CHAPTER 5: THE UNITED STATES IN THE GLOBAL ECONOMY

Introduction
Globalization has dramatically changed markets, as producers and consumers around the world are increasingly interconnected through markets. Chapter 5 introduces the global economy by describing the importance of comparative advantage in determining trade patterns, identifying the causes and effects of changing currency values, and explaining the history of government intervention in international trade. Material from Chapter 5 consistently appears on both AP economics exams, with a question or two about comparative advantage and specialization appearing on the multiple-choice portion of the microeconomics exam. Material on comparative advantage, international trade, and currency markets consistently appears on the macroeconomics exam in both multiple-choice and free-response sections. The macroeconomics free-response section, in particular, very often includes a full question or a portion of the larger first question on currency markets or comparative advantage.

U.S. Connections in International Trade
Nations are interconnected through a vast array of markets, including imports and exports of products and resources, migration of workers, information and technology flows, and financial transactions. International trade results from differences in resources and the efficiency with which nations can produce products. International trade has increased significantly since World War II, primarily due to improvements in transportation and communication technology and reduced tariffs and other trade barriers among nations.

The United States is the leading trading nation in both imports and exports, and both have increased significantly over the past several decades. However, the United States now produces a smaller percentage of the world’s exports because the exports of other countries have grown more quickly. Leading U.S. exports include chemicals, agricultural goods, and consumer durable goods, while the main U.S. imports include petroleum, autos, and electronics. Canada is our most important trading partner, followed by countries belonging to the European Union, Mexico, China, Japan, and countries belonging to OPEC.

The Balance of Trade
A trade surplus results when a nation exports more than it imports. Trade deficits occur when imports exceed exports. The United States has had trade deficits since the early 1980s.

Bear in Mind
The AP economics exams have not included questions requiring knowledge of specific international trade statistics. It is important, though, to understand trends such as increasing imports and exports and the persistent U.S. trade deficit.

Specialization and Trade
Nations open their economies to trade in order to import products they cannot produce domestically or products they can buy at a lower price than the cost of producing them domestically. Just as individuals specialize in careers and buy other products they need, countries specialize in what they produce most efficiently and then trade for other goods. Economist Adam Smith explained that specialization and trade allow nations to use their resources more efficiently, increasing world output. Economist David Ricardo explained that a nation can benefit from trade, even if that nation has an absolute advantage—the ability to produce more of all products than another country. He said that the focus instead should be on comparative advantage—the ability to produce more efficiently.
Comparative Advantage: The Example of Individuals
Assume Cameron is an architect earning $40 per hour. He wants to develop a website for his business and estimates it would take him 20 hours to bring it online. Andrew is a computer programmer earning $30 per hour. Though he knows computers, he works more slowly and would require 25 hours to do the work. Should Cameron hire Andrew to produce the website or do it himself? We must calculate each of their costs to find out.

If Cameron develops his website, he loses 20 hours of architecture work at $40 per hour, for a cost of $800. Andrew requires 25 hours of work at $30, for a cost of $750. Because Cameron can hire Andrew for less than the value of his lost architecture work, Cameron should hire Andrew and pay him with the money he earns doing architectural work.

Bear in Mind
The AP microeconomics and macroeconomics exams consistently have a multiple-choice question about individual comparative advantage. Even if one person is better at both tasks, one will have the comparative advantage in each task, and each should specialize in that task to maximize production at the lowest cost.

Comparative Advantage: The Example of Nations
To determine comparative advantage between countries, we must assume that these are the only two countries involved in the trade, the countries use equal amounts of resources to make only these two products, the costs of producing both products are constant, and the nations will use barter to trade products rather than use money. Of course, this isn’t realistic, but remember the smiley (😊)? You can see the principles of opportunity cost, comparative advantage, and gains from trade in specialization from this scenario.

