

Economics 103

Principles of Microeconomics

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Lecture notes available at www.sfu.ca/~friesen

TUTORIALS BEGIN THIS WEEK

See tutorial questions on website (based on Chapter 1 and Appendix 1A)

Lecture this week based on Chapter 2.

Review of last week's lecture

- ▶ What is Economics?
- ▶ The scope of Economics: two big economic questions
- ▶ The methodology of economics

Review of last week's lecture

▶ What is Economics?

Economics is the **social science** that studies the *choices* that individuals, businesses, governments, and entire societies make as they cope with *scarcity* and the *incentives* that influence and reconcile those choices.

Review of last week's lecture

First big economic question is really a set of questions:

How do choices end up determining *what*, *how*, and *for whom* goods and services get produced?

Economics provides answers to these questions.

Review of last week's lecture

Second big economic question: *When is the pursuit of self-interest in the social interest?*

Do we produce the right things in the right quantities?

Do we use our factors of production in the best way?

Do the goods and services go to those who benefit most from them?

Is it possible that when each one of us makes choices that are in our **self-interest**, it also turns out that these choices are also in the **social interest**?

Review of last week's lecture

The Methodology of Economics

- ▶ Choice under scarcity implies trade-offs – more of one thing means less of another
- ▶ The cost of something is its **opportunity cost** – the highest-valued alternative
- ▶ Basic economic explanation for behaviour: choices respond to incentives – comparison of **marginal cost** and **marginal benefit**.

Outline of today's lecture

- ▶ **Production possibilities and opportunity cost**
- ▶ **Productive and allocative efficiency**
- ▶ **Gains from trade**
- ▶ **Economic coordination**

Production Possibilities and Opportunity Cost

- ▶ Two goods: cola and pizza
- ▶ Fixed resources
- ▶ Fixed technology
- ▶ Efficiency - the economy is achieving maximum production

Production Possibilities

	Pizzas (millions)	Cans of cola (millions)
A	0	15
B	1	14
C	2	12
D	3	9
E	4	5
F	5	0

The PP Table shows the combinations of the maximum amounts of the two goods that can be produced under these assumptions.

Production Possibilities and Opportunity Cost

We can plot the values from the production possibilities table to show the **production possibilities frontier** (*PPF*)

The PPF is the boundary between those combinations of goods and services that can be produced and those that cannot.

To illustrate the *PPF*, we focus on two goods at a time and hold the quantities of all other goods and services constant.

That is, we look at a model economy in which everything remains the same (*ceteris paribus*) except the two goods we're considering.

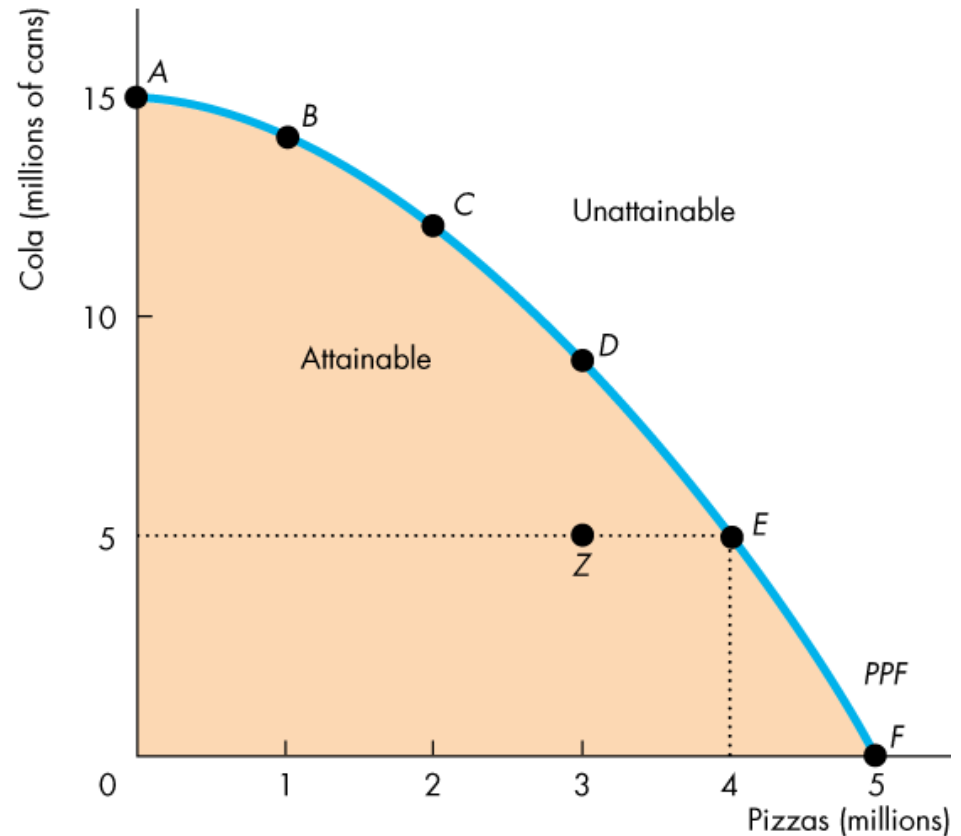
Production Possibilities and Opportunity Cost



Production Possibilities Frontier

Any point *on* the frontier such as *E* and any point *inside* the *PPF* such as *Z* are attainable.

Points outside the *PPF* are unattainable.

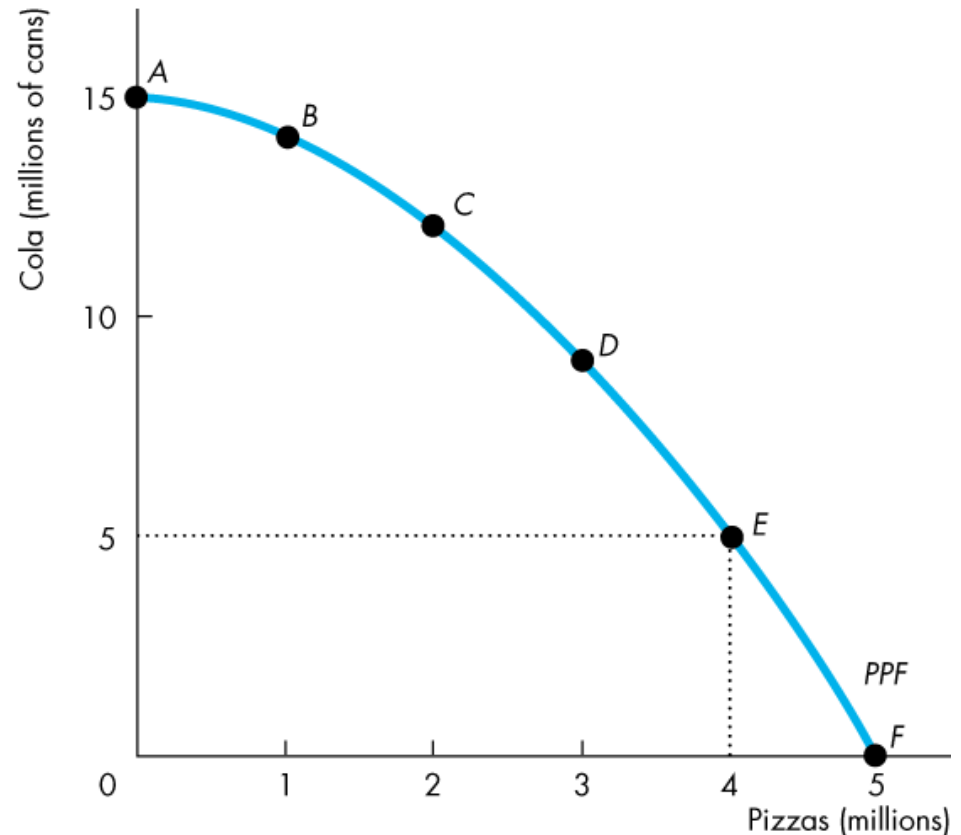


Production Possibilities and Opportunity Cost

Production Efficiency

We achieve **production efficiency** if we cannot produce more of one good without producing less of some other good.

Points on the frontier are *efficient*.

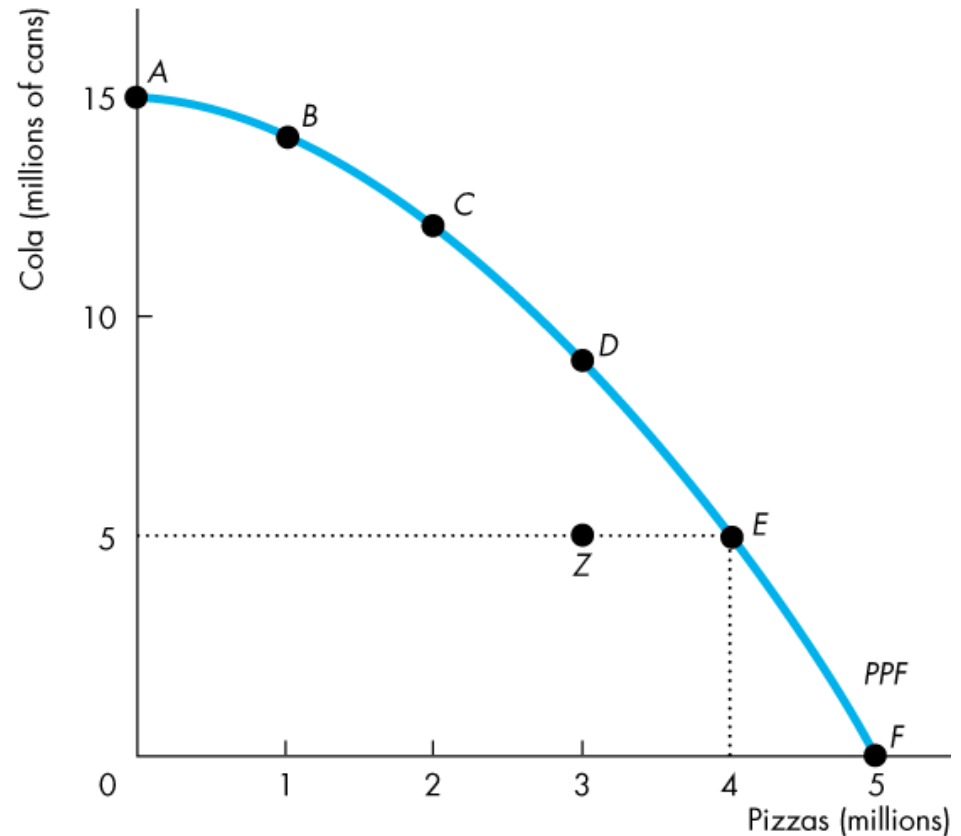


Production Possibilities and Opportunity Cost

Any point inside the frontier, such as Z, is *inefficient*.

At such a point, it is possible to produce more of one good without producing less of the other good.

At Z, resources are either unemployed or misallocated.

