Introduction to Macroeconomics & Production Possibilities

ECO 120: Global Macroeconomics

Goals

1. Define what is economics and goals of macroeconomics
2. Apply scarcity and production possibilities concepts to...
    - defining economics,
    - describing possibilities and trade offs in an economy, and
    - describe how economies and standards of living can grow.

Reading and Exercises

- Textbook: Overview of what is economics, macroeconomics: Ch 1, pp. 11-15
- Production possibilities frontier: Ch 1, pp. 18-19
- ”Makeshift Cuisinart Makes a Lot Possible in Impoverished Mali” by Roger Thurow, *The Wall Street Journal*, July 26, 2002. **Posted on Canvas**
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What is Economics?

- Economics is the study of the allocation of scarce resources.
- **Resource**: broadly defined as anything that is used in production or is consumed.
- **Scarcity**: a resource is considered scarce when there is not enough to satisfy everyone's wants at a zero price.
- Microeconomics (ECO 110) studies how individual consumers and producers make optimal choices with scarce resources.
- Macroeconomics studies how allocation of scarce resources determines the overall performance of an economy

Factors of Production

- **Factors of production:** scarce resources that are used in the production of goods
- **Land**: any natural resource (such as land, forest, oil) that is used for production
- **Labor**: time people spend employed in producing goods
- **Capital**: physically manufactured goods used in the production of other goods and services. Eg. buildings for businesses, factories, machines, computers, dump trucks, etc.
  - The process of producing or purchasing new capital goods is called **investment**
- **Human capital**: Skills, knowledge, and mental talents of people used in production of goods and services

Production Possibilities Frontier

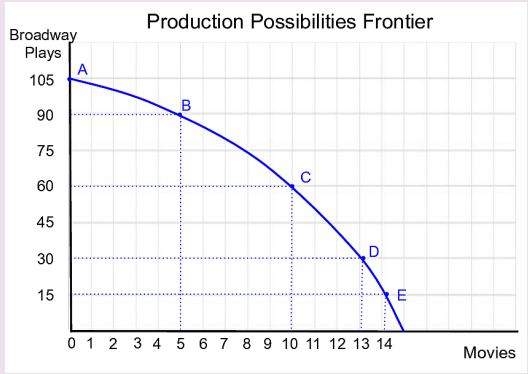
- Many of the same factors of production can be traded between productions of alternative goods.
- Factors of production are scarce.
- Production possibilities: trade-off when producing two or more different goods.
- Starting assumptions:
  - Full employment and efficient use of all resources
  - Single period in time: fixed resources and fixed technology
  - Two goods. Not essential, just makes it easy to draw

