Production Possibilities Curve

- Ultimately, production = consumption.
- Anything that affects the level of production, or type of goods produced, affects consumption.
- Because society cannot produce unlimited quantities of any, much less all goods, then choices in production must be make.

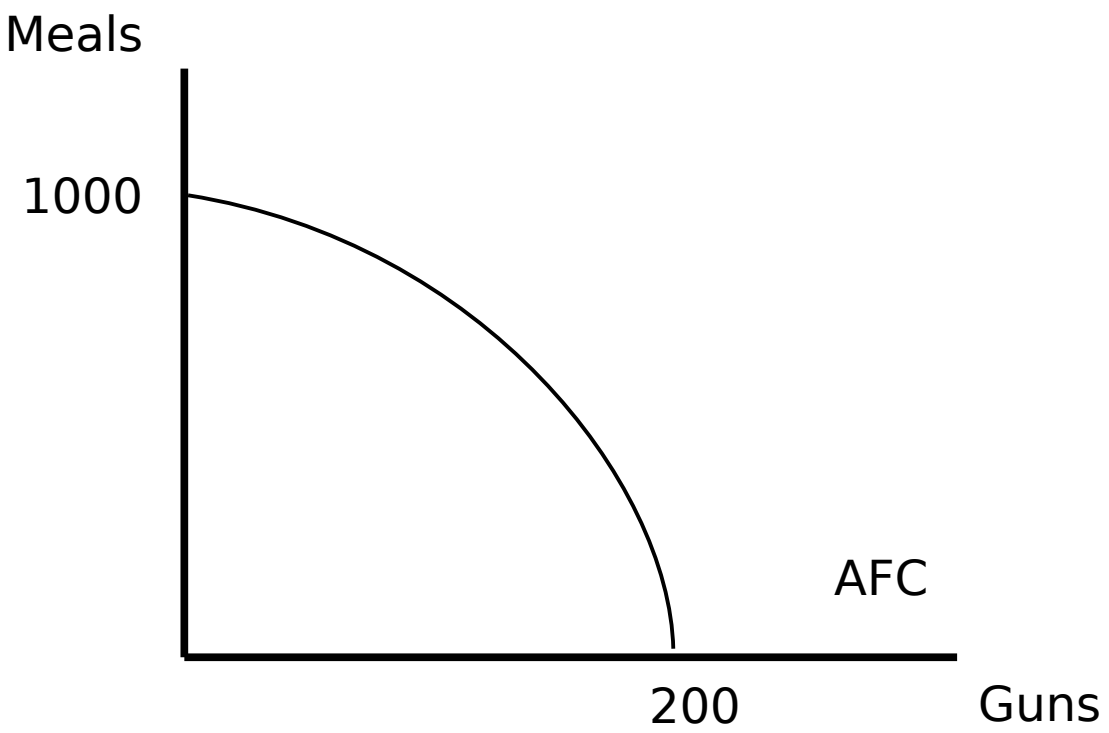
Production Possibilities Curve

- For each unit of one type of good produced, the cost, known as opportunity cost, is than one unit of another type of good cannot be produced.
- This analysis will not seek to determine the optimal production mix, only to illustrate basic economic concepts.

Production Possibilities Curve

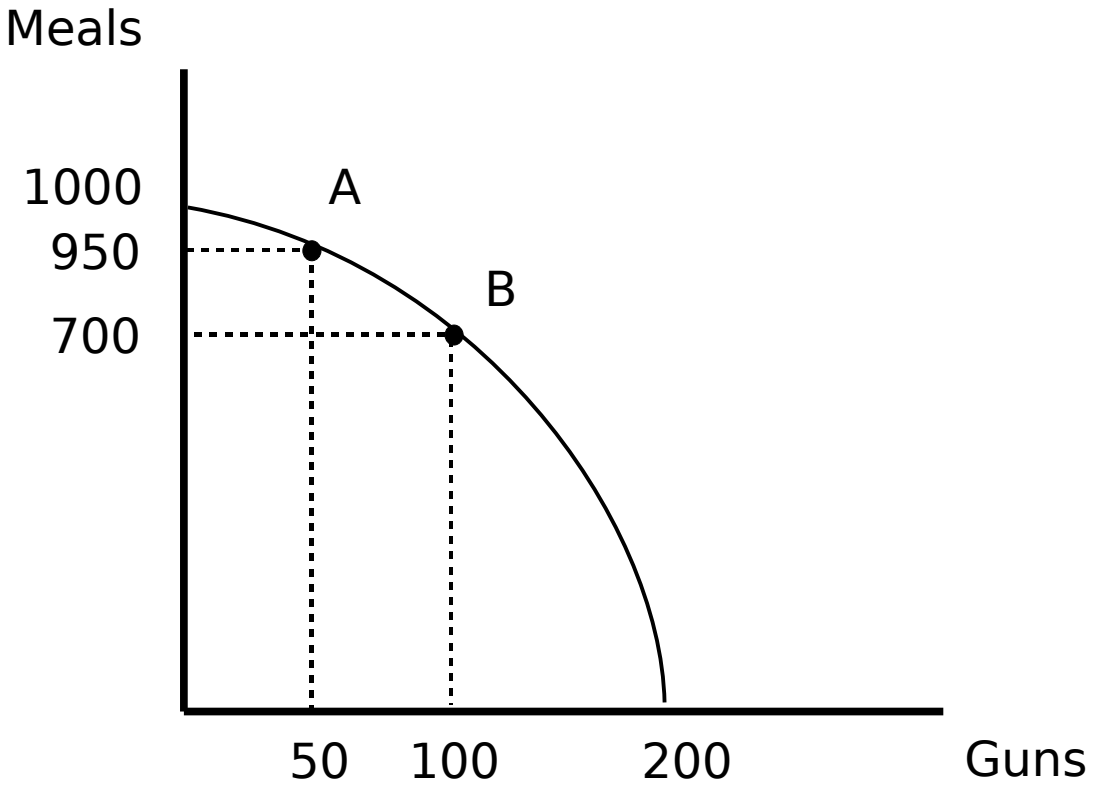
- Graphical illustration of combinations of goods that society can produce.
- Reflects the trade-off between production between goods.
- Is constrained by labor, capital and technology (Assumptions).