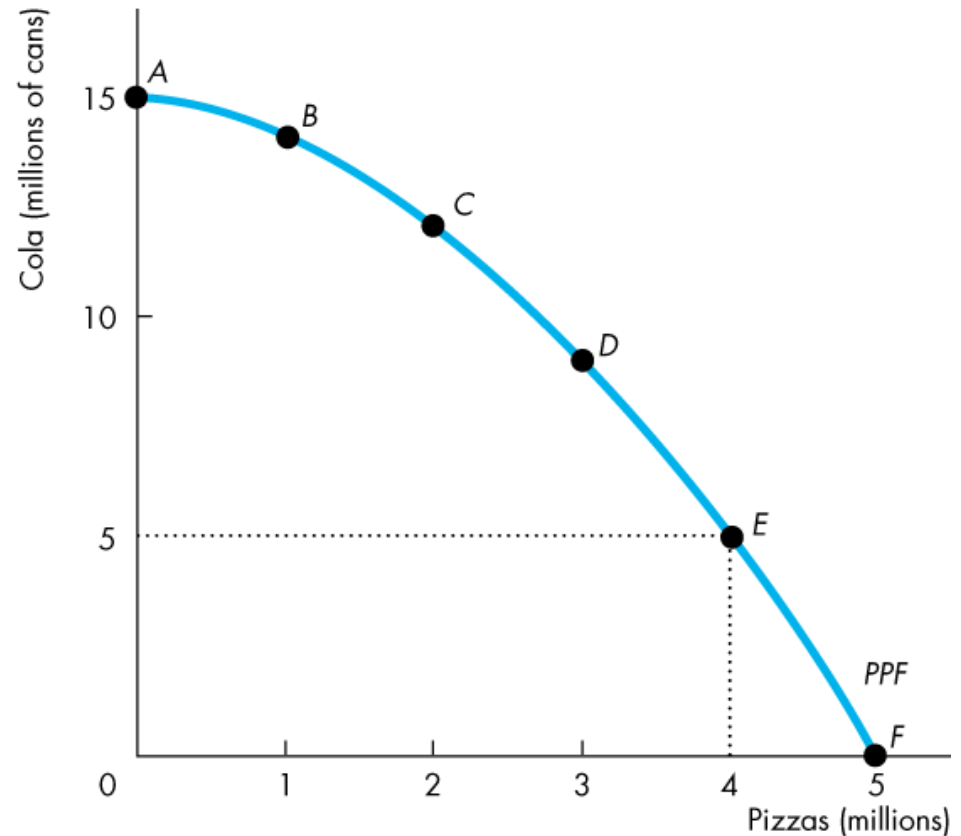


Production Possibilities and Opportunity Cost

Tradeoff Along the *PPF*

Every choice along the *PPF* involves a *tradeoff*.

On this *PPF*, we must give up some cola to get more pizzas or give up some pizzas to get cola.

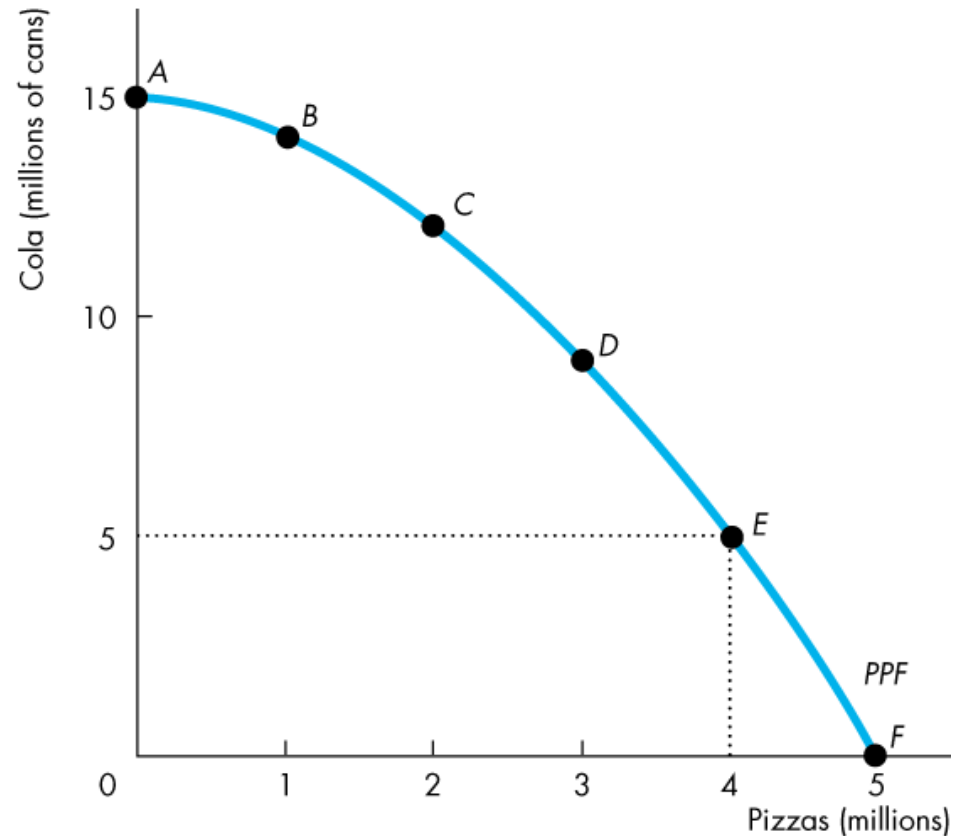


Production Possibilities and Opportunity Cost

Opportunity Cost

As we move down along the *PPF*, we produce more pizzas, but the quantity of cola we can produce decreases.

The opportunity cost of a pizza is the cola forgone.



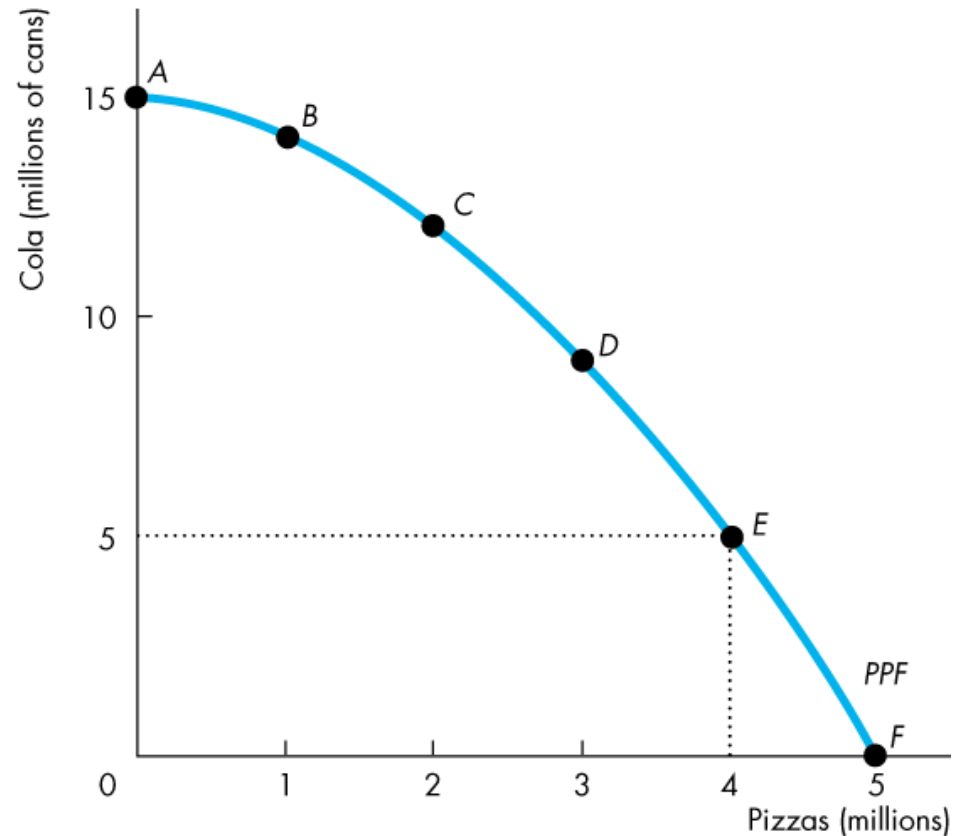
Production Possibilities and Opportunity Cost

In moving from *E* to *F*, the quantity of pizzas increases by 1 million.

The quantity of cola decreases by 5 million cans.

The opportunity cost of the fifth 1 million pizzas is 5 million cans of cola.

One of these pizzas costs 5 cans of cola.



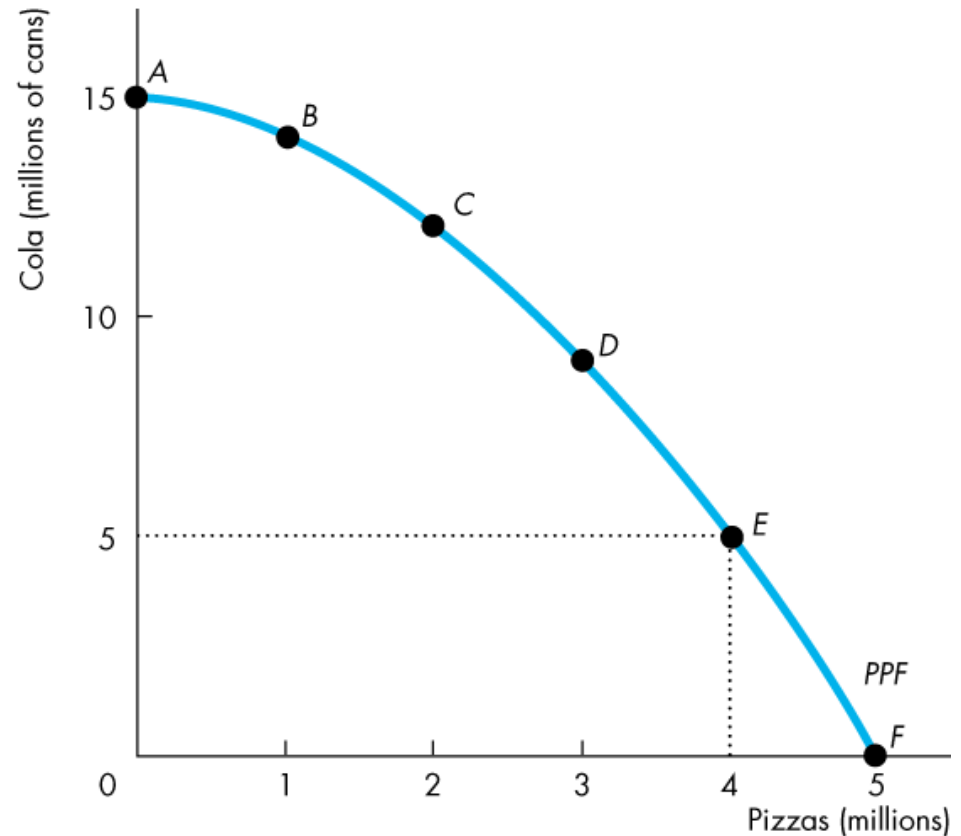
Production Possibilities and Opportunity Cost

In moving from F to E , the quantity of cola produced increases by 5 million.

The quantity of pizzas decreases by 1 million.

The opportunity cost of the first 5 million cans of cola is 1 million pizzas.

One of these cans of cola costs $1/5$ of a pizza.

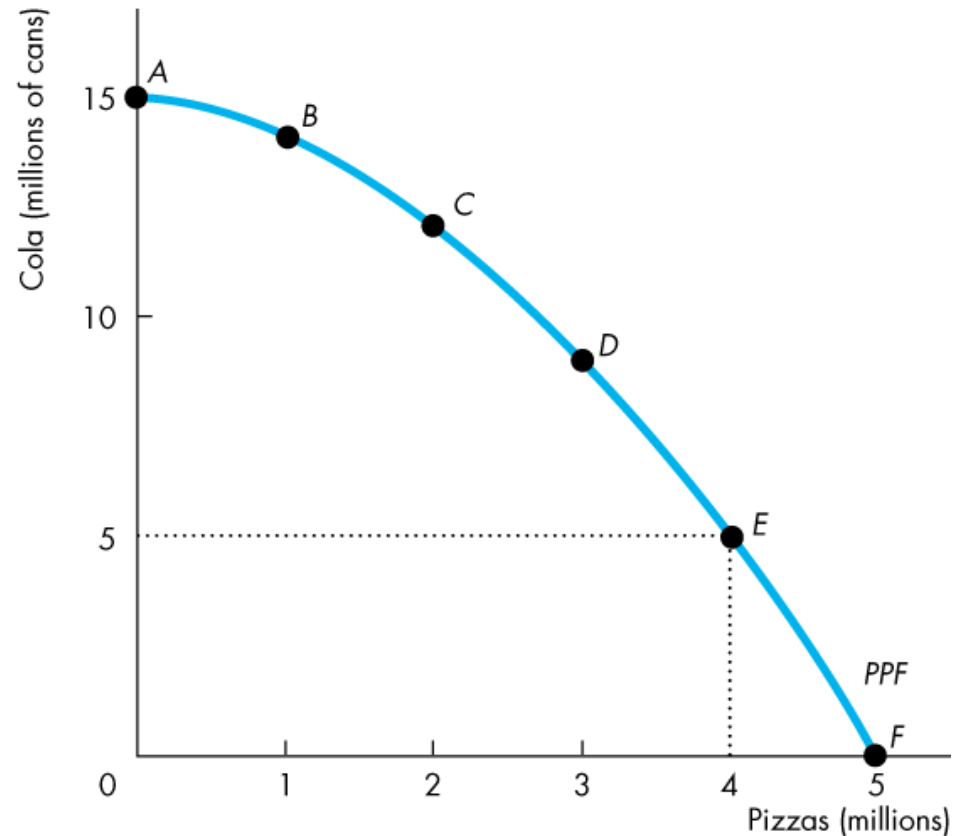


Production Possibilities and Opportunity Cost

Note that the opportunity cost of a can of cola is the *inverse* of the opportunity cost of a pizza.

