

Lesson 9 International Trade

Open and Closed Economies

- ◆ A **closed economy** is one that does not interact with other economies in the world.
 - ◆ There are no exports, no imports, and no capital flows.

Open and Closed Economies

An **open economy** is one that interacts freely with other economies around the world.

An Open Economy

- ◆ An open economy interacts with other countries in two ways.
 - ◆ It buys and sells goods and services in world product markets.
 - ◆ It buys and sells capital assets in world financial markets.

Absolute advantage & comparative advantage

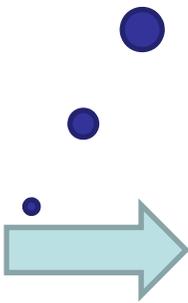
Opportunity Cost

Opportunity Cost (机会成本)

The highest-valued alternative (替代方案) that must be given up in order to engage (从事) in an activity.

Choose Job C, because it has lowest opportunity cost.

	Salary
Job A	: \$5,000
Job B	: \$4,000
Job C	: \$7,000
Job D	: \$5,500



	Opportunity Cost
Job A	: \$ 7,000
Job B	: \$ 7,000
Job C	: \$ 5,500
Job D	: \$ 7,000

Production possibilities frontier (PPF)

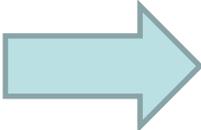
Production possibilities frontier

(生产可能性边界)

A curve showing all the attainable combinations (组合) of two products that may be produced with available resources.

A matter of tradeoff

Resource A is used to produce X and Y,
but A is limited, that means :
If more X, then less Y
If more Y, then less X



Combinations

1. Only X, no Y;
2. 90% is X, 10% is Y;
3. 80% is X, 20% is Y
4.;
-
- Only Y, no X;

PRODUCTION POSSIBILITIES

4 Key Assumptions Revisited

- Only two goods can be produced
- Full employment of resources
- **Fixed Resources (4 Factors)**
- **Fixed Technology**

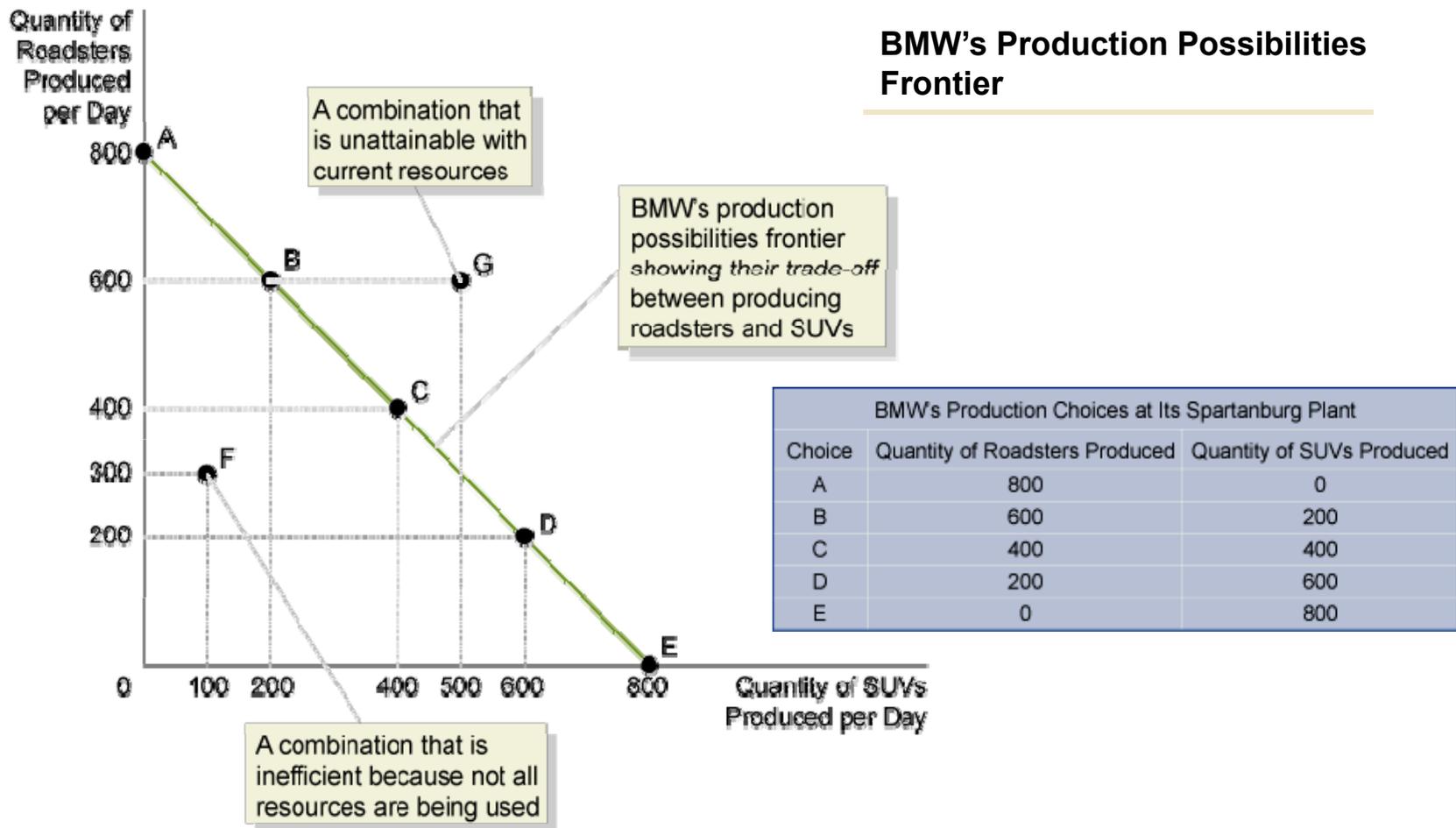
What if there is a change?

