

Patrician College of Arts and Science

Department of Commerce

BUSSINESS ECONOMICS

CDZ1A

Odd Semester

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Supply

- Individuals control the factors of production – inputs, or resources, necessary to produce goods.
- Individuals supply factors of production to intermediaries or firms.

The analysis of the supply of produced goods has two parts:

- An analysis of the supply of the factors of production to households and firms.
- An analysis of why firms transform those factors of production into usable goods and services.

The Law of Supply

- There is a direct relationship between price and quantity supplied.
 - Quantity supplied rises as price rises, other things constant.
 - Quantity supplied falls as price falls, other things constant.
- **Law of Supply**
 - As the price of a product rises, producers will be willing to supply more.
 - The height of the supply curve at any quantity shows the **minimum price** necessary to induce producers **to supply** that next unit to market.
 - The height of the supply curve at any quantity also shows the **opportunity cost of producing the next unit** of the good.

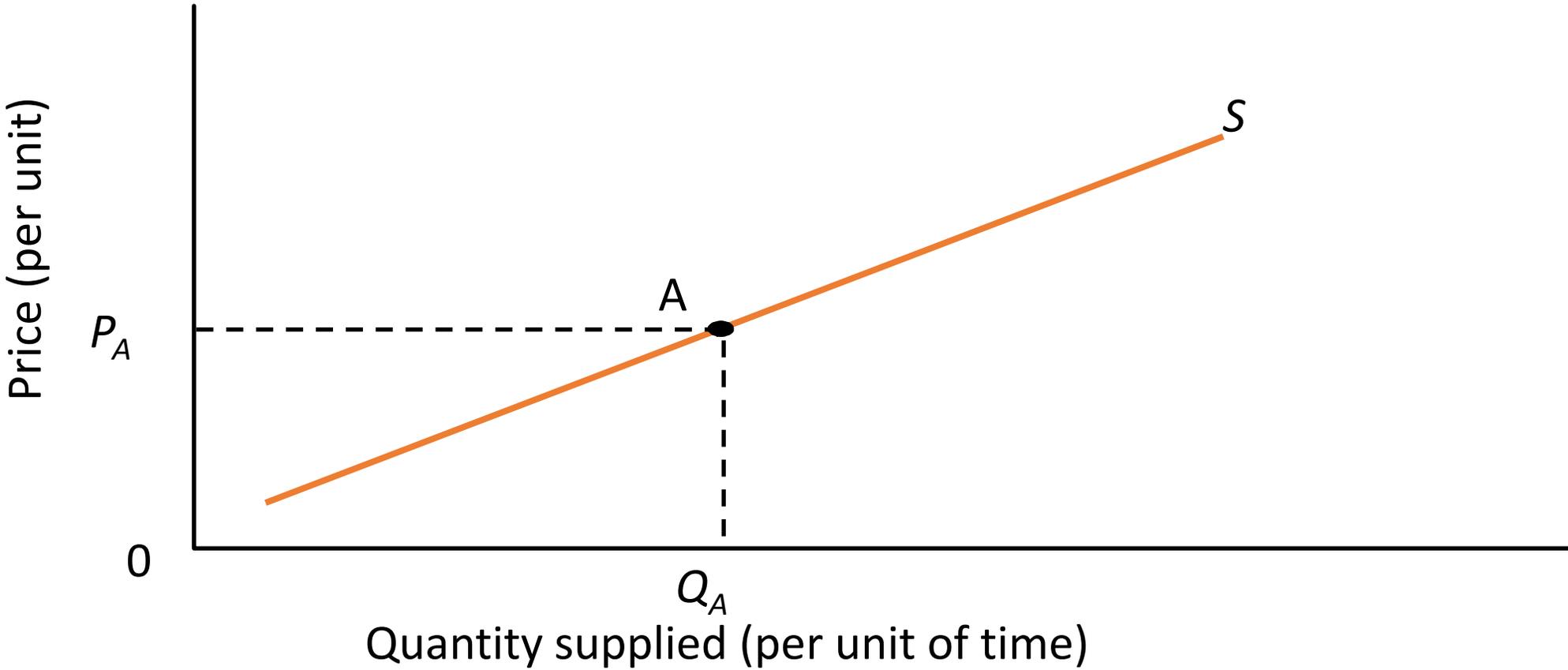
The Law of Supply

- The law of supply is accounted for by two factors:
 - When prices rise, firms substitute production of one good for another.
 - Assuming firms' costs are constant, a higher price means higher profits.