One pizza costs 5 cans of cola.

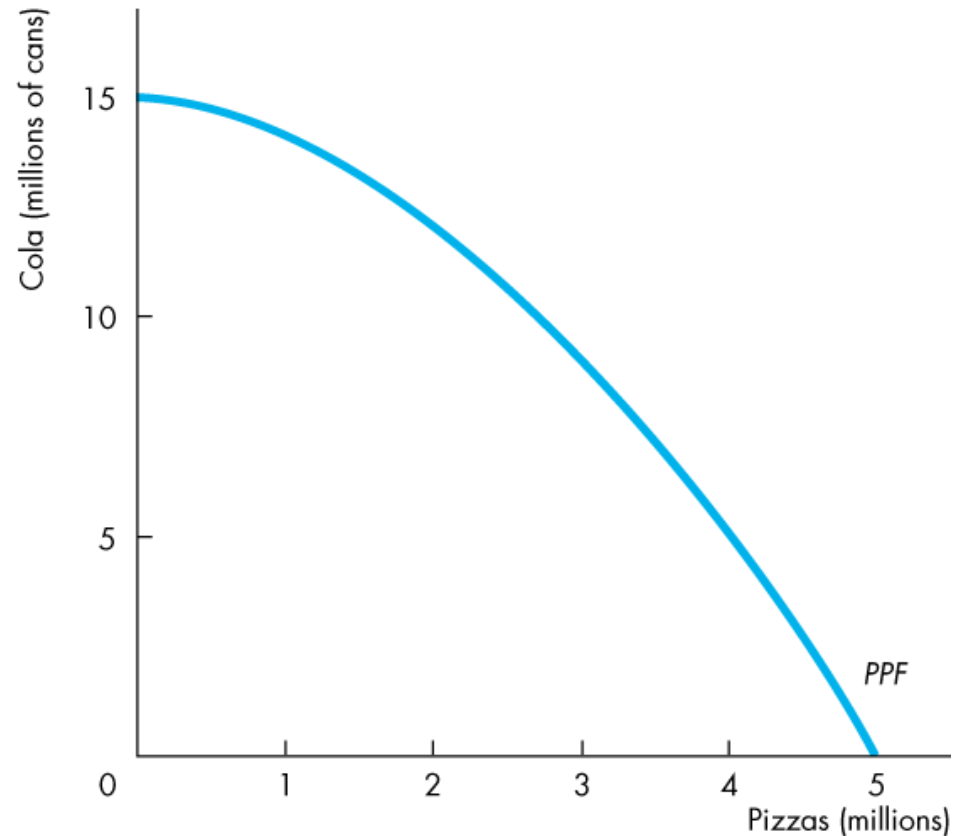
One can of cola costs $1/5$ of a pizza.



Production Possibilities and Opportunity Cost

Because resources are not equally productive in all activities, the *PPF* bows outward—is concave.

The outward bow of the *PPF* means that as the quantity produced of each good increases, so does its opportunity cost.



Using Resources Efficiently

All the points along the *PPF* are efficient.

To determine which of the alternative efficient quantities to produce, we compare costs and benefits.

The *PPF* and Marginal Cost

The *PPF* determines opportunity cost.

The **marginal cost** of a good or service is the opportunity cost of producing *one more unit* of it.

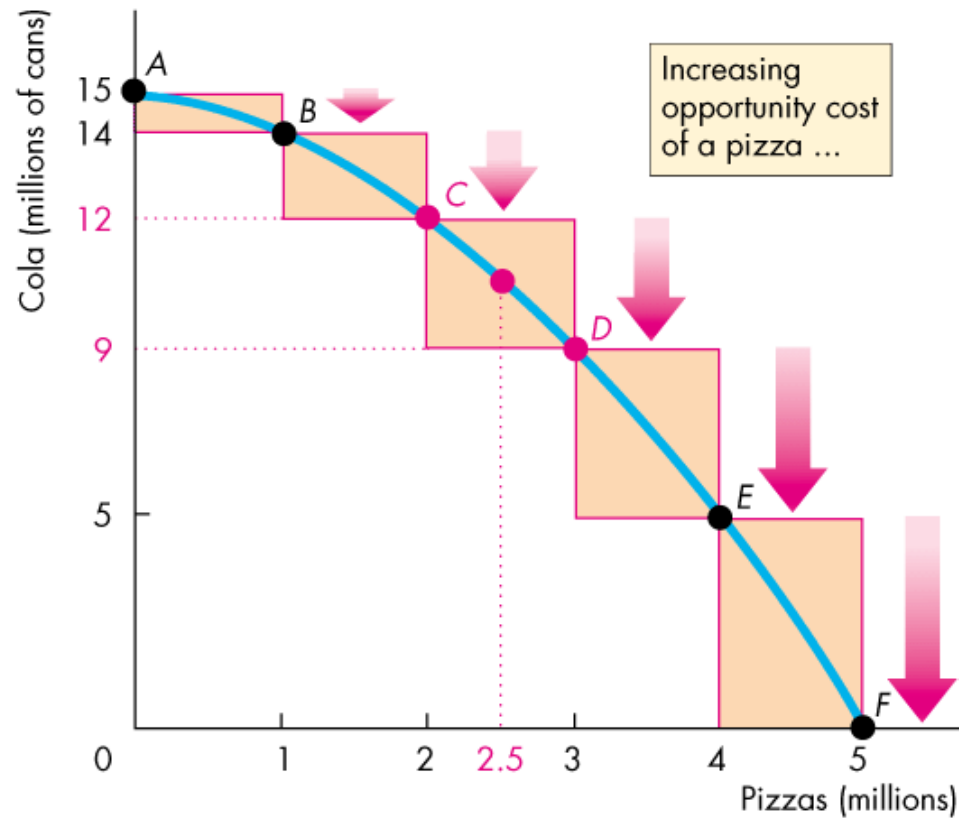
Using Resources Efficiently



Figure 2.2 illustrates the marginal cost of pizza.

As we move along the *PPF* in part (a), the opportunity cost of a pizza increases.

The opportunity cost of producing one more pizza is the marginal cost of a pizza.



(a) *PPF* and opportunity cost

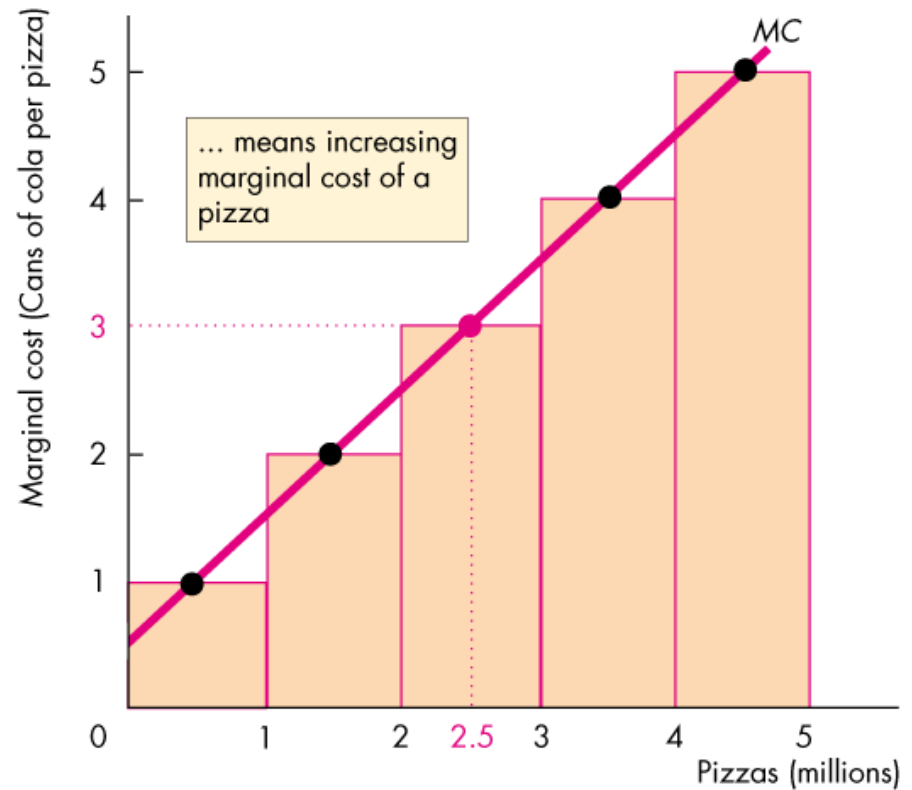
Using Resources Efficiently



In part (b) of Fig. 2.2, the bars illustrate the increasing opportunity cost of pizza.

The black dots and the line *MC* show the marginal cost of pizza.

The *MC* curve passes through the centre of each bar.



(b) Marginal cost

Using Resources Efficiently

Preferences and Marginal Benefit

Preferences are a description of a person's likes and dislikes.

To describe preferences, economists use the concepts of marginal benefit and the marginal benefit curve.

The **marginal benefit** of a good or service is the benefit received from consuming one more unit of it.

We measure marginal benefit by the amount that a person is *willing to pay* for an additional unit of a good or service.

Using Resources Efficiently

It is a general principle that the more we have of any good, the smaller is its marginal benefit and the less we are willing to pay for an additional unit of it.

We call this general principle the *principle of decreasing marginal benefit*.

The **marginal benefit curve** shows the relationship between the marginal benefit of a good and the quantity of that good consumed.