3 Shifters of the PPC

1. Change in resource quantity or quality
2. Change in Technology
3. Change in Trade

Production possibilities frontier

Graphing the Production Possibilities Frontier (PPF)



PPF & Opportunity Cost

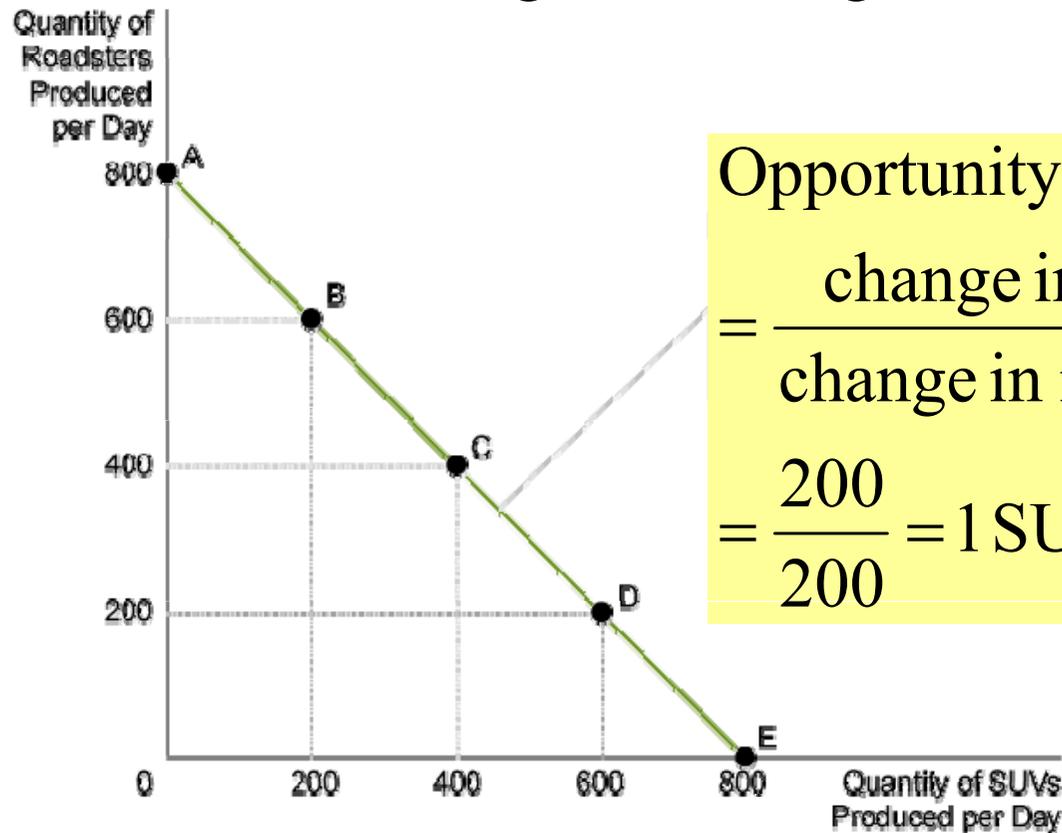
BMW's Production Choices at Its Spartanburg Plant		
Choice	Quantity of Roadsters Produced	Quantity of SUVs Produced
A	800	0
B	600	200
C	400	400
D	200	600
E	0	800

The **opportunity cost of producing one SUV** is the number of roadsters the company will not be able to produce because it has already devoted (貢献) those resources to producing SUVs.

opportunity cost of one SUV = one roadster

PPF & Opportunity Cost

The **slope of a *PPF*** is used to measure the opportunity cost of increasing the production of one good along the frontier.



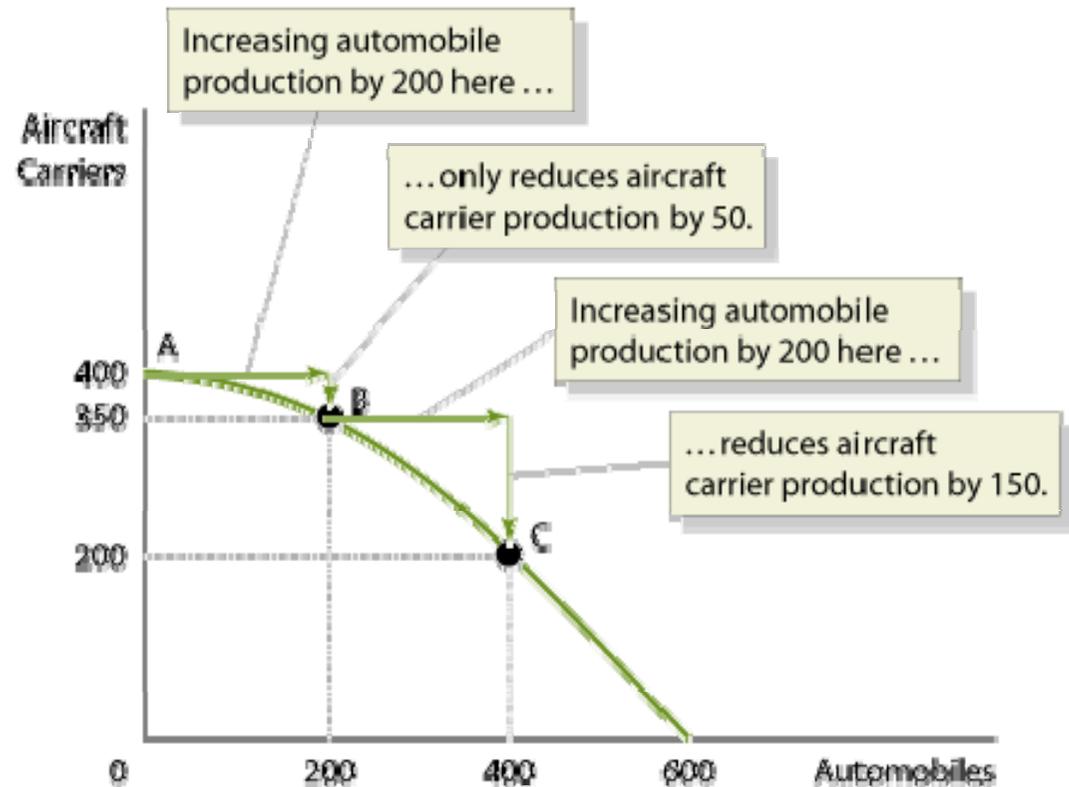
Opportunity cost of roadster

$$= \frac{\text{change in SUV production}}{\text{change in roadster production}}$$
$$= \frac{200}{200} = 1 \text{ SUV}$$

PPF & Opportunity Cost

Increasing Marginal Opportunity Costs

As the economy moves down the production possibilities frontier, it experiences **increasing marginal opportunity costs** because increasing automobile production by a given quantity requires larger and larger decreases in aircraft carrier production.



