

Chapter 2

World Trade: An Overview



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Preview

- Largest trading partners of the United States and Texas
- Gravity model of how economy's size, distance and other factors influence trade
- Borders and trade agreements
- Globalization then and now – is the world shrinking?
- Changing composition of trade
- Multinational corporations and outsourcing

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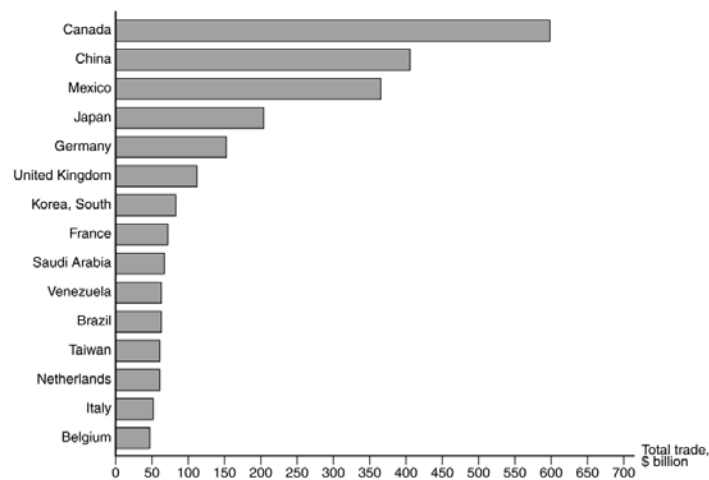
Who Trades with the United States?

- Five largest trading partners with the U.S. in 2008 were Canada, China, Mexico, Japan, and Germany (Mexico used to be ahead of China).
- The total value of imports from and exports to Canada (trade volume) in 2008 was about \$550 billion dollars (up from \$500B in 2005).
- The largest 15 trading partners with the U.S. accounted for 69% of the value of U.S. trade in 2008.

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



Source: U.S. Department of Commerce

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Who Trades with Whom? US 2008

Partner Country	Imports	Exports	Trade Balance	Trade Volume
Canada	335	222	-112	557B
China	338	67	-270	405B
Mexico	216	132	-85	348B
Japan	139	61	-78	200B
Germany	96	50	-46	146B

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Who Trades with Whom? US 2009

Partner Country	Imports	Exports	Trade Balance	Trade Volume
Canada	225	172	-53	396B
China	296	65	-230	361B
Mexico	176	106	-71	282B
Japan	96	47	-49	143B
Germany	70	40	-30	110B

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Who Trades with Whom? US 2010

Partner Country	Imports	Exports	Trade Balance	Trade Volume
Canada	276	206	-70	481B
China	364	86	-278	450B
Mexico	229	132	-97	360B
Japan	120	56	-64	176B
Germany	81	44	-36	125B

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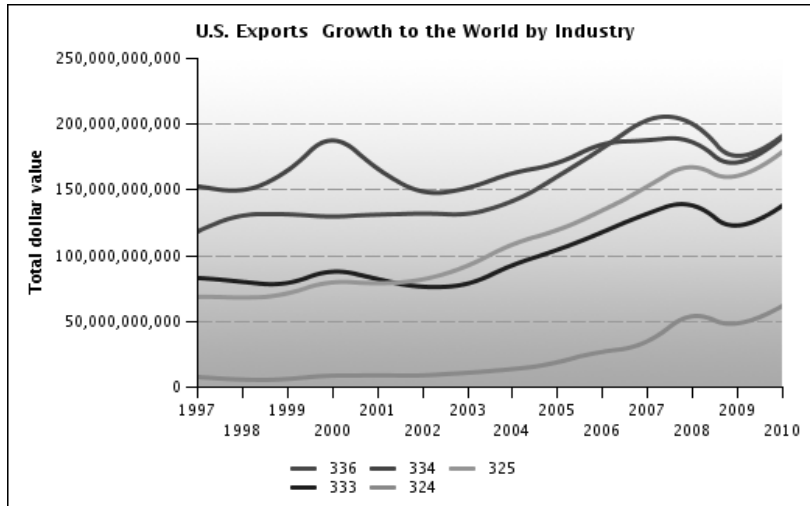
US Trade by Industry 2010

