The U.S. signed a free trade agreement with Mexico and Canada in 1994, the North American Free Trade Agreement (NAFTA).



Fig. 2-3: Economic Size and Trade with the United States



Source: U.S. Department of Commerce, European Commission.

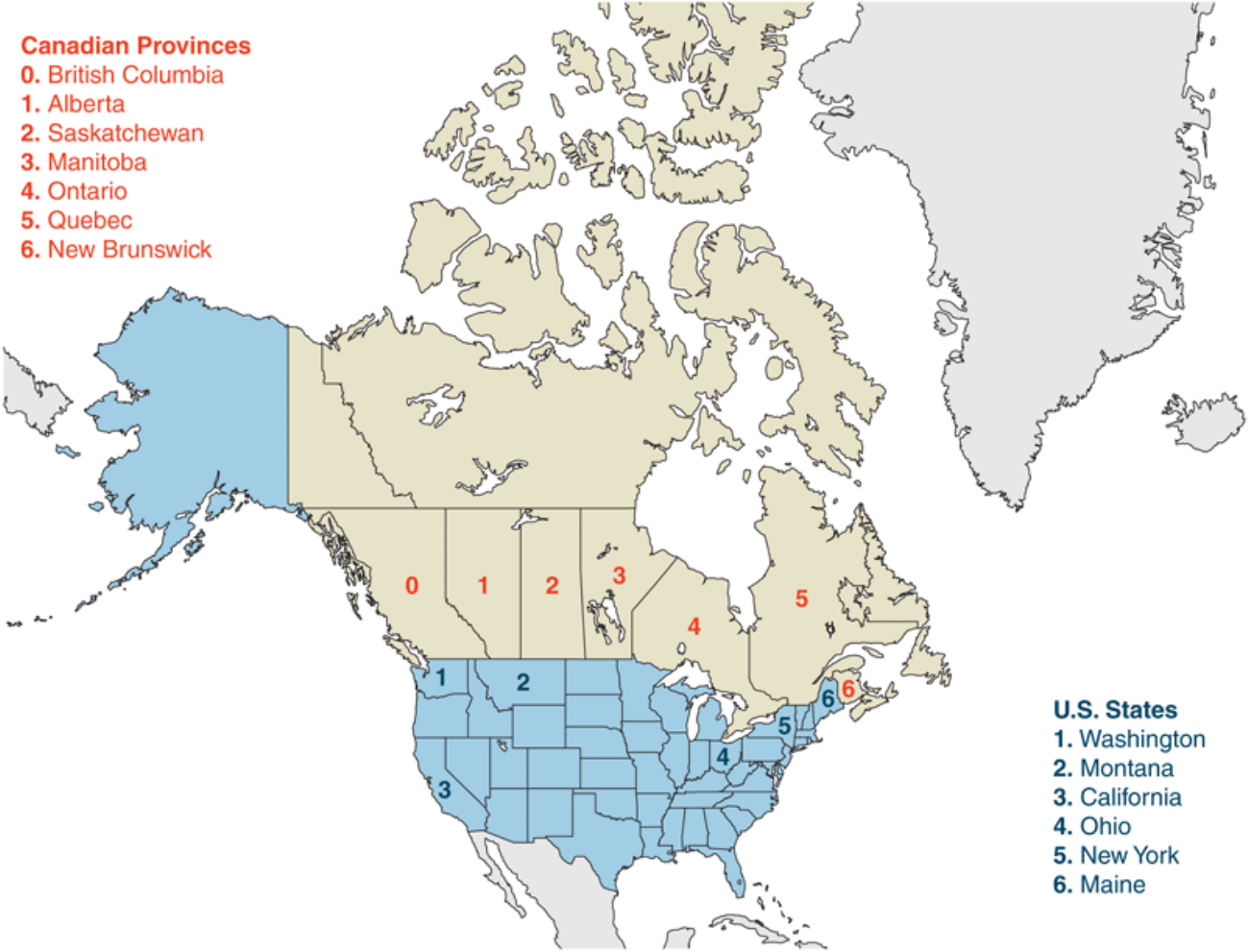


Impediments to Trade: Distance, Barriers, and Borders

- Yet even with a free trade agreement between the U.S. and Canada, which use a common language, the border between these countries still seems to be associated with a reduction in trade.
- Data shows that there is much more trade between pairs of Canadian provinces than between Canadian provinces and U.S. states, even when holding distance constant.
- Estimates indicate that the U.S.-Canadian border deters trade as much as if the countries were 1,500-2,500 miles apart.