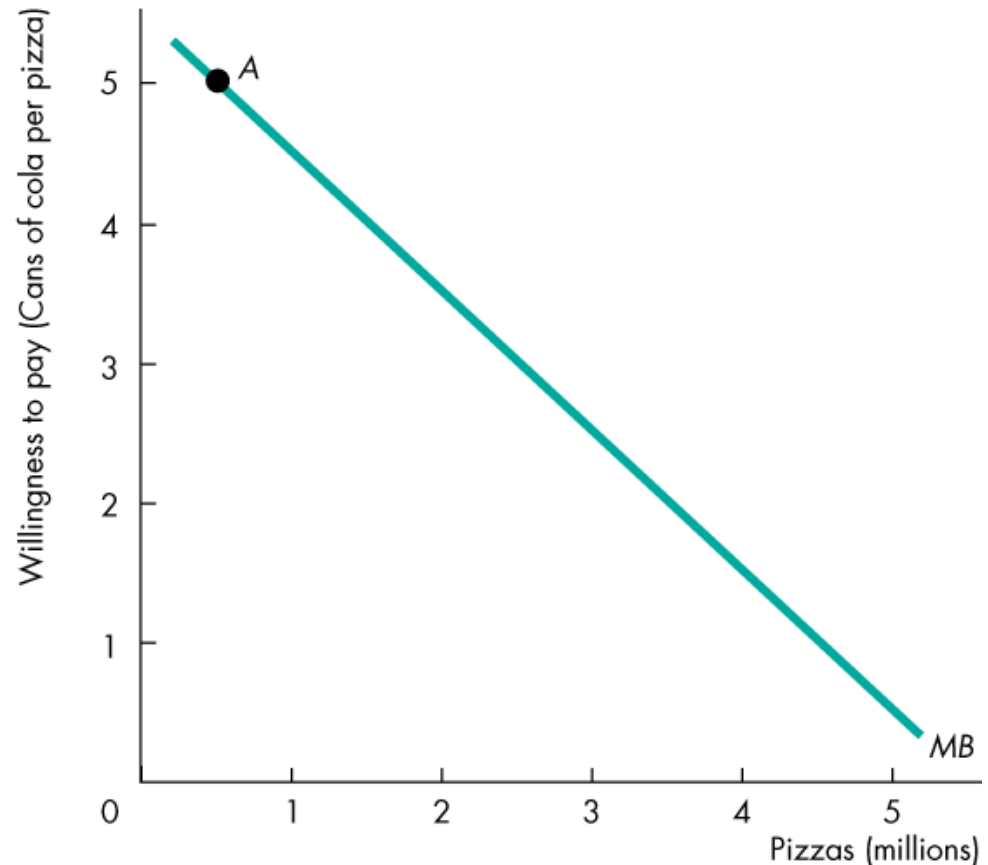
Using Resources Efficiently



Figure 2.3 shows a marginal benefit curve.

The curve slopes downward to reflect the principle of decreasing marginal benefit.

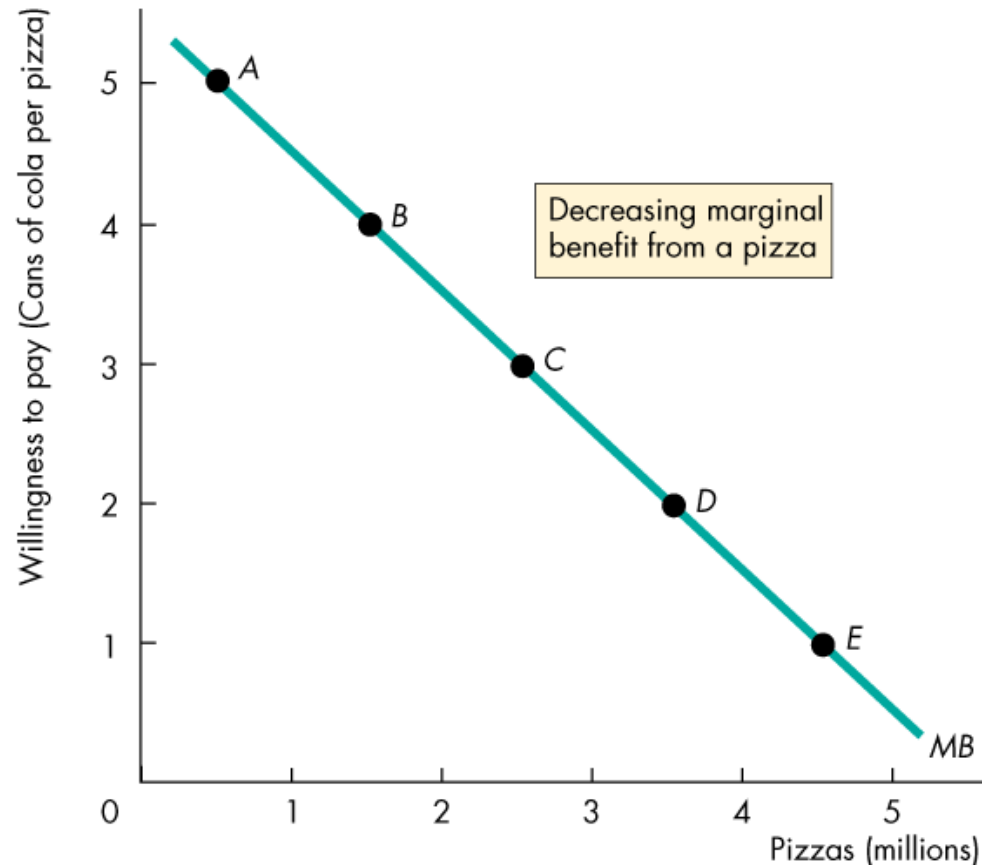
At point A, with pizza production at 0.5 million, people are willing to pay 5 cans of cola for a pizza.



Using Resources Efficiently

At point *B*, with pizza production at 1.5 million, people are willing to pay 4 cans of cola for a pizza.

At point *E*, with pizza production at 4.5 million, people are willing to pay 1 can of cola for a pizza.



Using Resources Efficiently

Allocative Efficiency

When we cannot produce more of any one good without giving up some other good, we have achieved *production efficiency*.

We are producing at a point *on* the *PPF*.

When we cannot produce more of any one good without giving up some other good *that we value more highly*, we have achieved **allocative efficiency**.

We are producing at *the* point on the *PPF* that we prefer above all other points.

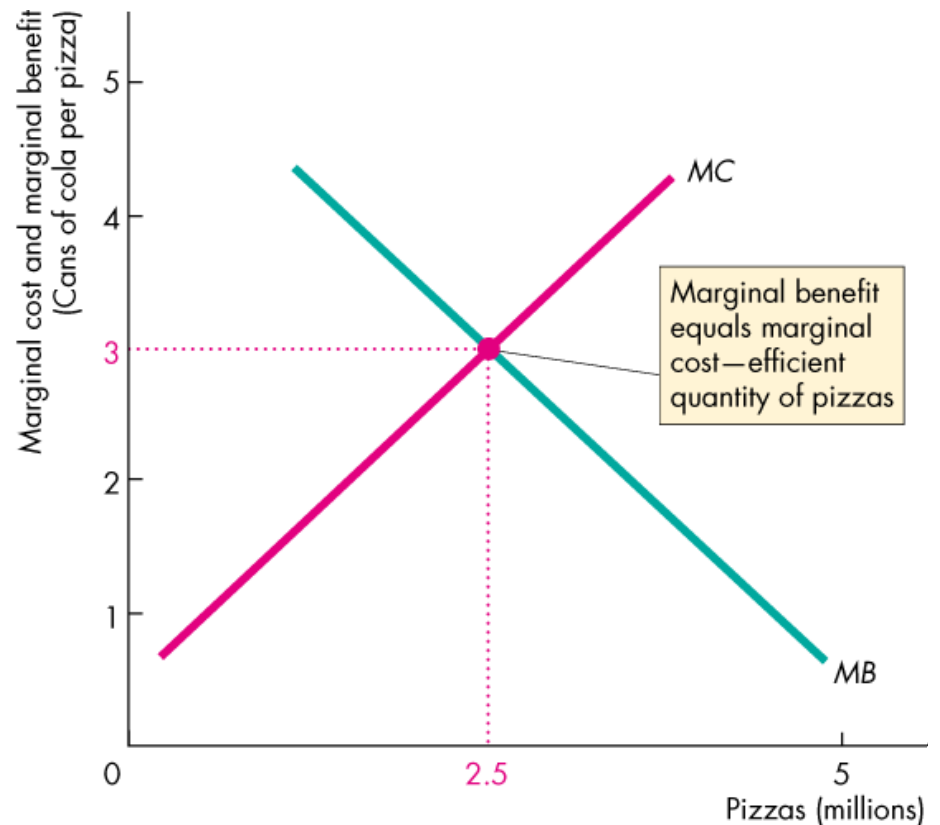
Using Resources Efficiently



Figure 2.4 illustrates allocative efficiency.

The point of allocative efficiency is the point on the *PPF* at which marginal benefit equals marginal cost.

This point is determined by the quantity at which the marginal benefit curve intersects the marginal cost curve.



(b) Marginal benefit equals marginal cost

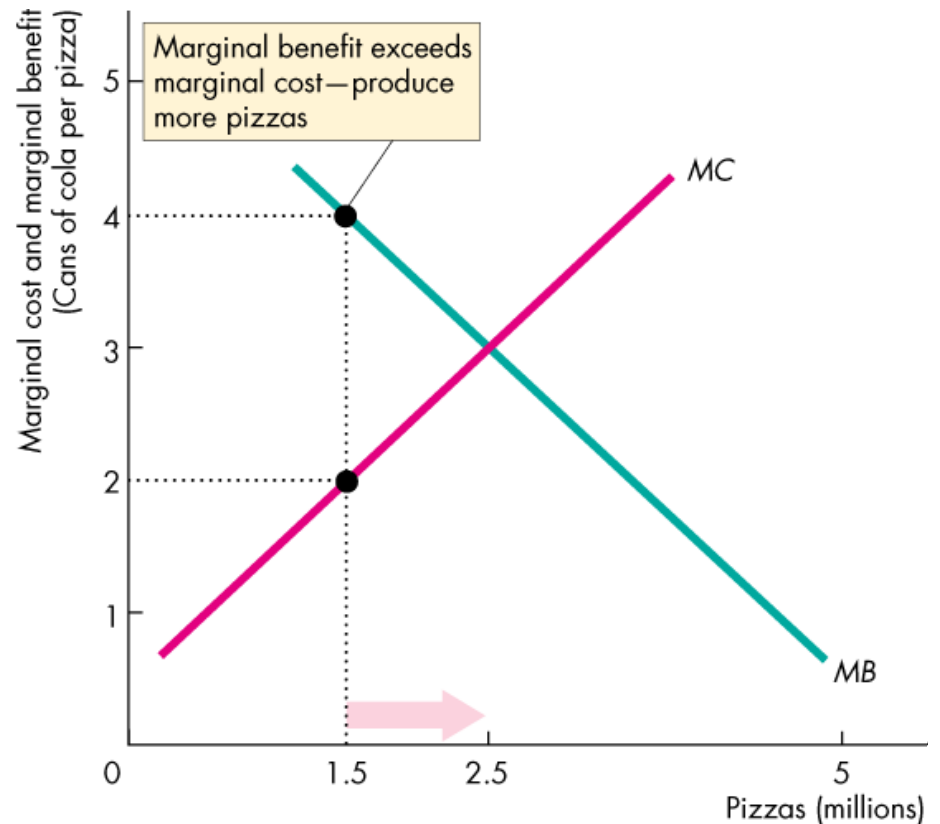
Using Resources Efficiently



If we produce fewer than 2.5 million pizzas, marginal benefit exceeds marginal cost.

We get more value from our resources by producing more pizzas.

On the *PPF* at point *A*, we are producing too much cola, and we are better off moving along the *PPF* to produce more pizzas.



