

# International Political Economy (SOCS-SHU 222)

THE POLITICAL ECONOMY OF

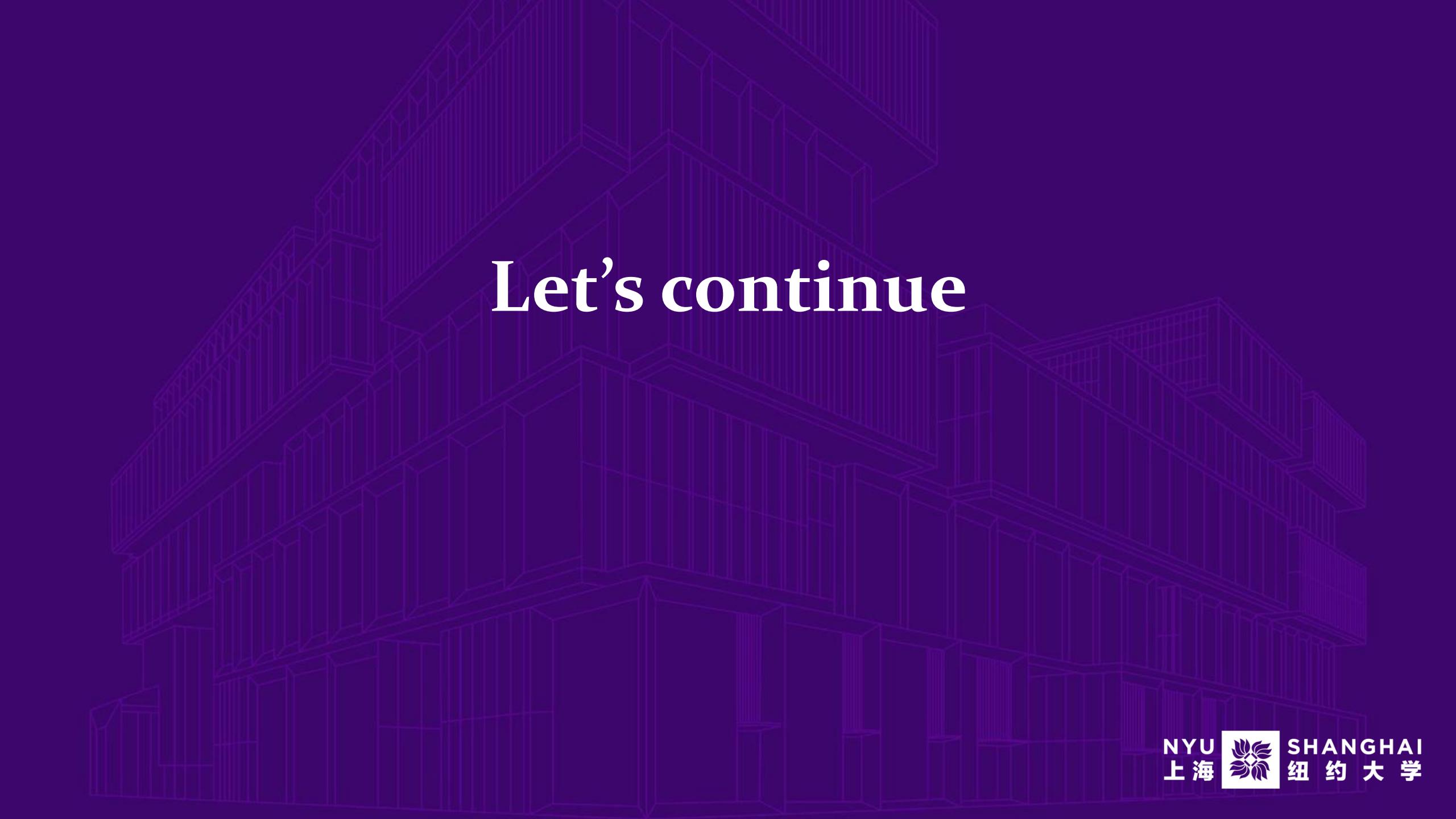
INTERNATIONAL TRADE COOPERATION

Instructor: JING QIAN



# NDB Field Trip

- Departure from campus\*
  - 1:30 pm SHARP, School Bus Stop
  - Bus + cabs/minivan\*\*
- **BRING YOUR ID!!!**
- Return at approx. 4pm



# Let's continue

# The Political Economy of International Trade Cooperation

READING ASSIGNMENT:

Oatley Chapter 3

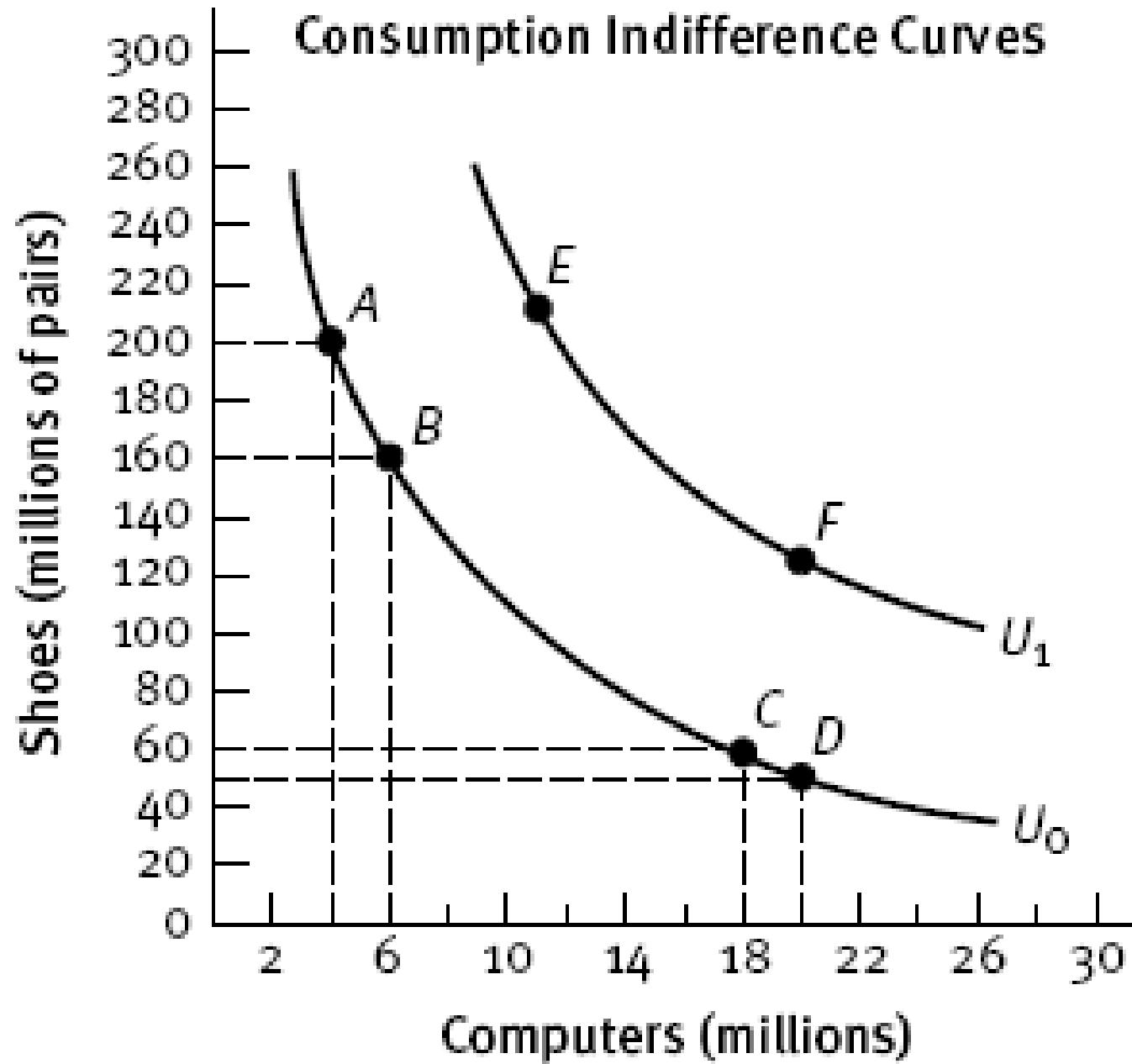
# Building Blocks

- Consumption indifference curves
- Production possibility frontiers
- Analysis of optimized production-consumption equilibrium  
(without trade)

# Consumption Indifference Curves

- Consumption → happiness ☺ (UTILITY)
- More is better!
- But indifferent between some baskets
- For example,
  - Utility (2 pairs of shoes & 2 MacBooks)  
=
  - Utility (6 pairs of shoes & 1 MacBook)

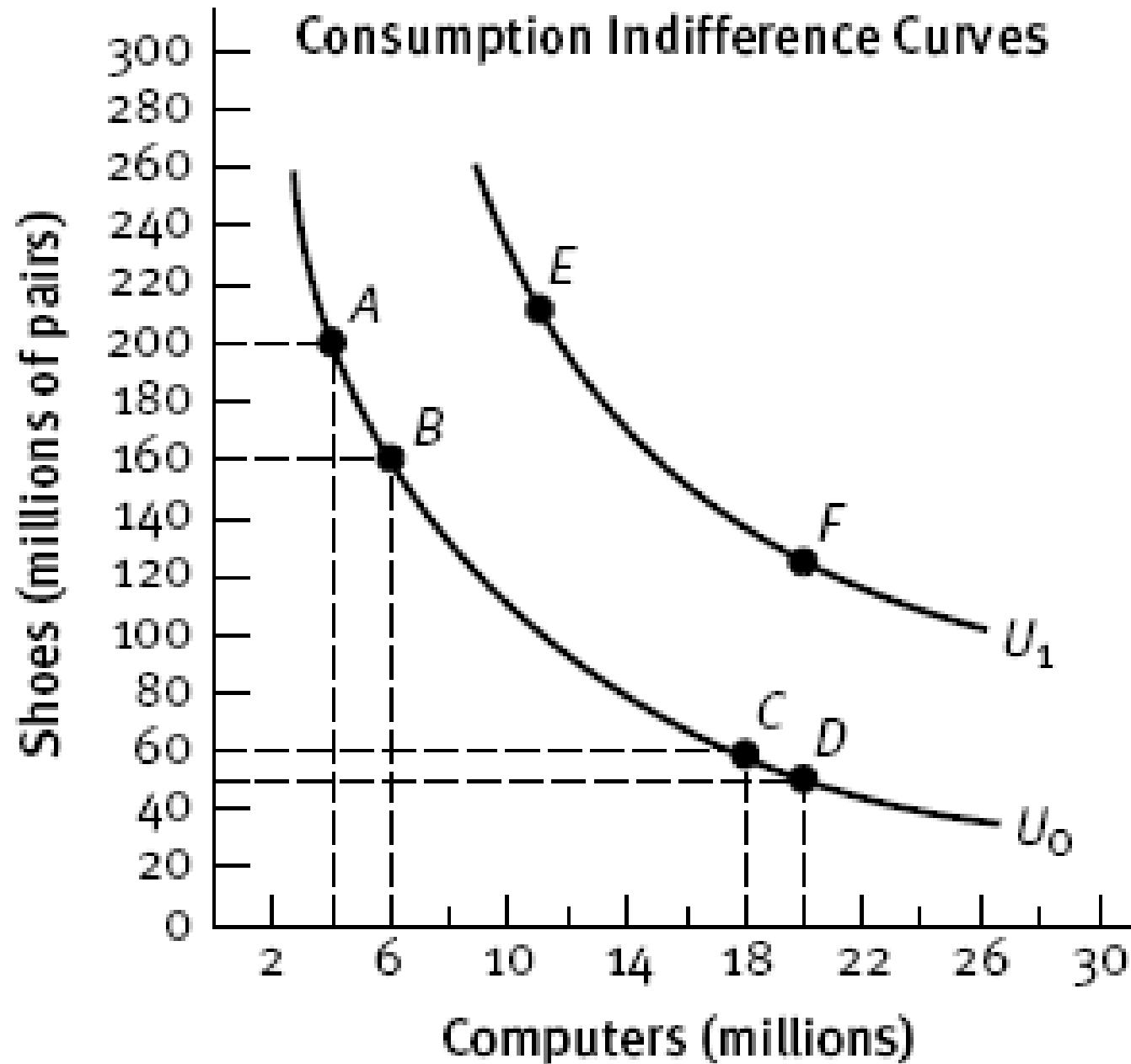
(a)



