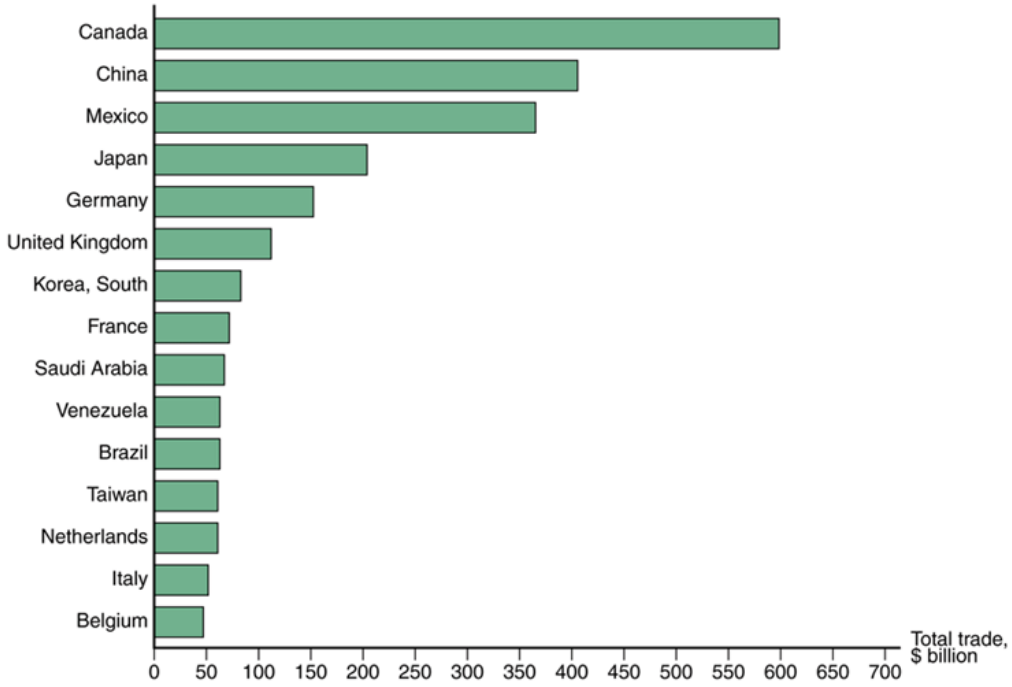
Chapter 2

- **2008: 30% of world production of goods & services ($50 Trillion) were traded.**

Who Trades with Whom?

- **The 5 largest trading partners with the U.S. in 2008 were Canada, China, Mexico Japan and Germany.**
- **The total value imports from and exports to Canada in 2008 was about $550 billion dollars.**
- **The largest 15 trading partners with the U.S. accounted for 69% of the value of U.S. trade in 2008.**

