

CH 2 – Model Building and Gains from Trade



ECON 1B
CSUS

Scientific Method in Economics

- Similar to “hard sciences”
 - Construct a theory (or hypothesis)
 - Design experiments to test the theory
 - Collect data
 - Revise or refute the theory based on evidence
- Difference from “hard sciences”
 - Economist’s lab is the world around us; firm and consumer behavior studied
 - Not always able to design experiments
 - Historical data often used



Positive and Normative Analysis

- Positive statement
 - A claim that can be tested to be true or false
- Normative statement
 - Statement of opinion; cannot be tested to be true or false
 - What “ought to be” or “should be”
- Which is generally preferred?
 - Positive; like to test claims with data

Practice What You Know— Positive or Normative?

1. The moon is made of green cheese.
2. Rich people should be taxed more.
3. More taxes on the rich will increase tax revenues.
4. Everyone should donate to charity.
5. Economics majors earn more on average than sociology majors.
6. Everyone should take ECON 1B.

Economic Models

- Economists use models to understand the complex real-world economy.
- Models
 - Simplified versions of reality
 - Built with some assumptions
 - Are considered good if they predict accurately

Economic Models

- *Ceteris paribus*
 - Latin: “other things being equal”
 - Assumption in which we examine a change in one variable, but hold all other variables constant.
 - Allows us to isolate the effect of a single variable

Danger of Faulty Assumptions

- It is necessary to often examine and re-evaluate the assumptions in models.
- Example:
 - Assumption that housing prices always rise
 - Pre-2008 computer models used by banks didn't have a variable for declining housing prices