### Properties

- Never cross with each other
- Farther Out = Higher Utility
- Negatively sloped
- Convex (to the origin)

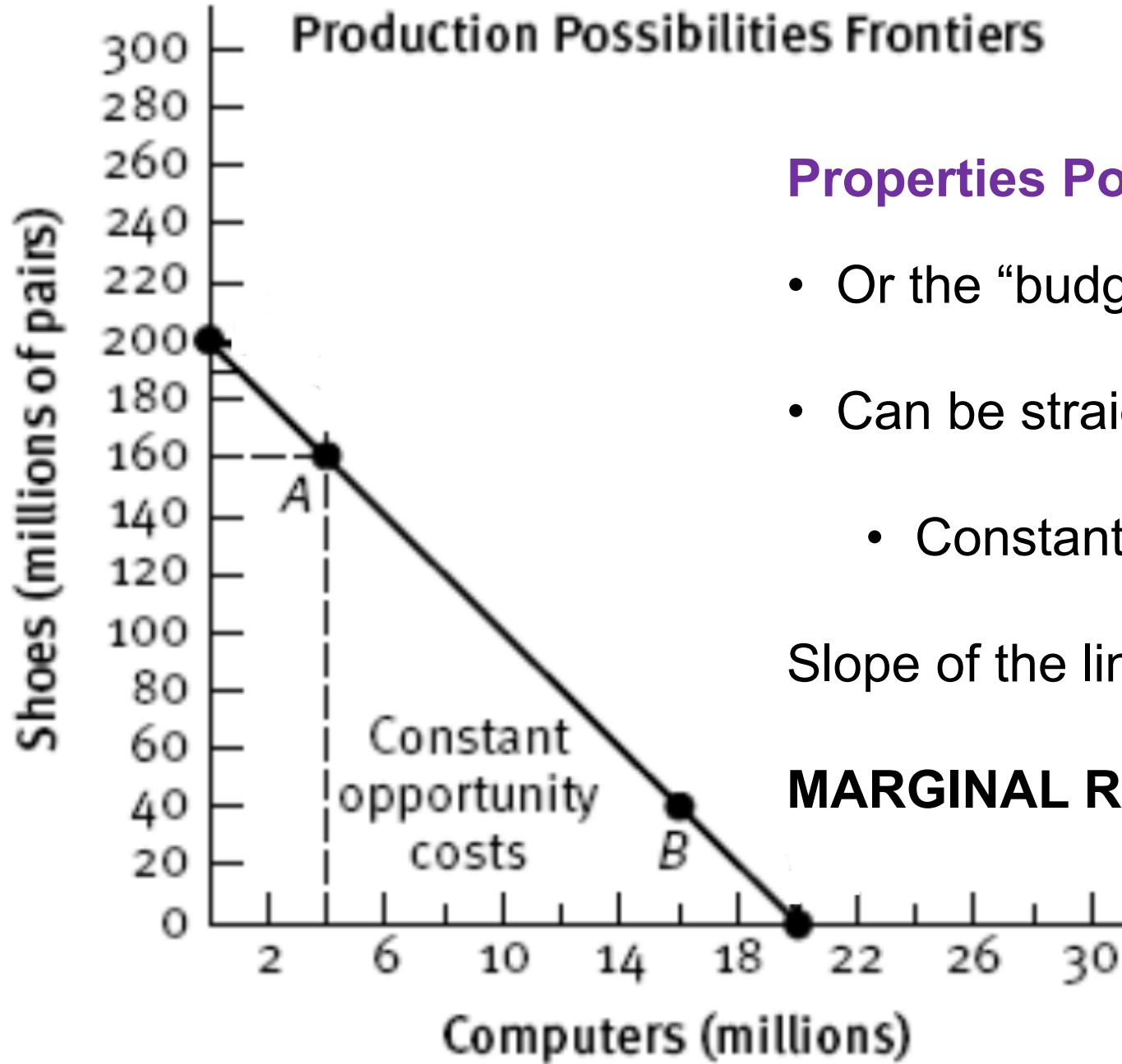
(a)



## Convex (to the origin)

- *Declining marginal utility from consumption*
- From D to C
  - Computers: ↓ 2 million
  - Shoes: ↑ 10 million
- From B to A
  - Computers: ↓ 2 million
  - Shoes: ↑ 40 million
- Why?
- **DECLINING MARGINAL RATE OF SUBSTITUTION (MRS)**

(b)



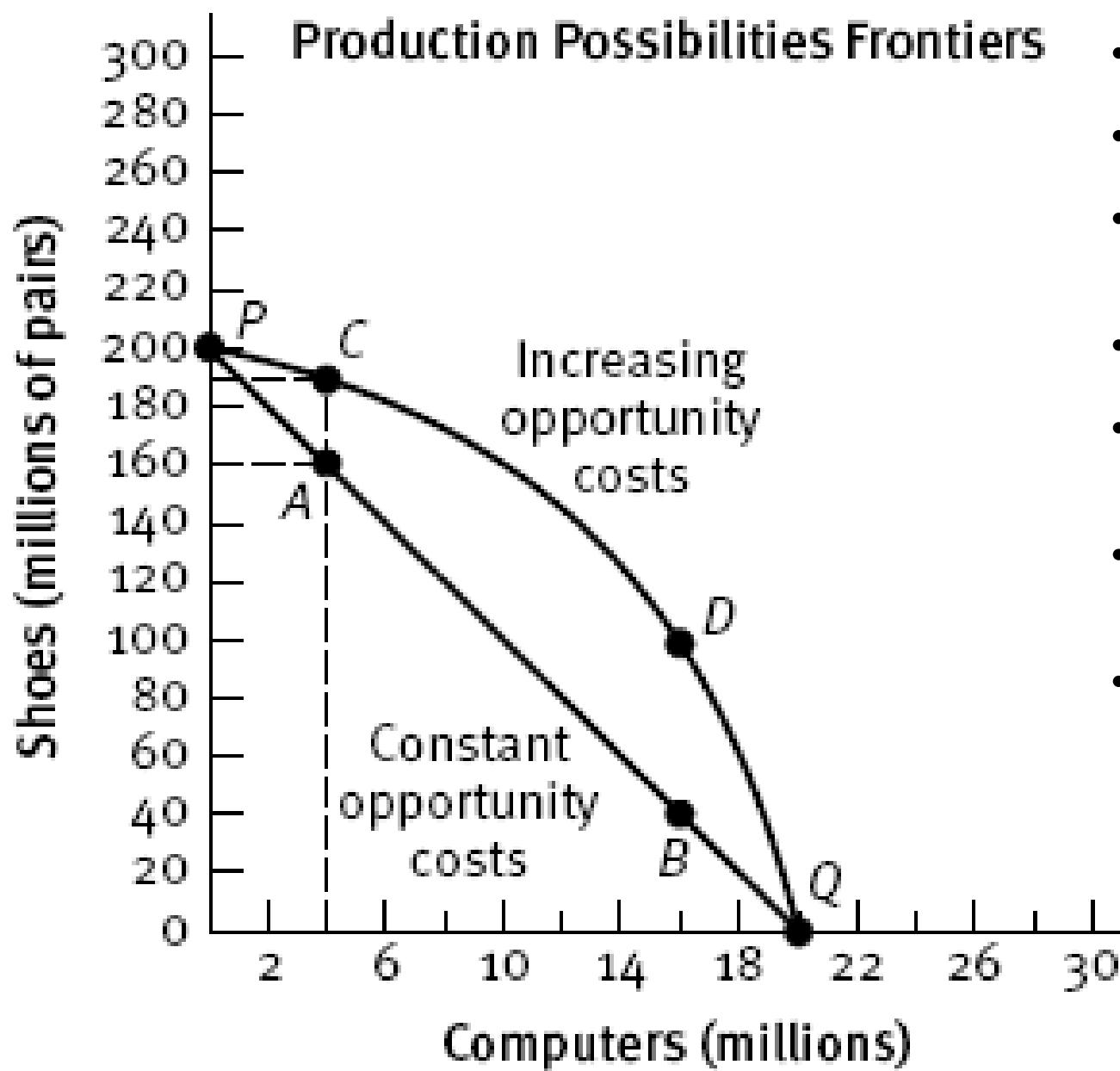
### Properties Possibilities Frontiers

- Or the “budget constraint”\*\*\*
- Can be straight line or bowed outward
  - Constant vs. Increasing opportunity costs

Slope of the line is the

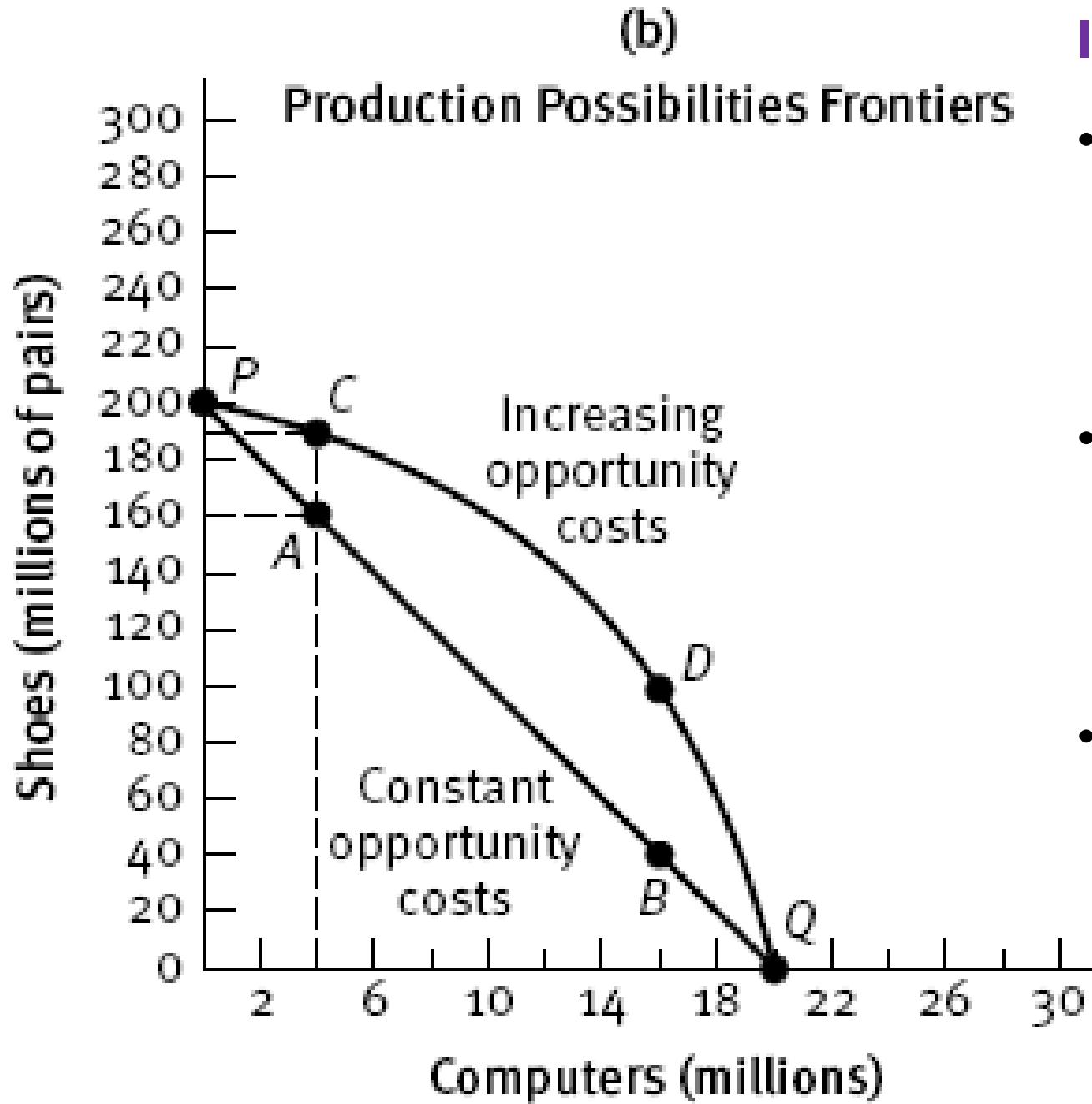
**MARGINAL RATE OF TRANSFORMATION (MRT)**

