L3 – Supply Curve

I. Perfect Competitive Market

Assumptions:

- All firms sell identical product.
- There are numerous firms and everyone is a price taker.
- Everyone has full information about the price and quality of the good.
- Cost of trading are low.

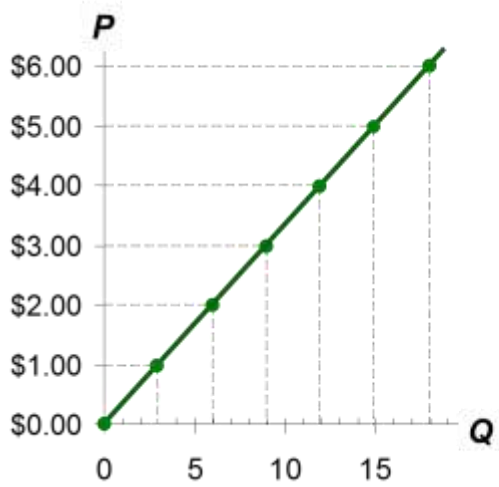
From now on, unless explicitly stated we will assume that a market is a perfect competitive market.

II. Market's Supply Curve

1. Individual Firm's Supply Curve

Individual Firm's supply curve describes the relationship between the price and the quantity supplied by the firm.

Example:
Starbucks' supply of lattes



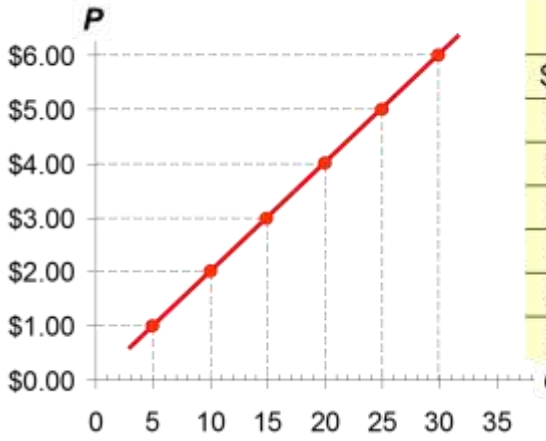
Price of lattes	Quantity of lattes supplied
$0.00	0
1.00	3
2.00	6
3.00	9
4.00	12
5.00	15
6.00	18

2. Market's Supply Curve

To get the market supply curve, we add the quantity supplied by each firm in the market at every given price.

Example: Suppose Starbucks and Tim Hortons are the only two sellers in this market, and they produce identical lattes.

Price	Starbucks		Tim Hortons		Market Q^s
$0.00	0	+	0	=	0
1.00	3	+	2	=	5
2.00	6	+	4	=	10
3.00	9	+	6	=	15
4.00	12	+	8	=	20
5.00	15	+	10	=	25
6.00	18	+	12	=	30



P	Q^s (Market)
$0.00	0
1.00	5
2.00	10
3.00	15
4.00	20
5.00	25
6.00	30

3. Alternative Ways of Looking at the Supply Curve?

Just as a demand curve can be been as a curve of the Maximum Willingness to Pay of the consumer, in a perfection competitive market a supply curve is identical to the firm's marginal cost curve. For example, in the above diagram, the cost of producing the 5^{th} unit of latte is \$1, the 10^{th} unit is \$2, the 15^{th} unit is \$3, the 20^{th} unit is \$4, so on. You will learn this again later when we discuss the firm's theory.

4. Law of Supply?

There is no "Law of Supply". The supply curve may take various shape: it can be upward sloping, vertical, horizontal, downward sloping, or be a single point. (In a perfect competitive market the shape of a supply curve depends on the firm's marginal cost function. In a monopoly market (single supplier) the supply curve is a point.)

III. Supply Shifters

The supply curve shows how price affects quantity supplied, other things being equal.

These "other things" are non-price determinants of supply.

Changes in them shift the S curve…

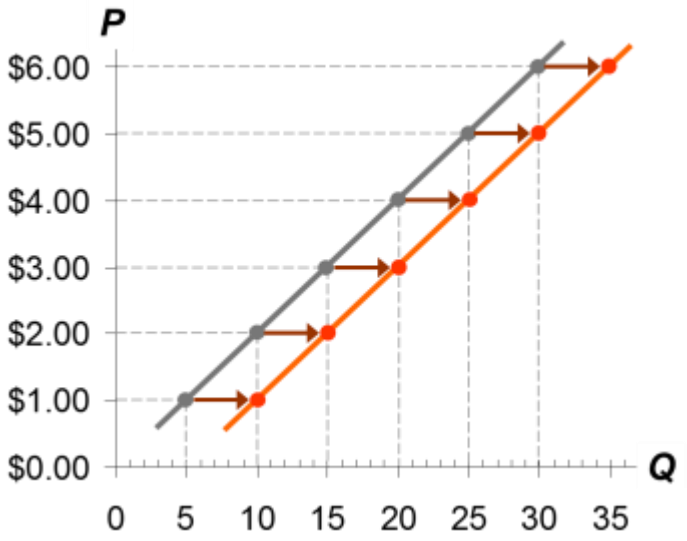
- ❖ Input prices
- ❖ Technology
- ❖ Number of sellers
- ❖ Expectations
- ❖ Government tax and regulations

1. Input Prices

Examples of input prices:
wages, prices of raw materials, oil

Input prices ↓
- ➔ Total cost ↓
- ➔ Profit ↑
- ➔ Supply ↑
- ➔ S curve shifts to the right

Example:
Suppose the price of milk falls.
At each price, the quantity of Lattes supplied will increase (by 5 in this example).



2. Technology

- Technology determines how much inputs are required to produce a unit of output.
- A cost-saving technological improvement has the same effect as a fall in input prices, shifts S curve to the right.

3. Number of Sellers

- An increase in the number of sellers increases the quantity supplied at each price, shifts S curve to the right.

4. Expectation

In general, sellers may adjust supply* when their expectations of future prices change.
(*If good not perishable)

Example:
Events in the Middle East lead to expectations of higher oil prices.

In response, owners of Texas oilfields reduce supply now, save some inventory to sell later at the higher price. S curve shifts left.

Note:

- Change in supply:
  A shift in the S curve occurs when a non-price determinant of supply changes (like technology or costs).
- Change in the quantity supplied:
  A movement along a fixed S curve occurs when P changes.

IV. Supply Function

$$\boldsymbol{Q = s(p, p_i, \dots)}$$

Q: Quantity supplied
p: Price of the good supplied
p_i: Price of the input

Example: $Q = 10 + 2p - 3p_i$
Question: If the government imposes a new 5% sales tax, write down the new supply function.

V. Summary

- The supply curve shows how the quantity of a good supplied depends on the price.

- In addition to price, other determinants of how much producers want to sell include input prices, technology, expectations, and the number of sellers. If one of these factors changes, the supply curve shifts.