Industry	Imports	Exports	Trade Balance	Trade Volume
Electronic products	338	160	-178	498B
Transportation equipment	267	222	-45	489B
Energy-related products	338	85	-253	423B
Chemicals and related products	106	197	91	303B
Minerals and metals	156	110	-46	266B

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US Trade by Industry 1997-2010



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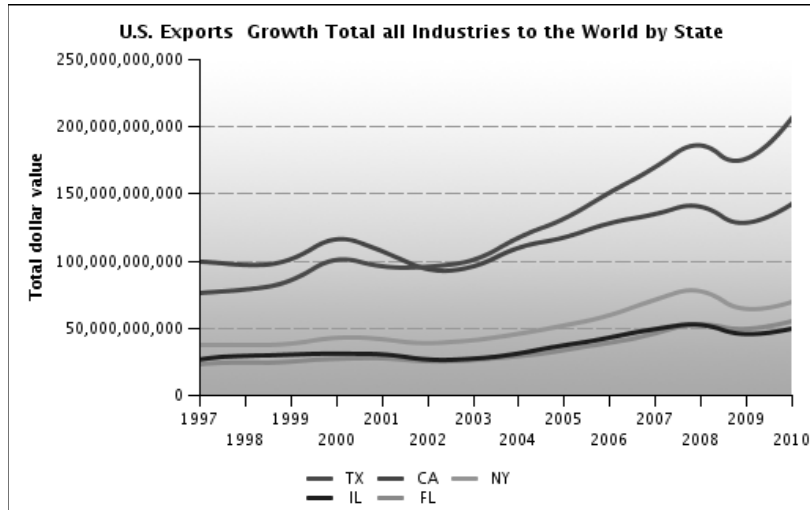
US Exports by State 2010

State Exports	2008	2009	2010	%2008 -2009	%2009 -2010
Texas	192	163	207B	-15.2	26.8
California	144	120	143B	-17.1	19.3
New York	81	59	68B	-27.8	15.2
Florida	54	47	55B	-13.6	17.8
Washington	54	52	53B	-4.9	2.7
<i>Total for All States</i>	<i>1,287</i>	<i>1,056</i>	<i>1,277B</i>	<i>-18.0</i>	<i>21.0</i>

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US Exports by State 1997-2010



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Who Trades with Whom? TX Exports

- Total Texas exports \$207B (16% of all US exports), highest of all states (California 143B, New York 68B) in 2010 (has been the biggest exporter ever since 2002).
- Texas exports fell at a slower rate than the US as a whole in 2009 and recovered faster in 2010.
- If Texas were a nation, would rank among top 20 exporting countries (FRBD 2007).

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Who Trades with Whom? TX Exports

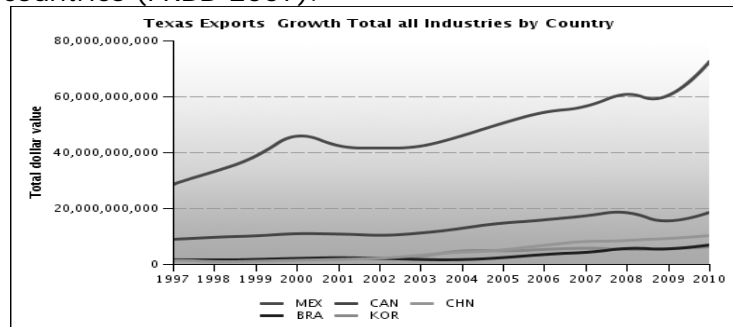
- Compared to US, Texas exports a larger share of its output, depends on exports for more of its jobs, sends more sophisticated products overseas and employs higher-skilled workers in export-related jobs (FRBD 2007).

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Who Trades with Whom? TX Exports

- Top three destinations: Mexico 73B (35%), Canada 19B (9%), China 10B (5%) in 2010.
 - Texas lags California and US in diversification across countries (FRBD 2007).