Fig. 2-1: Total U.S. Trade with Major Partners, 2008

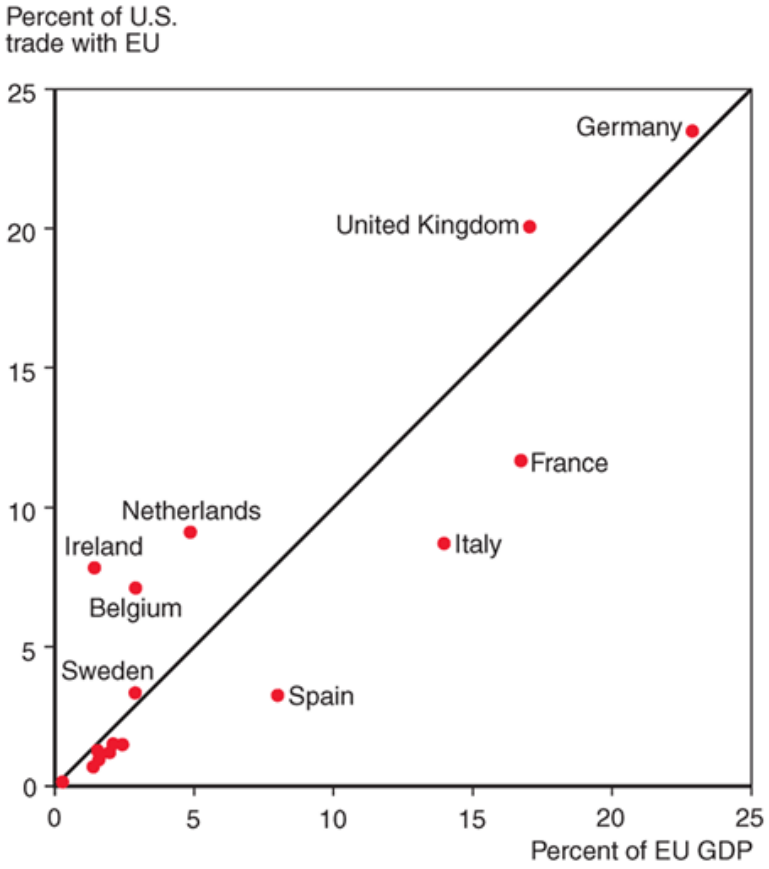


Size Matters: The Gravity Model

- 3 of the top 10 trading partners with the U.S. in 2008 were also the 3 largest European economies: Germany, UK, and France.
- These countries have the largest gross domestic product (GDP) in Europe.
- Why does the U.S. trade most with these European countries and not other European countries?

  In fact, 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 people are able to buy more imports.

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



- **In its basic form, the gravity model assumes that only 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***

Value of trade between ay two countries is proportional, other things equal, to the *product* of two countries ' GDPs, and diminish with the distance between the two countries.

- **In a slightly more general form, the gravity model that is commonly estimated is:**

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

where *a*, *b*, and *c* are allowed to differ from *1* (that allows to fit the actual data more closely). If *a*, *b*, and *c* are all equal to *1*, the equation would be the same as the above.

- **Perhaps surprisingly, the gravity model works fairly well in predicting actual trade flows, as the figure above representing U.S.–EU trade flows suggested.**

The Gravity Model

Other things besides size matter for trade:

1. ***Distance*** **between markets influences transportation costs and therefore the cost of imports and exports.**
   - **Distance may also influence personal contact and communication, which may influence trade.**

2. ***Cultural affinity*****: if two countries have cultural ties, it is likely that they also have 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 and perhaps monetary costs like tariffs.**
   - **These implicit and explicit costs reduce trade.**
   - **The existence of borders may also indicate the existence of different languages (see 2) or different currencies, either of which may impede trade more.**

Distance 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%.**

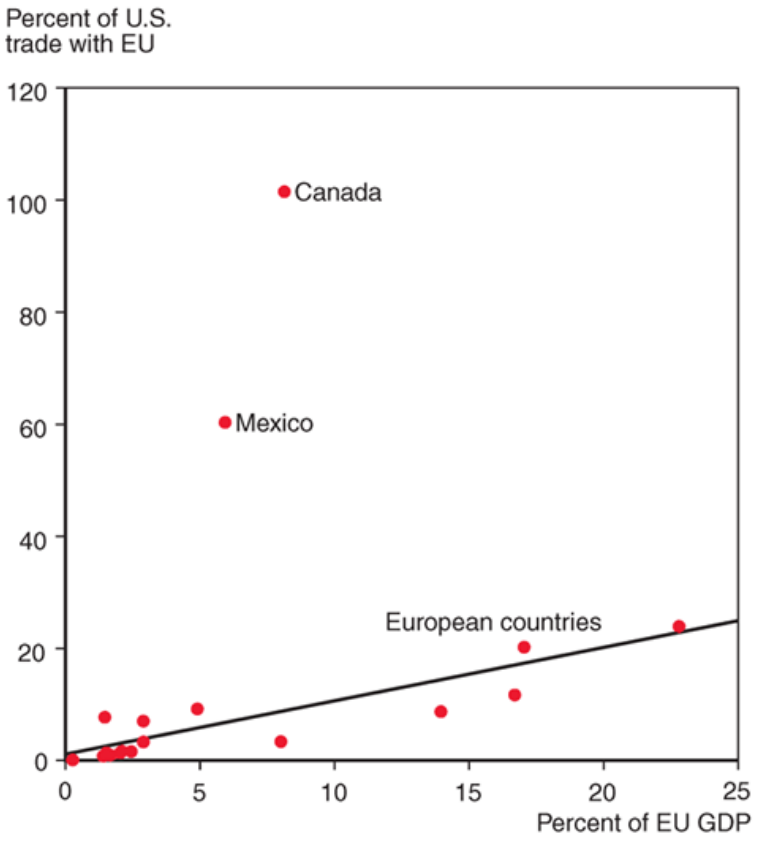
- **Besides distance, *borders* increase the cost and time needed to trade.**

