Topic 12 - Trade

Agenda

- Some basic facts about trade
- Economic basis for trade
- PPF and trade
- Absolute and comparative advantage
- Terms of trade

Motivating Questions

- Why does the US trade with China?
- Why does China trade with the US?
- What are some negative impacts of trade?
- Should we trade all products, or just some?

Aside: Concern regarding the impact of trade is not new!

"Free trade, one of the greatest blessings which a government can confer on a people, is in almost every country unpopular"

--Thomas Babington Macaulay, 1824

(as cited in Irwin, 2002)

Trade facts

How important is trade to the world economy?

Should the U.S. import goods?

Yes

- Cheaper goods
- Let's the US focus on producing more valuable goods so GDP is larger
- May not have access to goods domestically (bananas, coffee, etc.)

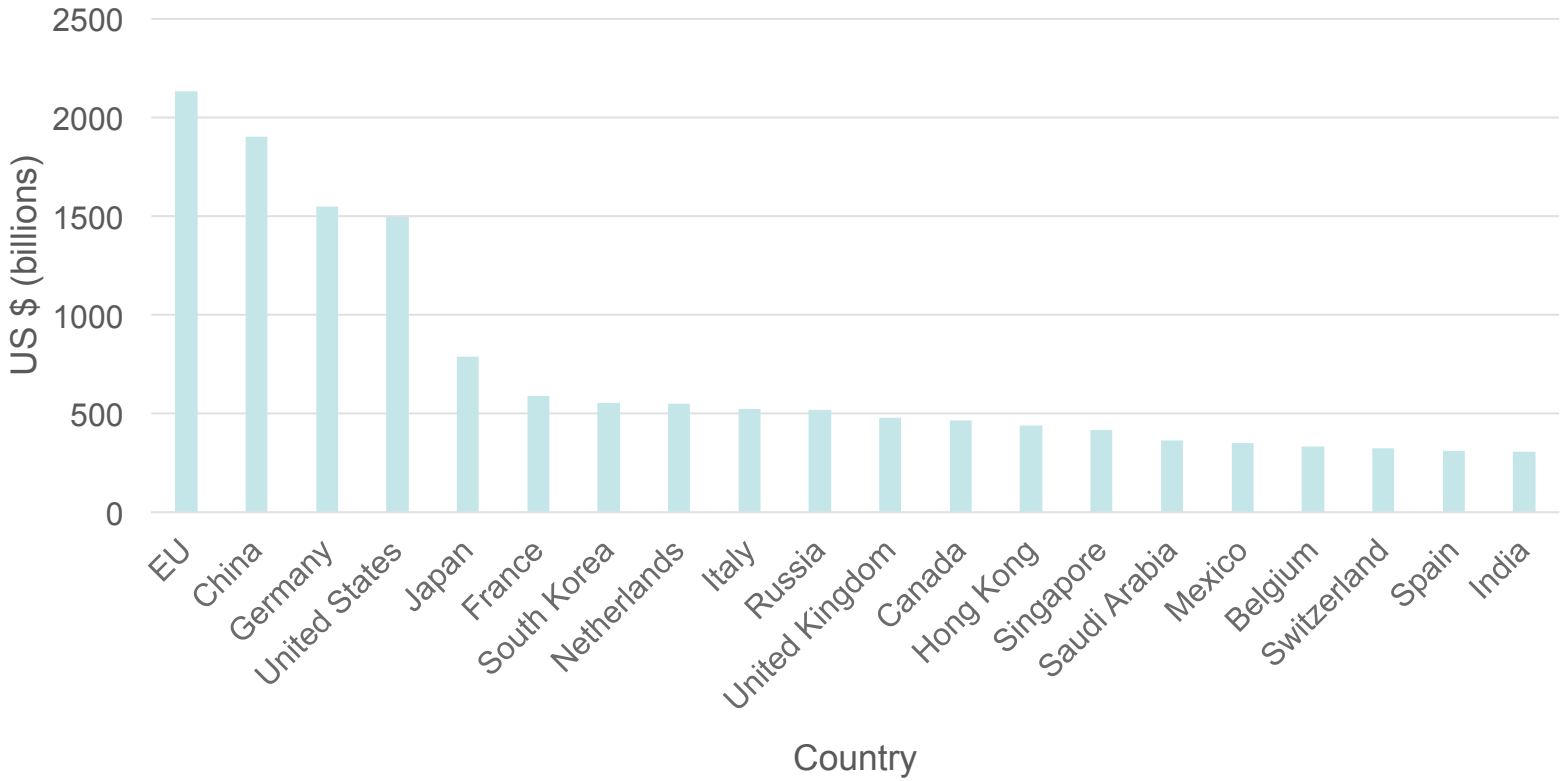
No

- Impact on local producers (competition)
- Environmental concerns (global)
- Increasing unemployment?
- Increasing inequality?