PPF & Opportunity Cost

- The slope of a **linear** *PPF*, and the opportunity cost of moving along the frontier, is constant (常量, 不变量) .
- A **convex** (凸面的) or “**bowed out**” *PPF* illustrates increasing marginal opportunity costs.

PRODUCTION POSSIBILITIES

3 Shifters of the PPC

1. Change in resource quantity or quality
2. Change in Technology
3. Change in Trade

PPF & Economic Growth

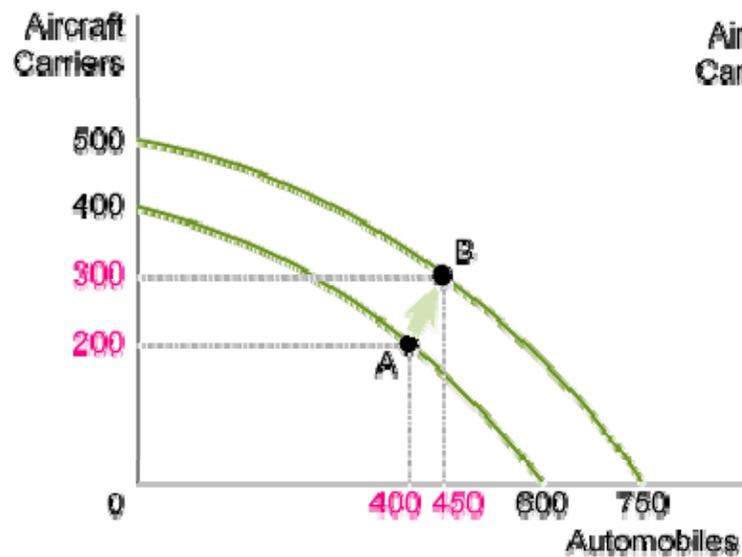
Economic Growth

The ability of the economy to produce increasing quantities of goods and services.

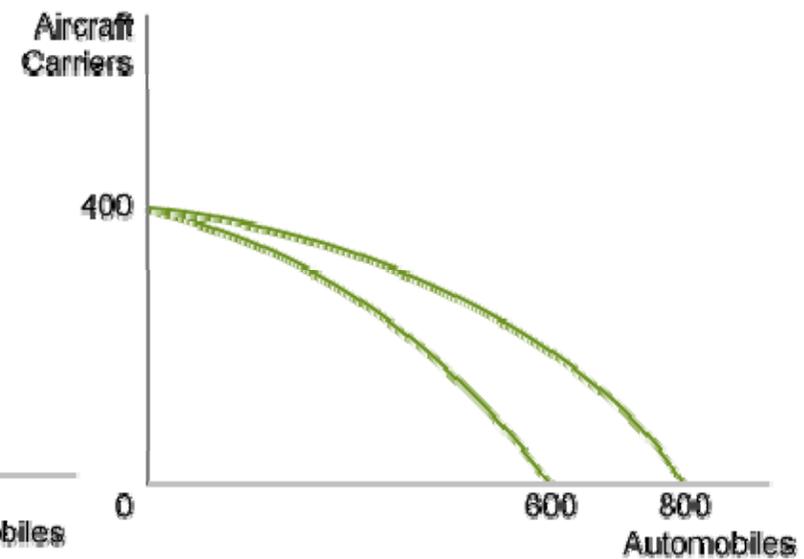
Economic growth will shift a *PPF* to the right.

PPF & Economic Growth

Economic Growth



(a) Shifting out the production possibilities frontier



(b) Technological change in the automobile industry

Trade

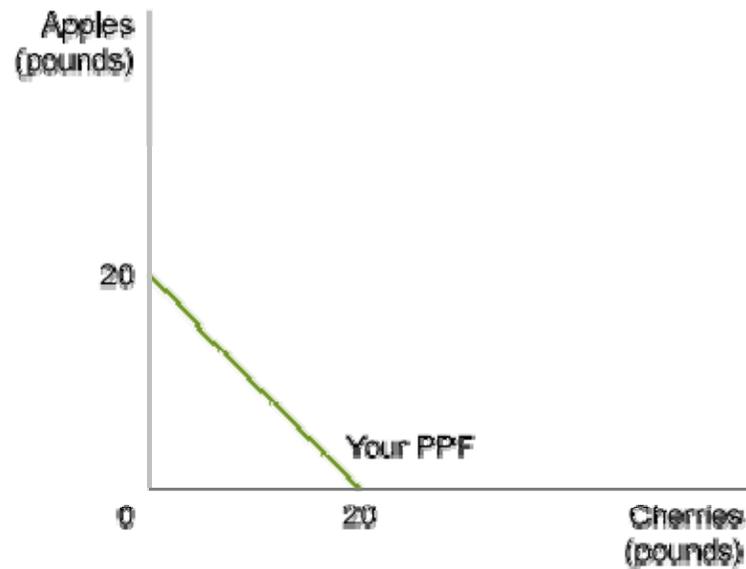
Trade

The act of buying or selling.