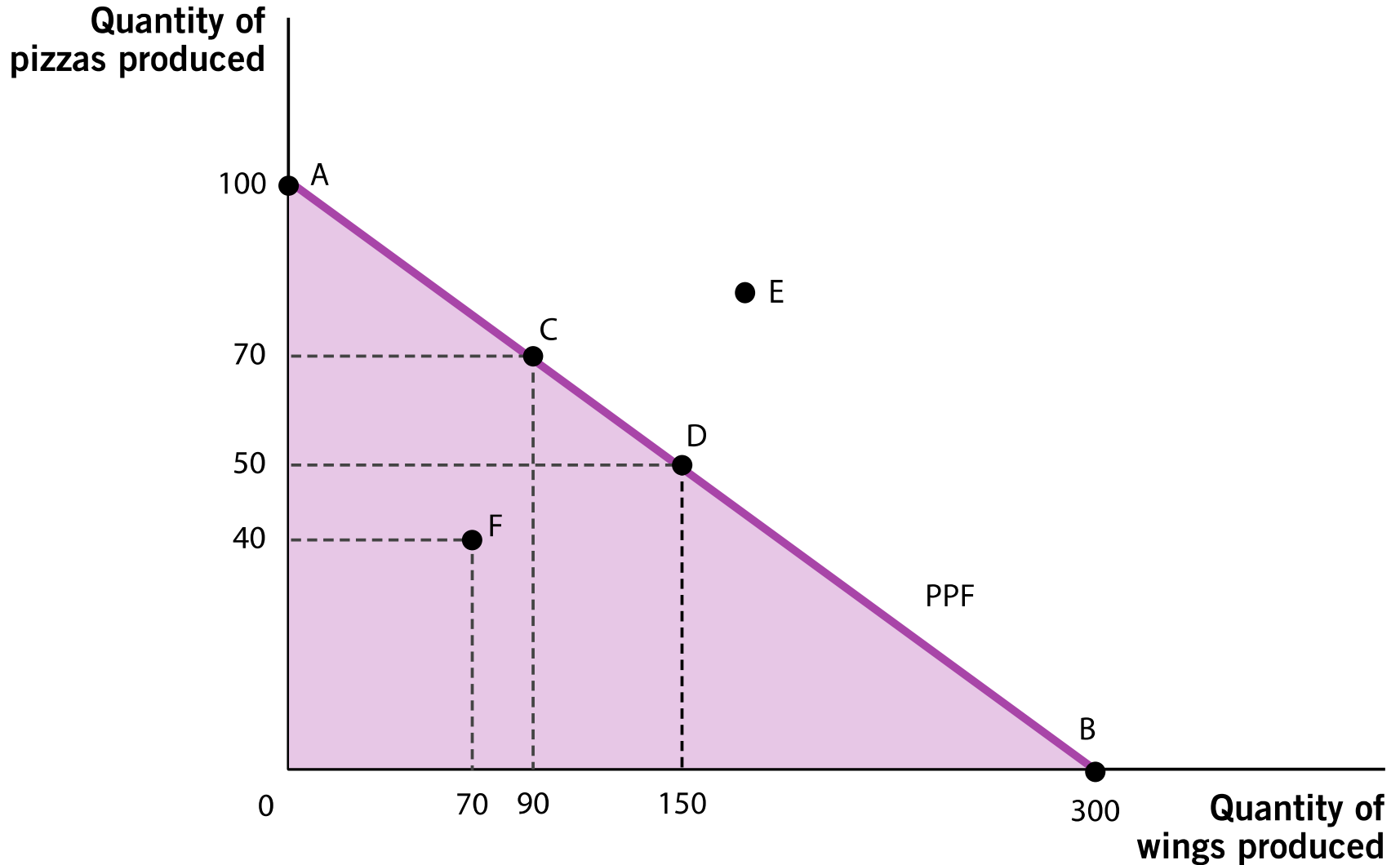
Scarcity, Choice, and Opportunity Cost

- **Opportunity Cost** - the highest-valued, next-best alternative that must be sacrificed to attain something or satisfy a want
- Consider the true costs of traveling from Sacramento to New Orleans by plane or bus.
- What do we need to answer this problem?
 - the financial cost - \$400 (plane ticket) versus \$200 (bus ticket).
 - The bus is cheaper – does this mean that taking the bus is the right decision?
 - the time spent traveling (each way) – 4 hours (plane) versus 24 hours (bus)
 - Now do we have enough information?
 - the value of a person's time
 - This the last ingredient we need. Suppose that the person's time is worth \$8/hour.
- Should they take the plane or bus?

The Production Possibilities Frontier

- *Production Possibilities Frontier* (PPF)- reveals the maximum amount of any two products that can be produced from a fixed set of resources.
- Assumptions of this model
 - Technology fixed
 - Resources fixed
 - Simplified two-good analysis
- Also referred to as the Production Possibilities Curve or (PPC)

Production Possibilities Frontier



Production Possibilities Frontier

- Why is the PPF downward-sloping?
 - Must give up one good to increase production of another
- Why are we unable to produce certain combinations?
 - Scarcity and limited resources
- Efficient points
 - Points ON the PPF (A, B, C, and D)
- Inefficient points
 - Points INSIDE the PPF (F)
 - Workers goofing off, unused buildings
- Unattainable (for now) points
 - Points OUTSIDE the PPF (E)

PPF and Opportunity Cost

Nonlinear PPFs

- We can draw a more realistic PPF by making it nonlinear and “bowed outward.”
 - The PPF will not have a constant slope in this case.
 - The slope will get steeper as we move from left to right, and opportunity costs will not be constant.
- Law of increasing relative cost
 - Refers to the increasing opportunity cost of production that occurs as you move along the PPF
 - As we produce more of good A, we have to give up increasingly larger amounts of good B.