(b)



### Increasing opportunity costs?

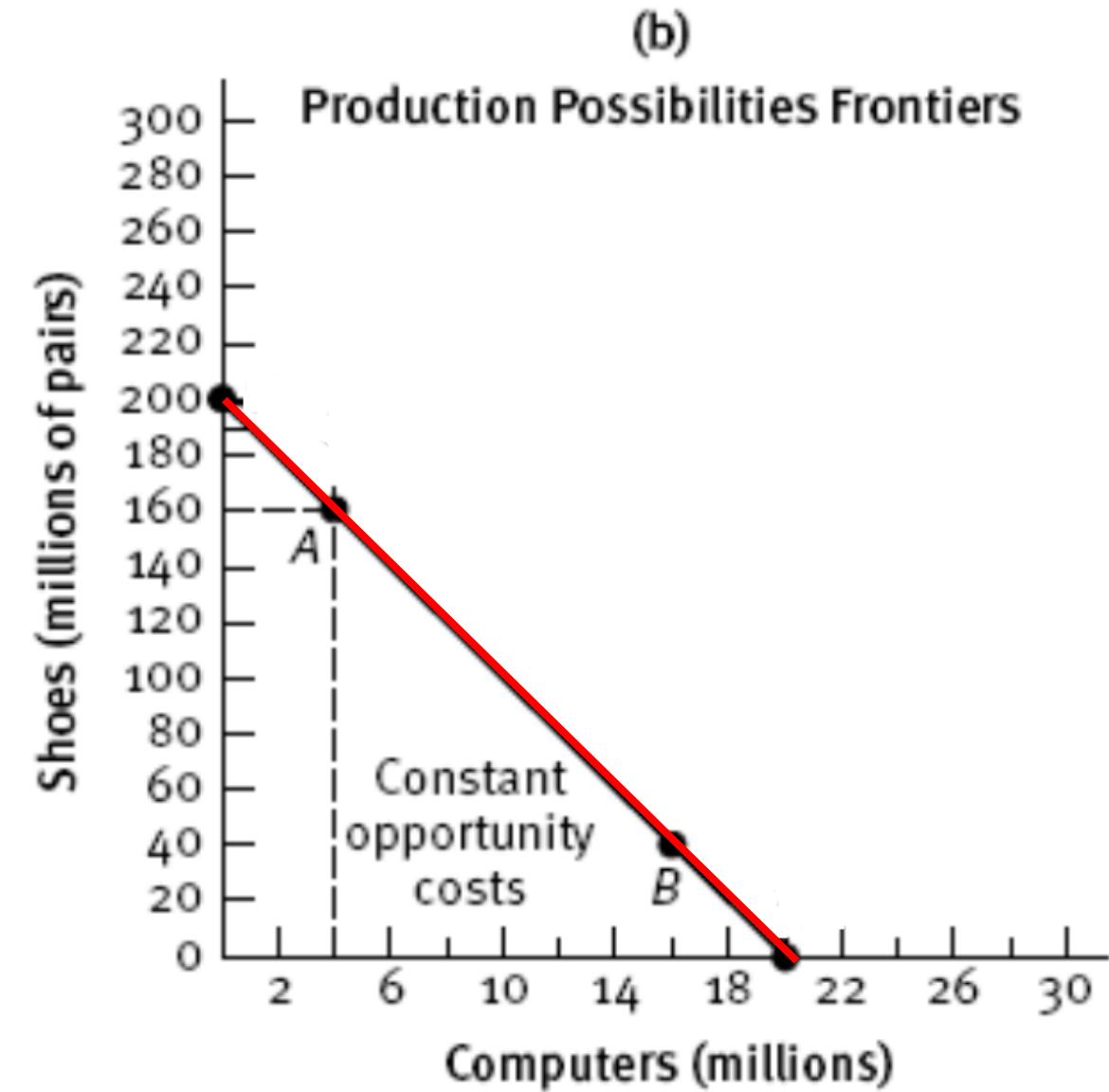
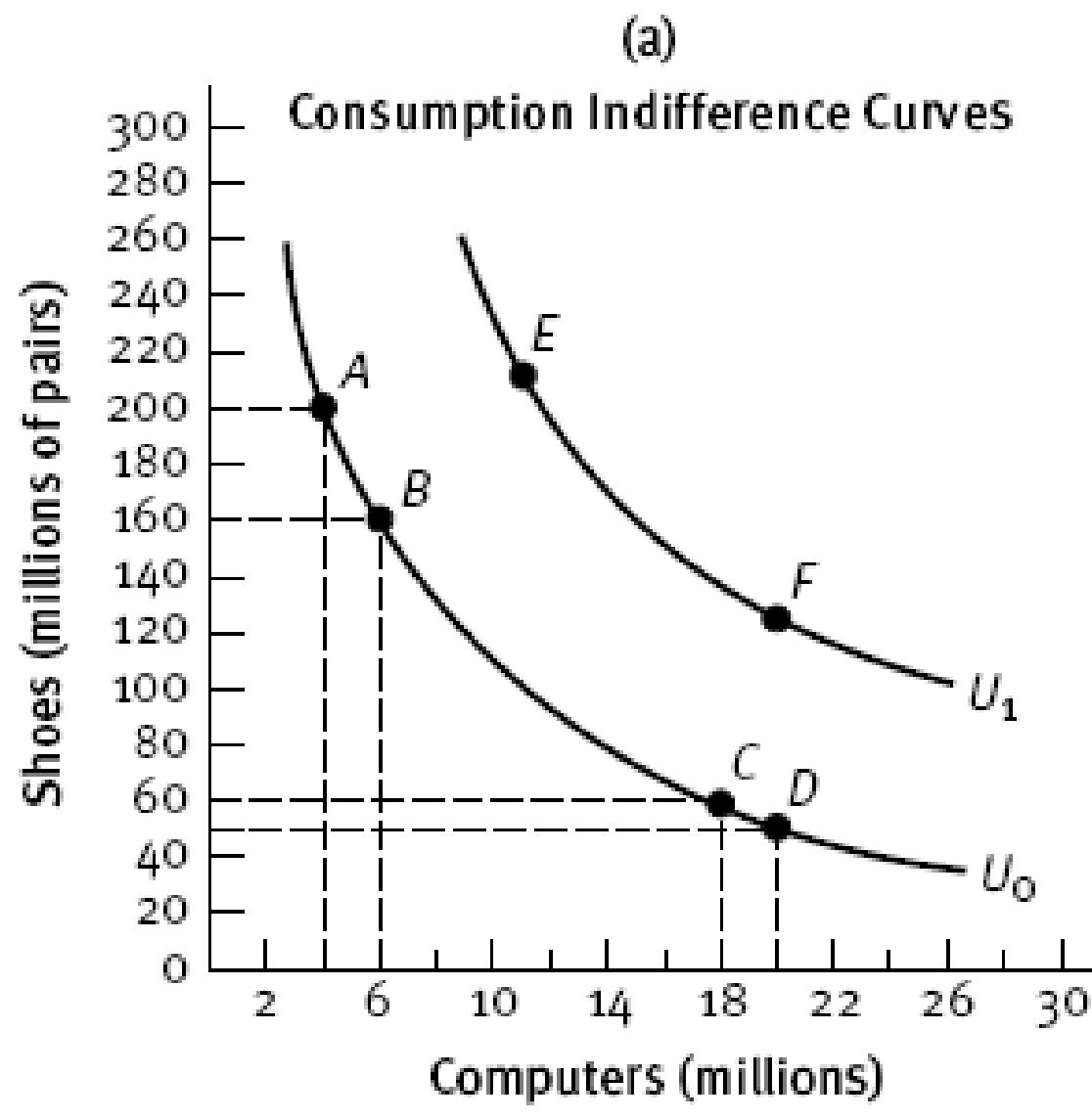
- ***Arise under decreasing returns to scale***
- Suppose a trade-off between rice and grapes
- Some land more suitable for rice than grapes and vice versa
- Suppose you start out with all grapes
- If you want to switch to rice, you begin with the best land for rice/worse land for grapes
- Eventually, you will run out of good-rice-land, and start taking good-grape-land
- The opportunity cost of switching to rice increases and increases