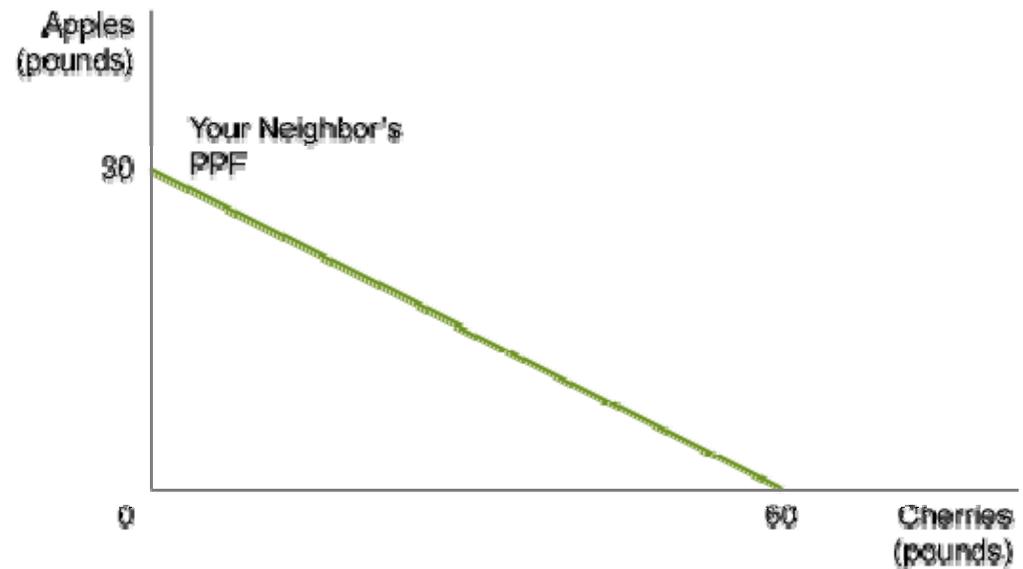
Trade

Specialization and Gains from Trade

	You		Your Neighbor	
	Apples	Cherries	Apples	Cherries
Picked in one month	20 pounds	20 pounds	30 pounds	60 pounds



(a) Your production and consumption Without trade



(b) Your neighbor's production and consumption Without trade

Production Possibilities for You and Your Neighbor, Without Trade

Trade

You exchange 10 pounds apples for 15 pounds cherries

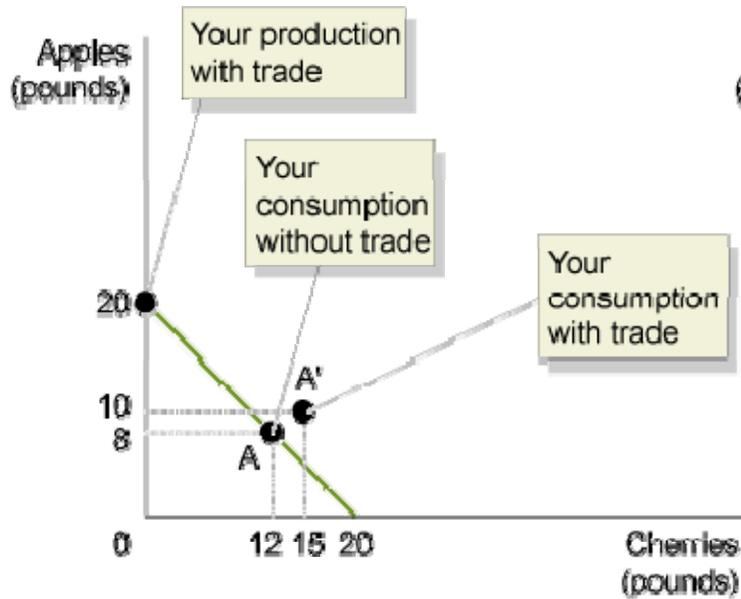
	YOU		YOUR NEIGHBOR	
	<i>Apples (in pounds)</i>	<i>Cherries (in pounds)</i>	<i>Apples (in pounds)</i>	<i>Cherries (in pounds)</i>
<i>Production and consumption without trade</i>	8	12	9	42
<i>Production with trade</i>	20	0	0	60
<i>Consumption with trade</i>	10	15	10	45
<i>Gains from trade (increased consumption)</i>	2	3	1	3

Increased consumption =
Increased living standard

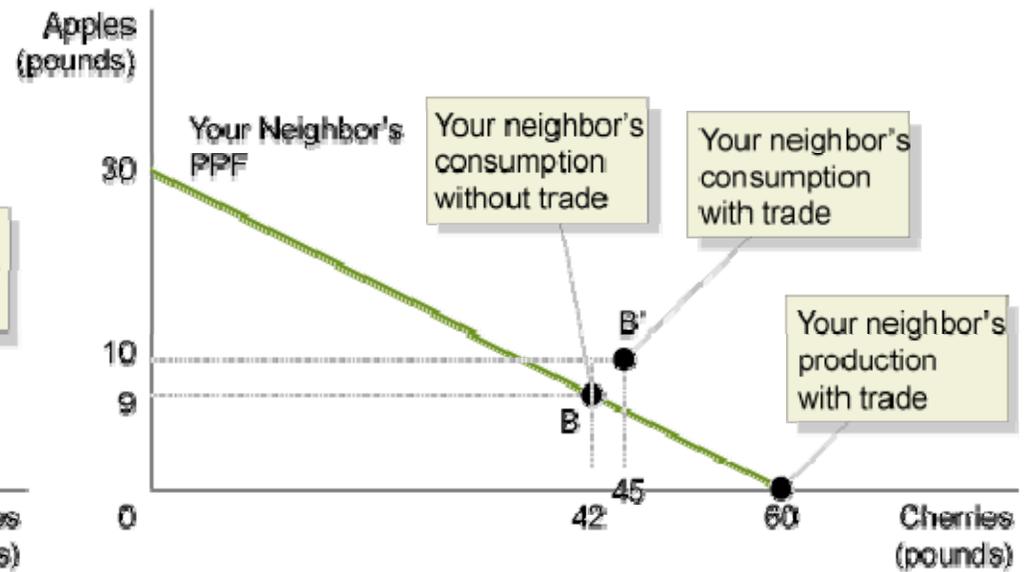
Trade

Specialization and Gains from Trade

A' and B' are above PPF, which means consumption > production for each producer.



(a) Your production and consumption after trade



(b) Your neighbor's production and consumption with trade

Absolute Advantage vs Comparative Advantage

Absolute advantage (绝对优势)

The ability of an individual, firm, or country to produce more of a good or service than competitors using the same amount of resources. (Or less input)

Comparative advantage (比较优势)

The ability of an individual, firm, or country to produce a good or service at **a lower opportunity cost** than other producers.

Absolute Advantage vs Comparative Advantage

	You		Your Neighbor	
	Apples	Cherries	Apples	Cherries
Picked in one month	20 pounds	20 pounds	30 pounds	60 pounds

Who is more productive?

Who has an absolute advantage?

Your neighbor is **more productive** than you in both apple production and cherry production.

Your neighbor has an **absolute advantage** over you in both apple production and cherry production.

