

THIRD EDITION

ECONOMICS

and

MICROECONOMICS

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Chapter 2

Economic Models: Trade-offs and Trades

**WHAT YOU
WILL LEARN
IN THIS
CHAPTER**

- Why models? Simplified representations of reality—play a crucial role in economics
- Two simple but important models:
 - production possibility frontier
 - circular-flow diagram
- The difference between positive economics and normative economics
- When economists agree and why they sometimes disagree

Models in Economics

- A **model** is a simplified representation of a real situation that is used to better understand real-life situations. How? By
 - Creating a real but simplified economy
Example: cigarettes in World War II prison camps
 - Simulating an economy on a computer
Examples: tax models, money models...
- The “**other things equal**” **assumption** means that all other relevant factors remain unchanged.

FOR INQUIRING MINDS

Model That Ate The Economy

- “The model that ate the economy” originated in finance theory, the branch of economics that seeks to understand what assets such as stocks and bonds are worth.
- Finance theory has become increasingly important as Wall Street has shifted from trading simple assets (e.g., stocks and bonds) to more complex assets—notably, mortgage-backed securities (or MBSs for short).
 - An MBS is an asset that entitles its owner to a stream of earnings based on the payments made by thousands of people on their home loans. Investors wanted to know how risky these complex assets were.

FOR INQUIRING MINDS

Model That Ate The Economy

- In 2000, a Wall Street financial theorist announced that he had solved the problem by employing a huge statistical abstraction—assuming that current homeowners were no more likely to stop paying their mortgages than in previous decades.
- With this assumption, he devised a simple model for estimating the risk of buying an MBS.
 - Financial traders loved the model as it opened up a huge and extraordinarily profitable market for them.
 - Using this simple model, Wall Street was able to create and sell billions of MBSs, generating billions in profits for itself.

FOR INQUIRING MINDS

Model That Ate The Economy

- Darrell Duffie, a Stanford University finance professor, warned from the sidelines that the estimates of risk calculated by this simple model were just plain wrong.
 - Duffie and other critics said that in the search for simplicity, the model seriously underestimated the likelihood that many homeowners would stop paying their mortgages at the same time, leaving MBS investors in danger of incurring huge losses.

FOR INQUIRING MINDS

Model That Ate The Economy

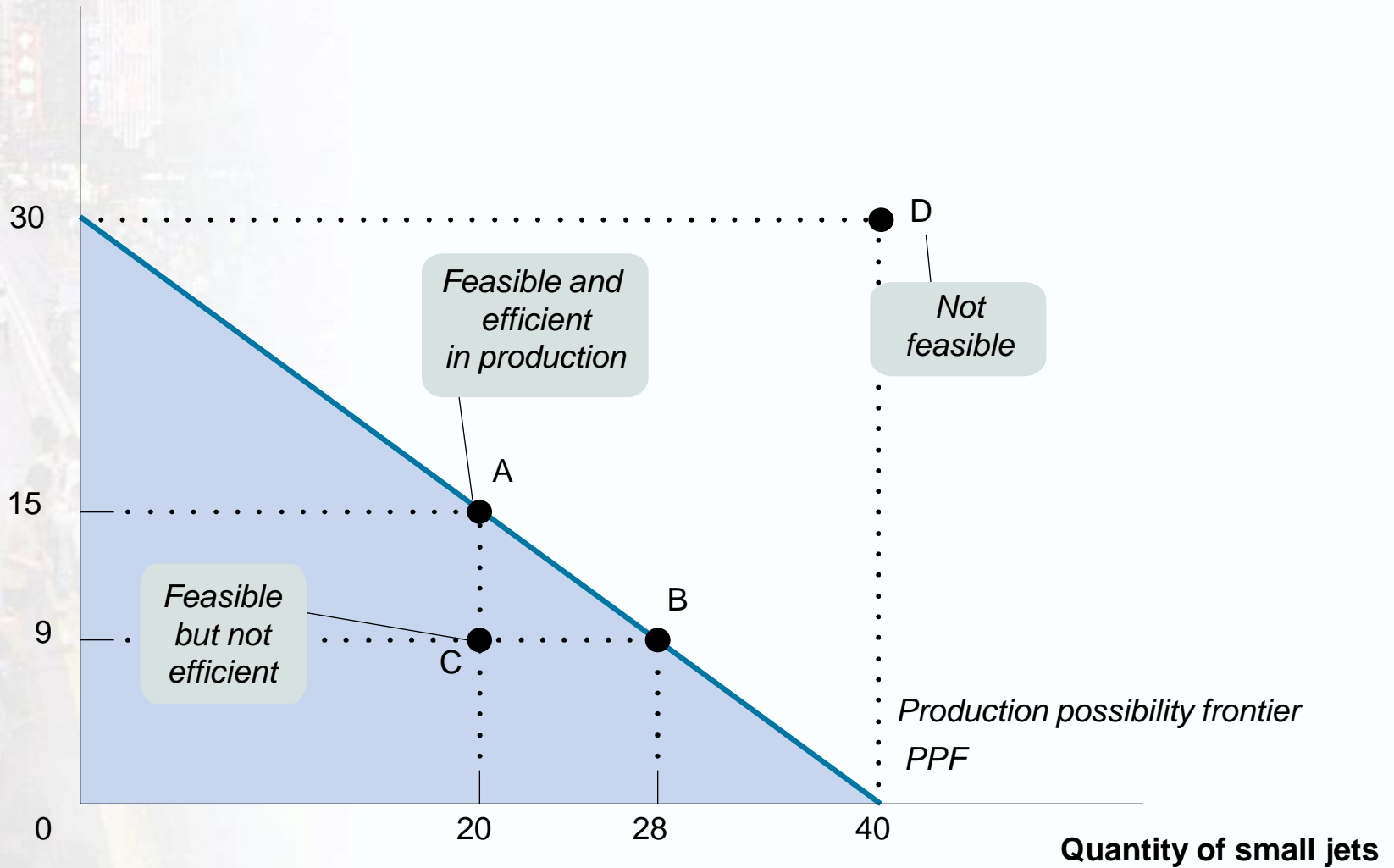
- The warnings fell on deaf ears—no doubt because Wall Street was making so much money.
 - Billions of dollars worth of MBSs were sold to investors both in the United States and abroad.
- In 2008–2009, the problems critics warned about appeared in catastrophic fashion.