Fig. 2-4: Canadian Provinces and U.S. States that Trade with British Columbia



Source: Statistics Canada, U.S. Department of Commerce.



Table 2-1: Trade with British Columbia, as Percent of GDP, 2009

Canadian Province	Trade as Percent of GDP	Trade as Percent of GDP	U.S. State at Similar Distance from British Columbia
Alberta	6.9	2.6	Washington
Saskatchewan	2.4	1.0	Montana
Manitoba	2.0	0.3	California
Ontario	1.9	0.2	Ohio
Quebec	1.4	0.1	New York
New Brunswick	2.3	0.2	Maine

Source: Statistics Canada, US Department of Commerce



The Changing Pattern of World Trade: Has the World Gotten Smaller?

- The negative effect of distance on trade according to the gravity models is significant, but has grown smaller over time due to modern transportation and communication.
- Technologies that have increased trade:
 - Wheels, sails, compasses, railroads, telegraph, steam power, automobiles, telephones, airplanes, computers, fax machines, Internet, fiber optics, personal digital assistants, GPS satellites...
- History tells us that political factors, such as wars, can change trade patterns much more than innovations in transportation and communication.

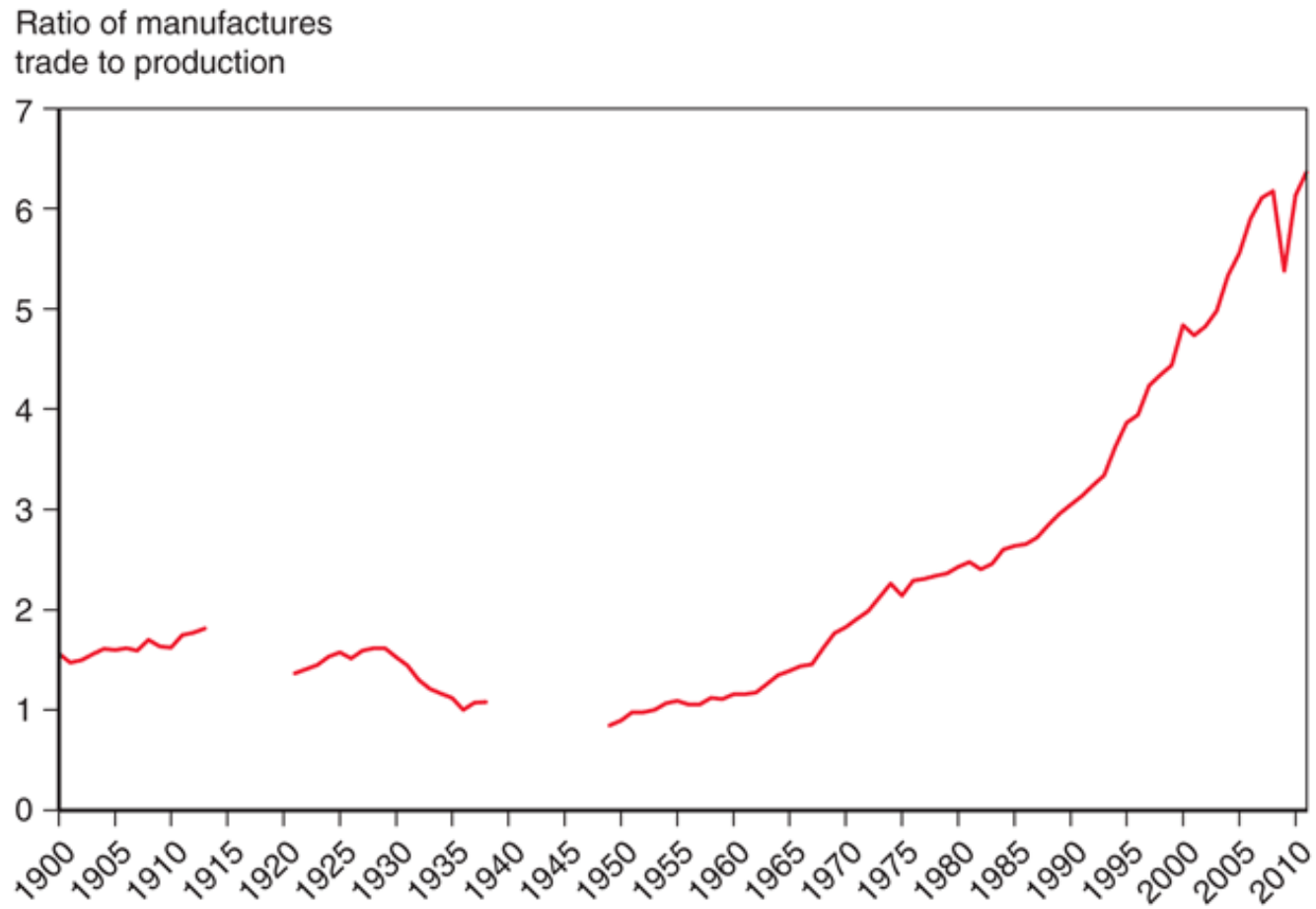


The Changing Pattern of World Trade: Has the World Gotten Smaller?

- World trade grew rapidly from 1870 to 1913.
 - Economic development based on steam engine, railroads, and telephones.
- Then it suffered a sharp decline due to the two world wars and the Great Depression.
- It started to recover around 1945 but did not recover fully until around 1970.
- Since 1970, world trade as a fraction of world GDP has achieved unprecedented heights.
 - Vertical disintegration of production has contributed to the rise in the value of world trade through extensive cross-shipping of components.



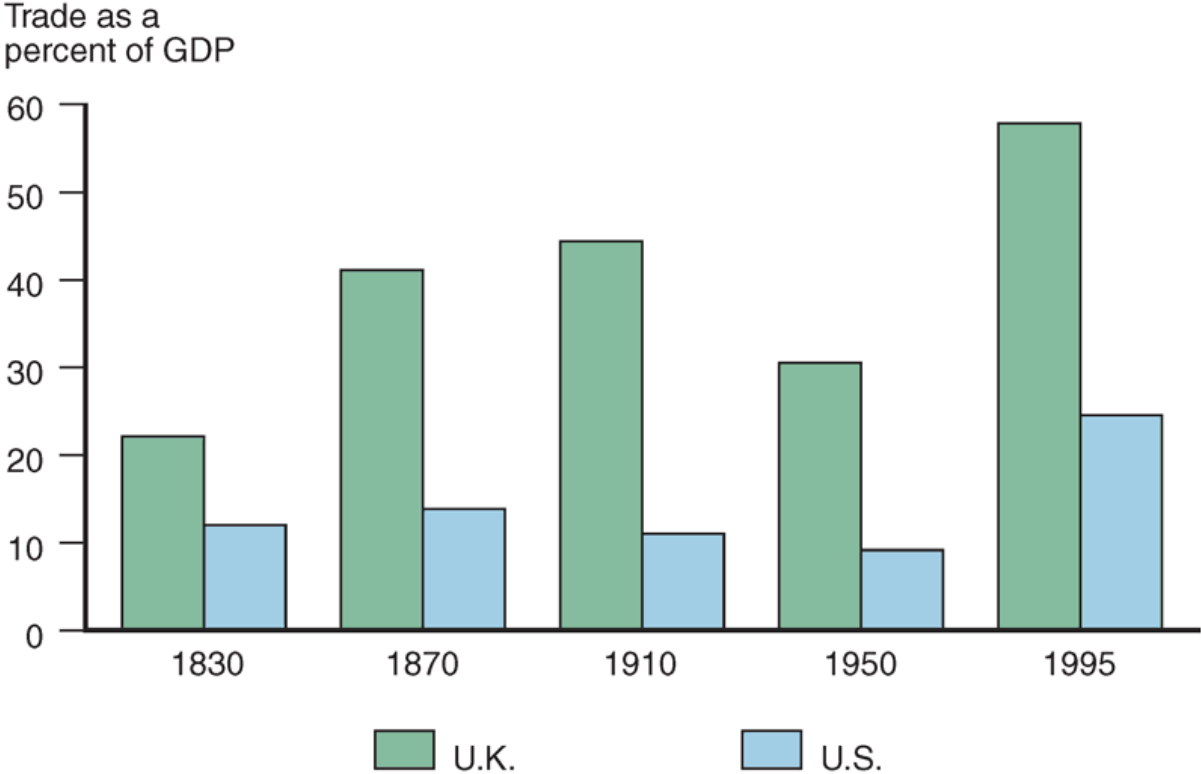
Fig. 2-5a: The Fall and Rise of World Trade



Source: UN Monthly Bulletin of Statistics, World Trade Organization



Fig. 2-5b: The Fall and Rise of World Trade



Source: Richard E. Baldwin and Phillippe Martin, “Two Waves of Globalization: Superficial Similarities, Fundamental Differences,” in Horst Siebert, ed., *Globalization and Labor* (Tubingen: Mohr, 1999).

