Economics: The study of the allocation of scarce resources among alternative uses.

Microeconomics and Macroeconomics:

Microeconomics: The study of the economics choices, individual and firms (Individual units)
Macroeconomics: The study of the performance and behavior of the economy as a whole (economic aggregate).

Indicate whether each of the following is primarily a microeconomic issue or a macroeconomic issue.

a. The effect of higher cigarette taxes on the quantity of cigarettes sold. This is a microeconomic issue.
b. The effect of higher income taxes on the total amount of consumers spending. This is a macroeconomic issue.
c. The reasons for the economies of East Asian countries growing faster than the economies of sub-Saharan African countries. This is a macroeconomic issue.
d. The reasons for low rates of profit in the airline industry. This is a microeconomic issue.

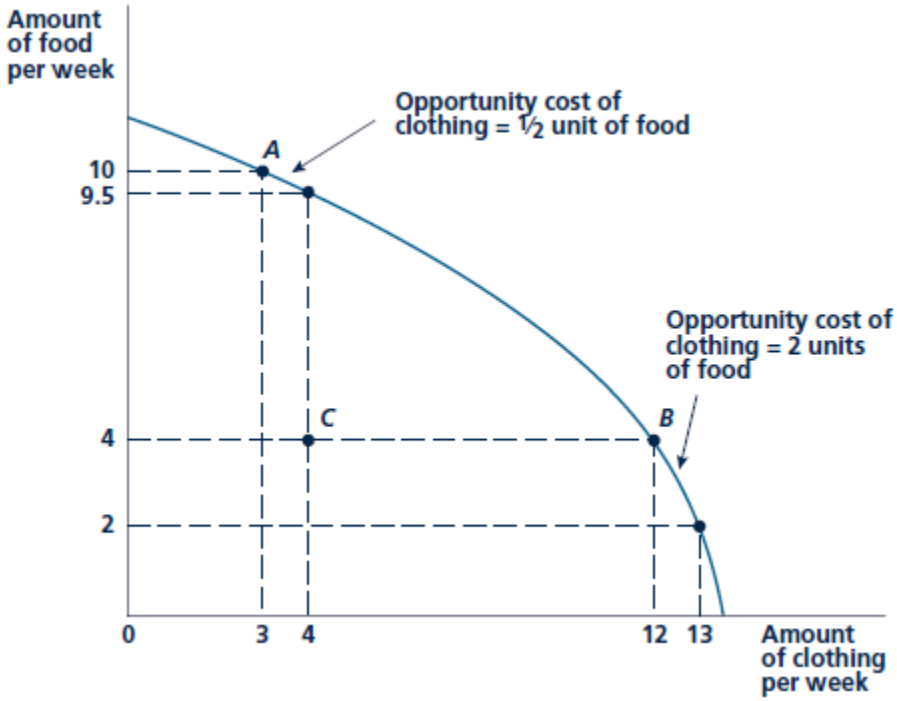
Models: Simple theoretical descriptions that capture the essentials of how the economy works.

A few Basic Principles

We can illustrate some of these by examining an economic model with which you already should be familiar— the production possibility frontier.

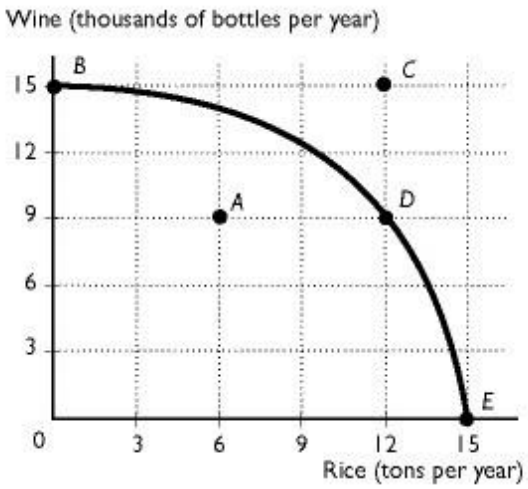
Production possibility frontier

A graph showing all possible combinations of goods that can be produced with a fixed amount of resources.
هو منحنى يمثل أقصى ما يمكن أن ينتجه المجتمع من بضائع وخدمات خلال فترة زمنية معينة بكمية الموارد الإنتاجية المتوفرة.