Production Possibilities Curve



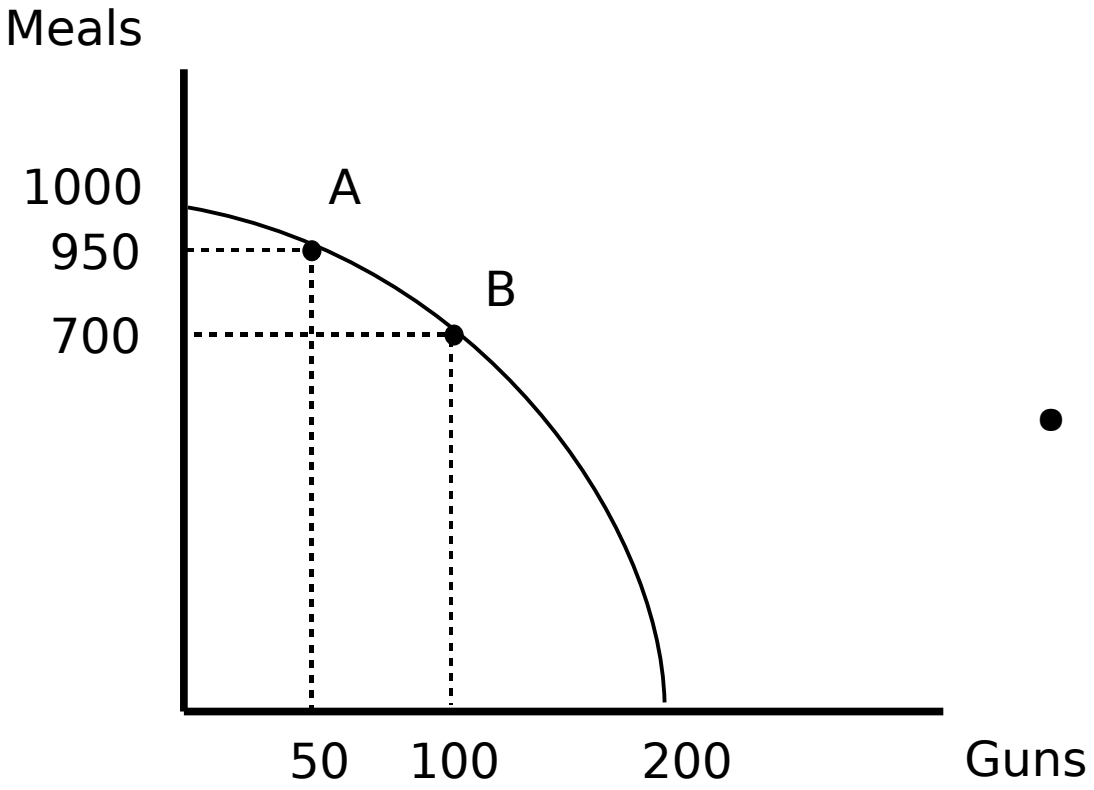
- Given a level of labor, capital and technology, this economy can produce either 1000 meals or 220 guns or combinations in between.