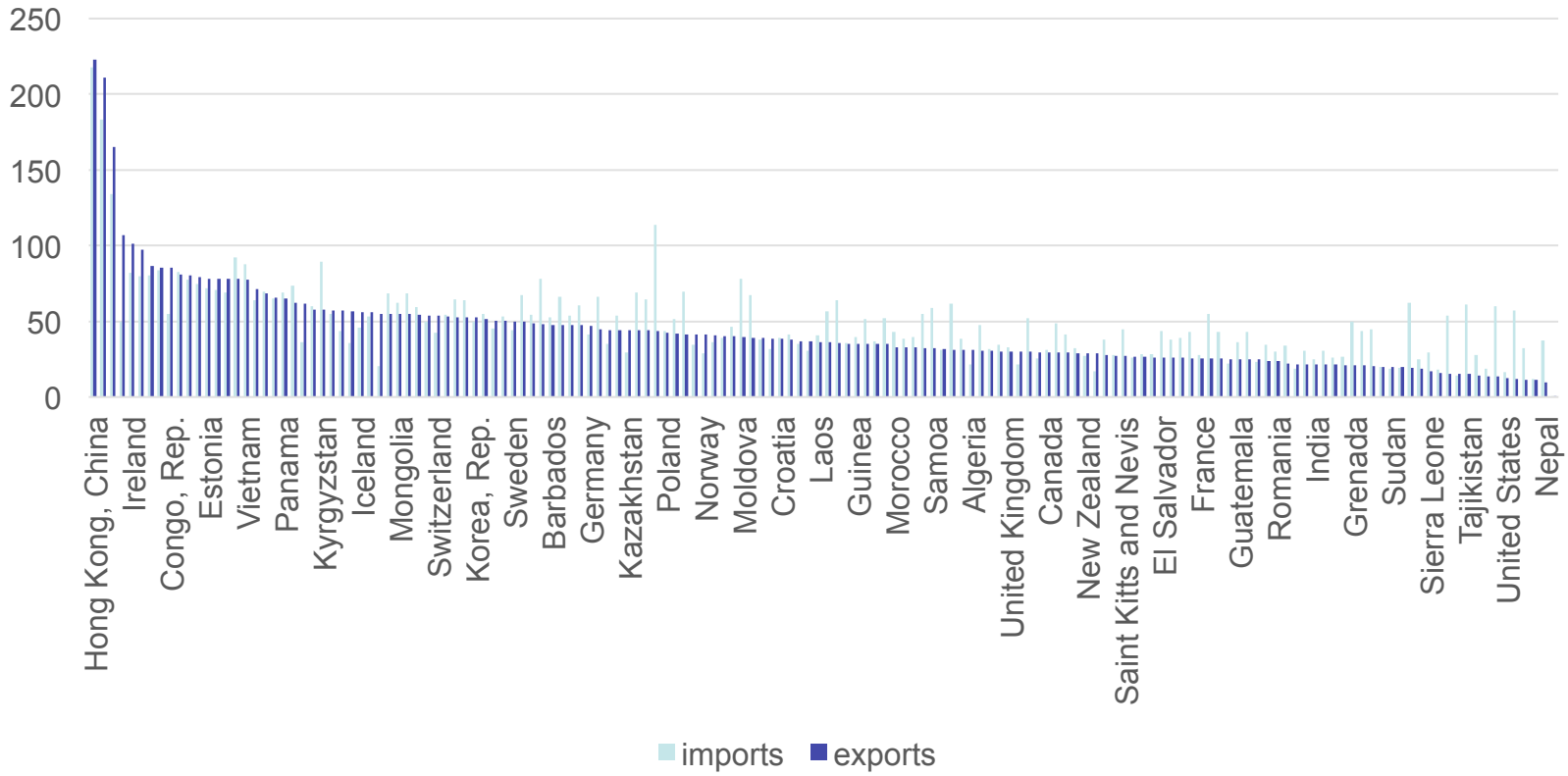
Which of the following scenarios do you prefer?