The Supply Curve

- The supply curve is the graphic representation of the law of supply.
- The supply curve slopes upward to the right.
- The slope tells us that the quantity supplied varies directly – in the same direction – with the price.

A Sample Supply Curve

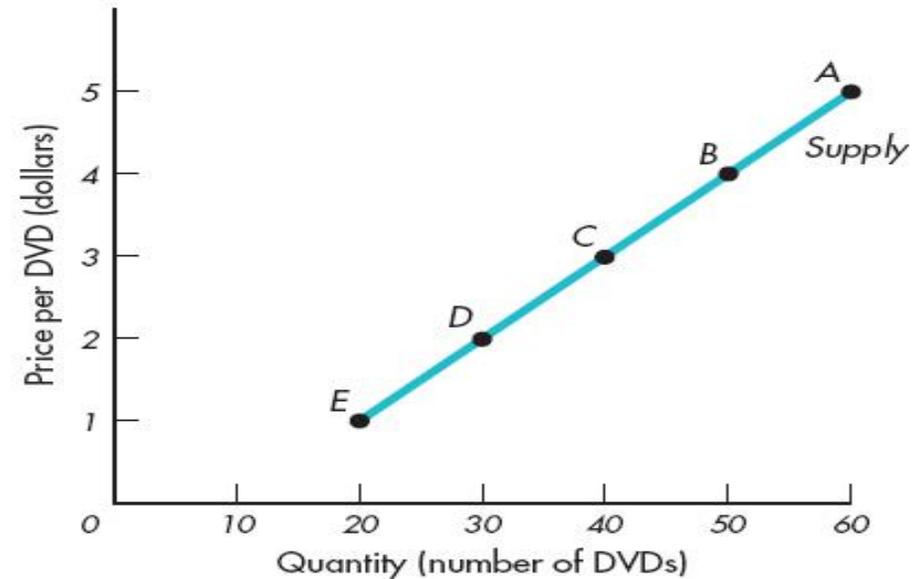


Supply Curve DVDs

FIGURE 6

NetRent's Supply Schedule and Supply Curve for DVDs

Combination	Price per DVD (constant-quality units)	Quantity Supplied per Week (constant-quality units)
A	\$5	60
B	\$4	50
C	\$3	40
D	\$2	30
E	\$1	20



The quantity that NetRent is willing and able to offer for sale at each price is listed in the supply schedule and shown on the supply curve. At point A, the price is \$5 per DVD and the quantity supplied is 60 DVDs. The combination of \$4 per DVD and 50 DVDs is point B. Each price-quantity combination is plotted, and the points are connected to form the supply curve.