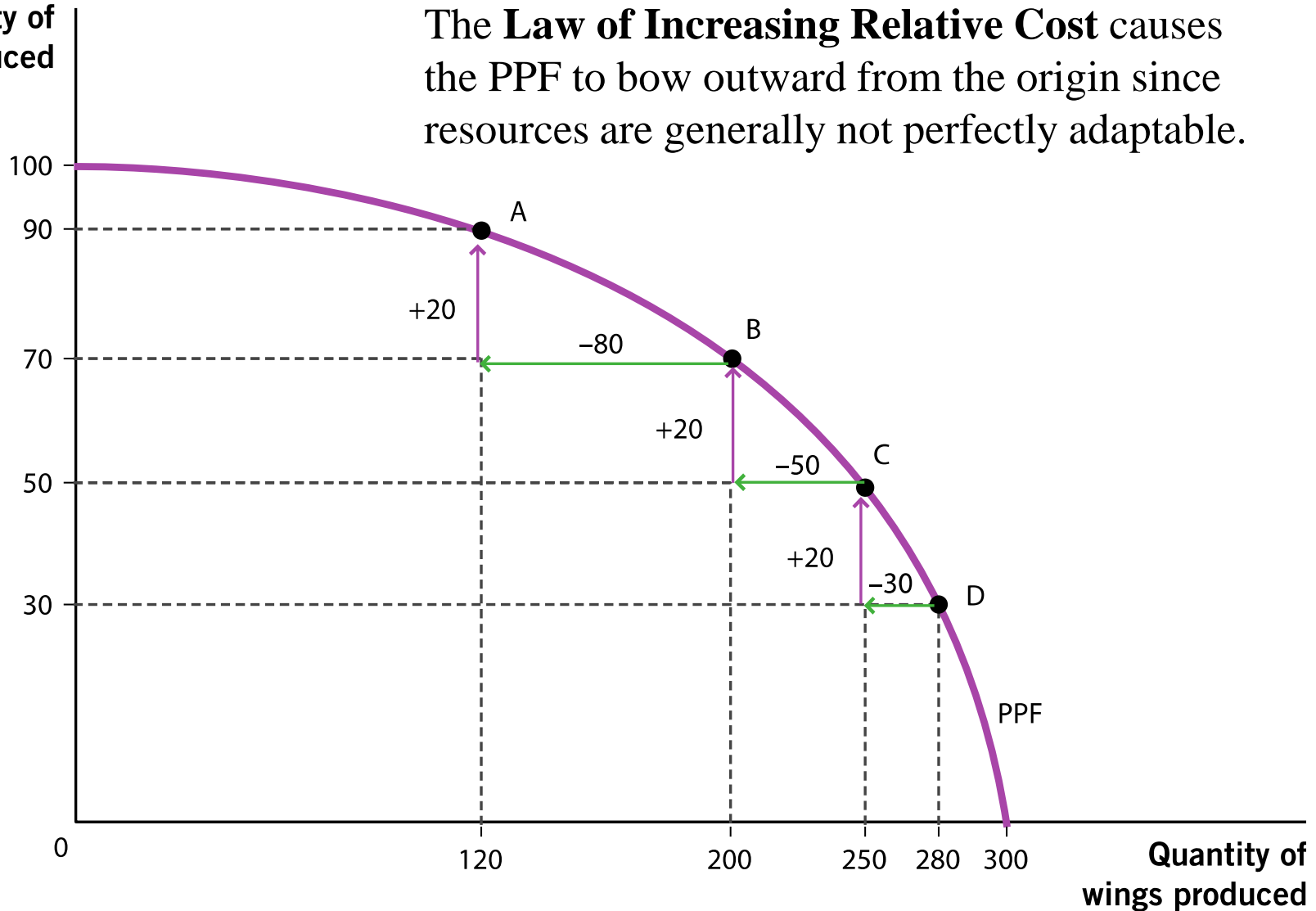
PPF and Opportunity Cost

Nonlinear PPFs

- Intuition of nonlinear PPFs
 - Inputs (resources) are not perfectly homogenous.
 - Some inputs are better at making pizza than other inputs.
 - As we expand pizza production, we'll use the inputs that are the best (Italian chef, dough-tossing master).
 - If we keep expanding production, we'll have to start using inputs that aren't as good at making pizza. They'll still be doing their best, but they won't make as much pizza as other inputs.
 - Pizza production doesn't expand at a linear rate!