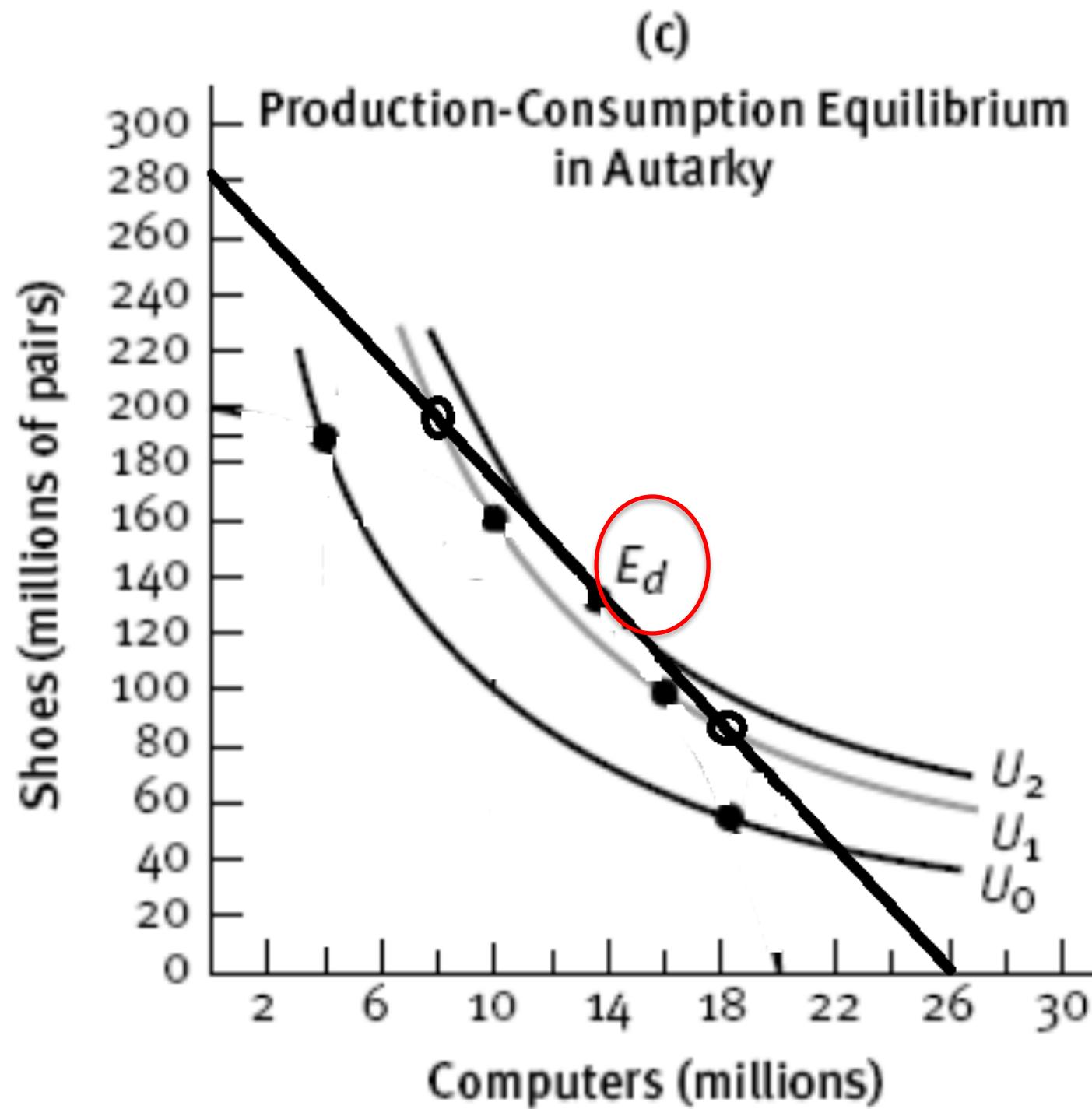


## Increasing opportunity costs?

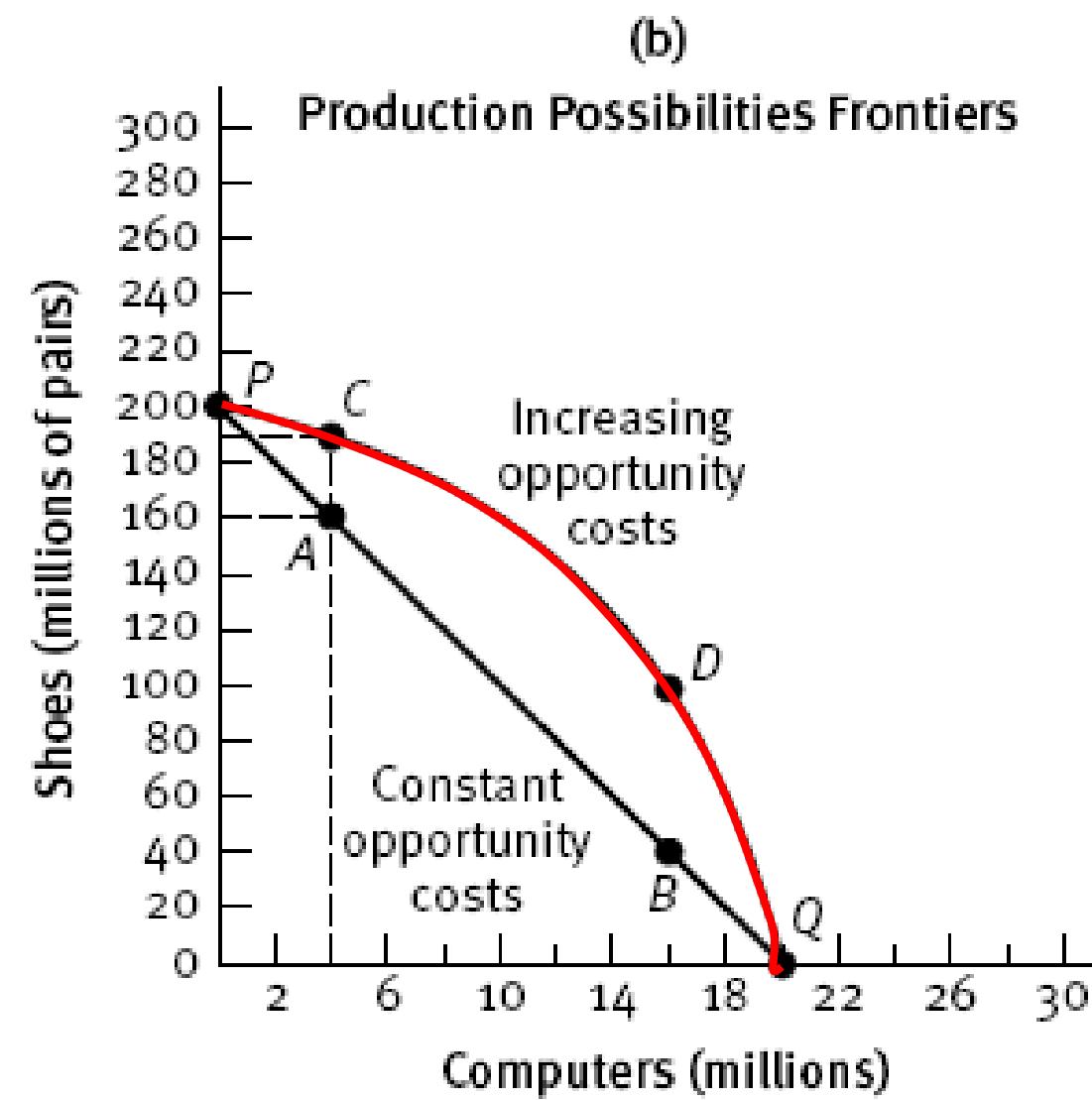
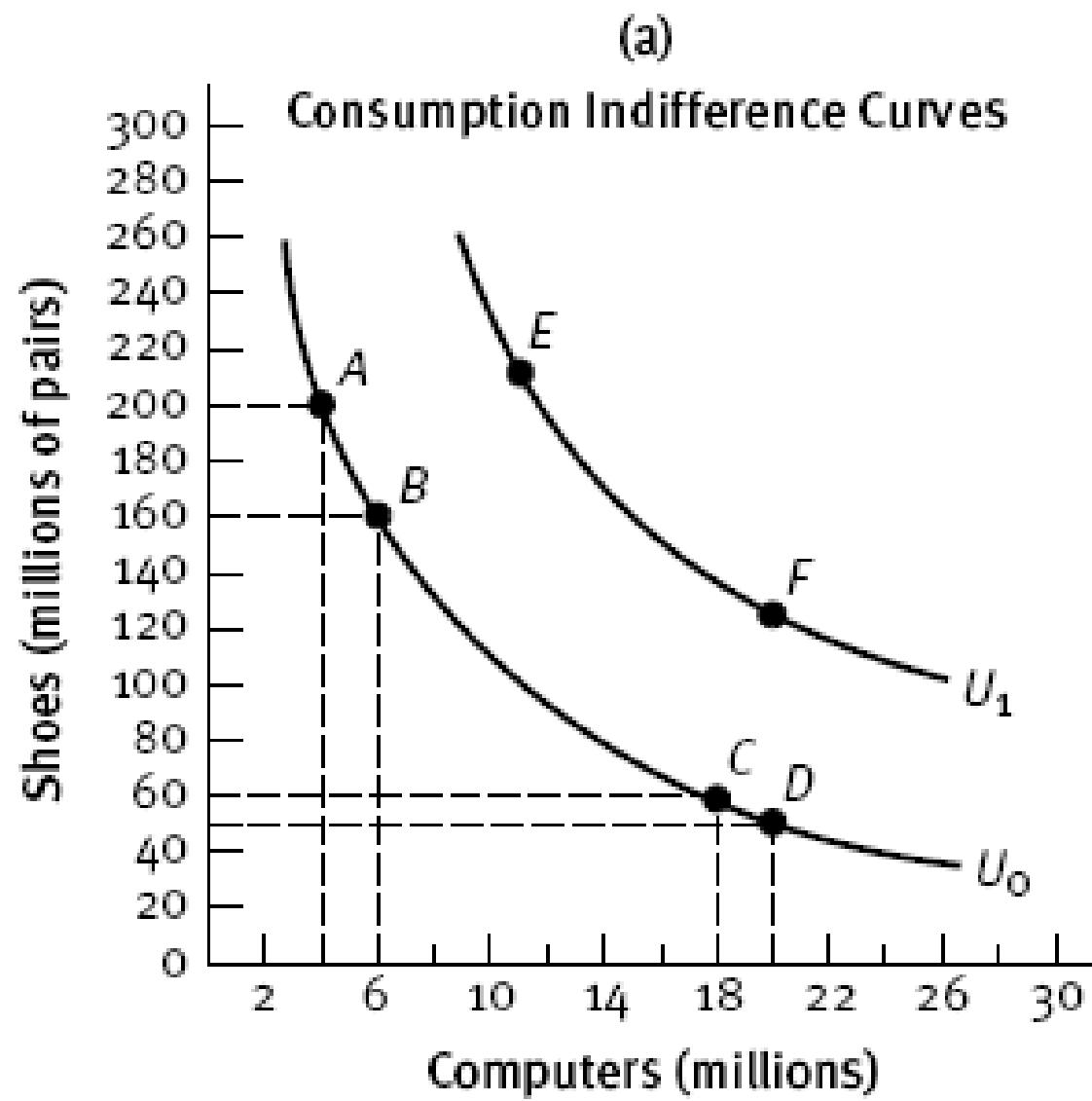
- From P to C
  - Computer  $\uparrow$  4 million
  - Shoes  $\downarrow$  10 million
- From D to Q
  - Computer  $\uparrow$  4 million
  - Shoes  $\downarrow$  100 million
- **INCREASING MARGINAL RATE OF PRODUCT TRANSFORMATION**

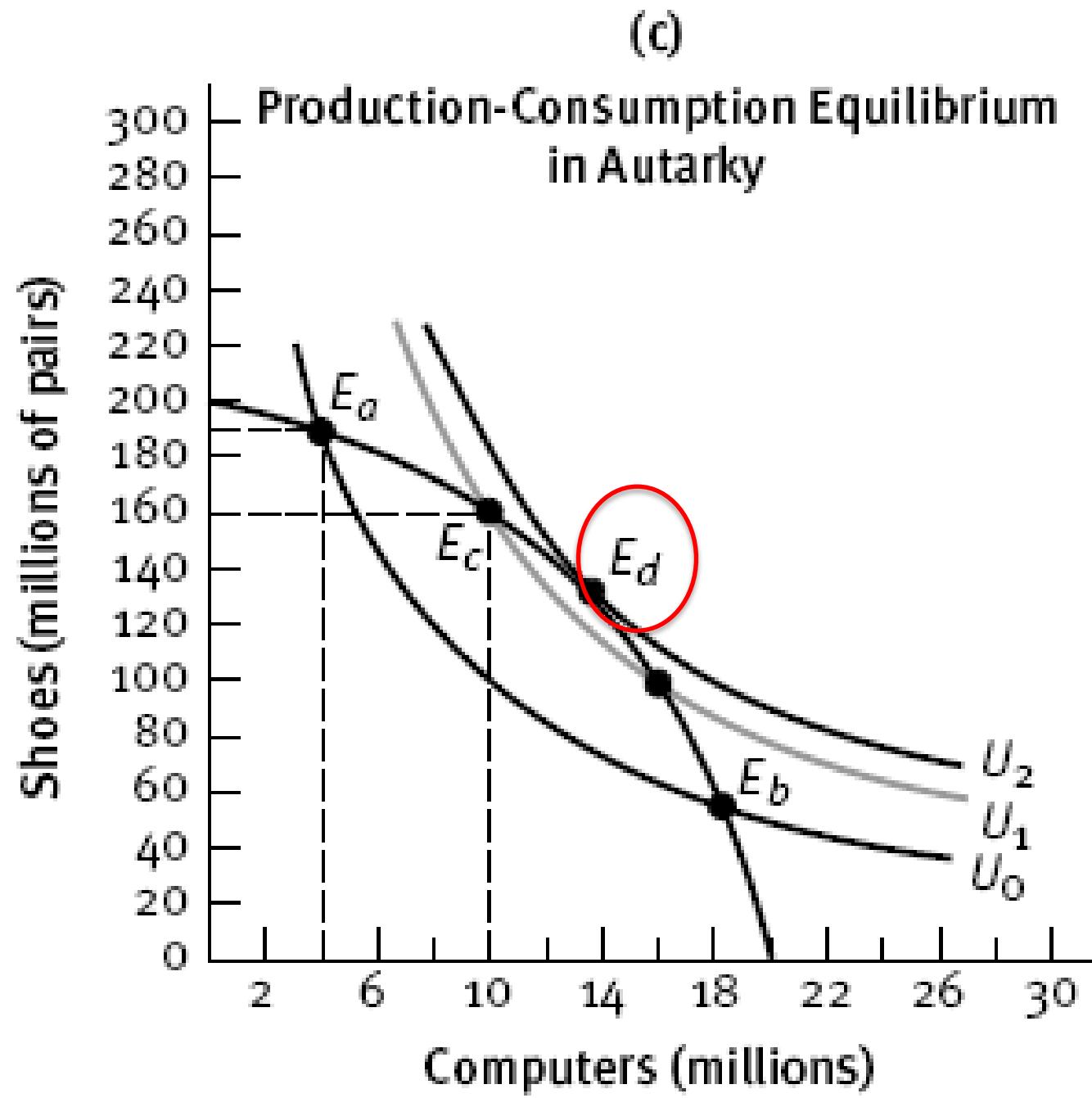
# Optimizing Under Autarky (No Trade)