Production Possibilities Example

PPF Table

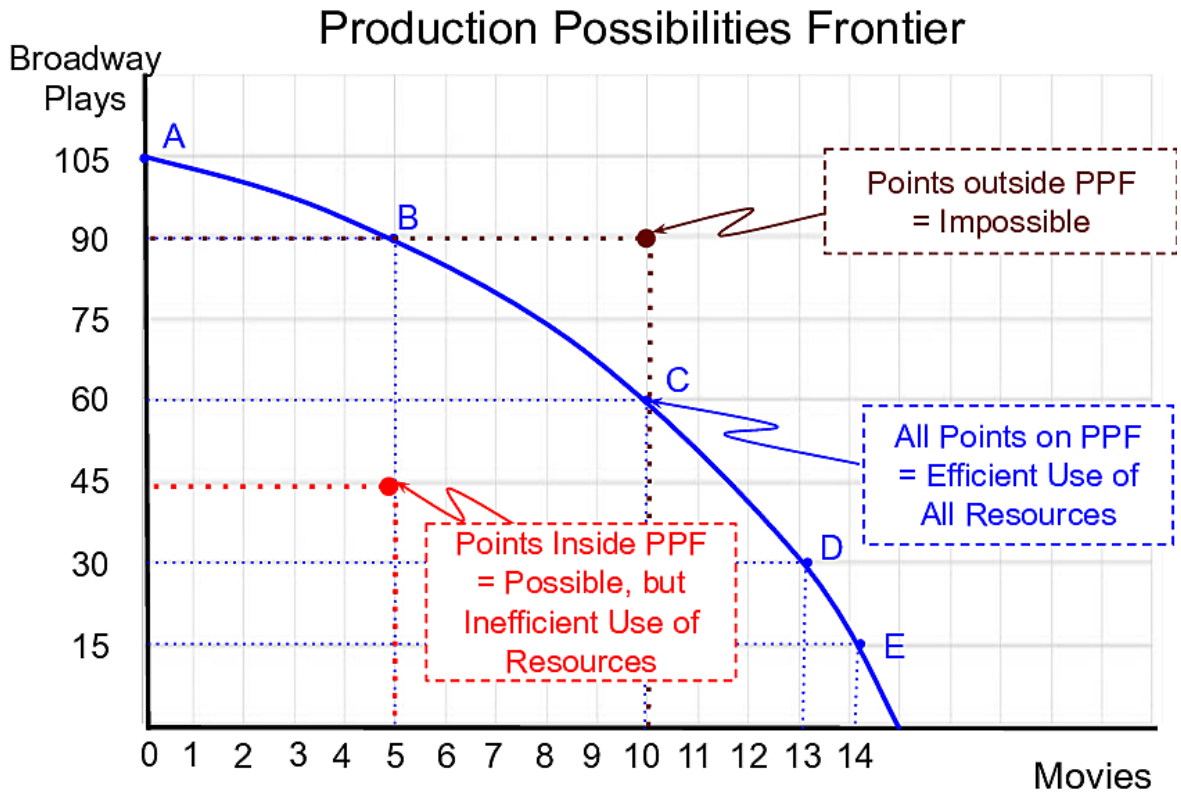
Point	Broadway Plays	Movies
A	105	0
B	90	5
C	60	10
D	30	13
E	15	14

PPF Plot



- Why the tradeoff? Factors of production are scarce!
- To produce more movies, move workers, building space, set designs, etc. away from making plays to make movies instead.

Efficiency, Possibilities, and Impossibilities



Opportunity costs

Opportunity Cost

Quantity of production of one good that must be given up to produce *one additional unit* of another good.

Formula

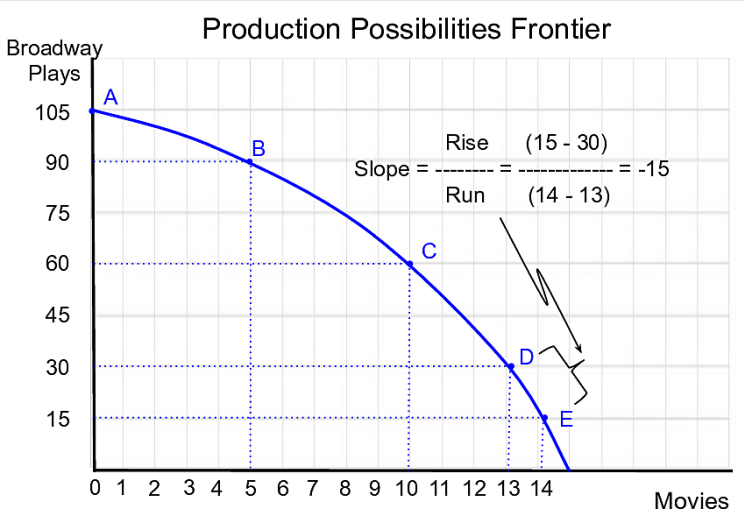
$$\text{Op Cost of Movies} = \frac{\text{Qty of Plays Given Up}}{\text{Qty of Movies Gained}}$$

Production Possibilities Table

Point	Plays	Movies	Opportunity Cost of Movies
A	105	0	-
B	90	5	(105-90) / (5-0) = 3 plays
C	60	10	(90-60) / (10-5) = 6 plays
D	30	13	(60-30) / (13-10) = 10 plays
E	15	14	(30-15) / (14-13) = 15 plays