PPF and Opportunity Cost

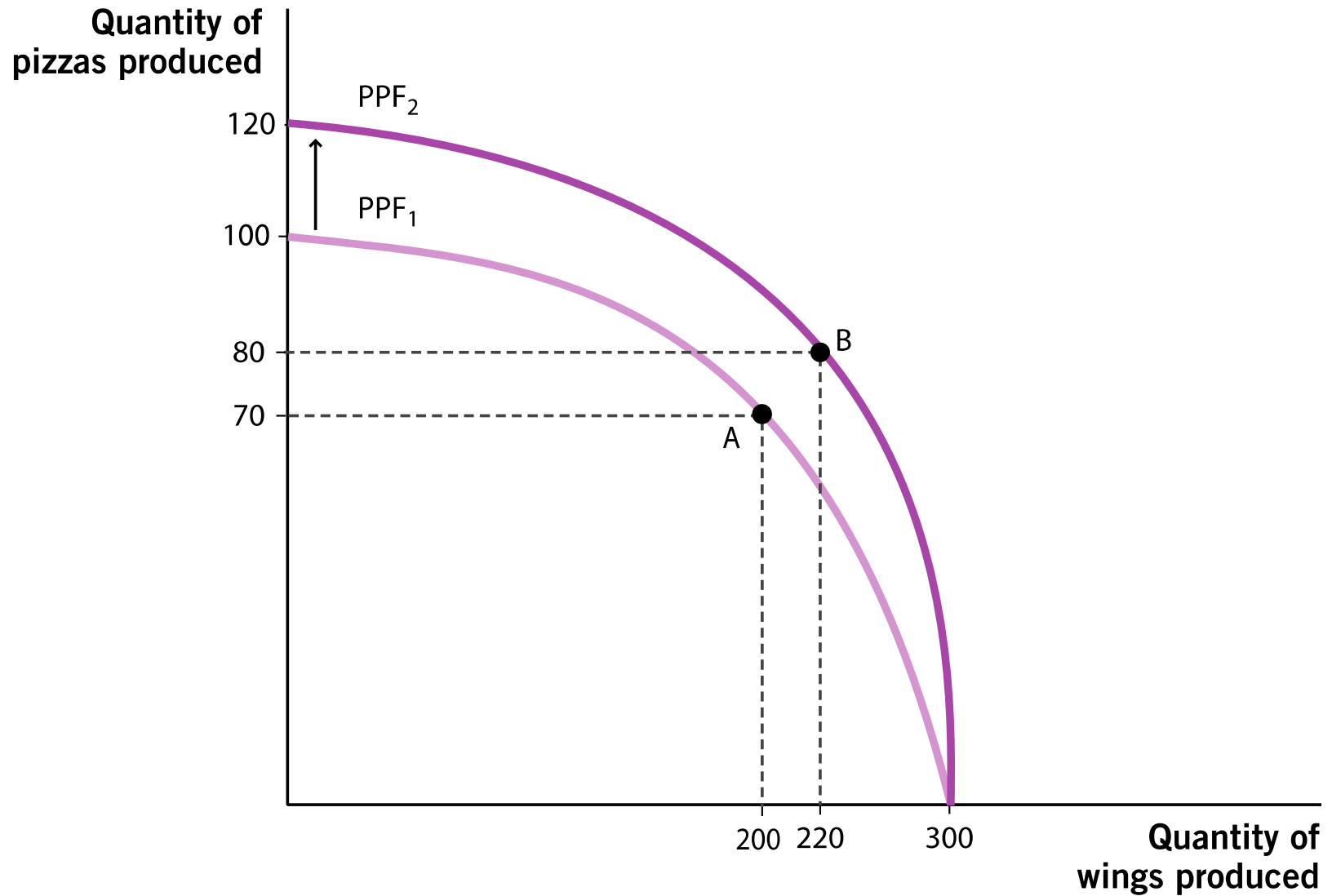
Quantity of
pizzas produced



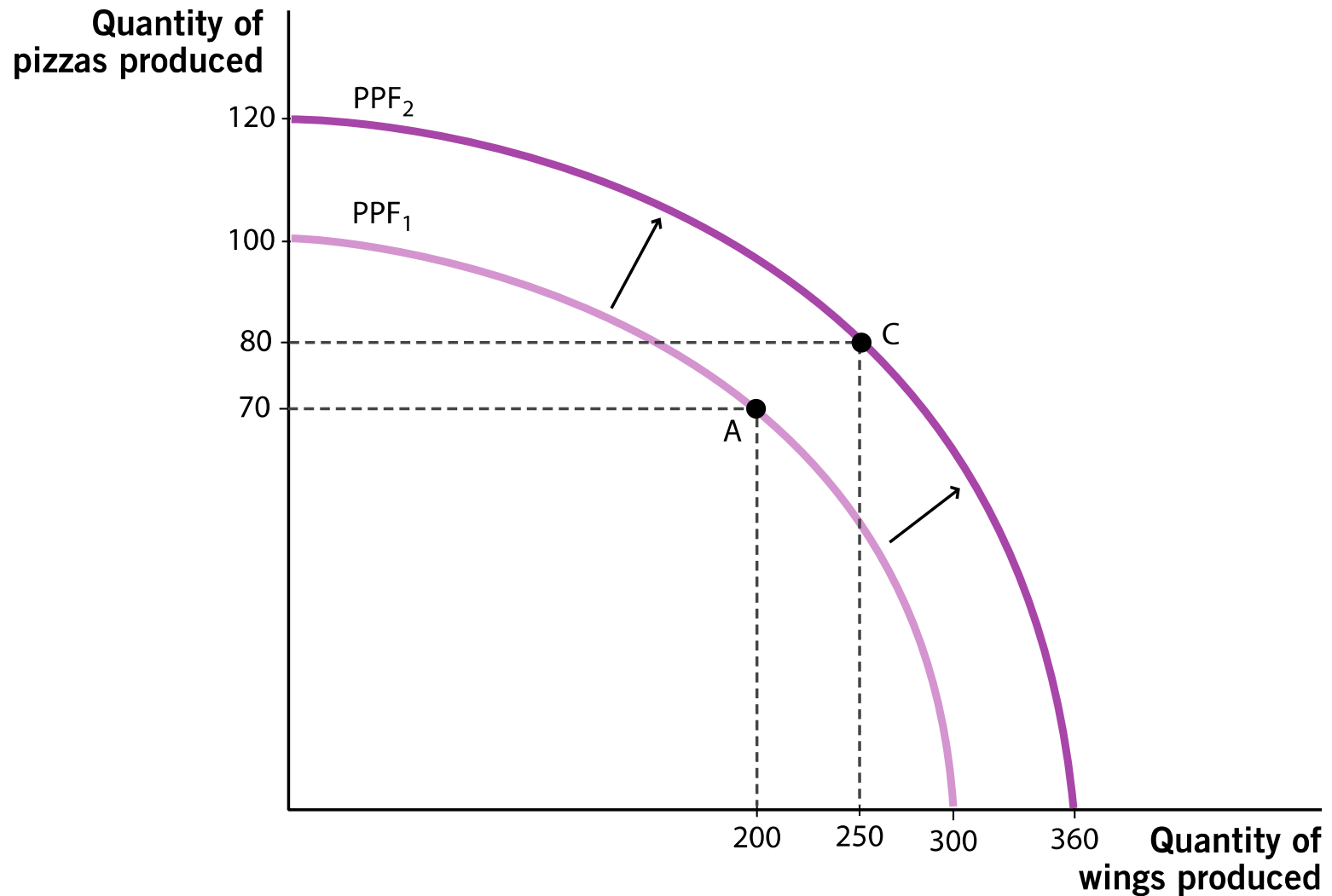
Shift in the PPF

- If the PPF were to expand outward, some previously unattainable good combinations would now be possible to produce.
- The PPF could shift graphically in two ways.
 - New resources or technology could be introduced that either