Trade-offs: The Production Possibility Frontier

- The production possibility frontier (PPF) illustrates the trade-offs facing an economy that produces only two goods. It shows the maximum quantity of one good that can be produced for any given production of the other good.
- The PPF improves our understanding of trade-offs by considering a simplified economy that produces only two goods by showing this trade-off graphically.

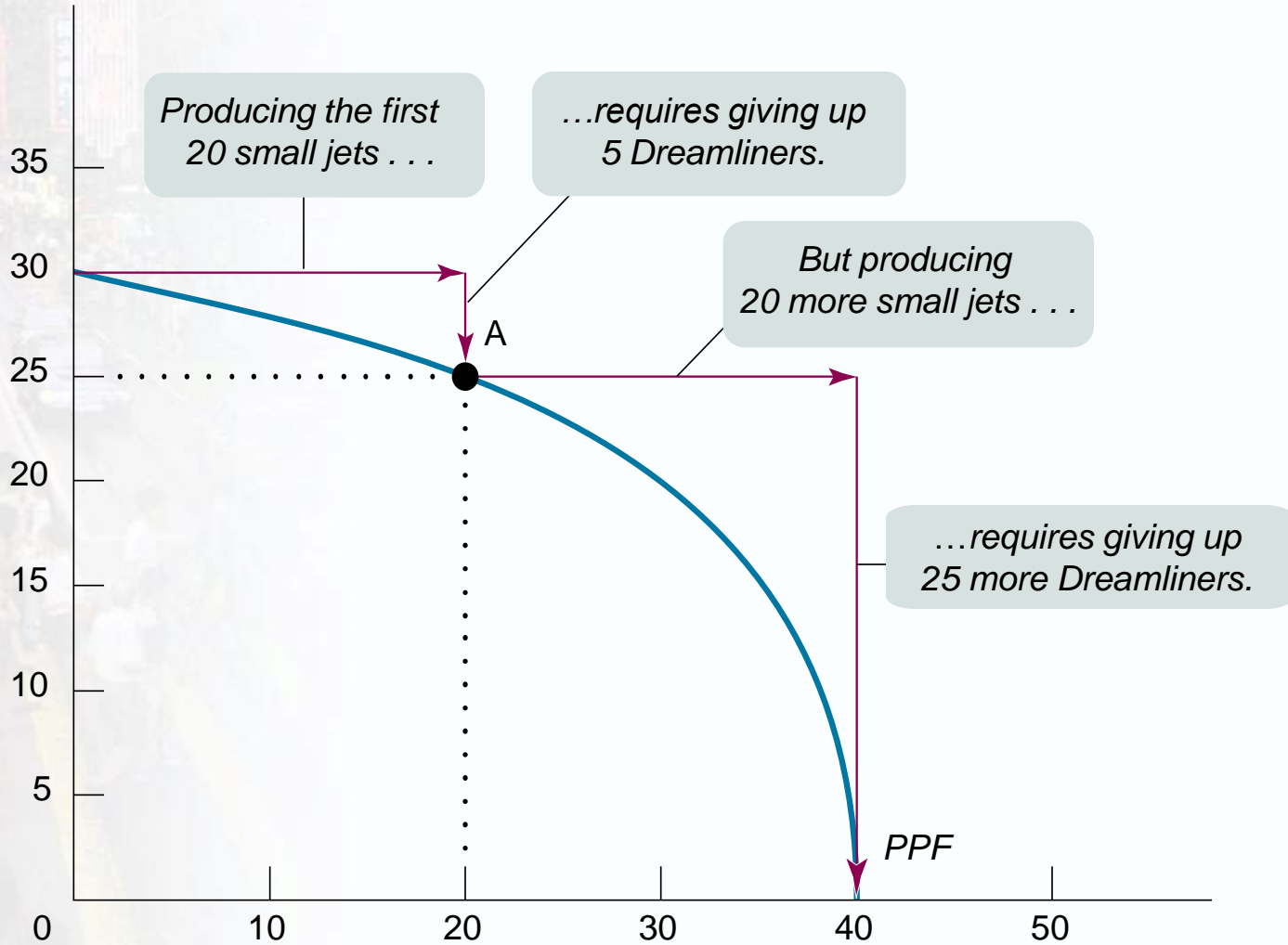
The Production Possibility Frontier

Quantity of Dreamliners



Increasing Opportunity Cost

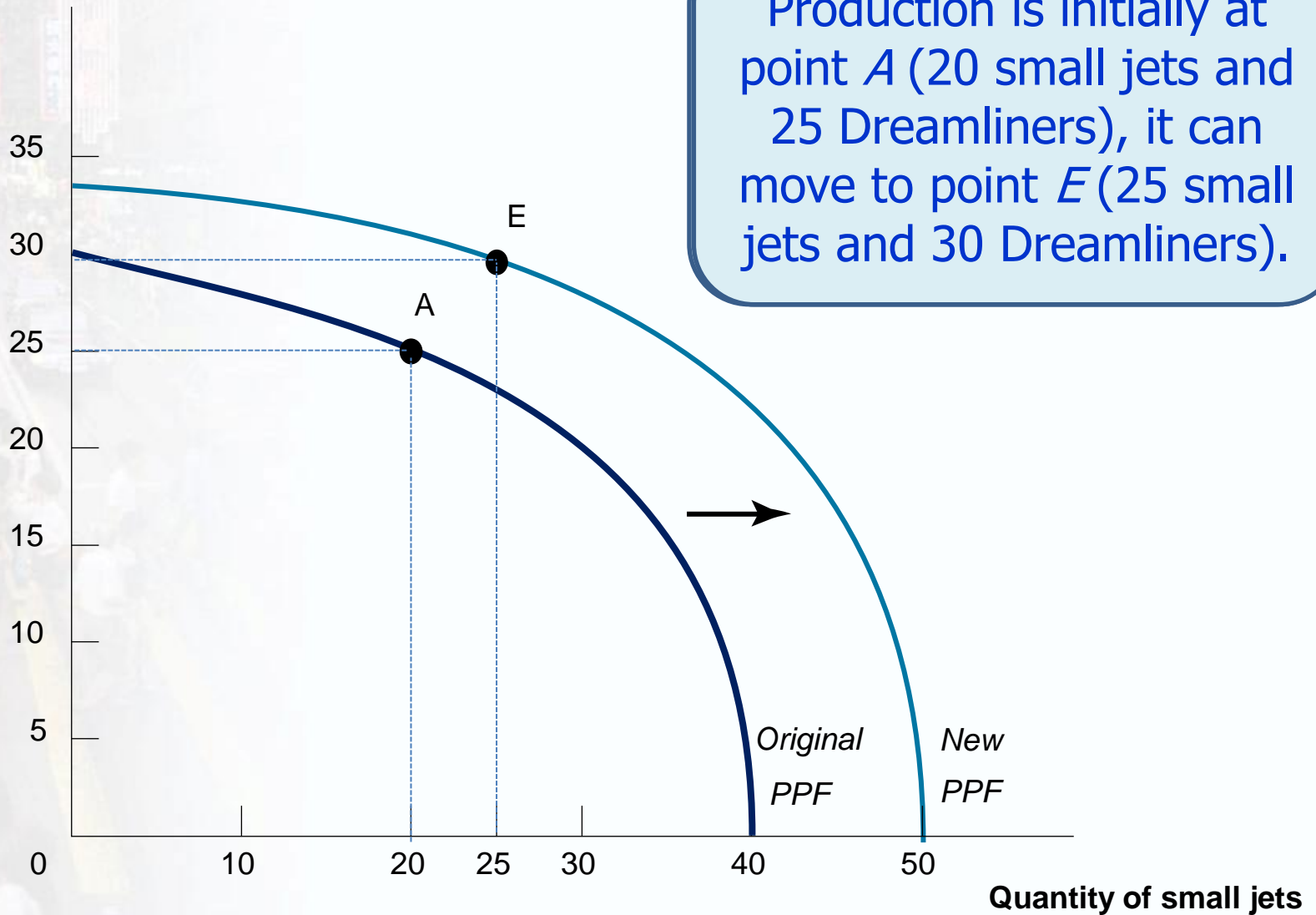
Quantity of Dreamliners



Quantity of small jets

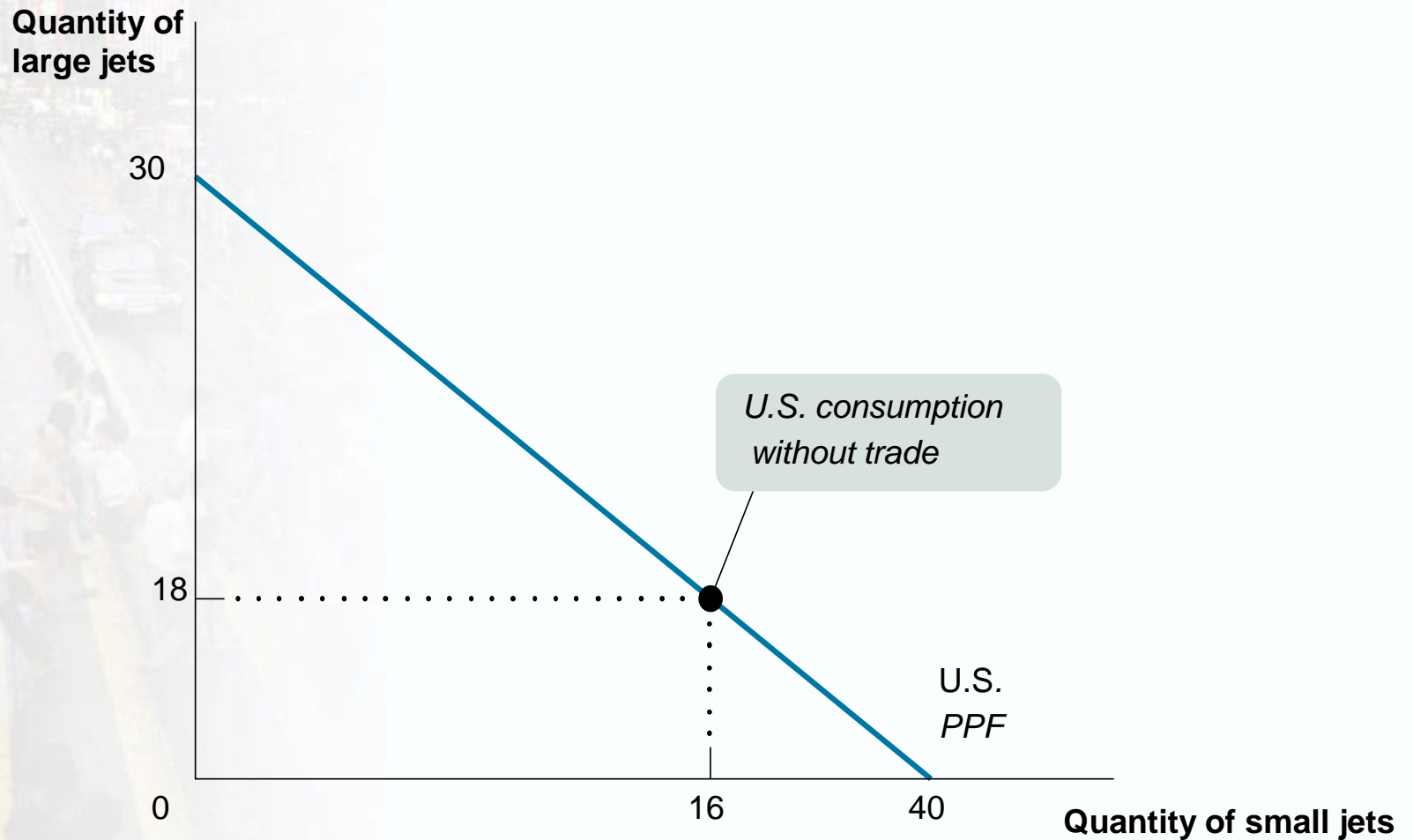
Economic Growth

Quantity of Dreamliners



Production Possibilities for Two Countries