# Optimizing Under Autarky (No Trade)





# Answer

**MARGINAL RATE OF SUBSTITUTION (MRS)**

=

**MARGINAL RATE OF PRODUCT TRANSFORMATION (MRT)**

# Why is trade a good thing?

# Comparative Advantage

## Hypothetical Output Levels, United States and China

OUTPUT PER WORKER PER YEAR		
	Computers	Shirts
United States	100	300
China	10	200

# Comparative Advantage

Hypothetical Output Levels, United States and China

	OUTPUT PER WORKER PER YEAR		OPPORTUNITY COST	
	Computers	Shirts	1 computer	1 shirt
United States	100	300		
China	10	200		

# Comparative Advantage

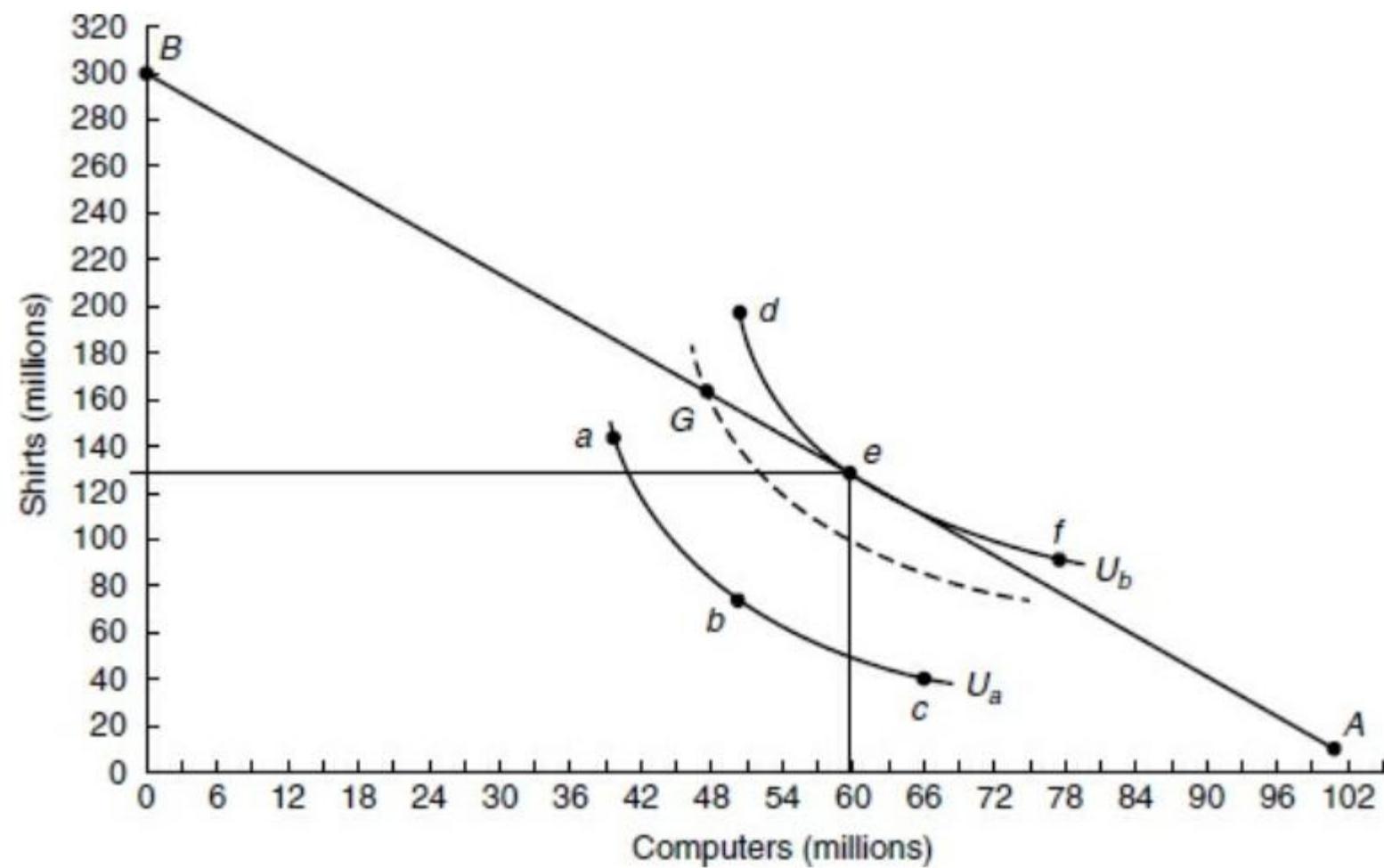
## Hypothetical Output Levels, United States and China

	OUTPUT PER WORKER PER YEAR		OPPORTUNITY COST	
	Computers	Shirts	1 computer	1 shirt
United States	100	300	3 shirts	0.33 computer
China	10	200	20 shirts	0.05 computer

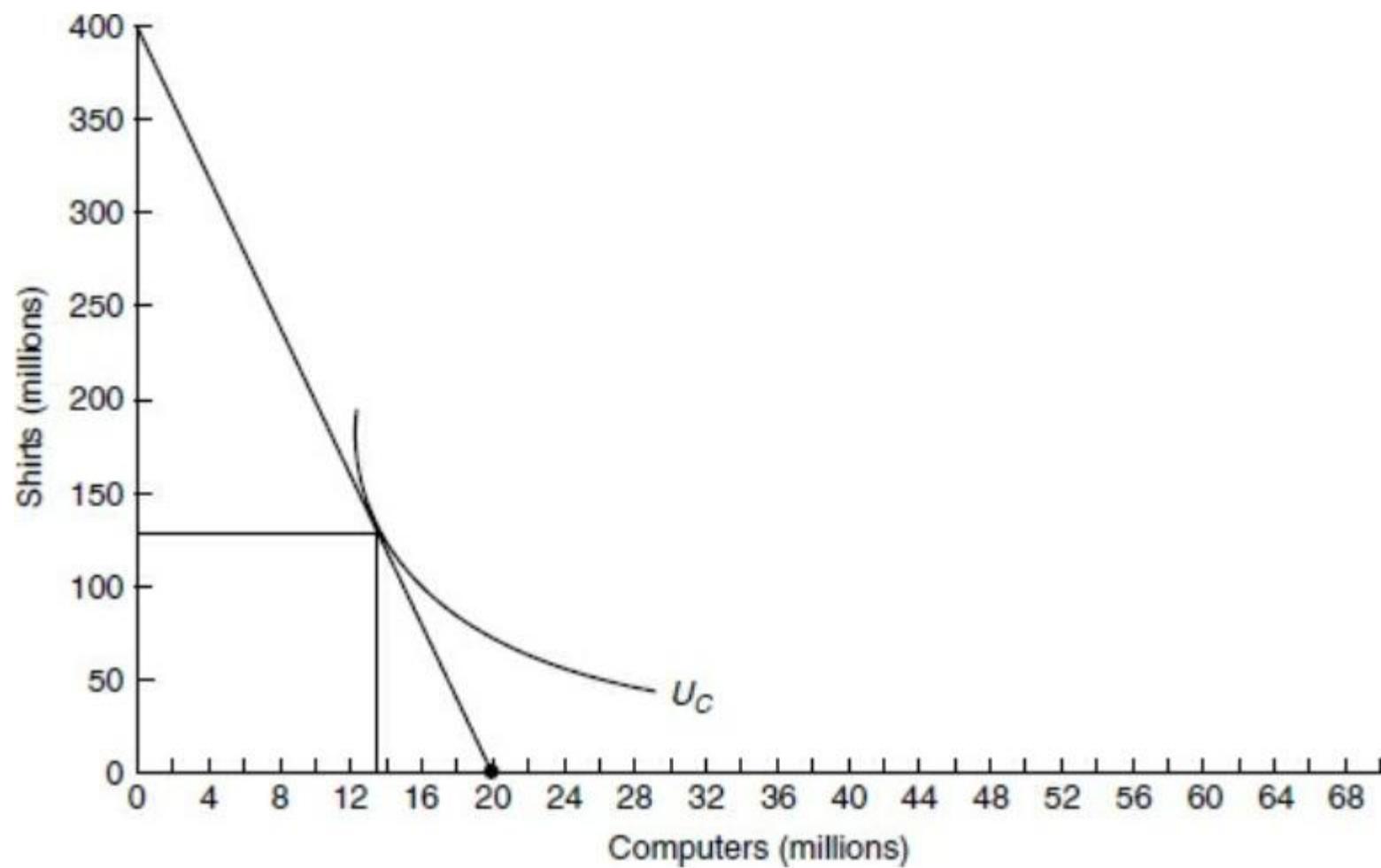
- One American worker can produce more computers or more shirts than one Chinese worker
- US has an ABSOLUTE ADVANTAGE in both computers and shirts
- So why trade?

## COMPARATIVE ADVANTAGE

- Lower opportunity cost



## United States Production Possibility Frontier



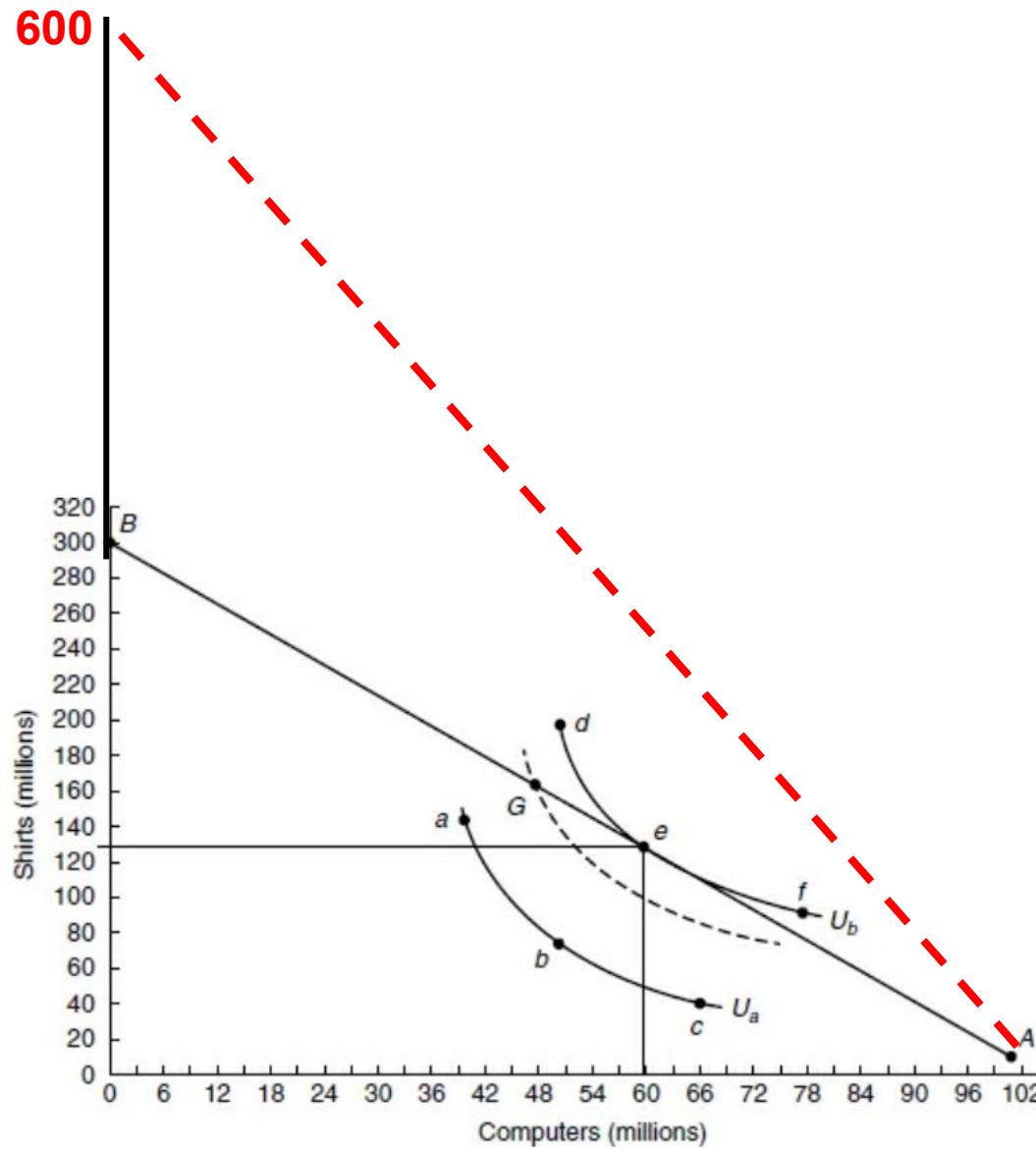
## China's Production Possibility Frontier