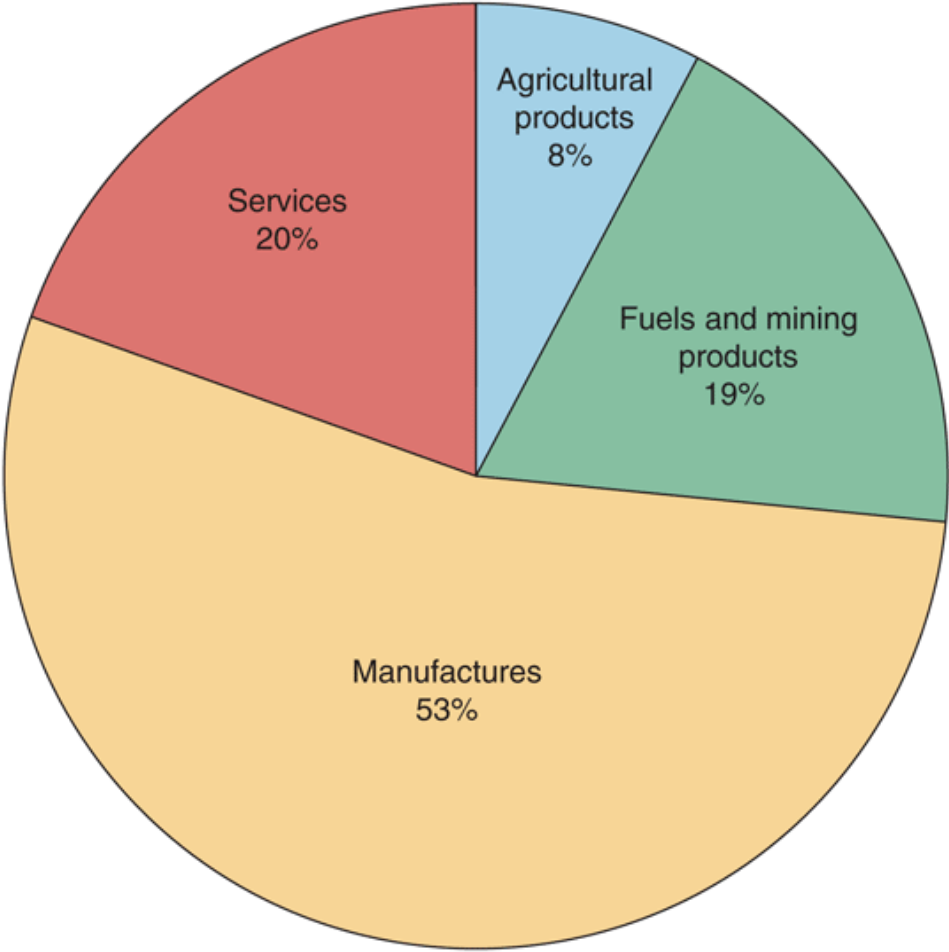


What Do We Trade?

- What kinds of products do nations trade now, and how does this composition compare to trade in the past?
- Today, most (about 53%) of the volume of trade is in *manufactured products* such as automobiles, computers, and clothing.
 - *Services* such as shipping, insurance, legal fees, and spending by tourists account for about 20% of the volume of trade.
 - *Mineral products* (ex., petroleum, coal, copper) remain an important part of world trade at 19%
 - *Agricultural products* are a relatively small (8%) part of trade.



Fig. 2-6: The Composition of World Trade, 2011



Source: World Trade Organization.



What Do We Trade?

- In the past, a large fraction of the volume of trade came from agricultural and mineral products.
 - In 1910, Britain mainly imported agricultural and mineral products, although manufactured products still represented most of the volume of exports.
 - In 1910, the U.S. mainly imported and exported agricultural products and mineral products.
 - In 2002, manufactured products made up most of the volume of imports and exports for both countries.



Table 2-2: Manufactured Goods as a Percent of Merchandise Trade

	United Kingdom		United States	
	Exports	Imports	Exports	Imports
1910	75.4	24.5	47.5	40.7
2011	72.1	69.1	65.3	67.2

Source: 1910 data from Simon Kuznets, *Modern Economic Growth: Rate, Structure and Speed*. New Haven: Yale Univ. Press, 1966. 2011 data from World Trade Organization.