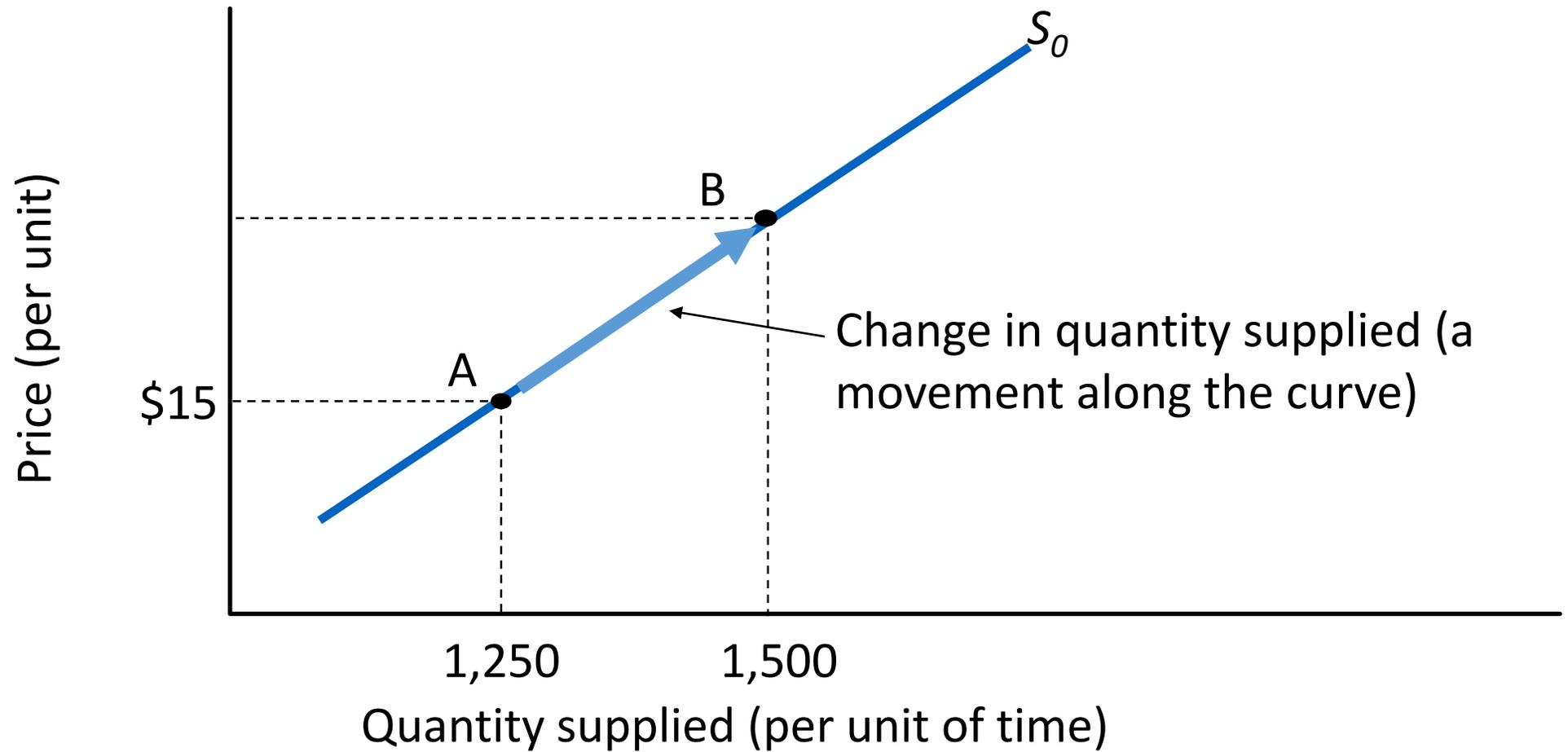
Shifts in Supply Versus Movements Along a Supply Curve