Production Possibilities Curve



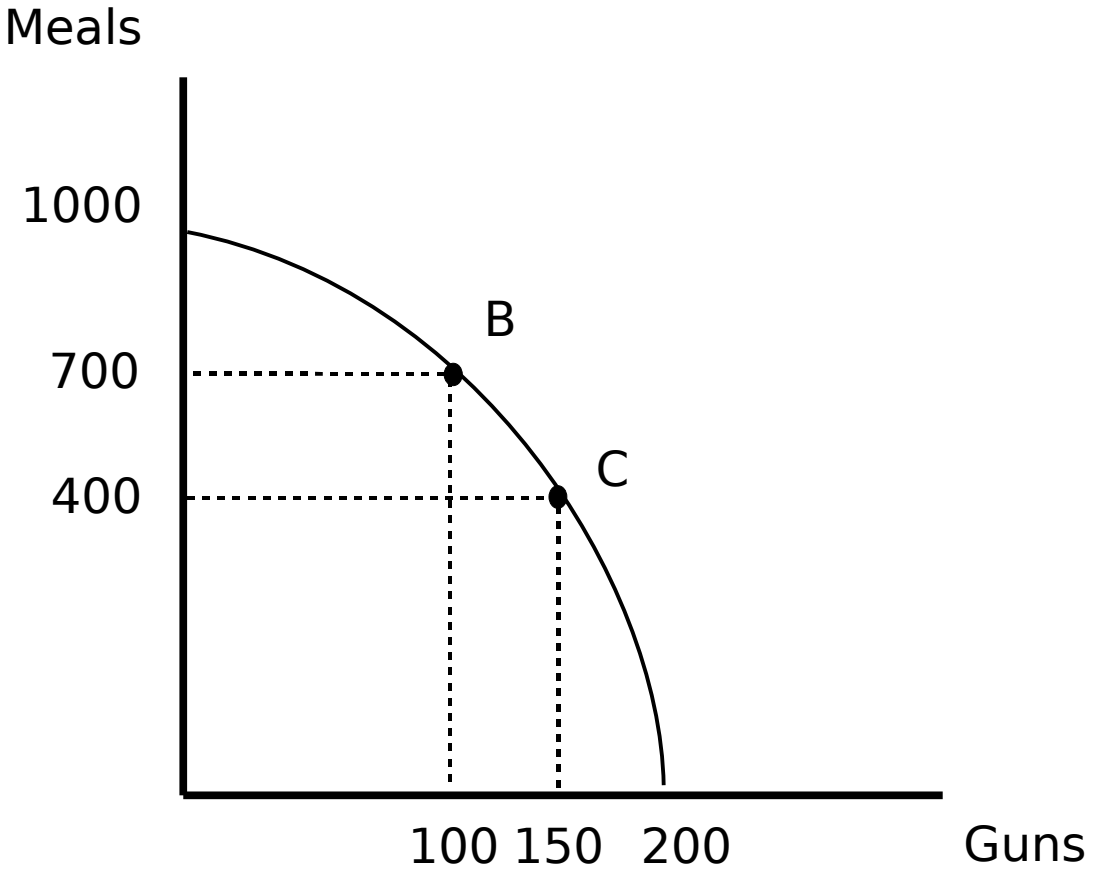
- Given the economy produces at point A but wishes to produce at point B, the opportunity cost of producing 50 guns is 250 meals.

Production Possibilities Curve



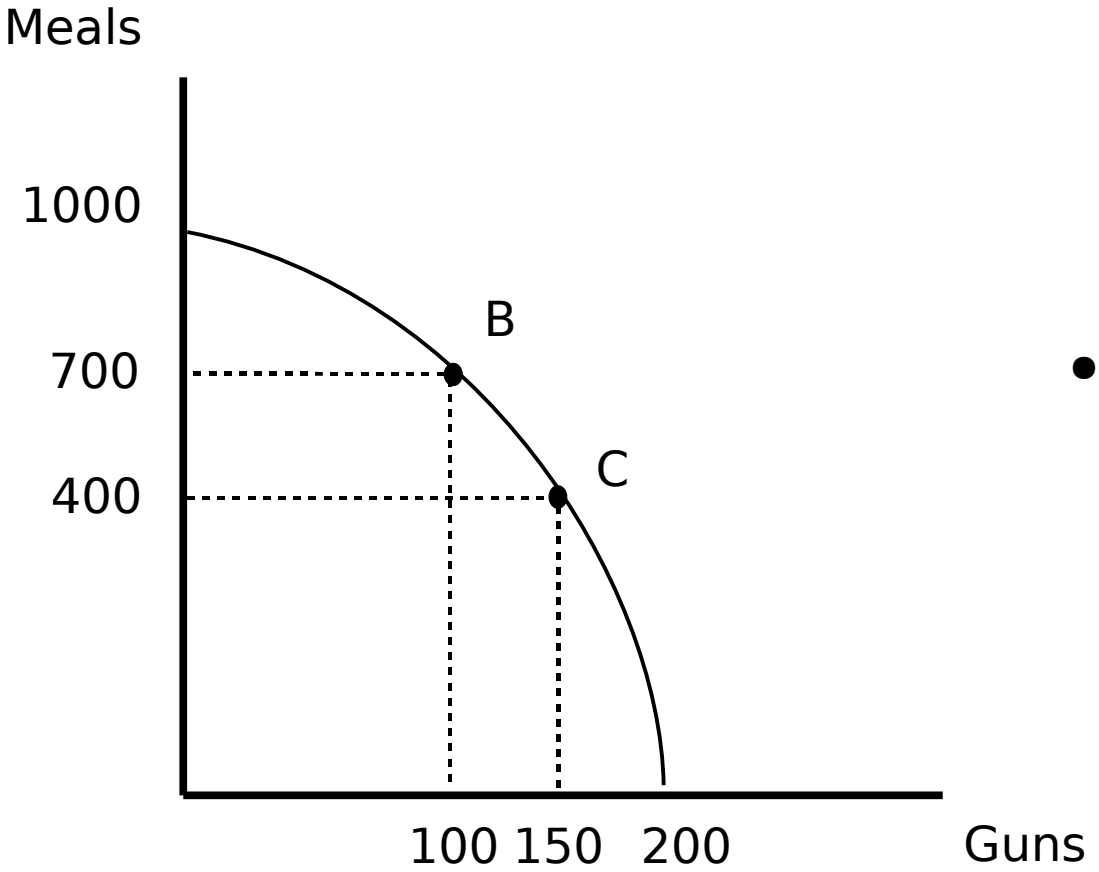
- The Marginal Rate of Substitution (MRS) is (950-700)/(50-100) = -5 meals per gun.
- The MRS is merely a slope.