Assume that Canada could produce 120 tons of wheat or 30 tons of corn. Using an equal amount of resources, Mexico could produce 75 tons of wheat or 25 tons of corn. Canada can produce more wheat and more corn than Mexico, so it holds an absolute advantage in the production of both crops. But that isn’t the key to trade—we have to find out who holds the comparative advantage in producing each crop. To do this, set up equations illustrating the productive capacity of each country. For example,

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>120 tons of wheat = 30 tons of corn</td>
</tr>
<tr>
<td>Mexico</td>
<td>75 tons of wheat = 25 tons of corn</td>
</tr>
</tbody>
</table>

Reduce the numbers to find Canada’s opportunity cost for producing wheat and corn.

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>4 tons of wheat = 1 ton of corn</td>
</tr>
<tr>
<td></td>
<td>1 ton of wheat = 1/4 ton of corn</td>
</tr>
<tr>
<td>Mexico</td>
<td>75 tons of wheat = 25 tons of corn</td>
</tr>
<tr>
<td></td>
<td>3 tons of wheat = 1 ton of corn</td>
</tr>
<tr>
<td></td>
<td>1 ton of wheat = 1/3 ton of corn</td>
</tr>
</tbody>
</table>

Now we must determine which nation has the lowest opportunity cost to find who has the comparative advantage in each product. To produce 1 ton of corn, Canada’s opportunity cost is 4 tons of wheat; Mexico’s opportunity cost is 3 tons of wheat. So Mexico has the comparative advantage and should specialize in producing corn. Canada’s opportunity cost for producing 1
A ton of wheat is 1/4 ton of corn, while Mexico produces 1/3 ton of corn. Therefore, Canada is the lowest-cost producer and should specialize in wheat.

**Terms of Trade**

Now that we have found that Mexico should produce corn and Canada should produce wheat, we need to determine the terms of trade, or the barter price of corn and wheat. It is important to remember that the terms of trade will always fall between the two nations’ opportunity costs. Mexico’s opportunity cost for 1 ton of corn is 3 tons of wheat, so Mexico will not accept anything less in payment for corn. Canada will not pay more than 4 tons of wheat for 1 ton of corn, because they could produce it domestically at a lower cost. Therefore, the terms of trade for a ton of corn are between 3 and 4 tons of wheat.

**Gains from Trade**

The terms of trade illustrate how each country will gain from specialization and trade. Let’s assume Canada and Mexico agree to a price of 3.5 tons of wheat per ton of corn. At that price, Mexican producers gain because the price they earn for corn is higher than their cost of producing it. At the same time, Canadian consumers gain, because they can buy Mexican corn for a lower price than it would have cost them to produce it at home. Because of specialization and trade, both countries gain from the exchange.

By opening their economies to trade, each country is able to reach beyond its production possibilities curve that limited domestic production. As each country specializes in what it produces more efficiently, resources are allocated to the most efficient producer, output increases, and both nations have more wheat and corn than they could have created alone.

**Bear in Mind**

Both AP economics exams consistently include questions about comparative advantage, specialization, and trade in the multiple-choice and free-response portions of the exam. Sometimes questions appear in the form of input models rather than output models. In other words, rather than starting with data on the production of final products like corn and wheat, the question will tell you how many hours or resources are needed to produce each product. A quick conversion will calculate the opportunity costs of final products.

Assume these data represent the resources required to produce one product in each country.

<table>
<thead>
<tr>
<th></th>
<th>Cars</th>
<th>Motorcycles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country A</strong></td>
<td>30 resource units</td>
<td>10 resource units</td>
</tr>
<tr>
<td><strong>Country B</strong></td>
<td>20 resource units</td>
<td>4 resource units</td>
</tr>
</tbody>
</table>

These are the resources required to produce the good, not the number of goods produced. This confusion is one of the most common mistakes students make in this analysis.

To determine comparative advantage, find a common number of resource units within a country. For Country A, assume you have 30 resource units available to produce goods. Country A could produce 1 car or 3 motorcycles. For Country B, start with a total of 20 resource units, which would allow Country B to produce 1 car or 5 motorcycles. After that conversion, you can determine comparative advantage, specialization, and terms of trade in the same way as with the output model. Don’t worry about trying to find a common number of resource units between the two countries to determine comparative advantage, because you are only trying to find the opportunity cost of production within each country. That opportunity cost is what will be compared to the other country.
Foreign Exchange Markets
Trade does not rely on barter; money facilitates trade. But firms want to be paid in the currency of their own country in order to pay their production costs. Therefore, in order for a firm to buy a product from another country, it must first purchase that country’s currency in the foreign exchange market. The exchange rate is the value of one currency in terms of another. For example, if $1 US = 50 Indian rupees, and you wanted to buy an Indian shawl priced at 1,500 rupees, that price would be the equivalent of $30 US.