# Comparative Advantage

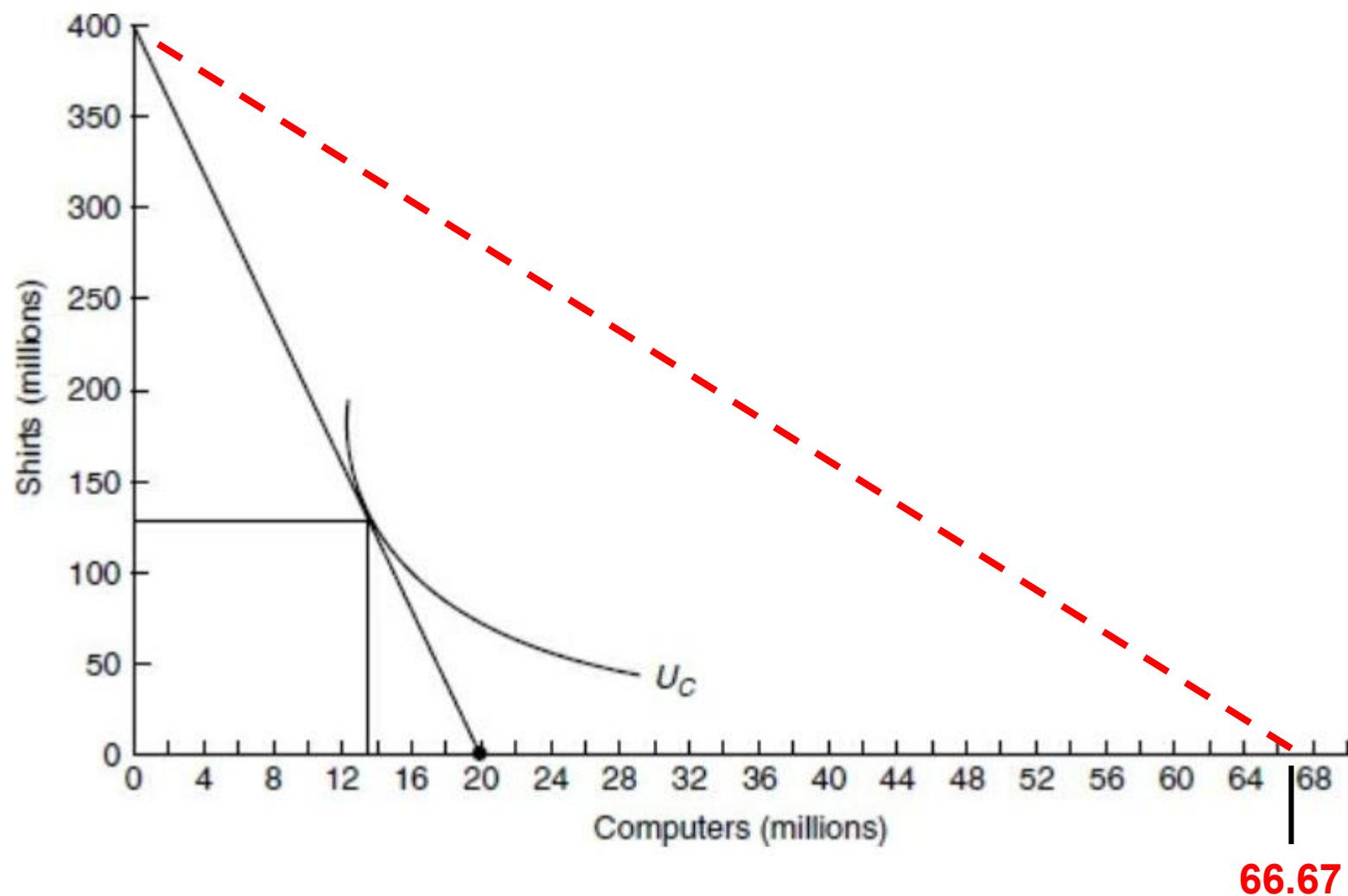
## Hypothetical Output Levels, United States and China

	OUTPUT PER WORKER PER YEAR		OPPORTUNITY COST	
	Computers	Shirts	1 computer	1 shirt
United States	100	300		3 shirts
China	10	200		20 shirts

- United States is willing to trade one computer for >3 shirts
- China is willing to trade one computer with <20 shirts
- Let's assume they trade at 1 computer = 6 shirts
- And both countries **FULLY SPECIALIZE\***



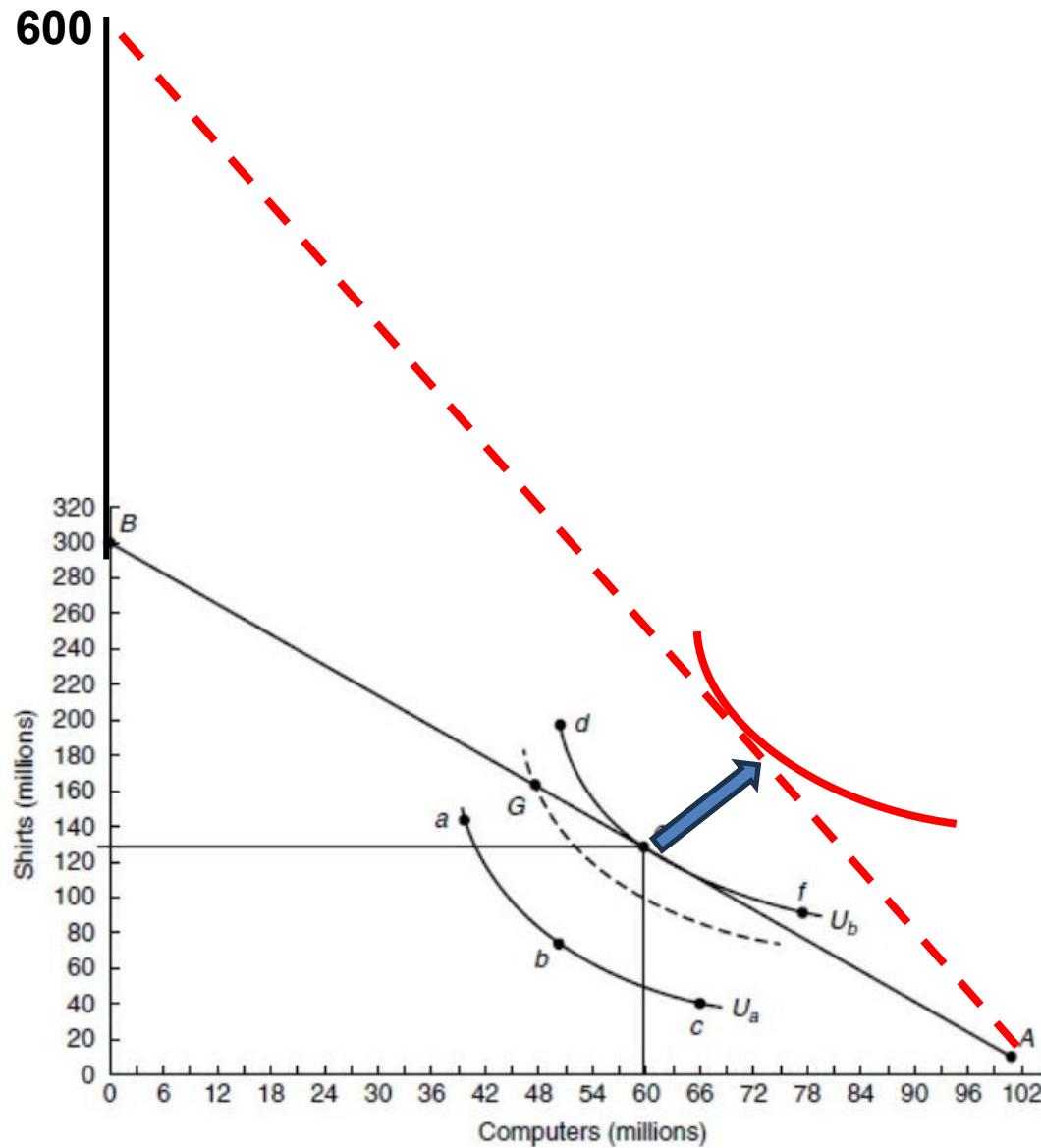
## United States Production Possibility Frontier