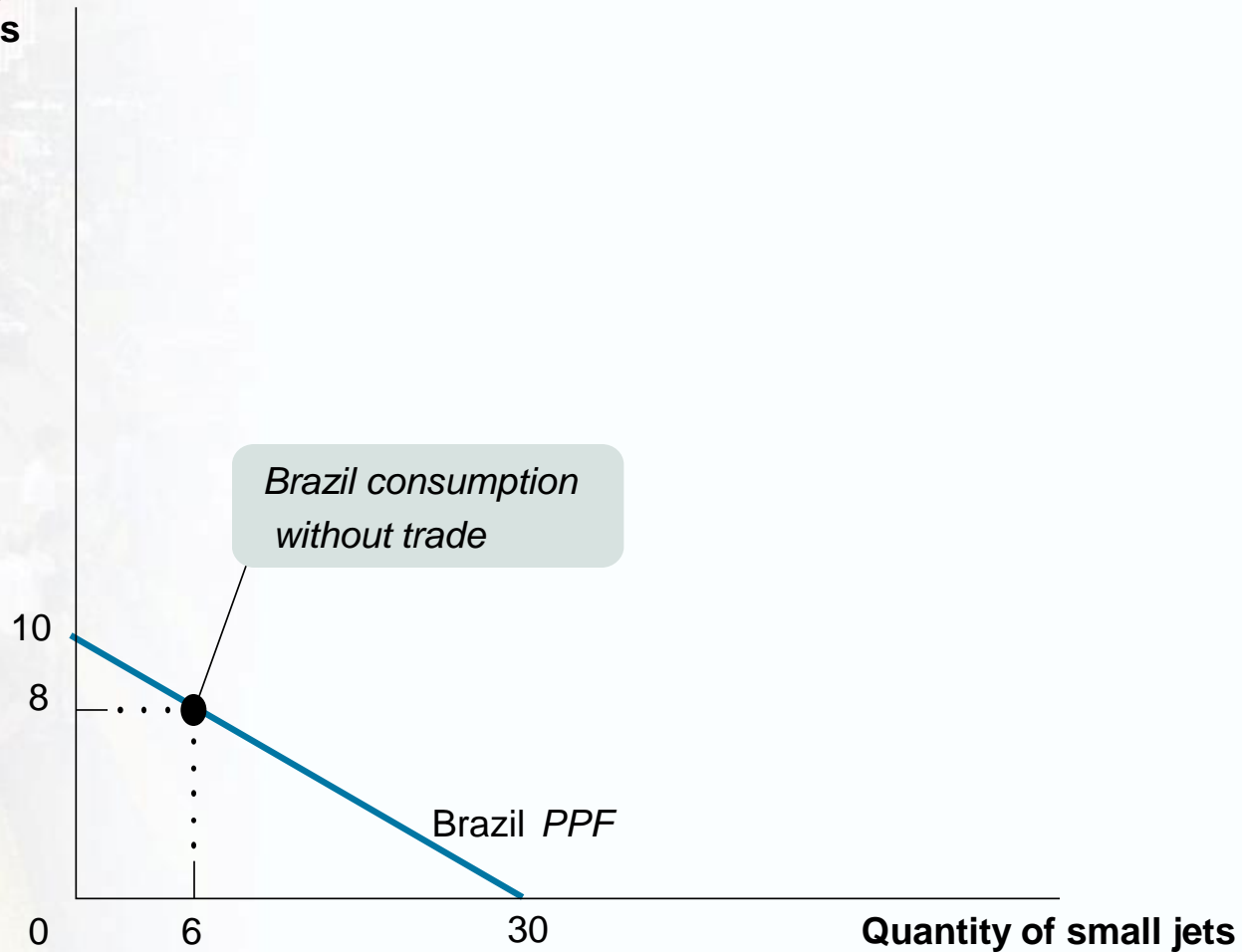
U.S. Production Possibilities



Production Possibilities for Two Countries

Brazilian Production Possibilities

Quantity of large jets



United States and Brazilian Opportunity Costs

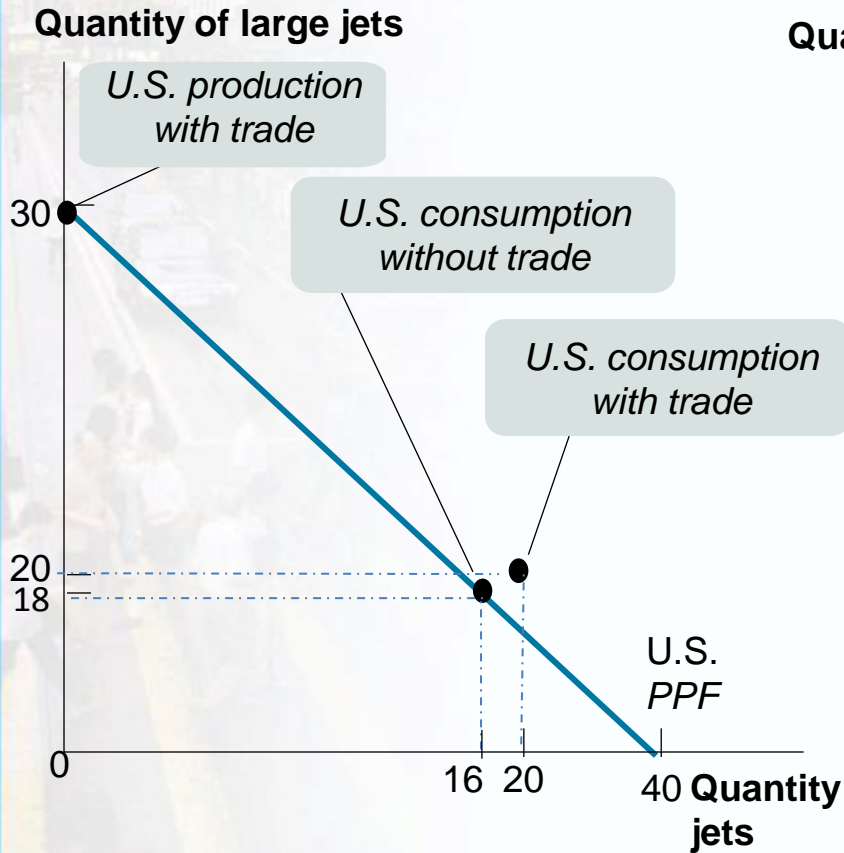
	U.S. Opportunity Cost		Brazilian Opportunity Cost
One small jet	3/4 large jet	>	1/3 large jet
One large jet	4/3 small jets	<	3 small jets

