

# ECON1101 Summary

## PART 1: Opportunity Cost and Comparative Advantage

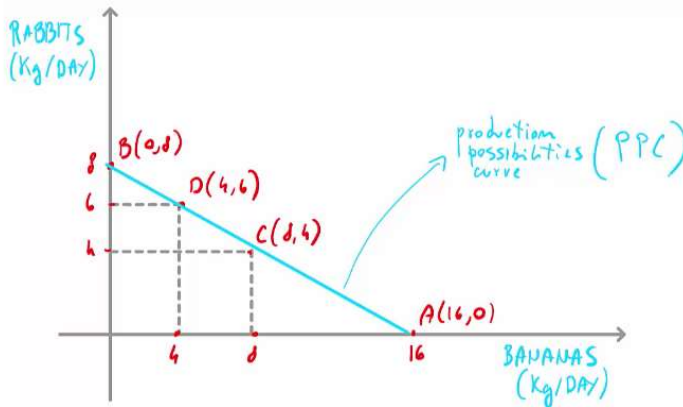
### Comparative Advantage and the Basis for Trade

**Model:** A model is simplified representation of reality.

#### One Agent Economy

##### Production Possibility Curve (PPC):

The PPC represents all possible combinations of bananas and rabbits that can be produced with Alberto's labour if he works the whole day. More generally, the PPC captures all maximum output possibilities for two (or more) goods, given a set of inputs (or resources – i.e., time) if inputs are used efficiently.



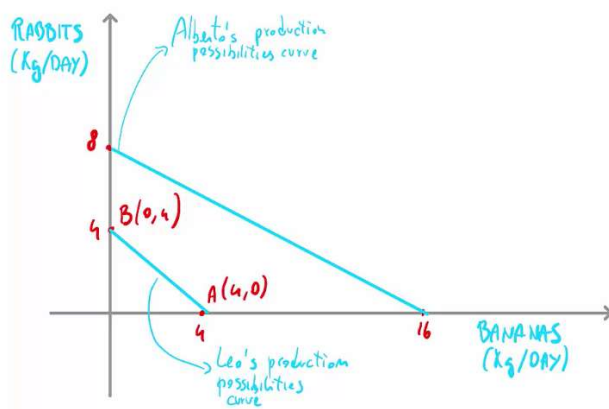
**Efficient Production Point:** An Efficient Production Point represents a combination of goods (bananas and rabbits) for which currently available resources (Alberto's time) do not allow an increase in the production of one good without a reduction in the production of the other. All the points on the PPC are efficient.

**Inefficient Production Point:** An Inefficient Production Point represents a combination of goods (bananas and rabbits) for which currently available resources (Alberto's time) allow an increase in the production of one good without a reduction in the production of the other. All the points below and to the left of the PPC are inefficient.

**Attainable Production Point:** An Attainable Production Point represents any combination of goods (bananas and rabbits) that can be produced with the currently available resources (Alberto's time). All the points on the PPC or below and to the left of the PPC are attainable.

**Unattainable Production Point:** An Unattainable Production Point represents any combination of goods (bananas and rabbits) that cannot be produced with the currently available resources (Alberto's time). All the points that lie outside of the PPC are unattainable.

#### Two Agent Economy



**Absolute Advantage:** An agent (or an economy) has an Absolute Advantage in a productive activity (like collecting bananas or catching rabbits) when he/she can carry on this activity with less resources (i.e., less time) than another agent.

**Opportunity Cost:** The Opportunity Cost of a given action is the value of the next best alternative to that particular action.

**Comparative Advantage:** An agent (or an economy) has a Comparative Advantage in a productive activity (like collecting bananas or catching rabbits) when he/she has a lower opportunity cost of carrying on that activity than another agent.