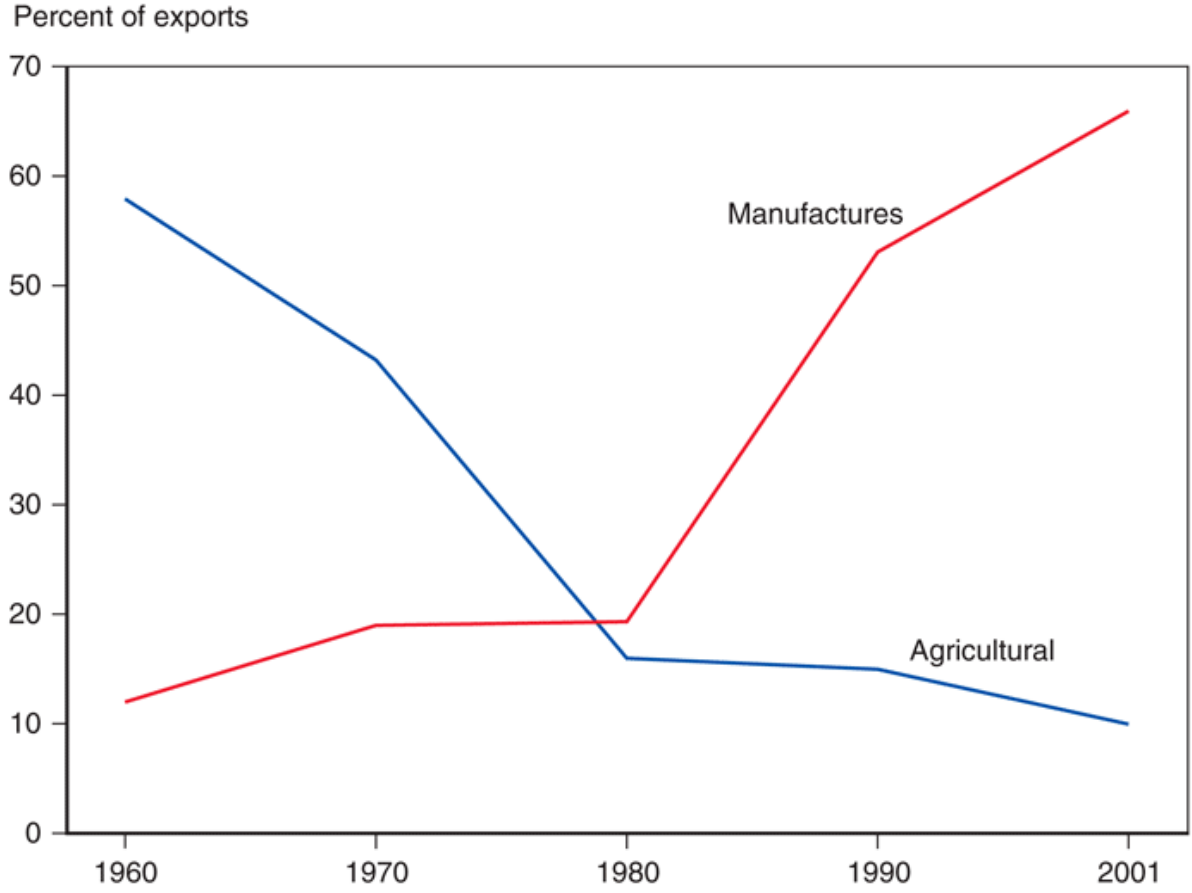


What Do We Trade?

- Low- and middle-income countries have also changed the composition of their trade.
 - In 1960, about 58% of exports from low- and middle-income countries were agricultural products and only 12% of exports were manufactured products.
 - In 2001, about 65% of exports from low- and middle-income countries were manufactured products, and only 10% of exports were agricultural products.
- More than 90 percent of the exports of China, the largest developing country and a rapidly growing force in world trade, consist of manufactured goods.



Fig. 2-7: The Changing Composition of Developing-Country Exports



Source: United Nations Council on Trade and Development.



Service Outsourcing

- **Service outsourcing (or offshoring)** occurs when a firm that provides services moves its operations to a foreign location.
 - Service outsourcing can occur for services that can be transmitted electronically.
 - A firm may move its customer service centers whose telephone calls can be transmitted electronically to a foreign location.
 - Other services may not lend themselves to being performed remotely.