Absolute Advantage vs Comparative Advantage

	You		Your Neighbor	
	Apples	Cherries	Apples	Cherries
Picked in one month	20 pounds	20 pounds	30 pounds	60 pounds

	<i>Opportunity cost of picking 1 pound of apples</i>	<i>Opportunity cost of picking 1 pound of cherries</i>
You	1 pound of cherries	1 pound of apples
Your neighbor	2 pounds of cherries	0.5 pound of apples

You has a comparative advantage in producing apples

Your neighbor has a comparative advantage in producing cherries

Comparative Advantage and the Gains from Trade

*The basis for trade is **comparative advantage**, not absolute advantage.*

A country has a comparative advantage in the production of the good for which it has a **lower opportunity cost**.

To enjoy the gains from trade, a country should **specialize** in the production of the good for which it has a **comparative advantage**.

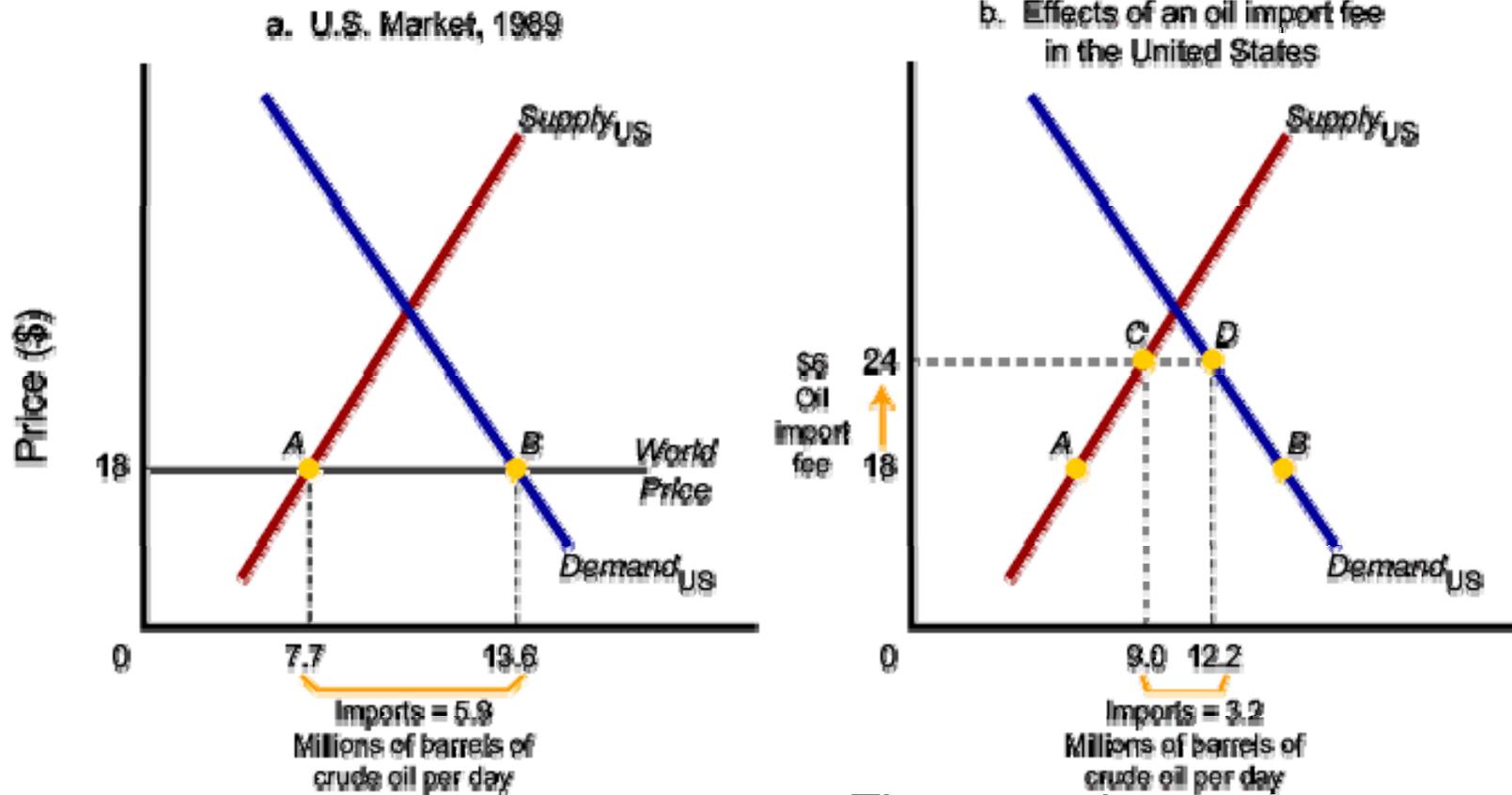
Tariff and Quota

Tariffs are a type of tax applied on imports of foreign goods into a country.

two main reasons why governments levy tariffs.

1. to keep imports out of the country by making them more expensive to consumers
2. to raise tax revenues.

Supply and Demand Analysis: An Oil Import Tariff

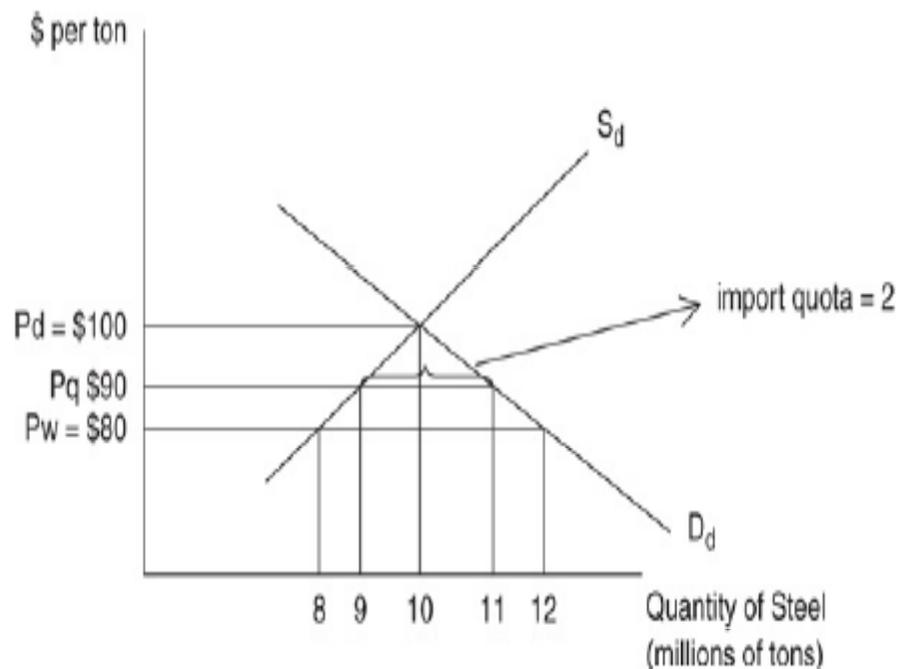


- At a world price of \$18, imports are 5.9 million barrels per day.