Specialize and Trade

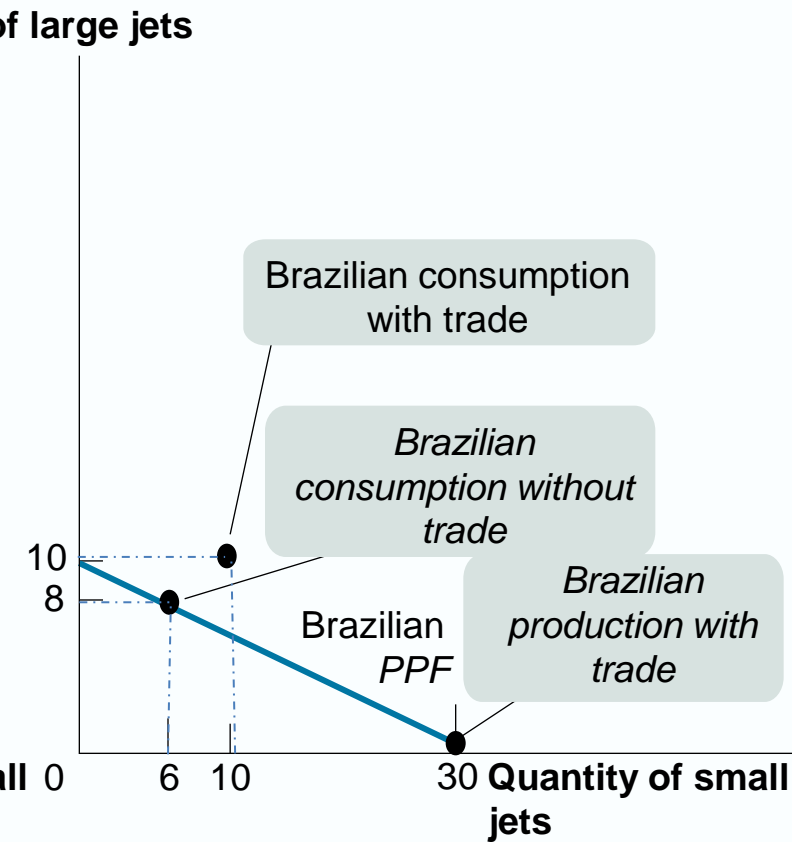
- Both countries are better off when they each specialize in what they are good at and then trade.
- It's a good idea for Brazil to make the small jets for both of them, because its opportunity cost of a small jet in terms of large jet not made is only $1/3$ of a large jet, versus $3/4$ large jets for the United States.
- Correspondingly, it's a good idea for the United States to make large jets for both of them.

Comparative Advantage and Gains from Trade

(a) U.S. Production and Consumption



(b) Brazilian Production and Consumption



How the Two Countries Gain from Trade

TABLE 2-2 How the United States and Brazil Gain from Trade

		<u>Without Trade</u>		<u>With Trade</u>		Gains from Trade
		Production	Consumption	Production	Consumption	
United States	Large jets	18	18	30	20	+2
	Small jets	16	16	0	20	+4
Brazil	Large jets	8	8	0	10	+2
	Small jets	6	6	30	10	+4

Both the United States and Brazil experience gains from trade:

- U.S. consumption of large jets increases by two, and its consumption of small jets increases by four.
- Brazilian consumption of large jets increases by two, and his consumption of small jets increases by four.

Comparative vs. Absolute Advantage

- An individual has a comparative advantage in producing a good or service if the opportunity cost of producing the good is lower for that individual than for other people.
- An individual has an absolute advantage in an activity if he or she can do it better than other people. Having an absolute advantage is not the same thing as having a comparative advantage.

U.S. vs. Brazil – Absolute vs. Comparative

- The United States has an **absolute advantage** in both activities: it can produce more output with a given amount of input (in this case, its time) than Brazil.
- But we've just seen that the United States can indeed benefit from a deal with Brazil because *comparative*, not *absolute*, advantage is the basis for mutual gain.

U.S. vs. Brazil – Absolute vs. Comparative

- So Brazil, despite its absolute disadvantage, even in small jets, has a comparative advantage in small jet making.
- Meanwhile the United States, which can use its time better by making large jets, has a comparative *disadvantage* in small jet making.

PITFALLS

Misunderstanding Comparative Advantage

A common mistake is to confuse comparative advantage with absolute advantage.

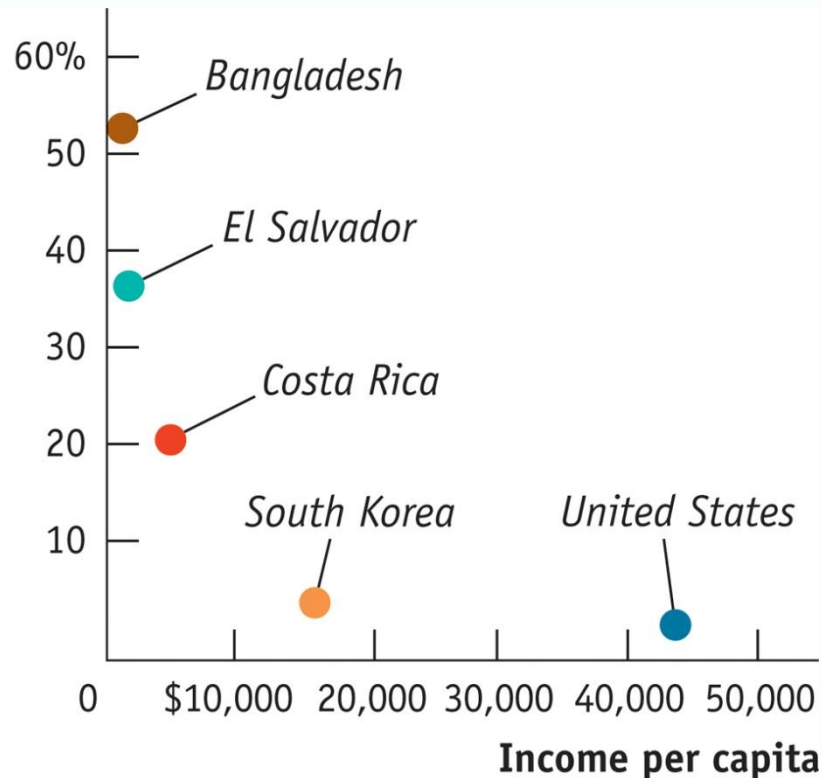
Example: United States vs. Japan in 1980s:

- Commentators: *“United States might soon have no comparative advantage in anything.”*
- Wrong! They meant *“absolute advantage.”*

Global Comparison: Pajama Republic

- Poor countries have relatively large clothing industries, while rich countries have relatively small ones.
- Poor countries have low productivity in the clothing sector, but the sector has higher comparative advantage because their productivity in nonclothing sectors is even lower.

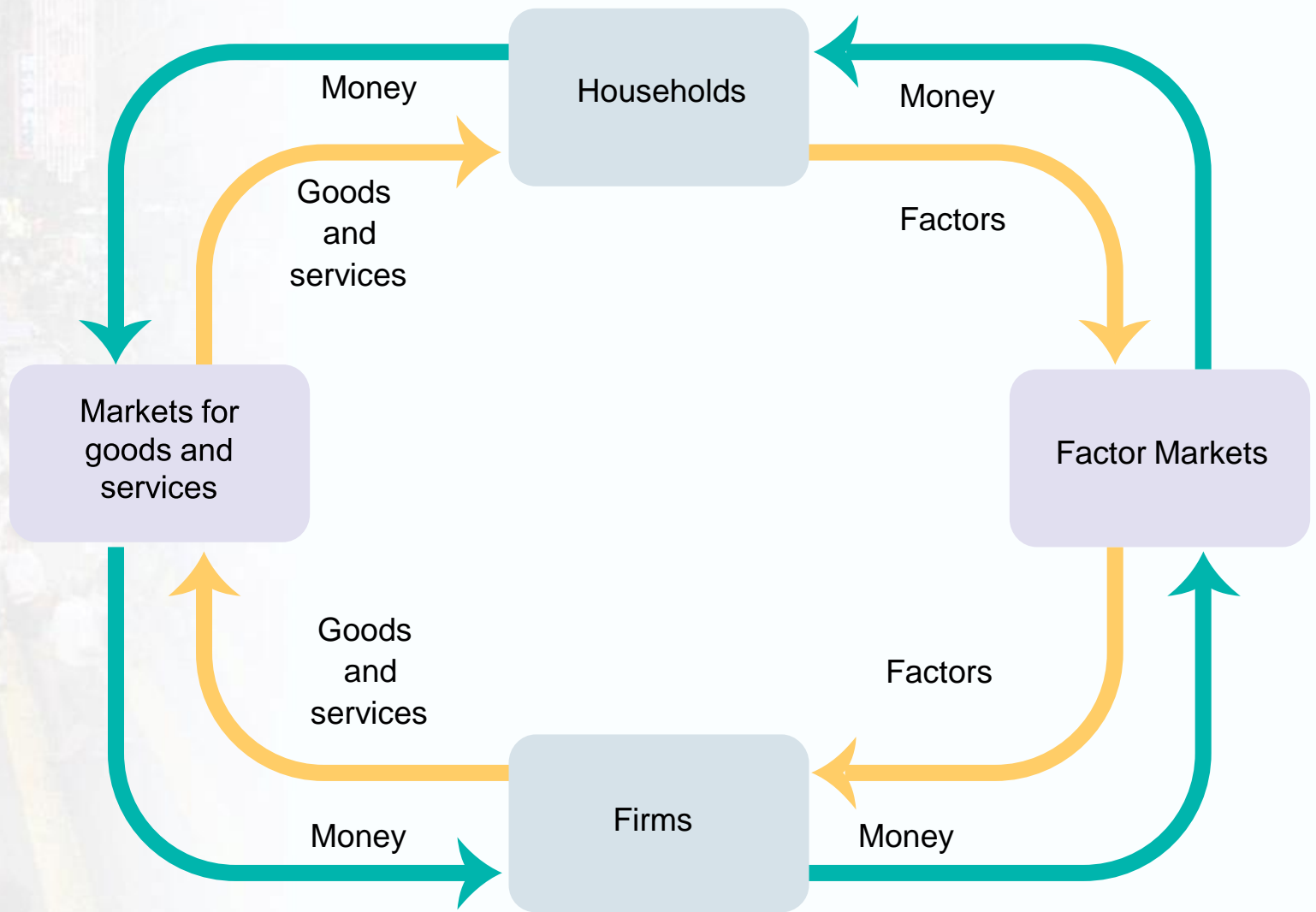
Employment
in clothing
production
(percent of total
manufacturing
employment)



Transactions: The Circular-Flow Diagram

- Trade takes the form of barter when people directly exchange goods or services they have for goods or services they want.
- The circular-flow diagram is a model that represents the transactions in an economy by flows around a circle.