Production Possibilities Curve



- Given the economy produces at point B but wishes to produce at point C, the opportunity cost of producing 50 guns is 300 meals.

Production Possibilities Curve



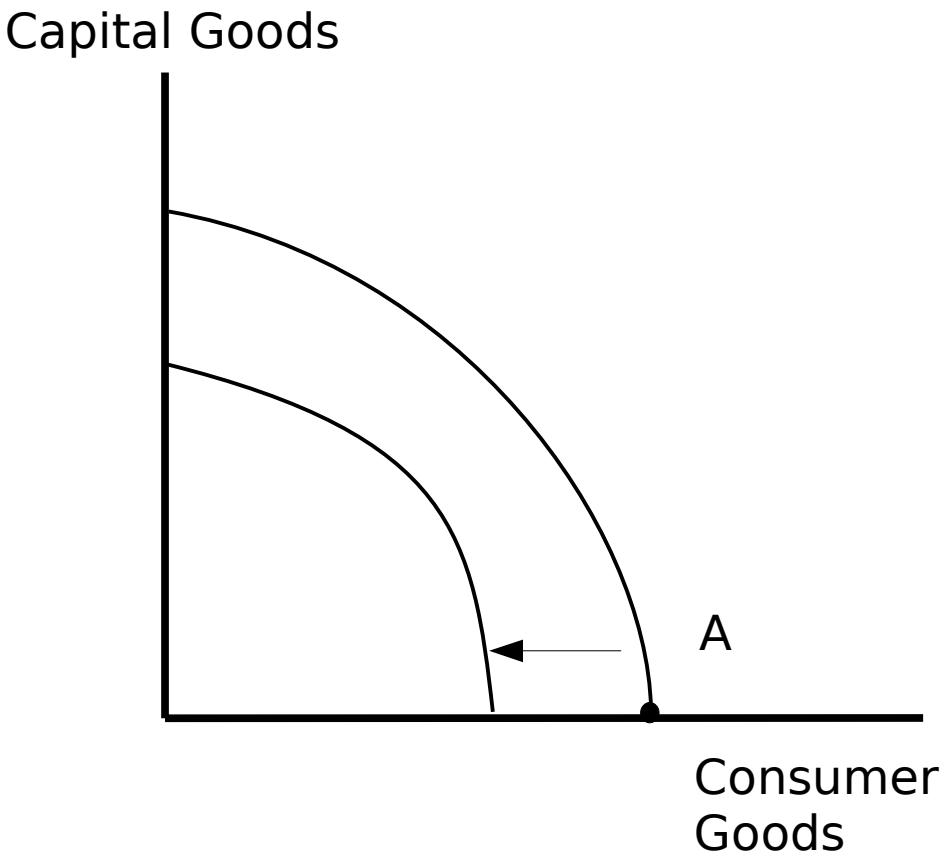
- Determine the new MRS in moving from point B to point C.
- (700-400)/(100-150) = -6 meals per gun.

Production Possibilities Curve

- Suppose the MRS (Pasta/Pizza) is -5. How many pizzas must be given up to gain 10 pastas?