- Combinations of food and clothing outside the frontier cannot be produced (unattainable) because not enough resources are available.
- Combinations of food and clothing inside the frontier can be produced (attainable), and does not use all of the available resources (Unemployment).
- Combinations of food and clothing on the curve can be produced (unattainable), and used all available resources (full employment)

The figure below shows the production possibilities curve for a country with full employment of resources.

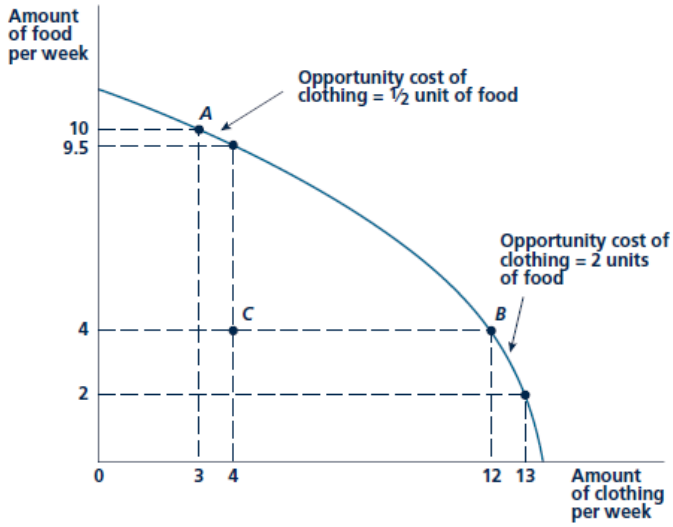


A. Which point represent unattainable point
B. Which point represent unemployment point
C. Which point/s represents attainable and a full employment point/s

This simple model of production illustrates six principles that are common to practically every situation studied in microeconomics:

- *Resources are scarce*. Some combinations of food and clothing (such as 10 units of food together with 12 units of clothing) are impossible to make given the resources available. We simply cannot have all of everything we might want.

- *Scarcity involves* opportunity costs. That is, producing more of one good necessarily involves producing less of something else. For example, if this economy produces 10 units of food and 3 units of clothing per year at point *A*, producing 1 more unit of clothing would ''cost'' one-half unit of food. In other words, to increase the output of clothing by one unit means the production of food would have to decrease by one-half unit.

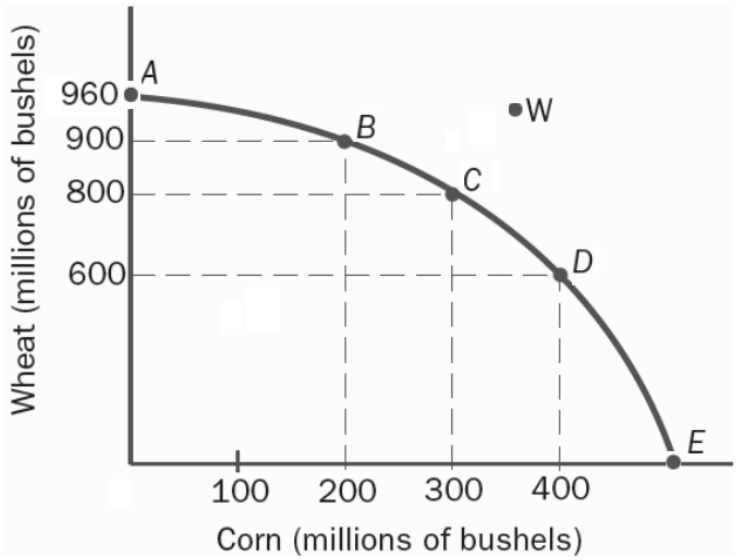


Opportunity cost: the number of units of a specific good that must be given up to obtain one more unit of another good.