The Circular-Flow Diagram



Circular-Flow of Economic Activities

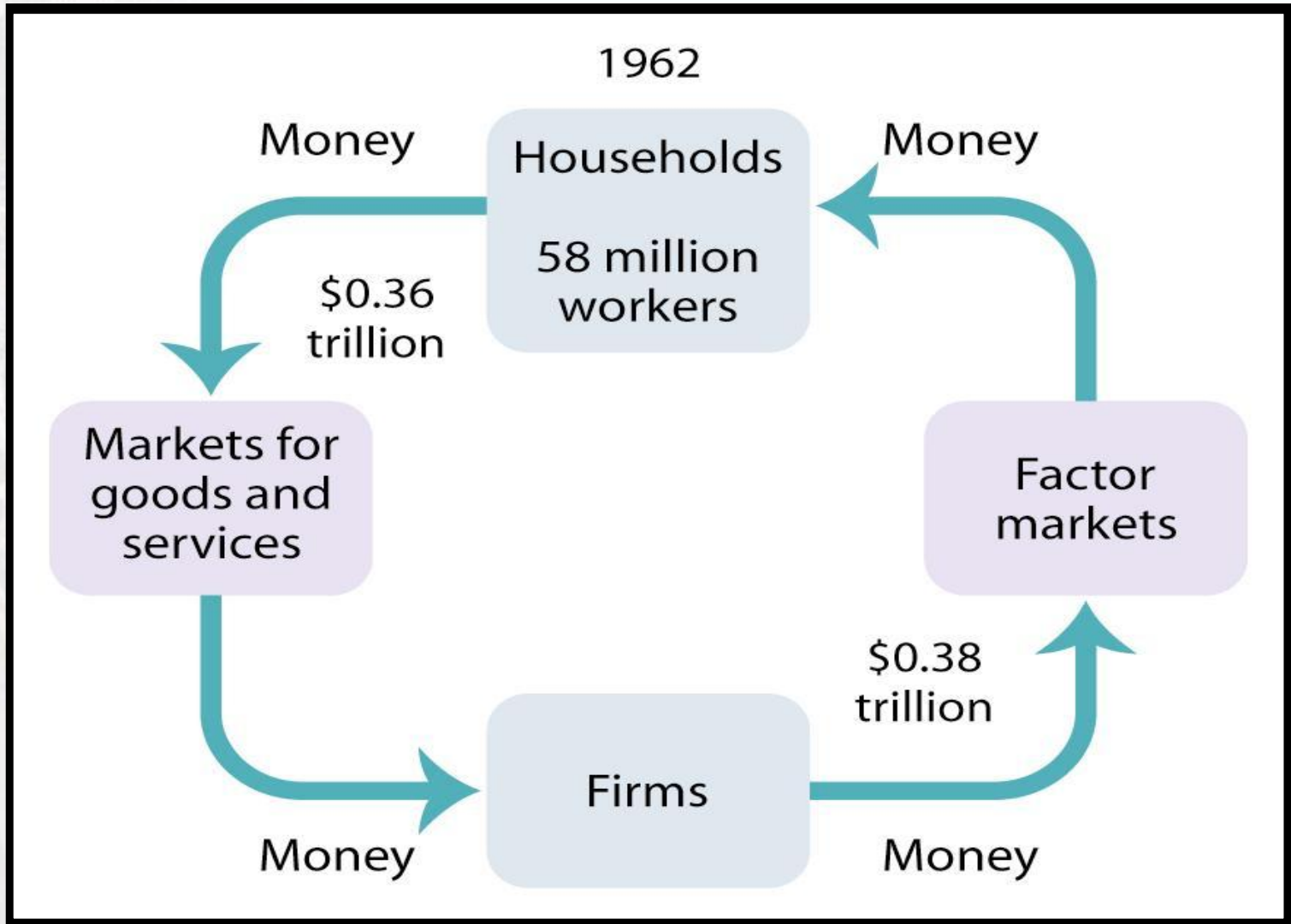
- A **household** is a person or a group of people that share their income.
- A **firm** is an organization that produces goods and services for sale.
- Firms sell goods and services that they produce to households in **markets for goods and services**.
- Firms buy the resources they need to produce goods and services—**factors of production**—in **factor markets**.