- The tax on imports causes an increase in domestic production, and quantity imported falls.

Tariff and Quota

An **import quota** is a maximum amount of a good that can be imported into the domestic market.



International balance of payment

Balance of Trade vs. Balance of Payments

Balance of Trade

Net Exports (X_N) = Exports – Imports

Trade Surplus = Exporting more than is imported

Trade Deficit = Exporting less than is imported

贸易盈余和贸易赤字

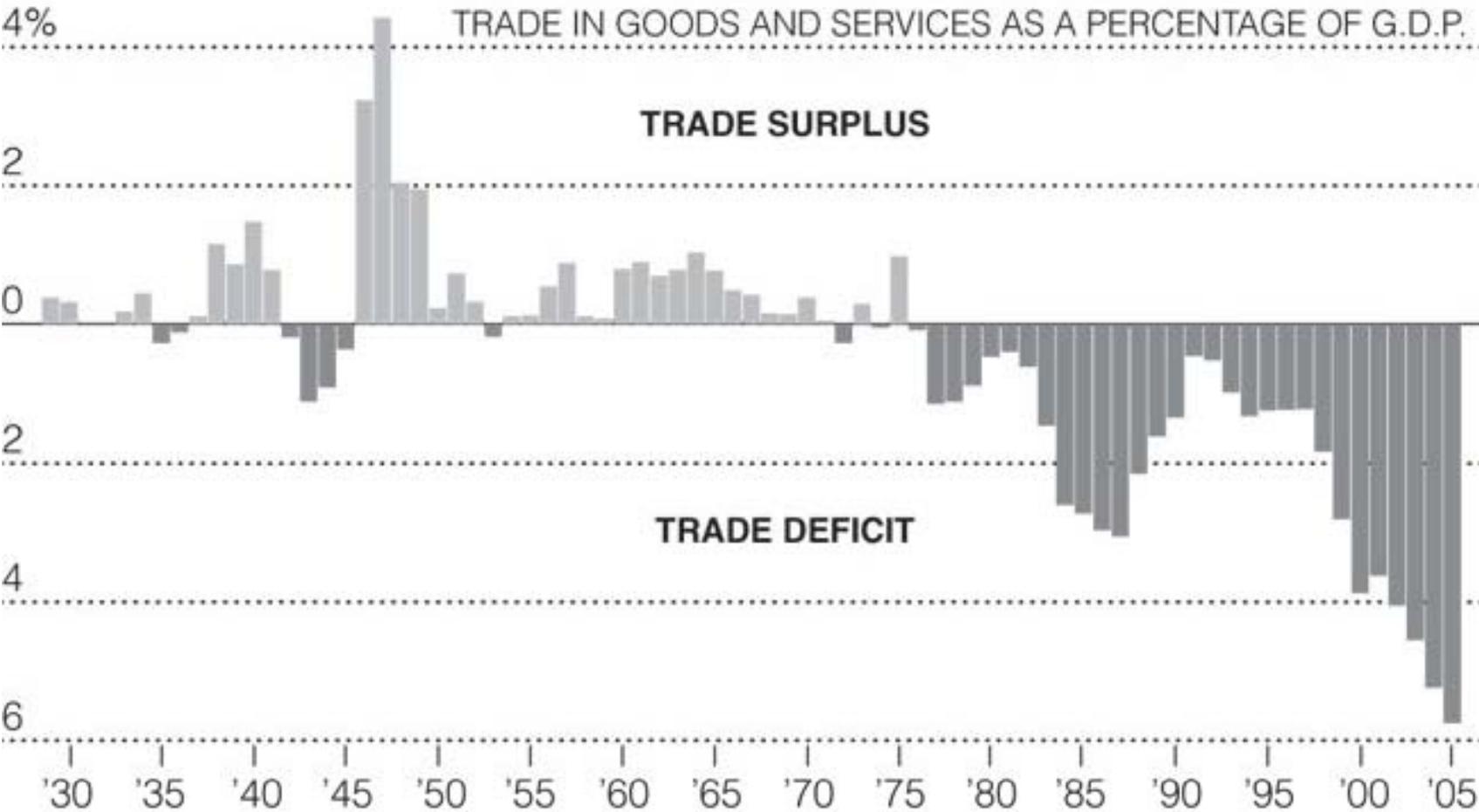
Principal U.S. Exports and Imports of Goods, 2002
(in Billions of Dollars)

Exports	Amount	Imports	Amount
Chemicals	\$49.8	Automobiles	\$114.1
Semiconductors	42.3	Petroleum	103.6
Consumer durables	40.1	Computers	75.3
Computers	38.6	Household appliances	66.4
Generating equipment	27.6	Clothing	64.3
Aircraft	26.7	Chemicals	33.1
Telecommunications	22.2	Consumer electronics	32.8
Automobiles	20.5	Semiconductors	26.0
Grains	14.4	Telecommunications	23.2
Nonferrous metals	12.2	Iron and steel	17.7

Source: Consolidated from Department of Commerce data.

Balance of Trade

The United States trade deficit has grown sharply over the last decade.



Balance of Payments (BOP)

Balance of trade includes only goods and services, but balance of payments considers ALL international transactions.

- **The balance of payments is a broader measure of international trade.**

Details:

The BOP summary is within a given year and is prepared in the domestic country's currency

Ex. If accounting the BOP of the U.S., it would be in the Dollar.

The balance of payments is made up of two accounts. The current account and the capital account.