(b) Marginal benefit equals marginal cost

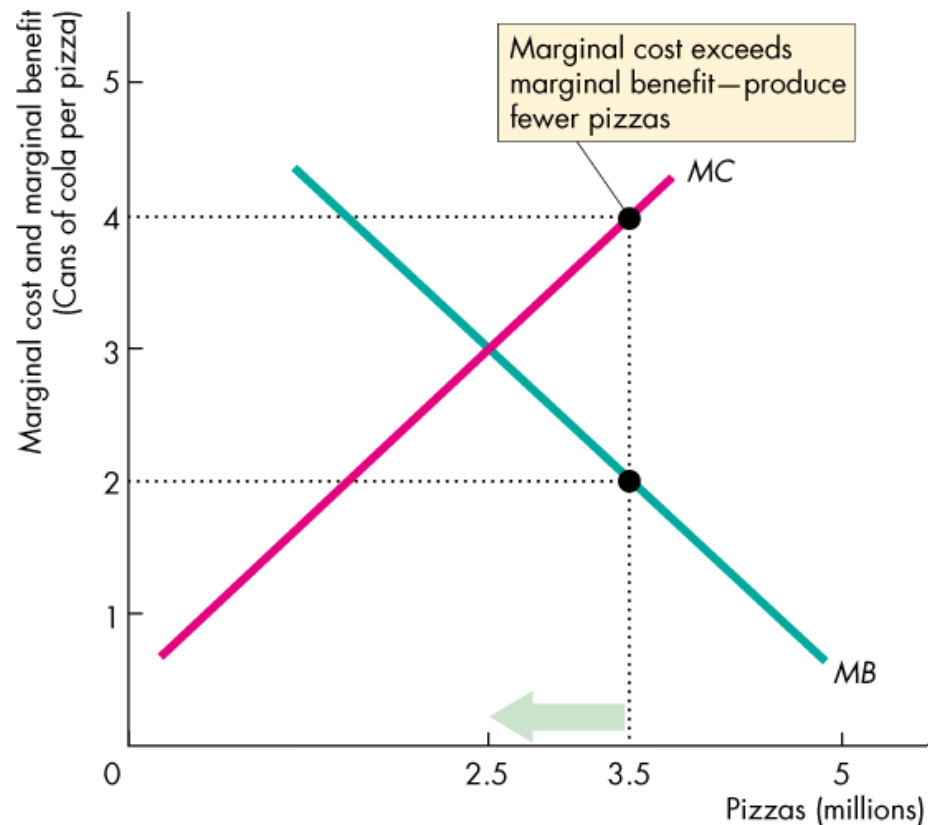
Using Resources Efficiently



If we produce more than 2.5 million pizzas, marginal cost exceeds marginal benefit.

We get more value from our resources by producing fewer pizzas.

On the *PPF* at point C, we are producing too many pizzas, and we are better off moving along the *PPF* to produce fewer pizzas.



(b) Marginal benefit equals marginal cost

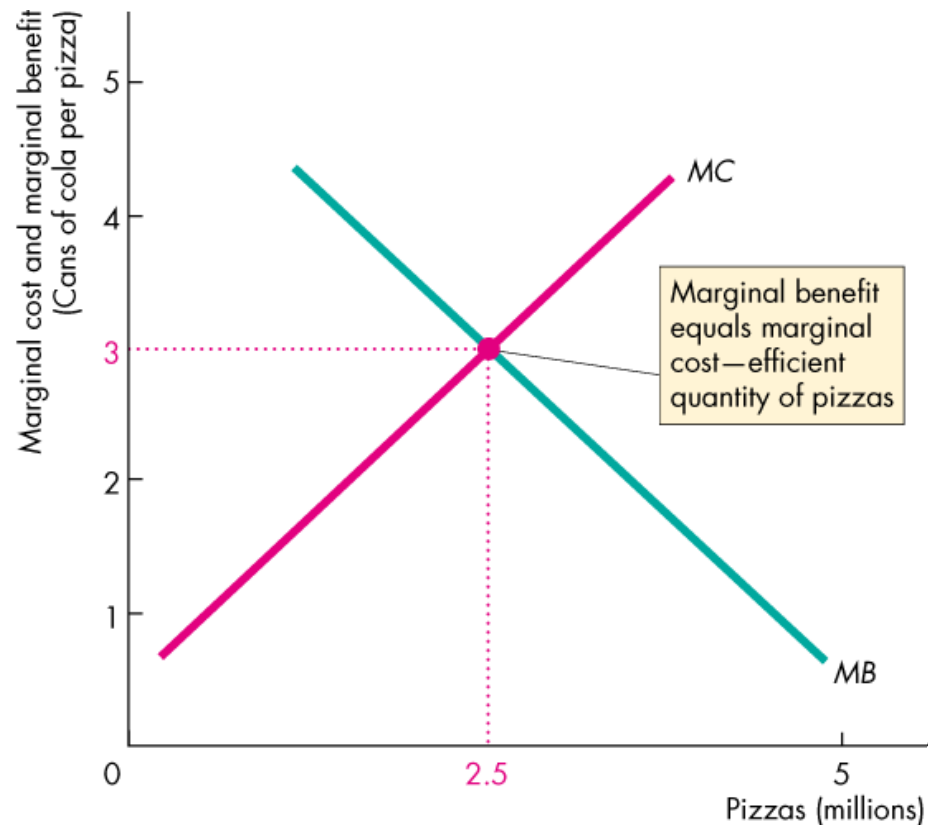
Using Resources Efficiently



If we produce exactly 2.5 million pizzas, marginal cost equals marginal benefit.

We cannot get more value from our resources.

On the *PPF* at point *B*, we are producing the efficient quantities of cola and pizzas.



(b) Marginal benefit equals marginal cost

Economic Growth

The expansion of production possibilities—and increase in the standard of living—is called **economic growth**.

Two key factors influence economic growth:

- Technological change
- Capital accumulation

Technological change is the development of new goods and of better ways of producing goods and services.

Capital accumulation is the growth of capital resources, which includes *human capital*.

Economic Growth

The Cost of Economic Growth

To use resources in research and development and to produce new capital, we must decrease our production of consumption goods and services.

So economic growth is not free.

The opportunity cost of economic growth is less current consumption.

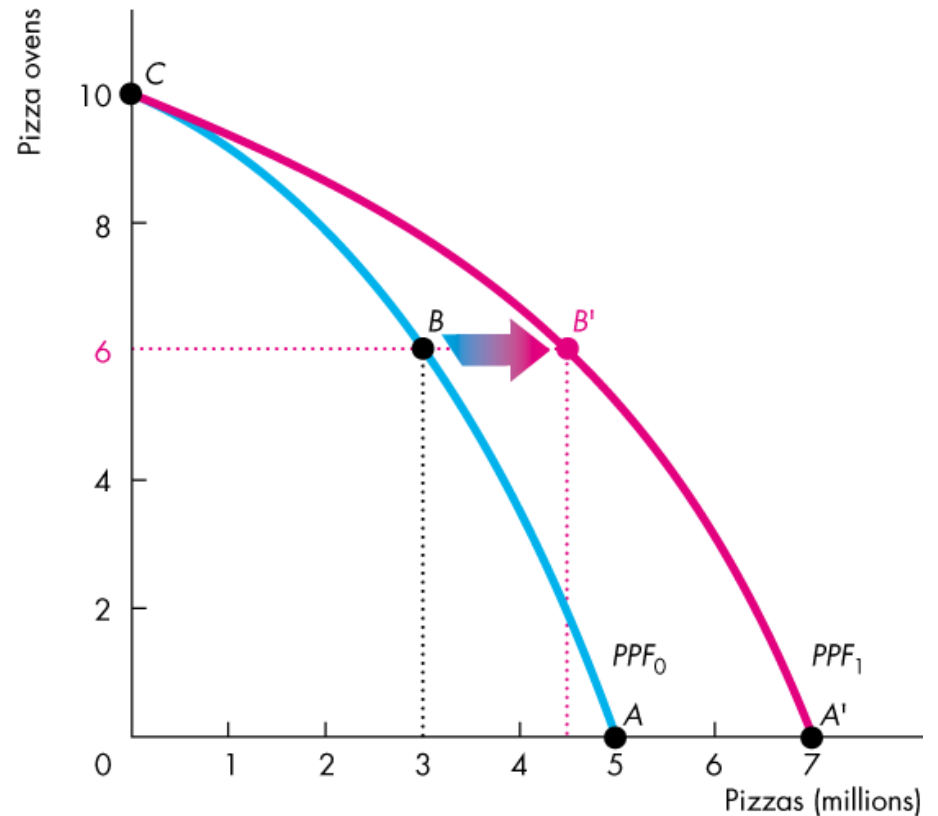
Economic Growth



Figure 2.5 illustrates the tradeoff we face.

We can produce pizzas or pizza ovens along PPF_0 .

By using some resources to produce pizza ovens today, the PPF shifts outward in the future.



Gains from Trade

Comparative Advantage and Absolute Advantage

A person has a **comparative advantage** in an activity if that person can perform the activity at a lower opportunity cost than anyone else.

A person has an **absolute advantage** if that person is more productive than others.

Absolute advantage involve comparing productivities while comparative advantage involves comparing opportunity costs.

◆ Gains from Trade

Liz's Smoothie Bar

In an hour, Liz can produce 30 smoothies or 30 salads.

Liz's opportunity cost of producing 1 smoothie is 1 salad.

TABLE 2.1 Liz's Production Possibilities

Item	Minutes to produce 1	Quantity per hour
Smoothies	2	30
Salads	2	30

Liz's opportunity cost of producing 1 salad is 1 smoothie.

Liz's customers buy salads and smoothies in equal number, so she produces 15 smoothies and 15 salads an hour.

◆ Gains from Trade

Joe's Smoothie Bar

In an hour, Joe can produce 6 smoothies or 30 salads.

Joe's opportunity cost of producing 1 smoothie is 5 salads.

Joe's opportunity cost of producing 1 salad is $\frac{1}{5}$ smoothie.

TABLE 2.2 Joe's Production Possibilities

Item	Minutes to produce 1	Quantity per hour
Smoothies	10	6
Salads	2	30

Joe spends 10 minutes making salads and 50 minutes making smoothies, so he produces 5 smoothies and 5 salads an hour.

Gains from Trade

Liz's Absolute Advantage

Liz is three times as productive as Joe.

Liz can produce 15 smoothies and 15 salads an hour whereas Joe can produce only 5 smoothies and 5 salads an hour.

Liz has an absolute advantage in producing smoothies and salads.

Gains from Trade

Liz's Comparative Advantage

Liz's opportunity cost of a smoothie is 1 salad.

Joe's opportunity cost of a smoothie is 5 salads.

Liz's opportunity cost of a smoothie is less than Joe's.

So Liz has a comparative advantage in producing smoothies.

Gains from Trade

Joe's Comparative Advantage

Joe's opportunity cost of a salad is $\frac{1}{5}$ smoothie.

Liz's opportunity cost of a salad is 1 smoothie.

Joe's opportunity cost of a salad is less than Liz's.

So Joe has a comparative advantage in producing salads.

◆ Gains from Trade



Achieving Gains from Trade

Liz and Joe produce the good in which they have a comparative advantage:

- Liz produces 30 smoothies and 0 salads.
- Joe produces 30 salads and 0 smoothies.

TABLE 2.3 Liz and Joe Gain from Trade

(a) Before trade	Liz	Joe
Smoothies	15	5
Salads	15	5

(b) Specialize	Liz	Joe
Smoothies	30	0
Salads	0	30

Gains from Trade

Liz and Joe trade:

- Liz sells Joe 10 smoothies and buys 20 salads.
- Joe sells Liz 20 salads and buys 10 smoothies.

After trade:

- Liz has 20 smoothies and 10 salads.
- Joe has 10 smoothies and 20 salads.