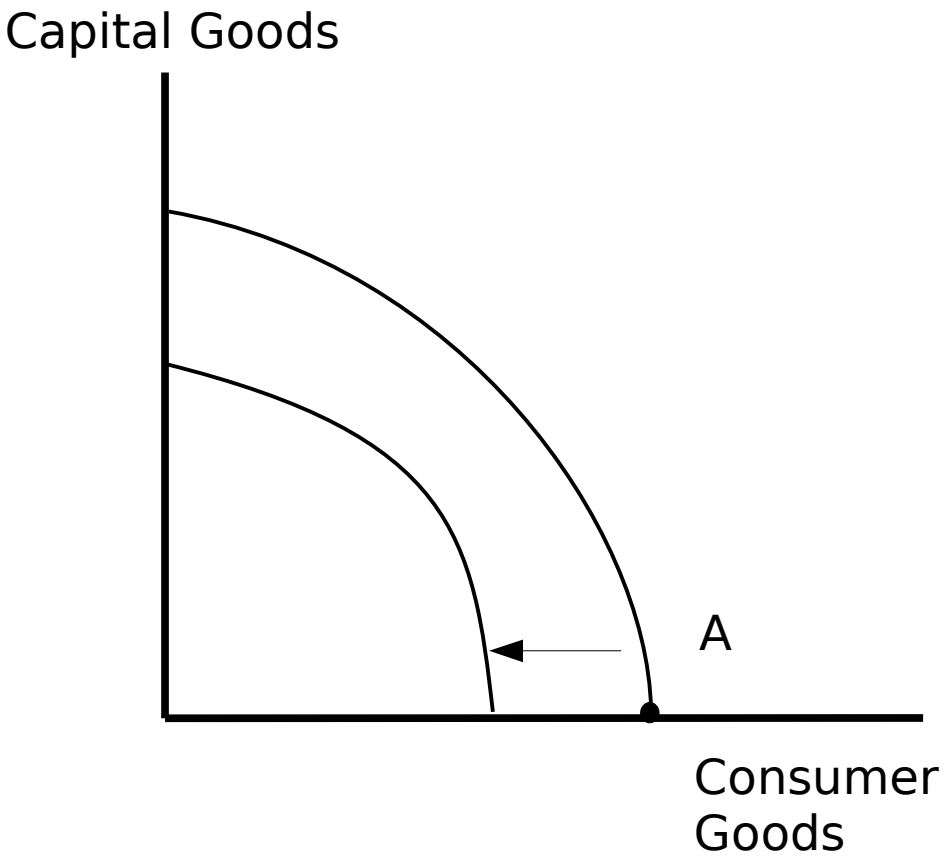
- Solution
- -5 = 10/pizzas
- pizzas = 10/-5 = -2
- Two pizzas must be given up

Production Possibilities Curve



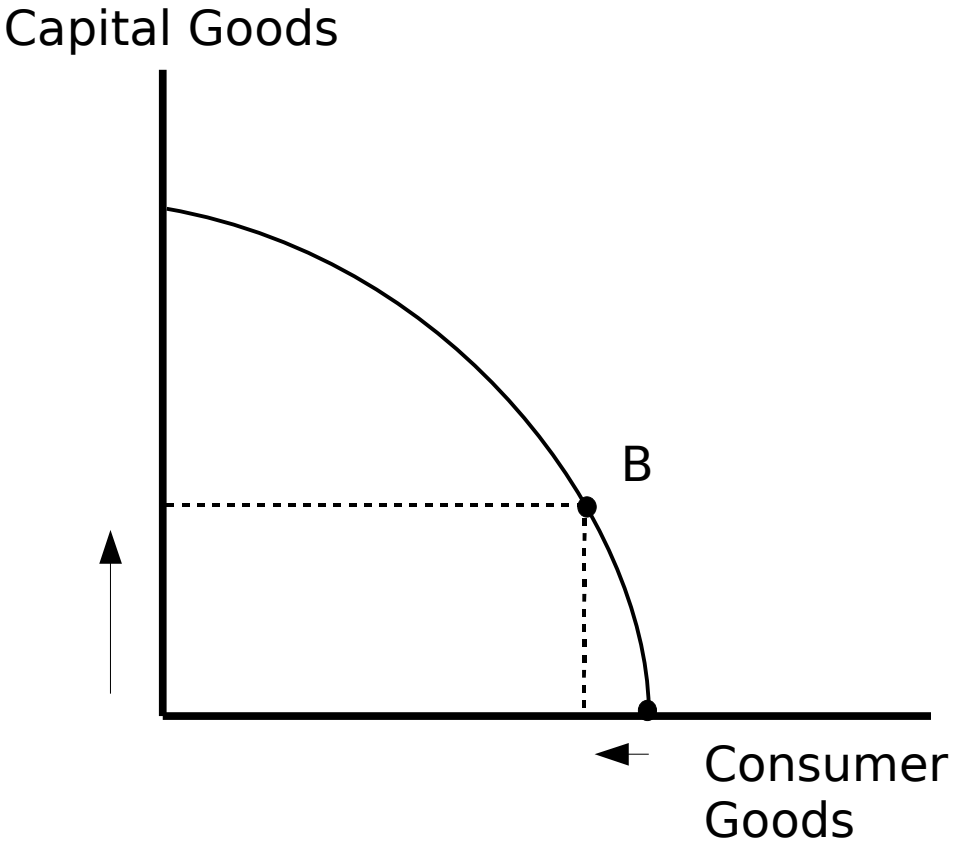
- There is a trade-off between the present and the future, consumption vs capital.