Opportunity Cost and Slope of PPF

Production Possibilities Frontier



Opportunity Cost of Movies

Pt	Plays	Movies	Op. Cost of Movies	Slope from Prev Pt
A	105	0	-	-
B	90	5	3 plays	-3
C	60	10	6 plays	-6
D	30	13	10 plays	-10
E	15	14	15 plays	-15

Relationship between PPFs and Opportunity Costs

Relationship

- The absolute value of the slope of the PPF = opportunity cost of good on horizontal axis
- Bowed-out shape (steeper slope as x increases): increasing opportunity cost

Law of Increasing Opportunity Costs

- As production of one good increases, the opportunity cost of producing that good increases
- It holds for **both the x-variable good and the y-variable good**.

Future PPFs: Economic Growth

Factors Affecting PPF

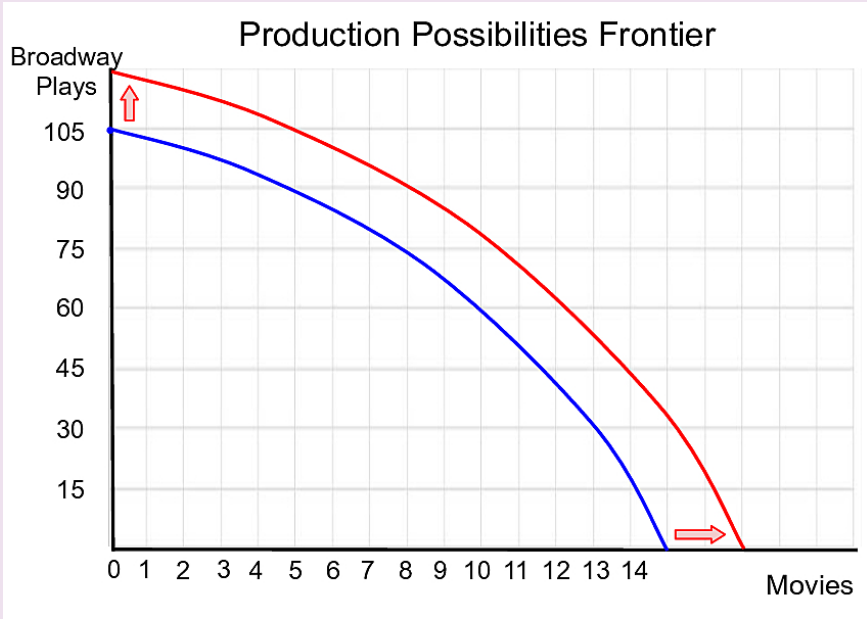
More of everything is possible:

- New technologies
- New production methods
- Discovery of new resources
- More human capital