Balance of Payment

Current Account			
Goods exports	\$30		
Goods imports	-\$50		
<i>Balance on goods (merchandise)</i>		-\$20	
Service exports	\$18		
Service imports	-\$12		
<i>Balance on services</i>		\$6	
<i>Balance on goods and service</i>		-\$14	Note: This negative balance indicates a trade deficit in goods and services.
Net investment income	-\$5		
Net transfers	-\$7		
<i>Balance on current account</i>		-\$26	
Capital (or Financial) Account			
Inflow of foreign assets to U.S.	\$35		
Outflow of U.S. assets abroad	-\$20		
<i>Balance on capital account</i>		\$15	
Official Reserves Account			
Official reserves		\$11	
		\$0	

Current Account

The Current Account is made up of three parts:

1. **Trades in Goods and Services (Net Exports)**-
Difference between a nation's exports of goods and services and its imports of goods and services

Ex: Toys imported from China, U.S. cars exported to Mexico

2. **Investment Income**- income from the factors of investment abroad including payments made to foreign investors.

Ex: Dividends earned by Korean investing in U.S. stock

3. **Net Transfers**- Money flows from the private or public sectors

Ex: donations, aids and grants, official assistance

Capital (Financial) Account

The Capital Account measures the purchase and sale of financial/capital assets, real estate and firms abroad.

Purchases of things that stay in the foreign country.

Examples:

- U.S. company buys a hotel in Russia**
- A Korean company sells a factory in Ohio**
- Chinese citizens buy stocks in the New York Stock Exchange (NYSE)**

Capital inflow/ Capital outflow

Current or Capital Account

Identify if the examples are counted in the current or capital account and determine if it is a credit or debit for the US.

- 1. Bill, an American, invests \$20 million in a ski resort in Canada**
- 2. A Korean company sells vests to the U.S. military**
- 3. A U.S. company, Boeing, sells twenty 747s to France**
- 4. A Chinese company buys a shopping mall in San Diego**
- 5. An German investor buys \$50,000 U.S. Treasury Bonds**

Current or Capital Account

Identify if the examples are counted in the current or capital account and determine if it is a credit or debit for the US.

- 1. Capital Account (financial asset), Debit**
- 2. Current Account (trade of goods/services), Debit**
- 3. Current Account (trade of goods/services), Credit**
- 4. Capital Account (financial asset), Credit**
- 5. Capital Account (financial asset), Credit**

International currency market



Foreign Exchange

Exchange Rate = Relative Price of Currencies

Exports and Imports

1. **U.S. sells cars to Mexico**
2. **Mexico buys tractors from Canada**
3. **Canada sells syrup to the U.S.**
4. **Japan buys Fireworks from Mexico**

For all these transactions, there are different national currencies.

Each country must be paid in their own currency

The buyer (importer) must exchange their currency for that of the sellers (exporter).

Types Exchange Rates

- ***Floating, or market-determined, exchange rates*** are exchange rates determined by the unregulated forces of supply and demand.
- ***Fixed exchange rates*** are exchange rates determined by government regulation, not by forces of supply and demand.

The turnover in FOREX markets is almost \$4 trillion (USD) a day

Currency Codes

USD = US Dollar

EUR = Euro

JPY = Japanese Yen

CNY=Chinese Yuan

GBP = British Pound

CHF = Swiss Franc

CAD = Canadian Dollar

AUD = Australian Dollar

NZD = New Zealand Dollar



Exchange Rates

In the FOREX market we only look at two countries/currencies at a time.

Ex: US Dollars and British Pounds

We examine the price of one currency in terms of the other currency. Ex: \$2 = £1

The Exchange Rate depends on which currency you are converting.

The price of one Dollar in terms of Pounds is

$$1 \text{ Dollar} = \text{£}1/\$2 = \text{£}.5$$

The price of one Pound in terms of Dollars is

$$1 \text{ Pound} = \$2/\text{£}1 = \$2$$

What happens if you need more dollars to buy one pound (the price for a pound increases)?

Ex: From \$2=£1 to \$5=£1

- **The U.S. Dollar **DEPRECIATES** relative to the Pound.**

Depreciation

- **The loss of value of a country's currency with respect to a foreign currency**
- **More units of dollars are needed to buy a single unit of the other currency.**
- **The dollar is said to be “Weaker”**

What happens if you need fewer dollars to buy one pound (the price for a pound decreases)?

Ex: From $\$2 = \pounds 1$ to $\$1 = \pounds 1$

- **The U.S. Dollar **APPRECIATES** relative to the Pound.**

Appreciation

- **The increase of value of a country's currency with respect to a foreign currency**
- **Fewer units of dollars are needed to buy a single unit of the other currency.**
- **The dollar is said to be “Stronger”**