Production Possibilities Curve



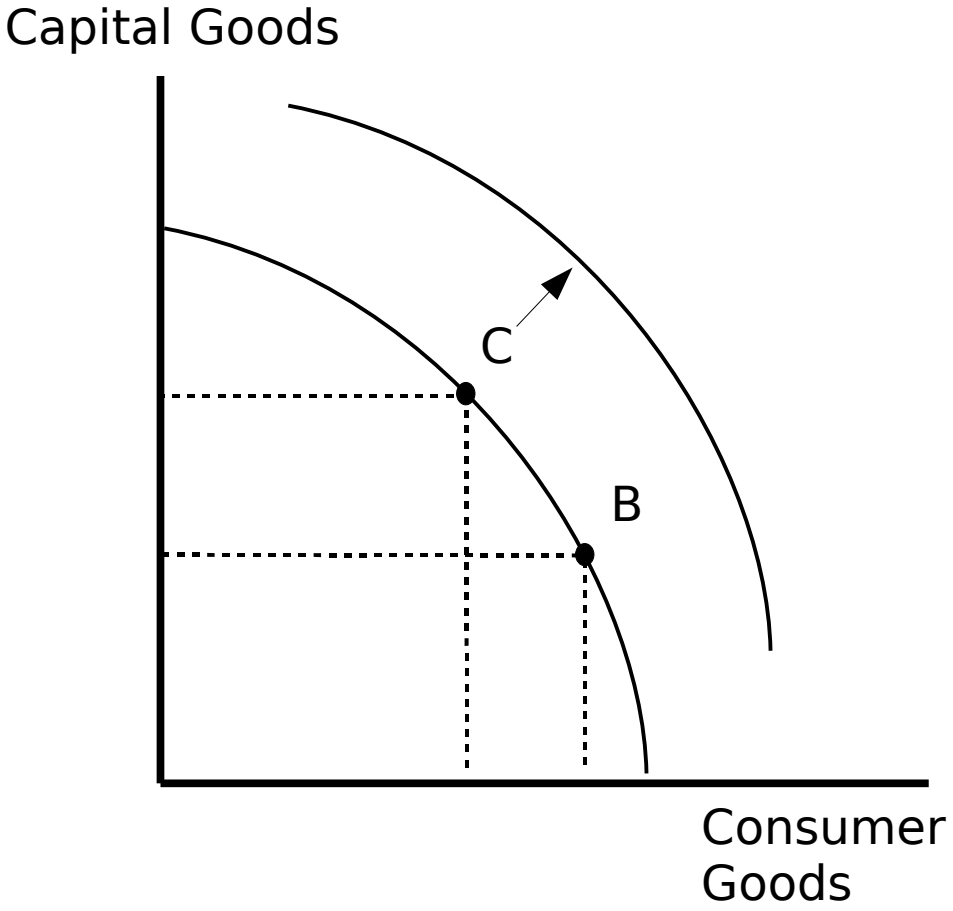
- If at point A no resources are committed to maintaining capital, then production will fall.

Production Possibilities Curve



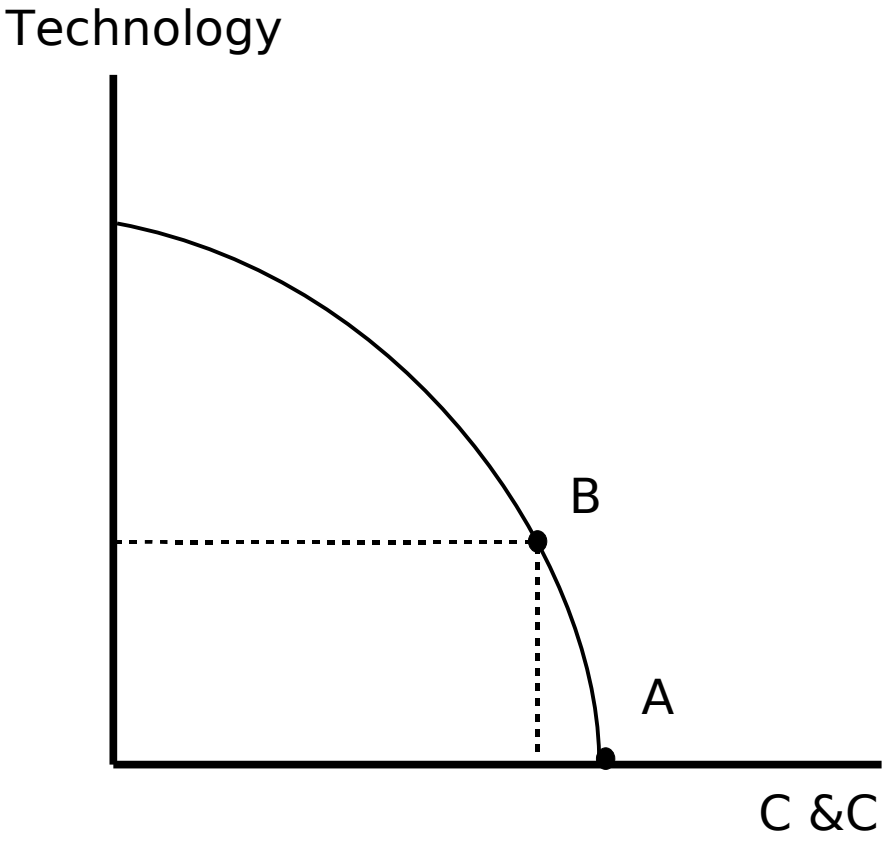
- If some resources are committed to maintaining capital consumption is sacrificed but production does not fall in the following period.