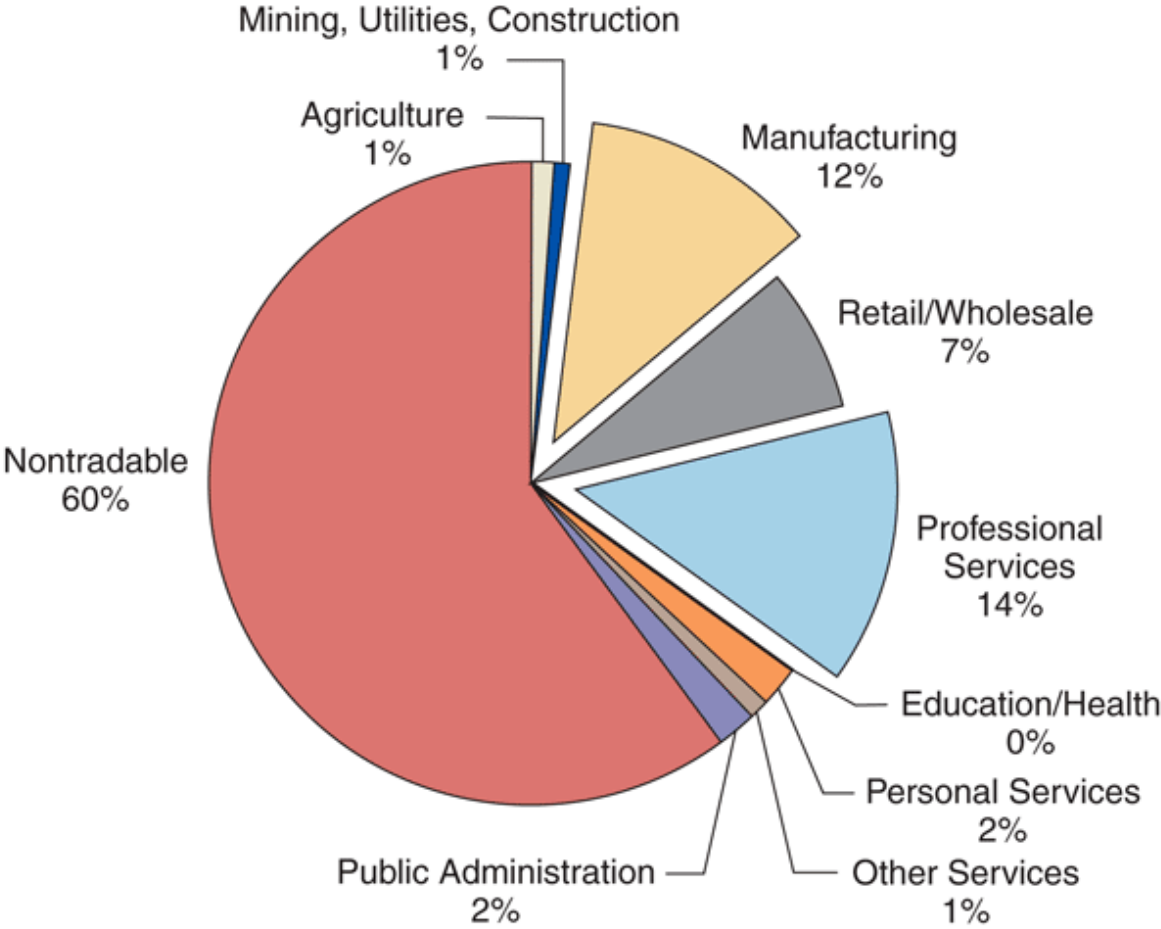


Service Outsourcing

- Service outsourcing is currently not a significant part of trade.
 - Some jobs are “tradable” (cca 19%) and thus have the *potential* to be outsourced.
 - For comparison, only cca 12% of jobs in manufacturing are “tradable” and thus have the *potential* to be outsourced.
 - Most jobs (about 60%) need to be done close to the customer, making them nontradable.



Fig. 2-8: Tradable Industries' Share of Employment



Source: J. Bradford Jensen and Lori. G. Kletzer, "Tradable Services: Understanding the Scope and Impact of Services Outsourcing," Peterson Institute of Economics Working Paper 5-09, May 2005.



Summary

1. The gravity model predicts that the volume of trade is directly related to the GDP of each trading partner and is inversely related to the distance between them.
2. Besides size and distance, culture, geography, multinational corporations, and the existence of borders influence trade.
3. Modern transportation and communication have increased trade, but political factors have influenced trade more in history.
4. Today, most trade is in manufactured goods, while historically agricultural and mineral products made up most of trade. Recently, trade in service has become increasingly important.