Currency values in foreign exchange markets are determined by supply and demand. Remember that the price is expressed in terms of the other currency. In this example, the price of one euro is $1.25 US.

Changes in Currency Values
Changes in the demand for currency can affect the value of that currency in the foreign exchange market. If U.S. consumer incomes increase or consumer tastes change to prefer imported products from Europe, demand for the euro must increase in order to pay for those additional imports. The increased demand pushes up the price of the euro, so the value of the euro appreciates, meaning it increases in value. At this appreciated value, it takes more dollars to pay for each euro. If demand for the euro falls, the euro depreciates, losing value because Americans can buy the euro for fewer dollars.

It is important to understand that in currency exchange, two markets are in motion at the same time—the market for euros and the market for dollars. If an American firm wants to buy a product from Germany, it must buy those euros first. How is the American firm paying for the euros? With U.S. dollars! So we must view effects in both markets at once.
Our increased demand for euros causes the euro to appreciate in the euro market. When we use dollars to buy euros, the supply of dollars increases in the dollar market, causing the dollar to depreciate in value. It is important to remember that we are looking at a relationship between two currencies. If one appreciates, the other must depreciate. If one currency is getting relatively stronger, the other must be getting relatively weaker.

**Taking the EEK! Out of Economics**

When drawing side-by-side curves for currencies, it is very important to carefully label each market to avoid confusion. Remember that if demand moves in one graph, supply moves the same direction in the other graph. If American firms buy fewer imports, their demand for the foreign currency falls. Therefore, the supply of dollars to pay for that foreign currency in the foreign exchange market falls, as well.

**The Effects of Changes in Currency Values**

As the euro appreciates and the dollar depreciates, it takes more dollars to buy each euro. As a result, it costs importers more to buy German products. Although the German firm did not change the product price, because the euro is now more expensive, the product looks more expensive to importers. As a result, the quantity imported begins to fall. At the same time, dollars depreciate and are less expensive for German importers. Although U.S. firms did not change prices, products now look less expensive to German importers. As a result, U.S. exports rise. When the dollar depreciates, U.S. imports fall and exports increase. And when the dollar appreciates, U.S. imports rise and exports decrease.

**Barriers to Trade**

Although we recognize gains from trade, governments sometimes intervene in markets to erect barriers to trade. Protective tariffs are taxes on imports, while import quotas limit the number of products imported. Both policies are designed to increase the price or limit the quantity of imports to encourage consumers to buy American-made products instead.
In this example, $30 Chinese-produced clothes are more attractive to consumers than the $32 clothes produced by American firms. If the U.S. government placed a $7 tariff on Chinese clothes, increasing the price to $37, American consumers would reduce the quantity demanded for imported clothes and instead increase their demand for substitute American clothes. This increase in demand would push the price of U.S.-produced clothes up, but perhaps not as high as the price of the Chinese clothes with the tariff in place.

Countries can use other barriers such as licensing or inspection requirements that make it more difficult and expensive for foreign firms to get their product into the country. Governments can also subsidize American firms, reducing their costs of production to allow them to export their products for lower prices to attract foreign demand.

**Reasons for Government Intervention in Trade**

Although consumers of imports and producers of exports gain from international trade, domestic producers who must compete with those imports—and the employees who work for those firms—have a strong incentive to support the erection of trade barriers. The benefits of trade barriers are concentrated on domestic producers, and the costs are dispersed among the many consumers of imports who now have to pay higher prices.

Some interpret increased imports as causing a loss of jobs without considering that the increase in exports will create jobs in export industries. Many oppose open trade because it is difficult to transition between careers, sometimes requiring job training, a move, or lower wages. Governments can assist in this transition by providing or subsidizing job training or extending unemployment benefits. It is important, however, to remember that the gains from trade in the form of lower product prices and a wider variety of products help offset some of these transition costs.