- An entrepreneur starts a new business that uses a secret technology to convert wheat and lumber into cheap, high-quality manufacturing goods without any labour. Some domestic producers go out of business.
- An entrepreneur imports high-quality manufacturing goods from China in exchange for wheat. Domestic producers go out of business, resulting in increased unemployment

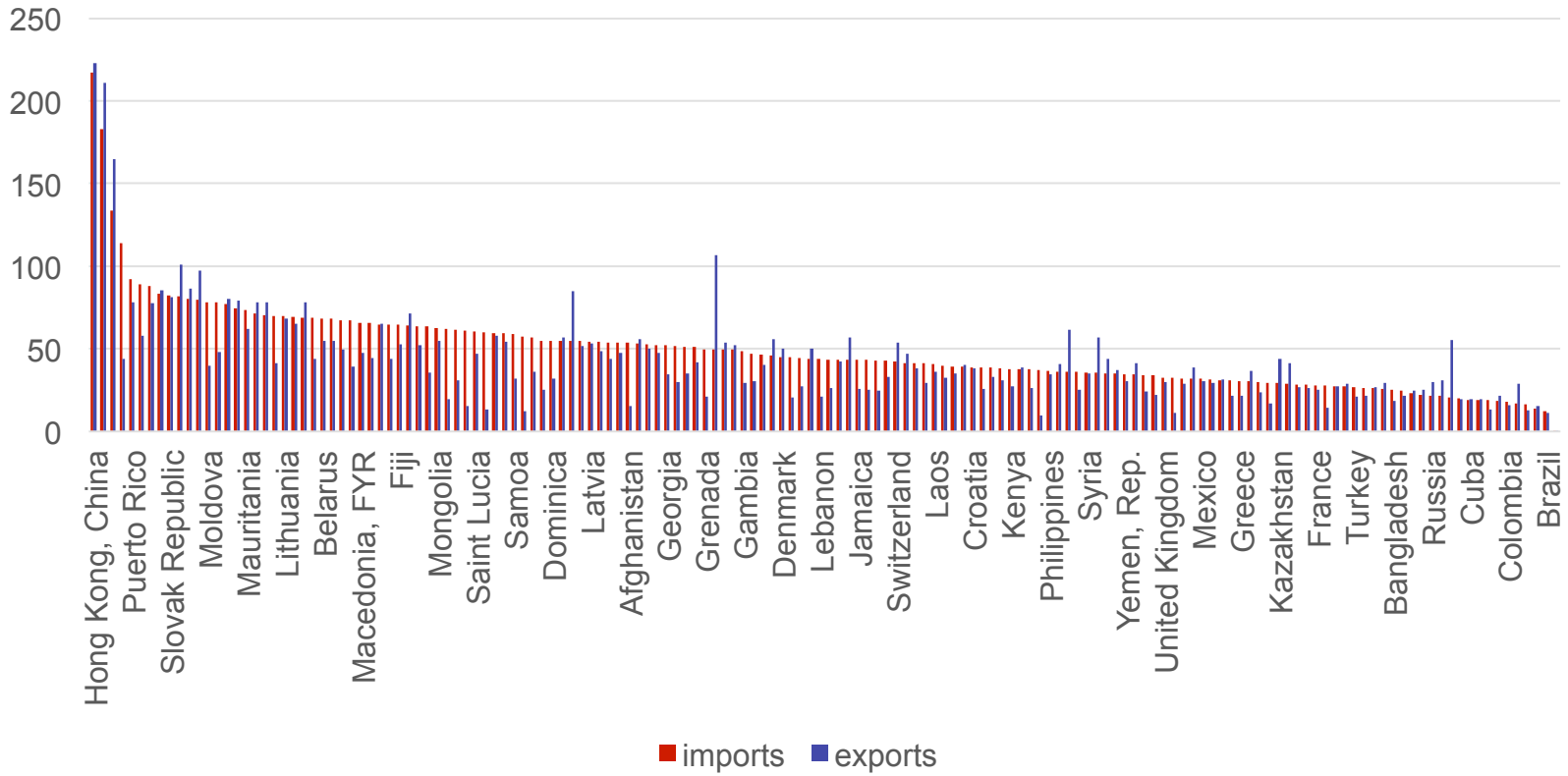
World's top exporters (2011)



