Chapter 1

1.1 Opportunity cost and comparative advantage

David Ricardo in 1817 come up with the idea of the magic 4 numbers where there are just:

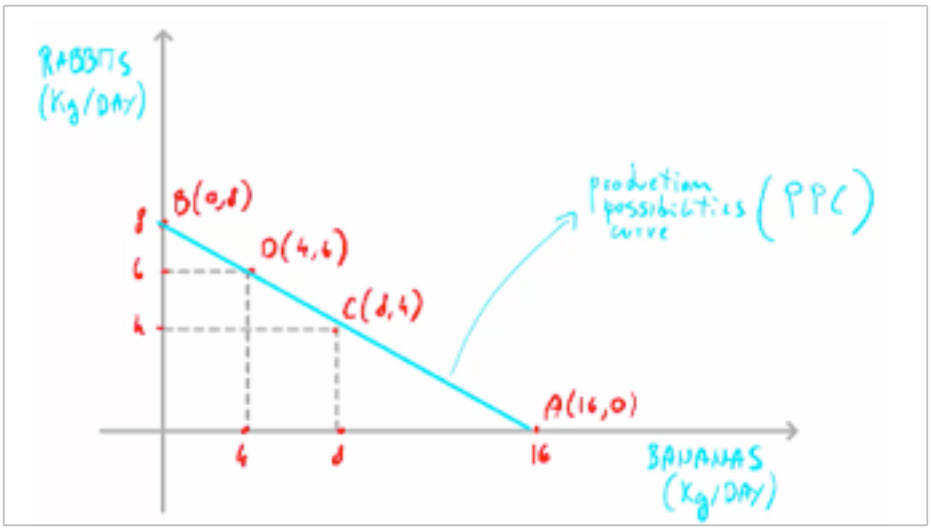
1. Two possible activities
2. Two individuals
3. No transaction costs in trading, no transportation costs and no barriers for trade (tariffs etc.)

1.2 One agent Economy

Definitions
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. In another words the PPC captures all maximum output possibilities for two (or more) goods, given a set of input (or resources i.e. time) if inputs are used efficiently. Efficient Production Point: An efficient production point represents a combination of goods for which currently available resources 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 for which currently available resources 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: represents any combination of goods that can be produced with the currently available resources. All the points on the PPC or below and to the left of the PPC are attainable. Unattainable Production Point: represents any combination of goods that cannot be produced with the currently available resources. All the points that lie outside of the PPC are unattainable.

There are only so many hours in a day to complete tasks that take certain amounts of time each…. This is what economists call a *time constraint.*

Plotting all possible combinations of bananas and rabbit for example that Alberto can get in a day working for all available hours creates the *Production Possibility Curve (PPC)*. This shows what he can produce if he works the WHOLE DAY i.e. if all inputs are used efficiently and no time is wasted. Therefore, points on the PPC are efficient.



This is an example of the PPC drawn for a single agent over 24 hours if it takes him 1 hour to collect 1 kg of banana and 2 hours to collect 1 kg of rabbits. These are all efficient points as he is using the maximum resources in all the time he is given.

1.3 Two agent Economy

Definitions
Absolute Advantage: An agent (or economy) has an absolute advantage in a productive activity when he/she can carry on this activity with less resources than another agent e.g. time. **Opportunity Cost:** The value of the next best alternative to that particular action **Comparative Advantage:** An agent has a comparative advantage when they have a lower opportunity cost of carrying on that activity than another agent. **Principle of Comparative advantage:** States everyone is better off if each agent (or each country) specializes in the activities for which they have a comparative advantage.

The gradient of the PPC gives the opportunity cost. That is rise/run. To find the opportunity cost you calculate the rise/run and identify if the slope is positive or negative. Do not mistake that this is finding the opportunity cost of the event or product on the x axis. The opportunity cost of the y axis is the opposite reciprocal number found for the x axis (e.g. -1/3 turns into 3)

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

A quick look at the table reveals that Alberto's opportunity cost of collecting 1kg of bananas is lower than Leo's. On the other hand, Leo's opportunity cost of catching 1kg of rabbit is lower than Alberto's. Based on these opportunity costs, we conclude that Alberto has a

comparative advantage at picking bananas, and Leo has a comparative advantage at catching rabbits.

Common sense suggests that the agent with the lowest (opportunity) cost at producing something should go on and produce it. If we follow this rule, Alberto should collect bananas (as his cost of 1kg of bananas is 0.5kg of rabbit, which is lower than 1kg for Leo), while Leo should catch rabbits (as his cost of 1kg of rabbit is 1kg of bananas, compared to 2kg for Alberto). If Alberto and Leo fully specialize this way, the economy (formed by Alberto and Leo) will have 16kg of bananas and 4kg of rabbit.

The quantities in the first two columns are smaller than what Alberto's and Leo's economy would produce if they were to each specialize. The extra (16-15=)1kg of bananas and (4-3=)1kg of rabbit are what we call *gains from specialization*. The fact that specialization leads to everyone being better off is an important economic principle called the *Principle of Comparative Advantage*.

1.4 Trading in a two agent economy

So now we work out that Leo can help with Alberto's consumption objective (4kg of rabbit and 9kg of bananas) and at the same time reach his own consumption objective (7kg of bananas). Provided that Alberto and Leo specialize according to their comparative advantage: Alberto fully *specializes* in bananas (meaning on the activity for which he has a comparative advantage) and produces 16kg of bananas and Leo specializes in catching rabbits and produces 4kg of rabbit. They can then trade; Alberto gives some of his bananas in exchange for rabbits.

Specialization allows for larger consumption rates when traded through other productive economies.

1.5 Economy wide PPC in a two-agent economy

Definitions
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 simplest way to derive the economy- wide PPC is to:

1. Find the total amount of rabbit that Leo and Alberto can produce if they spend all their time catching rabbits. Mark this on the y axis.
2. Now expand production of bananas by 1 kg. Who should produce the first? Whom ever has the comparative advantage of collecting bananas should. Since his opportunity cost of producing 1 kg of bananas is 0.5 kg of rabbit we are now producing 1 kg of bananas and 11.5 kg of rabbit.
3. Continue to expand production of bananas using Alberto since he has the competitive advantaged until he runs out of working hours. Then the person with the next best comparative advantage will take over.