**World Trade Agreements**

Since the 1930s, trade barriers have steadily decreased. The North American Free Trade Agreement (NAFTA) forms a trade bloc among the United States, Canada, and Mexico, eliminating most trade barriers among the countries. The European Union is a similar trade bloc of more than a dozen countries. Production efficiency has improved, and imports and exports have significantly increased among countries involved in trade. The World Trade Organization works to reduce trade barriers and resolve trade disputes on a global scale.
Bear in Mind
Questions about the history of trade barriers and trade blocs have not appeared on the AP economics exams and are only lightly covered here.

Multiple-Choice Questions
1. The condition in which a country imports more than it exports is a
   (A) comparative advantage.
   (B) trade deficit.
   (C) absolute advantage.
   (D) exchange rate.
   (E) trade surplus.

2. Bob is a mechanic who earns $30 per hour repairing farm machinery. He is also an excellent painter who can paint his house twice as quickly as a painter he could hire for $10 per hour. Which of the following is true?
   (A) Bob has an absolute advantage as both a mechanic and a painter, and he should evenly divide his time between both jobs.
   (B) Bob has a comparative advantage in painting and should give up his career as a mechanic to become a painter.
   (C) Bob has a comparative advantage as a mechanic and should hire a painter to paint his house.
   (D) Bob has an absolute advantage as a mechanic and a comparative advantage in painting, so he should stop working long enough to paint his house, and then return to work as a mechanic.
   (E) Bob has a comparative advantage in painting and should spend twice as much time painting as he spends working as a mechanic.

Use the production possibilities per week below to answer questions 3–5.

<table>
<thead>
<tr>
<th></th>
<th>Cars</th>
<th>Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>100</td>
<td>1,000</td>
</tr>
<tr>
<td>France</td>
<td>250</td>
<td>500</td>
</tr>
</tbody>
</table>

3. Which of the following statements is true?
   (A) Sweden has a comparative advantage in producing cars.
   (B) France has an absolute advantage in producing both cars and machines.
   (C) Sweden has an absolute advantage in producing both cars and machines.
   (D) France has a comparative advantage in producing cars.
   (E) France has a comparative advantage in producing machines.

4. In order to obtain gains from trade,
   (A) Sweden should import machines from France.
   (B) Sweden should import cars from France.
   (C) Sweden should produce cars and machines and export both.
   (D) France should produce machines and import cars from Sweden.
   (E) France should import both cars and machines from Sweden.
5. Both countries would gain from the trade if the price of one car is
   (A) 750 machines.
   (B) 100 machines.
   (C) 3 machines.
   (D) 11 machines.
   (E) 500 machines.

6. If U.S. demand for Mexican oil increases,
   (A) the demand for U.S. dollars increases.
   (B) the supply of Mexican pesos increases.
   (C) the price of Mexican oil decreases.
   (D) the value of Mexican pesos decreases.
   (E) the demand for Mexican pesos increases.

7. If the U.S. dollar appreciates in relation to the Japanese yen,
   (A) U.S. imports from Japan will increase.
   (B) Japanese products will appear to be more expensive to Americans.
   (C) U.S. exports to Japan will increase.
   (D) the U.S. dollar has become relatively less valuable.
   (E) U.S. exports appear less expensive to Japanese consumers.

8. If U.S. incomes fall and imported Italian shoes are normal goods,
   (A) the demand for imported shoes increases.
   (B) the demand for euros increases.
   (C) the euro appreciates in value.
   (D) the supply of U.S. dollars in the foreign exchange market increases.
   (E) the U.S. dollar appreciates in value.

9. A tariff is a
   (A) per-unit tax on imports.
   (B) limit on the number of imported products.
   (C) method by which governments support increases in international trade.
   (D) government subsidy to support exporters.
   (E) discount in the value of a currency.