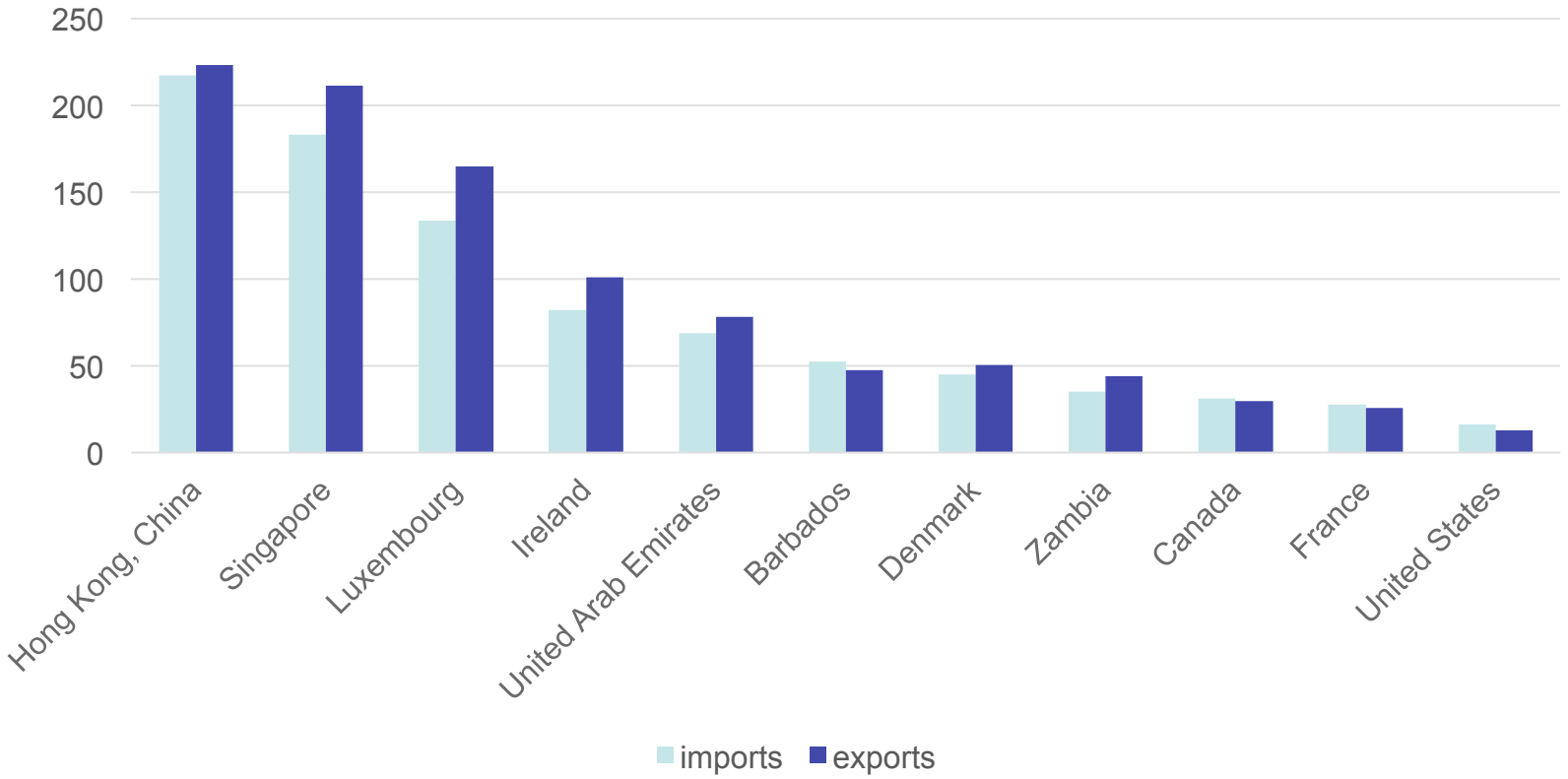
Exports as % of GDP



Imports as % of GDP



Exports/Imports as % of GDP



World Trade as % of World GDP

Economic Basis of Trade

Would you trade in this scenario? Why?