$$OC(\text{bananas}) = \text{loss in rabbit} / \text{gain in bananas}$$

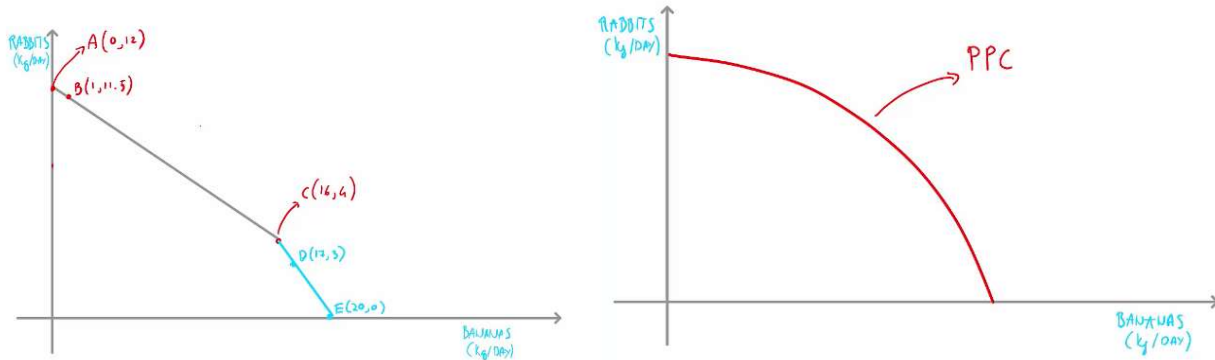
$$OC(\text{rabbit}) = \text{loss in bananas} / \text{gain in rabbit}$$

	No specialization		Specialization	
	bananas	rabbits	bananas	rabbits
Alberto	12	2	16	0
Leo	3	1	0	4
<b>Total</b>	<b>15</b>	<b>3</b>	<b>16</b>	<b>4</b>

Table 1.3: Gains from specialisation. Both Alberto and Leo are better off when they specialize according to their comparative advantage.

**Principle of Comparative Advantage:** The Principle of Comparative Advantage states that everyone is better off if each agent (or each country) specializes in the activities for which they have a comparative advantage.

## Economy Wide PPC



**The Low-Hanging Fruit Principle (or Increasing Opportunity Cost):** The Low-Hanging Fruit Principle (or Increasing Opportunity Cost) states that in the process of increasing the production of any good, one first employs those resources with the lowest opportunity cost and only once these are exhausted turn to resources with higher cost.

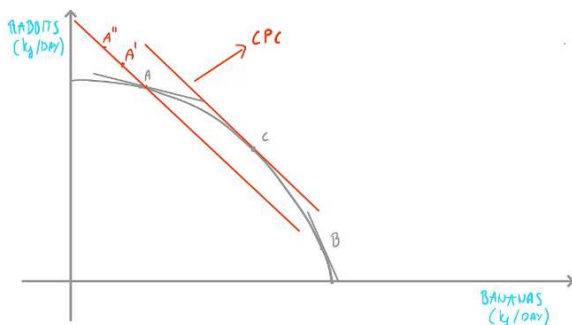
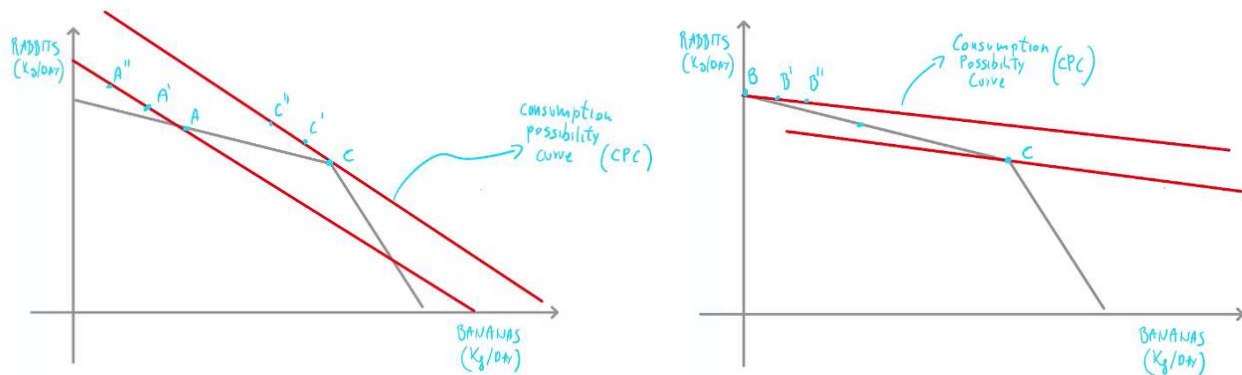
The PPC gets shifted out if there is:

1. an increase in infrastructures such as factories, equipment, etc.,
2. an increase in population, and so in labour force, or
3. advancements in knowledge and technology, via education, R&D, IT and communications technologies.