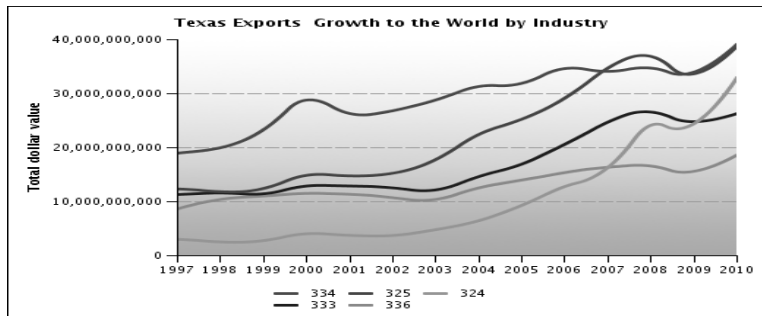


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Who Trades with Whom? TX Exports

- Top five industries: Computers and electronic parts 39B, Chemicals 39B, Petroleum and coal 33B, Machinery except electrical 26B, Transportation equipment 19B in 2010.



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Who Trades with Whom? TX Imports 2004

- Total Texas imports \$202B in 2004.
- \$109B from Mexico
- Venezuela, Saudi Arabia and China next with \$8-9B each
- Canada not in top 10 countries of origin for Texas imports

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Size Matters: The Gravity Model

- 3 of the top 10 trading partners with the U.S. are the 3 largest European economies: Germany, U.K., and France.
- These countries have the largest **gross domestic product (GDP)** in Europe.
 - GDP measures the value of goods and services produced in an economy.
- Why does the U.S. trade most with these European countries and not other European countries?

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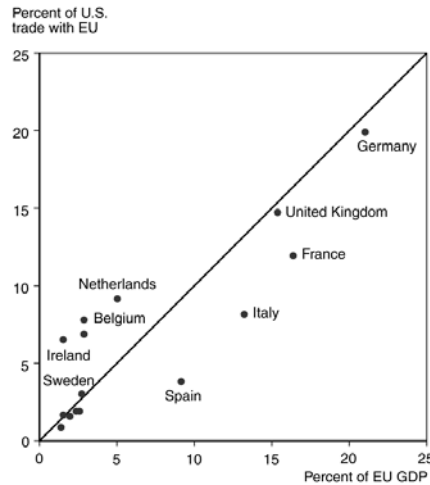
Size Matters: The Gravity Model (cont.)

- 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.

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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
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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.

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The Gravity Model (cont.)

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.

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The Gravity Model (cont.)

- 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

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The Gravity Model (cont.)

- 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.

- Despite its simplicity, the gravity model works fairly well in predicting actual trade flows, as the figure above representing U.S.–EU trade flows suggested.

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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%.

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Distance and Borders (cont.)

- 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?

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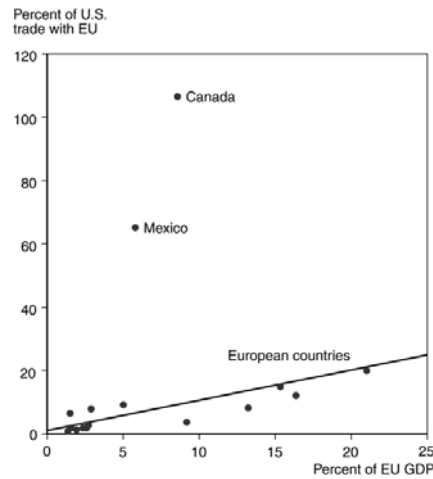
Distance and Borders (cont.)

- 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.

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



Source: U.S. Department of Commerce, European Commission.
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Distance and Borders (cont.)

- 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.

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



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Table 2-1: Trade with British Columbia, as Percent of GDP, 1996

TABLE 2-1 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.

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Has the World Become "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...

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Has the World Become "Smaller"? (cont.)

- Political factors, such as wars, can change trade patterns much more than innovations in transportation and communication.
- World trade grew rapidly from 1870 to 1913.
 - 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.

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Table 2-2: World Exports as a Percentage of World GDP

1870	4.6
1913	7.9
1950	5.5
1973	10.5
1998	17.2

Source: Angus Maddison, *The World Economy: A Millennial Perspective*, World Bank, 2001.