You

- Raise cattle
- No other source of food – so you eat beef three times a day and drink milk and water

Your neighbour

- Grows vegetables
- No other source of food – so eats veggies three meals a day and drinks water

Country Trade: Reason 1

- Uneven distribution of resources between nations:
  - Natural resources
  - Human resources
  - Capital resources

Country Trade: Reason 2

- Production efficiencies
  - Who is more efficient at growing bananas, Costa Rica or Norway?
  - Note: Norway *could* grow bananas, but at a high cost
- Production requires different technologies or combinations of resources that may be more costly in one country compared to another

Country Trade: Reason 3

- Which do you prefer: a Ferrari or a Corvette?
- Preferences: Some people prefer imported goods to similar goods made domestically

PPF and Trade

Consider the following

Time per item

	Computers	Coffee
USA	20 min	10 min
Brazil	1 hr	15 min

Items per 8 hours

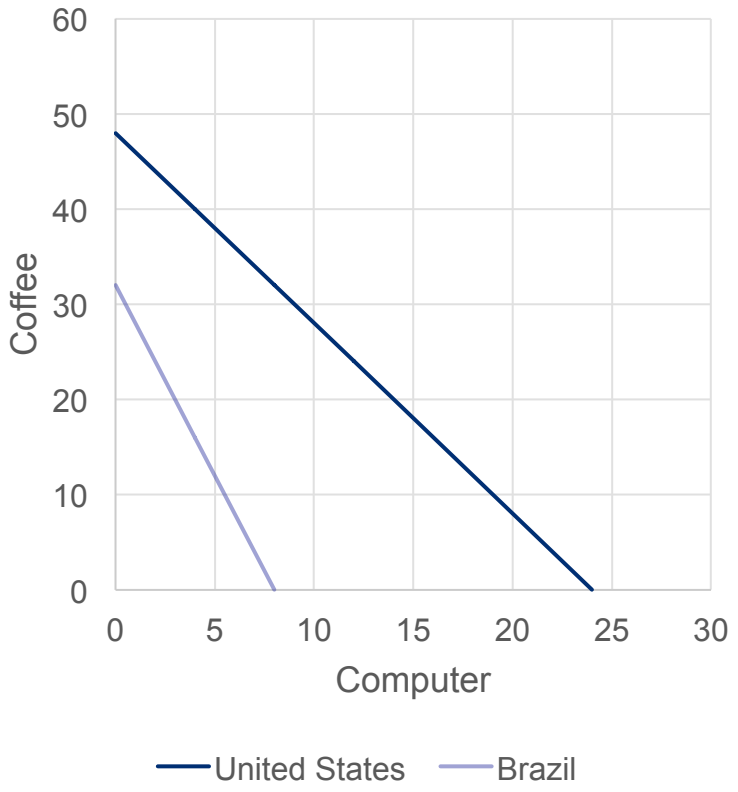
	Computers	Coffee
USA	24	48
Brazil	8	32

This yields the following production possibilities

United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

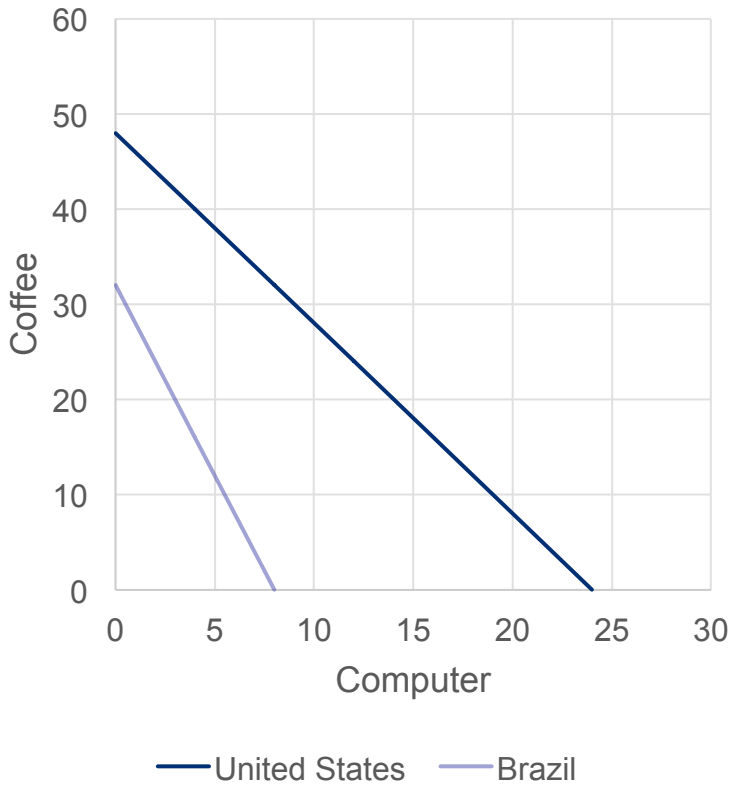
We can graph the PPF



United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

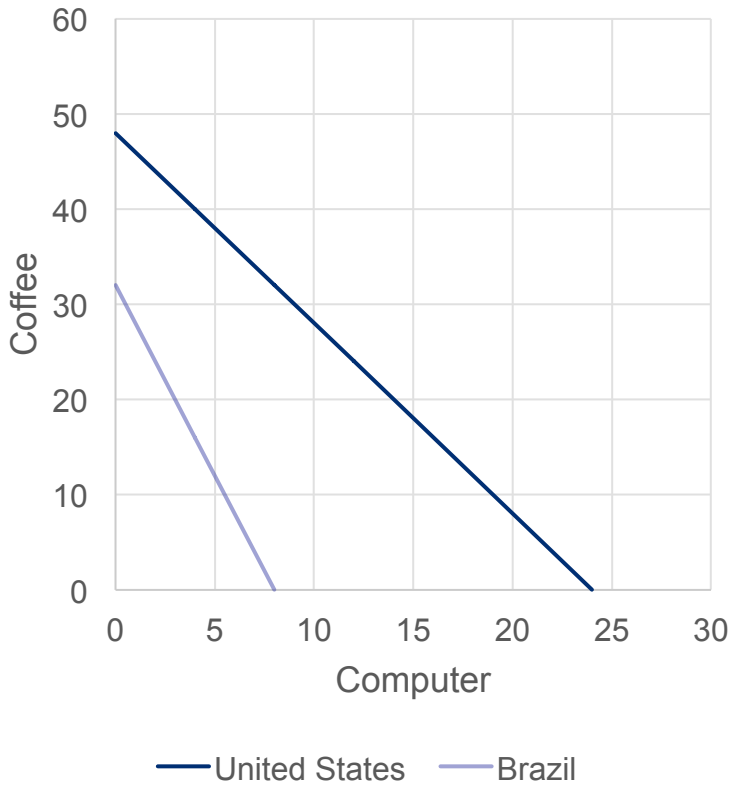
Who is better at producing each good?



United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

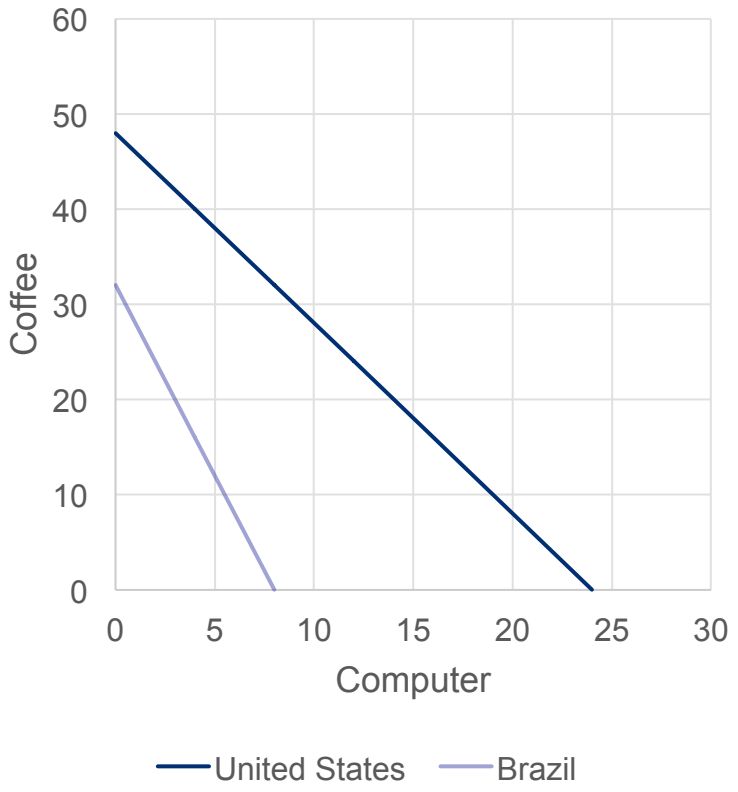
Assume neither country trades with the other. Where do they produce?