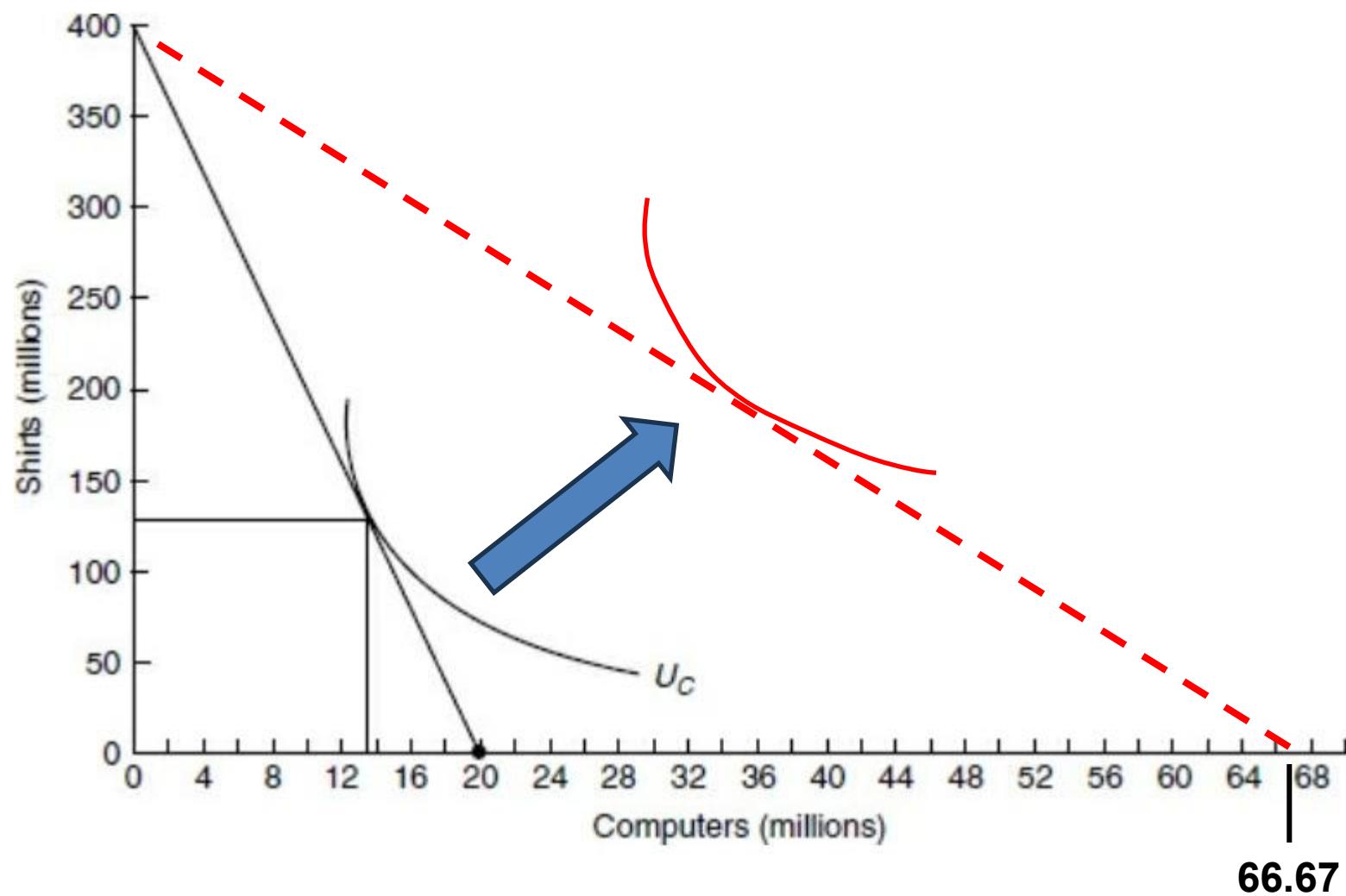
China's Production Possibility Frontier

**So both countries would have more stuff**

**And higher utility**

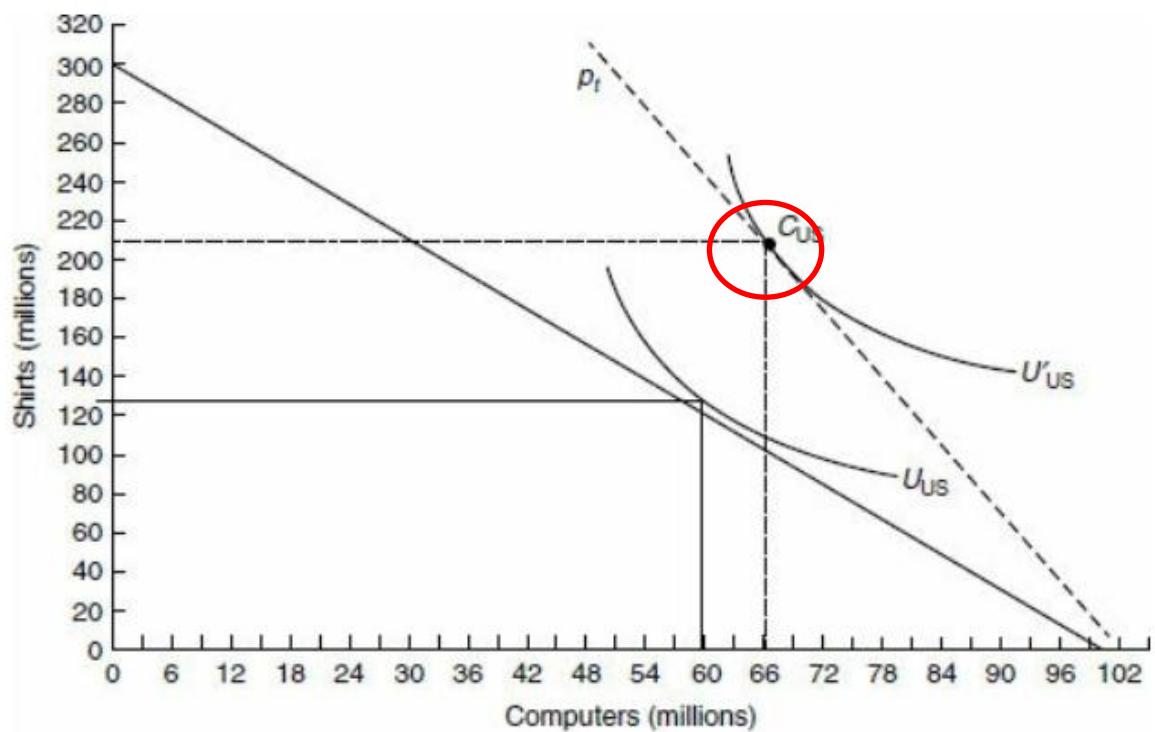


## United States Production Possibility Frontier

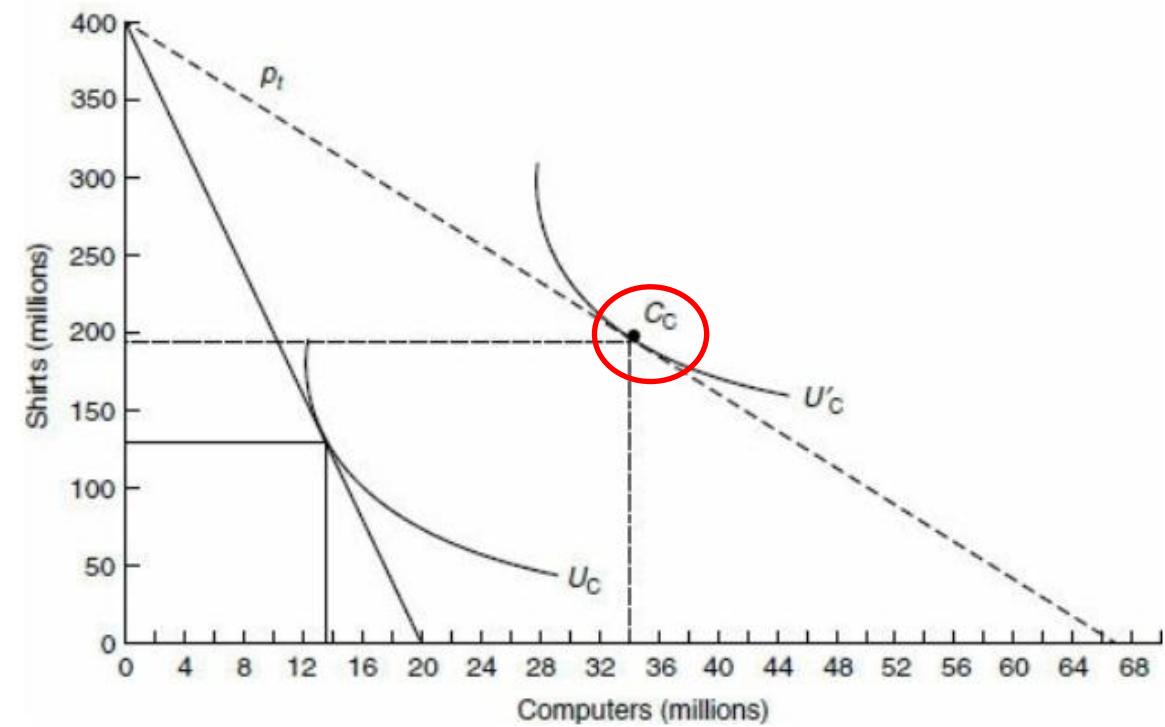


China's Production Possibility Frontier

### United States



### China



# WHY does one country have a comparative advantage in one area?

Heckscher-Ohlin:

Two basic kinds of countries



*Figures generated by ChatGPT*

# WHY does one country have a comparative advantage in one area?

- **Two factors:** Labor vs. Capital
- **Two products:** Labor-intensive vs. Capital-intensive
- **Factor endowment**
  - A country is relatively abundant/scarce in one of the factors
- Abundance means cheaper to use
- Factor abundance  $\approx$  Comparative advantage
- Capital-abundant country  $\rightarrow$  Export capital-intensive goods
- Labor-abundant country  $\rightarrow$  Export labor-intensive goods

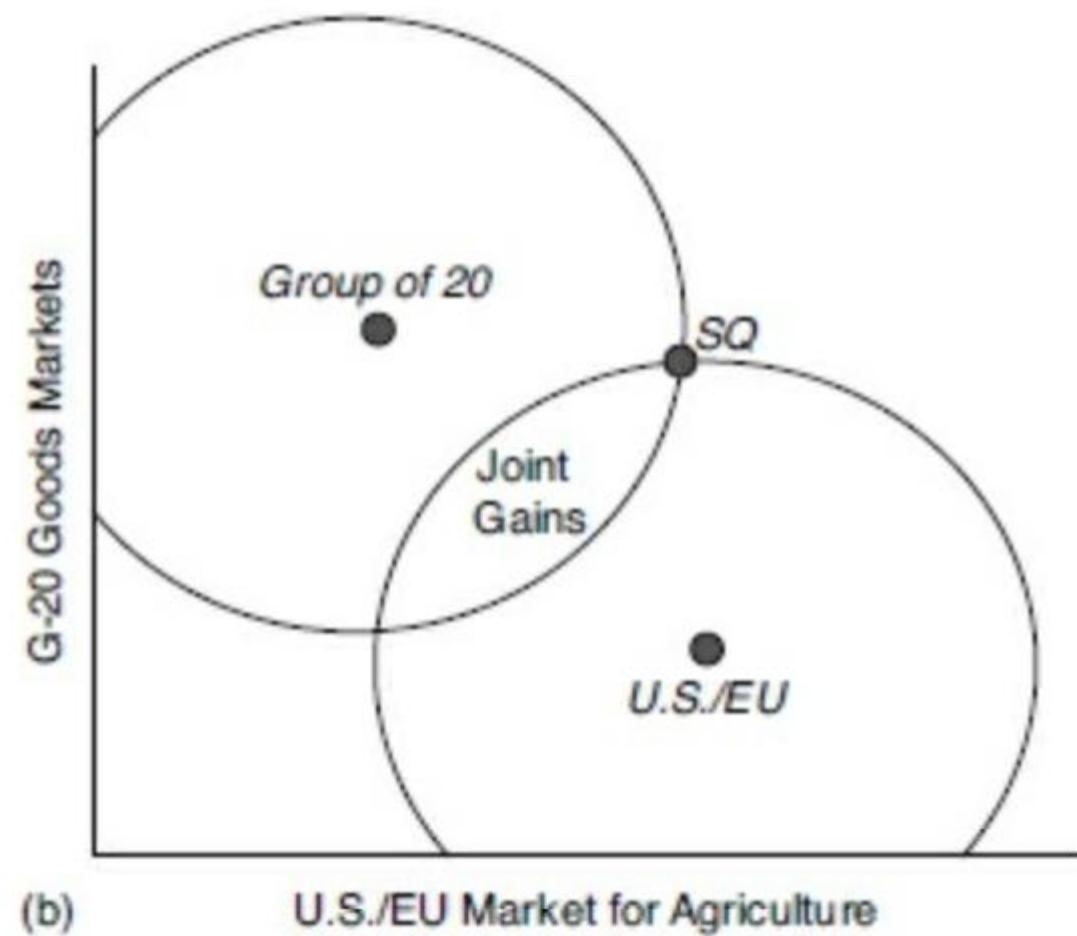
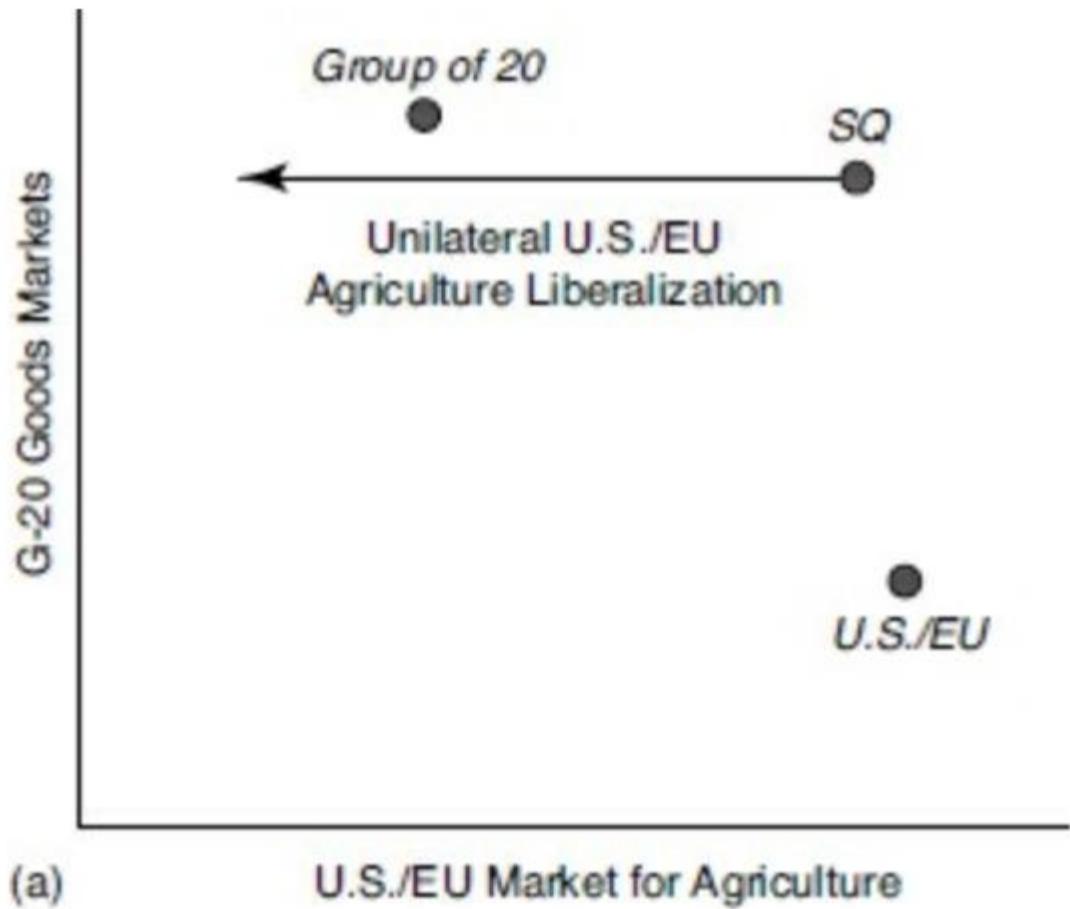
# Why not free trade?