- ***Trade agreements* between countries are intended to reduce the formalities and tariffs needed to cross borders, and therefore to increase trade.**

- **The gravity model can assess the effect of trade agreements on trade: does a trade agreement lead to significantly more trade among its 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).**

- **Because of NAFTA and because Mexico and Canada are close to the U.S., the amount of trade between the U.S. and its northern and southern neighbors as a fraction of GDP is larger than between the U.S. and European countries.**

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



- **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.**

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

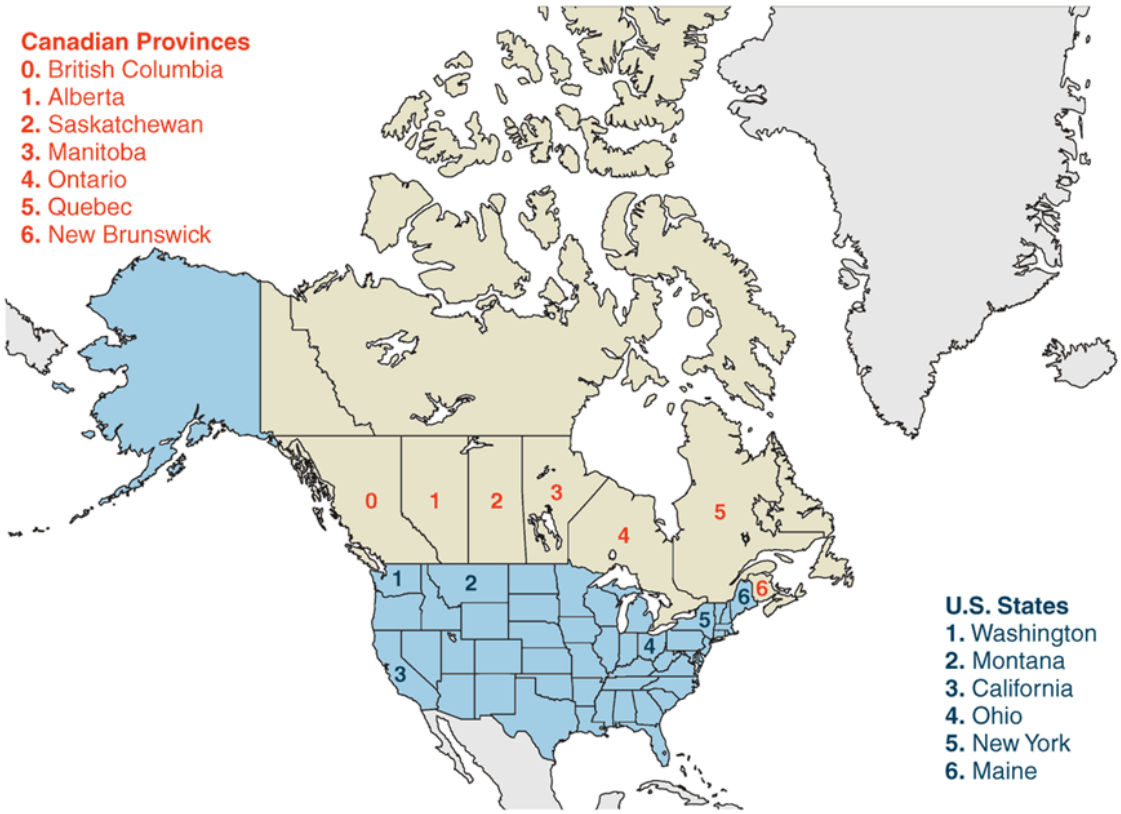


Table 2-3: Trade with British Columbia, as Percent of GDP, 1996