TABLE 2.3 Liz and Joe Gain from Trade

(a) Before trade	Liz	Joe
Smoothies	15	5
Salads	15	5

(b) Specialize	Liz	Joe
Smoothies	30	0
Salads	0	30

(c) Trade	Liz	Joe
Smoothies	sell 10	buy 10
Salads	buy 20	sell 20

(d) After trade	Liz	Joe
Smoothies	20	10
Salads	20	10

Gains from Trade

Gains from trade:

- Liz gains 5 smoothies and 5 salads an hour
- Joe gains 5 smoothies and 5 salads an hour

TABLE 2.3 Liz and Joe Gain from Trade

(a) Before trade	Liz	Joe
Smoothies	15	5
Salads	15	5
<hr/>		
(b) Specialize	Liz	Joe
Smoothies	30	0
Salads	0	30
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(c) Trade	Liz	Joe
Smoothies	sell 10	buy 10
Salads	buy 20	sell 20
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(d) After trade	Liz	Joe
Smoothies	20	10
Salads	20	10
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(e) Gains from trade	Liz	Joe
Smoothies	+5	+5
Salads	+5	+5

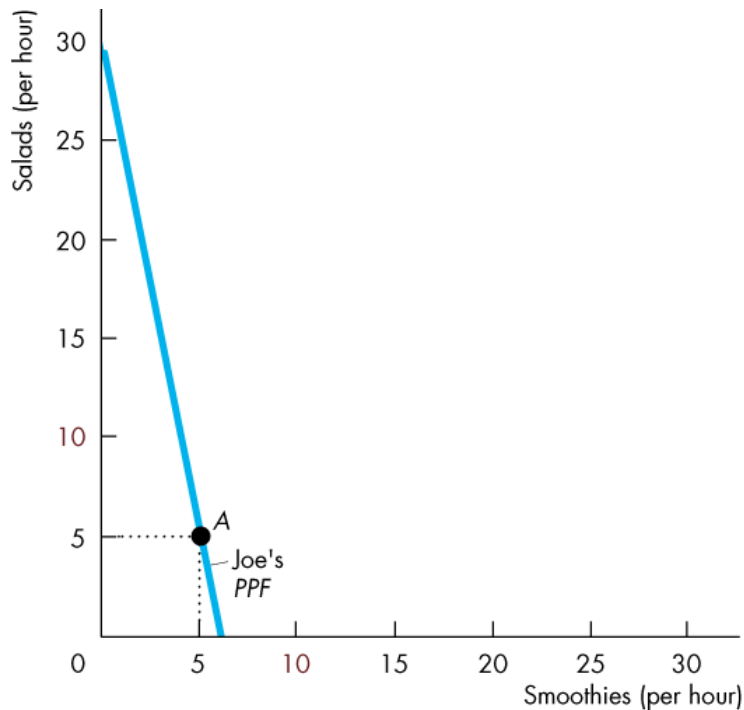
Gains from Trade



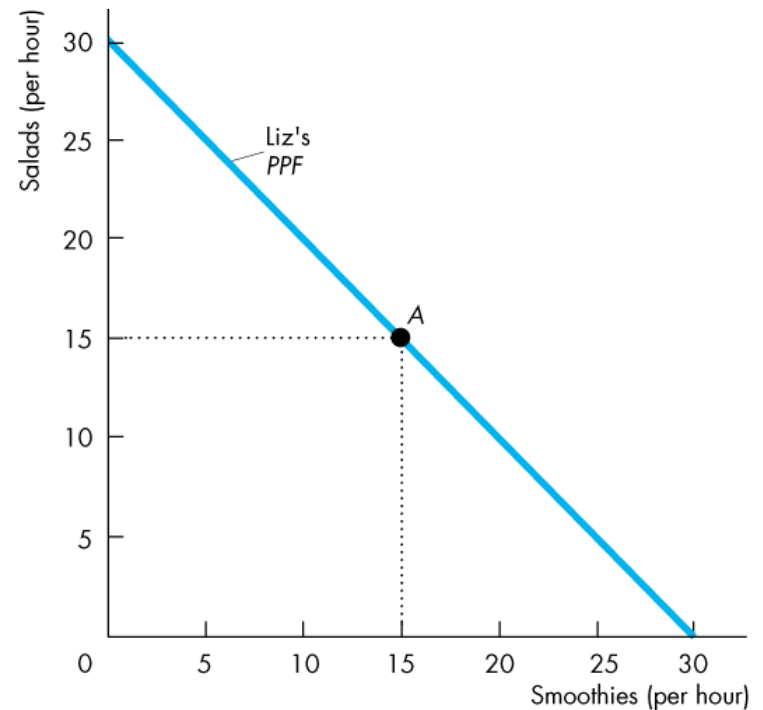
Figure 2.6 shows the gains from trade.

Joe initially produces at point *A* on his *PPF*.

Liz initially produces at point *A* on her *PPF*.



(a) Joe

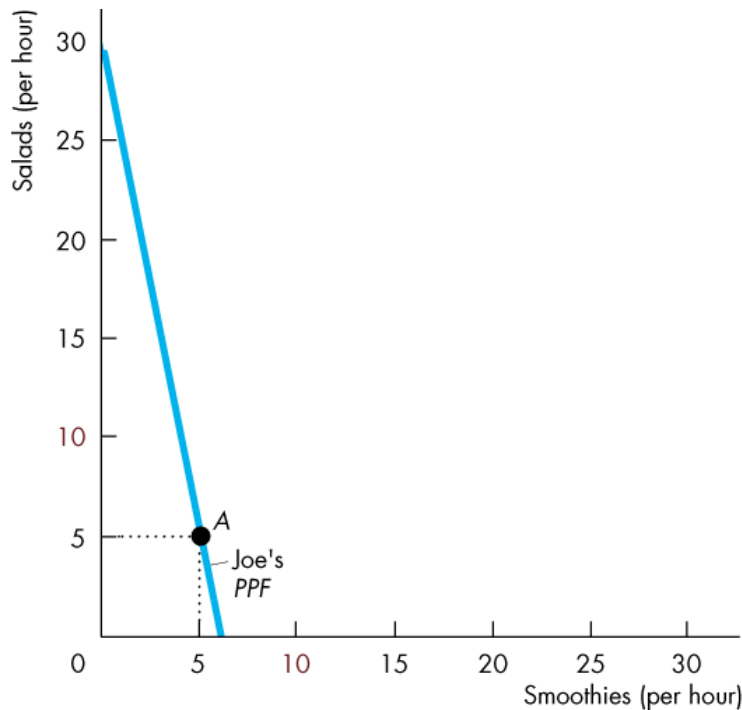


(b) Liz

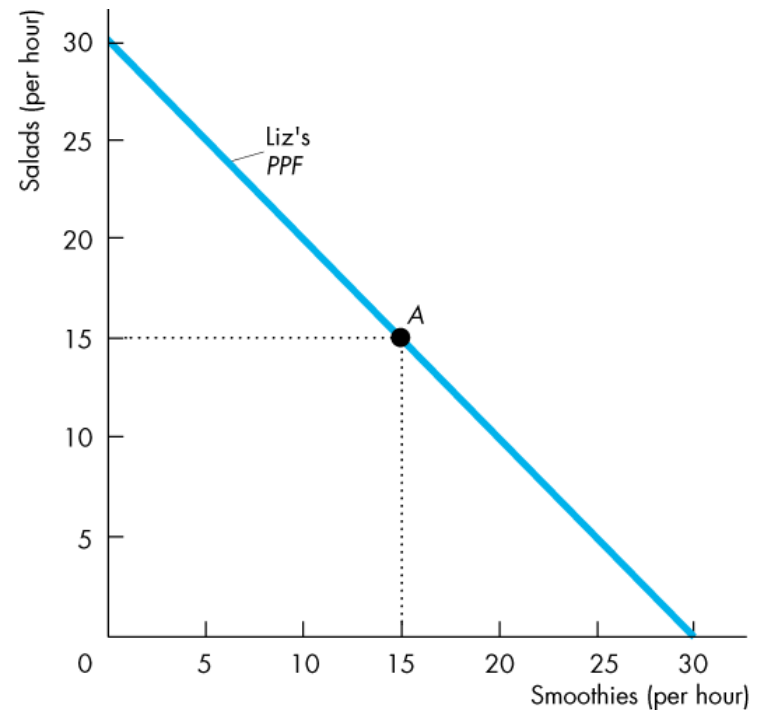
▶ Gains from Trade

Joe's opportunity cost of producing a salad is less than Liz's.

So Joe has a comparative advantage in producing salad.



(a) Joe

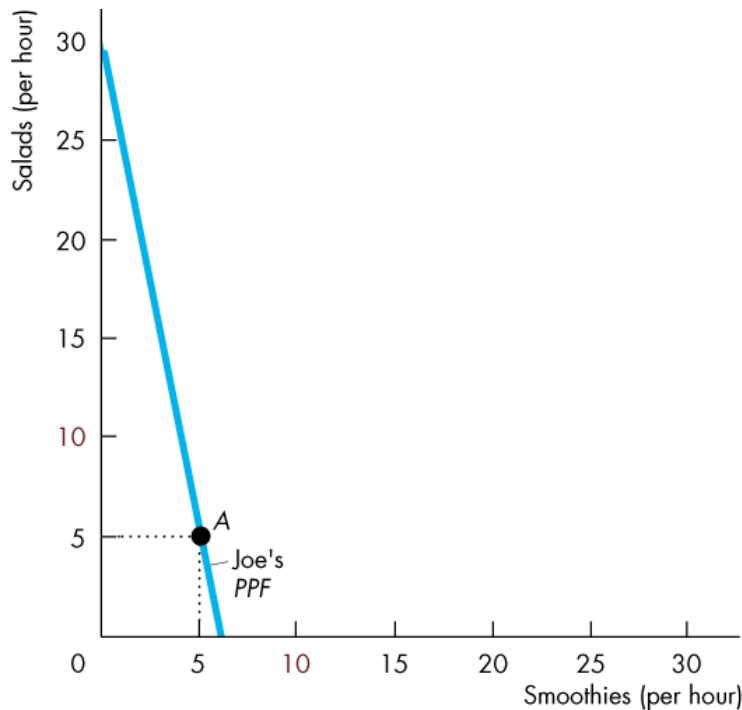


(b) Liz

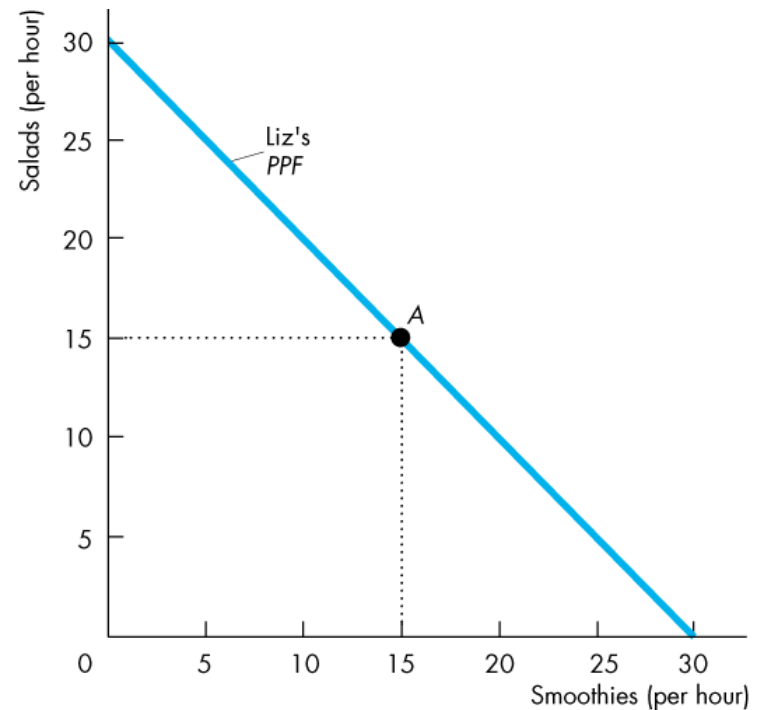
Gains from Trade

Liz's opportunity cost of producing a smoothie is less than Joe's.

So Liz has a comparative advantage in producing smoothies.