## Trading Between Economies: International Trade

- 1) If a country is a closed economy (doesn't trade internationally), the PPC and the CPC are the same because the agents must consume whatever they produce.
2. If a country is an open economy (trades on the international market), the CPC is usually greater than the PPC because part of what the agents produce can be traded for other goods and services, which relieves the restrictions on consumption.

**Consumption Possibility Curve (CPC):** The CPC represents all possible combinations of bananas and rabbits that the economy can feasibly consume when it is open to international trade.



The economy should first produce the combination of goods represented by point C on the PPC (where the opportunity cost of collecting 1kg of bananas equals the opportunity cost of buying it on the international market). Then, they can trade part of the bananas and rabbits in the market to obtain and consume any combination of goods on the CPC, which is given by the tangent to PPC at point C.

## PART 2: Perfectly Competitive Markets

**Market:** The Market for a given good or service is the set of all the consumers and suppliers who are willing to buy and sell that good or service.

**Market Equilibrium:** Market Equilibrium occurs when the price and the quantity sold of a given good is stable. *Alternatively, Market Equilibrium occurs when the equilibrium price is such that the quantity consumers want today is the same as the quantity suppliers want to sell.*

Perfectly competitive markets have the following characteristics:

1. **Consumers and Suppliers are Price-Takers:** when the market reaches a situation where the price is stable, any supplier would lose all her clientele if she were to ask for a higher price (i.e., the consumers would just acquire the good from her competitors) AND any consumer would fail to acquire the good if he were to suggest a lower price (i.e., the suppliers would just serve someone else instead).
2. **Homogeneous Goods:** All suppliers sell exactly the same product. The wheat market is a good example of a market where every supplier offers the same type of good.
3. **No Externality:** An externality is a cost (or a benefit) that is incurred by (or accrued to) someone who is not involved in the production or consumption of a certain good. In a market with no externalities, all the production costs and benefits are incurred by the supplier of the good; similarly all the consumption costs and benefits are incurred by the consumer of the good.  
**External Cost:** An External Cost is a cost incurred by someone who is not involved in the production / consumption of a given good.  
**External Benefit:** An External Benefit is a benefit accrued to someone who is not involved in the production / consumption of a given good.
4. **Goods are Excludable and Rival:** Suppliers can prevent consumers from consuming a certain good (excludability) and, once consumed, that good becomes unavailable to other consumers (rivalry).
5. **Full Information:** The suppliers and the consumers are perfectly informed regarding the characteristics of the good. These characteristics include the quality and the price of a good.
6. **Free Entry and Exit:** Suppliers are free to enter and exit the market.

### Supply Curve for an Individual

**Marginal Benefit:** The Marginal Benefit of producing a certain unit of a given good is the extra benefit accrued by producing that unit.

**Marginal Cost:** The Marginal Cost of producing a certain unit of a given good is the extra cost of producing that unit. (Keep in mind here that the relevant cost is the "opportunity cost" and not just the "absolute cost" of producing the good.)

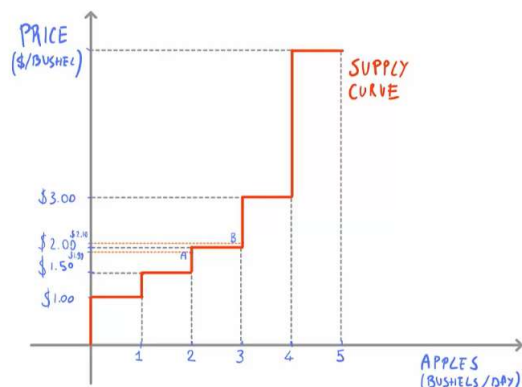
**Cost-Benefit Principle:** The Cost-Benefit Principle states that an action should be taken if the marginal benefit is greater than the marginal cost.

**Economic Surplus:** The Economic Surplus of a certain action is the difference between the marginal benefit and the marginal cost of taking that action.

**Quantity Supplied:** The Quantity Supplied by a supplier represents the quantity of a given good or service that maximizes the profit of the supplier.

**Supply Curve:** The Supply Curve represents the relationship between the price of a good or service and the quantity supplied of that good or service.

**Law of Supply:** The Law of Supply describes the tendency for a producer to offer more of a certain good or service when the price of that good or service increases.



**Horizontal Interpretation (of the Supply Curve):** Start from a certain price and find the associated quantity on the supply curve. The quantity you found indicates how many units the producer is willing to supply at that price.