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: Howard J. Wall, "Gravity Model Specification and the Effects of the U.S.-Canadian Border," Federal Reserve Bank of St. Louis Working Paper 2000–024A, 2000.

Has the World Become "Smaller"?

- **The negative effect of distance on trade according to the gravity models is significant, but it has grown smaller over time due to modern transportation and communication.**

  Wheels, sails, compasses, railroads, telegraph, steam power, automobiles, telephones, airplanes, computers, fax machines, internet, fiber optics, personal digital assistants, GPS satellites… are technologies that have increased trade.

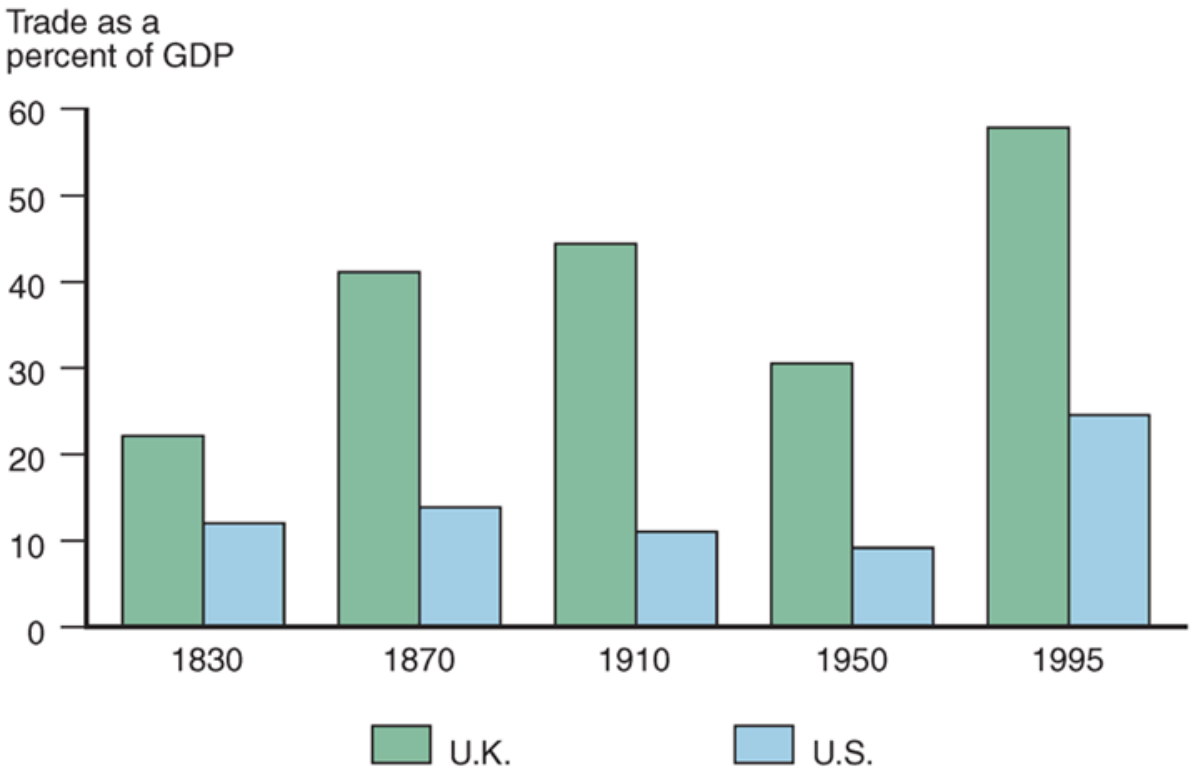
- **But history has shown that political factors, such as wars, can change trade patterns much more than innovations in transportation and communication.**