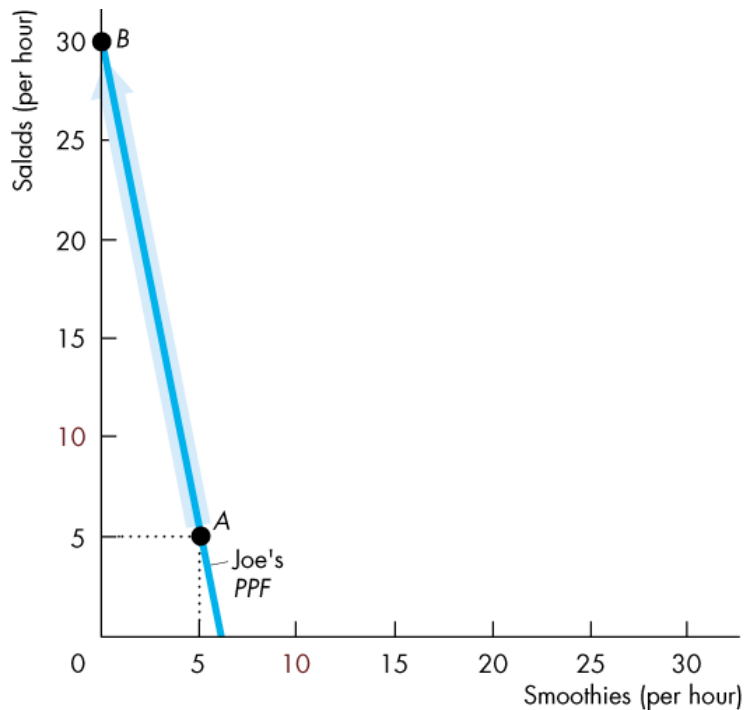
(a) Joe



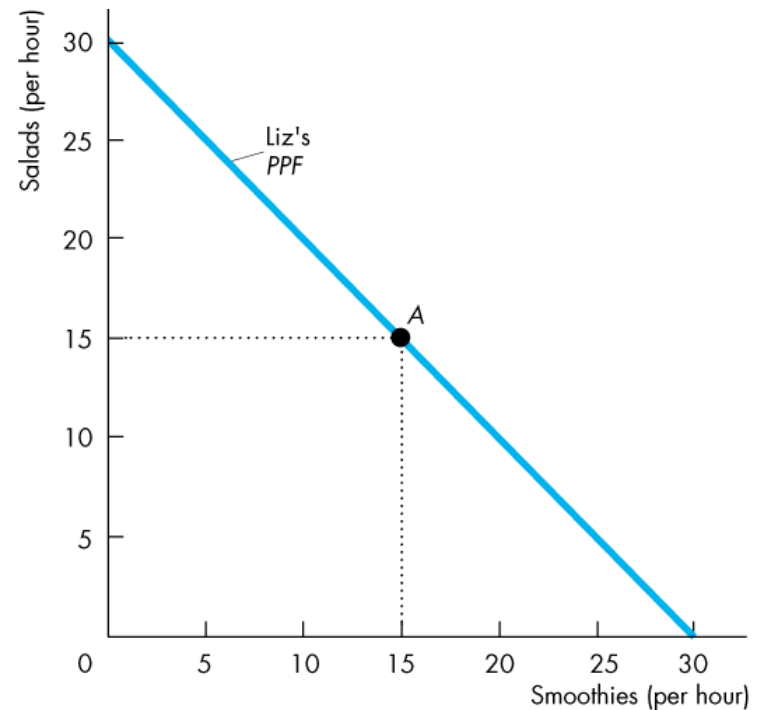
(b) Liz

Gains from Trade

Joe specializes in producing salad and he produces 30 salads an hour at point *B* on his *PPF*.



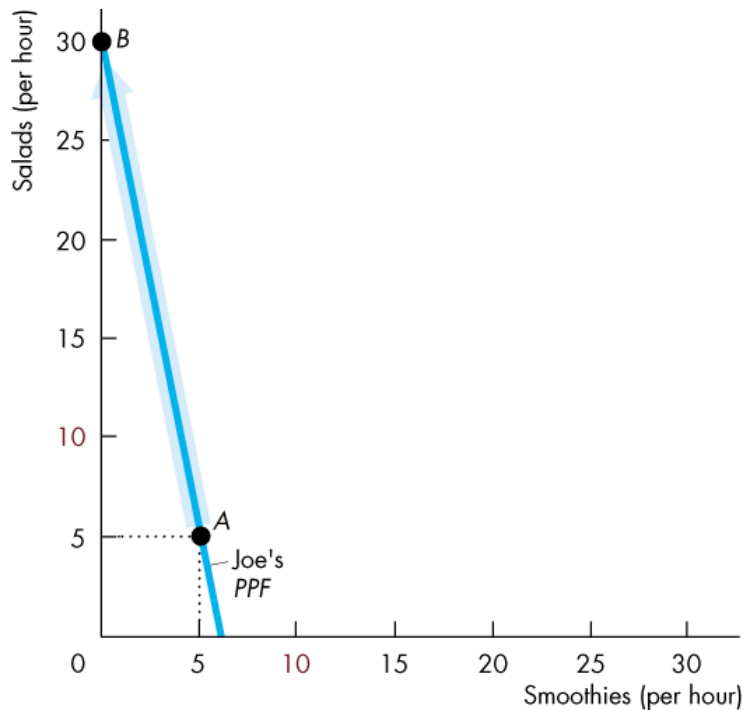
(a) Joe



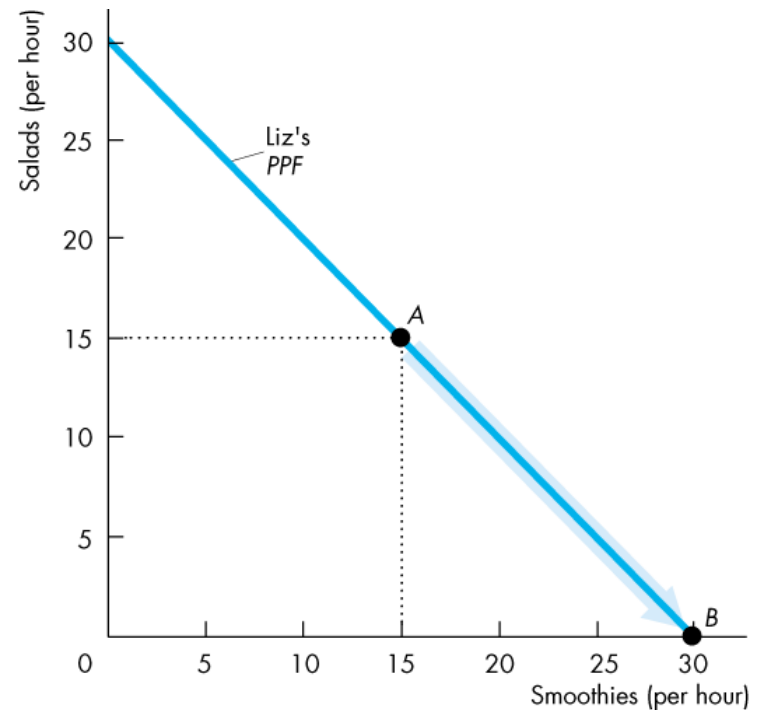
(b) Liz

Gains from Trade

Liz specializes in producing smoothies and produces 30 smoothies an hour at point *B* on her *PPF*.



(a) Joe

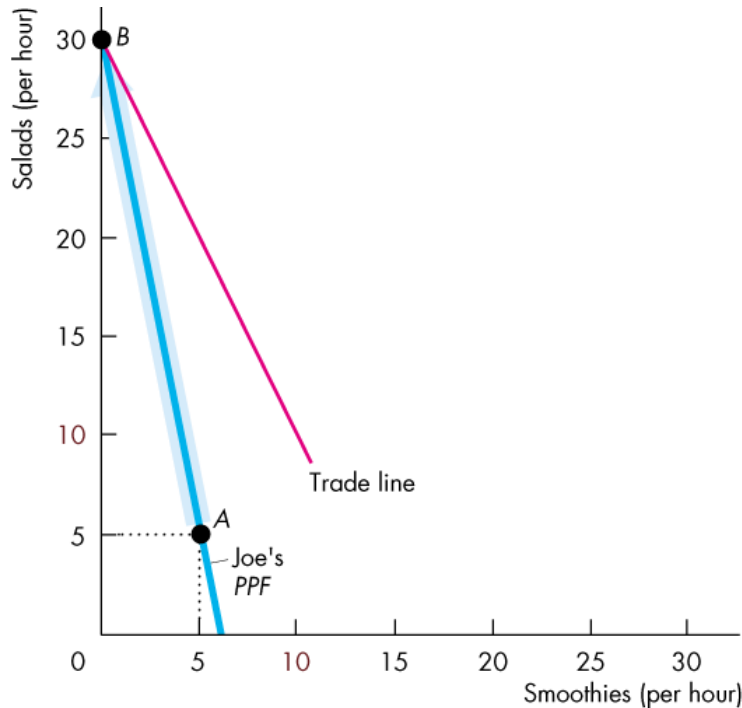


(b) Liz

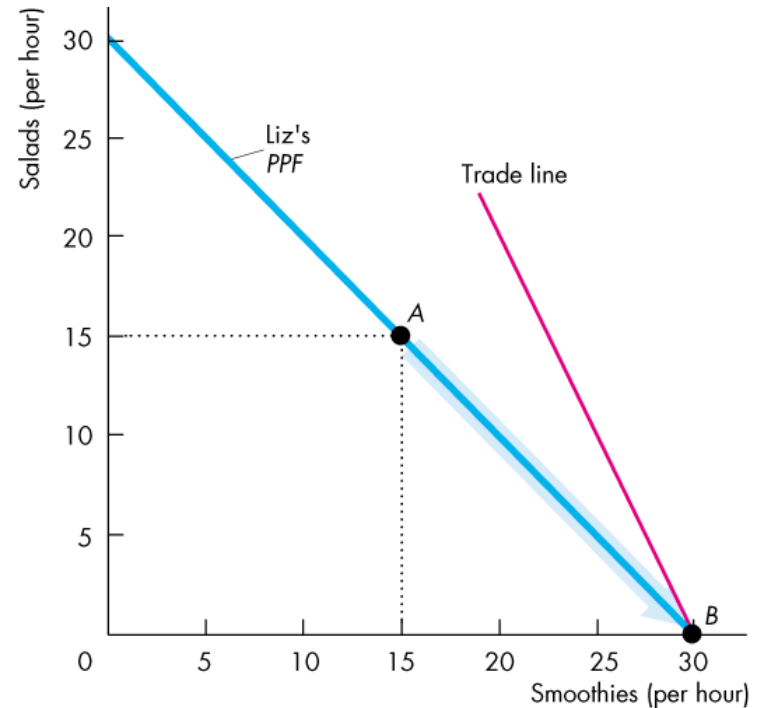
Gains from Trade

They trade salads for smoothies along the red “Trade line.”

The price of a salad is 2 smoothies or the price of a smoothie is $\frac{1}{2}$ of a salad.