- *Opportunity costs are increasing*. Expanding the output of one particular good will usually involve increasing opportunity costs as diminishing returns set in. Although the precise reasons for this will be explained later, Figure shows this principle clearly. If clothing output were expanded to 12 units per year (point *B*), the opportunity cost of clothing would rise from one-half a unit of food to 2 units of

food. Hence, the opportunity cost of an economic action is not constant but varies with the circumstances.

Example:



1. Explain why output levels of C =300, W = 900 are unattainable in this economy.

   Because resources are scarce. The combinations of C =3+``00, W = 900 are impossible to make given the resources available. (The points outside the production possibility frontier)

2. If the economy is producing at point B, what is the opportunity cost of producing one more bushel of corn?

   Opportunity cost = $\frac{\Delta W}{\Delta C} = \frac{(800-900)}{(300-200)} = \frac{-100}{100} = -1$

3. If the economy is producing at point D, what is the opportunity cost of producing one more bushel of Wheat?

   Opportunity cost = $\frac{\Delta C}{\Delta W} = \frac{(300-400)}{(800-600)} = \frac{-100}{200} = -1/2$

4. Explain why output levels of C = 100, W = 800 or C = 300, W = 600 are inefficient. Show these output levels on your graph.

   C = 100, W = 800 or C = 300, W = 600 are inefficient points, since are located inside the production possibilities curve. The two points are unemployment points.

5. How can the economy succeed to produce point W?
   Increase in the quantity and the quality of economic resources
   Improvement in technology

The Basic Supply-Demand Model

A model describing how a good's price is determined by the behavior of the individuals who buy the good and of the firms that sell it.

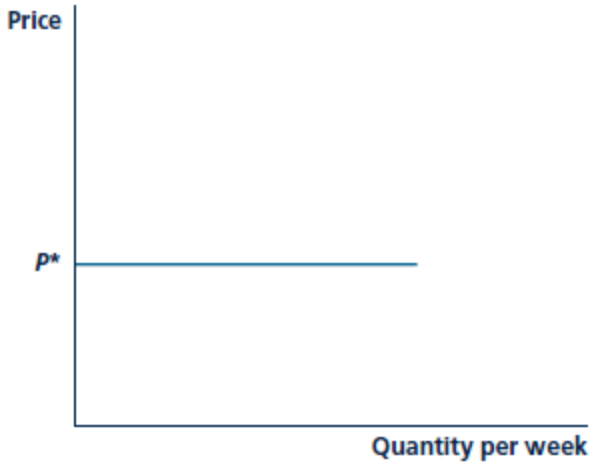
A bit of historical perspective:

Adam Smith and the Invisible Hand:

The Scottish philosopher Adam Smith (1723–1790) is generally credited with being the first true economist. In the Wealth of Nations (published in 1776), Smith examined a large number of the pressing economic issues of his day and tried to develop economic tools for understanding them.

Smith saw prices as providing a powerful "invisible hand" that directed resources into activities where they would be most valuable. Prices play the crucial role of telling both consumers and firms what goods are "worth" and thereby prompt these economic actors to make efficient choices about how to use them. To Smith, it was this ability to use resources efficiently that provided the ultimate explanation for a nation's "wealth."

To Adam Smith, the relative price of a good was determined by relative labor costs. As shown in the left-hand panel, relative price would be P unless something altered such costs.*



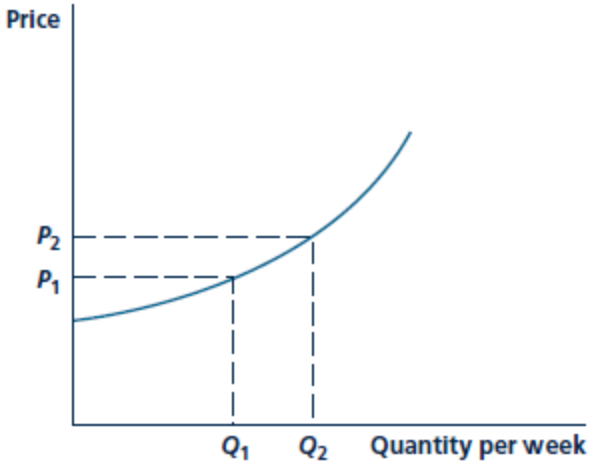
(a) Smith's model

David Ricardo and Diminishing Returns:

Ricardo believed that labor and other costs would tend to rise as the level of production of a particular good expanded.