 - Affect the production of one good, or
 - Affect the production of both goods.

Shift in the PPF

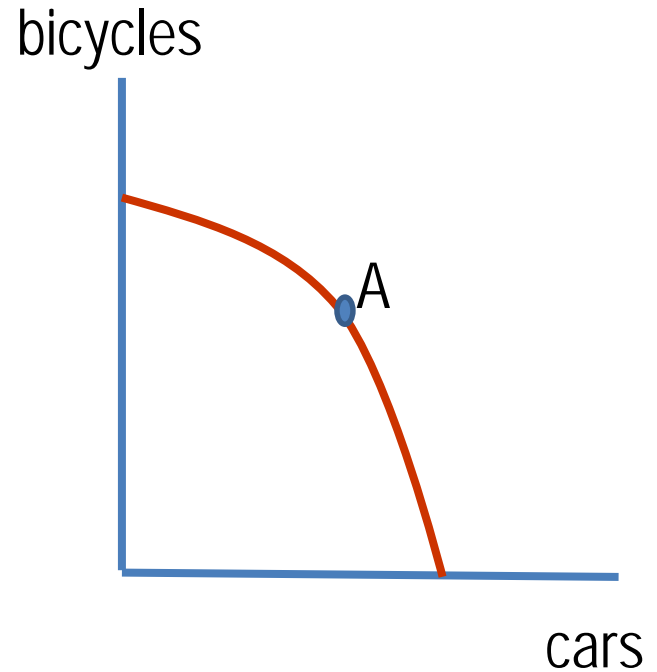


Shift in the PPF



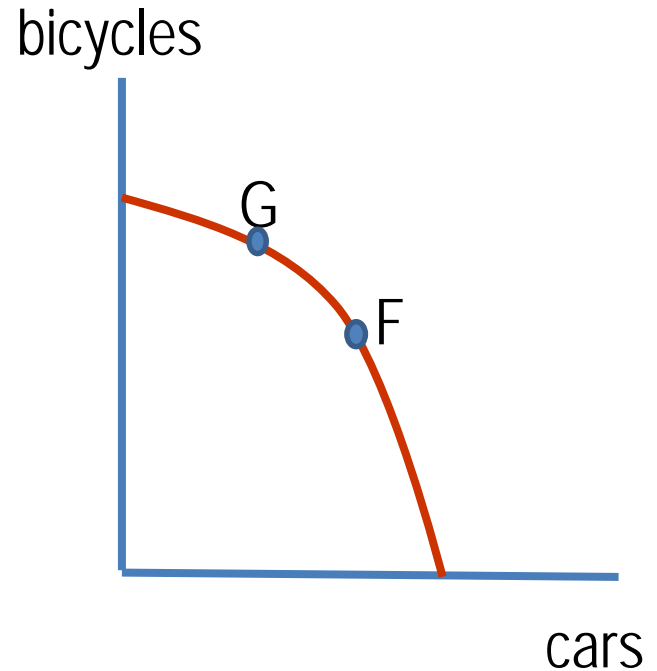
Production Possibilities Frontier

1. (True/False) Point A represents the amounts of cars and bicycles that will be sold.