10. The effects of trade barriers include all of the following EXCEPT
    (A) the prices of imported products increase.
    (B) efficiency in the market decreases.
    (C) U.S. exports decrease.
    (D) employment among producers of exports increases.
    (E) U.S. imports decrease.
Free-Response Questions

1. The figure above shows production possibilities for Chile and Brazil. Using all available resources, Chile can produce 300 loaves of bread or 100 fish per day. With the same amount of resources, Brazil can produce 400 loaves of bread or 200 fish per day.
   (a) Calculate the opportunity cost of producing 1 fish in Chile.
   (b) Determine which country has the comparative advantage in the production of fish. Explain how you found your answer.
   (c) Identify which country will import fish.
   (d) If the terms of trade are that 1 fish = 2.5 loaves of bread, will Chile gain from the exchange? Explain why.

2. Assume there are two competitive markets for beef: a market for beef produced in the United States and a market for beef imported from Canada. U.S. and Canadian beef are substitute products. Now assume Mad Cow Disease has been discovered among Canadian cattle but not among U.S. cattle.
   (a) Using a correctly labeled graph of the market for imported Canadian beef, show the effect of the discovery of Mad Cow Disease on each of the following.
      (i) The quantity of imported Canadian beef
      (ii) The price of imported Canadian beef
   (b) Using a correctly labeled graph of the foreign exchange market for Canadian dollars, show how the change in (a) will affect the international value of Canadian dollars.
   (c) How will the change in (b) affect the international value of U.S. dollars? Explain.

Multiple-Choice Explanations

1. (B) A trade deficit exists when imports exceed exports.
2. (C) Under this scenario, if it takes Bob 50 hours to paint the house, it will take the painter 100 hours to paint the house. Bob’s opportunity cost of 50 hours as a mechanic is $1,500 of income, while it would cost him $1,000 to pay the painter for the 100 hours of work. Bob has a comparative advantage as a mechanic and should hire the painter to paint the house.
3 (D) France’s opportunity cost for producing a car is 2 machines, while Sweden’s cost is 10 machines; France is the lowest-cost producer.
4. (B) Sweden can buy cars cheaper from France than it can produce them, so it will gain from the trade.
5. (C) France will not sell a car for any less than its cost of 2 machines, and Sweden will not buy a car for any more than its domestic cost of 10 machines, so any price in that range benefits both countries.
6. (E) Importers must buy Mexican pesos in order to pay for Mexican oil.
7. (A) A more valuable dollar makes Japanese imports appear cheaper, so U.S. imports from Japan increase.
8. (E) The U.S. dollar appreciates, because as demand for euros falls, the value of the euro falls, causing the value of a U.S. dollar to rise relative to the euro.
9. (A) A tariff is a tax placed on imports to raise the price of the import.
10. (D) Trade barriers limit trade with other countries, reducing U.S. exports, so fewer workers are needed to produce products for export.

Free-Response Explanations
1. 6 points \((1 + 2 + 1 + 2)\)
   (a) 1 point:
   • 1 point is earned for stating that Chile’s opportunity cost of 1 fish is 3 loaves of bread.
   (b) 2 points:
   • 1 point is earned for stating that Brazil has the comparative advantage in fish.
   • 1 point is earned for stating that Brazil has a lower opportunity cost for producing fish (2 loaves of bread compared to Chile’s 3 loaves of bread).
   (c) 1 point:
   • 1 point is earned for identifying Chile as the importer of fish.
   (d) 2 points:
   • 1 point is earned for determining Chile will gain from the trade.
   • 1 point is earned for explaining that, at a price of 2.5 loaves of bread per fish, Chile can import fish at a lower cost than it can produce fish.

2. 9 points \((4 + 3 + 2)\)
   (a) 4 points:
   • 1 point is earned for a correctly labeled graph of the Canadian beef market.
   • 1 point is earned for illustrating a decrease in demand.
   • 1 point is earned for stating that the quantity of imported Canadian beef will fall.
   • 1 point is earned for stating that the price of imported Canadian beef will fall.
   (b) 3 points:
   • 1 point is earned for a correctly labeled graph for Canadian dollars.
   • 1 point is earned for illustrating a decrease in demand.
   • 1 point is earned for stating that the international value of Canadian dollars falls.
   (c) 2 points:
   • 1 point is earned for stating that the international value of the U.S. dollar increases.
   • 1 point is earned for explaining that, because the supply of dollars in the foreign exchange market decreases, the value of the dollar appreciates.