Diminishing Returns: hypothesis that the cost associated with producing one more unit of a good rises as more of that good is produced.

Ricardo added the concept of diminishing returns to this explanation. In the right-hand panel, relative price rises as quantity produced rises from Q1 to Q2.



(b) Ricardo's model

The problem with Ricardo's explanation was that it really did not explain how prices are determined.

Marginalism and Marshall's Model of Supply and Demand.

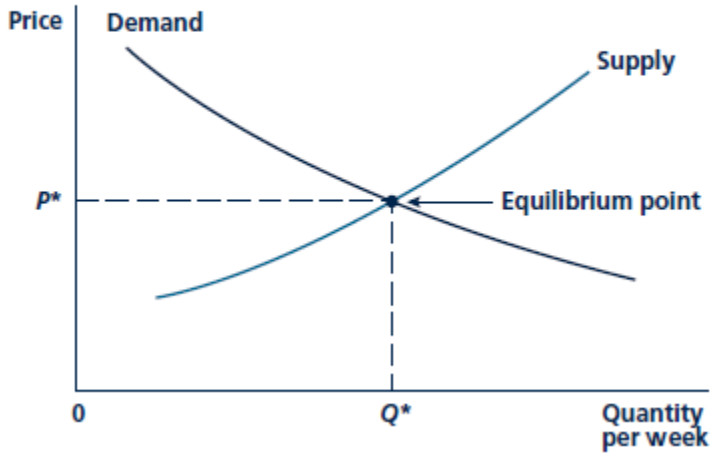
Marshall believed that demand and supply together determine the equilibrium price and quantity of a good.

The curve labeled "Demand" shows the mount of the good people want to buy at each price. The negative slope of the demand curve reflects the marginalist principle: Because people are willing to pay less and less for the last unit purchased, they will buy more only at a lower price.

The curve labeled "Supply" shows that increasing cost of making one more unit of the good as the total amount produced increases.

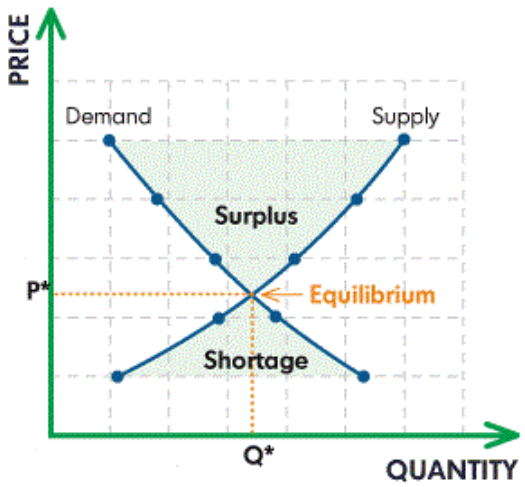
The upward slope of the supply curve reflects increasing marginal cost, just as the downward slope of the demand curve reflects decreasing marginal usefulness.

FIGURE 1.3 The Marshall Supply-Demand Cross



Market Equilibrium

Equilibrium price: The price at which the quantity demanded by buyers of a good is equal to the quantity supplied by sellers of the good.



At equilibrium price: $QD = QS$

Surplus and Shortage:

Surplus: Situation in which the quantity supplied exceeds the quantity demanded ($QS > QD$)

Shortage: Situation in which the quantity demanded exceeds the quantity supplied ($QD > QS$)

The market clears at price P0 and quantity Q0 (market equilibrium). At the higher price P1, a surplus develops, so price falls. At the lower price P2, there is a shortage, so price is bid up. Any price above the equilibrium price, a surplus develops. If the price below the equilibrium price there is a shortage.