United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

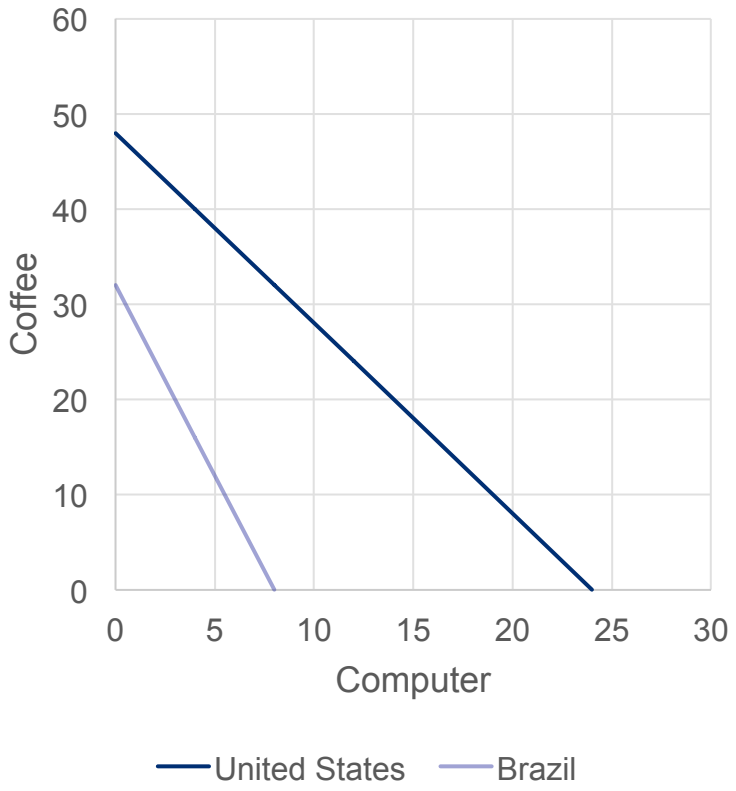
Would they be better off if they traded?



United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

US can trade 11 computers for 24 coffee. Both countries are better off!



United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

Absolute and Comparative Advantage

Specializing is good

What would you do?

- You and your friend take the same two classes. You each need to submit a final exam in each class. Sharing answers is permitted. Do you:
  a) Work on both exams
  b) Work on one and copy the answers from your friend for the second

Why are so many professional hockey players Canadian?

- 53.3% of NHL players in 2010-2011
- Large infrastructure cost for any sport (arenas, parks, coaches, etc.)
- The more you spend, the better the results (not necessarily spending per capita)
- Smaller countries have to specialize

For trade, specialization can make everyone better off

- Why? Because the cost of production is how much you have to give up to produce.
- Recall the PPFs discussed earlier:

United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

For trade, specialization can make everyone better off

- Why? Because the cost of production is how much you have to give up to produce.
- Recall the PPFs discussed earlier:

United States	A	B	C
Computers	2	1	0
Coffee	0	2	4

Brazil	A	B	C
Computers	2	1	0
Coffee	0	4	8

For trade, specialization can make everyone better off

- Why? Because the cost of production is how much you have to give up to produce.
- What is the cost to produce computers?

United States	A	B	C
Computers	2	1	0
Coffee	0	2	4

1 computer = 2 coffee

Brazil	A	B	C
Computers	2	1	0
Coffee	0	4	8

1 computer = 4 coffee

Opportunity Cost

- What must be given up to obtain some item
- What is the opportunity cost for computers?

United States	A	B	C
Computers	2	1	0
Coffee	0	2	4

Brazil	A	B	C
Computers	2	1	0
Coffee	0	4	8

Opportunity Cost

- What must be given up to obtain some item
- What is the opportunity cost for coffee?

United States	A	B	C
Computers	2	1	0
Coffee	0	2	4

Brazil	A	B	C
Computers	2	1	0
Coffee	0	4	8

Absolute Advantage

- A country has abs. adv. if it can produce more of a specific product than some other country when it devotes all of its resources to the production of that good.
- Who has abs. adv. in computers?

United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

Absolute Advantage

- A country has abs. adv. if it can produce more of a specific product than some other country when it devotes all of its resources to the production of that good.
- Who has abs. adv. in coffee?

United States	A (8,0)	B(4,4)	C(0,8)
Computers	24	12	0
Coffee	0	24	48

Brazil	A (8,0)	B(4,4)	C(0,8)
Computers	8	4	0
Coffee	0	16	32

Comparative Advantage

- A country has comparative adv. if it can produce a specific good at a lower **opportunity cost** than some other country
- Who has comp. adv. in computers?