**Vertical Interpretation (of the Supply Curve):** Start from a certain quantity (say 2 units) and find the associated price on the supply curve. The price you found indicates the minimum amount of money the producer is willing to accept to offer the *marginal* unit (in our example the marginal unit would be the 2nd unit).

**Producer Reservation Price:** Producer Reservation Price denotes the minimum amount of money the producer is willing to accept to offer a certain good or service.

## Supply Curve for a Firm

**Sunk Cost:** A Sunk Cost is a cost that once paid cannot be recovered.

**Fixed Cost:** A Fixed Cost is a cost associated with a fixed factor of production.

**Fixed Factor of Production:** If a factor of production is fixed, then the cost associated with it does not vary with the quantity produced.

**Short Run:** Short Run denotes a period of time during which at least of one factor of production is fixed.

**Variable Factor of Production:** If a factor of production is variable, then the cost associated with it tends to vary with the number of units produced.

**Variable Cost:** A Variable Cost is a cost associated with a variable factor of production.

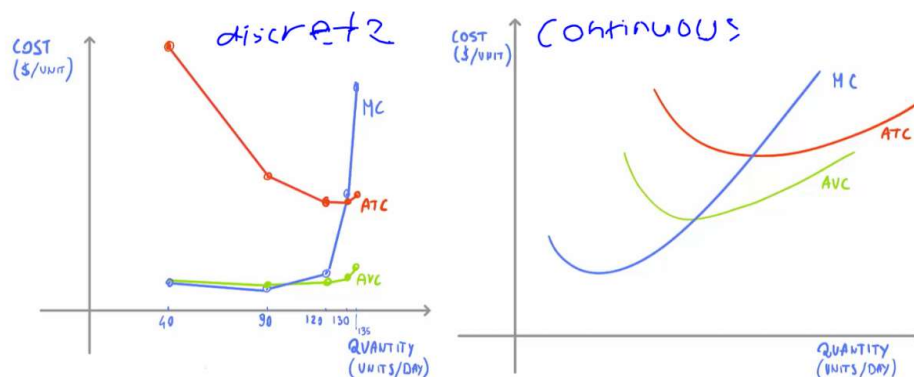
**Long Run:** Long Run denotes a period of time during which all factors of production are variable.

Workers <i>W</i>	Quantity <i>Q</i>	Fixed Cost <i>FC</i>	Variable Cost $VC = \$12 \times W$	Total Cost $TC = VC + FC$	Average Cost		Marginal Cost $MC = \frac{\Delta TC}{\Delta Q}$
					Variable $AVC = \frac{VC}{Q}$	Total $ATC = \frac{TC}{Q}$	
0	0	\$100	\$0	\$100	—	—	—
1	40	\$100	\$12	\$112	0.30	2.80	0.30
2	90	\$100	\$24	\$124	0.27	1.38	0.24
3	120	\$100	\$36	\$136	0.30	1.13	0.40
4	130	\$100	\$48	\$148	0.34	1.14	1.2
5	135	\$100	\$60	\$160	0.44	1.19	2.40

**Profit:** Profit represents the difference between the total revenues (TR) and the total costs (TC).

**Shut Down Condition (short run):** In the short run, the entrepreneur should shut down production if  $\pi^{\text{production}} < -FC$ . Otherwise, she should hire the optimal number of workers and continue operations.

**Exit Condition (long run):** In the long run, the entrepreneur should exit the industry if  $\pi^{\text{production}} < 0$ . Otherwise, she should hire the optimal number of workers and continue operations.



The supply curve for a firm can be derived by changing the price and observe the variation in quantity produced. In the context of the firm, the supply curve is equal to the Marginal Cost (MC) curve only for those values of the MC that are higher than the minimum AVC (in the short run) and higher than the minimum ATC (in the long run). (Remember that the entrepreneur will not produce anything if the price is below these points, in the short and long run respectively.)

The MC curve eventually increases with the quantity produced. In other words, the production process is subject to *increasing marginal costs*. This might be due to the fact that adding more employees operating on a fixed amount of machineries translates sooner or later into a productivity decline because, for example, the employees might get in each other's way while operating the equipment.