- If QS > QD (surplus), To sell this surplus producer would begin to lower prices (P↓)
- If QD > QS (shortage), To reparation this shortage prices will increase (P↑)

Example:

The following are the supply and demand for wheat:
Demand: $Q_D = 300 - 20P$
Supply: $Q_S = 20P - 180$

A. What is the equilibrium price and quantity of pair of shoes?

At equilibrium price, $Q_D = Q_S$
$300 - 20P = 20P - 180 \rightarrow 40P = 480 \rightarrow P = \frac{480}{40} = \$12$
$Q = 300 - 20P = 300 - 20\,(12) = 300 - 240 = 60$ bushels of wheat

B. At a market price of $10, will there is being a shortage or surplus? By how much?

When P = $10
$Q_D = 300 - 20P = 300 - 20(10) = 100$
$Q_S = 20P - 180 = 20(10) - 180 = 20$

$Q_D > Q_S \rightarrow$ shortage

Shortage = $QS - Q_D = 20 - 100 = -80$

C. At a market price of $13, will there is being a shortage or surplus? By how much?

When P = $13
$Q_D = 300 - 20P = 300 - 20(13) = 40$
$Q_S = 20P - 180 = 20(13) - 180 = 80$

$Q_S > Q_D \rightarrow$ Surplus

Surplus = $QS - Q_D = 80 - 40 = 40$

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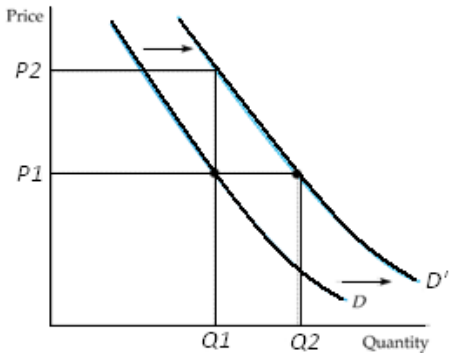
Change in Market Equilibrium:

Shifting the Demand Curve:



Let's see what happens to the demand curve if income levels increase. For most products, the demand increases when income rises. A higher income level shifts the demand curve to the right (from *D* to *D'*).
As you can see in Figure, if the market price were held constant at P_1, we would expect to see an increase in the quantity demanded from Q_1 to Q_2, as a result of consumers' higher incomes. The result would be a shift to the right of the entire demand curve from D to D'.

Another way of looking at the effect of a higher consumer income is to ask what price consumers would pay to purchase a given quantity Q_1. With greater income, they should be willing to pay a higher price—say, P_2 instead of P_1 in Figure. Again, the demand curve will shift to the right.

In general: If the demand curve is given by the linear equation: $Qd = c - d\,P$.

- Suppose that the at each price level, the demand increase by (k) units, then the new demand equation is given by: $Qd' = (c + k) - dP$
- Suppose that the at each price level, the demand decrease by (m) units, then the new demand equation is given by: $Qd'' = (c - m) - dP$

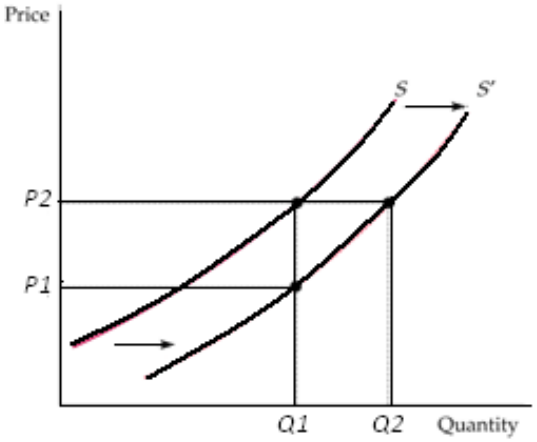
Shift in the Supply Curve:

The supply curve shows the quantity of a good that producers are willing to sell at a given price, holding constant any other factors that might affect the quantity supplied.

Change in any other factors that might affect the quantity supplied lead to shift in the supply curve.

Suppose that the production cost, including wages, interest charges, and the cost of raw materials change. This leads to shift the supply curve Suppose that the production cost fall. How does this affect the supply curve?

When the production cost fall, firms can produce the same quantity at a lower price or a larger quantity at the same price. The supply curve then shifts to the right.



If at the same time the market price stayed constant at P1. We would expect to observe a greater quantity supplied. Figure shows this as an increase from Q_1 to Q_2.