Production Possibilities Curve



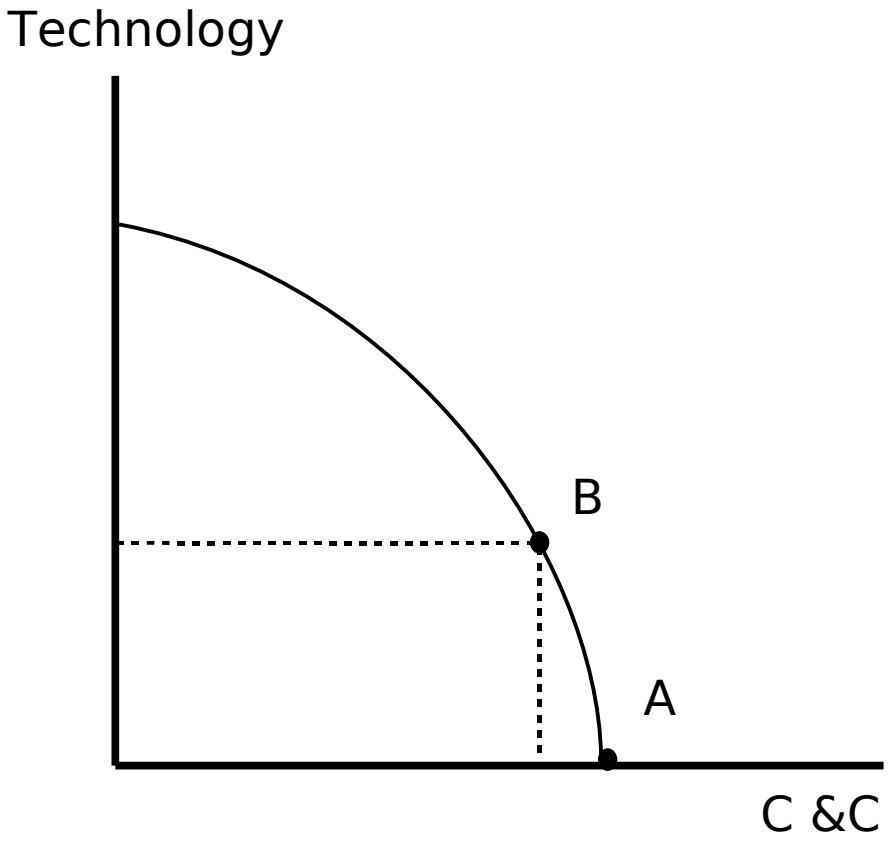
- If capital is expanded, then next year more production can be produced.
- Again, some consumption is lost.

Production Possibilities Curve



- Another tradeoff exists between the present and the future.
- Investing in technology via Research & Development (R&D).

