Supply Curve And Its Shifters

- Let us briefly review the production function. (*Show Fig. 1 & 2 to students*) You can only change L as is often the case.
- Teacher interprets K and A

Production Level

❖ How does a supplier choose his/her production level?

❖ Supplier cares only about PROFIT!

❖ In other words, suppliers would like to choose the <u>quantity supplied</u> to maximize his/her profit.

Production Level

❖ **Supplier considers:**

1. **Sales Revenue:**

   - **Given a price and the quantity supplied, we can compute the sales revenue :**

   Sales Revenue =
   Price (P) x Quantity Supplied (Q)

Production Level

2. **Production Cost:**

   ❖ **Profit is constrained by the production technology and the cost involved in hiring the factors of input. Thus, a supplier also has to determine the quantity of factor input to produce a certain amount of output (quantity supplied).**

Production Cost =

Wages (w) x Labor (L) +

Rent (r) x Capital (K)

Production Level

❖ **At different price level:**
  ❖ **Calculate Sales Revenue = P x Q**

  ❖ **Calculate Production Cost =**
    w x L + r x K

  ❖ **Calculate Profit =**
     Sales Revenue – Production Cost

Compute a few missing figures together with students. (Refer to Teaching Plan #9 to #12) and then ask students to do it in groups.

As students are computing, leave this slide up for students to refer to the formulas.

Distribute Case A, Supply Schedule, Graph Paper (printed on transparency), Table 1a/1b/1c & transparency pens to each group.

As students finish, distribute Case B, a blank Supply Schedule and a different color transparency pens to each group.

As students finish both cases, they can compare and contrast the cases.

Basic Shape of Supply Curve

❖Upward sloping

❖May hit zero below some prices

❖The supply curve needs not be linear

Show students how a basic supply curve looks like.

Definitions & Concepts

❖ **Supply curve – is graphical presentation of the relationship between price and quantity the supplier is able and willing to supply, all other things being constant**

❖ **Law of Supply – If other things being constant, more is able and willing to be supplied at a higher price.**

Supply Curve Shifters

❖ **Wages:**

  ❖ **Decrease in wages reduces production costs, increases profit & production level.**

❖ **Capital:**

  ❖ **Capital is a short-run factor of production. Increase capital increases labor productivity and production level.**

Demonstrate how to shift a supply curve.

Supply Curve Shifters

❖Production Technology:

  ❖Production technology is a short-run factor of production. Increase in technology increases labor productivity and production level.

? Can you think of any other shifters?

Discussion:

- ? **How much are you willing to pay to adopt the new technology?**
- ? **How much are you willing to pay for an increase in capital?**
- ? **When capital cost is not equal to zero, how would that affect the supply curve?**
- ? **What is the optimal amount of capital?**

Note that students may be able to find the answers during their comparison of 2 cases.

Significance of ↑ in Technology

❖ Under the same price, ↑ in technology brings extra profit.

  ❖ Extra Profit = the maximum profit under old technology – the maximum profit under new technology

❖ Eg. Price = 3
  - Technology = 1(Case A)

  Profit = 2.5
  - Technology = 2(Case B2)

  Profit = 9.6

  ⇒Technology rises from 1 to 2 increases 7.1 profit.

❖ Therefore, producer will spend at most 7.1 to acquire new technology.

Significance of ↑ in K

❖ Under the same price, ↑ in K brings extra profit.
  ❖ Extra Profit = the maximum profit under old K – the maximum profit under new K

Eg. Price = 3
  • K = 1(Case A)
    Profit = 2.5
  • K = 2(Case B1)
    Profit = 4.9
  ⇒ Increase K from 1 to 2 increases 2.4 profit.

❖ Therefore, producer will spend at most 2.4 to acquire more K.

When K ≠ 0

❖ When K ≠ 0, the best production level may earn negative profit at some prices.

❖ For example in Case A, P = 3. If K changes from 0 to 3, the best production level is still 1.5. Even though it incurs a loss of 0.5, this is the minimal loss.

❖ In this case, the best production level is still 1.5.

When K ≠ 0

❖ It is because K cannot be changed in the short-run. Even there is no production, we still have to pay this fixed cost. Thus, if we choose not to produce, we will make a loss of 3.

❖ However, if we produce 1.5, some loss can be compensated by the sales revenue and make a loss of only 0.5.

When K ≠ 0

❖ **Therefore in the short run, when suppliers are considering the production level, sales revenue does not need to cover all the total cost (variable cost + fixed cost)**

❖ **As long as:**

$$\text{sales revenue} \geq \text{variable cost}$$

$\Rightarrow$ **suppliers should keep producing**

❖ **In our case, only if**

$$P \times Q \geq w \times L$$

$\Rightarrow$ **we should keep producing**

Short-run, Long-run & Intermediate Run

❖ There are short run, intermediate run & long run in production period.

❖ In short run, producers cannot change the no. of fixed factors such as K. They can only change the no. of variable factors such as labor.

❖ In intermediate run, producers can change the no. of fixed & variable factors.

❖ In the long run, producers can change the no. of fixed & variable factors. The no. of producers in the market can by varied as well.

➢ It is because positive (negative) profit attracts (drives out) producers.