- Supply refers to a schedule of quantities a seller is willing to sell per unit of time at various prices, other things constant.
- **Quantity supplied** refers to a specific amount that will be supplied at a specific price.
- Changes in price causes changes in quantity supplied represented by a movement along a supply curve.
- A **movement along a supply curve** – the graphic representation of the effect of a change in price on the quantity supplied.
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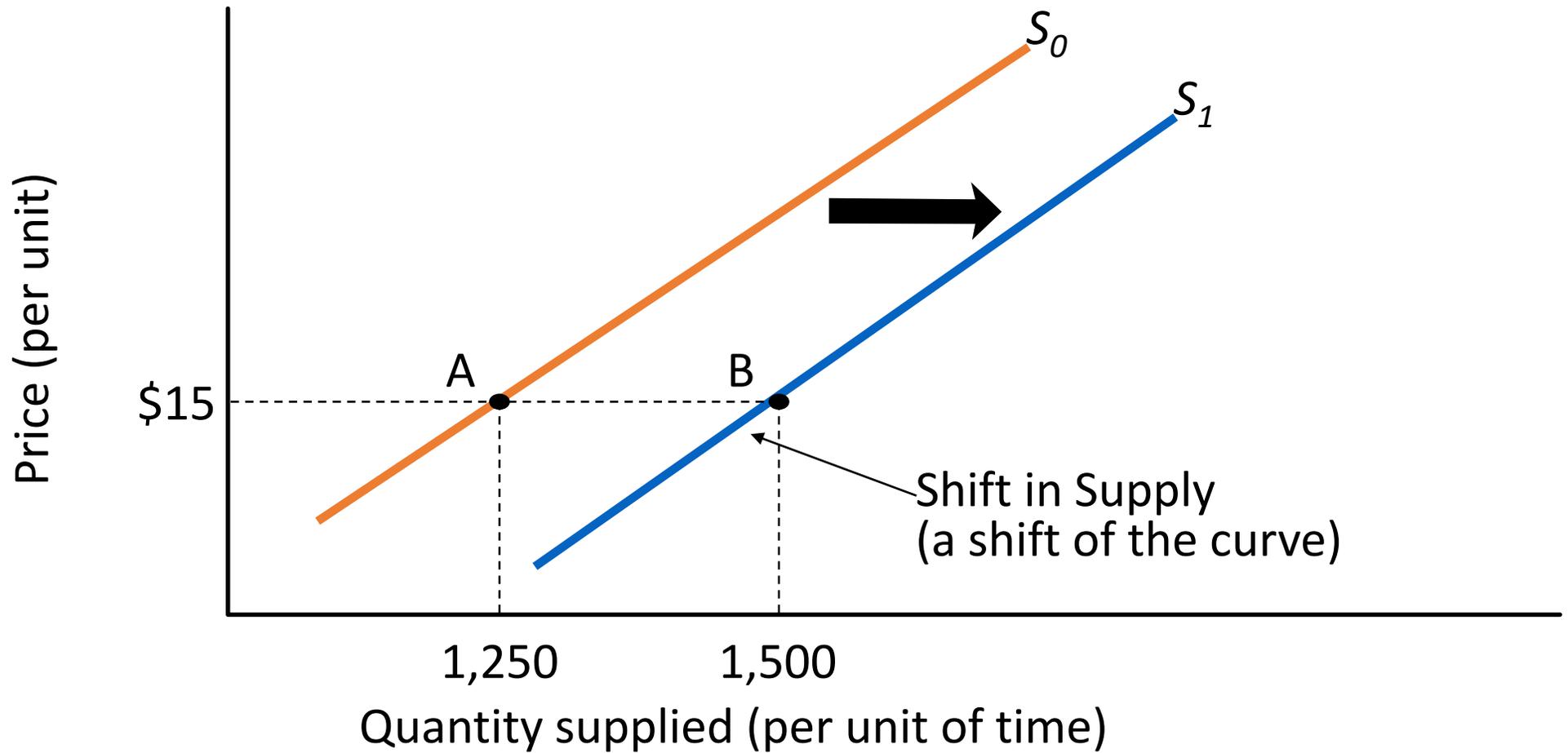
Shifts in Supply Versus Movements Along a Supply Curve

- ***Shift in supply*** – the graphic representation of the effect of a change in a factor other than price on supply.