Production Possibilities Curve

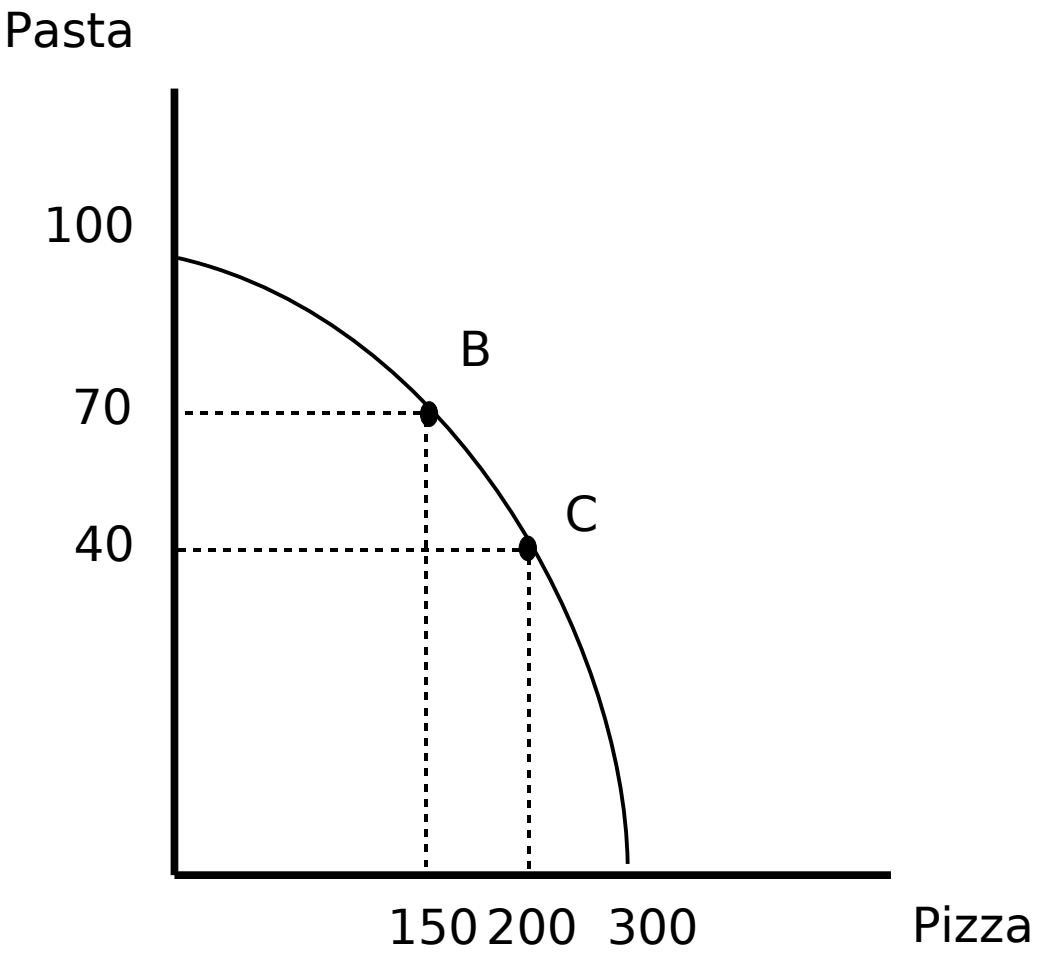


- Spending on consumption and capital is lowered to finance R&D.
- Investing in technology increases returns to capital and production in future periods.

Production Possibilities Curve

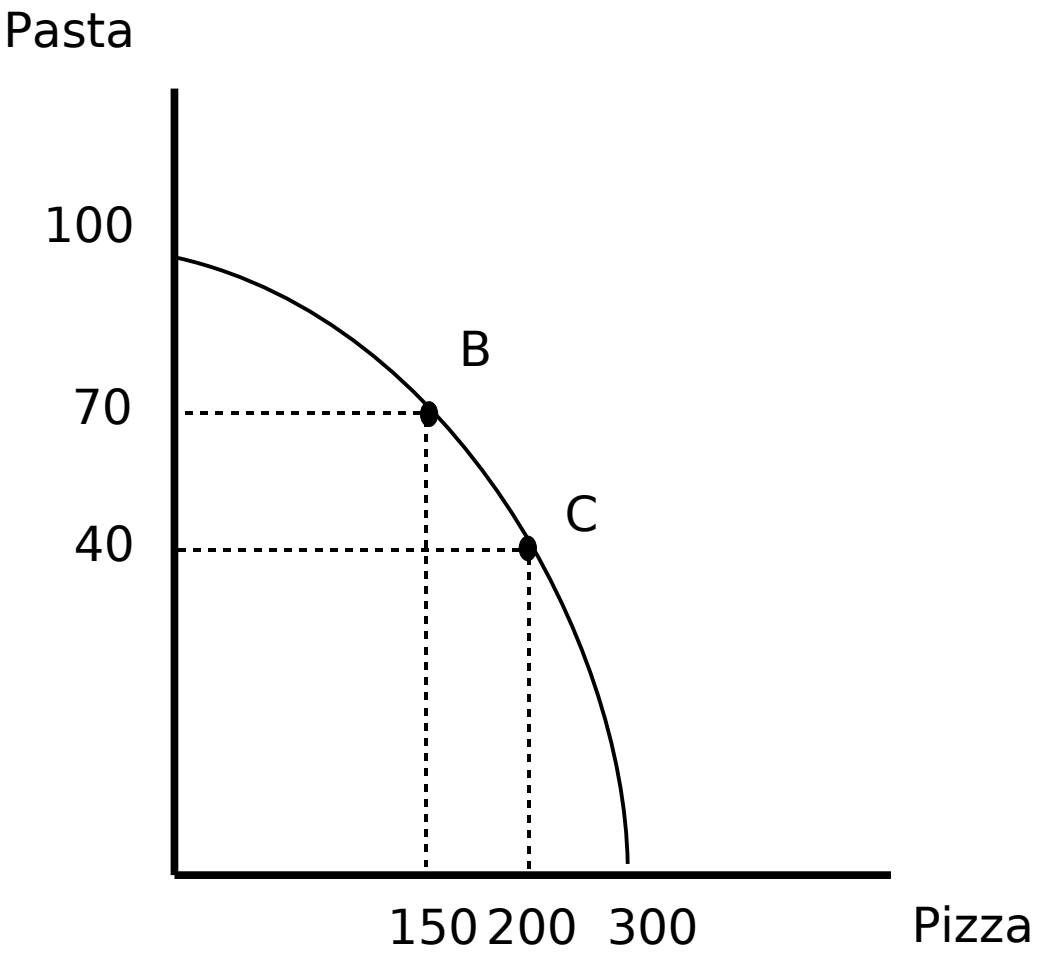
- If labor, capital or technology decrease, then the production possibilities curve will shift inward.
- If labor, capital or technology increase, then the production possibilities curve will shift outward.

PPC Problem



- What is the opportunity cost of moving from C to B?
- What is the MRS?

PPC Solution



- The opportunity cost of moving from C to B is (200 – 150) 50 pizzas.

  Note that you gain 30 pastas.

- The MRS is (40-80)/(200-150) = -.8

PPC Problem

- Let's say that the MRS of tacos to burritos is -3 for Juanita's Comida. If Juanita wants to produce 100 more burritos, how many tacos will she have to give up?

PPC Solution

- Let's say that the MRS of tacos to burritos is -3 for Juanita's Comida. If Juanita wants to produce 100 more burritos, how many tacos will she have to give up?
- Solution: -3 = tacos/100, tacos = 300.

The End

(of production possibilities curves)