- **There were two waves of globalization.**

  - **1840–1914: economies relied on steam power, railroads, telegraph, telephones. Globalization was interrupted and reversed by wars, depression and protectionism.**

  - **1945–present: economies rely on telephones, airplanes, computers, internet, fiber optics, PDAs, GPS satellites…**

Fig. 2-5: The Rise, Fall, and Rise of International Trade Since 1830



- **Only in the last few decades has international trade become more important to the British economy than it was in 1910.**

- **Even today, international trade is less important for the U.S. than it was to the UK before 1910.**

Changing Composition of Trade

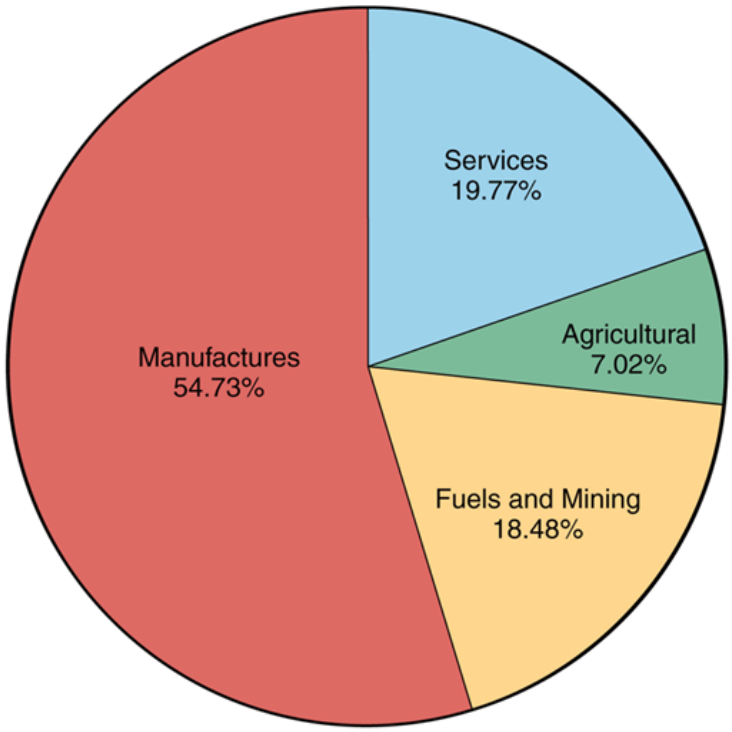
- **What kinds of products do nations currently trade, and how does this composition compare to trade in the past?**

- **Today, most of the volume of trade is in *manufactured products* such as automobiles, computers, clothing and machinery.**

  ***Services* such as shipping, insurance, legal fees, and spending by tourists account for 20% of the volume of trade. In recent years, modern communications, like call and help centres.**

  ***Mineral products* (ex., petroleum, coal, copper) and *agricultural products* are a relatively small part of trade.**

Fig. 2-5: The Composition of World Trade, 2008



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 2-3 **Manufactured Goods as Percent of Merchandise Trade**

	United Kingdom		United States	
	Exports	Imports	Exports	Imports
1910	75.4	24.5	47.5	40.7
2008	71.0	67.8	74.8	65.3