Change in Quantity Supplied



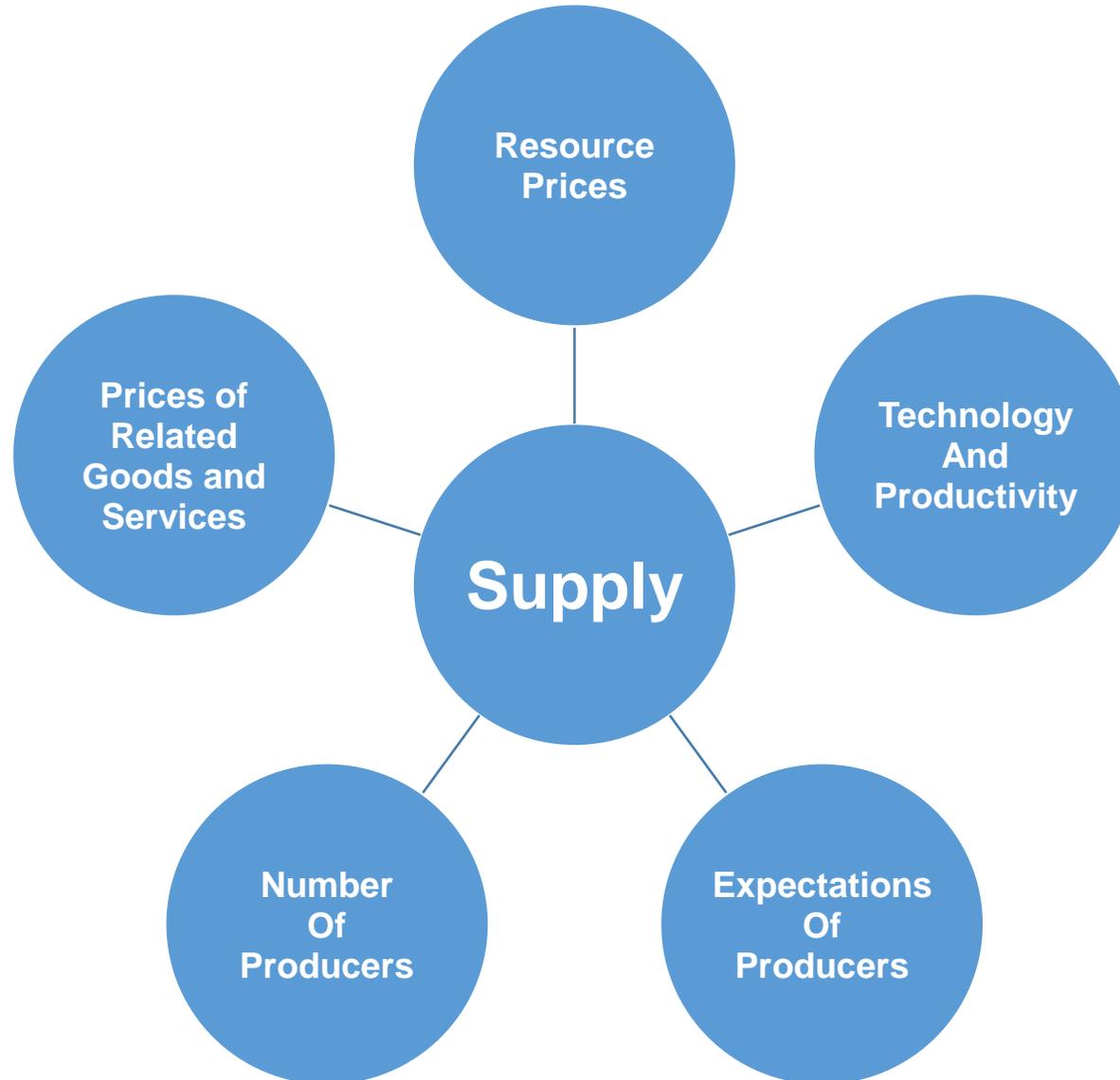
Shift in Supply



Shift Factors of Supply

- Other factors besides price affect how much will be supplied:
 - Prices of inputs used in the production of a good.
 - Technology.
 - Suppliers' expectations.
 - Taxes and subsidies.

Factors that Shift Supply



Production function

- ❖ Production function is one of basic and important concepts in economics.
- ❖ It is the basis for resource economics studies. In the early past it was considered that production function is a characteristic feature of those production processes in which nature dominated.
- ❖ Later it was established that production function explained the functional relationship between inputs to produce an output in all production processes.

- ❖ Marshall (1966) explained the production function analysis in agriculture with the help of *Law of Diminishing Returns*.
- ❖ According to him, “*an increase in the capital and labour applied in the cultivation of land causes in general a less than proportionate increase in the amount of produce raised, unless it happens to coincide with an improvement in the arts of agriculture*”.