The MC curve cuts the AVC curve and the ATC curve at their minimum points. the marginal cost is the extra cost associated with the production of the extra unit of the good. If the extra cost is smaller than the average cost, then the average will decrease. On the other hand, if the extra cost is higher than the average cost, then the average will increase. The average remains constant if and only if the marginal cost is equal to the average cost. Hence, the AVC curve and the ATC curve decrease initially as the MC curve is below them. They continue to do so until the point where the MC curve touches them. From that point onward, the MC curve is above them and so they begin to increase.

In the long run, all costs are variable. For example, the entrepreneur can decide whether or not to start a new loan to rent the machinery. The cost associated with it *does* vary with the quantity produced. If the quantity produced is zero, the cost of the loan is zero. But this is no longer the case if the quantity produced is greater than zero. Hence, the cost of the loan is no longer a fixed cost. For this reason, in our particular example the AVC curve would become identical to the ATC curve as the entrepreneur moves into the long run.

Factors shifting the supply curve could be:

1. **Technology:** More advanced technologies reduce the unit cost of production. By using such technologies, firms can considerably increase the amount of goods they produce (per unit of effort invested).
2. **Input prices:** A change in the price of inputs will affect the productive capacity of a firm/industry, which will be directly reflected in the supply. However, the price changes related to fixed inputs have no effect — except to the change the exit point for the producer.
3. **Expectations:** Expected future price (or future demand) changes will make suppliers adjust their behavior to take advantage of (or shield themselves from) the new opportunities. If sellers expect the demand for a certain good to go up, for instance, they might hold off the goods with the expectation that next period they will sell them for a higher price.
4. **Changes in pricing for other products:** If a seller is producing two or more goods, and one good experiences a surge in demand (and so, price), the seller will shift (as much as possible) its productive focus to the high demand good. This will affect the supply of all the other goods the seller produces.
5. **Number of suppliers:** The higher the number of suppliers entering a market, the larger the right shift in the aggregate supply curve.

## Price Elasticity of Supply

$$\text{Elasticity}^A = (\Delta Q / Q^A) / (\Delta P / P^A)$$

$$\text{Elasticity}^A = (P^A / Q^A) * (1 / \text{slope})$$

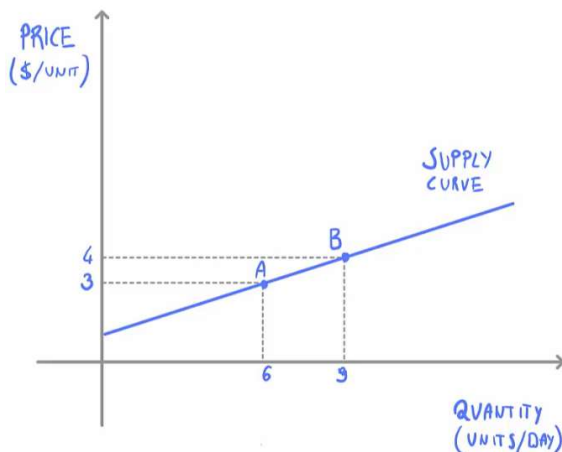
**Price Elasticity of Supply:** Price Elasticity of Supply denotes the percentage change in the quantity supplied resulting from a very small percentage change in price.

**Law of Supply:** Supply curves have the tendency of being upward sloping.

**Elastic Supply:** Supply is elastic when the price elasticity of supply is greater than 1.

**Unit Elastic Supply:** Supply is unit elastic when the price elasticity of supply is equal to 1.

**Inelastic Supply:** Supply is inelastic when the price elasticity of supply is less than 1.



Main factors:

1. **Availability of raw materials:** The larger the availability of raw materials, the more elastic supply tends to be. On the other hand, if additional raw materials are not available, a firm might be unable to produce more.
2. **Factors mobility:** The more mobile the factors of production, the higher the elasticity. If a firm can easily divert its factors of production from one good to another, then it can rapidly increase production of those goods which happen to be in demand.
3. **Inventories / Excess capacity:** The larger the amount of inventories and excess capacity, the higher the elasticity. If a firm has a large number of goods in storage (inventories), then it can quickly increase the amount supplied in the market. Excess capacity is a situation where

there is relative abundance of fixed factors of production compared to variable ones. A firm that has excess capacity can respond more quickly to an increase in demand. This can be achieved by increasing the number of variable factors of production (provided that these variable factors are readily available).

4. **Time horizon:** The longer the time horizon, the higher the elasticity tends to be. If the time horizon is long enough, producers can search for alternative inputs and revise their production plans more conveniently.