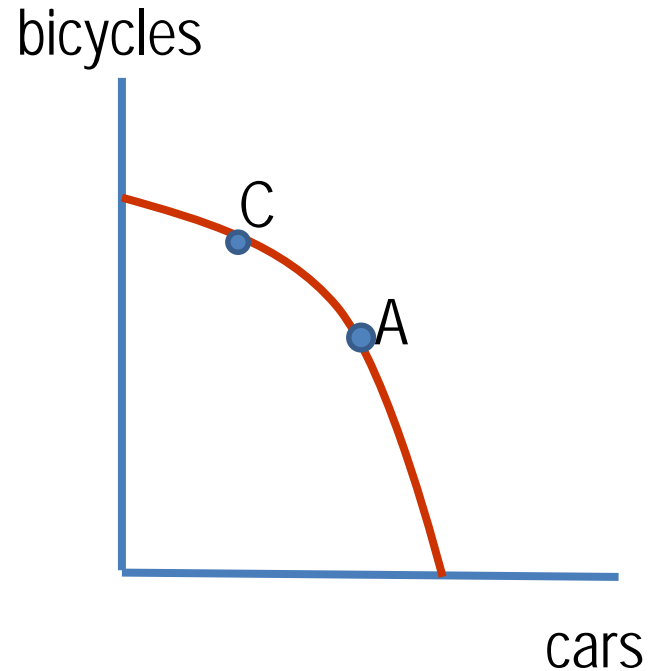
Production Possibilities Frontier

2. (True/false) As you move from point F to point G the sale price of bicycles increases.



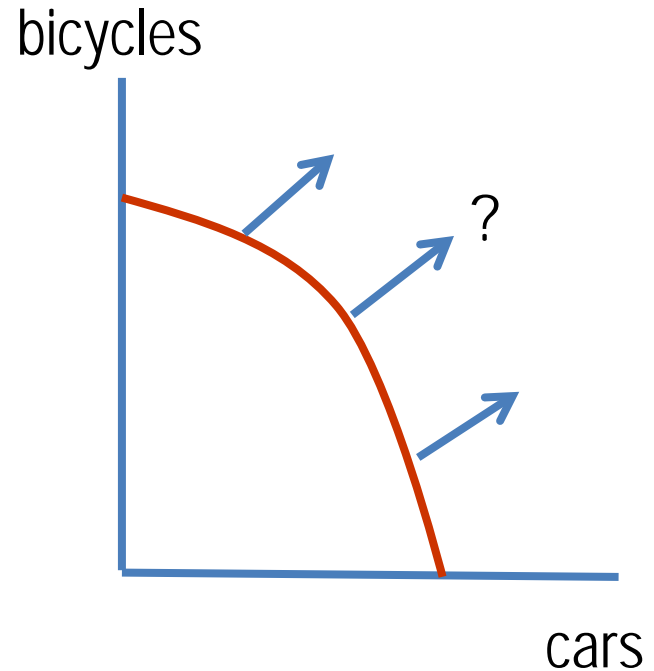
Production Possibilities Frontier

3. (True/false) Movement along the curve from point C to point A shows us the opportunity cost of producing more bicycles.



Production Possibilities Frontier

4. (True/false) If an improved process for manufacturing cars is introduced, then the entire curve will shift out.