United States	A	B	C
Computers	2	1	0
Coffee	0	2	4

Brazil	A	B	C
Computers	2	1	0
Coffee	0	4	8

Comparative Advantage

- A country has comparative adv. if it can produce a specific good at a lower **opportunity cost** than some other country
- Who has comp. adv. in coffee?

United States	A	B	C
Computers	2	1	0
Coffee	0	2	4

Brazil	A	B	C
Computers	2	1	0
Coffee	0	4	8

What happens when countries trade?

- Consider PPF given in tables below.
- Before Trade: Both produce at C
- What is total world production?

United States	A	B	C	D	E
Computers	24	18	12	6	0
Coffee	0	12	24	36	48

Brazil	A	B	C	D	E
Computers	8	6	4	2	0
Coffee	0	8	16	24	32

What happens when countries trade?

- Consider PPF given in tables below.
- **After** Trade: US produces at B, Brazil at E
- What is total world production?

United States	A	B	C	D	E
Computers	24	18	12	6	0
Coffee	0	12	24	36	48

Brazil	A	B	C	D	E
Computers	8	6	4	2	0
Coffee	0	8	16	24	32

What happens when countries trade?

- Gain from trade: The difference in total production between pre- and post- trade
- What is the gain from trade in this example?

United States	A	B	C	D	E
Computers	24	18	12	6	0
Coffee	0	12	24	36	48

Brazil	A	B	C	D	E
Computers	8	6	4	2	0
Coffee	0	8	16	24	32

Terms of Trade

How do countries determine how much to sell goods for?

How do we determine how valuable something is?

- Generally, look at the price!
- In the US, price is in dollars. But the US has fiat currency. So why do we use prices in dollars?
- Because we can buy other things with them.
- So value can also be given in quantity of goods (think of a barter system)

Terms of Trade

- The rate at which units of one product can be exchanged for units of another product
- We have previously calculated the following table:

	Computers	Coffee
USA	2 coffee	½ computer
Brazil	4 coffee	¼ computer

What are acceptable terms of trade?

- Would the US sell a computer for 1 coffee?
- Would the US sell a computer for 2 coffee?
- Would the US sell a computer for 3 coffee?
- The minimum terms of trade: 1 computer = 2 coffee

	Computers	Coffee
USA	2 coffee	½ computer
Brazil	4 coffee	¼ computer

What are acceptable terms of trade?

- Would the US sell a computer for 5 coffee?
  - Would Brazil buy it?
- Would the US sell a computer for 4 coffee?
  - Would Brazil buy it?
- The maximum terms of trade: 1 computer = 4 coffee

	Computers	Coffee
USA	2 coffee	½ computer
Brazil	4 coffee	¼ computer

What if Brazil was selling computers?

- Would Brazil sell a computer for 1 coffee?
- Would Brazil sell a computer for 2 coffee?
- Would Brazil sell a computer for 3 coffee?
- Would Brazil sell a computer for 4 coffee?
  - Would the US buy it?

	Computers	Coffee
USA	2 coffee	½ computer
Brazil	4 coffee	¼ computer

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

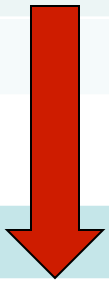
USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	(1)
Coffee	12		

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0		
Coffee	32		

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12		

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0		(2)
Coffee	32		



Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12		

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	(3)	-5 (we import)
Coffee	32		

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12		

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we import)
Coffee	32		(4)

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12		

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we import)
Coffee	32	(5)	5*2.6=13

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12		

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we import)
Coffee	32	32-13=19	5*2.6=13

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12		(6)

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we impor
Coffee	32	32-13=19	5*2.6=13

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12	(7)	-13 (we import)

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we impor
Coffee	32	32-13=19	5*2.6=13

Calculating world trade: Terms of trade 1 comp = 2.6 coffee, US consumes 13 computers

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12	=12-(-13)=25	-13 (we import)

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we import)
Coffee	32	32-13=19	5*2.6=13

Everyone is better off with trade than with no trade!

USA (plan B)	Produce	Consume	X=P-C
Computers	18	13	5
Coffee	12	=12-(-13)=25	-13 (we import)

Brazil (plan E)	Produce	Consume	X=P-C
Computers	0	5	-5 (we import)
Coffee	32	32-13=19	5*2.6=13

In reality, this occurs across all goods and all countries.