❖ Marshall assumed that land is a fixed factor and other factors were variable, all units of the variable factor were identical and homogenous and the technology of agriculture followed remained the same.

- ❖ All the above said assumptions apply in fisheries, for example aquaculture, as well.
- ❖ The land is fixed.
- ❖ The other factors of production like labour, capital and inputs do vary.
- ❖ The technology adopted does not significantly change in the short run.
- ❖ If an improved production technology is followed then the returns increase instead of diminishing, but eventually a stage will be reached in which diminishing returns would appear.

- ❖ Every producer would need to know in which stage of production he has been operating so that he could produce the maximum possible output with a given set of inputs and technology.
- ❖ Production function analysis helps us to identify the inputs which influence the production process and the efficiency with which these inputs were used.

- ❖ Also, we could identify those inputs which could cause increase in the output more than per unit of each input so that they could be used in higher quantities.
- ❖ Similarly, the level of use of inputs which contributed less to the production could be reduced to required levels.
- ❖ Thus, the cost of production could be minimised which means enhanced income.

- ❖ The objective of the producer, that is, whether he intends to maximize yield or income or profit or minimise cost influences the choice of production function analysis.
- ❖ However, it must be remembered that although a producer does not decide the production function characterising the production process he has been following, he can choose an appropriate alternative function.
- ❖ Thus, he can benefit from production function analysis to make required decisions.

Types of production functions

In any production process, three types of production functions could be observed. They include cases of

(i) increasing returns;

(ii) constant returns and

(iii) decreasing returns.

❖ The case of increasing returns is seen in stage I in which the average product is at its maximum.

- ❖ As the marginal product is higher than the average product in region I, the producer would continue to add the inputs as long as the average product is increasing.
- ❖ Diminishing returns is seen in region III in which the total product is declining further and the marginal product or the amount of product added by additional units of input is negative.

- ❖ The region is therefore called *irrational region* as the producer stands to lose while operating in this region.
- ❖ In the case of constant returns, the amount of product increases by the same amount for each additional unit of input.
- ❖ The region II is called the *rational region* as the production becomes most profitable here.

- ❖ The total produce is increasing, the marginal product is decreasing, positive and is less than the average product which also declines.
- ❖ Fish producers aiming at income maximisation should attempt to find the production function of the process they follow in the region II.

Influence of technological change

- ❖ Technology refers to the available know-hows of producing an output using certain inputs.
- ❖ Technological change means improvement in the production know-how so that the output is enhanced.
- ❖ It shifts the production function over some range so as to produce more output with the same quantities of inputs or to produce the same output with less quantities of inputs.

❖ Therefore, while analysing the functional relationship between the output, say fish produced, with some inputs, say seed, feed, fertilisers, manures etc, it is generally assumed that the technology adopted remains the same.

Production function model

- ❖ The basic production function in the case of fisheries could take the simple form of Cobb-Douglas production function.
- ❖ If Y refers to the fish produced and x_1 , x_2 , x_3 and x_4 refer to the inputs used, then the production function is specified as follows :

$$Y = f(x_1, x_2, x_3, x_4).$$

- ❖ Specification of an appropriate functional form is very important to draw meaningful conclusions in production function analysis.
- ❖ Although several functional forms like linear, log linear, quadratic, polynomial, parabolic, etc. are available, we need to identify the one which best suits the data collected and our needs.
- ❖ The choice of the functional form could be decided on the basis of scattergrams.
- ❖ The scattergram reveals how the input and output data are distributed and indicates the overall trend.

Production function analysis - a case study in aquaculture

- ❖ In carp culture, the quantity of fish farmed represents the output for which various inputs like seed, feed fertilisers etc. are used.
- ❖ The Cobb-Douglas production function in carp culture could be specified as follows:
$$Y = f(m, u, s, f, r, g, 1)$$
 where,



Thank you

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