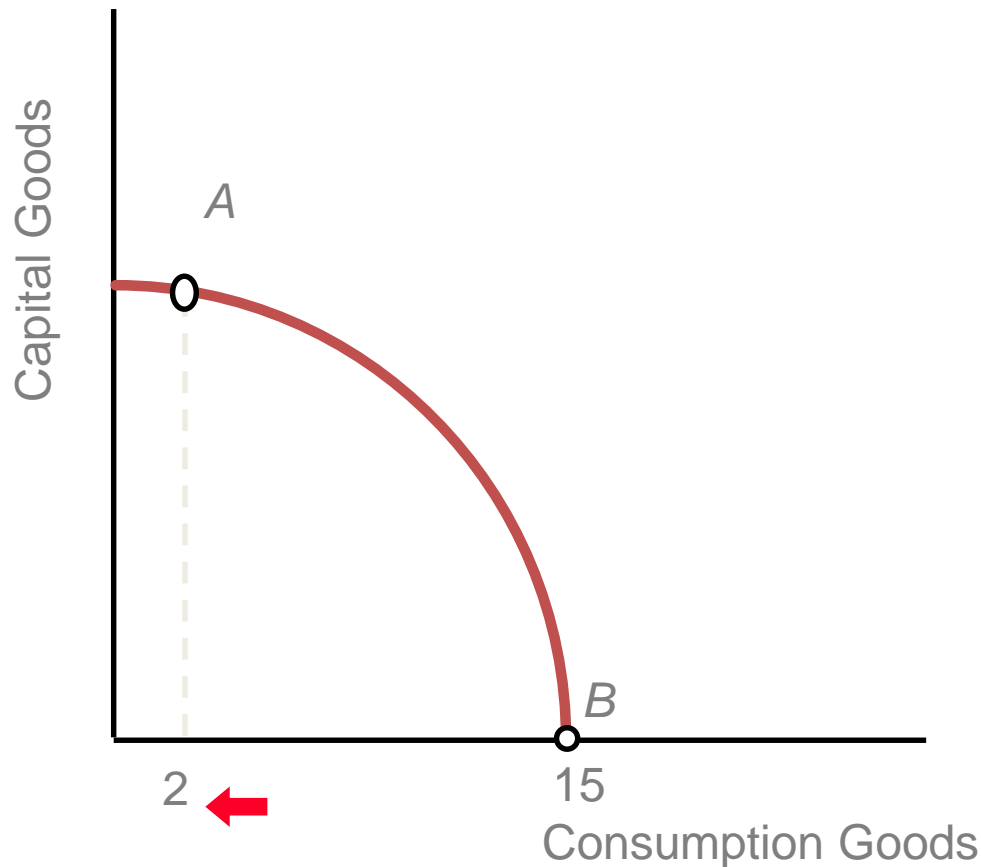


Trade-off Between Present and Future

- Consumer goods
 - Goods produced for current consumption
 - Food, housing, clothing, entertainment
- Capital goods
 - Goods that help produce other valuable goods
 - Buildings, factories, roads, machinery, computers
- Investment
 - Using resources to make new capital