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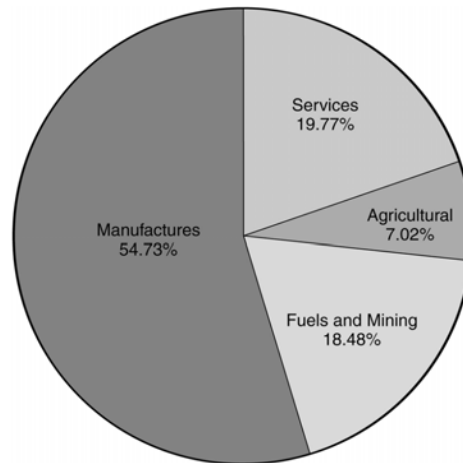
Changing Composition of Trade

- What kinds of products do nations trade now, and how does this composition compare to trade in the past?
- Today, most (about 55%) 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 about 20% of the volume of trade.
 - *Mineral products* (ex., petroleum, coal, copper) and *agricultural products* are a relatively small part of trade.

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



Source: World Trade Organization

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Changing Composition of Trade (cont.)

- 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.

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Table 2-3: Manufactured Goods as a Percent of Merchandise Trade

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.

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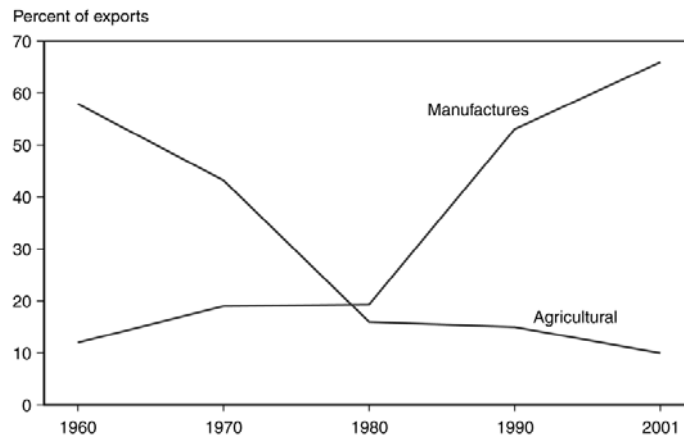
Changing Composition of Trade (cont.)

- 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.

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Fig. 2-6: The Changing Composition of Developing-Country Exports



Source: United Nations Council on Trade and Development

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Multinational Corporations and Offshoring

- Before 1945, **multinational corporations** (firms with activities in multiple countries) played a small role world trade.
- Today about one third of all US exports and 42% of all US imports are sales from one division of a multinational corporation to another.

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Offshoring

- **Offshoring (or outsourcing)** occurs when a firm 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.

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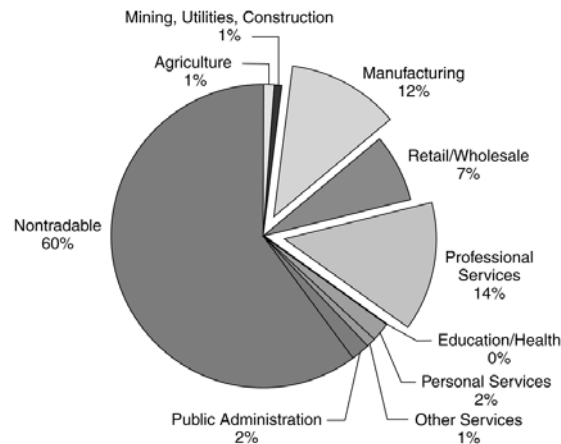
Offshoring (cont.)

- 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.

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Fig. 2-7: 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
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Summary

1. The 5 largest trading partners with the U.S. are Canada, China, Mexico, Japan, and Germany.
2. Top traded goods by volume for the U.S. are electronic products, transportation equipment, energy-related products, chemicals and related products, minerals and metals.
3. U.S. exports fell in 2009 and recovered in 2010. Texas exports fell less and recovered faster than the U.S. as a whole.

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Summary (cont.)

4. Texas exports \$207B, 16% of all U.S. exports.
5. The largest economies in the EU undertake the largest fraction of the total trade between the EU and the U.S.
6. 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.

Summary (cont.)

7. Besides size and distance, culture, geography, multinational corporations, and the existence of borders influence trade.
8. Modern transportation and communication have increased trade, but political factors have influenced trade more in history.
9. Today, most trade is in manufactured goods, while historically agricultural and mineral products made up most of trade.