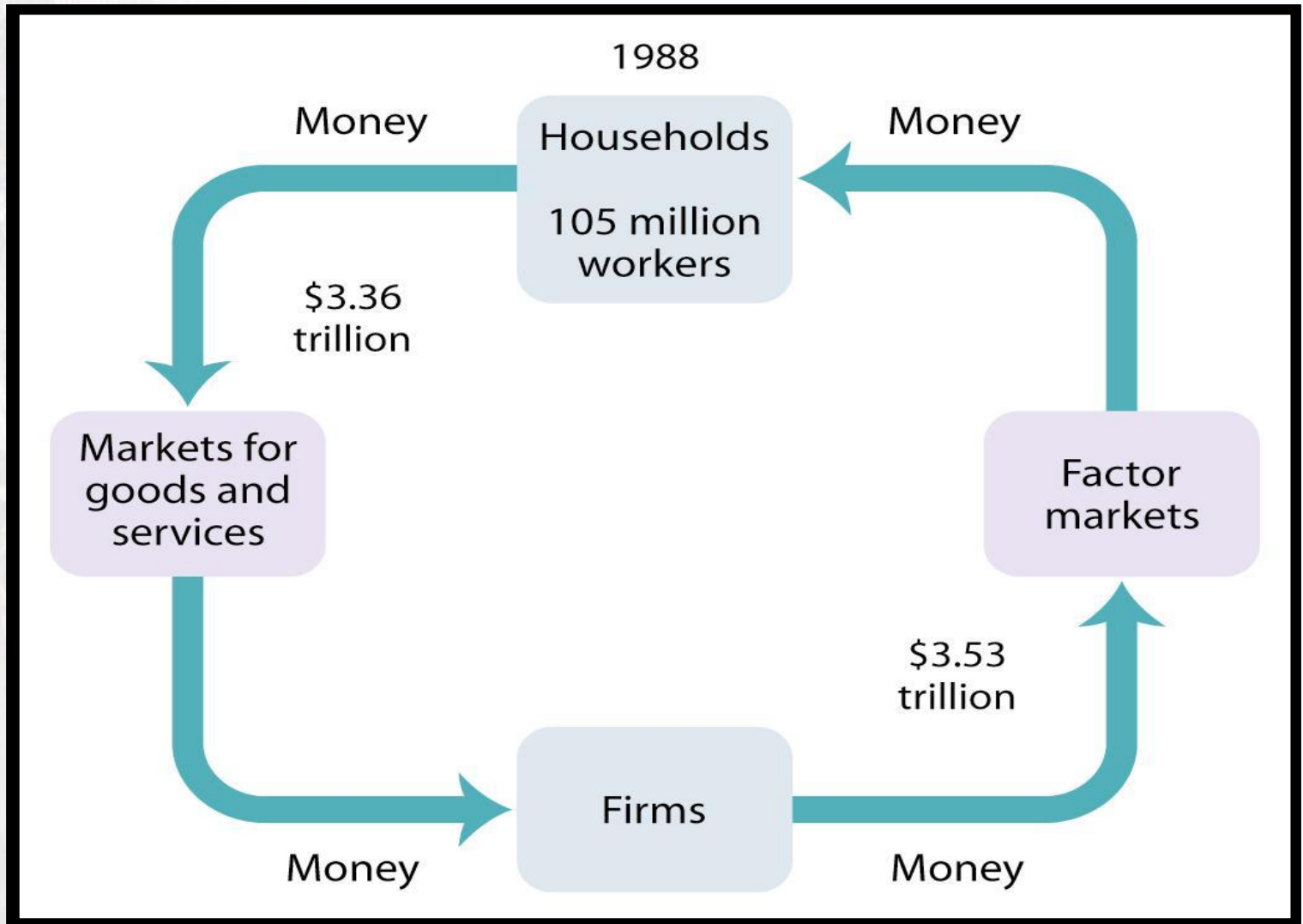
Circular-Flow of Economic Activities

- Ultimately, factor markets determine the economy's income distribution — how total income is divided among the owners of the various factors of production.



Growth in the U.S. Economy from 1962...





ECONOMICS IN ACTION

Rich Nation, Poor Nation

- Why are some countries so much poorer than we are?
- The immediate reason is that their economies are much less productive.
 - Firms in these countries are just not able to produce as much from a given quantity of resources.
- But if the economies of these countries are so much less productive than ours, how is it that they make so much of our clothing? Why don't we do it for ourselves?

ECONOMICS IN ACTION

Rich Nation, Poor Nation

- The answer is *comparative advantage*.
 - Just about every industry in Bangladesh is much less productive than the corresponding industry in the United States. But the productivity difference between rich and poor countries varies across goods; the difference is very large in the production of sophisticated goods like aircraft, but smaller in the production of simpler goods like clothing.

Using Models

- **Positive economics** is the branch of economic analysis that describes the way the economy actually works.
- **Normative economics** makes prescriptions about the way the economy *should* work.
- A **forecast** is a simple prediction of the future.

Using Models

- Economists can determine correct answers for positive questions, but typically not for normative questions, which involve value judgments.
- The exceptions are when policies designed to achieve a certain prescription can be clearly ranked in terms of efficiency.
- It is important to understand that economists don't use complex models to show "how clever they are," but rather because they are "not clever enough" to analyze the real world as it is.

When and Why Economists Disagree

There are two main reasons economists disagree:

1. Which simplifications to make in a model
2. Values

FOR INQUIRING MINDS

When Economists Agree

- Do economists really disagree so much?
 - Not according to a classic survey of members of the American Economic Association, reported in the May 1992 issue of the *American Economic Review*.
- So is the stereotype of quarreling economists a myth?
 - Not entirely: economists do disagree quite a lot on some issues, especially in macroeconomics. But there is a large area of common ground.

ECONOMICS IN ACTION

Economists Beyond the Ivory Tower

- One specific branch of economics, finance theory, plays an important role on Wall Street—not always to good effect. But pricing assets is by no means the only useful function economists serve in the business world.

ECONOMICS IN ACTION

Economists Beyond the Ivory Tower

- Businesses need forecasts of the future demand for their products, predictions of future raw-material prices, assessments of their future financing needs, and more—economic analysis is essential for these.
 - Financial firms like Goldman Sachs and Morgan Stanley, in particular, maintain high-quality economics departments that produce analyses of forces and events likely to affect financial markets.
 - Other economists are employed by consulting firms like Macro Advisers, which sells analysis and advice to a wide range of other businesses.

ECONOMICS IN ACTION

Economists Beyond the Ivory Tower

- Last but not least, economists participate extensively in government.
 - According to the Bureau of Labor Statistics, government agencies employ about half of the professional economists in the United States.

ECONOMICS IN ACTION

Economists Beyond the Ivory Tower

- Economists play an especially important role in two international organizations headquartered in Washington, D.C.
 1. The International Monetary Fund, which provides advice and loans to countries experiencing economic difficulties
 2. The World Bank, which provides advice and loans to promote long-term economic development

VIDEO



TED Video:

<http://globaltransition2012.org/2012/01/tim-jackson-on-prosperity-without-growth/>

- Prof. Tim Jackson on the principles for a new economy and tradeoffs

SUMMARY

1. Almost all economics is based on **models**.

An important assumption in economic models is the **other things equal assumption**, which allows analysis of the effect of a change in one factor by holding all other relevant factors unchanged.

SUMMARY

2. One important economic model is the **production possibility frontier**. It illustrates: *opportunity cost*, *efficiency*, and *economic growth*.

There are two basic sources of growth: an increase in **factors of production** — resources such as land, labor, capital, and human capital, inputs that are not used up in production — and improved **technology**.

SUMMARY

3. Another important model is **comparative advantage**, which explains the source of gains from trade between individuals and countries. Everyone has a comparative advantage in something.

This is often confused with **absolute advantage**, an ability to produce a particular good or service better than anyone else.

SUMMARY

4. In the simplest economies, people **barter** or trade goods and services for one another—rather than trade them for money, as in a modern economy.

The **circular-flow diagram** represents transactions within the economy as flows of goods, services, and money between **households** and **firms**. These transactions occur in **markets for goods and services** and **factor markets**.

SUMMARY

5. Economists use economic models both for **positive economics**, which describes how the economy works, and for **normative economics**, which prescribes how the economy *should* work.

Positive economics often involves making **forecasts**. Economists can determine correct answers for positive questions, but typically not for normative questions, which involve value judgments.

SUMMARY

5. There are two main reasons economists disagree.

One: they may disagree about which simplifications to make in a model.

Two: economists may disagree—like everyone else—about values.

KEY TERMS



- Model
- Other things equal assumption
- Production possibility frontier
- Factors of production
- Technology
- Comparative advantage
- Absolute advantage
- Barter
- Circular-flow diagram
- Household
- Firm
- Markets for goods and services
- Factor markets
- Income distribution
- Positive economics
- Normative economics
- Forecast
- Specialization
- Equilibrium
- Efficient
- Equity