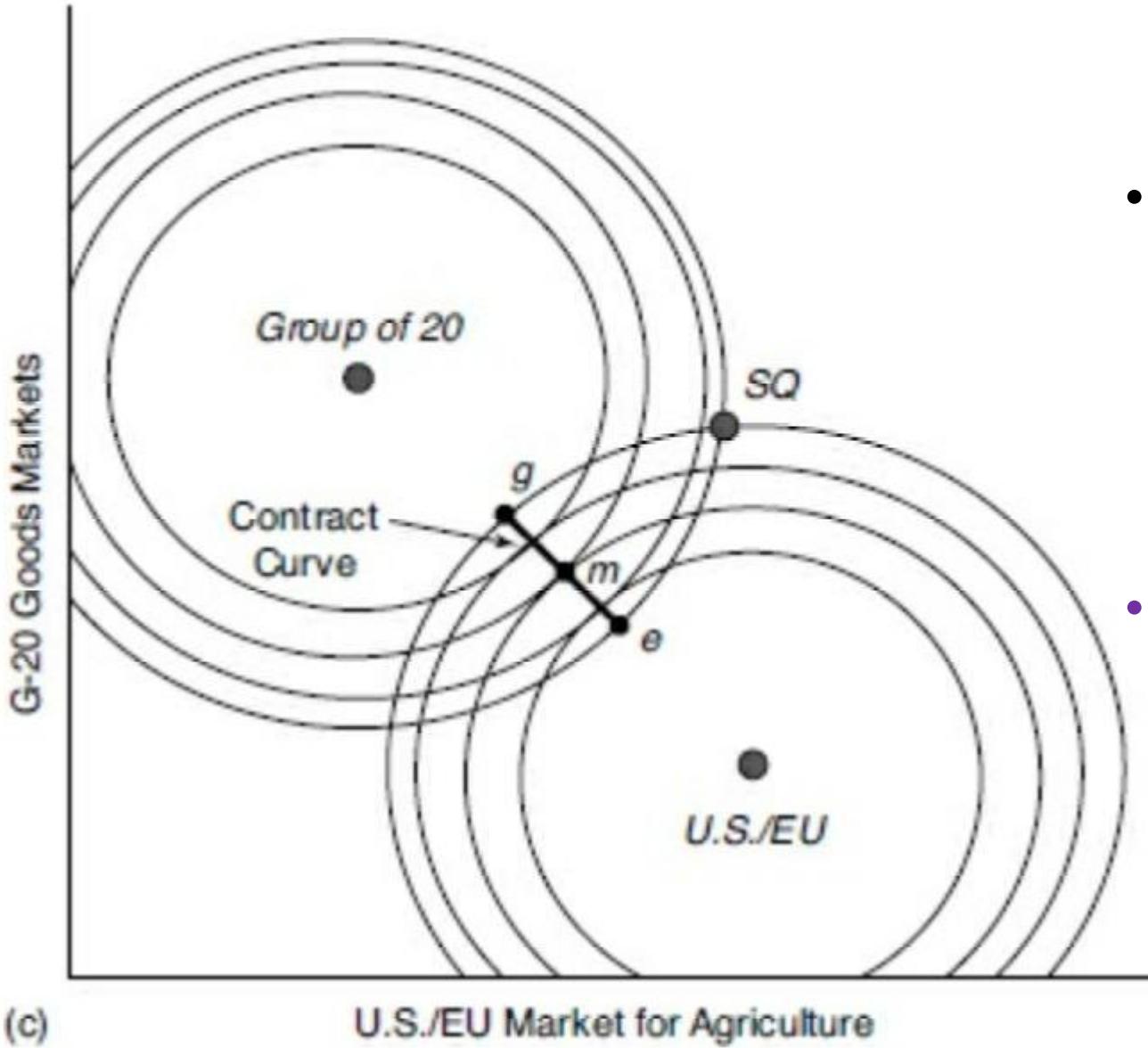
Next class: Stolper-Samuelson Theorem and LOSERS from trade

For now...

- Countries prefer open foreign markets to export to
- But prefer to protect its less competitive industries from imports

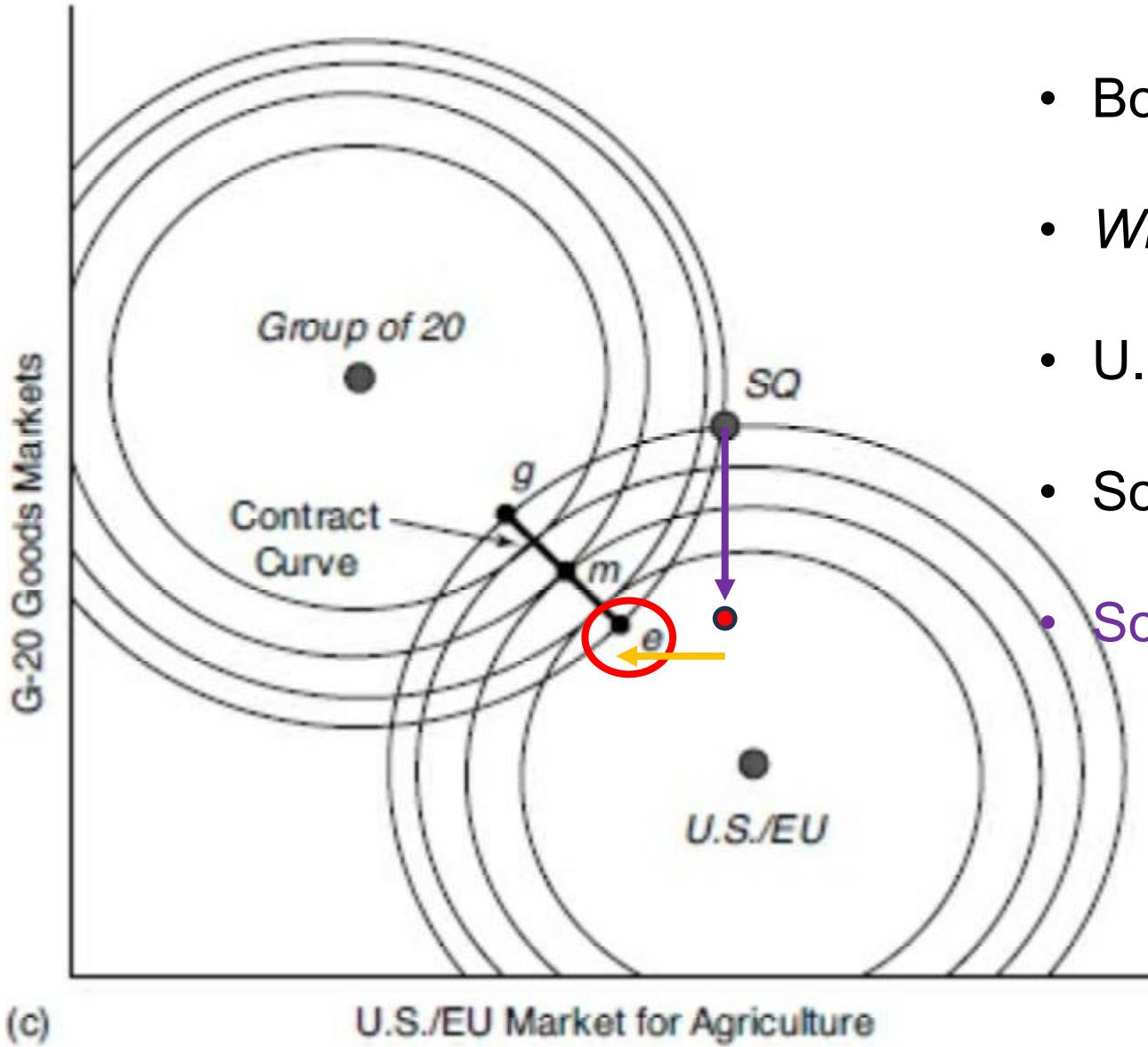
How does trade bargaining work?





- What decides the **bargaining outcome**?
  - Closer to  $g$  (G20 wins more) or
  - Closer to  $e$  (U.S./EU wins more)?
- **Bargaining Power**
  - Patience
  - Outside Options

# How to enforce the deal?



- Suppose the deal is point e
- Both sides need to liberalize
- *What if G20 liberalized, but U.S./EU did not?*
- U.S./EU is **better off** by not liberalizing
- So they **have incentive to defect**
- So does the G20...

# Prisoner's Dilemma

- A non-cooperative, non-zero-sum game. (Mixed game of cooperation and conflict.)
- ***Individual rationality brings about collective irrationality.***

## Example...

- You're reading Tchaikovsky's music on a train back in the USSR.
- KGB agents suspect it's secret code.
- They arrest you & a "friend" they claim is Tchaikovsky.
- "You better tell us everything. We caught Tchaikovsky, and he's already talking..."

- You know that this is ridiculous – they have no case.
- But they may be able to build a case using your testimony and "Tchaikovsky's."
- If you "rat" out your "friend" – they will reduce your sentence.
- If not, they will throw the book at you.

		Player 2
Player 1	Cooperate w/friend	Defect (rat)
Cooperate w/friend	-3, -3	-25, -1
Defect (rat)	-1, -25	-10, -10

Dominant Strategy

	Player 2	
Player 1	Cooperate w/friend Defect (rat)	
Cooperate w/friend		
Defect (rat)	-3, -3 -1, -25	-25, -1 -10, -10



Player 2's "sucker's payoff"

Player 1's "sucker's payoff"

Pareto optimal

Nash equilibrium  
(Pareto sub-optimal)

## Pareto optimality:

- No one can be made better off without someone being made worse off
- Any change to make any person better off would make someone else worse off

## Nash equilibrium:

- Every individual pursues his best strategy set, given the strategies of all other players
- No one would unilaterally defect
- If each player has chosen a strategy and no player can benefit by changing his or her strategy while the other players keep theirs unchanged, then the current set of strategy choices and the corresponding payoffs constitute a Nash equilibrium

# Individual rationality → collective sub-optimality

- The same situation can occur whenever “**collective action**” is required
- The collective action problem is also called the “**n-person prisoner's dilemma**”
- Also called the “**free rider problem**”
- “**Tragedy of the commons**”
- All have similar logics and a similar result:

*Individually rational action leads to collectively suboptimal results*

# Is cooperation ever possible in Prisoner's Dilemma?

- Yes ☺
- In repeated settings
- Axelrod, Robert M. 1984. *The Evolution of Cooperation*. New York: Basic Books.
- Example set of strategies?
- Tit-for-tat

# PD Example from the book

- Trade Liberalization between the European Union and G-20

		European Union	
		Liberalize	Protect
		Liberalize	Protect
G-20	Liberalize	$L,L$ I	$L,P$ II
	Protect	$P,L$ IV	$P,P$ III

Preference Orders:

G-20:  $P,L > L,L > P,P > L,P$

European Union:  $L,P > L,L > P,P > P,L$

# Thank You!



# Take-away

- Building blocks
- Consumption indifference curves
- Production possibility frontiers
- (Declining) Marginal Rate of Substitution
- (Constant or Increasing) Marginal Rate of Product Transformation
- Comparative advantage
- Opportunity costs
- Factor endowments
- Hecksher-Ohlin Model
- Prisoner's dilemma
- Sucker's payoff
- Tit-for-tat (cooperation possible in repeated PDs)
- Nash equilibrium
- Pareto sub-optimality