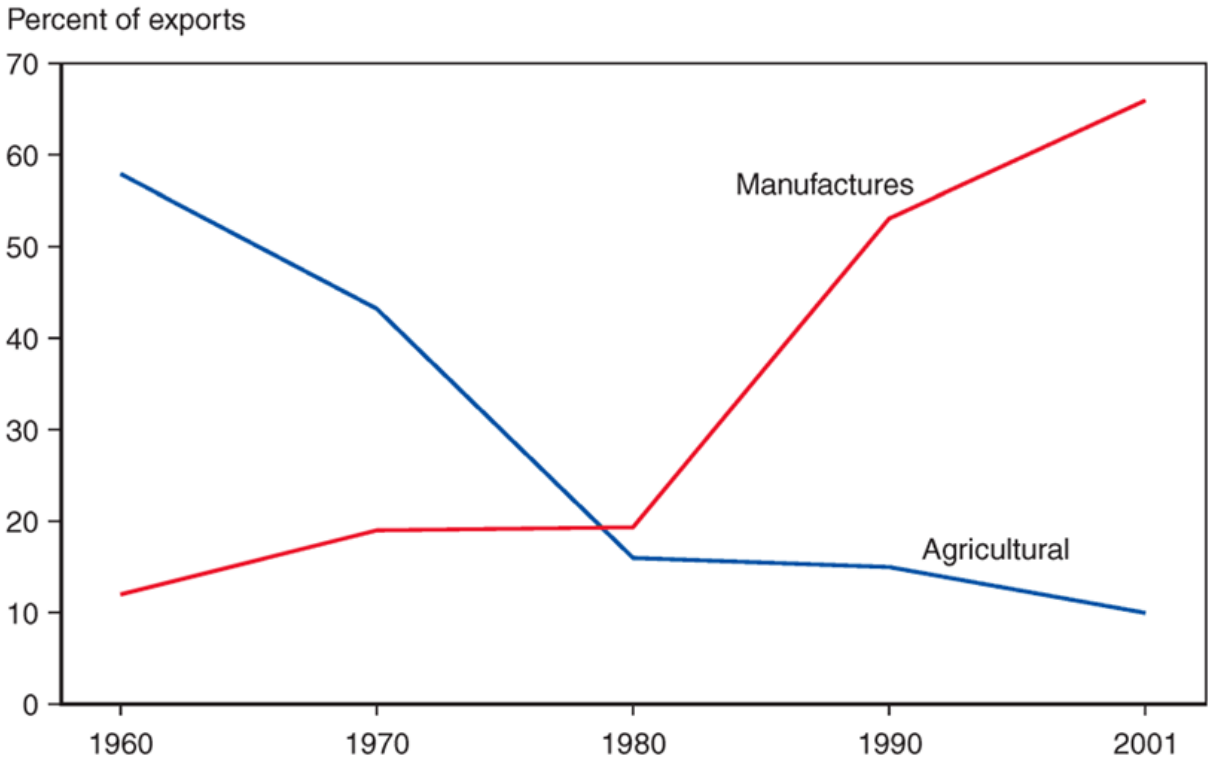
Source: 1910 data from Simon Kuznets, *Modern Economic Growth: Rate, Structure and Speed.* New Haven: Yale Univ. Press, 1966. 2008 data from World Trade Organization.

Low and middle-income countries have also changed the composition of their trade.

- **In 2001, about 65% of exports from low and middle-income countries were manufactured products, and only 10% of exports were agricultural products.**

- **In 1960, about 58% of exports from low and middle-income countries were agricultural products and only 12% of exports were manufactured products.**

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



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 performed and transmitted electronically.
    - For example, a firm may move its customer service centers whose telephone calls can be transmitted electronically to a foreign location.

- Service outsourcing is currently not a significant part of trade.
  - Some jobs are "tradable" and thus have the potential to be outsourced.
  - Most jobs are nontradable because they need to be done close to the customer.

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