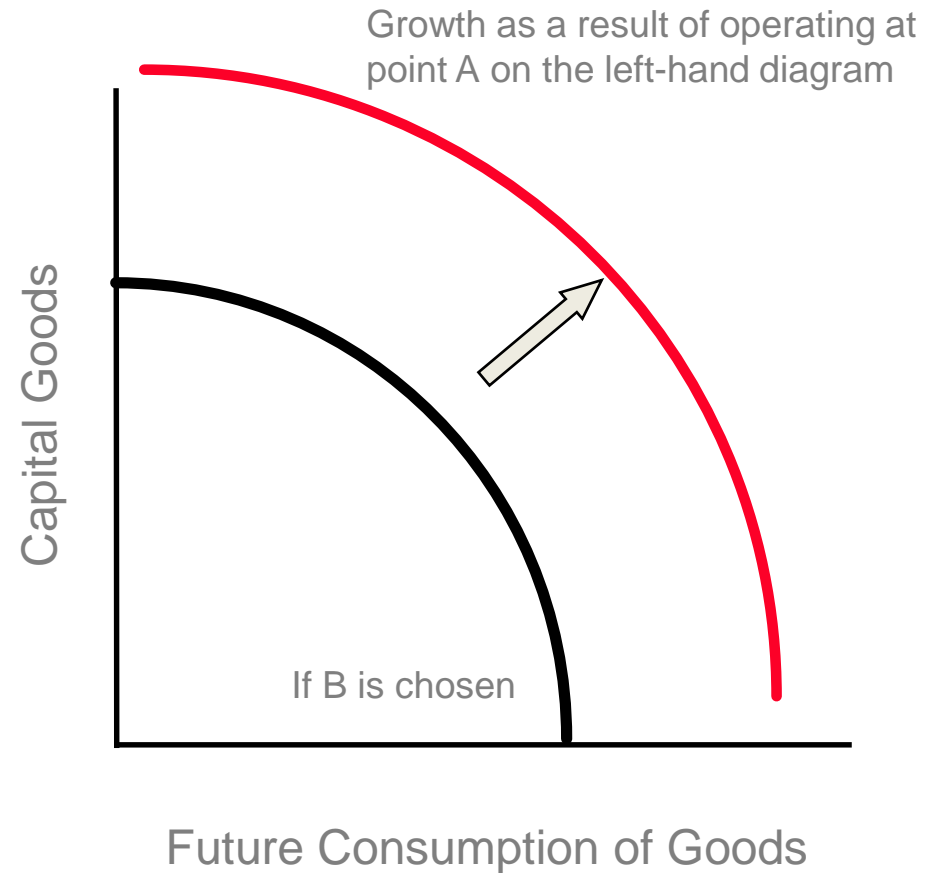
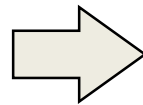
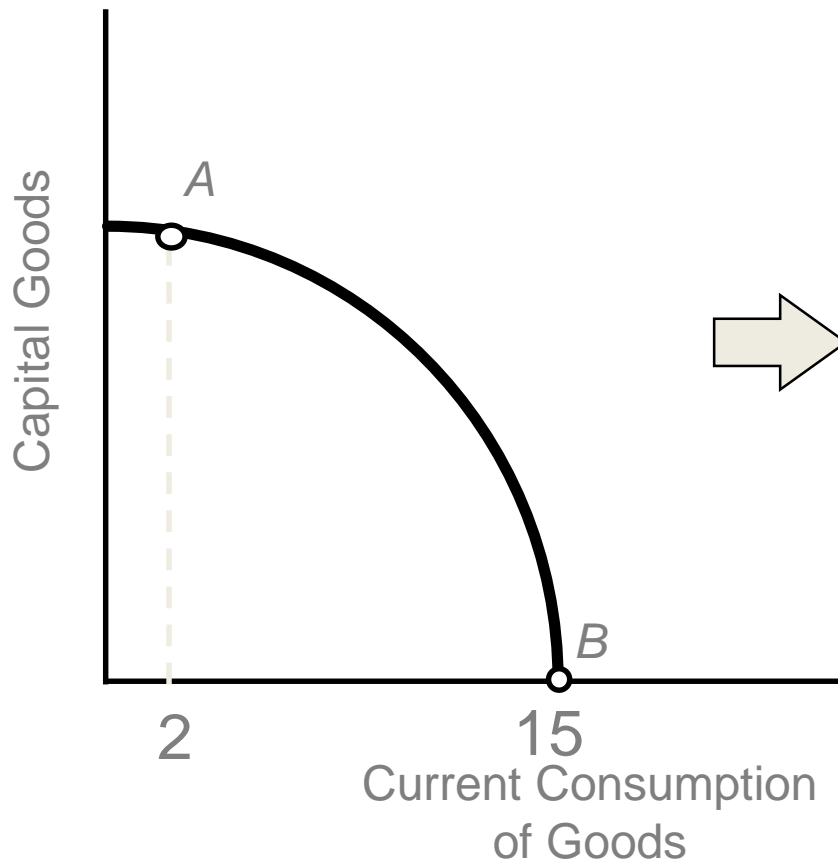


Capital Goods and Growth – A Knight's Tale



- **Consumer goods**
 - Goods produced for personal satisfaction
- **Capital goods**
 - Goods used to produce other goods

Capital Goods and Growth – A Knight's Tale



Comparative Advantage

- *Comparative advantage* - states that you can gain by specializing in producing what you do well and exchanging that production for something that you would have trouble making.
- *Cast Away* – life without exchange!



Sharing the burden

Troy		Abed	
Dishes	Laundry	Dishes	Laundry
0	4	0	20
1	3	1	15
2	2	2	10
3	1	3	5
4	0	4	0

It is possible to *specialize* and create more production than individually trying to accomplish the tasks separately. With specialization, Troy does 4 loads of dishes and Abed completes 20 loads of laundry. If they both concentrate equally on dishes and laundry their combined production would be lower (2D, 2L for Troy; 2D, 10L for Abed). By specializing they can accomplish more!

Gains from Trade

- Previously, we noted the gains from trade and specialization.
- Terms of trade
 - The relative prices, or exchange rate of goods
 - How many salads per steak?

Another Example

- Suppose that John and Bill can either make salads or grill steaks. Their maximum output per hour is listed in the following table. Given the same quantity of resources, at what terms of trade (relative price ratio) could they specialize and trade so that both consume outside of their own production possibilities frontier (PPF)?

	Maximum Number of Salads	Opportunity Cost of 1 Salad	Maximum Number of Steaks	Opportunity Cost of 1 Steak
John	9	1/3 steak	3	3 salads
Bill	12	1/2 steak	6	2 salads

- A. 1 salad for 1 steak, B. 2 salads for 1 steak, C. 2.5 salads for 1 steak, D. 3 salads for 1 steak, E. 3.5 salads for 1 steak