Impact

PPF shifts outward

Shift Outward



Future PPFs: Industry-Specific Economic Growth

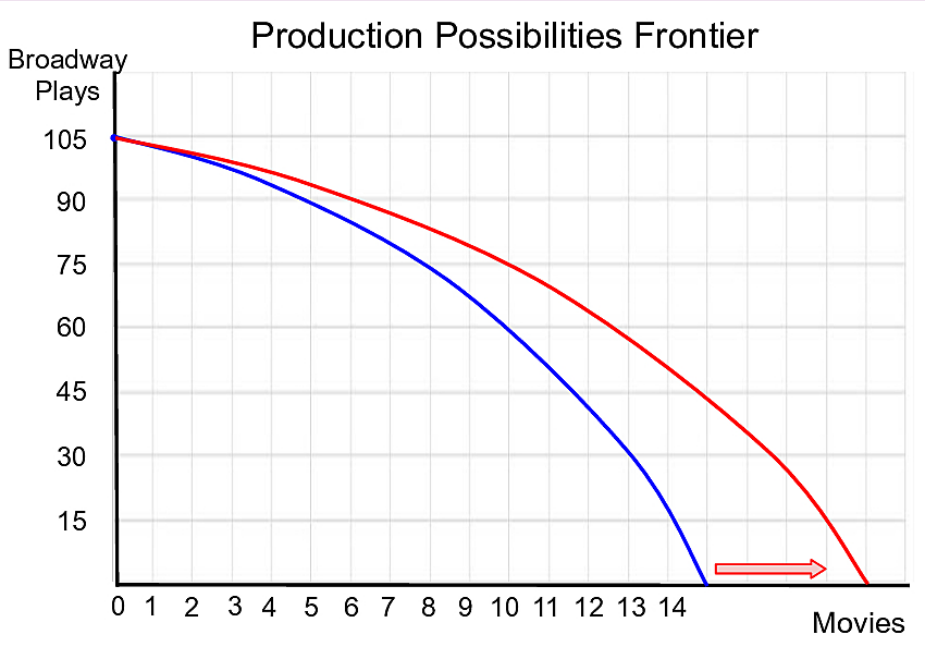
Factor Affecting PPF

- New technologies can be specific to one good
- Example: Advances in CGI (Computer-generated imagery) affects movie production only

Impact

PPF shifts outward at one axis only

Shift Outward at One Axis Only

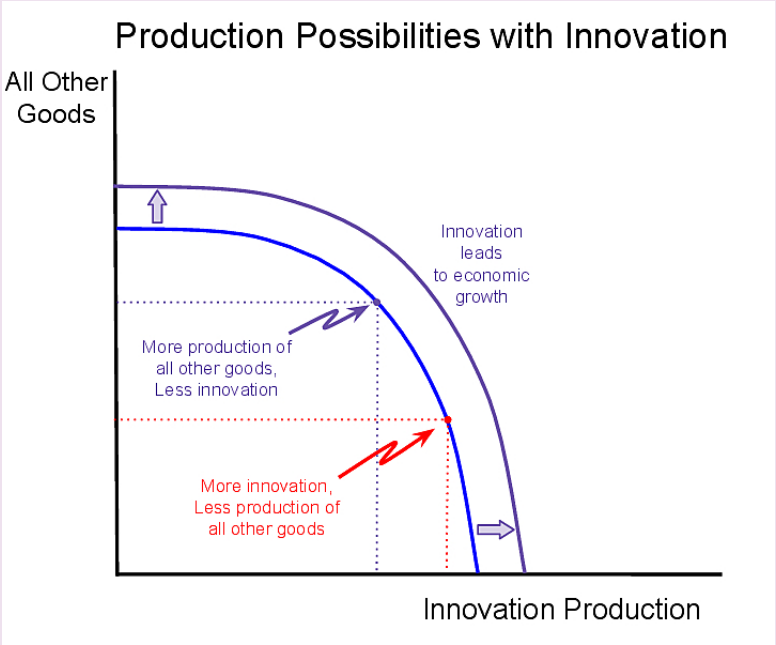


Innovation

Innovation Production

- Improvements in technology don't just happen
- Innovation production: Research and development to create new inventions, new knowledge
- Innovation production requires scarce resources
- Less production of other goods in short run
- More production of all goods in long run