S&D for the US Dollars

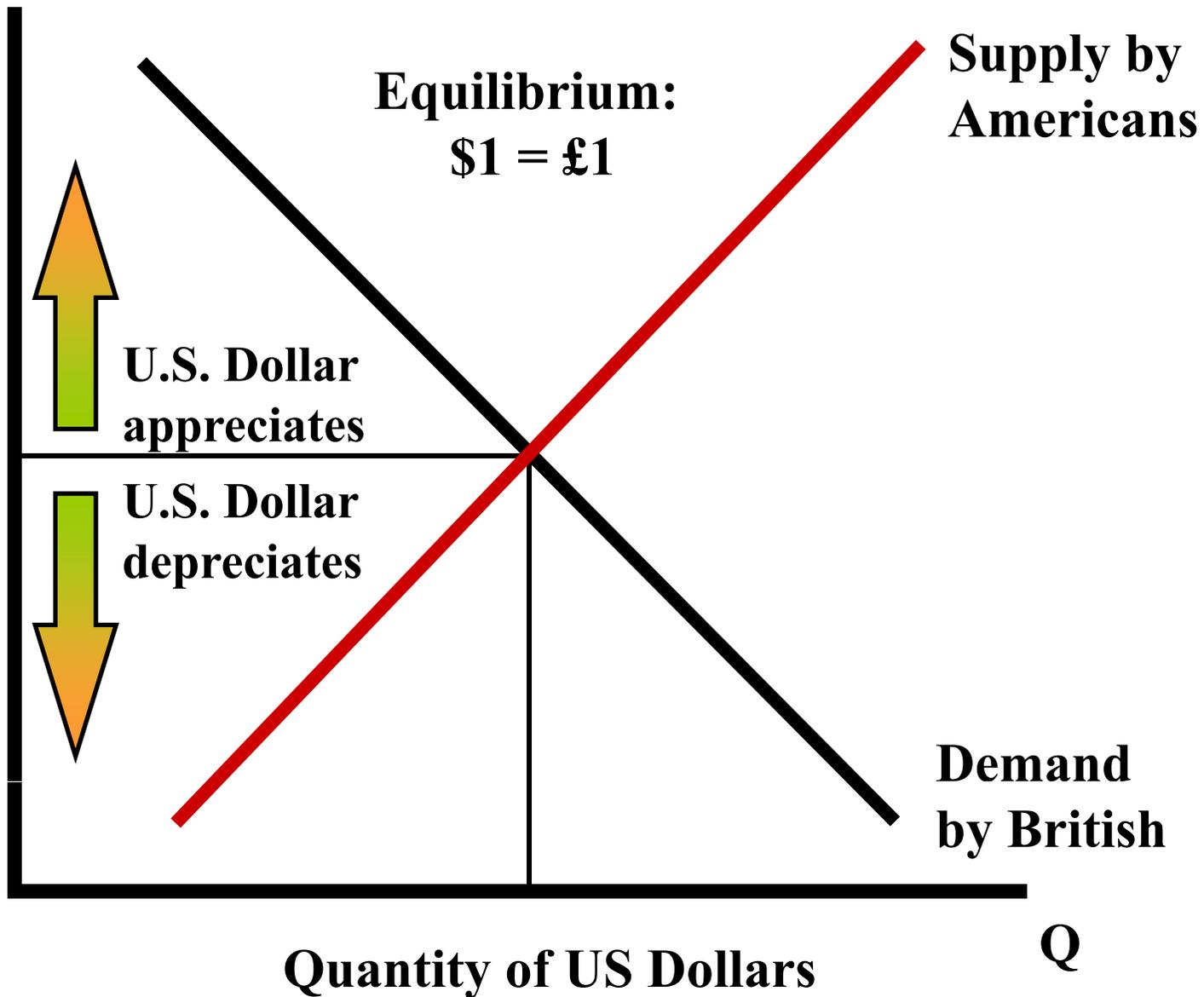
Price of U.S.
Dollars

$\frac{\text{Pound } \pounds}{\text{Dollar } \$}$

2 \pounds /1 $\$$

1 \pounds /1 $\$$

1 \pounds /4 $\$$



Factors influencing and influenced
by exchange rate

Factors influencing rate

Exchange Rates

Currency Shifters

1. Changes in Tastes-

Ex: British tourists flock to the U.S.

Demand for U.S. dollar increases

Supply of British pounds in the

FOREX market increases

Pound-depreciates

Dollar-appreciates

Exchange Rates

2. Changes in Relative Incomes (Resulting in more imports)

Ex: U.S. growth increases income....

U.S. buys more imports...

Demand for pounds increases

**Supply of U.S. dollars in FOREX
increases**

Pound- appreciates

Dollar- depreciates

Exchange Rates

3. Changes in Relative Price Level (Resulting in more imports)

Ex: U.S. prices increase relative to
Britain....

Demand for cheaper imports
increases...

Demand for pound increases

Supply of dollars in FOREX increases

Pound- appreciates

Dollar- depreciates

Exchange Rates

4. Changes in relative Interest Rates

Ex: US has a higher interest rate than Britain.

**British people want to invest in US
(Capital Flow increases)**

Demand for U.S. dollars increases...

**Supply of pounds in FOREX
increases**

Pound-depreciates

Dollar- appreciates

Practice

For each of the following examples, identify what happens to values of U.S. Dollars and Japanese Yen.

1. American tourists increase visits to Japan.
2. The U.S. government significantly decreases personal income tax.
3. Inflation in the Japan rises significantly faster than in the U.S.
4. Japan has a large budget deficit that increases Japanese interest rates.
5. Japan places high tariffs on all U.S. imports.
6. The U.S. suffers a large recession.
7. The U.S. Federal Reserve sells bonds at high interest rates.

How do these scenarios affect exports and imports?

Practice

For each of the following examples, identify what will happen to the value of US Dollars and Japanese Yen.

1. USD depreciates and Yen appreciates
2. USD depreciates and Yen appreciates
3. USD appreciates and Yen depreciates
4. USD depreciates and Yen appreciates
5. USD depreciates (Demand Falls) and Yen appreciates (Supply Falls)
6. USD appreciates (Supply Falls) and Yen depreciates (Demand Falls)
7. USD appreciates and Yen depreciates

Scenarios 1, 2, and 4 will increase U.S. exports because U.S. products are now relatively “cheaper”

2015 FRQ #3

3. Exchange rates and interest rates are important for macroeconomic decision making.
 - (a) How does an increase in Japan's government budget deficit affect each of the following?
 - (i) The real interest rate in the short run in Japan. Explain.
 - (ii) Private domestic investment in plant and equipment in Japan
 - (b) Draw a correctly labeled graph of the foreign exchange market for the euro, and show the effect of the change in the real interest rate in Japan from part (a)(i) on each of the following.
 - (i) Supply of euros. Explain.
 - (ii) Yen price of the euro
 - (c) To reverse the change in the yen price of the euro identified in part (b)(ii), should the European Central Bank buy or sell euros in the foreign exchange market?

Factors influenced by exchange rate

Exchange Rates

1. Effects on AD-NX

Ex:

Pound depreciates, making exports cheaper and imports more expensive, thus increasing net exports ($X - M$).

Depreciates- NX increases

Appreciates- NX decreases

Exchange Rates

2. Effects on AD- PL

Ex:

**Pound depreciates, thus NX
increases, then AD shift
rightward, making PL increases.**

(demand-pull inflation)

Depreciates- PL increases

Appreciates- PL decreases

Exchange Rates

2. Effects on AD- Unemployment

Ex:

**Pound depreciates, thus NX
increases, then AD shift
rightward, making
Unemployment decreases.**

**Depreciates- Unempl. decreases
Appreciates- Unempl. increases**

Exchange Rates

2. Effects on AS

Ex:

If domestic producers are heavily dependent on imported factors of production, their costs of production increase, resulting in a leftward shift of the SRAS curve. (cost-push inflation)

Depreciates- SRAS leftward

Appreciates- SRAS rightward