When production costs decrease, output increases no matter what the market price happens to be. The entire supply curve thus shifts to the right, which is shown in the figure as a shift from S to S'.

Another way of looking at the effect of lower raw material costs is to imagine that the same quantity (Q1), can be produce at lower price (from P_2 to P_1). Again, we see in Figure that the supply curve must shift to the right.

If the supply curve is given by the linear equation: $Qs = a + bP$.

- Suppose that the at each price level, the supply increase by (c) units, then the new supply equation is given by: $Qs' = (a + c) + bP$

- Suppose that the at each price level, the supply decrease by (d) units, then the new supply equation is given by: $Qs'' = (a - d) + bP$

Example:

The following are the supply and demand for wheat:
Demand: $Q_D = 300 - 20P$
Supply: $Q_S = 20P - 180$

A. What is the equilibrium price and quantity of pair of shoes?

At equilibrium price, $Q_D = Q_S$
$300 - 20P = 20P - 180 \rightarrow 40P = 480 \rightarrow P = \frac{480}{40} = \$12$
$Q = 300 - 20P = 300 - 20\,(12) = 300 - 240 = 60$ bushels of wheat

B. Suppose that consumer income decreases that leads to decrease demand for wheat by 80 units at each price level, what is the new equilibrium price and quantity?

New demand equation: $Q_D' = (300 - 80) - 20P$

$Q_D' = 220 - 20P$

At equilibrium: $Q_D' = Q_S$: $220 - 20P = 20P - 180 \rightarrow 40P = 400 \rightarrow P = \frac{400}{40} = \$10$

$Q = 220 - 20P = 220 - 20\,(10) = 220 - 200 = 20$ bushels of wheat

C. Now, suppose that government give a subsidy to the producers of wheat that leads to increase supply for wheat by 40 units at each price level, what is the new equilibrium price and quantity?

New supply equation: $Q_S' = 20P - 180 + 40$

$Q_S' = 20P - 140$

At equilibrium: $Q_D = Q_S'$: $300 - 20P = 20P - 140 \rightarrow 40P = 440 \rightarrow P = \frac{440}{40} = \$11$

$Q = 300 - 20P = 300 - 20\,(11) = 300 - 220 = 80$ bushels of wheat

Example:

The following are the supply and demand for a good:

Demand: $Q_D = 33{,}000 - 1{,}000P$

Supply: $Q_S = 4{,}000P - 62{,}000$

D. What is the equilibrium price and quantity for a good?

At equilibrium price, $Q_D = Q_S$

$33{,}000 - 1{,}000P = 4{,}000P - 62{,}000 \rightarrow 5{,}000P = 95{,}000 \rightarrow P = \frac{95{,}000}{5{,}000} = \$19$

$Q = 33{,}000 - 1{,}000P = 33{,}000 - 1{,}000\,(19) = 14{,}000$

E. If s government set the price at $20, how many units would be supplied and demanded? Will there is being a shortage or surplus? By how much?

When P = $20

$Q_D = 33{,}000 - 1{,}000P = 33{,}000 - 1{,}000(20) = 13{,}000$

$Q_S = 4{,}000P - 62{,}000 = 4{,}000(20) - 62{,}000 = 18{,}000$

$Q_S > Q_D \rightarrow$ Surplus

Surplus = $QS - Q_D = 18{,}000 - 13{,}000 = 5{,}000$

F. Now, suppose that government impose a tax to the producers of a good that leads to decrease supply for a good by 15,000 units at each price level, what is the new equilibrium price and quantity?

New supply equation: $Q_S' = 4{,}000P - 62{,}000 - 15{,}000$

$Q_S' = 4{,}000P - 77{,}000$

At equilibrium: $Q_D = Q_S'$: $33{,}000 - 1{,}000P = 4{,}000P - 77{,}000 \rightarrow 5{,}000P = 110{,}000 \rightarrow P = \frac{110{,}000}{5{,}000} = \$22$

$Q = 33{,}000 - 1{,}000P = 33{,}000 - ,1000\,(22) = 11{,}000$