(a) Joe

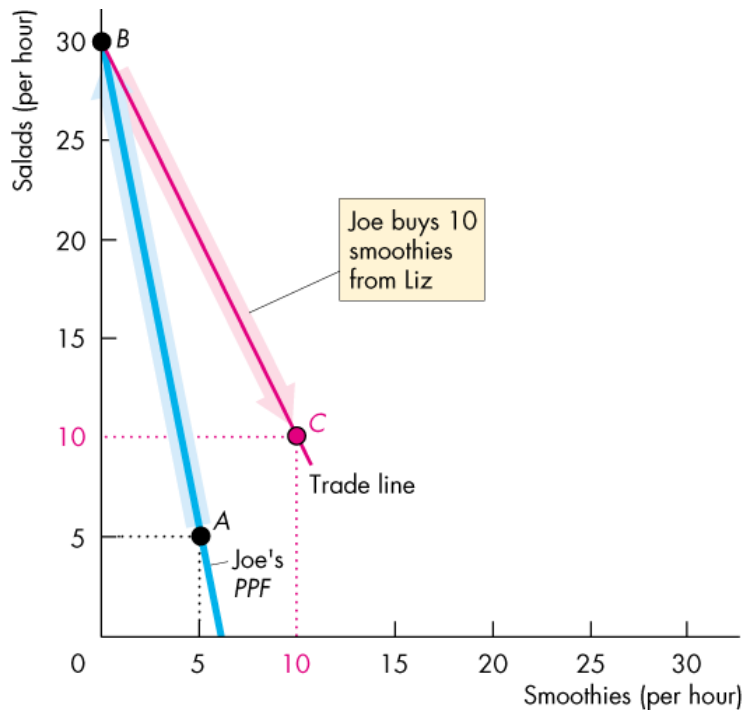


(b) Liz

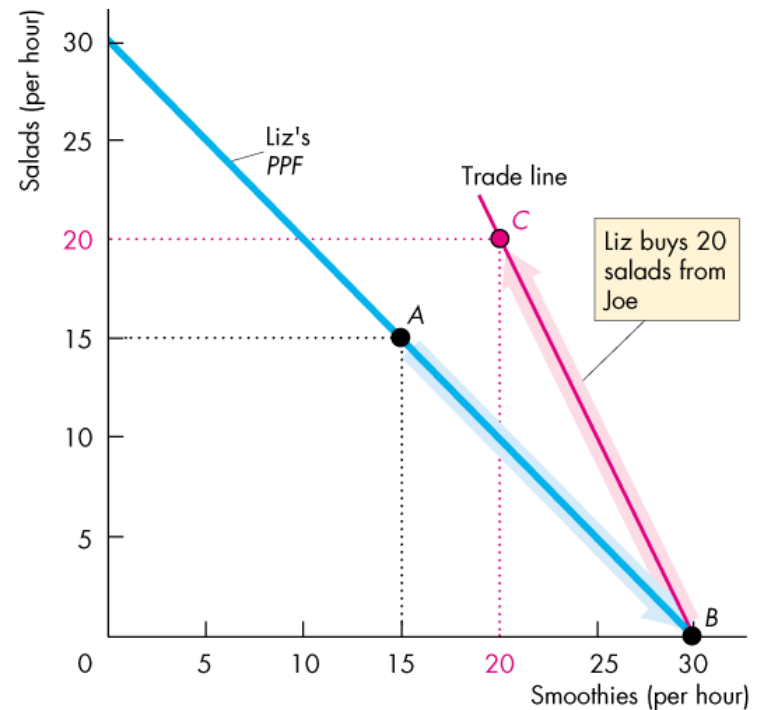
Gains from Trade

Joe buys smoothies from Liz and moves to point C—a point *outside* his PPF.

Liz buys salads from Joe and moves to point C—a point *outside* her PPF.



(a) Joe



(b) Liz

Gains from Trade

Dynamic Comparative Advantage

Learning-by-doing occurs when a person (or nation) specializes and by repeatedly producing a particular good or service becomes more productive in that activity and lowers its opportunity cost of producing that good over time.

Dynamic comparative advantage occurs when a person (or nation) gains a comparative advantage from learning-by-doing.

◆ What is the source of gains from trade?

Resources are released from high-cost activities and allocated towards relatively low-cost activities – total production increases

Trade will take place at any price ratio that lies between the opportunity costs of the two parties

- each person acquires one of the goods at a lower cost through trade than through self-production
- both are better off

Economic Coordination

To reap the gains from trade, the choices of individuals must be coordinated.

To make coordination work, four complimentary social institutions have evolved over the centuries:

- Firms
- Markets
- Property rights
- Money

Economic Coordination

A **firm** is an economic unit that hires factors of production and organizes those factors to produce and sell goods and services.

A **market** is any arrangement that enables buyers and sellers to get information and do business with each other.

Property rights are the social arrangements that govern ownership, use, and disposal of resources, goods or services.

Money is any commodity or token that is generally acceptable as a means of payment.

Economic Coordination

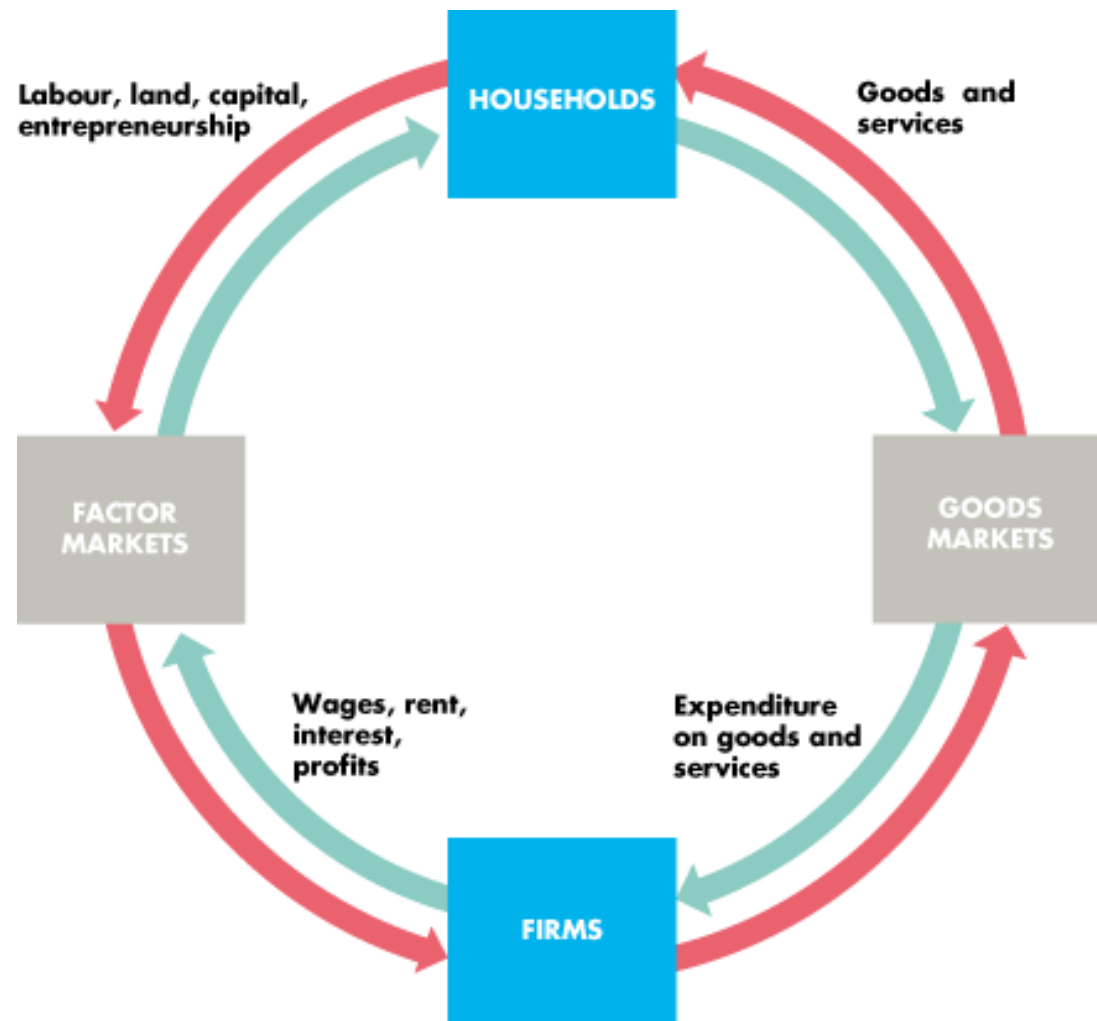


Circular Flows Through Markets

Figure 2.7 illustrates how households and firms interact in the market economy.

Factors of production and goods and services flow in one direction.

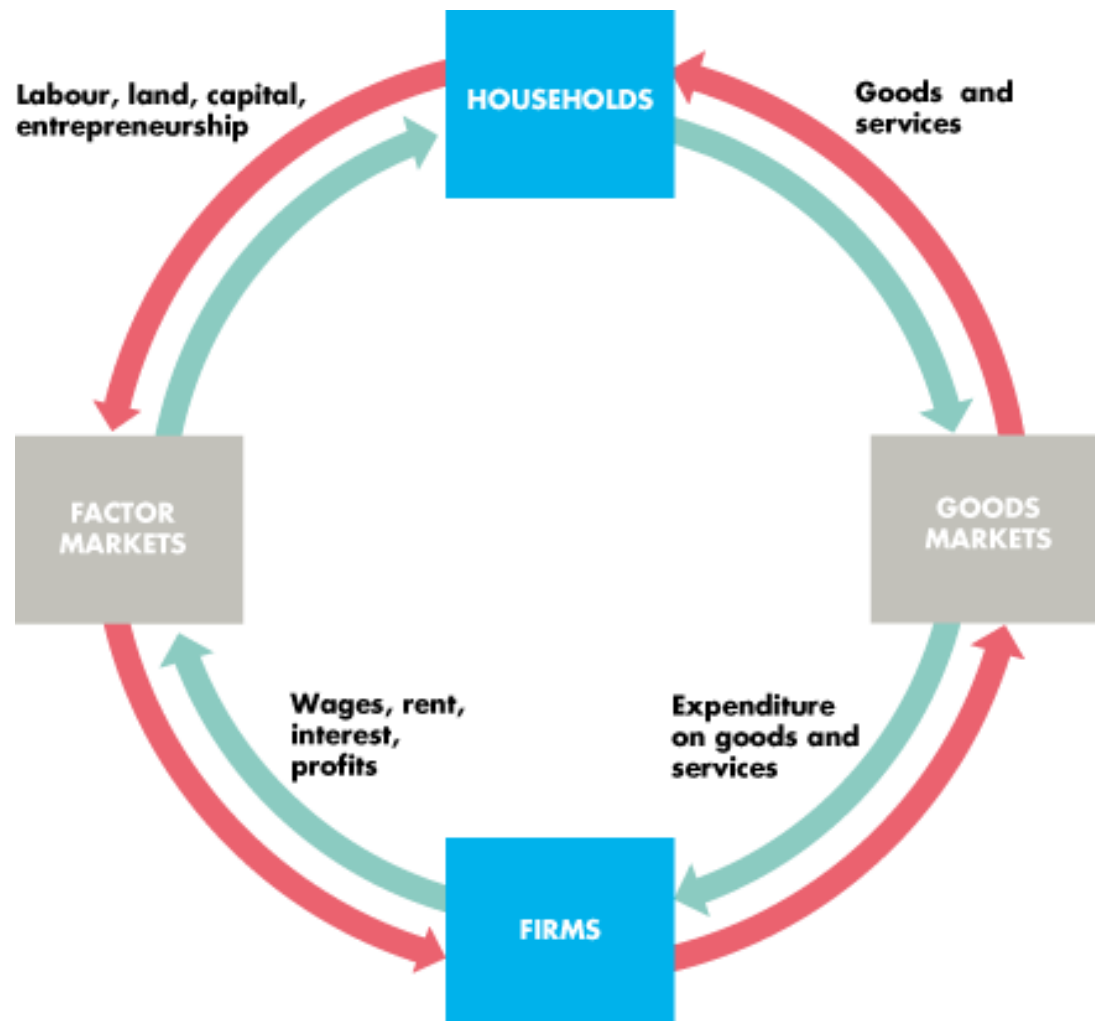
Money flows in the opposite direction.



Economic Coordination

Coordinating Decisions

Markets coordinate individual decisions through price adjustments.





How does a market economy solve the coordinating problem? *What, how and for whom?*

1. How is it determined *what* and *how much* will be produced?

Firms that produce the wrong stuff will lose money and contract or close.

Firms that produce the right stuff will be highly profitable and expand.

▶ How does a market economy solve the coordinating problem?

2. How is it determined *how* output will be produced?

Firms that find the least costly ways of combining productive inputs will be able to sell the good most profitably and will expand.

How does a market economy solve the coordinating problem?

3. How is it determined *who* is to receive the output that is produced?

Will talk about this in depth, but distribution of consumer goods is determined by willingness and ability to pay for them in a market system.



Homework

Reading: Chapter 2

Tutorial questions:

Chapter 2 Problems and Applications

12, 13, 14, 15, 17, 18