Shifts with Innovation Production

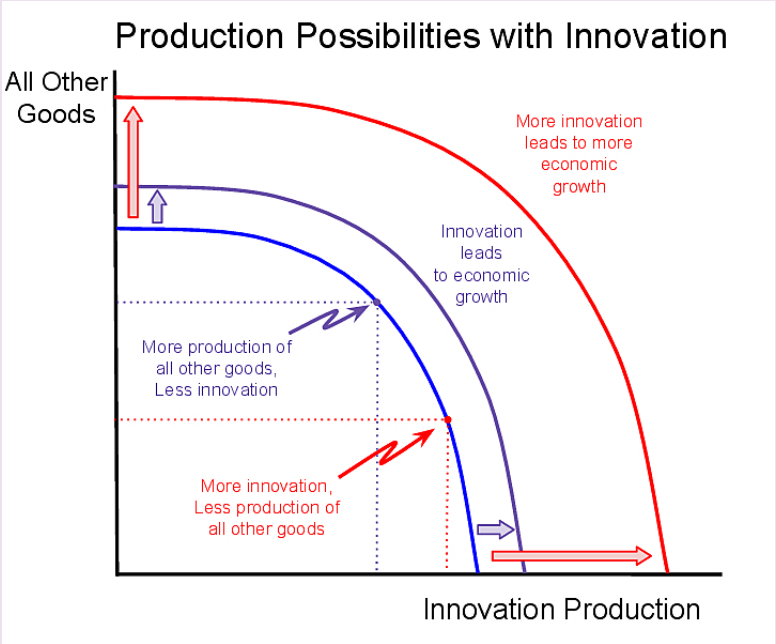


Even More Innovation

More Innovation Production

- Greater emphasis on innovation production
- Even less production of other goods in short run
- Even more production of all goods in long run

Bigger Shift with More Innovation



Future PPFs: Economic Contractions

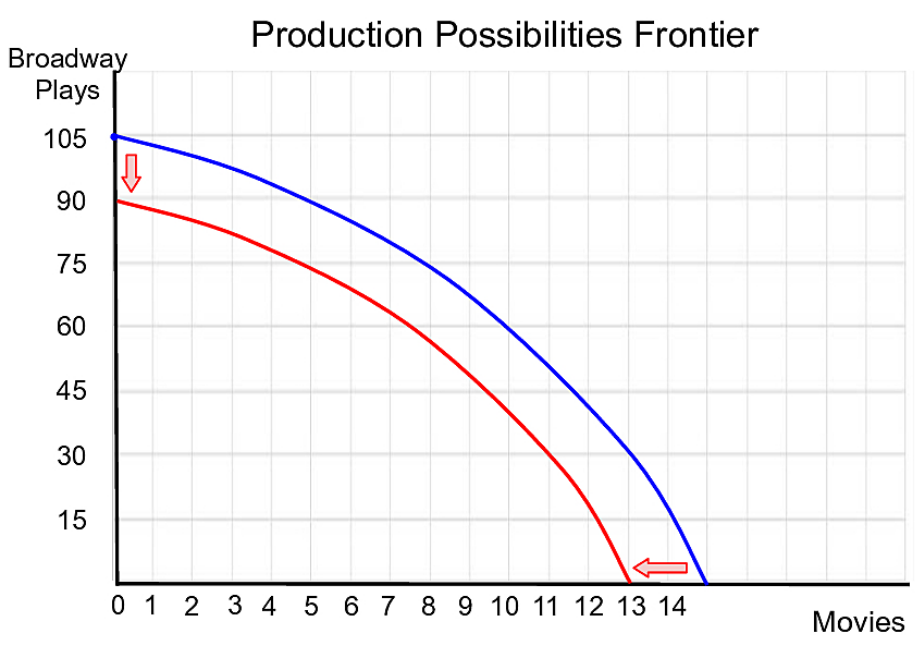
Factor Affecting PPF

Destruction of resources from war and natural disasters makes less of everything possible

Impact

PPF shifts inward

Shift Inward



Scholar Spotlight: Lisa Cook & Nela Richardson

Can addressing inequality unleash economic growth?

With Jim Tankersley, *Business Economics*, Spring 2021.

Inequality and Innovation

- U.S. Patent Data: 1870-2010
- Unequal access to innovation 1870-1960 led to negative outcomes for affected individuals and the overall U.S. economy
- Improved access 1960-2010 accounts for 25% of growth in U.S.

About the Scholars

Dr. Lisa Cook (left)
Federal Reserve Board of Governors
Professor, Michigan State University

Dr. Nela Richardson (right)
Chief Economist, ADP Research

Tasks This Week

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